Acknowledgements

Foremost, I would like to express my special appreciation and thanks to my advisor, Professor Daniel Young, who has been a great and inspiring mentor. He has been very encouraging of my research and has guided me to become an entomologist, taxonomist, researcher, and instructor. I would also like to thank my committee members, Professor David Hogg and Professor Kenneth Raffa, for serving on my committee, and for their comments, advice and suggestions.

I am grateful to Prairie Biotic Research Inc. for awarding me a prairie biotic research grant as part of their small grants program. This funding assisted my field work during the 2013 field season.

I am also grateful to my lab mates: Craig Brabant, Kari Gullickson, Natalie Hernandez, Kyle Johnson, Ann Marsh, and Jessica Mayry, for all of their help and support throughout my degree program. I am also thankful to many fellow collectors who have either provided specimens or have gone to the field and collected with me: Craig Brabant, Jeff Gruber, Kari Gullickson and Mark Pynnonen. Special thanks to Jeff Gruber for his collecting efforts that contributed multiple new county records.

I would also like to thank Professor Robert Roth whose class (Geography 575: Interactive Cartography and Geovisualization) inspired me to design an interface for displaying the results of my project in an interactive and explorative manner. Dr. Roth also encouraged me to publish a paper on this interface and guided me throughout the process. I acknowledge my teammates, Chao He Guo and Max Conway, and our teaching assistant for the class, Richard Donohue, who helped make this project happen.

My sincere thanks also to Dr. Robert Anderson for his assistance in specimen identification as well as his hospitality during my visit to the Canadian Museum of Nature in Ottawa. I would also like to thank Mr. Steven Krauth, University of Wisconsin Insect Research Collection (WIRC), as well as the curators associated with the following collections: Wisconsin Departent of Natural Resources (WDNR), Milwaukee Public Museum (MPMC), University of Wisconsin Oshkosh Insect Collection (UWOC), and University of Wisconsin Eau Claire Insect Collection (UWEC).

I would also like to thank staff of WDNR and The Nature Conservancy (TNC) for authorizing collecting permits for Wisconsin State Natural Areas and TNC sites, as well as Menominee Tribal Enterprise for authorizing permits for collecting within Menominee County.

I am very thankful to my boyfriend, Stephen Utschig-Samuels, and my inner circle of friends, among others Rory Agnew, Juan Benzo, Jonathan Jacobs, Dallas Siewert, and Matt Ziegler, who have been very supportive and have assisted me in the field. I would also like to thank my family: my dad, my mom, and my sister, Sylvia Janicki for supporting me throughout my life in anything I do.

Finally, I would like to thank the UW Entomology Department for being a great department, with passionate, knowledgeable, and encouraging faculty, staff members and fellow students.

Abstract

A state-wide survey of Wisconsin's primitive weevils (Coleoptera: Nemonychidae, Anthribidae, Attelabidae, and Brentidae) was conducted. Faunal surveys are the primary method for establishing baseline knowledge regarding the geographical and phenological distributions as well as the diversity and natural history of organisms. It is essential not only in and of itself, but also to enable further research, and to enable land managers and conservationists to make appropriate, information-based decisions. Specimens were collected using a variety of techniques over one full (2012) and two partial (2011, 2013) field seasons. Beating branches and sweeping vegetation were among the most productive techniques. Trap sample residues from previous studies and mounted specimens from private as well as public collections were also examined. Approximately 2950 specimens were examined. Nearly all were identified to species or had their identifications confirmed; females *Fallapion* species are not identifiable without associated males. All specimen data were entered into the relational database, *Specify*. Seventy-nine species of primitive weevils in 39 genera (Nemonychidae: one genus, two species; Anthribidae: 13 genera, 22 species; Attelabidae: nine genera, 14 species; Brentidae: 16 genera, 42 species) are now recorded from Wisconsin, an increase of 28 species from previously published literature (51 species), close to a 55% increase. There is also an increase in county records for most species, with 462 new county records and an average increase in county records per species of 5.84. This study provides the first comprehensive list of Wisconsin primitive weevil species along with family, generic and

species-level taxonomic keys for their identification. "Species pages" were compiled for each species including a taxonomic overview, capsule description, species diagnosis, and an overview of natural history including plant and habitat associations, phenology, and common collecting techniques. Wisconsin distribution maps and salient images (minimally dorsal and lateral habitus images) are also provided for each species.

Key words: Primitive weevils, Orthoceri, Wisconsin, faunal survey taxonomic keys

Collection Codes

WIRC	University of Wisconsin-Madison Insect Research Collection
WDNR	Wisconsin Department of Natural Resources Collection
UWOC	University of Wisconsin-Oshkosh Insect Collection
MPMC	Milwaukee Public Museum Collection
UWEC	University of Wisconsin-Eau Claire Insect Collection
CMBC	Craig Brabant, Personal Collection
MAPC	Mark Pynnonen, Personal Collection

Table of Content

Acknowledgements…….…. i

Abstract…….....…..… iii

Collection Codes…… v

Table of Contents…….……..…..... vi

Chapter 1: Introduction…….…….....1

1. Introduction…….…..…….....1

1.1 Superfamily Curculionoidea…..…….…….....1

1.1.1 Higher Classification of Curculionoidea…….....1

1.1.2 Brief History of Curculionoidea Phylogeny…….....1

1.1.3 Diversity of Curculionoidea…….....…….…….....4

1.1.4 Natural History of Curculionoidea…….....…….…..…....4

1.1.5 Division Orthoceri…….....…….…..….....5

1.2 Literature Review……..6

1.3 Wisconsin's Natural Habitats……8

1.4 Research Justification……9

1.4.1 Provide a Baseline for Wisconsin's Fauna……9

1.4.2 Conservation Efforts……11

1.4.3 Economic loss and effects on native vegetation……...13

1.4.4 Biological Control……14

2. Material and Methods ……...14

2.1 Overview…….....14

2.2 Field Collecting Methods……15

2.3 Museum Collection……..16

2.4 Specimen Curation, Databasing……...17

2.5 Species Profiles…….....17

2.5.1 Profiles…….....17

2.5.2 Images…….....18

2.5.3 Distribution Maps……..…….....18

3. Results…….…….....18

3.1 Survey Results…….....18

3.2 Weevil Viewer…….....19

3.3 Website…….....20

3. 4 Rarifaction Curve…….....20

Key to Wisconsin Primitive Weevil Families……21

Figures……22

Maps……...31

Chapter 2: Family Nemonychidae Bedel 1882……..33

Subfamily Cimberidinae Gozis …….35

Genus *Cimberis* Gozis……..….36

Key to Wisconsin *Cimberis* species……..……38

Cimberis elongata (LeConte) ……..…….38

Cimberis pilosa (LeConte) ……..……..40

Figures……..……..……...43

Maps……..……..……..46

Chapter 3: Family Anthribidae Billberg ……..…….47

Key to Wisconsin Anthribidae genera……..…….50

Subfamily Choraginae Kirby……..……...52

Genus *Araecerus* Schönherr..……..……..53

Araecerus fasciatus (De Geer) ……..……54

Genus *Choragus* Kirby ……..……...56

Choragus zimmermanni LeConte……..…57

Genus *Euxenus* LeConte ……..……59

Euxenus punctatus LeConte ……..……60

Subfamily Anthribinae Billberg……..…...……62

Genus *Allandrus* LeConte ……..……...…62

Key to Wisconsin *Allandrus* species……..……63

Allandrus bifasciatus LeConte……..…….64

Allandrus brevicornis Frost……..…….65

Genus *Anthribus* Geoffroy……..……...67

Anthribus nebulosus Forster……..……68

Euparius Scheonherr ……..……...71

Key to Wisconsin *Euparius* species……..……73

Euparius marmoreus (Olivier) ……..……73

Euparius paganus Gyllenhal……..……....75

Genus *Piesocorynus* Dejean ……..……...78

Key to Wisconsin *Piesocorynus* species……79

Piesocorynus mixtus LeConte……..……..79

Piesocorynus moestus (LeConte) ……..81

Genus *Goniocloeus* Jordan……..…….83

Goniocloeus bimaulatus (Olivier) ……...84

Genus *Trigonorhinus* Wollaston……..…….86

Key to Wisconsin *Trigonorhinus* species……..…88

Trigonorhinus alternatus (Say)……..…...88

Trigonorhinus limbatus (Say)……..……..90

Trigonorhinus rotundatus (LeConte) ……93

Trigonorhinus sticticus (Boheman)……...94

Trigonorhinus tomentosus (Say)……..…..96

Genus *Gonotropis* LeConte..……..……...99

Gonotropis gibbosus LeConte……..…...100

Genus *Eurymycter* LeConte……..……...102

Key to Wisconsin *Eurymycter* species……..…...103

Eurymycter fasciatus (Olivier)……..…...104

Eurymycter tricarinatus Pierce……..…..106

Genus *Eusphyrus* LeConte……..…….108

Eusphyrus walshii LeConte……..……...109

Genus *Ormiscus* Waterhouse……..…….111

Ormiscus saltator LeConte……..……113

Figures……..……..……..116

Maps……..……..…….138

Family Attelabidae Billberg……..……...148

Key to Wisconsin Attelabidae genera……..……153

Subfamily Attelabinae Billberg……..…….155

Genus *Attelabus* Linneaus……..……..155

Key Wisconsin *Attelabus* species……..……..156

Attelabus bipustulatus Fabricius……..…157

Attelabus nigripes LeConte……..……159

Genus *Himatolaus* Jekel……..……161

Himatolabus pubescens (Say)……...……163

Genus *Homeolabus* Jekel……..……...165

Homeolabus analis (Illiger)……..……...166

Subfamily Rhynchitinae Gistel……..……..168

Genus *Eugnamptus* Schönherr……..……..…….169

Key to Wisconsin *Eugnamptus* species……..….170

Eugnamptus angustatus (Herbst)…….170

Eugnamptus puncticeps LeConte…….173

Genus *Haplorhynchites* Voss……..…….175

Haplorhynchites aeneus (Boheman) ……...176

Genus *Merhynchites* Sharp……..……179

Merhynchites bicolor (Fabricius)…….180

Genus *Tenmocerus* Thunberg……..……183

Key to Wisconsin *Temnocerus* species……..…..185

Tenmocerus aeratus (Say)……..…….186

Tenmocerus cyanellus (LeConte)……188

Tenmocerus perplexus (Blatchley)……..190

Genus *Auletobius* Debrochers……..……192

Key to Wisconsin *Auletobius* species……..……193

Auletobius ater (LeConte)……..……..193

Auletobius cassandrae (LeConte)……195

Genus *Pterocolus* Say……..…….……...197

Pterocolus ovatus (Fabricius).……...…..198

Figures……..…..……...…….……201

Maps……..…..……..……216

Family Brentidae Billberg……..…..…….223

Key to Wisconsin Brentidae genera……..…..……..224

Subfamily Ithycerinae Pascoe……..…..……...227

Genus *Ithycerus* Schönherr……..…..……...227

Ithycerus noveboracensis (Forster)……..228

Subfamily Brentinae Billberg……..…..……...231

Genus *Arrhenodes* Schönherr……..…..……...231

Arrhenodes minutus (Drury) ……..……233

Subfamily Apioninae Schönherr……..…..……...235

Genus *Podapion* Riley……..…..……..239

Podapion gallicola Riley……..…..……..240

Genus *Perapion* Wagner……..…..……...242

Key to Wisconsin *Perapion* species……243

Perapion curtirostre (Germar).……..….244

Perapion punctinasum (Smith) ……...…246

Genus *Alocentron* Schilsky……..…..……...248

Key to Wisconsin *Alocentron* species……..……249

Alocentron attenuatum (Smith) ……..….250

Alocentron fulvotibiale (Wagner) ……...251

Genus *Ceratapion* Schilsky……..…..……..253

Key to Wisconsin *Ceratapion* species……..…...254

Ceratapion contusum (Smith).……..…..255

Ceratapion parallelum (Smith).……..…257

Genus *Neapion* Alonso-Zarazaga……..…..…….259

Key to Wisconsin *Neapion* species……..…..…...260

Neapion harpax (Kissinger).……..…..….261

Neapion herculanum (Smith).……..……263

Neapion idiastes (Kissinger).……..…..…265

Genus *Rhopalapion* Schilsky……..…..……267

Rhopalapion longirostre (Olivier).……..268

Genus *Eutrichapion* Reitter……..…..……..271

Key to Wisconsin *Eutrichapion* species……..272

Eutrichapion huron (Fall)……....273

Eutrichapion cavifrons (LeConte)……...275

Genus *Ischnopterapion* Bokor…….277

Ischnopterapion virens (Herbst)……..278

Genus *Betulapion* Ehret……...281

Betulapion simile (Kirby)……..…..282

Genus *Kissingeria* Alonso-Zarazaga……...285

Key to Wisconsin *Kissingeria* species…….285

Kissingeria amarum (Kissinger)……..286

Kissingeria capitone (Kissinger)……...….289

Genus *Trichapion* Wagner……...291

Key to Wisconsin *Trichapion* species……..293

Trichapion centrale (Fall) ……...295

Trichapion leporinum (Salsbury)…….297

Trichapion minor (Smith)……299

Trichapion modicum (Kissinger)……..302

Trichapion nigrum (Herbst)…….304

Trichapion patruele (Smith) ……...307

Trichapion perforicolle (Fall)……..310

Trichapion porcatum (Boheman)……312

Trichapion reconditum (Gyllenhal)…….313

Trichapion roseae (Kissinger)…….316

Trichapion rostrum (Say)……318

Trichapion tenuirostrum (Smith)…….321

Genus *Fallapion* Kissinger……..323

Key to Wisconsin *Fallapion* species……324

Fallapion bischoffi (Fall)…….325

Fallapion finitimum (Fall)……328

Fallapion impeditum (Fall)……..330

Fallapion impunctistriatum (Smith)……332

Fallapion melanarium (Gerstaecker) ……..335

Fallapion occidentale (Fall)……338

Fallapion pennsylvanicum (Boheman)……....340

Genus *Coelocephalapion* Wagner……...342

Key to Wisconsin *Coelocephalapion* species……..344

Coelocephalapion carinatum (Smith).……344

Coelocephalapion decoloratum (Smith).……346

Coelocephalapion emanciipes (Fall).……..349

Genus *Sayapion* Kissinger……...350

Sayapion segnipes (Say).……352

Figures……..……355

Maps……..……...413

Table 1: Families and Subfamilies of Curculionoidea…….435

Table 2: Commonly Visited Sites and Associated Habitat Types……...436

Table 3: Sexually Dimorphic Characters Across Species and Genera……437

Table 4: Summary of Wisconsin Primitive Weevil Species……440

Appendix A: Checklist of the Species of Primitive Weevils in Wisconsin…….451

Appendix B: Phylogeny of Curculionoidea…….454

Appendix C: Weevil Viewer: An interactive mapping application for geographic and phenological exploration of Wisconsin's primitive weevils……455

Appendix D: Specify database specimen-level data……464

Literature Cited……..……..533

CHAPTER 1: INTRODUCTION

1. Introduction

The higher level phylogeny of Curculionoidea has been contentious since the early hypotheses were offered; recent authors recognize 6-22 families with 10-100 subfamilies (McKenna et al. 2009).

In recent years, with better comprehension of phylogenetic principles and the advent of molecular techniques, researchers have supported 6-7 major lineages, which are treated as distinct families. This project recognizes seven families with 26 subfamilies, adopting the most widely accepted and well-supported phylogeny of Curculionoidea and monophyly of each of the families following the topology: ((Nemonychidae, Anthribidae) (Belidae (Attelabidae (Caridae (Brentidae, Curculionidae))))) (Marvaldi et al. 2002). This framework has also been adopted by Oberprieler et al. (2007) and McKenna et al. (2009) (**Appendix B:** Marvaldi et al. 2002).

Billberg (1820) proposed a first classification of the Rhynchophora (weevils), dividing them into seven "nations" (equivalent to modern families) (Oberprieler et al., 2007). Schönherr was the first to classify Curculionoidea into Orthoceri and Gonatoceri (1823), a concept still followed today.

Among modern authors, Crowson (1955) was the first to place Bruchidae outside Curculionoidea (in Chrysomeloidea). He recognized nine families within Curculionoidea: Aglycyderidae, Anthribidae, Apionidae, Attelabidae, Belidae, Brentidae, Curculionidae, Nemonychidae, and Oxycorynidae.

Morimoto (1962) was the first to merge Apionidae and Brentidae into the same family. He also elevated Ithyceridae to family status from within Curculionidae

(Marvaldi & Morrone 2000). Thompson (1992) classified Curculionoidea based on morphological studies. He recognized 16 familes: Aglycyderidae, Anthribidae, Attelabidae, Belidae, Brachyceridae, Brentidae, Cryptolaryngidae, Curculionidae, Dryophthoridae, Erirhinidae, Ithyceridae, Nemonychidae, Oxycorynidae, Platypodidae, Raymonidionymidae, and Urodontidae (Marvaldi & Morrone 2000). Zimmerman (1994) modified broader concepts of Curculionoidea as he proposed a new "division", Heteromorphi, intermediate between Orthoceri and Gonatoceri. His new construct included Erirhinidae, Dryophthoridae, and Nanophyidae. Zherikhin & Gratshev (1995) classified curculionids based on wing venation, providing further insight on the monophyly of certain taxa.

Recently, numerous authors have begun to include molecular techniques in analysing and assessing insect phylogenetic inference. Molecular markers are thought to frequently provide additional information on phylogenetic relationships with the advantage of not obscuring the effects of adaptation and convergence that are commonly experienced in morphological analyses (Wink et al. 1997). Kuschel (1995) conducted an analysis based on 138 adult and larval characters, using 24 terminals (subfamilies) that were assumed *a priori;* Chrysomeloidea was selected as the outgroup. The results suggested six families: Nemonychidae, Anthribidae (including Urodontinae), Belidae (including Oxycoryninae and Aglycyderinae), Attelabidae (including Rhynchitinae), Brentidae (including Apioninae, Carinae, and Cyladinae), and Curculionidae (with six subfamilies). Wink et al. (1997) used mitochondrial 16S rDNA to investigate phylogenetic relationships within Curculionoidea, taking into consideration 480 putative characters, and using two chrysomelid genera as outgroups. This study resulted in six

families (excluding Belidae as samples were not available): Nemonychidae, Anthribidae, Attelabidae, Rhynchitidae, Apionidae, and Curculionidae. Marvaldi (1997) assessed higher relationships within the Curculionidae *sensu lato* based mainly on larval characters and resolved some problems at the subfamily level within Curculionidae.

Marvaldi and Morrone (2000) conducted a cladistic analysis based on 100 adult and larval characters, resulting in 13 terminal taxa corresponding to seven extant families of Curculionoidea. They also concluded that Nemonychidae-Anthribidae is the monophyletic sister clade to the remaining families. Marvaldi et al. (2002) inferred the phylogenetic relationship of Curculionoidea from an all-evidence analysis of nucleotide sequences of 18S ribosomal DNA and 115 morphological characters of both larvae and adults. It resulted in the following topology: ((Nemonychidae, Anthribidae) (Belidae (Attelabidae (Caridae (Brentidae, Curculionidae))))), which is followed herein. High support values are found for the molophyly of the subfamilies within the more primitive families, but monophyly of subfamilies of Curculionidae are unresolved or weakly supported (**Appendix B:** Marvaldi et al. 2002; **Table 1:** Oberprieler et al. 2007).

Curculionoidea is one of the largest superfamilies of Coleoptera as well as Insecta, with around 62,000 described species worldwide (Oberprieler et al. 2007). It constitutes 12.8% of the entire North American beetle fauna (Marske and Ivie 2003). The primitive weevil families are comprised of around 10,500 described species worldwide (Oberprieler et al., 2007) and 341 species (Nemonychidae = 17, Anthribidae = 120, Belidae = 2, Attelabidae = 51, Brentidae = 151) in North America north of Mexico (Arnett et al. 2002).

One hypothesis that attempts to explain the sheer diversity of weevils is that their diversification coincides with the radiation of the angiosperms in the Crustaceous (Oberprieler et al. 2007). The elongation of the weevil head into a rostrum is a key adaptation that allows them to uniquely exploit angiosperm diversity (Anderson 1995) as females are able to bore oviposition holes. Compared to specialists on conifers and cycads, as seen in many basal lineages, the angiosperm-feeding weevils occupy a large array of larval niches, including stem and trunk boring, root feeding, folivory, leaf mining, and seed and fruit feeding (Marvaldi et al. 2002).

While a few curculionoids are largely mycophagous, most are phytophagous and they consequently affect agricultural or forestry-related activities, forest health and ecosystem functions in both positive and negative ways. Weevil larvae cause much feeding damage as they feed on virtually all plant parts, from stems to leaves, flowers to roots; some produce root or stem galls (Bright 1993). Larvae as well as adults of some species burrow into plant stems; some feed on fruits and flower buds, some are leaf miners, and some are seed-feeders. In North America, adults and larvae of Nemonychidae are associated with male pollen-bearing flowers of several pine species early in the season (Anderson 2002a), and both adults and larvae feed on pollen. They are associated with other gymnosperms such as Podocarpaceae and Phyllocladaceae in other continents, and a few genera are associated with angiosperms. Anthribid adults and larvae feed on fungi, dead wood, dried plant material, or stored food products (Bright 1993); species in *Anthribus* are predatory on scale insects. Adults of Attelabinae (Attelabidae) are phytophagous, the females create leaf-rolls in which to lay their eggs, with the larvae feeding on dead tissue within the roll (Bright 1993). *Pterocolus ovatus*

(Fabricius) (Attelabidae: Rhychitinae) is known as the thief weevil, as the species is a nidus-kleptoparasite of attelabine species. Larvae of most Rhynchitinae develop in cut flower heads, buds or leaf primordia among other parts. The adult females have been observed to use their mandibles to cut specific plant parts after oviposition. Presumably this would enable mature larvae to drop to the ground, where pupation occurs. Species in Apioninae (Brentidae) are primarily associated with angiosperms, many of them feed on seeds. Many species are specialists feeding only on certain genera or even species of plants. Most commonly, apionines are associated with plants in Fabaceae and Asteraceae (Anderson and Kissinger 2002).

Primitive weevils (Nemonychidae, Anthribidae, Attelabidae, Brentidae, Belidae, and Caridae) share the common characteristic of having straight, as opposed to geniculate, antennae (except for Nanophyinae of Brentidae, which independently acquired that character state). The primitive weevil families have existed as extant lineages for at least 140 million years (Kuschel 2003) and are phylogenetically basal to Curculionidae (**Appendix B:** Marvaldi et al. 2002), the true weevils. Nemonychidae, among the more primitive curculionoid families, is known from pre-Cretaceous fossils and extant taxa exhibit little differentiation (Bright 1993). Their diet has changed little as well: they still solely feed on pollen from cones of gymnosperms (Kuschel 2003).

Of the 79 species occurring in Wisconsin, records of 51 species had been published prior to this study. Many prior records are from O'Brien and Wibmer's (1982) catalogue on the curculionids of the Nearctic, Downie and Arnett's (1996) publication on the beetles of Northeastern North America which included species-level state records, and for apionines, Kissinger's (1968) publication that included species-level state and

county distributional information **(Table 4)**. Few papers have been published that specifically address primitive weevils in Wisconsin. Sauer's (2005) paper focused on prairie apionines inhabiting native grasslands and included most of the published county records; it also included natural history information for many species.

Hamilton (1983) studied the populations of *Pselaphorhynchites perplexus* (Blatchley) and *Auletobius cassandrae* (LeConte) at various sites in Ohio, Pennsylvania and Wisconsin. At some sites, only one species occurred, while at others both species were found. Several sites were selected in Oneida county, Wisconsin, where *A.cassandrae* was present but not *P.perplexus.* Adult overwintering behavior and female oviposition behavior were also observed. Stavney and Raffa (1988) reported on collecting *Ithycerus noveboracensis* (Forster) by using passive traps at four Wisconsin sites (Burnett, Douglas, Washburn and Waupaca counties) during June and July, 1987. Mattson (1969) investigated the effects of galls made by *Podapion gallicola* Riley on red pine, specifically as to whether they affected the number of pistillate flowers that form in the buds. The study was conducted in September, 1968 in a 65 to 70 year old red pine stand in Bayfield County, Wisconsin.

Additional studies have been published addressing primitive weevils in the Midwestern states around Wisconsin, specifically in Michigan and Illinois. Wilson (1965) provided detailed natural history information regarding *P. gallicola* in Michigan, while Hamilton (1973) documented the life history and habits of *Haplorhynchites aeneus* (Boheman) on woodland sunflower (*Helianthus divaricatus*) in northern Illinois. Tuttle (1954) provided notes on the bionomics of six species of *Apion* as part of a study on bionomics of curculionoids and their plant associations in Champaign County, Illinois.

The species studied were *Fallapion impunctistriatum* (Smith), *Trichapion griseum* (Smith), *Rhopalapion longirostre* (Olivier), *Fallapion melanarium* (Gerstaecker), *Trichapion rostrum* (Say), and *Sayapion segnipes* (Say).

Wisconsin has a diverse range of habitat types and natural communities. The vegetation of Wisconsin is divided into northern and southern floristic provinces by what is known as the tension zone, the loose s-shaped zone ranging from Burnett County in the northwest to Racine County in the southeast (Curtis 1959). North of the tension zone, boreal forests and northern hardwood forests are prominent, with an abundance of conifers, including pine, tamarack, hemlock, spruce and fir, as well as deciduous trees like paper birch. In the north, a combination of fire and poor soil resulted in the development of pine barrens (Figures 7, 10) on the sandy soils and pine forests on richer soils. In the absence of fire (largely in the east), forests consisting of sugar maple, yellow birch, hemlock, and beech are prominent.

In the south, conifers are replaced by hardwoods such as oak, and southern hardwood forests dominate (Figures 8, 9, 13, 14). Southern dry-mesic forests consist of red and white oak, basswood, red and sugar maple, white ash, black cherry and shagbark hickory, while southern mesic forests consist largely of sugar maple, basswood and American beech. Grassland habitats, including dry to mesic prairies, are also more common in the south. Prairies (Figure 11) commonly include plant species such as little bluestem, side-oats, grama, prairie dropseed, big bluestem, Indian-grass, as well as legumes, asters, among others.

Wisconsin is geographically unique in other aspects as well, as it is bound by the Mississippi River on the west, Lake Superior to the north, and Lake Michigan on the

east. This provides a diverse range of natural communities and has the potential to hold great species richness.

Research Justification

Faunal surveys are critical to enhancing our knowledge of diversity, natural history, habitats and species distributions, as well as our general taxonomic and ecological knowledge, with direct or indirect benefits to the applied sector as well. In general, most habitat management decisions related to conservation tend to be based on a few, high profile, flagship species that are often artificially elevated to symbolic stature; invertebrates, especially insects, tend to be overlooked especially relative to their diversity. This Wisconsin survey establishes a research framework and provides the requisite baseline for future studies of biodiversity or related fields. It enhances the quality and quantity of life history information of various species, genera or even families, as in many cases comprehensive work has not been done. Many genera and even families are in need of revision, and there are not adequate data to initiate such projects. For example, in Nemonychidae work is needed on a national scale, as life history data are available for only one North American species, *Cimberis elongata* (LeConte) (Thomas & Herdy 1961). In the anthribid genus *Trigonorhinus* there are presently 21 North American species but a number of names are of questionable validity (Bright 1993); similarly, 32 North American *Ormiscus* species are not yet described (Valentine 1998). Kissinger (1968) found insufficient data available for adequately revising the North American apionine Brentidae and many possible new species were left undescribed due to underrepresentation (Whitehead 1977).

In Wisconsin, though many species within the primitive weevil families have been collected throughout the state, Apioninae is the only taxon with published distributional and natural history data (Sauer 2005). For primitive weevils in general, neither a species list nor distributional data have been published or even compiled to form the foundation of an annotated checklist to serve as a springboard to more detailed studies. Moreover, there has not been active, targeted collecting of these families and our understanding of their distributions is limited.

The recent increased awareness of the critical role biodiversity research plays in the field of conservation biology and ecosystem functions has led to heightened interests in surveying insect diversity given that insects dominate both terrestrial and fresh water aquatic ecosystems and are valuable indicators of their health (Danks 1996). In this sense, knowledge of specific insect taxa becomes a critical part for the conservation of their associated habitats as well as the taxa themselves. When inventory or life history data are very limited for a species, it can be difficult to make a decision of conservation needs on a state level, much less national or global levels. More broadly, conserving ecologically sensitive habitats also becomes more difficult with the lack of sufficient species-based data. An obvious reason for carrying out a regional survey is to expand our knowledge of given taxa, with emphasis on their distributions, their diversity and their associated habitats and food plants. Conservation efforts from local to global in a bottom-up manner by necessity are predicated on such a knowledge base.

Knowledge of a particular taxon facilitates the management decisions in conserving the taxon itself as well as its associated habitat. Recent invertebrate collections from Wisconsin prairies yielded many species of Apioninae; the collections suggest that

certain members are important components of the prairie biotic community (Sauer 2005). Tallgrass prairies are amongst the most decimated and threatened natural communities in the Midwest and the world (WDNR 2006), and many apionine species appear to be at least somewhat if not greatly prairie-dependent. On the other hand, since many apionines are seed-feeders, they affect the reproductive output of forbs in tallgrass and mixed-grass prairies. *Trichapion rostrum* (Say) feeding on wild white indigo (*Baptisia alba*) seeds (Figure 12) in mesic tall grass prairies can increase selective seed pod abortion by lowering the number of seeds in pods (Whiles & Charleton 2005). If we better understand these kinds of interconnected relationships, we can better predict the nature of the systems and make more viable management decisions for both the communities and its members. This survey is valuable in that it not only seeks to establish a comprehensive list of primitive weevil species, but also considers their habitats and associated food plants.

On an ecological level, this survey is important for identifying critical study sites that contain high levels of species richness. Such sites, in turn, are important to identify and protect in order to preserve the habitats necessary for the conservation of these populations, as well as a benchmark to enable assessment of future impacts of habitat degradation, fragmentation, and interactions with the next wave of invasive species.

It should also be noted that there is a huge discrepancy in the comprehensiveness of data among the various insect groups, not to mention insects compared to other animal taxa. Within the insects, for example, tiger beetles and aquatic beetle assemblages are comparatively well-studied with many surveys having been conducted throughout Wisconsin and over a significant period of time (WDNR 2008). Thus, the conservation

status and needs of many of these taxa are known and have been considered for SGCN (Species of Greatest Conservation Need) status. Most other beetle species remain poorly known and have not been considered (WDNR 2008). Scientists from the WDNR who are working on the Wildlife Action Plan project stated themselves: "When considering threats and Priority Conservation Actions to protect and conserve invertebrate species in Wisconsin, the authors of the Wildlife Action Plan noted that the most formidable obstacle to conservation is our lack of knowledge about the basic biology of many invertebrate species."

Many species in the primitive weevil families affect vascular plants and trees in their various parts, directly or indirectly causing economic loss on the part of humans. The brentid, *Arrenodes minutus* (Drury), is known for being economically significant, infesting oaks, as well as elm, beech, and poplar (Thomas 2007). Adults are often found under bark of oaks while the larvae bore into the heartwood, thus giving rise to the common name, "oak timberworm" (e.g., Majka et al. 2007). The resulting damage can degrade or even destroy the value of commercial oak stock (Majka et al. 2008). Also in the family Brentidae, larvae of Apioninae species burrow in stems, feed on the developing pericarp of fruit or develop in seeds of a wide variety of herbaceous plants mostly in the families Asteraceae and Fabaceae, potentially affecting the reproductive output of these plants. Collectively as a subfamily they could affect the prairie habitats where these two plant families are major components, including tallgrass prairies: one of the most endangered habitats in the Midwest.

Merhynchites bicolor (Fabricius), commonly known as the Eastern rose curculio, has been described as a minor pest of roses and *Rubus* species, mainly raspberries and

blackberries (Hamilton 1985). Adults can damage roses by puncturing holes in the flower buds and causing the roses to fail to bloom; they also puncture raspberries and blackberries, causing them to rot (Bright 1993). Larvae develop in the hips and feed on the achenes. *Homoeolabus analis* (Illiger) adults feed by skeletonizing leaves of oak (*Quercus spp.*) and chestnut (*Castanea spp*.). Moreover, the construction of the nidus by this species as well as other species of Attelabinae causes damage to the leaves as well. Throughout its range, *H. analis* has been reported to nidify at least 16 species of oak and two species of chestnut (Vogt 1992). The females of *Haplorhynchites aeneus* (Boheman) also cause damage to plants, specifically sunflowers (*Helianthus spp*.), as they cut the stem below the developing flower heads in order to lay eggs (Hamilton 1973). Finally, *Perapion curtirostre* (Germar) is a generalist on docks (*Rumex spp.*), and can potentially be invasive on aquatic dock species.

Since many apionine brentids are plant-specific, they have the potential of being examined for use as biological control agents of invasive plant species. Two species of *Exapion* have been introduced into the western United States as biological control agents (Anderson & Kissinger 2002). One of them, *Exapion fuscirostre* (Fabricius), attacks exclusively pods of woody legumes in the tribe Genisteae. It was introduced into California in 1964 to help control the spread of Scotch broom (*Cytisus scoparius*) (Andres et al. 1967). *Omphalapion hookerorum* (Kirby) has been introduced as a biological control agent of scentless chamomile (*Matricaria perforate*) (Anderson & Kissinger 2002). A species of *Nanophyes* has also been introduced into North America for biological control of the invasive species purple loosestrife (*Lythrum salicaria*) and a second is under consideration (Harris 2002).

Materials and Methods

Overview

The final output of the project is to display the geogrpahical and phenological distribution, natural history and diversity of the primitive weevil species in Wisconsin, in the form of taxonomic keys, species pages, distribution maps, and images, as well as online resources including websites and interactive applications.

This survey of primitive weevils began with a search of the literature that yielded 50 published species records from Wisconsin. Unfortunately, only 36 of these species were provided with county or more specific distributional data. These published historical records were appended with unidentified or unpublished material from museum and private collections to expand the included list of species. Additional sites were identified based on habitat types and associated plants to conduct fieldwork over one full and two partial field seasons to improve the number and distribution of survey sites.

Natural history data, including plant-associations, habitat-associations, and flight period, were recorded from personal observations, existing literature and label data.

Taxonomic keys were constructed from personal observations and works of Kuschel (1989) and Anderson (2002a) for Nemonychidae, Valentine (1960, 1998, 2002) for Anthribidae, Hamilton (1971, 1983, 1985, 1990, 2002) for Attelabidae, Kissinger (1959, 1968, 1990, 1992) for Apioninae, and Anderson and Kissinger (2002), Anderson (1992, 2002b), Bright (1993) and Salsbury (1984, 2000) for primitive weevils in general. Treatments for each species include a taxonomic overview, capsule description, species

diagnosis, and an overview of natural history based on personal observations, specimen label data for historical collections, and the published literature.

Field Collection Methods

Field collected specimens contributing to this survey were obtained using various collecting techniques over the following field intervals: July-September 2011, April-September 2012, and April-August 2013.

From an assessment of natural history information for these species, oak and pine barrens were preferentially chosen as well as prairies and hardwood forests. The most fruitful collecting techniques included sweeping vegetation, beating trees/bushes and hand collecting. Sorting bulk trap residue samples (primarily Lindgren funnel, Malaise, and flight intercept samples in the UW Insect Research Collection) provided a good source of material from additional locations. The most significant collecting locations are listed in **Table 2**.

Examination of bulk samples from previous Wisconsin beetle diversity surveys in the Young Lab or by-catch from other studies provided specimens from Malaise traps (Figure 15), Lingdren funnel traps, flight intercept traps, light traps, pan traps, as well as specimens that were swept, hand collected, or reared.

Collections

Collections (and acronyms) that provided material for this study included:

University of Wisconsin-Madison Insect Research Collection (WIRC)

Milwaukee Public Museum collection (MPMC)

University of Wisconsin-Eau Claire collection (UWEC)

University of Wisconsin-Oshkosh collection (UWOC)

Wisconsin Department of Natural Resources (WDNR).

The Canadian Museum of Nature in Ottawa was also visited over a one week period to consult with weevil expert, Dr. Robert Anderson, and study his significant weevil collection.

Specimen curation and databasing

Specimens from this survey were given two or three labels. Two labels were given to specimens that had a concise description of ecological information; three labels were given to those with longer descriptions. The first label contained the locality data (state, county, GPS coordinates), date or date range, collector, collection method, and ecological information. An extra label was added when a specimen was associated with more descriptive ecological information. The last label included the species identification. All labels were printed in four point, black type on acid-free, 100% cotton fiber paper.

All specimens field collected during this survey have been deposited in the WIRC. All specimens (historical collections, personal collections, specimens from fieldwork) were entered into the relational database, *Specify*.

Species Pages

For each species of primitive weevil found in Wisconsin a standardized set of species pages was developed, including a capsule description of the adults, a diagnostic character set to distinguish it from similar species, natural history, collecting methods, adult phenology in Wisconsin and North America, and Wisconsin distributions. Development of capsule species descriptions used various references depending on taxa. Kuschel (1989) was used for Nemonychidae, Valentine (1960, 1998) for Anthribidae,

Hamilton (1968, 1971, 1983, 1985, 1990, 1992) for Attelabidae, Kissinger (1968) for Brentidae, and Bright (1993) and Gnget (2003) for all four families.

Total length for each species was measured on a straight line extending from the apical margin of the eye to the apex of the elytra in lateral view, unless stated otherwise. Width is the widest point of the elytra in dorsal view. Length of rostrum was measured from the apex to the apical margin of the eye in lateral view. The frons was measured at its narrowest point.

Images

Digital images for dorsal and lateral habitus and salient characters were taken using a JVC, KY-F75U digital camera attached to an extended depth of field Leica, Z16 APO dissecting microscope with apochromatic zoom objective and motor focus drive and a Syncroscopy Auto-Montage System with 3-D imaging. Images were illuminated with either an LED ring light attached to the end of the microscope column, with incidental light filtered to reduce glare, or by a gooseneck illuminator with bifurcating fiberoptics. The images were then edited with Adobe Photoshop CS6.

Distribution maps

Wisconsin county maps were extracted from the United States shapefile obtained from ArcGIS data bank using ArcMap, then exported as an .ai file for further editing in Adobe Illustrator CS6.

Results

Overview

Prior to this study, the Insect Research Collection of the University of Wisconsin (WIRC) contained approximately 53 species in 28 genera of primitive weevils from Wisconsin.

The Wisconsin survey research yielded approximately 2960 specimens from field work, personal collections, and institutional collections, including 79 species in 39 genera: (Nemonychidae: one genus, two species; Anthribidae: 13 genera, 21 species; Attelabidae: nine genera, 14 species; Brentidae: 16 genera, 42 species). This represnets an increase of 28 species from previously published literature (51 species), close to a 55% increase. There was also a considerable increase of county records for most species, with 462 new county records, the average increase in county records per species of 5.85.

Weevil Viewer

During the second year of the study, as part of the final project in the course "Interactive Cartography and Geovisualization" (Geography 575, UW-Madison), we (Julia Janicki, Chao He Guo, Max Conway, Richard Donohue and Dr. Robert Roth) developed an application called the "Weevil Viewer":

http://www.geography.wisc.edu/maps/WeevilViewer/

This interactive, online mapping application displays the geographic and phenological distribution, natural history and richness of the species of primitive weevils in Wisconsin (**Appendix C**). [NOTE: Since the application was developed in May, 2012, it includes only specimens from various collections and from fieldwork of the first season, and does not include collecting efforts from the second and third field seasons.]

Weevil Viewer consists of five coordinated panels: (1) a central Map Panel, displaying the distribution and diversity of species in the faunal survey, (2) a Custom Species Selection Panel, which allows users to filter the map by species, (3) a Selected Species Panel, which provides feedback to the user about the species contained within the filter criteria, (4) a Nightingale Temporal Clock Panel, which allows users to filter the map by time, and (5) an Information Panel, which provides details to the user about a single, selected species (Janicki et al. 2014).

Weevil viewer provides many interactive, customizable components that allow the user to easily retrieve the desired information as users are able to generate a pair of overview maps, filter by county/site, month, and species, zoom to a desired point, and retrieve details about individual species of interest.

Website

The purpose of the website is to allow the information of this study to become more accessible to the general public, as most content is drawn directly from my thesis. Incorporated content includes a brief introduction to the project; a link to a project research poster presented at the 2013 annual meetings of the Entomological Society of America; interactive keys to families, genera and species; species pages, including images of the dorsal and lateral habitus for each species; a comprehensive checklist of the species found in Wisconsin; a reference page; and a page about the author, including a resume. The website also includes several unique pages that are only able to be displayed digitally, such as Weevil Viewer, as well as a page on the external anatomy of weevils in which the user can interactively mouse-over a term to highlight the associated structure.

Rarefaction curve

Rarefaction curves can be used to estimate species richness based on sampling effort. Specifically, the plot indicates the number of species given the number of individual samples. For this project, Wisconsin counties are divided into nine equal regions each with eight counties, based on Hilsenoff's (1995) categorization (Map 3), and rarefaction is conducted on each region (Figures 17, 18). From the results we can tell that north-central Wisconsin (NC) is the least sampled region, with fewer than 100 samples, and not surprisingly it also has the lowest species richness, with 15 species. It is closely followed by the northeast (NE), north-west (NW) and east-central (EC), which remain undersampled and exhibit relatively low species richness, with about 20 species each. The south-central region of Wisconsin (SC) is on the opposite extreme as it is very well sampled, with about 1400 samples, including over 50 species.

Key to Wisconsin Primitive Weevil Families

1. Gular sutures obsolete (Figure 4); pronotum with lateral and basal/subbasal margins with elevated line; labrum free, distinct (Figure 2); maxillary palpi 4-segmented, movable …… **Anthribidae**

1′. Gular sutures present; pronotum with lateral margins rounded; labrum free or not; maxillary palpi movable or not ……..…… **2**

2. Gular sutures paired (Figure 3); clypeolabral suture present, labrum free (Figure 1); maxillary palpi 4-segmented, flexible …… **Nemonychidae**

2′. Gular sutures confluent (Figures 5, 6); clypeolabral suture absent; labrum not free; maxillary palpi consisting of 2-4 segments, more or less rigid ……...……..… **3**

3. Maxillary palpi 3-4 segmented; elytra broadly rounded apically; pygidium mostly exposed in both sexes; antenna with distinct club; pretarsus connate, appendiculate, or with basal tooth ……..……....…….... **Attelabidae**

3′. Maxillary palpi 2-3 segmented; elytra variable; pygidium variable; ntennae variable; pretarsus simple or toothed …….……...…..… **Brentidae**

Figure 1. *Cimberis elongata* (LeConte), free labrum.

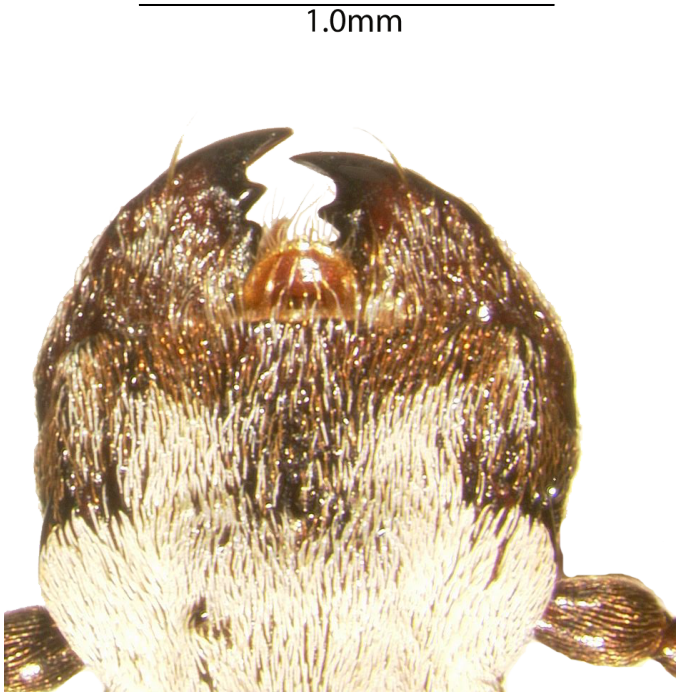


Figure 2. *Eurymycter tricarinatus* Pierce, free labrum.

Figure 3. *Cimberis elongata* (LeConte), paired gular sutures.

Figure 4. *Eurymycter tricarinatus* Pierce, gular sutures absent.

Figure 5. *Merhynchites bicolor* (Fabricius), single gular suture.

Figure 6. *Arrenodes minutus* (Drury), single gular suture.

Figure 7. Dunbar Barrens SNA: *Cimberis elongata* (LeConte) and *Cimberis pilosa* (LeConte) beaten from branches of *Pinus banksiana.*

Figure 8. Kohler Andrae State Park: *Euparius paganus* Gyllenhal on *Irpax lacteus.*

Figure 9. Spring Green Preserve SNA: *Homeolabus analis* (Illiger) and *Pterocolus ovatus* (Fabricius) found concurrently on scrub oak.

Figure 10. Navarino State Wildlife Area: *Auletobius cassandrae* (LeConte) swept from *Comptonia peregrine.*

Figure 11. Kettle Moraine State Forest Southern Unit: *Merhynchites bicolor* (Fabricius) found on mating on *Rosa* spp.

Figure 12. Swamp Lover's Inc.: *Trichapion rostrum* (Say) found inside seed pod of *Baptisia alba.*

Figure 13. Kettle Moraine State Forest Southern Unit: *Arrenodes minutus* (Drury) found under bark of dead trunk.

Figure 14. Long Lake Recreational Area: *Neapion herculanum* (Smith) beaten from branches of *Viburnum trilobum.*

Figure 15. Navarino State Wildlife Area: Malaise trap.

Figure 16. *Ithycerus noveboracensis* (Forster).

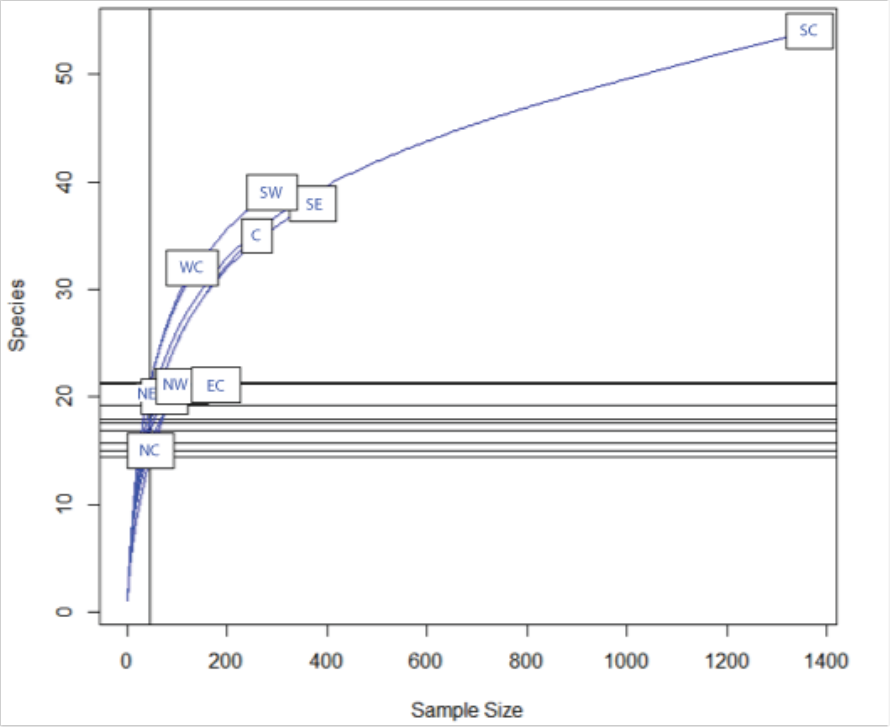


Figure 17. Rarifaction by region, number of samples vs number of species.

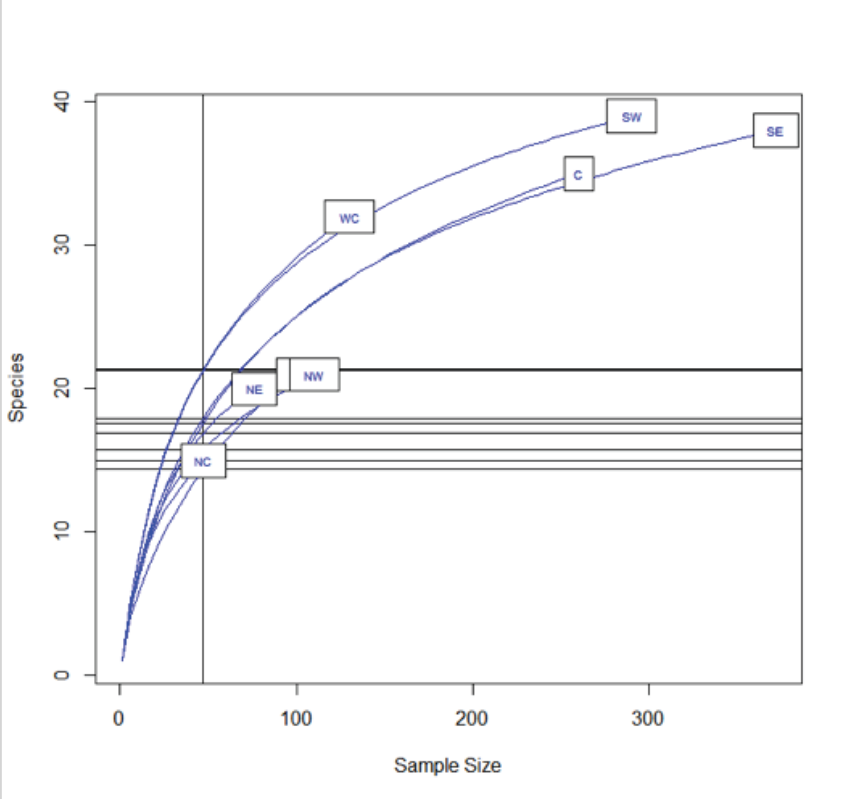
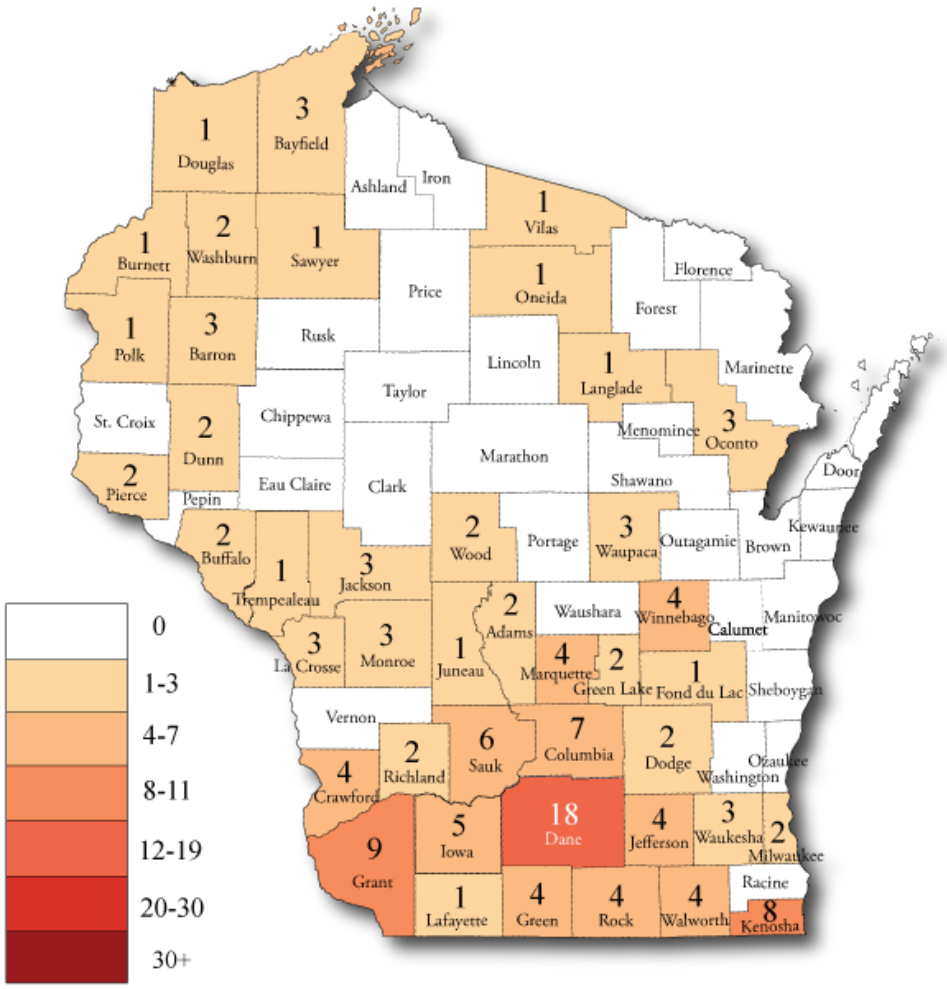


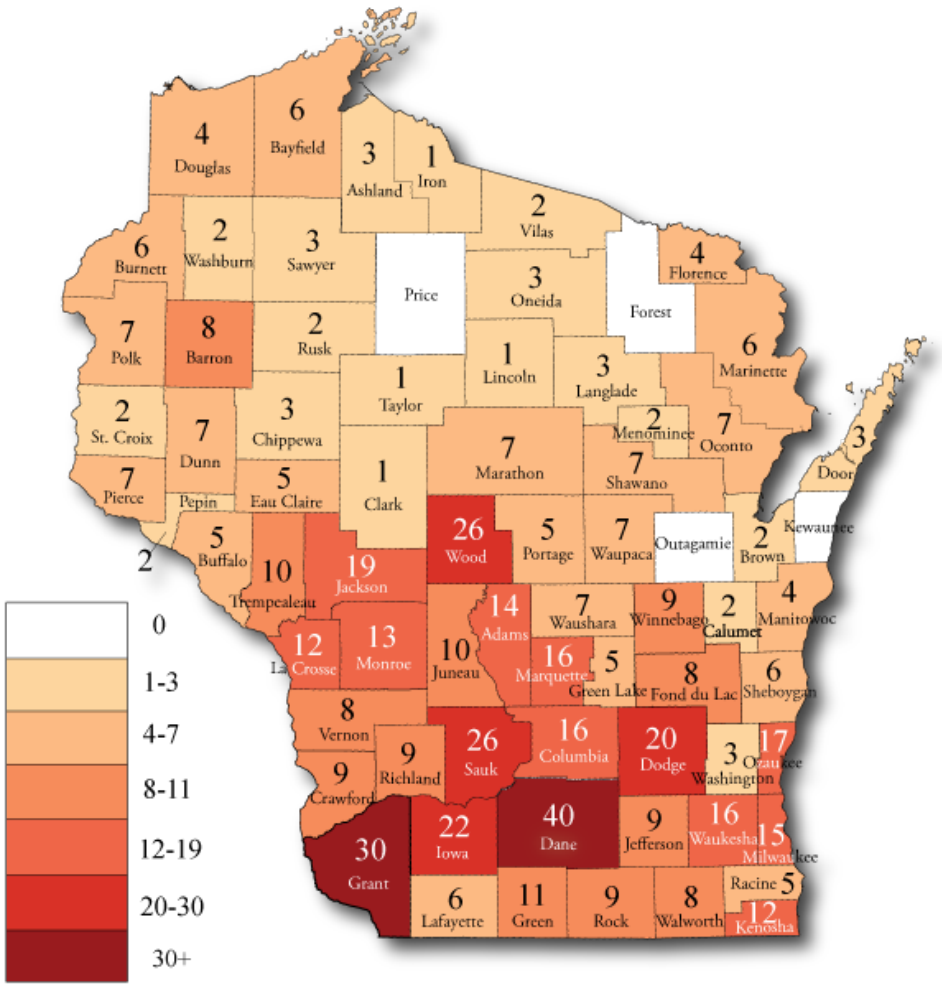
Figure 18. Rarifaction by region, number of samples vs number of species, without SC.

Published State Records
Prior to Survey

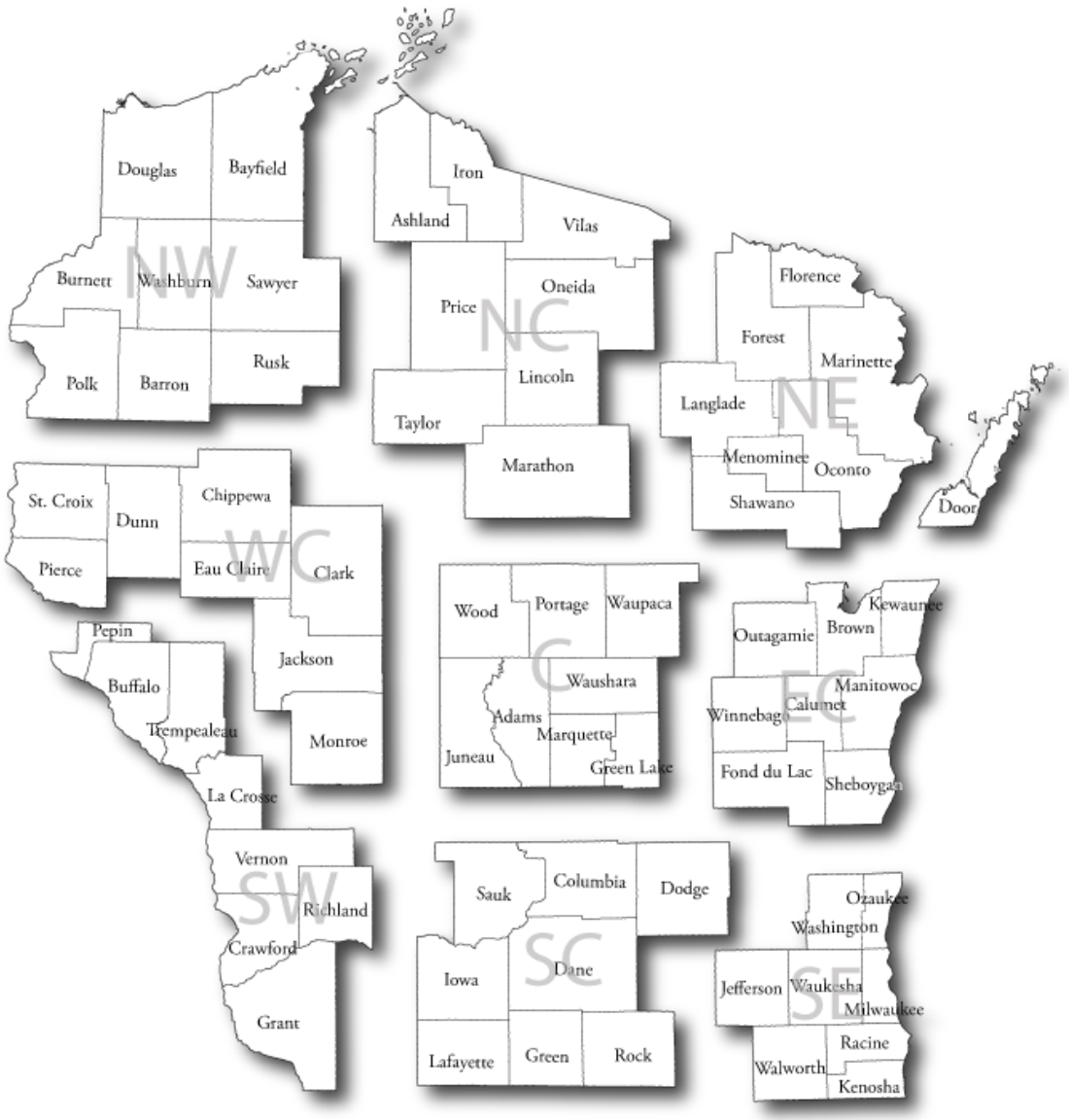


Map 1.

Total State Records
After Survey



Map 2.



Map 3. Wisconsin Regional Divisions.

CHAPTER 2: FAMILY NEMONYCHIDAE BEDEL 1882

Introduction

In the northern hemisphere, nemonychids are associated with staminate cones of pines; this is why they are commonly referred to as the "pine flower snout beetles" (Blatchley & Leng 1916).

Nemonychidae is a relatively small family with three subfamilies: Nemonychinae (for the Eurasian *Nemonyx*, only), Rhinorhynchinae and Cimberidinae. There are 76 species in 23 genera in the world. *Nemonyx* is particularly noteworthy in that it exhibits the greatest number of plesiomorphic traits among all extant weevils (Oberprieler et al. 2007). Though a small extant family, it has a rich fossil record of about 60 species from Upper Jurassic and Lower Cretaceous deposits largely in the northern hemisphere (Oberprieler et al. 2007). Kuschel (1989) revised the Nearctic Nemonychidae and provided a phylogenetic analysis. The Nearctic nemonychids are now placed in the subfamilies Rhinorhynchinae and Cimberidinae (=Doydirhynchinae), which have a combined five genera and 17 species; two species of the rhinorhynchine *Atopomacer* are endemic to Mexico.

The sister group (Nemonychidae + Anthribidae) is currently considered to be the most basal lineage among Curculionoidea, sister group to the remaining families (O'Brien and Farrell 2002). Larvae of anthribids and nemonychids have a molar area, which distinguishes them from the other weevil families (Bright 1993). Adult nemonychids can be distinguished from other primitive weevils by presence of distinctly paired gular sutures (Bright 1993). Monophyly of Nemonychidae is supported by several

putative autapomorphies. In larvae the frons is produced forward forming a pseudoclypeus and the mandibles have a diagonal masticatory ridge (May 1993, Marvaldi & Morrone 2000) In adult males tergite nine is desclerotized, forming a narrow, well-pigmented, sharply-defined band arching over sternite nine (Kuschel 1995, Marvaldi & Morrone 2000). A plesiomorphic character that is also found in Belidae and Attelabidae is the absence of an inner flange for locking the elytra (Kuschel 1989). Other important characteristics include a distinct labrum, simple inner elytral surface (Kuschel 1989), confused elytral punctation, and a rostrum that narrows basally.

Nemonychids retain many ancestral traits, morphologically and with respect to their natural history. Their relictual diet has been the same since the Mesozoic. Most nemonychids are associated with conifers in the families Araucariaceae, Podocarpaceae and Pinaceae (Kuscehl 1989). *Rhynchitomacer* and *Nemonyx* are the only genera associated with angiosperms – in the families Ranunculaceae and Fagaceae (Kuschel 1983). Most nemonychids are found within a similar range of latitudes in both in the northern and southern hemispheres as they are found primarily in temperate or warm-temperate climates. Four faunal regions are inhabited by nemonychids: Australian, Neotropical, Nearctic, and Palearctic (Kuschel 1983). In the Nearctic most species are associated with pines. Perhaps because of their specialized diet of *Pinus* spp. pollen, they tend to be rarely collected (Kuschel 2003). The eggs of nemonychids are deposited a week or two onto not yet opened strobili (male cone), before the strobili shed the pollen. The larvae are ectophytic among sporophylls inside the strobili, feeding on pollen in the pollen sacs and moving easily and freely among the male strobili and sporophylls. After reaching maturity in about 10 days, the larvae abandon the strobili and drop to the ground

to pupate in the soil. Some larvae emerge as adults in as little as 1-7 months, depending on the species, while others go through 1-2 year diapause before emerging as adults (Kuschel 1983). Adults also feed on pollen during the mating season. While it is not known what they feed on outside of the flowering season, Kuschel (1983) speculated they feed on sap, or even fungi. Current literature provides life history information on only *Cimberis elongata* (LeConte) (Thomas and Herdy 1961). It is also the only species that was published to occur in Wisconsin prior to this survey (Hamilton 1994, O'Brien & Wibmer 1982). Two species were confirmed from Wisconsin during the presdent study: *C. elongata* and *Cimberis pilosa* (LeConte).

Family Diagnosis

Nemonychidae can be distinguished from other Curculionoidea by the paired gular sutures, the rostrum that narrows basally, the distinct labrum (shared with Anthribidae), the simple inner elytral surface, and by the confused elytral punctation.

Family Description

Length 3.0-5.5mm. **Body** elongate; **integument** pale brown to black; **vestiture** consisting of dense setae; **head** with gular sutures distinct, separate; **antennae** 11-segmented, ending in a loose, 3-segmented club; **labrum** tightly fitting against clypeus on same level; **maxillary palpi** 4-segmented, flexible; **prothoracic coxae** contiguous; **prothoracic coxal cavities** not closed laterally but narrowly so; **tibial spurs** present; **abdominal sternites** free; **pygidium** concealed by the elytra; **proventriculus** lacking sclerotized plates.

Subfamily Cimberidinae Gozis

Cimberidinae consists of 15 species in four genera in North America north of Mexico: *Cimberis, Pitoyomacer, Acromacer*, and *Lecontellus*. Some cladistically significant anatomical features include the lobed second tarsomeres, the robust and rigid antennal flagellum, and the absence of an aedeagal apodemal bridge (Kuschel 1989). Adults differ from those of Rhinorhynchinae (not in Wisconsin) by having the second tarsomere medially lobed and projecting over the base of the third, by the metathoracic tibiae possessing two spurs, by the simple pretarsus, by the presence of anteriorly directed dorsomedial pubescence on the postrostrum, by the lack of a stridulatory file on the mesothoracic notum, and by the uniform elytra punctation.

Genus *Cimberis* Gozis

Rhinomacer Olivier 1807: 457, 458.

Cimberis Gozis 1881: 112.

Neocimberis O'Brien and Wibmer 1982: 18.

Type species: *Rhinomacer attelaboides* Fabricius 1781, by original designation.

The generic name has been subject to considerable change since its origin. Rhinomaceridae Schönherr (1823) is the oldest name that has been used for this family, but the type genus, *Rhinomacer* Fabricius, which was the oldest name used for this genus, is a junior homonym of *Rhinomacer* Geoffroy, a genus in Mycteridae. Accordingly, des Gozis replaced *Rhinomacer* Fabricius with *Cimberis* in 1881. O'Brien and Wibmar (1982) later proposed to use the genus name *Neocimberis* instead of *Cimberis* or *Rhinomacer* to avoid confusion, though many authors still supported *Cimberis* (Kuschel

1983, 1984). Finally, the ICZN (1994a) effectively suppressed *Rhinomacer* in all senses, so *Cimberis* is the name that is currently being used for this genus (Lawrence and Newton 1995).

Generic Diagnosis

Cimberis can be recognized by mandibular form: each mandible evenly curved on its outer edge in dorsal and lateral views and each armed with strong tooth on inner edge; by the mandibular sockets that are only partially exposed dorsally; and by the placement of the antennae: medially or antemedially (Kuschel 1989).

Generic Description

Head not fully retracted, slightly constricted behind eyes dorsally and laterally; **frons** about 1.1-1.6X dorsal tip of rostrum; **eyes** round or slightly elongate-ovate; **rostrum** slightly curved, with dense, confluent punctures dorsally; **antennae** inserted near apex of rostrum, distance from apex to mandibular sockets usually less than the combined length of the first 2 antennal segments; **labrum** truncate or emarginate apically; **mandibles** each evenly curved on outer edge, both armed with 1 strong tooth on inner margin; **sexual dimorphism** present: **abdominal sternite** 3 and/or 4 of females with densely setose sex patches; **tibiae** of prothoracic legs (male) longer than those of females, slightly curved inwardly.

Generic Distribution

Cimberis is found in Canada, USA, Europe, and Siberia (Alonso-Zarazaga & Lyal 1999). It includes seven North American and one European species (Bright 1993). Two species are found in Wisconsin.

Key to the Wisconsin Species of *Cimberis*

1. Pronotum broadly flattened or impressed; elytra black with yellow to brown setae; labrum subrectangular, with sides converging from about middle, apical margin broadly emarginate; pre-rostrum similar in males and females; length 2.8-5.1mm …….. ……..…… ***Cimberis elongata*** **(LeConte)**

1′. Pronotum not flattened or impressed; elytra yellow or rusty brown, with white setae; labrum trapezoidal, with sides converging from base and with rounded or subtruncate apical margins; pre-rostrum more elongate in female than male; length 2.0-3.8mm …….. ……..…... ***Cimberis pilosa*** **(LeConte)**

Cimberis elongata **(LeConte)**

[Figures 1, 3, 7, 19, 20, 23; Map 4]

Rhinomacer elongatus LeConte 1876: 2.

Cimberis elongates (LeConte); Kuschel 1959: 138.

Neocimberis elongatus (LeConte); O'Brien and Wibmer 1982: 18.

Cimberis elongata (LeConte); Kuschel 1989: 134.

Species Diagnosis

Cimberis elongata can be distinguished by the sub-rectangular labrum with sides converging from about the middle and with the apical margin broadly emarginate, by the broadly flattened or impressed pronotum that is strigose on the depressed area due to coarse, confluent punctures, by the black integument with long, light brown to yellow setae, and by the orange pre-rostrum and antennae.

Species Description

Length 2.8-5.1mm. **Body** elongate-oval. **Integument** black, pre-rostrum, femora, tibiae, coxae and antennae reddish orange, tarsi darker. **Vestiture** consisting of long, coarse, light brown to yellow setae with coppery reflection dorsally, surface with finer, white or grey setae ventrally. **Frons** 1.25-1.33X dorsal tip of rostrum. **Rostrum** 0.92-1.09X pronotal length, moderately saddled basally; pre-rostrum slightly more elongate in female. **Labrum** subrectangular, sides converging from about the middle, apical margin broadly emarginate. **Antennae** reaching eyes at segment 4. **Eyes** large, slightly elongate, with long interfacetal setae. **Pronotum** usually just slightly wider than long, moderately curved laterally, truncate or sub-emarginate apically, truncate basally; broadly flattened or impressed mesally. **Elytra** elongate, length 1.85-2.08X width. **Femora** moderately swollen. **Sexual dimorphism** present: **abdominal sternites** 3 and 4 of female with large, transverse, white setiferous sex patch.

Natural History

Adults can be found on male pollen-bearing flowers of various pine species (*Pinus spp.*), including Jack pine (*P.banksiana*), white pine (*P.strobus*), Virginia pine (*P. virginiana*), lodgepole pine (*P. contorta*), and loblolly pine (*P. taeda*). In Wisconsin, *C. elongata* has been collected from red pine (*Pinus resinosa*) and Jack pine (*P. banksiana*).

According to Thomas and Herdy (1961), *Cimberis elongata* overwinters over two seasons, one year as mature larvae and the other as adults. Adults overwinter in the ground and emerge in May to feed on staminate pine flowers. The females then would lay eggs on the strobili, and after about a week the newly eclosed larvae are able to move around freely among the sporophylls, feeding on pollen or pollen sacs of the strobili. The larvae burrow into the top three inches of soil after about 10 days to pupate and

overwinter. The following season they overwinter as adults and emerge early in the following spring (Kuschel 1983, Thomas & Herdy 1961).

Phenology

In Wisconsin, adults have been collected from April to July, with a peak in May.

Collecting Methods

In Wisconsin, **25 specimens** were examined during this study over 13 counties. This species can be found in most habitats where pine is present, especially pine barrens; most adults have been collected from *P. banksiana* (Jack pine). Adults can be most readily collected by beating branches of male pine trees about two weeks prior to pollination. One adult was collected at light about 1-1.5 months after pollination in July, and another was collected in a Malaise trap.

Species Distribution

This species has previously been recorded from Wisconsin (O'Brien & Wibmer 1982, Kuschel 1989, Downie & Arnett 1996).

Wisconsin County Records: Adams, Dane, Douglas, Florence, Juneau, Marathon, Marinette, Marquette, Monroe, Richland, Shawano, Waupaca, Wood.

North America: United States: AL, CT, DC, FL, GA, IL, IN, KS, KY, MA, MD, ME, MI, MN, MS, NC, NH, NJ, NY, OH, PA, SC, TN, TX, VA, WI, WV. **Canada:** BC, MB, ON, PQ.

***Cimberis pilosa* (LeConte)**

[Figures 7, 21, 22; Map 5]

Rhinomacer pilosus Leconte 1876: 2.

Cimberis pilosus (LeConte); Anderson 1947: 515.

Neocimberis pilosus (LeConte); O'Brien and Wibmer 1982: 18.

Cimberis pilosa (LeConte); Kuschel 1989: 139.

Species Diagnosis

Cimberis pilosa can be distinguished by the trapezoidal labrum with sides converging from the base and rounded to subtruncate apical margin, by the small, convex eyes, by the yellow or rust-brown elytra with white setae, and by its commonly smaller size.

Species Description

Length 2.0-3.8mm. **Body** elongate-oval. **Integument** reddish-brown to brown, if elytra reddish brown, then head, prothorax and sterna often darker; antennae, pre-rostrum and legs partially to entirely reddish-brown. **Vestiture** consisting of recumbent to semierect, recurved, greyish or reddish setae. **Frons** 1.37-1.57X dorsal tip of rostrum, usually densely punctate. **Rostrum** strongly saddled basally, slender, 0.98-1.33X pronotal length, abruptly widened basally towards eyes. **Labrum** trapezoidal, sides converging from the base, apical margin rounded or subtruncate. **Antennae** reaching eyes at segment 4 or 5. **Eyes** small, more or less circular in outline, strongly convex, with long interfacettal hairs. **Pronotum** width 1.04-1.28X length, strongly rounded laterally, truncate or emarginate apically. **Elytra** elongate, length 1.76-1.94X width. **Femora** moderately to strongly swollen. **Sexual dimorphism** present: **abdominal sternites** 3 and 4 of female each with 1 setiferous pit of variable size.

Natural History

Adults of this species are associated with male pollen-bearing flowers of pine (*Pinus spp.*), including Jack pine (*P.banksiana*), longleaf pine (*P. palustris*), Virginia pine (*P. virginiana*), and Scots pine (*P. silvestris*).

Phenology

In Wisconsin, adults have been collected from April to June.

Collecting Methods

In Wisconsin, the **19 specimens** examined during the study from eight counties represent a **NEW STATE RECORD**. *Cimberis pilosa* can be found in most habitats with pines, especially pine barrens; most specimens examined were collected from Jack pine. Adults can be collected most readily by beating branches of male pine trees between late April and early May, especially those of Jack pine. One specimen was collected from a Lindgren funnel trap that was set up on a branch of a Jack pine.

Species Distribution

Wisconsin County Records: Douglas, Florence, Juneau, Marathon, Marquette, Richland, Shawano, Wood.

North America: United States: AL, CO, DC, FL, GA, IL, LA, MA, MD, ME, MI, MN, MS, NC, NH, NJ, NY, OH, PA, TX, VA, WI. **Canada:** AB, ON, PQ, NB.

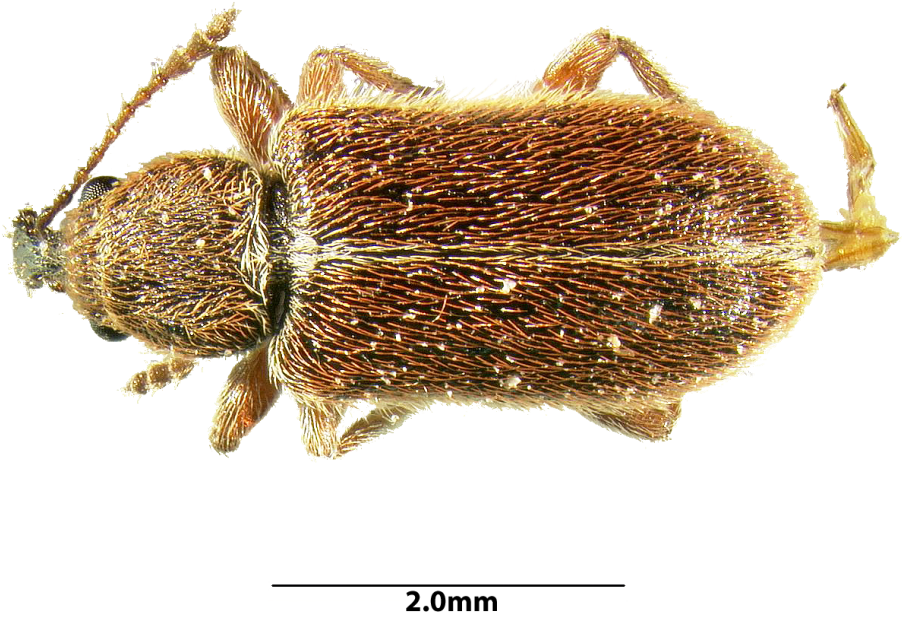


Figure 19. *Cimberis elongata* (LeConte) dorsal habitus.

Figure 20. *Cimberis elongata* (LeConte) lateral habitus.

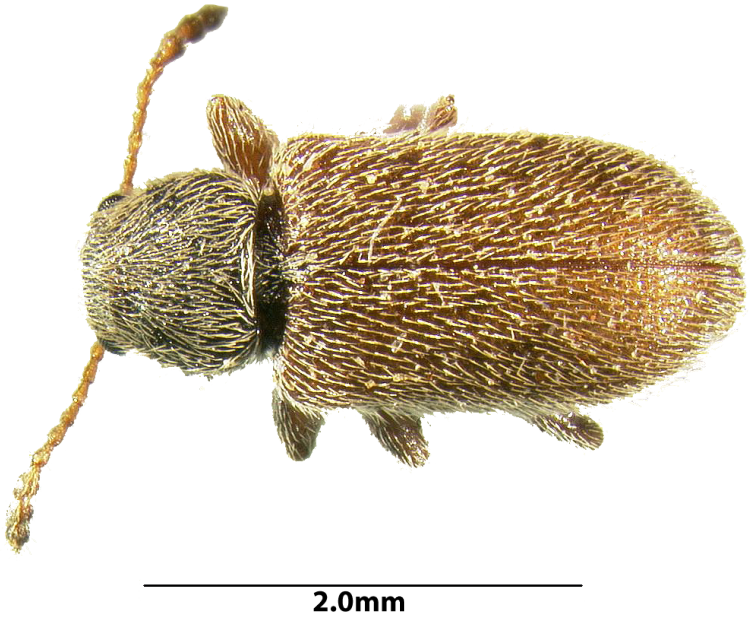


Figure 21. *Cimberis pilosa* (LeConte) dorsal habitus.

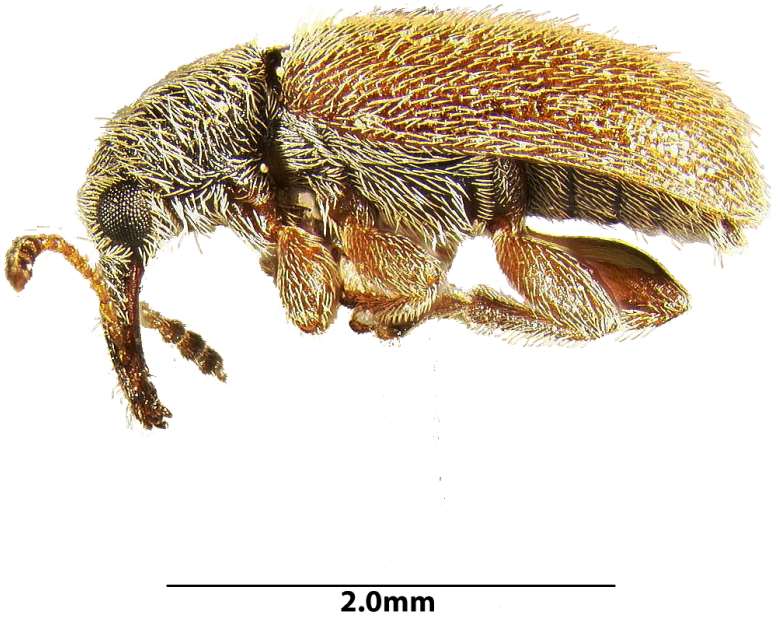


Figure 22. *Cimberis pilosa* (LeConte) lateral habitus.

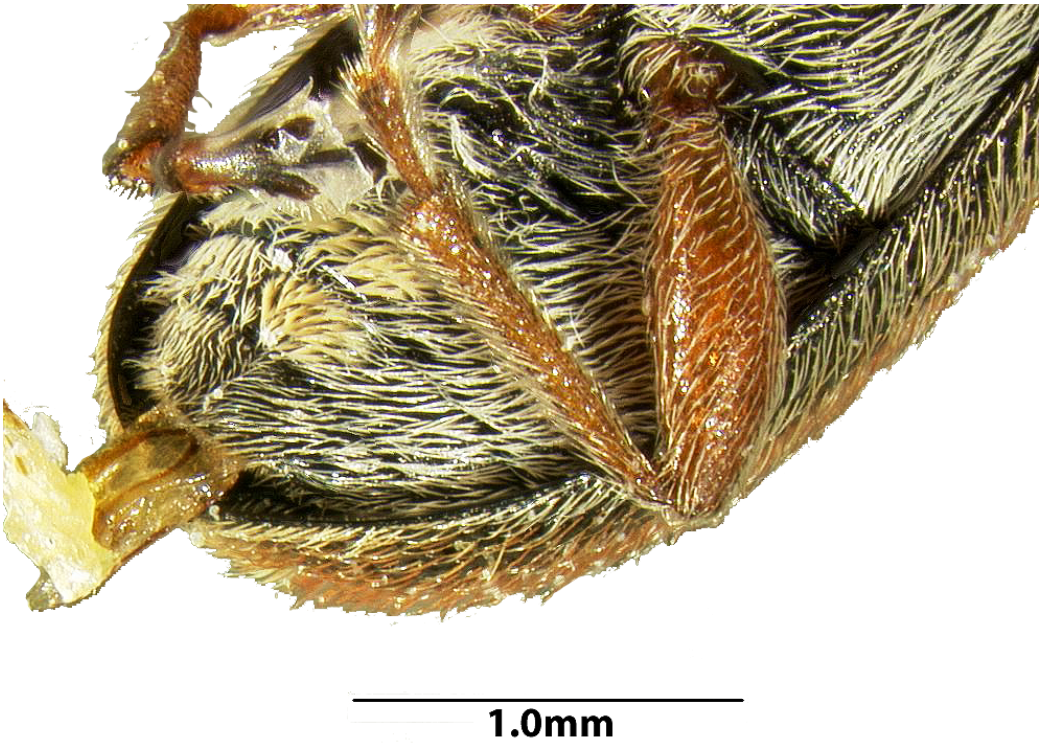


Figure 23. *Cimberis elongata* (LeConte) female sex patch on abdominal stenites 6-7.

Cimberis elongata (LeConte)

Cimberis pilosa (LeConte)

Maps 4, 5. *C.elongata* and *C.pilosa* Wisconsin distributional maps.

CHAPTER 3: FAMILY ANTHRIBIDAE BILLBERG 1820

Anthribidae consists of 3860 species in 371 genera across the world's temperate and tropical regions (Valentine 1998), with a richer fauna in the subtropics and tropics. Valentine (1960) revised the family for North America north of Mexico, including 87 species in 23 genera. In 1998, he updated that statistic and reported that the Nearctic fauna consists of 88 species in 30 genera within 17 tribes. He also noted (Valentine 1998) that an additional 32 species of *Ormiscus* (Waterhouse) remained undescribed, as well as a few species in other genera represented by inadequate material. In Canada, 18 species in seven genera have been recorded (Bright 1993), while in Wisconsin, published records of six species in six genera existed prior to this study (Downie and Arnett 1996). For the Wisconsin records, only one of the six species had records at the county level. At the conclusion of this study, there were 21 species in 13 genera recorded from Wisconsin. Among the genera found in Wisconsin, *Allandrus* (LeConte) and *Trigonorhinus* (Wollaston) are Holartic, while all others are thought to be largely Neotropical in species richness (Valentine 2002).

Following Nemonychidae, Anthribidae is the second most primitive lineage within Curculionoidea. These two families share similar ovipositor structures as well as similar setiferous patches (Marvaldi et al. 2002, **Table 3**). Although fossils of Nemonychidae are known from the Jurassic (Kuschel 1983, Zherikhin and Gratshev 1995), fossils attributable to Anthribidae are known only from the Middle Cretaceous. Synapomorphies for the two families include a distinct clypeolabral suture and a hypopharyngeal bracon with a sclerome or median sclerite (Kuschel 1989). Monophyly of Anthribidae is supported by the possession of more than five setae on the frons (larva);

an adult autapomorphy is the notosternal suture represented by a weak transverse line extended vertically to the notum (Marvaldi and Morrone 2000). Kuschel (1989) also included the grooved pygidium (tergites 6 and/or 7) and the absence of tibial spurs as synapomorphies for members of this family.

Within Anthribidae, the status of the three subfamilies Anthribinae, Choraginae and Urodontinae remains uncertain. Monophyly of Anthribinae with respect to Choraginae is not established. Urodontinae differs from the other two taxa in many characters (Oberprieler et al. 2007); accordingly, several authors (Crowson 1984, Thompson 1992) treated Urodontinae as a distinct family, Urodontidae, before Kuschel (1995) restored it to subfamily rank.

Anthribids are commonly referred to as "fungus weevils" since some members are associated with fungi. *Euparius* (Schönherr) is the largest genus of polypore-feeders in the family and is partially responsible for Anthribidae acquiring the common name. The short, broad anthribid rostrum is hypothesized to be adapted for grazing fungal mycelia instead of preparing oviposition sites (Howden 1995). Instead of using their rostrum, the females utilize a specialized, dentate ovipositor to deposit their eggs (Obreprieler et al. 2007).

Most anthribids are wood-borers and many of them are often found on wood-decaying ascomycete fungi. In many cases, adults obtain their nutrients either by directly feeding on fungi or indirectly feeding on the decaying matter around the fungi; in other cases, adults feed on seeds, pollen, bark or even scale insects. In general, adults can be found associated with larval foods. The larvae lead a true endophytic lifestyle, primarily within fungus-infected wood or stems of mainly angiosperms (Zimmerman

1994, Oberprieler et al. 2007). Some Holarctic species, however, exhibit divergent habits as their larvae are known to feed on scale insects; one such species, *Anthribus nebulosus* Forster, is found in Wisconsin. As a group, anthribids are often cryptic in coloration as many adults mimic the backgrounds of their environments (Zimmerman 1994).

Adults are most frequently collected by beating dead or dying branches, clumps of dead twigs, or branches of hardwood trees in general. They can also be collected by sweeping weedy fields or overgrown areas, by examining trees with pyrenomycete fungi (Valentine 2002), and occasionally they can be collected with passive traps such as Malaise traps, flight-intercept traps or light traps.

Family Diagnosis

Anthribidae is distinguished from other families of Curculionoidea by the broad, flat rostrum (though in some species it can be relatively thick), the absence of gular sutures, 4-segmented, movable maxillary palpi, free labrum, by the ventrally spongy pubescent 3rd tarsomere, and by the exposed pygidium.

Family Description

Length 0.4 -16 mm (in the US). **Body** elongate to oval, often convex; **integument** usually brown; **vestiture** consisting of hair-like setae, usually a mix of grey, brown, white and black, pronotal pubescence directed anteriorally; **head** usually exerted or retracted into prothorax; **gular sutures** obsolete; **rostrum** flattened, broad, usually not sexually dimorphic; **eyes** entire or emarginate; **antennae** 11-segmented, usually with an indistinct 3-segmented club, club especially obscure in those with elongate antennae; **postmentum** large; **labrum** free, loosely adjoining clypeus, or apical margin of clypeus raised at suture; **maxillary palpi** 4-segmented, flexible; **labial palpi** 3-segmented, with

middle segment short; **pronotum** with an antebasal or basal transverse carina that turns forward and forms a lateral carina; **elytra** with abbreviated scutellary striole; **tarsomere** 3 spongy-pubescent beneath; **tibial spurs** absent; **abdomen** with first 4 sternites connate; **pygidium** exposed.

Key to the Wisconsin Genera of Anthribidae

1. Antennae inserted on anterior surface of the rostrum or head; antennal club never 4-segmented …… (Subfamily Choraginae Kirby) … **2**

1′. Antennae inserted on lateral or ventral surface of the rostrum or head; antennal club may be 4-segmented……...… (Subfamily Anthribinae Billberg) …. **4**

2. Eyes rounded, upper edges not closer to each other than lower edges (Tribe Araecerini Lacordaire); lateral prothoracic carina present, transverse pronotal carina basal ……. ……..… ***Araecerus*** **Schönherr**

2′. Eyes elongate-oval, upper edges closer to each other than lower edges (Tribe Choragini Kirby); lateral prothoracic carinae variable, transverse pronotal carinae variable …..... **3**

3. Head not retractile into prothorax, the eyes too wide; pronotum with a raised reticulum forming a honey-comb pattern; size relatively larger …….…….. ***Choragus*** **Kirby**

3′. Head capable of being retracted into prothorax; pronotum punctate but not raised reticulate; size relatively smaller ……... ***Euxenus*** **LeConte**

4. Mandibles with a strongly toothed ventral cutting edge, as well as normal dorsal edge (Tribe Cratoparini LeConte) ……..…….. ***Euparius*** **Schönherr**

4′. Mandibles without a toothed ventral cutting edge …… **5**

5. Eyes entire, truncate, or finely sinuate on anterior margin …..……. **6**

5′. Eyes strongly emarginate on anterior margin (very subtle in *Anthribus*) ……... **10**

6. Entire face with conspicuous, white pubescence; center of pronotum with a pit or groove; elytra with a conspicuous patch or band of white pubescence (Tribe Tropiderini Lacordaire) ……..…… **7**

6′. White pubescence, if present on face, confined to spots, if conspicuous, pronotum with disc concave, with a central swelling; elytra with multiple tufts of erect setae ……. **8**

7. Pronotum with a smooth, longitudinal, shallow groove from central pit to central carina; elytral with pale antemedial patch, not reaching lateral margins ……. ……...……. ***Gonotropis*** **LeConte**

7′. Pronotum with a sinuous, transverse, median groove; elytra with pale postmedial band that reaches lateral margins ……..… ***Eurymycter*** **LeConte**

8. Eyes finely faceted, with > 26 facet rows across maximum width ……..... **9**

8′. Eyes coarsely faceted, with 26 or fewer rows across maximum width (Tribe Piesocorynini Valentine) ……..…. ***Piesocorynus*** **Dejean**

9. Merger of rostrum with venter of head capsule forming a broad curve; rostrum long, flattened and apically flared; antennae without whorls of long, erect setae; minimum interocular distance greater than minimum width of rostrum near base (Tribe Allandrini) . ……... ***Allandrus*** **LeConte**

9′. Merger of rostrum with venter of head capsule indicated by a transverse groove or abrupt angle; rostrum shorter, not apically flared; interocular distance not greater than minimum width of rostrum (Tribe Platyrhinini) ……..... ***Goniocloeus*** **Jordan**

10. All 3rd tarsomeres with lobes fused along midline (Tribe Anthribini) ……

……. ***Anthribus*** **Geoffroy**

10′. All 3rd tarsomeres with lobes separate ……..……. **11**

11. Rostrum, excluding mandibles, narrowed from base to apex; rostral apex with central 1/3 longer than sides (Tribe Trogonorhinini) ……..... ***Trigonorhinus*** **Wollaston**

11′. Rostrum quadrate or apically widened; rostral apex not narrower than base and not prolonged medially (Tribe Zygaenodini) ……. **12**

12. Transverse pronotal carina clearly antebasal, incapable of contacting elytral base; pronotal hind angles not projecting laterad the humerae ……..... ***Ormiscus*** **Waterhouse**

12′. Transverse pronotal carina sub-basal or basal, capable of contacting elytral base at some point; pronotal hind angles often projecting laterad the humerae ……..

……. ***Eusphyrus*** **LeConte**

Subfamily Choraginae Kirby

Pierce (1930) raised both Choraginae and Anthribinae to family status, believing that members of certain genera in this subfamily, such as *Choragus*, *Holostolpna* and *Araecerus*, have 4-segmented labial palpi. However, all Anthribidae have 3-segmented labial palpi, and Valentine (1960) disregarded Pierce's proposed changes. The monobasic Choraginae comes from *Choragus* Kirby (1818), the only member of a then new family, Choragidae.

Subfamily Diagnosis

Choraginae can be distinguished from Anthribinae by the dorsal antennal insertion that is between or next to the lower portion of the eye, by the bent or asymmetrical scape, and by the antennal club that is never 3-segmented.

Choraginae can be distinguished from Urodontinae (not in North America) by the 2nd tarsomere embracing the 3rd and by the well indicated elytral striae.

Tribe Araecerini Lacordaire 1876

Genus *Araecerus* Schönherr

Araecerus Schönherr 1823:1135.

Arrhaecerus Germar 1829: 357

Araeocerus Schönherr 1839: 273.

Araeosarus Walker 1859: 262.

Doticus Pascoe 1882:27.

Metadoticus Olliff 1890: 75.

Avaecerus Wolfrum 1949: 147.

Type species: *Anthribus coffeae* Fabricius, 1801, by original designation and monotypy.

Generic Diagnosis

Araecerus can be recognized by the antennae that are inserted on the anterior surface of the rostrum or head, by the rounded eyes, by the head that is not retractile into the pronotum, by the basal transverse pronotal carina, and by the presence of lateral prothoracic carinae.

Generic Description

Length (head excluded) 2.4-4.5mm. **Integument** light to dark red, to black; **vestiture** consisting of abundant setae; **head** not retractile; **frons** convex; **rostrum** truncate, slightly prolonged apically; **antennae** inserted anteriorly on frons, insertion very close to eyes; **eyes** rounded, located laterally on head; **pronotum** wider than long, lateral margins arcuate, converging apically, surface reticulate, with a single raised carina along the basal 1/2; **elytra** parallel laterally, broadly rounded apically; striae consisting of 10 rows of indistinct punctures.

Generic Distribution

Araecerus is an Old World genus with about 70 mostly Indo-Pacific species (Valentine 1998). One species, *A. fasciculatus* (DeGeer), commonly known as the coffee bean weevil, became cosmopolitan due to commerce, and is most often found in coffee, cocoa beans, and stored grains. Two species, *A.fasiculatus* and *A.cumingi* Jekel have been introduced into the Nearctic region, but only *A. fasciculatus* has been established. It is the only species found in Wisconsin.

***Araecerus fasciculatus* (DeGeer)**

Curculio fasciculatus DeGeer 1775:276.

Araecerus fasiculatus (DeGeer); Wolfrum 1929: 105.

Species Diagnosis

Araecerus fasciculatus can be distinguished from other members of *Araecerus* by the large size (2.4-4.5 mm, excluding head), the upturned apex of the lateral prothoracic carina, the curved, internally denticulate prothoracic tibiae, short, unusually broad prothoracic tarsomeres, and by the absence of dorsal tubercles, crests, or carinae on the

elytra. It can be distinguished from other anthribids by having the antennae inserted on the head or anterior surface of the rostrum, the rounded eyes with the upper margins not closer than the lower margins, the elongate body, and by the extruded head.

Species Description

Length (head excluded) 2.4-4.5mm. **Body** elongate. **Integument** varying from light to dark red and black. **Vestiture** consisting of abundant, recumbent, gray to light brown or dark brown to nearly black setae; pronotal more intermixed and often darker medially on disc; setae of elytral interstriae light and dark, appearing as spots. **Rostrum** truncate, slightly prolonged apically. **Eyes** rounded. **Pronotum** with width 1.5X length, widest at base, base broadly emarginate, sides conspicuously converging apically; transverse carina basal, acute, lateral carina forming a 90° angle with transverse carina; shape convex, surface densely punctate. **Elytra** with length 1.2X width, about 1.8X pronotal length; striae weakly impressed, with shallow punctures; interstriae with abundant punctures that are smaller than those of striae. **Pygidium** vertical, that of male evenly rounded apically, that of female oblique or pointed apically. **Sexual Dimorphism** distinct: **prothoracic legs** of male with dimorphism more extreme, **metathoracic sternum** of male with pale trichobothrium (setal patch) at center.

Natural History

This species has a cosmopolitan distribution but probably survives outdoors only in warmer climates, though its northern survival limits are unknown (Valentine 1998).

The larvae, pupae as well as adults have been found in the pith of corn (*Zea mays*) and they are able to cause stunted ears, with the most noticeable damage being on the joints (Tucker, 1909). This species is a generalist and feeds on dozens of dried and/or

living plant tissues, including nutmeg, dried fruits, potatoes, chocolate, coffee beans, and corn stalks, dry decayed cotton balls, as well as berries of chinaberry trees (Tucker 1909).

The adults also have been recorded to feign death for a short time when disturbed, as in common with most other weevils (Tucker 1909).

Phenology

No data have been found relating to Wisconsin.

Collecting Methods

None recorded specifically in Wisconsin.

Species Distribution

This species has previously been recorded from Wisconsin (Downie and Arnett 1996). However, no specimens were examined during this study from field work or collections.

North America: United States: AL, AZ, CA, DC, FL, GA, IL, KS, LA, MA, MS, NC, NJ, NY, OH, SC, TX, WA, WI. **Canada:** BC.

Tribe Choragini Kirby 1819

Genus *Choragus* Kirby

Choragus Kirby 1819: 447.

Alticopus Villa and Villa 1833:35.

Type species: *Choragus sheppardi* Kirby, 1819, by monotypy.

Generic Diagnosis

Choragus can be recognized by the antennae that are inserted on the anterior surface of the rostrum or head, the elongate-oval eyes with the upper edges closer to each

other than the lower edges, a head that is not retractile into the prothorax, the pronotum that has a raised reticulum that forms a honey-comb pattern, and by the 11-segmented antennae.

Generic Description

Length 1.2-3.2mm (head excluded). **Integument** brown to black; **vestiture** consisting of sparse, yellow to white setae; **head** not retractile; **preapical mandibular tooth** absent; **antennae** with scrobes tuberculate; **eyes** elongate-oval and converging above; **pronotum** reticulate, each lateral pronotal carina short and single, transverse pronotal carina slightly antebasal, the down-turned protnotal hind angles mostly post-carinal.

Generic Distribution

Choragus is found in North America, Europe, Siberia, Kuril Islands, Japan, Reunion Islands, Kenya, Mauritius, and the Seychelles (Alonso-Zarazaga and Lyal 1999). There are six species of *Choragus* in the Nearctic region (Valentine 1988), ranging from southern Quebec to Florida, west to Wisconsin, eastern Kansas and eastern Texas.

***Choragus zimmermanni* LeConte**

[Figures 24, 25; Map 6]

Choragus zimmermanni LeConte 1876: 408.

Species Diagnosis

Choragus zimmermanni can be recognized by the elytra not having an extra group of punctures near interstria 10, interstria 10 swollen and stria 9 angulate above the metathoracic sternum, the straight pronotal carina, the fine pronotal reticulum, granulate

interstriae, and by the circular (instead of slit-like) floors of the elytral punctures. This species also tends to be smaller than most other *Choragus* species, usually around 1.3mm.

Species Description

Length 1.2-1.3mm (head excluded). **Body** subcylindrical. **Integument** light brown to dark brown, without luster; antennae and legs yellow, slightly pubescent. **Vestiture** consisting of sparse, white to yellow setae. **Rostrum** flattened, short, dilated, subtruncate apically. **Antennae** with segments 1-3 conical, 4-8 slender, 9-11 forming a loose, setaceous club. **Eyes** slightly convex, longer than wide, with about 10 rows of facets across. **Pronotum** with width about 1.6X length, widest at base; surface densely punctate, finely reticulate. **Elytra with** length about 1.3X width, 2.0X pronotal length; striae with deep punctures, striae 9 and 10 complete and separate to elytral apex, stria 9 angulate above metathoracic sternum; interstriae densely and coarsely granulate, interstria 10 swollen. **Pretarsus** with claws each possessing a basal tooth.

Natural History

In general, members of *Choragus* are associated with pyrenomycete fungi in the families Xylariaceae and Diatrypaceae. This species has also been collected from sweetgum (*Liquidambar styraciflua*) in Florida (Blatchley and Leng 1916). It has also been recorded from basswood (*Tilia americana*) in Wisconsin.

Phenology

In Wisconsin, adults of this species have been collected in July and August.

Collecting Methods

The **seven Wisconsin specimens** examined during this study from three counties

represent a **NEW STATE RECORD**. Two specimens were collected in Malaise traps in a *Fagus-Acer* forest, two from Lindgren funnel traps, one from a flight-intercept trap, one by sweeping, and another by beating branches of live basswood (*Tilia americana*) in a dry-mesic southern forest.

Species Distribution

Wisconsin County Records: Milwaukee, Ozaukee, Sauk.

North America: United States: DC, FL, KS, MA, MD, MI, NC, NJ, NY, TX, WI. **Canada:** QB.

Genus *Euxenus* LeConte

Euxenus LeConte 1876: 409.

Holostilpna Jordan 1907: 382.

Type species: *Euxenus punctatus* Leconte, 1876, by monotypy.

Generic Diagnosis

Euxenus can be easily recognized by the presence of two carinae on each lateral pronotal margin, the very small size, glabrous, shining body, and by the retractile head.

Generic Description

Length 0.8-2.3mm (head excluded). **Body** convex; **integument** brown, nearly glabrous, shining; **head** retractile; **rostrum** sinuate apically; **eyes** elongate-oval, converging dorsally, vertical, with upper ends closer together than lower ends; **antennae** inserted at the inner lower corners, 11-segmented, scrobes tuberculate; **preapical mandibular tooth** absent; **pronotum** with a double carinae laterally, the lower carina sometimes obscured by a row of punctures, transverse carina mostly basal, may be

slightly antebasal; pronotal disc punctate, not reticulate; **scutellum** visible; **elytra** each with 10 rows of striae and an additional scutellary striole; in some species the striae are replaced with confused rows of punctures.

Generic Distribution

Euxenus is found from Canada to Panama, Cuba, Hispaniola, and Puerto Rico (Alonso-Zarazaga and Lyal 1999). Three species are found in the Nearctic region, one of which is found in Wisconsin.

***Euxenus punctatus* LeConte**

[Figures 26, 27; Map 7]

Euxenus punctatus LeConte 1876:409.

Species Diagnosis

Euxenus punctatus is the smallest primitive weevil species found in Wisconsin. It can be distinguished from other anthribids by the small size, compact, glabrous body, and by the retractile head. It can be distinguished from other species of *Euxenus* by elytral striae 2-7 with fields of confused punctures instead of uniseriate punctures, and by the microreticulate pronotal surface between the punctures.

Species Description

Length 0.8-1.2 mm (head excluded). **Body** short, oval, convex, nearly glabrous, shining. **Integument** light to dark brown. **Vestiture** consisting of a few scattered, short, erect, almost invisible setae. **Head** retractile. **Rostrum** sinuate apically. **Frons** weakly convex, surface weakly punctate, reticulate. **Pronotum** with width 1.4-1.5X length, widest at base; surface convex, with distinct, small, close, evenly spaced punctures;

broadly angulate basally, with prominent basal transverse carina; laterally with 2 carinae on basal 1/2, these separated by distinct row of punctures, with upper carina distinct and elevated, lower carina less developed. **Scutellum** very small, almost invisible. **Elytra** about as wide as long, widest near middle, length about 1.4-1.6X pronotal length; broadly rounded apically and laterally; striae punctate in irregular double rows; interstriae smooth. **Abdomen** very short. **Pygidium** vertical.

Natural History

Valentine (1998) reared *E. punctatus* from the fungus *Hypoxylon perforatum* growing on dead twigs of common dogwood (*Cornus sanguinea*). He also observed this species on ridges of a reddish-brown pyrenomycete growing on dead, debarked branches that were partially buried in leaf litter. In Wisconsin, it has been found near slime mold plasmodium.

Phenology

In Wisconsin, adults have been collected in July.

Collecting Methods

The **two Wisconsin specimens** examined during this study from two counties represent a **NEW STATE RECORD**. One specimen was found near slime mold plasmodium under bark of a fallen tree in a southern-mesic forest; the other was found at a point where one log was sitting atop another, at the edge of a small woods near Helena Marsh, in the early afternoon.

Species Distribution

Wisconsin County Records: Iowa, Racine.

North America: United States: AL, DC, FL, MI, OH, WI. **Canada:** ON.

Subfamily Anthribinae

While cosmopolitan, Anthribinae is most diverse in the tropics and subtropics. It is the most diverse subfamily of Anthribidae, with over 3,000 species.

Subfamily Diagnosis

Anthribinae can be distinguished from Choraginae by having the antennae inserted on the lateral or ventral surface of the rostrum of head, the symmetrical scape, and by the antennal club that can be either 3- or 4-segmented. It can be distinguished from Urodontinae by having the 2nd tarsomere embracing the 3rd, and by the well impressed elytral striae.

Tribe Allandrini Pierce 1930

Genus *Allandrus* LeConte

Allandrus LeConte 1876:396.

Type species: *Allandrus bifasciatus* LeConte 1876, by monotypy.

Generic Diagnosis

Allandrus can be recognized by the widely separated eyes, with the minimum interocular distance always greater than the minimum width of the rostrum near the base, by the flat, spatulate and apically flared rostrum that is narrower at the base than apex, the transverse antebasal pronotal carina, and by the reticulate-punctate pronotal surface.

Generic Description

Length 2.0-3.8mm, **Vestiture** consisting of abundant, hair-like setae; **head** not retractile; **rostrum** prolonged, constricted basally, strongly diverging laterally, broadly

expanded apically; **antennae** inserted on lateral surface of rostrum, insertions remote from eyes; **eyes** lateral, slightly oval, entire, interocular distance greater than basal width of rostrum; **pronotum** wider than long, surface punctate-reticulate, lateral margins without carinae except at posterior angle, transverse carina antebasal and strongly elevated, straight to weakly emarginate, curved slightly at basal angles; **elytra** broadly rounded apically, sides parallel, striae in regular rows, weakly marked with shallow punctures.

Generic Distribution

Allandrus is found in Europe, Siberia, Japan, North Africa, United States and Canada (Alonso-Zarazaga and Lyal 1999). Each of the three *Allandrus* species comprising the Nearctic fauna is found in Wisconsin.

Key to the Wisconsin Species of *Allandrus*

1. Supra-scrobal carina absent or not surpassing the posterior margin of scrobe; male with rostrum, prothoracic tibiae and antennae normal; elytral surface uneven, more strongly swollen behind bases, foveae behind swellings deeply impressed; length 2.3-2.9 mm ..…….. ***Allandrus brevicornis* Frost**

1′. Supra-scrobal carina surpassing posterior margin of scrobe; male rostrum with keel-like, raised median carina, prothoracic tibiae strongly curved; elytral surface nearly even, with obscure basal swellings, fovea behind swellings absent or very weak; length 2.6-3.5mm ……...… ***Allandrus bifasciatus* LeConte**

***Allandrus bifasciatus* LeConte**

[Figures 28, 29, 64; Map 8]

Allandrus bifasciatus LeConte 1876:396.

Species Diagnosis

Allandrus bifasciatus can be distinguished from *A. brevicornis* by the supra-scrobal carina that surpasses the antennal scrobe, the nearly even elytral surface with obscure basal swellings, the long antennae, the high median keel or carina on the rostrum and by the strongly curved and bent prothoracic tibiae in the males. It can be distinguished from *A. populi* by the presence of a small, medial tooth on each pretarsal claw.

Species Description

Length (head excluded) 2.6-3.5 mm. **Body** elongate. **Integument** black; elytra reddish to dark brown. **Vestiture** consisting of a mixture of white, light brown, and dark brown to black setae; elytra with predominantly dark setae with white setae in scattered small patches. **Rostrum** of male with keel-like, sharply elevated longitudinal carina, that of female with carina evident but not elevated; surface with dense, deep punctures. **Frons** convex and broad, with dense, deep punctures. **Antennae** of male about 2.0X longer than those of female. **Eyes** entire, slightly oval. **Pronotum** about as wide as long, widest at lateral extension of transverse carina, transverse carina antebasal, strongly, sharply elevated, rather strongly emarginated; disc convex, surface even and very weakly impressed before middle, with dense, deep punctures that are internally reticulate. **Elytra** with length 1.6X width, length about 2.0X pronotal length; surface of disc generally nearly even, with obscure basal swellings; striae deeply impressed, with moderate

punctures; interstriae flat, densely and minutely punctate. **Pretarsus** with each claw cleft, inner tooth minute. **Sexual dimorphism** present in antennae, rostrum and tibiae: **Prothoracic tibiae** of male strongly curved and bent.

Natural History

This species is a specialist on *Tilia* spp. (Blatchley and Leng 1916, Majka et. al 2007), including American basswood (*Tilia americana*).

Phenology

In Wisconsin, adults have been collected from July to September.

Collecting Methods

In Wisconsin, **49 specimens** were examined during this study from 11 counties. They can be readily collected by beating live or dead branches of American basswood (*Tilia americana*).

Species Distribution

This species was previously recorded from Wisconsin by Blatchley and Leng (1916).

Wisconsin County Records: Dane, Dodge, Dunn, Eau Claire, Grant, Iowa, Milwaukee, Polk, Racine, Sauk, Waukesha.

North America: United States: IA, KS, IL, IN, NY, MI, OH, PA, SC, VA, WI. **Canada:** ON, PQ.

***Allandrus brevicornis* Frost**

[Figures 30, 31; Map 9]

Allandrus brevicornis Frost 1920:252.

Species Diagnosis

Allandrus brevicornis can be distinguished from other *Allandrus* species by the supra-scrobal carina that is absent or not surpassing the posterior margin of the scrobe, the uneven elytral surface with strongly elevated swellings behind the elytral base, the much lower rostral carina, and by and the straight prothoracic tibiae in males.

Species Description

Length (head excluded) 2.3-2.9 mm. **Body** elongate. **Integument** black. **Vestiture** consisting of a mixture of white, light brown, and dark brown to black setae. **Rostrum** with punctures as on frons, that of male with elevated longitudinal carina, carina of female not distinctly elevated. **Frons** convex, broad, punctate, surface granulate between punctures. **Eyes** entire, slightly oval. **Pronotum** about as wide as long, widest at lateral extension of transverse carina, transverse carina antebasal, strongly, sharply elevated, rather strongly emarginate; disc convex, surface even and very weakly impressed before middle, with dense, deep punctures that are reticulate internally. **Elytra** with length about 1.4X width, about 2.0X pronotal length; surface with distinct, elevated basal swelling on each elytron, distinctly impressed behind swellings; striae with punctures moderate in size, deeply impressed; interstriae flat, densely and minutely punctate. **Prothoracic tibiae** of male straight. **Pretarsus** with claws cleft, inner tooth minute. **Sexual dimorphism** present in rostrum.

Natural History

This species is generally associated with willows (*Salix* spp.) (Bright 1993).

Phenology

In Wisconsin, adults have been collected from June to September.

Collecting Methods

The **nine Wisconsin specimens** examined during this study from four counties represent a **NEW STATE RECORD**. Most specimens were collected in Malaise traps; one was recovered from a Lindgren funnel trap.

Species Distribution

Wisconsin County Records: Jackson, La Crosse, Oneida, Sauk, Waukesha.

North America: United States: CA, CO, IL, MA, ME, MI, NJ, RI, WI, WV. **Canada:** AB, QB.

Tribe Anthribini Billberg 1820

Genus *Anthribus* Geoffroy

Anthribus Geoffroy 1762:306.

Brachytarsus Schönherr 1823:1135.

Psuedobrachytarsus Pierce 1930:29.

Type species*:* *Anthribus fasciatus* Forster, 1770:5; designated by Jordan, 1931: 285, 287.

Generic Diagnosis

Anthribus can be distinguished by having all 3rd tarsomeres with the lobes fused down the midline.

Generic Description

Length1.5-4.6 mm. **Vestiture** consisting of dark brown setae with scattered light brown patches; **head** retractile; **body** short, rounded and globular; **frons** at narrowest point broader than diameter of eye; **rostrum** short, not dilated at or in front of antennal

insertions; **antennae** with scrobes deep and bordered along the eye by a narrow carina, antennae shorter than or as long as pronotum, club short and broad; **eyes** prominent, not emarginate, placed laterally; **pronotum** with basal margin sinuate; **elytra** broadly rounded apically, with sides parallel; striae deep, in rows; **pretarsus** with claws toothed; **sexual dimorphism** present: **abdomen** of male slightly flatter than that of female along the meson.

Generic Distribution

Anthribus is found in Bulgaria, Denmark, Finland, France, Hungary, Germany, Norway, Poland, Sweden, Ukraine, Siberia, Kuril Island, Japan and China (Hoebeke and Wheeler 1991, Alonso-Zarazaga and Lyal 1999, Gnget 2003). Given the fact that species in this genus are predators of scale insects and their eggs, two species have been introduced to the United States from Europe to help control scale insects; one has been increasing in population size while the other has not been collected in the wild (Valentine 1998).

***Anthribus nebulosus* Forster**

[Figures 32, 33, 65; Map 10]

Anthribus nebulosus Forster 1770:5.

Bruchus clathratus Herbst 1786:158.

Bruchus varius (Fabricius 1787:42).

Antribus variegatus Fourcroy 1785:136.

Anthribus capsularis Scriba 1790:129.

Brachytarsus nebulosus (Forster); Kuster 1859:457.

Brachytarsus nebulosus var. *kusteri* Reitter 1916:9.

Anthribus nebulosus var. *gavoyi* Chobaut 1922:86, 88.

Species Diagnosis

Anthribus nebulosus can be distinguished from other species of *Anthribus* by the shortened lateral pronotal carinae that are present only along the basal portion of the pronotum. It can be distinguished from other anthribid species by the fused or connate lobes of the 3rd tarsomeres, by the rostrum that narrows apically and lacks the apical prologation in the central 1/3 (in contrast to *Trigonorhinus*), and by the tessellate vestiture.

Species Description

Length 1.5-4.6mm. **Body** oblong. **Integument** brown to dark brown; beneath vestiture slightly mucrosculptured and shining. **Vestiture** consisting of tessellate, dark brown and whitish gray, hair-like setae, that of antennae and legs darker or paler brown. **Head** distinctly broader than long, broadest at base and from there strongly narrowed apically in rounded lines. **Rostrum** flattened and broad; narrowed apically, apex truncate, without central prolongation. **Antennae** 11-segmented, with distal 3 segments forming a conspicuous club. **Eyes** entire, round. **Pronotum** with width about 1.7X length, sinuate basally and with slightly pointed basal projections; lateral carinae reaching middle of pronotum only; surface strongly, densely punctate; basal fovea absent. **Scutellum** small, round to triangular. **Elytra** with length about 1.6X width, about 2.0X pronotal length, width slightly over 1.0X pronotal width; shape oblong, parallel-sided; striae distinct; interstriae wider than striae, not punctate apart from microsculpture, interstriae 1-4 with sub-basal bulge, interstria 3 with vestiture raised. **Pretarsus** with each claw toothed. **Pygididum** vertical.

Natural History

Anthribus nebulosus preys on, and is a parasitoid of, scale insects (Coccidae and Kermesidae). It occurs commonly in deciduous forests, spruce forests, orchards, and on ornamental trees infested with scale insects (Hoebeke and Wheeler 1991). It has been recorded from various hardwood trees, including Colorado blue spruce (*Picea pungens*), white spruce (*Picea* glauca), Norway spruce (*Picea abies*), oak (*Quercus spp.*) and American basswood (*Tilia americana*) (Hoebeke and Wheeler 1991, Gnget 2003), and can be found generally on scale insect-infested plants. Adults have also been found on flowers of midland hawthorn (*Crataegus laevigata*); they have also been recorded to overwinter in bark cracks or in the empty ovisacs of scale insects (Gnget 2003).

This species is reported to eat a hole in the semisoft exoskeleton of a female scale insect and then lay an egg inside the brood chamber of the scale, closing the wound with a secretion (Howden 1992). Oviposition begins in May shortly after oviposition by the scale insects. The adult beetle lays one egg in the ovisac of the female scale insect and there the larva develops. Pupation takes place in June-July inside the ovisac, and adults emerge a few weeks after and either feed on honeydew or the eggs and remains of other scale insects (Gnget 2003).

This species was intentionally introduced to the eastern United States in the late 1970's to control scale insects that were considered pest species, though some authors speculate they were introduced as early as the late 19th century (Hoebeke and Wheeler 1991). In Europe, 15 scale insect species have been recorded as prey of *A.nebulosus*, three of which are considered economically significant species in the United States:

Parthenolecanium corni (Bouche) (Coccidae), *Physokermes hemicryphus* Dalman (Coccidae), and *Eulecanium tiliae* Linnaeus (Kermesidae) (Hoebeke and Wheeler 1991).

Phenology

The only known Wisconsin specimen was collected in July.

Collecting Methods

The **single Wisconsin specimen** examined during this study from Dane County represents a **NEW STATE RECORD**. It was collected by beating branches of basswood (*Tilia americana*) along the shore of Lake Monona in Madison, in a mixed hardwood forest.

Species Distribution

Wisconsin County Records: Dane.

North America: CN, MA, NY, VA, WI.

Tribe Cratoparini LeConte 1876

Genus *Euparius* Schönherr

Euparius Schönherr 1823: 1135.

Cratoparis Dejean 1833: 235.

Caccorhinus Sharp 1891: 321.

Type species: *Anthribus lunatus* Fabricius, 1801, by monotypy.

Generic Diagnosis

Euparius can be easily recognized by the presence of a sharp tooth on the ventral as well as the dorsal cutting edges of the mandibles; the ventral tooth usually larger and nearer to the base than the dorsal tooth. It can also be recognized by the conspicuous,

hair-like vestiture that consists of light brown, dark brown and white setae, the basal transverse pronotal carina, truncate or slightly convex eyes that are adjacent to the antennal grooves, and by the broadly and sinuately emarginated rostral apex.

Generic Description

Length 3.3-7.0 mm (head excluded). **Integument** dark reddish brown; **vestiture** consisting of abundant, hair-like setae that is an intermix of light brown, dark brown and white; **head** not retractile; **rostrum** prolonged, with apex broadly, sinuately emarginate; **mandibles** with sharp tooth on dorsal as well as ventral margins; **antennae** inserted on lateral surface of rostrum, adjacent to eyes; **eyes** located laterally on the head, truncate or slightly convex laterad the antennal insertions; **pronotum** wider than long, lateral margins with acute carina on basal 1/2, transverse carina basal, joining lateral carina at abrupt angle; **elytra** with sides parallel, broadly rounded apically.

Generic Distribution

Euparius is found in Eastern Siberia, Japan, Taiwan, China, USA, Mexico, Belize, Guetemala, Nicaragua, Costa Rica, Honduras, Panama, Brazil, Indomalaya, Austromalaya, and Australia (Alonso-Zarazaga and Lyal 1999). Five species are found in the Nearctic region (Valentine 1960). Approximately 50 more species are found in the Neotropics and the Old World. Two species are found in Wisconsin.

Euparius is among the most abundant anthribid genera in collections and constitutes the largest genus of polypore-feeders in the family. Not surprisingly, it is partially responsible for the common name “fungus weevils” for the family.

Key to the Wisconsin Species of *Euparius*

1. Mesothoracic tibiae each with two narrow pale rings; pronotal hind angle rectangular with angle rounded off; lateral pronotal carina straight; length (head excluded) 3.3-5.8 mm ……..……. ***Euparius paganus* Gyllenhal**

1′. Mesothoracic tibiae each with one broad median pale ring; pronotal hind angle slightly less than a right angle; lateral pronotal carina sinuate near base in dorsal and lateral views; length (head excluded) 4.5-8.8mm ……...…. ***Euparius marmoreus* (Olivier)**

***Euparius marmoreus* (Olivier)**

[Figures 34, 35; Map 11]

Macrocephalus marmoreus Olivier 1795:12.

Euparius marmoreus (Olivier); Blatchley and Leng 1916: 37.

Species Diagnosis

Euparius marmoreus can be distinguished from *E. paganus* by the presence of a single broad, median, pale ring on each mesothoracic tibia, pronotal hind angles that are at slightly less than a right angle, the sinuate base of the lateral carina, and by the larger size (most commonly around 6.0mm).

Species Description

Length (head excluded) 5.5-7.0 mm. **Body** elongate. **Integument** dark reddish brown. **Vestiture** consisting of abundant, hair-like setae; setae on frons and rostrum light brown or white with a few light brown setae upper medially; setae on pronotum and elytra an intermix of light brown, dark brown and white, pronotal disc usually with 2 dark brown spots basolaterally and 1 light brown patch basally; elytral disc with 1 large white

patch anteriorly; interstriae with numerous patches. **Rostrum** prolonged, thick, thickness about 0.3X rostral width. **Frons** convex, with prominent but weakly elevated median carina extending from epistomial margin to around middle of eyes. **Eyes** round, prominent. **Antennae** 11-segmented, segments 3-8 similar, filiform, distal 3 segments forming a conspicuous club. **Pronotum** with width 1.1-1.2X long, widest basally; sides converging apically, broadly emarginate basally; transverse carina basal, acute, lateral carina acute, joining transverse carina at about an 80° angle; disc covex, with medial and basal impressions; surface strongly punctate-reticulate, usually obscured by vestiture. **Elytra** with length 1.6-1.7X width, broadly rounded apically; disc weakly impressed along suture and more distinctly impressed over declivity; striae with shallow, moderate to large punctures. **Pygidium** vertical, broadly rounded apically.

Natural History

This species is generally associated with fungi and dead oaks (*Quercus spp.*) (Anderson 1992). Specifically, it is associated with polypore fungi in the following genera: *Trametes, Megasporoporia, Trichaptum, Phlebia, Panis, Pereniporia* (Valentine 1998). Specific species include *Megaspoporia setulosa, Trichaptum biforme, Trichaotum abietinus, Trichaptum sector, Phlebia hydnoides, Panis rudis, Pereniporia medulla-panis*, *Trametes hirsutus,* and *Trametes versicolor* (Valentine 1998, Bloem et al. 2002).

In Wisconsin, it has been recorded in polypore fungi on fallen dead logs of big-toothed aspen (*Populus grandidentata*), on the underside of *Trametes hirsutes*, and in *Stereum*-infested dead oak branches.

Phenology

In Wisconsin, adults have been collected from March to November, with a peak from May to July.

Collecting Methods

The **113 Wisconsin specimens** examined during this study from 23 counties represent a **NEW STATE RECORD**. This species is most often collected by beating dead logs or branches that are infested by fungi and by examining fungi on dead logs. It has also been collected from flight intercept, Malaise, and Lindgren funnel traps, Berlase leaf litter samples, by rearing larvae from fungus-infested dead branches, as well as light traps or simply hand-collected at light. It was recovered from an unbaited Lindgren funnel trap in an oak pine forest, a Malaise trap in old *Populus* deadfall, and beaten from *Stereum*-infested dead oak branches.

Species Distribution

Wisconsin County Records: Adams, Brown, Burnett, Dane, Dodge, Grant, Green, Iowa, Jackson, Jefferson, Juneau, La Crosse, Marathon, Marinette, Marquette, Monroe, Ozaukee, Richland, Rock, Sauk, Waukesha, Walworth, Winnebago.

North America: **United States:** AL, FL, GA, IA, LA, MO, MT, NB, NC, SC, TX, VA, WI. **Canada:** MB, NB.

***Euparius paganus* Gyllenhal**

[Figures 8, 36, 37; Map 12]

Euparius paganus Gyllenhal 1833: 142.

Species Diagnosis

Euparius paganus can be distinguished from *E. marmoreus* by the mesothoracic tibiae each having two narrow pale rings as opposed to one broad pale ring, pronotal hind angles that are rectangular with the angles rounded off, the straight lateral carina on the pronotum, rounder eyes, and by the smaller size: 3.3-5.8 mm (as opposed to 5.5-7.0 mm).

Species Description

Length 3.3-5.8mm (head excluded). **Body** elongate. **Integument** dark reddish brown. **Vestiture** consisting of abundant, hair-like setae; setae on frons and rostrum light brown or white with a few light brown setae upper medially; setae on pronotum and elytra an intermix of light brown, dark brown and white, pronotal disc usually with 2 dark brown spots basal-laterally and 1 light brown patch basally; elytral disc with 1 large white patch anteriorly; interstriae with numerous patches. **Rostrum** prolonged, thick, thickness about 0.2-0.3X rostral length. **Frons** convex, with prominent but weakly elevated median carina extending from epistomal margin to around middle of eyes. **Eyes** rounded, prominent. **Antennae** 11-segmented, with distal 3 segments forming a conspicuous club. **Pronotum** with width 1.1-1.2X length, widest basally; sides converging apically, emraginate basally; transverse carina basal, acute, lateral carina straight; pronotal hind angles rectangular with angles rounded off; disc convex, with medial and basal impressions, basal impression deep, median impression broad, weak, longitudinal; surface strongly punctate-reticulate, usually obscured by vestiture. **Elytra** with length 1.6-1.7X width, broadly rounded apically; disc weakly impressed along suture and more distinctly impressed over declivity; striae with shallow, moderate to large punctures. **Pygidium** vertical, broadly rounded apically.

Natural History

For many years this species was considered a synonym of *E.marmoreus*. Valentine (1960) elevated it back to species level, noting the two species coexist over much of the eastern United States and occasionally are found in the same polypore fungi. Both species show geographic north-south variation in their morphology, the greatest differences being the northern *E.marmoreus* and the southern *E.paganus*, and the greatest similarity in the central range, with three suggested possible hybrids.

Euparius paganus is a specialist associated with the polypore fungus *Irpex lacteus*. In Wisconsin, larvae have been found inside of dead branches infested with *I. lacteus*, and adults have been reared from these branches and emerged around late April or May.

Phenology

In Wisconsin, adults have been collected from April to August, with a peak from May to July.

Collecting Methods

In Wisconsin, **50 specimens** were examined during this study from 11 counties. This species is most commonly collected by beating dead branches of hardwood trees or dead logs that are infested with *I. lacteus*, or collected by hand by examining dead logs or branches that are infested with the same fungus. It has also been collected from flight-intercept traps, Malaise traps, light traps or simply at light, and one specimen was recorded from a *Striacosta albivosta* pheromone baited trap. Specifically, it has been collected by beating braches of fallen dead oak log infested with *I. lacteus* and by beating dead branches of black walnut infested with *I. lacteus*. A series of specimens was reared from infested dead oak branches that were collected in April; adults emerged in May and

lived until August.

Species Distribution

This species has previously been recorded from Wisconsin **(**Valentine 1960, Downie and Arnett 1996).

Wisconsin County Records: Columbia, Dane, Grant, Iowa, Ozaukee, Sauk, Sheboygan, Trempealeau, Washington, Waukesha, Winnebago.

North America: United States: FL, GA, IN, KS, MA, NY, TX, WI. **Canada:** QB.

Tribe Piesocorynini Valentine 1960

Genus *Piesocorynus* Dejean

Piesocorynus Dejean 1834: 235.

Camptotropis Jekel 1855:136.

Type species: *Euparius dispar* Gyllenhal, 1833, by monotypy.

Generic Diagnosis

Piesocorynus can be distinguished by the oval, entire and coarsely faceted eyes (14-24 longitudinal rows of facets). The only other genus with this character is *Brevibarra*, which is not recorded from Wisconsin. It can also be recognized by the length of the 3rd antennal segment (longer than either the 2nd or 4$^{th)}$, lobed elytral bases overhanging the pronotal base, and by the apically rounded intercoxal process of the mesothoracic sternum.

Generic Description

Length 2.8-7.5mm. **Integument** brown to black; **vestiture** consisting of brown to grey to yellow to white setae; **antennae** with segment 3 longer than 2 or 4; **eyes** coarsely faceted, each with 14-24 logitudinal rows of facets; **pronotum** with transverse carina arched forward, varying from basal to clearly antebasal, lateral carina extending 1/2-3/4 the length of the pronotum; **elytra** with bases lobed, overhanging the base of the pronotum; **mesothoracic sternum** with intercoxal process rounded apically.

Generic Distribution

Piesocorynus is found in French Guiana, Brazil and the United States (Alonso-Zarazaga and Lyal 1999). Five species are found in the United States, one is found in Wisconsin.

Key to the Wisconsin Species of *Piesocorynus*

1. Elytra blackish with gray tessellations or tint, without yellow or brown pubescence; basitarsi brownish ……..……...…… ***Piesocorynus moestus* (J. E. LeConte)**

1′. Elytra with brown or yellow tessellations; basitarsi more gray than brown ……..... ……..... ***Piesocorynus mixtus* LeConte**

***Piesocorynus mixtus* LeConte**

[Figures 38, 39; Map 13]

Piesocorynus mixtus LeConte 1876.

Species Diagnosis

Piesocorynus mixtus can be distinguished from *P.moestus* by the yellow or brown elytral pubescence and by the grayish basitarsi. It can be distinguished from other

Piesocorynus species by the long and slender tarsi, tessellate brown or black elytral interstriae 1 and 2, the mesothoracic basitarsi of male usually with a anteriorventral tubercle or a long spine, and by the minute median tooth on abdominal sternite 2.

Species Description

Length 4.7-6.0 mm. **Body** oblong, cylindrical. **Integument** brown. **Vestiture** consisting of short, brown, gray or dull yellow setae, the latter predominantly on elytra, gray forming large patch on head and small spots on alternate elytral interstriae; legs with gray annulations. **Antennae** slender, joints of club subequal in length, 10th and 11th antennomeres slightly shorter than 9th. **Head** densely punctate. **Rostrum** prolonged, broad, slightly widening apically, widest at apex. **Antennae** 11-segmented, distal 3 segments forming a club. **Eyes** coarsely faceted, with 14-24 longitudinal rows of facets. **Pronotum** widest at base, converging apically, surface densely punctate. **Elytral striae** with deep, close-set punctures; interstriae 2 and 3 with obtuse elevation on basal 1/4; elytral surface tessellate. **Tibiae** annulated, with 2-3 lighter patches and 2 darker patches. **Tarsomere** 2 of all three pairs of legs with setae extended apically towards tarsomere 3. **Pretarsus** with each claw possessing a small basal tooth.

Natural History

Adults and larvae of Nearctic species of *Piesocorynus* feed on pyrenomycete fungi of the order Sphaeriales, family Zylariaceae, genera *Biscogniauxia*, *Camillea*, *Daldinia*, and *Hypoxylon*, and family Diatrypaceae, genus *Diatrype* (Valentine 1998). *Piesocorynus mixtus* is also known to be attracted to light.

Phenology

The single Wisconsin specimen was collected in September.

Collecting Methods

The **1 Wisconsin specimen** examined during this study from Adams County represent a **NEW STATE RECORD**. It was collected at fluorescent light.

Species Distribution

Wisconsin county records: Adams.

North America: United States: AL, DC, FL, IN, LA, MD, NC, NJ, NY, OH, SC, TX, VA, WI.

***Piesocorynus moestus* (J. E. LeConte)**

[Figures 40, 41; Map 14]

Anthribus moestus LeConte 1824: 172.

Anthribus capillicornis Say 1872: 249.

Piezocorynus moestus (LeConte); Blatchley and Leng 1916: 35.

Piesocorynus moestus (LeConte); Pierce 1930: 24.

Species Diagnosis

Piesocorynus moestus can be distinguished from other species of *Piesocorynus* by the absence of a median pronotal callus, but with a small white spot on the apical margin, absence of a pale sutural patch on the elytra, the elytral color (blackish with gray tessellations or tint), and by the lack of yellow pubescence.

Species Description

Length 2.8-6.0mm. **Body** oblong, cylindrical. **Integument** black, that of elytra with gray tessellations. **Vestiture** consisting of scattered brown and white setae; pronotum with small white patches of setae on apical margin, with a patch anterad the

scutellum, and a white patch on each side of the pronotum, these patches in some indistinct or missing; setae on scutellum white. **Rostrum** prolonged, broad, slightly widening apically, widest at apex. **Antennae** 11-segmented, long and filiform, distal 3 segments forming a club. **Eyes** coarsely faceted, with 14-24 logitudinal rows of facets. **Pronotum** with width at base about 1.5X length, widest basally, sides converging apically; surface finely, densely punctate. **Elytra** with length about 1.4X width, about 2.0X pronotal length; striae consisting of moderate-sized punctures. **Legs** with dark gray annulations.

Natural History

Adults and larvae of Nearctic species of *Piesocorynus* feed on pyrenomycete fungi of the order Sphaeriales, family Zylariaceae, genera *Biscogniauxia, Camillea, Daldinia*, and *Hypoxylon*, and family Diatrypaceae, genus *Diatrype*. Fragmentary but overlapping data suggest that each species feeds on more than one genus of fungus (Valentine 1998). Pierce (1930) recorded *P. moestus* from old logs and beneath loose bark.

Phenology

In Wisconsin, the two specimens collected were found in June and September.

Collecting Methods

The **2 Wisconsin specimens** examined during this study from two counties represent a **NEW STATE RECORD**. One was collected from a Malaise trap, the other from a Lindgren funnel trap.

Species Distribution

Wisconsin County Records: Adams, Grant.

North America: United States: DC, GA, FL, IN, LA, OH, MD, NJ, NY, SC, TX, WI.

Tribe Platyrhinini Imhoff 1856

Genus Goniocloeus Jordan

Goniocloeus Jordan 1904: 260.

Strabus Jekel 1860: 239.

Type species: *Goniocloeus baccatus* Jordan, 1904: 262, by original designation.

Generic Diagnosis

Goniocloeus can be recognized by the pronotal configuration: with a paired juxta-medial depression or simply convex, the lateral pronotal carina ending in a low ridge, obliquely protruding, finely faceted eyes, the antebasal transverse pronotal carina, flat rostrum with rostral width more than twice that of interocular distance, and by the merger of the rostrum with ventral side of the head, indicated by a transverse groove or an abrupt angle.

Generic Description

Length 4.5-6.0mm. **Body** slender, oblong or subcylindrical; **rostrum** flattened, wider than long but not longer than head, width >2.0X width of interocular distance; **eyes** obliquely protruding, finely faceted, with more than 26 rows of facets across maximal width; **antennae** slender, not reaching pronotal base; **pronotum** subconical, wider at base than long, surface either convex or with paired, juxtaa-medial depressions, lateral pronotal carina ending in a low ridge or faintly projecting, transverse antebasal carina; **elytra** slightly wider than pronotum.

Generic Distribution

Goniocloeus is found in Brazil, Peru, Suriname, Ecuador, Bolivia, Costa Rica and Mexico (Alonso-Zarazaga and Lyal 1999). It is largely Neotropical with one Nearctic species occurring largely in the Eastern half of the United States (Valentine 1998) including Wisconsin.

***Goniocloeus bimaculatus* (Olivier)**

[Figures 42, 43]

Macrocephalus bimaculatus Olivier 1795: 14.

Anthribus quadrinotatus Say 1827: 249.

Tropideres bimaculatus (Olivier); Blatchley and Leng 1916: 31.

Tropideres barberi Pierce 1930:13.

Goniocloeus bimaculatus (Olivier); Valentine 1960: 72.

Species Diagnosis

Goniocloeus bimaculatus can be distinguished by the short, flat rostrum that is more than twice the width of the interocular distance, pronotum with several small patches of yellow setae, elytra with a patch of whitish-brown setae basolaterally and a common, transverse patch of white setae apically, by the merger of the rostrum with ventral side of the head indicated by a transverse groove or an abrupt angle, and by the finely faceted eyes with more than 26 rows of facets across maximal width.

Species Description

Length 4.5-6.0mm. **Body** elongate. **Integument** black. **Vestiture** consisting of tufts of black setae and some paler scattered setae; pronotum with several spots of white

setae and an elongate spot before the scutellum; elytra each with a patch of brownish-white setae basolaterally and one common patch of transverse white setae apically. **Rostrum** flattened, width >2.0X width of interocular distance, wider than long but not longer than head. **Antennae** slender, not reaching pronotal base. **Eyes** protruding and oblique, finely faceted, with more than 26 rows of facets across the maximal width. **Pronotum** about as wide as long; disc coarsely, unevenly punctate, surface either convex or with paired, juxtamedial depressions; lateral carina ending in a low ridge; transverse carina antebasal, angulate medially with angle directed forward and obtusely bent laterally. **Elytra** with width slightly >1.0X pronotal width, length 2.0X pronotal length; striae with rows of coarse, deep punctures.

Natural History

Valentine (1998) collected this species on *Biscogniauxia spp.* fungus on a winter-killed sugar maple, on fungi in the genera *Xylaria* and *Diatrype*, under bark of dead oaks (*Quercus spp,*), and on Osage orange (*Maclura pomifera*).

Phenology

No specific data for Wisconsin specimens.

Collecting Methods

This species is likely collected by from under bark of dead hardwood trees that are infested with fungi in the genera *Biscogniauxia, Xylaria* and *Diatrype*.

Species Distribution

This species has previously been recorded from Wisconsin (Blatchley and Leng 1916, Downie and Arnett 1996, Valentine 1998). However, no specimens from

Wisconsin were examined during this study as none were seen in museum or personal collections.

North America: United States: AL, DC, GA, IN, LA, MA, MS, NC, NJ, NY, OH, PA, SC, TN, TX, VA, WI. **Canada:** ON. **Mexico:** Country only.

Tribe Trigonorhinini Valentine 1999

Genus *Trigonorhinus* Wollaston

Trigonorhinus Wollaston 1861: 102.

Brachytarsus LeConte 1876: 405.

Anthribulus LeConte 1876: 406.

Brachytarsoides Pierce 1930: 29.

Type Species: *Trigonorhinus pardalis* Wollaston, by monotypy.

This genus was described by Wollaston (1861) and originally contained only one species, *T. pardalis* Wollaston, from the Cape Verde Islands off the west coast of Africa. Bedel (1906) synonymized the genus and species with *Brachytarsus areolatus* Boheman. While subsequent authors agreed that *T. pardalis* and *B.areolatus* are conspecific, *B. areolatus* should not have been placed in *Brachytarsus*. It is generically distinct and the available name *Trigonorhinus* was chosen. In addition to the single Old World species, *Trigonorhinus* is widely represented in the New World, where it has been variously referred to under *Brachytarsus*, *Anthribulus*, and *Brachytarsoides*, the first being incorrectly applied, and the last two being synonyms of *Trigonorhinus* (Valentine 1957).

Generic Diagnosis

Trigonorhinus can be recognized by the basal, transverse pronotal carina, notched eyes, rostrum that narrows apically with apical corners emarginate so that the rostral center is longer than the sides, and by the separate lobes of all 3rd tarsomeres.

Generic Description

Length 1.3-3.3mm (head excluded). **Body** ovate to elongate; **integument** black to light brown; **vestiture** consisting of abundant, hair-like setae; **head** not retractile; **rostrum** prolonged, sides evenly narrowed from base to apex, apex with central portion produced beyond corners, slightly emarginate; **antennae** inserted on sides of rostrum close to eyes; **eyes** lateral, acutely angled ventrally, not emarginate opposite antennal insertions; **pronotum** slightly wider than long, apical margin produced, lateral margins rounded, not carinate except at base; transverse carina basal, sharply elevated; surface punctate; **elytra** parallel or slightly arcuate laterally, broadly rounded apically; striae punctate in even, impressed rows; **pretarsus** with claws cleft, each with a minute inner tooth.

Generic Distribution

Trigonorhinus is Holarctic but is most diverse in the New World, ranging from Canada to Argentina with a maximal diversity found in the United States (Valentine 1998). It is also found in Madeira, Spain, Italy, Sicily, Algeria and Cape Verde (Alonso-Zarazaga and Lyal 1999). There are presently around 25 species in the New World, but this number is subject to frequent revision given the complexity of the genus, with occasional hybridizations among "species". Five species are found in Wisconsin.

Key to the Wisconsin Species of *Trigonorhinus*

1. Tibiae biannulate or with dark spots ……..... ***Trigonorhinus alternatus* (Say)**

1′. Tibiae without dark annulations or dark spots ……. **2**

2. Length <2.25X maximum body width; form relatively short and flat ……..... **3**

2′. Length >2.25X maximum body width, form relatively elongate .....……..... **4**

3. Length 2.0-2.25X maximum body width, 1.8-3.2mm; pronotal base very shallowly emarginate, arcuate opposite scutellum; elytral setae completely white or intermixed with light brown and white or entirely light brown ……..……. ***Trigonorhinus limbatus* (Say)**

3′. Length 1.8-2.2X maximum body width, 1.3-2.0mm; pronotal base broadly emarginate, forming shallow "V" opposite scutellum …….……..… ***Trigonorhinus tomentosus* (Say)**

4. Elytra with a shared, mid-sutural brown spot or field; dorsal color pattern indistinct; pronotum hood-like …… ***Trigonorhinus rotundatus* (LeConte)**

4. Elytra each with a prominent brown spot largely on interstriae 2 or 3 to 5, or spots absent; dorsal color pattern distinct, setae very dark in spots contrasting with light brown or white setae over surface, border between colors abrupt, distinct; pronotum not hood-like ……. ***Trigonorhinus sticticus* (Boheman)**

***Trigonorhinus alternatus* (Say)**

[Figures 44, 45; Map 15]

Anthribus alternatus Say 1826: 250.

Brachytarsus alternatus (Say); Blatchley and Leng 1916: 38.

Brachytarsoides alternatus (Say); Pierce 1930: 30.

Trigonorhinus alternatus (Say); Valentine 1957: 9.

Species Diagnosis

Trigonorhinus alteranatus can be recognized by the tibiae that are biannulate or with dark spots, smooth interpunctural space on the elytra, and by the color pattern. *Trigonorhinus alternatus* has been misidentified as *Eusphyrus walshii,* but can be distinguished from it by the rostrum that is narrowed subapically, with the medial 1/3 longer than the sides apically, by the tibial vestiture: two dark spots and three light spots, and by elytral interstriae 3, 5, and 7 that have numerous white setae.

Species Description

Length 2.1-3.3mm (head excluded). **Body** elongate. **Integument** dark reddish-brown to black. **Vestiture** consisting of white and brown setae; pronotal setae white and brown intermixed with white, forming at least 3 longitudinal stripes; elytral setae silvery with numerous brown spots, with larger medial and basal spots; interstriae 3, 5 and 7 with numerous white setae, 1, 2, 4 and 6 with light brown setae wand dark brown setae scattered in numerous small spots; tibial setae annulate or spotted, with 2 dark and 3 pale areas; abdominal sternites each with 1 lateral spot of brown setae. **Rostrum** flattened, not transversely impressed, narrowed apically, medial 1/3 prolonged apically; surface densely punctate. **Frons** flattened, not transversely impressed; surface densely punctate, the rims of the punctures elevated. **Pronotum** width 1.2X length, widest at basal angles; weakly arcuate laterally, converging to narrowly rounded apical margin; disc evenly convex, weakly impressed before transverse carina; transverse carina basal, weakly emarginate, acutely elevated; surface densely punctate, the rims of the punctures not elevated, interpunctural space smooth, nitid. **Elytra** with length 1.4X width, weakly arcuate laterally, broadly rounded apically; disc evenly convex; striae moderately

impressed in even rows; interstriae flat, densely and finely punctate, about 4.0X strial width.

Natural History

Larvae of this species feed on stems surrounded by plant fragments and debris, then pupate in the stem or in the main stem (Pierce 1930). *Trigonorhinus alternatus* has also been found in fungus galls and flower heads of numerous plant species, as well as overwintering in cotton bolls and ovipositing in kernels of dry corn (*Zea mays*). It has also been recorded from fungus-infested morning glories (Valentine 2002). In Wisconsin, a specimen was collected by sweeping apple (*Malus spp.*).

Phenology

The two specimens collected from Wisconsin were found in June and July.

Collecting Methods

The **2 Wisconsin specimens** collected from two counties represent a **NEW STATE RECORD**. One specimen was collected by sweeping apple.

Species Distribution

Wisconsin County Records: Dane, Dodge.

North America: United States: AL, CA, CO, DC, FL, IA, IL, IN, KS, MA, MI, MO, NC, NY, OH, OR, PA, SC, TX, UT, VA, WI. **Canada:** AB, NS, ON.

***Trigonorhinus limbatus* (Say)**

[Figures 46, 47; Map 16]

Anthribus limbatus Say 1827: 250.

Brachytarsus plumbeus Leconte 1876:406.

Brachytarsus vestitus Leconte 1876:406.

Brachytarsus naviculus Jordan 1907:379.

Brachytarsus limbatus (Say); Blatchley and Leng 1916: 40.

Brachytarsoides limbatus (Say); Pierce 1930: 30.

Brachytarsoides rufodorsalis Dethlefsen 1954:58.

Braclzytarsoides minor Dethlefsen 1954:58.

Brachytarsoides quadratus Dethlefsen 1954:59.

Brachytarsoides quadratus ssp. nigrinus Dethlefsen 1954:60.

Trigonorhinus limbatus (Say); Valentine 1957: 9.

Species Diagnosis

Trigonorhinus limbatus can be distinguished from other *Trigonorhinus* species by its diffuse color pattern that consists of white to light brown setae, and by the pronotum possessing a shallowly emarginate base that is arcuate opposite the scutellum.

Species Description

Length 1.8-3.2mm (head excluded). **Integument** black to dark reddish-brown, legs light reddish-brown. **Vestiture** consisting of white to light brown setae; pronotal setae pale gray or brown, in spots or intermixed with darker brown; elytral discal setae white, white and light brown intermixed, or entirely light brown, with light brown setae often in small, scattered spots. **Rostrum** moderately prolonged, narrowed apically, medial 1/3 prolonged apically; surface finely punctate. **Frons** weakly convex, weakly transversely impressed below eye level, surface finely punctate. **Pronotum** with width

1.2X length, widest at basal angles; sides distinctly arcuate, strongly converging to narrowly rounded apical margin; disc evenly and strongly convex, weakly and transversely impressed before transverse carina, transverse carina basal, very weakly arcuate, acutely elevated; surface shining, with shallow, sparse punctures, interpunctural space punctulate or minutely reticulate. **Elytra** with length 1.2X width, sides evenly and weakly arcuate to broadly rounded apex; disc evenly convex; striae weakly and narrowly impressed, with small, deeply impressed punctures; interstriae 3.0-4.0X strial width, minutely reticulate-granulate.

Natural History

Adults breed in the heads and stems of various flowers in Asteraceae, especially in those of *Helenium*. Specifically, they have been recorded on sneeze weed, *Helenium autumnale*. According to Howden (1992), Valentine observed that adult females use the toothed ovipositor to simply push aside parts of a composite flower head, or they may oviposit in stems.

A series in Wisconsin was recorded to be "mating and perhaps feeding on flowers of *Helenium autumnale*".

Phenology

In Wisconsin, adults of have been collected from June to August.

Collecting Methods

The **31 Wisconsin specimens** examined during this study from five counties represent a **NEW STATE RECORD**. Most specimens were hand-collected from *H. autumnale*.

Species Distribution

Wisconsin County Records: Buffalo, Dane, Grant, Milwaukee, Pierce.

North America: United States: AL, AR, CA, DC, FL, GA, IL, IN, KS, LA, MS, NY, OH, OR, PA, SC, TX, VA, WA, WI. **Canada:** SK.

***Trigonorhinus rotundatus* (LeConte)**

[Figures 48, 49; Map 17]

Anthribulus rotundatus Leconte 1876:40

Brachytarsoides rotundatus (LeConte); Pierce 1930: 31.

Trigonorhinus rotundatus (LeConte); Valentine 1957: 9.

Species Diagnosis

Trigonorhinus rotundatus can be easily recognized as it is the only *Trigonorhinus* with the pronotal hind angles obsolete (also described as obtuse and rounded). It can also be distinguished by the silvery grey and brown vestiture. It can be distinguished from *T. tomentosus* by the longer elytra.

Species Description

Length 1.4-2.4mm (head excluded). **Body** elongate-ovate, somewhat convex. **Integument** black to dark reddish-brown, legs light reddish-brown to orange; antennae orange, club dusky. **Vestiture** consisting of brown setae with scattered patches of fine silvery gray setae. **Rostrum** moderately prolonged; narrowed apically, medial 1/3 prolonged apically. **Frons** weakly convex. **Pronotum** longer than wide, widest at basal angles, gradually narrowed apically, broadly rounded laterally and apically; pronotal hind angles obtuse and rounded; transverse carina basal, very slightly arcuate. **Elytra** with length 1.4X width, 1.5X pronotal length; elytral base slightly wider than base of

pronotum, humeral angles rounded; sides evenly and slightly arcuate to broadly rounded apex; striae deep, punctate; interstriae 3.0-4.0X strial width.

Natural History

Blatchley and Leng (1916) recorded this species on the flowers of *Vaccinium*; they also stated that it occurs in swampy meadows. This species has also been recorded from smutty grass (*Andropogon* spp.) and ferns (Valentine 2002). In Wisconsin, it has been found on flowers of huckleberry (*Vaccinium spp.*).

Phenology

In Wisconsin, adults have been collected in June and August.

Collecting Methods

The **9 Wisconsin specimens** examined during this study from five counties represent a **NEW STATE RECORD**. Most specimens were collected by sweeping.

Species Distribution

Wisconsin County Records: Green Lake, Jackson, Juneau, Oconto, Wood.

North America: United States: AL, CT, DC, FL, GA, IL, IN, LA, ME, MI, MS, NH, NJ, NY, RI, SC, TX, VA, WI.

***Trigonorhinus sticticus* (Boheman)**

[Figures 50, 51, 66; Map 18]

Brachytarsus sticticus Boheman 1833: 172.

Anthribus variegatus Say 1826: 251.

Brachytarsus obsoletus Fahraeus 1839: 167.

Brachytarsus strictus (Boheman); Zimmerman 1936: 191.

Trigonorhinus sticticus (Boheman); Valentine 1957: 9.

Species Diagnosis

Trigonorhinus sticticus can look similar to *T. alternatus* in terms of dorsal vestiture, but it can be distinguished by tibial vestiture: not biannulate or with dark spots. It can be distinguished from other species of *Trigonorhinus* by the conspicuous dorsal pattern, consisting of very dark setae in spots that abruptly and distinctly contrast with the light brown or white setae on the surfaces.

Species Description

Length 1.8-3.2mm (head excluded). **Integument** black and reddish-brown. **Vestiture** consisting of white, light brown and dark brown setae; pronotum with dark brown setae predominant basally and white or light brown setae predominant apically. **Elytra** with scattered light brown setae intermixed with white setae, occasionally with scattered spots of dark brown setae surrounded by white setae in an irregular pattern baso-laterally, interstriae 1-4 with 1 large or 2 connected dark brown spots basally and 2 dark, medial spots, medial spots sometimes connected by dark setae on interstriae 1 and 2. **Rostrum** moderately prolonged, narrowed apically, medial 1/3 prolonged apically; surface finely punctate. **Frons** weakly convex, transversely impressed below eye level; surface finely punctate. **Pronotum** slightly wider than long, widest just behind middle, sides distinctly arcuate, converging to narrowly rounded apex; disc evenly convex, with narrow transverse impression just before transverse carina, transverse carina basal, weakly arcuate, acutely elevated; surface shining, with obscure shallow punctures; interpuncture space minutely punctate or reticulate. **Elytra** length around 1.3X width, sides evenly and slightly arcuate to broadly rounded apex; striae weakly impressed, with

large, obscure, more deeply impressed punctures; interstriae 1.0-2.0X strial width, minutely punctate.

Natural History

This species breeds in smut fungi on corn (*Zea mays*), wheat (*Triticum spp.*), wild grasses such as little bluestem (*Schizachyrium scoparium*), or shrubs. It has also been recorded on flowers of buttonbush (*Cephalanthus occidentalis*), and on prairie dropseed (*Sporobolis heterolepis*) and sideoats grama (*Bouteloua curtipendula*).

Phenology

In Wisconsin, adults have been collected from April to August.

Collecting Methods

The **52 Wisconsin specimens** examined during this study from 21 counties represent a **NEW STATE RECORD**. Adults are most commonly collected by sweeping grassy fields. They have also been collected in Malaise traps, Lindgren funnel traps, vacuums, and by hand.

Species Distribution

Wisconsin County Records: Adams, Buffalo, Columbia, Dane, Dodge, Door, Fond du Lac, Iowa, Grant, Jackson, Jefferson, Kenosha, Lafayette, Marquette, Milwaukee, Oconto, Ozaukee, Rock, Sauk, Sheboygan, Walworth.

North America: United States: CA, CT, DC, FL, IA, IN, KS, ME, MI, MT, NC, NJ, NV, NY, OH, PA, SC, TX, UT, WA, WI. **Canada:** AB, BC, PQ, QB.

***Trigonorhinus tomentosus* (Say)**

[Figures 52, 53; Map 19]

Anthribus tomentosus Say 1826: 251.

Brachytarsus brevis Fahraeus 1839: 168.

Brachytarsus paululus Casey 1884: 194.

Brachytarsus beyeri Schaeffer 1906:277.

Brachytarsus tomentosus (Say); Blatchley and Leng 1916: 40.

Brachytarsoides tomentosus (Say); Pierce 1930: 31.

Brachytarsus franseria Barrett 1931:188.

Brachytarsoides irregularis Tanner 1934:285

Trigonorhinus tomentosus (Say); Valentine 1957: 9.

Species Diagnosis

Trigonorhinus tomentosus can be distinguished from other *Trigonorhinus* species by its small size (*T. rotundatus* is also small but *T. tomentosus* has well-developed pronotal hind angles), by the acutely elevated, basal transverse pronotal carina that forms a shallow V-shape, and by the diffuse color pattern. It can be easily confused with *T. limbatus* at first glance, but the above characters should be sufficient to distinguish the two species.

Species Description

Length 1.3-2.1mm (head excluded). **Body** short and ovate. **Integument** light to dark reddish-brown to black. **Vestiture** consisting of grey and brown setae that are randomly mixed; brown elytral setae sometimes forming large and diffuse basal-median spots. **Rostrum** separated from frons by weak transverse impression just below level of eyes, surface flat; lateral margins weakly elevated, punctate; surface finely punctate, with short, grey recumbent setae. **Frons** weakly convex, surface finely punctate, with short,

grey recumbent setae. **Pronotum** with width 1.3X length, widest at basal angles; sides weakly arcuate, strongly converging to narrowly rounded apex; disc evenly convex, weakly, transversely impressed before transverse carina, transverse carina basal, acutely elevated, forming a shallow V-shape; surface with shallow, irregularly placed, inconspicuous punctures, interpunctural space finely granulose-punctate. **Elytra** with length about 1.2X width, sides evenly arcuate to broadly rounded apex, disc evenly convex; striae narrowly and weakly impressed, with small punctures that are slightly more deeply impressed; interstriae flat, finely granulose-punctate, about 4.0X strial width.

Natural History

This species is the most abundant *Trigonorhinus* and anthribid species in Wisconsin; it is generally associated with smut fungi on grasses, which are ubiquitous. Pierce (1916) recorded that this species is found on the common ragweed (*Ambrosia artemisiifolia*). Bright (1993) reported that the adults oviposit in flowers of the same species.

Other records of plants associations include dwarf cherry (*Prunus fruticosa*), prairie dropseed (*Sporobolis* heterolepis), sideoats grama (*Bouteloua curtipendula*), little bluestem (*Schizachyrium scoparium*), raspberry (*Rubus spp*.), and mullein (*Verbascum thapsus*).

Phenology

In Wisconsin, adults have been collected from April to September.

Collecting Methods

The **203 Wisconsin specimens** examined from 32 counties represent a **NEW STATE RECORD**. This species is most commonly collected by sweeping. Many specimens have been collected in Malaise traps, one was collected with a vacuum, one was found at a blacklight trap, and one was "found on Mullein, *Verbascum thapsus*."

Species Distribution

Wisconsin County Records Adams, Barron, Columbia, Crawford, Dane, Dunn, Eau Claire, Fond du Lac, Grant, Green, Green Lake, Iowa, Jackson, Jefferson, Juneau, Lafayette, La Crosse, Marquette, Menominee, Monroe, Ozaukee, Pepin, Pierce, Portage, Rock, Sauk, Sawyer, Shawano, Sheboygan, Trempealeau, Waushara, Wood.

North America: United States: AL, CA, DC, DE, FL, IN, MI, NC, NJ, NV, OH, OR, PA, SC, UT, VA, WA, WI. **Canada:** ON, PQ, QB.

Tribe Tropiderini Lacordaire 1866

Genus *Gonotropis* LeConte

Gonotropis Leconte 1876:393.

Type species: *Gonotropis gibbosa* Leconte, 1876, by monotypy.

Generic Diagnosis

Gonotropis can be recognized by the smooth, shallow, median longitudinal groove on the posterior half of the pronotum, the irregular antebasal, transverse pronotal carina that is angulate towards the scutellum medially, by the strong sub-basal crest on elytral interstria 3, and by the white facial pubescence.

Generic Description

Length 4.5 - 6.0mm (head excluded). **Integument** brown; **vestiture** consisting of abundant, hair-like, brown and white setae; **rostrum** distinctly prolonged, with sides converging medially, broadly expanded apically, surface clothed with abundant white setae; **frons** flattened, surface clothed with abundant white setae; **antennae** inserted on sides of rostrum, insertion remote from eye; **pronotum** with transverse, antebasal carina, carina irregularly angulate towards scutellum medially, surface with smooth, shallow, median longitudinal groove in basal 1/2; **elytra** with sides parallel, broadly rounded apically, surface irregular, interstria 3 with strong sub-basal crest.

Generic Distribution

Gonotropis is found in Europe, Siberia, Japan, and North America (Alonso-Zarazaga and Lyal 1999). It includes three species, one of which is found in Wisconsin.

***Gonotropis gibbosus* LeConte**

[Figures 54, 55]

Gonotropis gibbosus LeConte 1876: 394.

Anthribus dorsalis Thunberg 1796: 146.

Tropideres dorsalis (Thunberg); Wolfrum 1929: 55.

Valentine (1960) synonymized *G. gibbosus* and *Tropideres dorsalis* but returned *gibbosus* to species status (1998), though the relationship seems not yet entirely resolved.

Species Diagnosis

Gonotropis gibbosus can be recognized by the prominent elevations on the elytral bases, white frons and rostrum, large patch of whitish-yellow setae that is almost an

inverse heart shape basally on the elytra, and by the patch of triangular brown setae baso-medially on the pronotum.

Species Description

Length 4.5 - 6.0mm (head excluded). **Vestiture** on pronotum dense, sparser laterally, white apically and laterally, forming brownish, triangular, median spot; vestiture on elytral base forming a large spot of light-brown to white setae extending laterally to interstria 5, remainder of elytra with light to dark brown setae and scattered white setae. **Rostrum** covered with dense, white setae. **Frons** flattened, without carinae; surface sculpture concealed by dense white setae except at lateral and apical angles. **Pronotum** with width 1.5-1.6X length, widest at base; sides angulate basally, straight, and then strongly converging to narrowly rounded apex; base broadly emarginate, transverse carina antebasal, acute, strongly elevated, angulate medially towards scutellum, lateral carinae acute, strongly elevated; pronotal surface dark, dull, setaceous, densely reticulate, with deep punctures; pronotal disc distinctly impressed medially, less distinctly impressed basally. **Elytra** with length about 1.3X width, broadly rounded apically; striae with very deep, small punctures in regular rows; interstriae 3, 5 and 7 distinctly elevated, broadly tuberculate, base of interstria 3 with one prominent elevation. **Pydigium** vertical, broadly rounded apically in both sexes.

Natural History

This species has been recorded from “dead hemlock”. It was also recorded on dry branches of oak (*Quercus* spp.) and birch (*Betula* spp.) in Europe (Pierce 1930), as well as on poplar (*Populus* spp.) (Downie and Arnett 1996).

Valentine (1998) elaborated on one specimen from Madison, Wisconsin with a long label: “Hybrid poplar, Madison Wis. Beetle issued from callous around a canker. Aug. 1952 Dr. Waterman, Pathologist New Haven, Conn. Sent by J. V. Schaffner, Jr.”

Phenology

No additional data for Wisconsin.

Collecting Methods

In Wisconsin, **2 specimens** were examined during this study. This series of specimens had meager label data associated with them: “before Oct 1897”, without county or phenological data.

Species Distribution

Wisconsin County Records: Dane.

North America: United States: AK, CO, CT, IN, MA, ME, MI, MN, MT, NY, OH, PA, WI. **Canada:** AB, MB, ON, PG, SK.

Genus *Eurymycter* LeConte 1876

Eurymycter Leconte 1876:394.

Tropideres Schönherr 1823: column 1135.

Tropidoderes Gemminger and van Harold 1872: 2733.

Gonotropis LeConte 1876: 393.

Type species: *Macrocephalus fasciatus* Olivier, 1795, by monotypy.

Generic Diagnosis

Eurymycter can be recognized by the broad, irregular white band crossing the elytra above the declivity and that reaches the side margins, the short, antemedial

transverse sinuous groove on the pronotum, white pubescence on the face between the eyes and antennal scrobes, the rostrum that is broadest at the apex, the broad, truncate, parallel-sided mesosternal processes, and by the finely faceted, entire eyes that are not protruding.

Generic Description

Length 3.2-7.5mm. **Integument** dark brown; **vestiture** consisting of abundant, recumbent setae; **head** not retractile; **rostrum** distinctly prolonged, with sides converging medially, broadly expanded apically, surface clothed with abundant white setae; **frons** flattened, becoming strongly convex at eye level; **antennae** inserted laterally on rostrum, insertions remote from eyes; **eyes** rounded, slightly protuberant or flat, located laterally on head; **pronotum** wider than long, with lateral margins sinuate and converging apically; transverse carina antebasal, distinct; pronotal surface irregular, punctate-reticulate; **elytra** with sides parallel, broadly rounded apically; surface irregular, usually with basal elevations; striae punctate in nearly regular rows, interstriae variously elevated.

Generic Distribution

Eurymycter is found in Europe, Siberia, Kuril Islands, Japan, Taiwan, Laos, and Vietnam (Alonso-Zarazaga and Lyal 1999). It includes three species in the Nearctic region, two of which occur in Wisconsin.

Key to the Wisconsin Species of *Eurymycter*

1. Abdominal pubescence brown in center, usually with some gray or white setae laterally; setae on each metathoracic tibia forming a pale medial band ……... ……...…… ***Eurymycter tricarinatus*** **Pierce**

1′. Abdominal pubescence white throughout, or with brown spots laterally; setae on each metathoracic tibia forming two pale, narrow median bands ……..

..…..… ***Eurymycter fasciatus* (Olivier)**

***Eurymycter fasciatus* (Olivier)**

[Figures 56, 57; Map 20]

Macrocephalus fasciatus Olivier 1795: 9.

Eurymycter bicarinatus Pierce 1930: 17.

Tropideres fasciatus (Olivier); Valentine 1960: 70.

Eurymycter fasciatus (Olivier); Valentine 1998: 275.

Species Diagnosis

Eurymycter fasciatus can be easily distinguished from *E. tricarinatus* by the solid white abdominal pubescence that may or may not have brown lateral spots (as opposed to the brown abdomen in *E. tricarinatus*). It can also be distinguished by the elevated interstriae 3, 5, and 7, and by the metathoracic tibiae that each have two, narrow median bands (each metathoracic tibia with one ring in *E. tricarinatus*).

Species Description

Length 5.8- 7.5 mm (head excluded). **Integument** dark brown. **Vestiture** of pronotum consisting of small, light brown setae, with scattered, small, white or yellow patches; setae on each metathoracic tibia forming 2 pale narrow median bands, or setae on tibial apex brown, spotted with white. **Rostrum** prolonged, flattened, with 3 carinae, 2 lateral carinae distinctly elevated, medial carina less distinctly elevated; rostral surface concealed by dense, white, recumbent setae. **Frons** evenly convex; median longitudinal

groove not evident; surface concealed by dense, white, recumbent setae. **Pronotum** with width about 1.3X length, widest behind middle; sides angulate basally, converging toward broadly rounded apex, broadly emarginate basally; transverse carina antebasal, strongly elevated; lateral carinae acute, strongly elevated; surface very irregular, with median, narrow, deeply impressed W-shaped groove medially; disc with various weak elevations and distinct, strong punctures or small impressions laterally, surface shining, with dense, minute punctures. **Elytra** with length about 1.4X width, broadly rounded apically; striae indistinct, with rather small, deep punctures, these larger and much deeper basally; interstriae 3, 5 and 7 weakly elevated, the elevations smooth on summit, base of interstria 3 slightly elevated. **Abdominal venter** covered with white setae, sometimes with scattered, small brown spots laterally. **Pygidium** vertical, narrowly rounded apically in both sexes.

Natural History

This species is generally associated with fungi on woody plants and can often be found under bark of decaying wood. More specifically, both adults and larvae are recorded to feed on pyrenomycete fungi growing on birch (*Betula* spp.) (Majka et al. 2007). It has also been recorded from sassafras (*Sassafras* spp.).

Phenology

In Wisconsin, adults have been recorded in June and July.

Collecting Methods

The **3 Wisconsin specimens** examined during this study from two counties represent a **NEW STATE RECORD**. This species is most commonly collected in Malaise traps in hardwood forests or oak/pine barrens.

Species Distribution

Wisconsin County Records: Adams, Oneida.

North America: United States: CO, DC, FL, GA, ID, KS, MD, MI, MS, NC, NY, OR, PA, SC, TN, TX, WA, WI. **Canada:** BC, ON, PQ, QB.

***Eurymycter tricarinatus* Pierce**

[Figures 2, 4, 58, 59; Map 21]

Eurymycter tricarinatus Pierce 1930: 18.

Tropideres tricarinatus (Pirece); Valentine 1960: 70.

Species Diagnosis

Eurymycter tricarinatus is most similar to *E. fasciatus*. It can be distinguished by the abdominal pubescence that is brown at the center and gray or white laterally, and by the vestiture of the metathoracic tibiae, each having setae forming one pale, medial band, as opposed to two. It can be distinguished from *G. gibbosus* by the absence of a large, white setal patch basally on the elytra.

Species Description

Length 5.2- 7.5 mm (head excluded). **Integument** dark brown. **Vestiture** of pronotum consisting of small, light brown setae, with scattered, small, white or yellow setal patches; vestiture of elytra consisting of light brown setae, apical 1/2 with distinct transverse band of white setae, apex with brown setae; setae on metathoracic tibiae each forming 1 pale narrow median band. **Rostrum** prolonged, flattened, with 3 carinae, 2 lateral carinae distinctly elevated; surface concealed by dense, white, recumbent setae, brown apically. **Pronotum** with width about 1.3X length, widest behind middle; sides

angulate basally, converging toward broadly rounded apex, broadly emarginate basally; transverse carina antebasal, strongly elevated; lateral carina acute, strongly elevated; surface irregular, with medial, narrow, deeply impressed W-shaped groove; disc with various weak elevations and distinct, strong punctures or small impressions laterally, surface shining, with dense minute punctures. **Elytra** with length about 1.4X width, broadly rounded apically; striae indistinct, with large, shallow punctures that are much deeper behind base; interstriae 3, 5 and 7 weakly elevated, the elevations smooth on summit; base of interstria 3 slightly elevated. **Abdominal venter** with brown setae in center, white or gray laterally. **Pygidium** vertical, narrowly rounded apically in both sexes.

Natural History

This species is commonly found under bark of decaying wood, as it is associated with fungi on woody plants.

In Wisconsin, it has been recorded from a variety of habitats, including mixed hardwood forests, old growth northern mesic forests, oak pine barrens, oak pine forests, and dry lime prairies.

Phenology

In Wisconsin, adults have been collected from May to September.

Collecting Methods

In Wisconsin, **28 specimens** were examined during this study from 13 counties. This species is most frequently collected with the Malaise trap, as more than half of the Wisconsin specimens were collected this way. Adults have also been collected by hand, in flight intercept traps, and in Lindgren funnel traps.

Species Distribution

This species has previously been recorded from Milwaukee County (Pierce 1930, Valentine 1960, Downie and Arnett 1996).

Additional Wisconsin County Records: Barron, Chippewa, Dodge, Grant, Jackson, Langlade, Marathon, Ozaukee, Polk, Rusk, Sauk, Shawano, Waupaca.

North America: US: AK, AL, DC, IL, IN, NC, OH, PA, VA, WI. **Canada:** BC, PQ, QB.

Tribe Zygaenodini Lacordaire 1866

Genus *Eusphyrus* LeConte

Eusphyrus Leconte 1876: 399.

Type species: *Eusphyrus walshii* Leconte 1876, by monotypy.

Valentine (1960) proposed synonymizing *Ormiscus* and *Eusphyrus*, but later (1998) restored them to two, distinct monophyletic sister genera.

Generic Diagnosis

Species *Eusphyrus* is very similar to species of *Ormiscus*, but can be distinguished by the basal or subbasal transverse pronotal carina that is cabable of contacting elytral base. These genera can also be confused with species of *Trigonorhinus*, but can be distinguished by the quadrate rostrum that does not narrow apically.

Generic Description

Length 2.0-2.8mm (head excluded). **Integument** light to dark brown; **vestiture** consisting of brown and white setae; **eyes** notched on side nearest antennal scrobes; **rostrum** quadrate; **antennae** not or barely reaching elytral humerae; **pronotum** with

lateral carina short and straight (not upturned apically) or absent, transverse carina basal, capable of contacting the elytral base; **intercoxal process** of mesothoracic sternum not expanded apically; **coxae** of prothoracic and mesothoracic legs not widely separate, each intercoxal process not wider than a coxal diameter.

Generic Distribution

Eusphyrus+Ormiscus is found from Canada to Argentina, Mexico, Guatemala, West Indies, the Galapagos, and France (Alonso-Zarazaga and Lyal 1999). *Eusphyrus* currently contains six named species in the Nearctic region; several undescribed species appear likely, as well. The described species include *E .quercus* (Schaeffer), *E. eusphyroides* (Schaeffer), *E. walshii* LeConte, *E. rectus* Schaeffer, *E. arizonensis* Schaeffer, and *E. schwarzi* Pierce. Only *E. walshii* occurs in Wisconsin.

***Eusphyrus walshii* LeConte**

[Figures 60, 61, 67; Map 22]

Eusphyrus walshii LeConte 1876: 400.

Ormiscus walshii (LeConte); Valentine 1960: 62.

Species Diagnosis

Eusphyrus walshii can be distinguished from *Ormiscus* species by the basal transverse pronotal carina that is capable of contacting elytral base. It can be distinguished from other *Eusphyrus* species by the visible scutellum that is larger than adjacent elytral punctures, and by the microgranulate pronotal surface, due to traces of very small crowded punctures with fragmentary rims.

Species Description

Length 2.0-2.8mm (head excluded). **Integument** light to dark reddish-brown; pronotum usually darker. **Vestiture** consisting of white or gray and light brown to dark brown setae; brown setae scattered on apical 1/2 of elytra and forming vague medial spot; white setae scattered in small spots on basal 1/2 of elytra and forming a vague transverse spot extending to base of interstriae 6 and 7, interstriae 3-5 with baso-medial brown spot. **Rostrum** flattened, broad; surface with small, shallow punctures. **Frons** strongly convex; surface dull, with small, shallow punctures; interpunctural space densely reticulate. **Pronotum** with width 1.5X length, widest at basal angles, weakly arcuate laterally, converging to broadly rounded apex; disc convex, surface densely granulate-punctate; transverse carina basal, emarginate, acutely elevated, capable of contacting elytral base. **Elytra** with length 1.3X width, about 2.0X pronotal length, sides parallel on basal 2/3, broadly rounded apically; straie weakly impressed, with moderately deep and moderately large punctures; interstriae smooth, convex, about 2.0X strial width, with minute punctures.

Natural History

Valentine (1998) collected this species with various methods in many contexts: by rearing from dead poison ivy (*Toxicodendron radicans*) vines, beating dead branches of white oak (*Quercus alba*), beating dead elm (*Ulmus spp.*), beating dead leaves, beating dead limbs, from under oak bark, recovered from Lindgren funnel, Malaise, and flight intercept traps, at light, and recovered from a Berlese funnel of leaf litter samples. In general, the adults breed in dead wood of deciduous trees. This species can also be collected at light.

Phenology

In Wisconsin, adults have been collected in July and August.

Colleting Methods

The **2 Wisconsin specimens** examined during this study from two counties represent a **NEW STATE RECORD**. One specimen was recovered from a Malaise trap at the edge of a southern mixed deciduous forest while the other was taken from a Malaise trap in a beech-maple forest.

Species Distribution

Wisconsin County Records: Lafayette, Ozaukee.

North America: United States: AL, DC, FL, IA, IL, IN, LA, MD, ME, MI, MS, NC, NJ, OH, SC, TX, VA, WI, WV. **Canada:** QB.

Genus *Ormiscus* G. R. Waterhouse

Ormiscus G. R. Waterhouse 1845:37.

Hormiscus Gemminger and von Harold 1872: 2738.

Entomops Lacordaire 1866: 553.

Toxotropis LeConte 1876: 397.

Gonops LeConte 1876: 398

Type species: *Ormiscus variegatus* G. R. Waterhouse, 1845, by monotypy.

Valentine (1960) synonymized the genera *Ormiscus* and *Eusphyrus* stating they were connected by two "intermediate species". Later (Valentine 1998) the two taxa were hypothesized to represent two, distinct, monophyletic sister genera. This genus has never been revised and is believed to include many new species.

Generic Diagnosis

Ormiscus can be distinguished from *Trigonorhinus* by the quadrate rostrum. It can be distinguished from *Eusphyrus* by the antebasal transverse pronotal carina that is incapable of reaching the elytra base, and by the pronotal hind angles that are not projecting laterad the humerae. *Ormiscus* can be distinguished from most other anthribids by having separate lobes on the 3rd tarsomeres, notched eyes, small size, and by the quadrate rostrum.

Generic Description

Length 1.5-2.0mm (head excluded). **Integument** dark brown; **vestiture** consisting of white or gray and dark brown setae; **rostrum** quadrate; **antennae** not or barely reaching humerae; **eyes** notched on side nearest antennal scrobes; **pronotum** with lateral carina short and straight (not upturned apically) or absent, transverse carina antebasal, not capable of contacting the elytral base at any point along its length; **intercoxal process** of mesothoracic sternum not expanded apically; **coxae** of prothoracic and mesothoracic legs not widely separate, each intercoxal process no wider than a coxal diameter; **sexual dimorphism** present: **head** of male with uniform white setae while that of female has mottled brown and gray setae; **mesothoracic tibiae** of male each with a small, black apical-ventral lobe or a small spine; **abdomen** of male concave.

Generic Distribution

Ormiscus+Eusphyrus is found from Canada to Argentina, Mexico, Guatemala, West Indies, the Galapagos, and France (Alonso-Zarazaga and Lyal 1999). *Ormiscus* includes 14 described and 30 more undescribed species in the Nearctic region, one of which occurs in Wisconsin.

***Ormiscus saltator* (LeConte)**

[Figures 62, 63; Map 23]

Hormiscus saltator LeConte 1876: 397.

Ormiscus angulatus Pierce 1930: 6.

Ormiscus piercei Sleeper 1954:117.

Ormiscus saltator (LeConte); Blatchley and Leng 1916: 26.

Species Diagnosis

Ormiscus saltator can be distinguished from *Eusphyrus* species by the antebasal transverse pronotal carina that is incapable of contacting the elytral bases. It can be distinguished from other *Ormiscus* species by the solidly fused antennal club, by the transverse pronotal carina that ends without turning (as opposed to turning downwardly, apically) and by the males having a small black lobe on the inner angles of the mesothoracic tibiae, apically.

Species Description

Length 1.5-2.0 mm (head excluded). **Integument** light to dark reddish-brown; legs generally lighter. **Vestiture** on elytra consisting of white or gray with dark brown setae, white or gray setae usually more abundant, forming vague transverse line on basal 1/3, apical 1/3 variously mottled; with brown setae making up basal spot and large transverse median spot, and scattered spots on apical 2/3. **Rostrum** flattened, broad; surface with large, shallow, coarsely placed punctures. **Frons** strongly convex, with large, shallow, closely placed punctures. **Pronotum** with width 1.2X length, widest at basal angles, sides arcuate to broadly rounded apex; disc weakly convex before transverse carina; transverse carina antebasal, remote from base, acutely elevated,

emarginate; pronotal surface smooth, with dense, shallow, rather large punctures. **Elytra** with length about 1.3X width, sides parallel in basal 2/3, broadly rounded apically; striae punctate, with deeply impressed, moderately large punctures; interstriae about 2.0X strial width, smooth, with scattered minute points.

Natural History

Adults breed in dead wood of deciduous trees. Some *Ormiscus* species are also known to inhabit seeds and galls. In Wisconsin, it has been recorded from dead oak leaves and dead branches in general.

Phenology

In Wisconsin, adults have been collected from June to August.

Collecting Methods

The **29 Wisconsin specimens** examined during this study from 18 counties represent a **NEW STATE RECORD**. Adults are most commonly collected by beating dead twigs, vines, branches of deciduous trees, or understory bushes, or by sweeping dead herbaceous stems. In Wisconsin, they have also been collected from a Malaise trap at the edge of a mixed hardwood forest, a turpentine-baited Lindgren funnel trap in a mixed hardwood forest, beating dead oak branches with dried brown leaves, and by sweeping foliage in hardwood-dominated forest and in oak barrens.

Species Distribution

Wisconsin County Records: Barron, Chippewa, Columbia, Dane, Dodge, Dunn, Fond du Lac, Grant, Jackson, Jefferson, La Crosse, Milwaukee, Oneida, Ozaukee, Sheboygan, Trempealeau, Vernon, Waukesha.

North America: United States: AL, CT, FL, IL, IN, OH, PA, NC, NE, NJ, NY, MA, MI, SC, TX, WI.

Figure 24. *Choragus zimmermanni* LeConte, dorsal habitus.

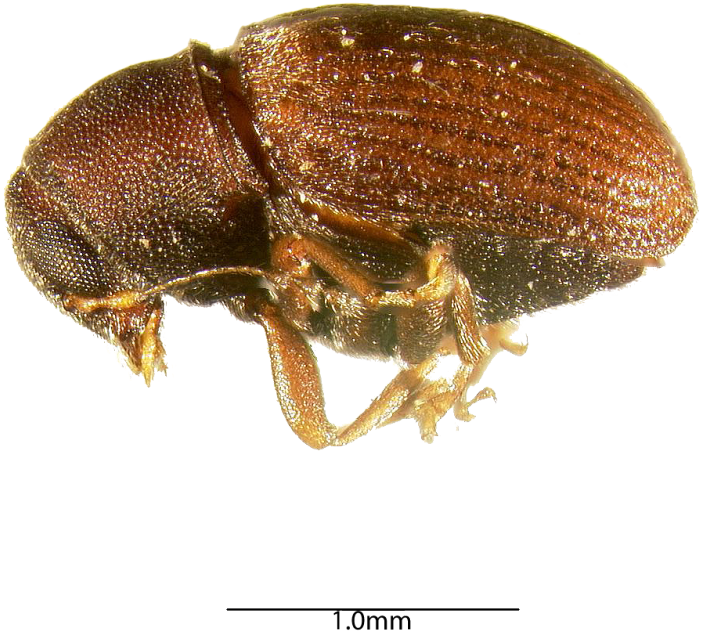


Figure 25. *Choragus zimmermanni* LeConte, lateral habitus.

Figure 26. *Euxenus punctatus* LeConte, dorsal habitus.

Figure 27. *Euxenus punctatus* LeConte, lateral habitus.

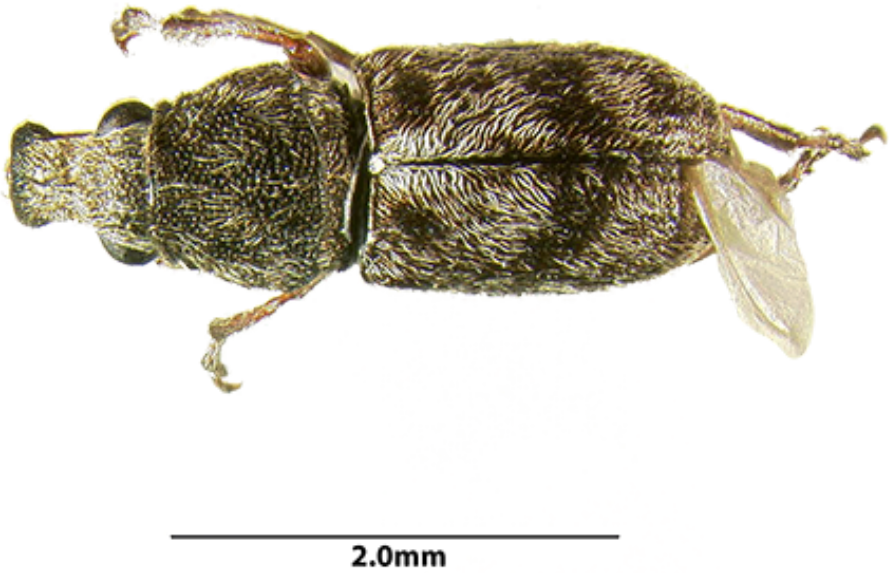
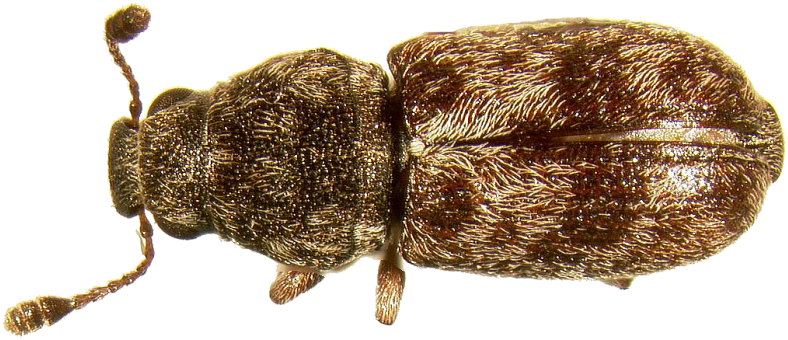


Figure 28. *Allandrus bifasciatus* LeConte, dorsal habitus (M).

Figure 29. *Allandrus bifasciatus* LeConte, lateral habitus (M).



2.0mm

Figure 30. *Allandrus brevicornis* Frost, dorsal habitus.

2.0mm

Figure 31. *Allandrus brevicornis* Frost, lateral habitus.

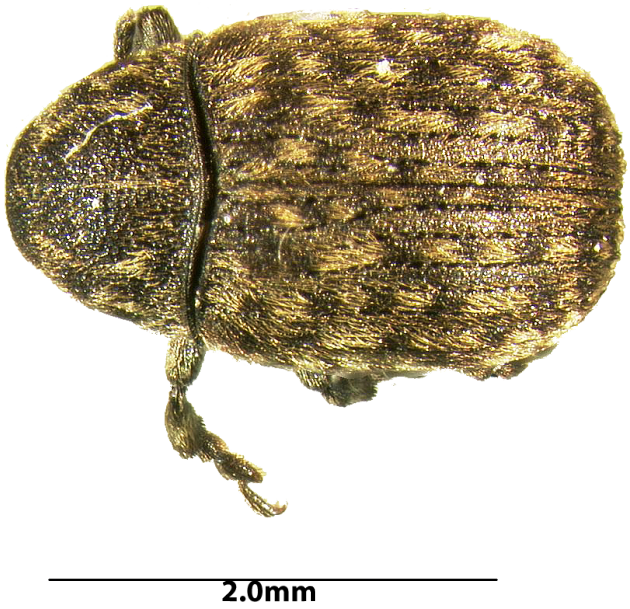


Figure 32. *Anthribus nebulosus* Forster, dorsal habitus.

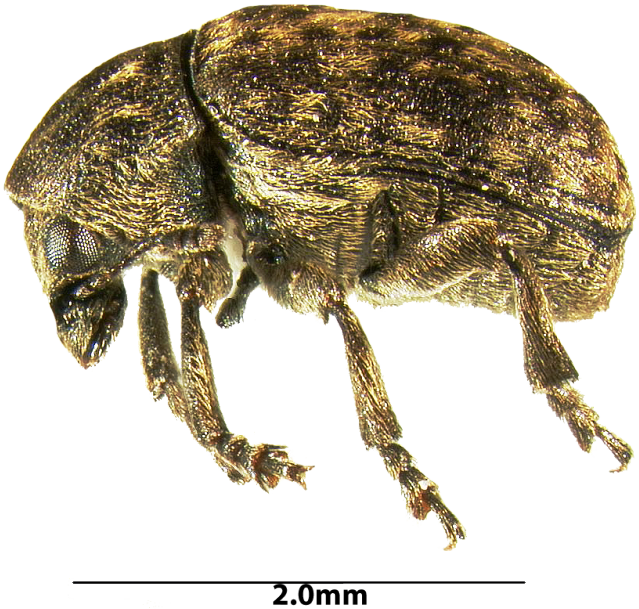


Figure 33. *Anthribus nebulosus* Forster, lateral habitus.

Figure 34. *Euparius marmoreus* (Olivier), dorsal habitus.

Figure 35. *Euparius marmoreus* (Olivier), lateral habitus.

Figure 36. *Euparius paganus* Gyllenhal, dorsal habitus.

Figure 37. *Euparius paganus* Gyllenhal, lateral habitus.

Figure 38. *Piesocorynus pixtus* LeConte, dorsal habitus.

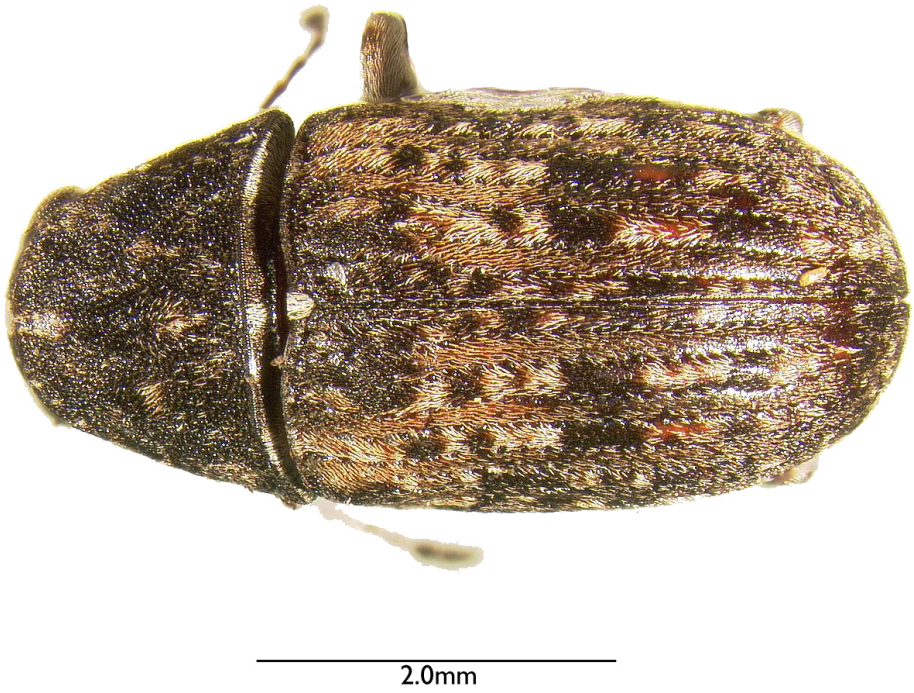


Figure 39. *Piesocorynus pixtus* LeConte, lateral habitus.

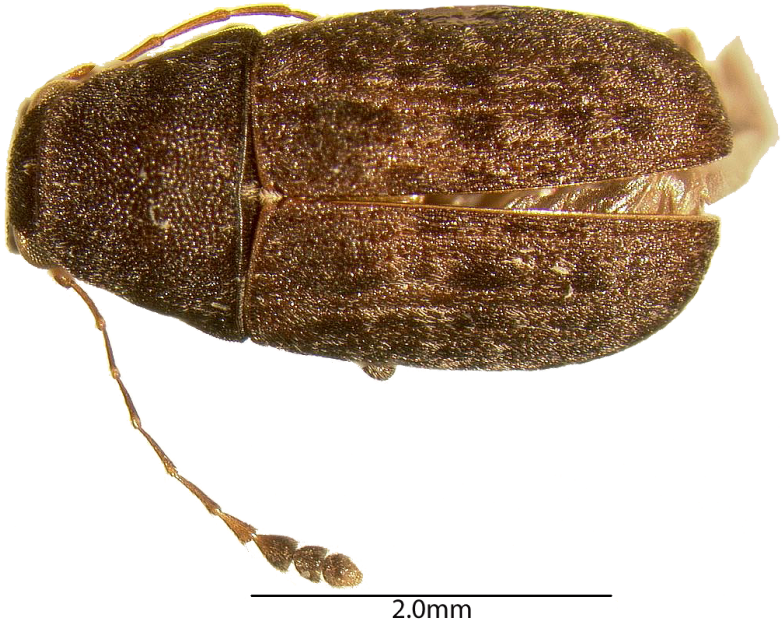


Figure 40. *Piesocorynus moestus* (LeConte), dorsal habitus.

Figure 41. *Piesocorynus moestus* (LeConte), lateral habitus.

Figure 42. *Goniocloeus bimaculatus* (Olivier), dorsal habitus.

Figure 43. *Goniocloeus bimaculatus* (Olivier), lateral habitus.

Figure 44. *Trigonorhinus alterantus* (Say), dorsal habitus.

Figure 45. *Trigonorhinus alterantus* (Say), lateral habitus.

Figure 46. *Trigonorhinus limbatus* (Say), dorsal habitus.

Figure 47. *Trigonorhinus limbatus* (Say), lateral habitus.

Figure 48. *Trigonorhinus rotundatus* (LeConte), dorsal habitus.

Figure 49. *Trigonorhinus rotundatus* (LeConte), lateral habitus.

2.0mm

Figure 50. *Trigonorhinus sticticus* (Boheman), dorsal habitus.

2.0mm

Figure 51. *Trigonorhinus sticticus* (Boheman), lateral habitus.

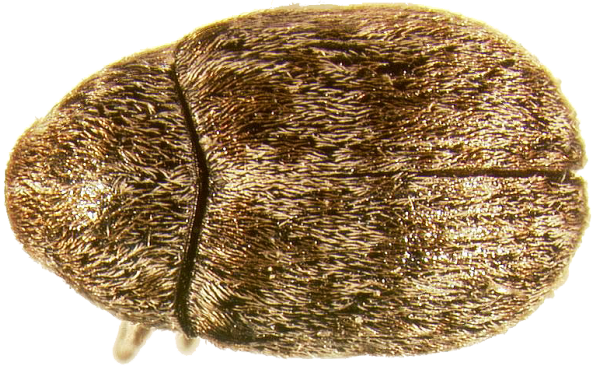


Figure 52. *Trigonorhinus tomentosus* (Say), dorsal habitus.

Figure 53. *Trigonorhinus tomentosus* (Say), lateral habitus.

Figure 54. *Gonotropis gibbosus* LeConte, dorsal habitus.

Figure 55. *Gonotropis gibbosus* LeConte, lateral habitus.

Figure 56. *Eurymycter fasciatus* (Olivier), dorsal habitus.

Figure 57. *Eurymycter fasciatus* (Olivier), lateral habitus.

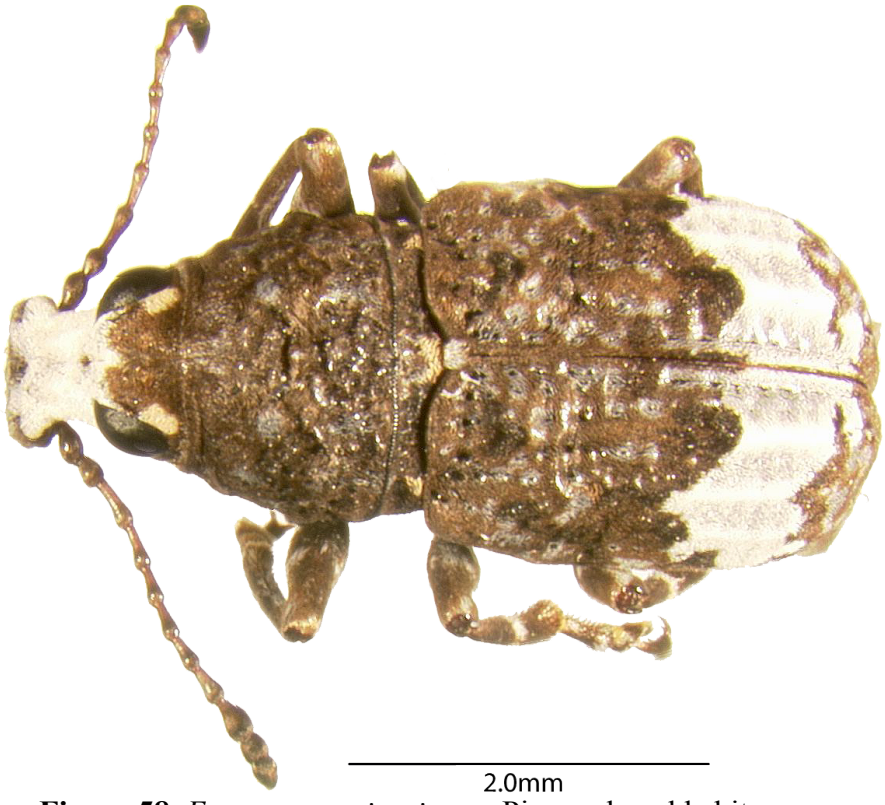


Figure 58. *Eurymycter tricarinatus* Pierce, dorsal habitus.

Figure 59. *Eurymycter tricarinatus* Pierce, lateral habitus.

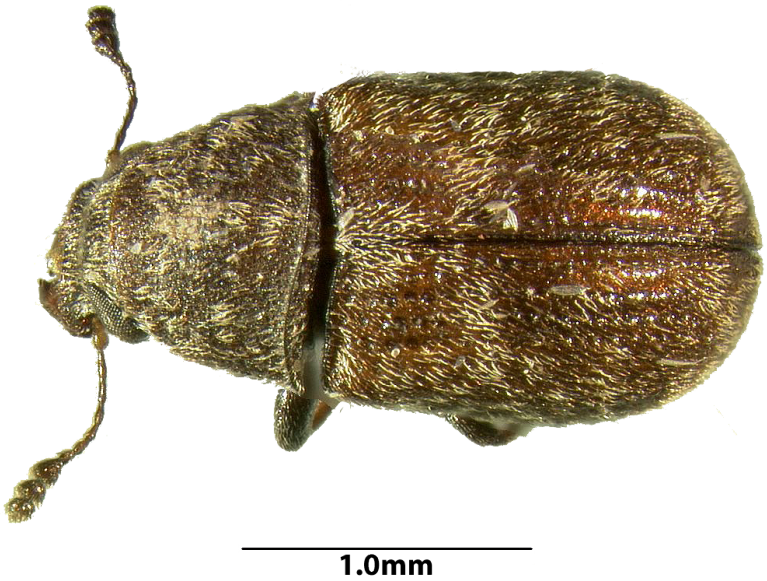


Figure 60. *Eusphyrus walshii* LeConte, dorsal habitus.

Figure 61. *Eusphyrus walshii* LeConte, lateral habitus.

Figure 62. *Ormiscus saltator* (LeConte), dorsal habitus.

Figure 63. *Ormiscus saltator* (LeConte), lateral habitus.

Figure 64. *Allandrus bifasciatus* LeConte, rostrum apically flared.

Figure 65. *Anthribus nebulosus* Forster, third tarsomeres appressed.

Figure 66. *Trigonorhinus sticticus* (Boheman), rostrum narrows apically.

Figure 67. *Eusphyrus walshii* LeConte, rostrum not narrowed apically.

Choragus zimmermanni LeConte

Euxenus punctatus LeConte

Maps 6, 7. *C.zimmermanni* and *E.punctatus* Wisconsin distributional maps.

Allandrus bifasciatus LeConte

Allandrus brevicornis Frost

Maps 8, 9. *A.bifasciatus* and *A.brevicornis* Wisconsin distributional maps.

Anthribus nebulosus Forster

Maps 10 *A.nebulosus* Wisconsin distributional maps.

Euparius marmoreus (Olivier)

Euparius paganus Gyllenhal

Maps 11, 12. *E.marmoreus* and *E.paganus* Wisconsin distributional maps.

Piesocorynus mixtus LeConte

Piesocorynus moestus (LeConte)

Maps 13,14. *P.mixtus* and *P.moestus* Wisconsin distributional maps.

Trigonorhinus alternatus (Say)

Maps 15. *T.alternatus* Wisconsin distributional map.

Trigonorhinus limbatus (Say)

Trigonorhinus rotundatus (LeConte)

Maps 16, 17. *T.limbatus* and *T.rotundatus* Wisconsin distributional maps.

Trigonorhinus sticticus (Boheman)

Trigonorhinus tomentosus (Say)

Maps 18, 19. *T.sticticus* and *T.tomentosus* Wisconsin distributional maps.

Eurymycter fasciatus (Olivier)

Eurymycter tricarinatus Pierce

Maps 20, 21. *E.fasciatus* and *E.tracarinatus* Wisconsin distributional maps.

Eusphyrus walshii LeConte

Ormiscus saltator LeConte

Maps 22, 23. *E.walshii* and *O.saltator* Wisconsin distributional maps.

CHAPTER 4: FAMILY ATTELABIDAE BILLBERG 1820

Attelabidae is a widely distributed family, consisting of around 2,500 species in 150 genera worldwide, 360 species in the New World, and 51 species in 11 genera in North America north of Mexico (Oberprieler, et al. 2007), including six species of Attelabinae (the leaf- rolling weevils) and 45 species of Rhynchitinae (the tooth-nose snout weevils), including the thief weevil, *Pterocolus ovatus* (Fabricius), that is frequently placed in its own subfamily, Pterocolinae. This study follows Marvaldi et al. (2002) which does not consider Pterocolinae a subfamily. Attelabidae has a cosmopolitan distribution, with most species occurring in the Orient, the Afrotropics and the Neotropics, but they do not occur in New Zealand or the Hawaiian Islands (Legalov 2003).

According to Oberprieler, et al. (2007), attelabids appears to have achieved their success in diversity, similar to anthribids, through association with fungi, as the larvae develop on plant tissues that may be infected with fungi. However, in contrast to anthribids, they are predominantly associated with plant parts of angiosperms such as flowers and foliage as opposed to fungi and woody decaying material. Also unlike anthribids, the females have their rostrum modified into an oviposition mechanism by the fusion of the labrum and the clypeus, more derived mandibles, a longer pharyngeal processes, as well as the fusion of the gular sutures and the reduction of the ligula.

All attelabids have the gular sutures fused, forming a single median line (Bright 1993). Members of Attelabinae are the true leaf rollers. Individual females cut slits into a leaf and perforate it slowly in order to make a nidus, or leaf-roll, into which the egg(s)

is laid, and in which the larva feeds and develops (Bright 1993). Adults of this subfamily can be distinguished by the short, stout rostrum that widens beyond the antennal insertions, mandibles that are not toothed on the outer edge, the connate and simple pretarsi, and by the oval, glabrous body (Hamilton 2002).

Adults of Rhynchitinae feed on foliage while their larvae feed in flower buds or fruits, terminal shoots, or leaf mines. Adults are easily distinguished by their exodont mandibles and by the free, appendiculate or toothed pretarsal claws.

The "thief weevil," *Pterocolus ovatus* (Fabricius), is an egg predator and nidus kleptoparasite of species of Attelabinae, especially *Homeolabus analis* (Illiger). The adult female usually enters the nidus, destroys the egg(s) of the leaf-rolling weevil, and oviposits (Kissinger 1964). Females have also been found ovipositing on young buds of trees, young fruit, or feed on blossom or foliage of *Quercus*, *Prunus*, and *Vitis* species (Bright, 1993). This species can be easily distinguished from other attelabids by its unique body shape and bright metallic blue or metallic green color (Bright 1993).

Marvaldi et al. (2002) recovered a monophyletic Attelabidae, but found ambiguous results regarding the placement of *Auletobius* according to molecular data alone. However, until further resolved, *Auletobius* will be treated as a genus of Attelabidae. They also predicted that, based on the phylogenetic placement of Attelabidae, older fossils may be present beyond the late Lower to Middle Cretaceous (Kuschel, et al. 1994).

Synapomorphies of the family include the epicranium that bears a hyaline posterior extension in the larvae (May 1993), the 8th sternite that is fused or articulated with the 9th sternite on each side beyond the arms in adult males (Kuschel 1995), and the

advanced central nervous system with the abdominal ganglia fused into one conglomerate in adults of both sexes (Calder 1989).

Anatomy

The surface and vestiture of the **integument**, whether metallic or not, and whether glabrous or setaceous are good characters to distinguish various genera. *Attelabus* Linnaeus and *Homeolabus* Jekel have a glabrous body while *Himatolabus* Jekel is densely setaceous; *Temnocerus* Thunberg, *Haplorhynchites* Voss and *Pterocolus* Say all have a metallic integument.

Characters associated with the **head** include whether the antennal club is distinct or not, whether the **antennae** are inserted along the basal 1/3 of rostrum or at the middle, whether the **rostrum** widens beyond the antennal insertion or is parallel-sided, whether the **mandibles** are toothed on the inner edge only or toothed on both the inner and outer edges, and how densely the **head** punctures are. Antennae of *Attelabus* are inserted before middle of rostrum, those of *Himatolabus* are inserted at or right before middle of rostrum, those of *Auletobius* are inserted in basal 1/4 of rostrum or at middle of rostrum. The rostrum distinctly widens from antennal insertions towards apex in *Temnocerus perplexus* but is parallel-sided from antennal insertions towards apex in *Temnocerus aeratus* (Say). Members of Rhynchitinae have the mandibles toothed both on inner and outer margins while Attelabinae have the mandibles toothed only on the inner margin.

Characters associated with the **legs** include whether the **pretarsus** is appendiculate or connate, the relative sizes of the prothoracic, mesothoracic and metathoracic **femora**, and whether the **tibiae** are uncinate. Members of Attelabinae have

connate pretarsi, swollen prothoracic femora and uniuncinate tibiae in the males and biuncinate tibiae in the females. Members of Rhynchitinae have appendiculate pretarsi, unmodified prothoracic femora and tibiae.

General characters include whether lateral carinae are present on the **pronotum**, whether the **elytral striae** are distinct and whether they form discrete rows, whether **scutellary striole** are present, whether the **pygidium** is exposed and whether the orientation of the pygidium is vertical or oblique. *Pterocolus* is the only genus with lateral pronotal carinae. A scutellary striole refers to an extra, short row of striae; when present they are found along the scutellum before the first row of elytral striae. A scutellary striole is present in *Eugnamptus* Schönherr and *Merhynchites* Sharp, *Temnocerus* and *Pterocolus*. The pygidium is covered and oblique in *Temnocerus cyanellus* (LeConte) and exposed and vertical in *T. aeratus* and *Temnocerus perplexus* (Blatchley).

Sexually dimorphic characters are especially important in certain genera. In *Attelabus*, the **prothoracic femora** of males are armed with 1-2 blunt, spine-like projections while in females they are armed with a peg-like projection. In *Homeolabus*, the **submentum** of males is armed with two teeth while the teeth are absent in females. Males of *Himatolabus* have a more elongate **head**, more strongly developed **prothoracic legs**, and more strongly concave **abdominal sternites**. In *Eugnamptus,* the males have one tooth on the outer margin of each **mandible**, females have two; males are smaller, the **rostrum** is shorter with **antennae** inserted at the middle, the **abdominal sternites** more concave and more setaceous, and the **eyes** are larger and closer together. In *Merhynchites*, the males have a round to oval, densely setose pits on the apical aspects of

the **prothoracic coxae**. In *Temnocerus*, the males have a weakly concave **abdomen** that is setose; that of females is convex and less setose. Finally, in *Auletobius ater* (LeConte), the males have a conspicuous, setose sex patch on the declivity of **elytral apices**.

Family Diagnosis

Attelabidae can be recognized by the fused clypeus and labrum and by the single gular suture, which distinguishing it from Nemonychidae and Anthribidae. It differs from Brentidae by possessing maxillary palpi that are usually 4-segmented (when 3-segmented, the elytra are irregularly punctate, the body setaose or pilose, and the cuticle is often metallic or brightly colored).

Family Description

Length 1.7-6.8mm. **Body** elongate or pear-shaped, setose or glabrous; **integument** metallic or otherwise brightly colored; **head** with gular sutures fused, forming a single median line, pregular sutures absent; each **maxilla** without distinct lacinia, palpus rigid, 3-4 segmented, if 3-segment elytra punctation is confused; **mandibles** toothed on inner side in some, toothed on both inner and outer sides in others; **rostrum** variable, either elongate, stout and parallel-sided or short and stout and wider at apex; **antennae** straight, club distinct or indistinct; **elytra** separately and broadly rounded apically; **scutellary striole** present in some species; **legs** with trochanter short and triangular, femur attached to the side; **abdominal sternites** decreasing in length, first 3-4

fused; **abdominal tergite** 8 concealed in both sexes; **pygidium** (abdominal tergites 6 and 7) more or less exposed in both sexes in some species, covered by elytra in others.

Key to the Wisconsin Genera of Attelabidae

1. Pretarsus appendiculate or with basal tooth; mandibles depressed, toothed on inner and outer margins; prothoracic legs subequal to mesothoracic and metathoracic legs, or mesothoracic and metathoracic femora larger than prothoracic femora; tibial apices unarmed or with small spurs or mucros ……..…..... **(Subfamily Rhynchitinae)** ... **2**

1′. Pretarsus connate; mandibles robust, not toothed on outer margin; prothoracic legs enlarged, distinctly larger than mesothoracic and metathoracic legs, prothoracic femora distinctly swollen; tibial apices uniuncinate (males) or biuncinate (females) ……..

……...……..... **(Subfamily Attelabinae)** …**7**

2. Prothorax with distinct lateral carinae, propleura strongly excavated beneath carinae; body small, metallic bluish-green to bluish-black ……..… ***Pterocolus*** **Say**

2′. Prothorax not laterally carinate, propleura not strongly excavated; body size, shape and color variable ……...… **3**

3. Scutellary striole present …… **4**

3′.Scutellary striole absent ……..…….**6**

4. Pygidium nearly completely tocompletely covered by elytra; elytra with some erect setae; males with one tooth on outer edge of mandible, females with two teeth ……..

……. ***Eugnamptus*** **Schönherr**

4′. Pygidium largely exposed; elytra without erect setae; mandibular teeth similar in both sexes ……... **5**

5. Elytral striae distinct, more or less quadrate, moderately to deeply impressed; elytral interstriae narrower than width of striae, convex and smooth; setae more or less appressed; body darkly-colored (some feebly bronze or blue), less than 4mm in length …. …… ***Temnocerus*** **Thunberg**

5′. Elytral striae more or less indistinct, weakly impressed especially posteriorly; elytral interstriae wider than striae, more or less flat, in some rugulose; setae fine, semi-erect; body variable, reddish-orange (in Wisconsin), greater than 4mm in length …….…… …… ***Merhynchites*** **Sharp**

6. Elytral striae arranged in distinct rows (except *H. aeneus*); elytral interstriae distinct, with punctures generally smaller than striae, punctures not masked by setae ……..… …….. ***Haplorhynchites*** **Voss**

6′. Elytral striae not forming distinct rows (except *A. ater*); elytral interstriae indistinct, punctures as large or nearly as large as striae; punctures in some masked by setae ……. …….. ***Auletobius*** **Desbrochers**

7. Dorsal surface with appressed setae ……..…….... ***Himatolabus*** **Jekel**

7′. Dorsal surface glabrous except for a few, scattered, fine erect setae …..……..…… **8**

8. Prothoracic femora unarmed in both sexes; submentum of males with a pair of ventrally-projecting acuminate spines; ventral rostral apex without median conical prominence ……...……. ***Homeolabus*** **Jekel**

8′. Prothoracic femora (inner distal end) in males armed with one or two blunt spine-like projections, in females unarmed or armed with a single peg-like projection; submentum in males without pair of projecting acuminate spines; ventral rostral apex in lateral view with medial conical prominence (more pronounced in females) …… ***Attelabus*** **Linneaus**

Subfamily Attelabinae Billberg 1820

All members of this subfamily are leaf rollers and apparently cause no serious damage to the food plant (Hamilton 2002). The female lays an egg on a leaf after preparing it by biting and cutting it with her mandibles. She next uses her enlarged prothoracic legs and uncinate tibial apices to roll the leaf into a nidus which serves to nourish and protect the developing larva. Upon completion of larval development, the larva drops to the ground; pupation occurs in the ground. An in depth examination of leaf rolling weevil life cycles can be found in Vogt (1992).

Six species in four genera are found in North America north of Mexico (Hamilton 2002).

Subfamily Diagnosis

Members of Attelabinae can be recognized by the connate and simple pretarsal claws, robust mandibles that are not toothed on the outer margin, the enlarged prothoracic legs that are distinctly larger than the mesothoracic and metathoracic legs, and by the uniuncinate (male) or biuncinate (female) tibial apices.

Tribe Attelabini Billberg 1820

Genus *Attelabus* Linnaeus

Attelabus Linnaeus 1758: 387.

Type Species: *Curculio nitens* Scopoli, by subsequent designation (Voss 1925).

Generic Diagnosis

Attelabus can be recognized by the glabrous dorsal surface. It can be distinguished from *Homeolabus*, which also has a glabrous dorsal surface, by the prothoracic femora that are armed with 1-2 blunt, spine-like projections (males) or armed with a peg-like projection (some females; some have the femora unarmed; not armed in *H. analis*), by the submentum (males) lacking a pair of projecting, acuminate spines (present in *H. analis*), and by the ventral rostral apex bearing a median, conical prominence in lateral view (absent in *H. analis*). The two North American species of *Attelabus* also tend to be smaller than *H. analis.*

Generic Description

Length 2.2-4.5mm. **Body** glabrous; **head** stout, quadrate, rarely longer than wide; **rostrum** broadly expanded at apex; **eyes** large, slightly convex; **antennae** inserted before middle of rostrum, with the 3 terminal segments elongate and more densely pubescent than other segments; **pronotum** wider than long, narrower than elytra; **elytra** stout, slightly wider than long; **prothoracic femora** (male) armed with 1-2 blunt spine-like projections, those of female unarmed or armed with a peg- like projection.

Generic Distribution

The Holarctic *Attelabus* contains two widely distributed species in eastern North America (Alonso-Zarazaga and Lyal 1999); one species confined to Hispaniola (Bright 1993). One species occurs in Canada and both species are found in Wisconsin.

Key to the Wisconsin Species of *Attelabus*

1. Elytra black with reddish markings extending from humeri to middle ……....

…….. ***Attelabus bipustulatus*** **(Fabricius)**

1′. Elytra red ……... ***Attelabus nigripes*** **LeConte**

Attelabus bipustulastus **(Fabricius)**

[Figures 68, 69; Map 24]

Attelabus 2-*pustulatus* Fabricius 1776: 229.

Attelabus bipustulatus (Fabricius); Blatchley and Leng 1916: 63.

Species Diagnosis

Attelabus bipustulatus can be recognized by the black integument with red markings extending from the base to the middle of the elytra.

Species Description

Length 2.2-4.5mm. **Body** glabrous, ventral surface with few scattered setae. **Integument** black, elytra black with reddish-orange rectangular markings extending from base to middle of elytra, laterally to interstria 2 or 3. **Head** arcuate laterally from base to eyes; surface smooth, with few very small, widely separated, shallow, minute punctures and with 2 deeply impressed, arcuate grooves along each eye; median area impressed from antennal insertion to above upper level of eyes. **Rostrum** distinctly shorter than head; surface densely punctate-rugose; lateral angles lacking conspicuous tooth apically; submentum (male) with conspicuous median tooth, that of female with swelling. **Antennae** inserted dorsolaterally near base of rostrum. **Pronotum** with width 1.4X length, widest at base; arcuate laterally, converging to recurved apical margin; disc evenly convex, with numerous minute, impressed punctures, interpunctural space smooth

and shining. **Elytra** with width at base 1.3-1.4X pronotal width, broadly rounded apically; striae not impressed, with large, shallowly impressed punctures in regular rows; interstriae 3.0-4.0X stiral width, with scattered, very minute punctures. **Prothoracic femora** (male) armed with 1-2 blunt spine-like projections, those of female unarmed or armed with 1 peg-like projection.

Natural History

This species has been recorded from oak (*Quercus* spp.), alder (*Alnus* spp.), hop hornbeam (*Ostrya* spp.), musclewood (*Carpinus caroliniana*), shagbark hickory (*Carya ovata*), black locust (*Robinia pseudoacacia*), as well as goldenrod (*Solidago* spp.) and *Rubus* species.

Murtfeldt (1872) and Girault (1904) provided details relating to the natural history of this species.

Phenology

In Wisconsin, adults have been collected from May to August, with a peak in June and July.

Collecting Methods

Ten counties provided **25 Wisconsin specimens** during this study. This species is most often collected either by hand on oak scrubs or by beating oak. Several specimens were collected from *Quercus ellipsoidalis*, while others were collected from Malaise, flight intercept, Lindgren funnel, and yellow pan traps.

Species Distribution

This species has previously been recorded from Wisconsin (Blatchley and Leng 1916, O'Brien and Wibmer 1982, Downie and Arnett, 1996).

Wisconsin County Records: Adams, Columbia, Jackson, Marquette, Monroe, Sauk, Shawano, Waupaca, Waushara, Wood.

North America: United States: AL, AR, CT, DC, FL, GA, IL, IN, KY, LA, MA, MD, ME, MI, MO, NC, NH, NJ, NY, OH, OK, PA, RI, SC, TN, TX, VA, WI, WV. **Canada:** NS, ON, PQ.

Attelabus nigripes LeConte

[Figures 9, 70, 71; Map 25]

Attelabus nigripes LeConte 1824: 171.

Species Diagnosis

Attelabus nigripes can be recognized in general by the red dorsum and by the ventrally toothed prothoracic femora. It can be distinguished from *A. bipustulatus* by the red dorsum, and by the rostrum that is only a little shorter than the pronotum and is constricted at the antennal insertions. It can be distinguished from *H. analis* by the generally smaller size, red thoracic sterna (black in *H. analis*), and by the conspicuous, median submental tooth (male) or submental swelling (female), as opposed to a pair of projecting, acuminate submental spines (*H. analis*).

Species Description

Length 3.5-4.5mm. **Body** robust. **Integument** bright red to black; elytra, thorax, base of head, prothoracic sternum, and abdomen bright red; legs, rostrum and antennae black. **Head** arcuate laterally from base to eyes; surface smooth, with few very small, widely separated, shallow, minute punctures and with two deeply impressed arcuate grooves along each eye; medial area impressed from antennal insertions to above upper

level of eyes. **Rostrum** a little shorter than head, constricted at antennal insertions; surface densely punctate-rugose; submentum (male) with conspicuous median tooth or (female) swelling. **Antennae** inserted dorsolaterally near base of rostrum. **Pronotum** with width approximately 1.5X length, widest at base; arcuate laterally, converging to recurved apex; disc evenly convex, with minute, impressed punctures, interpunctural space smooth and shining. **Elytra** with width at base about 1.3-1.4X pronotal width, broadly rounded apically; striae not impressed, with large, shallowly impressed punctures in regular rows; interstriae about 3.0X strial width. **Prothoracic femora** (male) armed with 1-2 blunt spine-like projections or (female) either unarmed or armed with 1 peg- like projection.

Natural History

This species has been recorded on winged sumac (*Rhus copallina*), poison ivy (*Toxicodendron radicans*) and related plants.

In Wisconsin, this species has been recorded feeding on leaves of staghorn sumac (*Rhus typhina*). Specimens have also been reported from little bluestem (*Schizachyrium scoparium*), sideoats grama (*Bouteloua curtipendula*) and prairie dropseed (*Sporobolus heterolepis*), though they are likely not the larval food plants of this species. *Attelabus nigripes* is most often collected in prairies (dry, dry hill, sand, and bluff) and savannas, as well as in oak barrens.

Phenology

In Wisconsin, adults have been collected in May, June, July, August and October.

Collecting Methods

The **50 Wisconsin specimens** examined during this study from 12 counties represent a **NEW STATE RECORD**. A series of specimens was collected on sumac, others were on flowers, some were collected by sweeping and one was collected in a Malaise trap.

Species Distribution

Wisconsin County Records: Burnett, Crawford, Dane, Dunn, Grant, Iowa, La Crosse, Manitowoc, Monroe, Polk, Sauk, Vernon.

North America: United States: AR, AZ, CO, CT, DC, DE, FL, GA, IA, IL, IN, KS, MA, MD, MN, MO, NC, NE, NJ, NM, NY, OH, PA, RI, SC, TN, TX, VA, WI, WV.

Genus *Himatolabus* Jekel

Attelabus (*Himatolabus*) Jekel 1860: 189.

Himatolabus (Jekel); Voss 1925: 242.

Type species: *Attelabus vestitus* Gyllenhal, 1839, by subsequent designation (Voss 1925).

Himatolabus was originally considered a subgenus of *Attelabus* until Voss (1925) elevated it to the generic level. Hamilton (1969) revised the genus and provided a key to species. *Himatolabus* belongs to the genus group *Attelabina*, which also includes *Attelabus* Linneaus, *Homeolabus* Jekel, *Xestolabus* Jekel, *Omolabus* Jekel, *Temnocerus* Thungberg, and *Phyletobius* Voss.

Generic Diagnosis

Himatolabus can be recognized by the conspicuous pubescence, the compact body, and for the most part, the reddish-brown integument (*H. axillaris* is black with

distinct orange maculae on the elytral bases). The only similar genus exhibiting abundant pubescence is *Pilolabus* Jekel, which is found only in Central America.

Generic Description

Length 4.5-5.5mm. **Integument** reddish-brown or black; **vestiture** consisting of conspicuous appressed, reclinate setae; **head** elongate, conical to quadrate, sides weakly converging laterally, longer in male than female, surface densely punctate; **rostrum** weakly arcuate, shorter than head, broadly expanded apically, distinctly raised on dorsal surface at antennal insertion; **eyes** large, slightly convex; **antennae** inserted dorsally at or slightly behind the middle of rostrum, terminal 3 segments more densely pubescent than other segments; **pronotum** wider than long, narrower than elytra, weakly rounded laterally, disc convex, sometimes bifoveate; **elytra** stout, slightly longer than wide; **femora** unarmed in both sexes, prothoracic femora of males more strongly developed; **sexual dimorphism** present in head, femora, tibiae, and sterna: **tibiae** of males armed with 1 curved spine apically; females armed with 2 curved spines apically; **abdominal sterna** of males more concave.

Generic Distribution

Himatolabus is found in Guatemala, Mexico, Canada, USA, Japan and China (Alonso-Zarazaga and Lyal 1999). Nine species are found in North and Central America, two of which are found north of Mexico. One species, *Himatolabus axillaris* (Gyllenhal), is found in the southwestern United States and one, *Himatolabus pubescens* (Say), is found in the eastern United States north to Canada (Hamilton 1992). *Himatolabus pubescens* is the only species that occurs in Wisconsin.

***Himatolabus pubescens* (Say)**

[Figures 72, 73; Map 26]

Attelabus pubescens Say 1826: 252.

Himatolabus (*Himatolabus*) *pubescens* (Say); Voss 1929:209.

Attelabus rhois Boheman 1829: 121.

Attelabus maculatus Provancher 1877: 521.

Attelabus rhois maculatus (Provancher); Leng 1920: 309.

Himatolabus (*Himatolabus*) *coloradensis* Voss 1924: 244.

Himatolabus (*Himatolabus*) *rhois* Boheman); Voss 1925: 243, 247.

Attelabus (*Himatolabus*) *disparipes* Chittenden 1926:164.

Himatolabus pubescens (Say); Hamilton 1979: 30.

Species Diagnosis

Himatolabus pubescens can be recognized in general by its conspicuous pubescence that consists of abundant white and yellow setae. It can be distinguished from other species of *Himatolabus* by having the pubescence irregularly distributed dorsally and by the lack of distinct postocular lobes.

Species Description

Length 4.0-6.8 mm. **Integument** reddish brown. **Vestiture** consisting of abundant, white to pale yellow setae; elytral setae abundant, short, recumbent and curved. **Head** slightly narrowed from base to eyes; median carina slightly elevated, longitudinal, extending from vertex to middle of eye; surface of head strongly punctate below median carina. **Rostrum** shorter than head, constricted at antennal insertions; broadly expanded apically, about 2.0X width of frons; lateral apical angles with a blunt tooth. **Antennae**

inserted dorsolaterally at basal 1/3 of rostrum. **Pronotum** with width 1.3X length, widest at base; strongly arcuate laterally, converging to recurved apex; disc convex, with distinct, round impressions on median lateral area, surface with large, dense, moderately deep punctures. **Elytra** as long as wide, width at base 1.3-1.4X pronotal width; apex broadly rounded; striae shallowly impressed, inconspicuous, with moderately large and moderately deeply impressed punctures; interstriae rugose, weakly elevated, with scattered, fine punctures.

Natural History

This species exhibits considerable variation over its range in terms of color, size and pubescence, and is the most widespread species of *Himatolabus* in North America.

Adults have been recorded on hazelnut (*Corylus americana*), speckled alder (*Alnus rugosa*), gray alder (*Alnus incana*), oak (*Quercus* spp.), and common yarrow (*Achillea millefolium*). However, it is most commonly associated with oak. The thief weevil, *Pterocolis ovatus*, is the only documented nidus-kleptoparasite of *H. pubescens*; this has been boderved only on oak (Hamilton 1992).

Phenology

In Wisconsin, adults have been collected from May to July.

Collection Methods

The **25 Wisconsin specimens** examined during this study came from five counties. One specimen was swept from foliage in an oak-pine forest.

Species Distribution

This species has previously been published to Wisconsin (O'Brien and Wibmer 1982, Downie and Arnett 1996)

Wisconsin County Records: Dane, Dodge, Door, Jackson, Polk.

North America: US: AZ, CO, CT, IA, IL, IN, KS, KY, MA, ME, MI, MN, MO, NE, NJ, NH, NM, NY, OH, PA, RI, TN, TX, VA, VT, WI. **Canada:** MB, NS, PQ, ON.

Genus *Homeolabus* Jekel

Attelabus (*Homeolabus*) Jekel 1860: 187.

Homeolabus Jekel; Voss 1925: 262.

Type species: *Attelabus analis* Illiger, by monotypy.

This genus contains one species, *H. analis*, which is common in the eastern United States and Canada.

Generic Diagnosis

Homeolabus can be recognized by the entirely reddish orange dorsum, simple (= not toothed) prothoracic femora, and the submentum that bears two teeth (male; absent in female).

Generic Description

Length 3.2-6.7mm. **Body** glabrous; **head** (male) rectangular, length almost 2.0X width, transversely impressed before base, or slightly longer than wide, without transverse impression (female); **eyes** large, slightly convex; **rostrum** broadly expanded at apex; **antennae** inserted before middle of rostrum, with terminal 3 segments elongate and more densely pubescent; **pronotum** wider than long, narrower than elytra; **elytra** stout, slightly longer than wide; **femora** toothed.

Generic Distribution

Homeolabus is found in Canada and USA (Alonso-Zarazaga and Lyal 1999). One species is found in Wisconsin.

***Homeolabus analis* (Illiger)**

[Figures 74, 75; Map 27]

Attelabus analis Illiger 1794: 616.

Homeolabus analis (Illiger); Voss 1925: 263.

Attelabus similis Kirby 1837: 204.

Species Diagnosis

Homeolabus analis can be distinguished from *Attelabus* by its larger size and by the simple (= untoothed) prothoracic femora. It is superficially similar to *A. nigripes* given the occasional overlap in size (4.0-4.5mm) and the red dorsum, but this species has black thoracic sterna; that region of *A.nigripes* is red. This species can be distinguished from *H .pubescens* by its glabrous body.

Species Description

Length 3.2-6.7mm. **Integument** black to reddish-black; pronotum, elytra, abdomen, and sometimes base of head reddish-orange, varying from yellow orange to dark reddish brown. **Vestiture** evident on head and lateral areas of elytra, remainder of surface glabrous. **Head** with sides parallel from base to eyes, surface densely punctate with median groove flanked on each side by an impressed groove; grooves extending from areas near antennal insertions to above eyes, areas between grooves elevated, forming 2 divergent carinae. **Rostrum** about half as long as head, constricted at antennal insertions; apex expanded and inflated, width about 1.7-1.8X width of frons; submentum

(male) with 2 blunt teeth, or simple (female). **Antennae** inserted dorsolaterally on basal 1/3 of rostrum. **Pronotum** with width 1.3X length, widest at base; weakly arcuate laterally, strongly converging to sinuate apex; disc evenly convex, not impressed; surface shining, smooth, with widely scattered, very minute punctures. **Elytra** with basal width 1.2X pronotal width, broadly rounded apically; striae not impressed, with large, shallowly impressed, widely separated punctures in nearly regular rows; interstriae smooth, shining, with obscure, fine, minute punctures and lines.

Natural History

This species is generally associated with oaks (*Quercus* spp.). An account of the natural history and behavior relating to this species was provided by Hall and Buss (2007).

Phenology

In Wisconsin, adults have been collected in June and July.

Collection Methods

In Wisconsin, **67 specimens** were examined during this study from 14 counties. One specimen was collected on the leaf of a 2-foot tall scrub oak; others were hand collected from oak in general, scrub oak, or oak leaves.

Species Distribution

This species has previously been recorded from Wisconsin **(**O'Brien and Wibmer 1982, Downie and Arnett 1996).

Wisconsin County Records: Adams, Crawford, Dane, Dodge, Grant, Iowa, Jackson, Marquette, Monroe, Richland, Sauk, Waukesha, Waushara, Wood.

North America: United States: AL, AR, CT, DC, FL, GA, IA, IL, IN, KS, MA, MD, ME, MI, MO, MS, NC, NH, NJ, NY, OH, OK, PA, RI, SC, TN, TX, VA, WI, WV. **Canada:** MB, ON.

Subfamily Rhynchitinae

LeConte (1876) originally treated this subfamily as a distinct family, Rhynchitidae, which was also followed by Hamilton (1969), O'Brien and Wimber (1982) and Bright (1993). Marvaldi, et al. (2002), among other authors, treated it as one of the two subfamilies within Attelabidae: Rhynchitinae (the tooth-nose snout weevils). As currently understood, this subfamily also includes species that have sometimes been elevated to the subfamily Pterocolinae (the thief weevils). Rhynchitinae can be easily recognized by their mandibles that bear a tooth on the inner edge as well as the outer edge, and by the distinct elytral epipleura.

Most species feed on foliage and blossoms, while the thief weevil is an obligate nidus kleptoparasite of *H. analis* as well as other species of *Attelabus*.

Nine genera and 45 species of this subfamily are found in North America north of Mexico.

Subfamily Diagnosis

Members of Rhynchitinae can be distinguished by the appendiculate pretarsal claws, exodont mandibles, prothoracic legs that are subequal in length to the mesothoracic and metathoracic legs (or the mesothoracic and metathoracic femora larger

than the prothoracic femora), and by the tibial apices that are either unarmed or armed with small spurs or mucros.

Tribe Rhynchitini Gistel 1856

Genus *Eugnamptus* Schönherr

Eugnamptus Schönherr 1839: 339.

Type species: *Anthribus collaris* Fabricius 1801, by monotypy.

Generic Diagnosis

Eugnamptus can be recognized by the presence of the scutellary striole, the completely or near completely covered pygidium, semi-erect elytral setae, and by the mandibular armature (males with one tooth on the outer margin; females with two teeth).

Generic Description

Length 3.7mm or less. **Integument** variable, legs usually lighter than body; **vestiture** conspicuous, consisting of fine, erect, hair-like setae; **head** elongate, widest across eyes, constricted behind eyes, surface shining and finely punctate; **eyes** strongly convex, protuberant; **antennae** inserted halfway between eye and apex of rostrum, with terminal 3 segments much longer than other segments; **rostrum** elongate, longer in female, quadrate between eyes and antennal insertions, weakly expanded apically; **mandibles** of male with 1 tooth on outer margin, those of female with 2; **pronotum** longer than wide, narrower than base of elytra, disc shining, moderately punctate; **scutellum** triangular; **elytra** parallel laterally, broadly rounded apically, scutellar striole present, striae in distinct rows, distinctly punctate, interstriae minutely punctate; vestiture composed of erect setae associated with the punctures of the interstriae and reclinate

setae associated with punctures on the bridge between striae of the same rank; **abdominal sternites** 1-2 fused; **sexual dimorphism** distinct: male usually smaller, with much shorter rostrum with a mid-rostral antennal insertion, 1 outer tooth on mandible (2 in female), more concave and setose abdominal sternites, and eyes larger and closer together (except for *E. puncticeps* and *E. sheilae*).

Generic Distribution

Eugnamptus is found in Argentina, Bolivia, Brazil, Colombia, Peru, Venezuela, Belize, Costa Rica, Guatemala, Honduras, Mexico, Panama, USA, Siberia, China, Korea, Japan, Taiwan, Borneo, Burma, India, Java, Malacca, Philippines, Sumatra, Thailand, and Vietnam (Alonso-Zarazaga and Lyal 1999). However, this genus is most diverse in Mexico and Central America, and contains only nine North American species, two of which are found in Wisconsin.

Key to the Species of Wisconsin *Eugnamptus*

1. Color uniformly brownish-yellow; cranial punctures dense; eyes of similar size in males and females ……..... ***Eugnamptus puncticeps* LeConte**

1′. Color variable, but elytra always dark; cranial punctures sparse; eyes in males much larger and closer set than those of females ……... ***Eugnamptus angustatus* (Herbst)**

***Eugnamptus angustatus* (Herbst)**

[Figures 76, 77, 78, 79; Map 28]

Rhynchites angustatus Herbst 1797: 140.

Anthribus collaris Fabricius 1801:410.

Anthribus nigripennis Fabricius 1801: 410.

Rhynchites rubricollis Say 1824: 288.

Rhynchites ruficollis Germar 1824: 188.

Eugnamptus sulcifrons Gyllenhal 1838: 343.

Eugnamptus collaris fuscipes Pierce 1913: 368.

Eugnamptus collaris nigripes Pierce 1913: 368.

Eugnamptus collaris ruficeps Pierce 1913: 369.

Eugnamptus angustatus (Herbst); Blatchley and Leng 1916: 56.

Eugnamptus collaris Blatchley and Leng 1916: 56.

Eugnamptus collaris abdominalis Voss 1941:147.

Species Diagnosis

Eugnamptus angustaus exhibits a great color variation, which led to taxonomic confusion and resulted in a number of synonyms (Hamilton 1990). Four color morphs exist within this species: the typical form (42%), the dark-colored form (33%, only females), the pale-legged form (20%), and the red-headed form (5%). Pierce (1913) recognized these to be different species, however they are now widely considered synonyms.

Eugnamptus angustatus can be recognized by the dark elytral integument, the punctures of the interstriae that are much smaller than those of the striae, and by the small, widely spaced, setigerous cranial punctures.

Species Description

Length 2.5-4.4mm (head excluded). **Integument** reddish-brown to black; pronotum sometimes light red or reddish-brown; legs light brown or reddish; elytra dark.

Head convex at upper level of eyes; surface with very small, weakly impressed, widely separated punctures. **Rostrum** arcuate, that of male shorter than pronotum, in female as long as pronotum; sides in dorsal view parallel from eyes to antennal insertions. **Pronotum** with length 1.1X width, widest at middle, moderately arcuate laterally, converging to truncate apex; disc with fairly large, shallow, round punctures, interpunctural space smooth, shining. **Elytra** with length 1.8X width, width about 2.0X pronotal width; striae distinct, not impressed, with round, moderate, impressed punctures; interstriae much wider than striae, flat; strial and interstrial punctures each with 1 long, erect, hair-like seta.

Natural History

This species is often collected from oak (*Quercus* spp.) and is known to mine dead oak leaves. They have also been recorded on walnut (*Juglans* spp.), dogwood (*Cornus* spp.), hickory (*Carya* spp.), sassafras (*Sassafras* spp.), black gum (*Nyssa* spp.), and the common persimmon (*Diospyros virginiana*).

Hamilton (1980) recorded the life history of this species in northern Ohio on sassafras (*Sassafras albidum*). The adults emerge in late May to early June and mate on mature sassafras trees, feeding preferentially on young developing leaves. After mating the females relocate to the ground to oviposit in dead leaves from the previous fall leaf drop. Larvae develop within the leaf as leaf miners and attain the 4th instar in 3-4 months. Upon maturation they leave the mines to pupate in the soil and overwinter.

In lab, females were observed to oviposit in the leaves of oak (*Quercus* spp.) and sweet fern (*Comptonia peregrina*).

Phenology

In Wisconsin, adults have been collected from June to September.

Collecting Methods

In Wisconsin, **31 specimens** were examined during this study from 11 counties, forming a total of 13 county records. Specimens were collected by sweeping forest understory, beating oak or other hardwood trees, in pan traps and Malaise traps, as well as hand collected from hazelnut (*Corylus* spp.) and on wilted oak (*Quercus* spp.).

Species Distribution

This species has previously been recorded from Monroe, Washburn counties (O'Brien and Wibmer 1982, Hamilton 1990, Downie and Arnett 1996).

Additional Wisconsin County Records: Columbia, Dane, Grant, Lafayette, Pierce, Rock, Sauk, St. Croix, Vernon, Waukesha, Wood.

North America: United States: AL, AR, CT, DC, DE, FL, GA, IA, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, MS, NC, NE, NJ, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, WV. **Canada:** ON, SK.

***Eugnamptus puncticeps* LeConte**

[Figures 80, 81; Map 29]

Eugnamptus puncticeps LeConte 1876: 6.

Species Diagnosis

Eugnamptus puncticeps can be recognized by the densely, setigerously punctate head, elytra that are never dark, and by the similarly-sized males and females, a character that distinguishes this species from others in the genus. According to LeConte (1876), the antennae are also stouter than those of *E. angustatus*.

Species Description

Length 3.0-4.0mm (head excluded). **Integument** reddish-brown to yellowish to brown throughout, with variable dark areas on the rostrum and the distal part of the appendages. **Head** slightly longer than wide, with numerous, rather dense, setigerous punctures. **Rostrum** with length 1.25X length of head, slightly wider than frons apically. **Frons** slightly convex, sometimes with weak median linear impression, wider than rostral base. **Antennae** inserted slightly behind middle of rostrum; club short, much shorter than funicle, apical segment slightly longer than penultimate segment. **Pronotum** as wide as long, slightly wider than distance across eyes, with dense, setigerous punctures subequal to those of head; nearly parallel-sided, narrowed only slightly basally and apically, dorsal surface weakly flattened, sometimes with weak, mid-dorsal impression behind middle. **Elytra** with length about 3.0X pronotal length, width < 2.0X pronotal width at base, widening only slightly near apical 2/3; striae round to quadrate, moderately impressed; interstriae weakly convex, as wide as or slightly wider than striae, punctures very small, < 0.25X those of striae. **Sexual dimorphism** present, exhibiting all sexual dimorphism of the genus except eyes of males and females are approximately the same size.

Natural History

Hamilton (1990) found this species only on dwarf sumac (*Rhus copallina*), mostly in June, July and August.

Among the Wisconsin specimens, a series was collected on smooth sumac (*Rhus glabra*): "very active, on tips of leaflets of *Rhus glabra*, excavating lower surface, leaving circular scars visible above and below, upper epidermis undamaged, limy hill prairie, 5

pm, cloudy, 74F". A specimen was collected by "sweeping bluff prairie", and another by "sweeping prairie/savannah".

This species is wide ranging but apparently not locally abundant (Hamilton 1990).

Phenology

In Wisconsin, adults have been collected in July and August.

Collecting Techniques

The **9 Wisconsin specimens** examined during this study from four counties represent a **NEW STATE RECORD**. This species can be most readily collected by hand from smooth sumac or dwarf sumac or by sweeping prairie habitats where their plant associations are found. It has can also be collected at UV light.

Species Distribution

Wisconsin County Records: Crawford, Grant, Iowa, Vernon.

North America: United States: AL, CT, DC, FL, GA, IA, IL, IN, KS, LA, MA, MD, MO, MS, NC, NE, NJ, PA, SC, TN, TX, VA, WI.

Genus *Haplorhynchites* Voss

Rhychites (*Haplorhynchites*) Voss 1938: 135.

Haplorhynchites Voss; Hamilton 1969: 302-339.

Type species: *Rhynchites aeneus* Boheman, by subsequent designation (Hamilton 1974).

Haplorhynchites was originally described as a subgenus of *Rhynchites*; Hamilton (1974) elevated it to the generic level.

Generic Diagnosis

Haplorhynchites can be recognized by the absence of a scutellary striole, the exposed pygidium, distinctly rowed elytral striae (except *Haplorhynchites aeneus* Boheman), and by the distinct elytral interstriae with punctures more or less smaller than those of the striae.

Generic Description

Length 7.0mm or less. **Integument** dark, with green or blue metallic reflections; **vestiture** consisting of abundant, long, erect to semierect, dark setae; **head** slightly quadrate in males, weakly conical in females, not constricted behind eyes, surface sparsely to moderately punctate, interpunctural spaces forming longitudinal ridges; **rostrum** with sides slightly arcuate to straight, apex slightly broadened; **antennae** inserted before middle of rostrum, club densely pubescent; **pronotum** slightly wider than long, sides arcuate, disc punctate; **elytra** stout, broad, striae punctate in even longitudinal rows (randomly punctate in *H. aeneus*); **scutellary striole** absent; **abdomen** in male unmodified; **pygidium** with apex exposed beyond elytra.

Generic Distribution

Haplorhynchites is found in Guatemala, Mexico, Canada, USA, Europe, Caucasus, Turkey, Kazakhstan, Siberia, China, Japan, India and Vietnam (Alonso-Zarazaga and Lyal 1999). This genus contains six North American species north of Mexico, one of which is found in Wisconsin.

***Haplorhynchites aeneus* (Boheman)**

[Figures 82, 83; Map 30]

Rhynchites aeneus Boheman 1829:122.

Haplorhynchites aeneus (Boheman); Hamilton 1969: 323.

Rhynchites (*Involvulus*) *consobrinus* Voss 1938: 159.

Involvulus consobrinus (Voss); Voss 1969: 247.

Species Diagnosis

Haplorhynchites aeneus can be recognized by the abundant erect pubescence, by its generally larger size, and by the black integument. It can be distinguished from other *Haplorhynchites* by the dense, random punctures on the elytra. It may also be confused with *Auletobius ater* (LeConte), from which it differs by having the antennae inserted in or just in front of the basal 1/3 of rostrum (in *A.ater* the antennae are inserted near the middle of the rostrum).

Species Description

Length 3.9-6.6mm. **Integument** black, venter and tip of rostrum with faint greenish luster. **Vestiture** consisting of abundant, erect setae. **Head** conical, with moderate punctures; interpunctural space forming irregular longitudinal ridges. **Rostrum** slightly arcuate, in male 1.3X pronotal length, in female as long as head + pronotum; sides in dorsal view expanded in apical 1/5, width at apex about 1.25X width of frons. **Antennae** inserted at or just in front of basal 1/3 of rostrum. **Pronotum** with width about 1.2X length, widest behind middle; distinctly arcuate laterally; disc with shallow, close punctures, interpunctural space shining, smooth, with coarse, erect, brown setae. **Elytra** with length about 1.2X width, width 2.0X pronotal width; surface randomly punctate, the punctures close and deep, bearing coarse, erect setae; straie and interstriae inconspicuous. **Sexual dimorphism** present in length of rostrum.

Natural History

This species, originally placed in *Rhynchites*, is distributed largely in eastern North America, westward to the continental divide, but it is most abundant in the Midwest. It is the most common species of *Haplorhynchites* in North America.

Haplorhynchites aeneus is associated with many species in the sunflower tribe Heliantheae. Male and female adults are usually found together on uncut flower heads shortly after their appearance in July, copulation then occurs on these heads. During or after copulation the female cuts the stem below the flower head, incompletely so the head is still attached. Eggs are found in the disc-flower bases of cut heads, and eclose in about a week. After reaching maturity the larvae leave the cut heads and enter the soil where they loverwinter and emerge as adults the following July (Hamilton 1973).

This species is generally associated with sunflowers (*Helianthus* spp.), including woodland sunflower (*Helianthus divaricatus*), sawtooth sunflower (*Helianthus grosseserratus*), common sunflower (*Helianthus annuus*), stiff sunflower (*Helianthus pauciflorus*), and fewleaf sunflower (*Helianthus occidentalis*). It has also been recorded from rosinweeds (*Silphium* spp.), including compassplant (*Silphium laciniatum*), wholelead rosinweed (*Silphium integrifolium*) and prairie rosinweed (*Silphium terebinthinaceum*), as well as scruf pea (*Psoralea* spp.), oxeye (*Heliopsis* spp.), tickseed (*Coreopsis* spp.), and prairie goldenrod (*Solidago ptarmicoides*),

In Wisconsin, they have been found on disc flowers of stiff sunflower, fewleaf sunflower, and prairie goldenrod, as well as swept from blazing star (*Liatris* spp.), rosinweeds (*Silphium* spp.), bergamot (*Monarda* spp.) and dogbane (*Apocynum* spp.).

Hamilton (1973) provided detailed information on its biology and natural history.

Phenology

In Wisconsin, adults have been collected from July to September, with a peak in July and August.

Collecting Methods

In Wisconsin, **32 specimens** were examined during this study from four counties. This species can be readily collected by hand from disc flowers of sunflower species. They can also be collected by sweeping prairies where their preferred food plants are present.

Species Distribution

This species has previously been recorded from Wisconsin (Blatchley and Leng 1916, O'Brien and Wibmer 1982, Downie and Arnett 1996).

Wisconsin County Records: Burnett, Grant, Kenosha, Milwaukee.

North America: United States: AL, AR, CA, CO, FL, GA, IA, IL, IN, KS, MA, MD, MI, MN, MO, MS, MT, NC, ND, NE, NJ, NM, NY, OH, OK, PA, SC, SD, TN, TX, VA, WI, WV. **Canada:** MB, SK.

Genus *Merhynchites* Sharp

Merhynchites Sharp 1889: 57.

Generic Diagnosis

Merhynchites can be recognized by the larger size (greater than 4mm), the more or less indistinct elytral striae [more distinct in *Merhynchites bicolor* (Fabricius)] that are weakly impressed, especially basally, the flat and sometimes rugose interstriae that are twice as wide as the striae, and by the fine, semi-erect setae.

Genus Description

Length 8.2 mm or less. **Integument** variable, from completely black to red on dorsal surfaces and black on head and ventrally; **vestiture** consisting of abundant, fine, erect, hair-like setae; **head** conical, narrowed towards rostrum, widest at base, surface dull and shining, moderately densely punctate; **rostrum** straight, slightly widened apically; **antennae** inserted midway between eye and rostral apex; **pronotum** as wide as or slightly wider than long, narrower than elytral base, weakly constricted apically, disc moderately punctate; **elytra** stout, robust, wider than pronotum; elytral striae moderately to weakly impressed in distinct or indistinct rows, with round, impressed punctures; elytral interstriae varying from smooth to densely and minutely rugose; **pygidium** visible, vertical, convex; **pretarsus** with claws deeply cleft, inner teeth connate; **sexual dimorphism** present: **prothoracic coxae** of male with round to oval, densely setose pits apically.

Generic Distribution

Merhynchites is found in Mexico, Canada and USA (Alonso-Zarazaga and Lyal, 1999). It consists of four species in North America north of Mexico (Hamilton 1985, O'Brien and Wibmer 1982), one of which is found in Wisconsin.

***Merhynchites bicolor* (Fabricius)**

[Figures 5, 11, 84, 85; Map 31]

Curculio bicolor Fabricius 1775: 131

Merhynchites bicolor (Fabricius); Pierce 1913: 370.

Merhynchites bicolor var. *cockerelli* Pierce 1913:371.

Merhynchites bicolor var. *ventralis* Pierce 1913: 371.

Rhynchites bicolor (Fabricius); Blatchley and Leng 1916: 56.

Rhynchites bicolor erythrosoma Cockerell and Harris 1924: 144.

Coenorrhinus (*Merhynchites*) *bicolor* (Fabricius); Voss 1932: 176.

Coenorrhinus (*Merhynchites*) *cerdonis* Voss 1932: 176.

Coenorrhinus (*Merhynchites*) *intermedius* Voss 1932: 176.

Rhynchites (*Merhynchites*) *bicolor* (Fabricius); Hatch 1971: 334.

Merhynchites bicolor niger Hamilton 1985: 57.

Merhynchites bicolor nigricephalus Hamilton 1985: 58.

Species Diagnosis

Merhynchites bicolor can be distinguished by the red prothorax, elytra and base of head, and by the larger size. It is very similar to *M. wickhami*, the western rose curculio, which has a more western distribution and is not known from Wisconsin. *Merhynchites bicolor* can be recognized by the base of the head that is red as opposed to black, elytral strial punctures that are larger than the interstrial punctures, the wider (0.12-0.14mm) eyes (0.07-0.10 mm in *M. wickhami*), the straighter rostrum, smooth elytral interstriae, and by the spiculum gastrale with the lateral margin bearing an acute, tooth-like process (absent in *M. wickhami*).

Species Description

Length 4.5-5.5 mm (head excluded). **Integument** black; prothorax, elytra and base of head red or reddish-brown to light yellow. **Head** dull or shining, base of head red, apex usually black; surface with elongate punctures between eyes, interpunctural space weakly elevated, carinate at base of rostrum. **Rostrum** straight (more so in female), distinctly punctate, with 1 weakly elevated, longitudinal median ridge,

longitudinally impressed basally in front of eyes. **Eyes** strongly convex. **Pronotum** with width 1.1X length, widest at middle; broadly arcuate laterally, strongly converging to broadly rounded apex; disc distinctly convex, with moderate, impressed punctures, interpunctural spaces moderately shining, smooth. **Elytra** with length 1.3X width, width at base 1.5-1.6X pronotal width; striae with large punctures; interstriae 1.5-2.0X strial width, smooth, with fine, erect, scattered setae. **Pygidium** densely punctate. **Sexual dimorphism** present in rostrum and legs: **prothoracic coxae** of male with round to oval, densely setose pits apically.

Natural History

This species is commonly known as the rose curculio or the rose weevil as it is most often found on roses (*Rosa* spp.) as well as species of *Rubus*. It can also sometimes be of economic significance on cultivated roses, blackberries, and raspberries. Larvae are recorded to develop in the hips of these plants and feed on the achenes.

In Wisconsin, it has been reared from hips of Carolina rose (*Rosa carolina*), smooth rose (*Rosa blanda*) and wild prairie rose (*Rosa arkansana*). It has also been found on rugose rose (*Rosa rugosa*).

A great deal of literature is associated with this species. Chittenden (1901) reported on “pest” species that are found on ornamental plants; Cooley (1903) reported that *M. bicolor* can be of negative economic significnace; Lovett (1915) reported that it injures blackberry buds; Robertson (1923) investigated *M. bicolor* in Manitoba and how it affected roses; Balduf (1959) reported on insects that are associated with rose hips; Hamilton and Kuritsky (1981) described the larva and pupa.

Phenology

In Wisconsin, adults have been collected from April to August, with a peak in June and July.

Collecting Methods

In Wisconsin, **239 specimens** were examined during this study from 27 counties, forming a total of 28 county records. This species is most commonly hand collected from wild rose. It is also often collected by sweeping roses, sweeping fields roses are present, or by rearing from hips of various rose species.

Species Distribution

This species has previously been published to Barron, Crawford, and Kenosha counties (O'Brien and Wibmer 1982, Downie and Arnett 1996).

Additional Wisconsin County Records: Ashland, Brown, Burnett, Dane, Dodge, Douglas, Grant, Green, Iowa, Jackson, Jefferson, Manitowoc, Marathon, Marinette, Marquette, Milwaukee, Monroe, Polk, Portage, Racine, Richland, Sauk, St. Croix, Waukesha, Waushara, Winnebago, Wood.

North America: United States: AB, AZ, CA, CO, CT, DC, IA, ID, IL, IN, KS, KY, MA, MD, ME, MI, MO, MT, ND, NE, NH, NJ, NV, NY, OH, OR, PA, RI, SC, SD, UT, VA, WA, WI, WV, WY. **Canada:** BC, MB, NF, SK.

Genus *Temnocerus* Thunberg 1815

Temnocerus Thunberg 1815: 110.

Rhynchites (*Pselaphorhychites*) Schilsky 1903: 40, ff.

Coenorrhinus (*Pselaphorhychites*) Voss 1932: 170.

Pselaphorhynchites Hamilton 1969: 103.

Type species: *Curculio nanus* Paykull 1792: 136, by subsequent designation (Voss 1932: 178).

Hamilton (1969) elevated *Pselaphorhynchites* Schilsky, once considered a subgenus of *Rhynchites*, to generic level and clarified that the current generic concept of *Rhynchites* contains only *Rhynchites velatus* LeConte. However, Alonso-Zarazaga and Lyal (1999) listed *Pselaphorhynchites* as a synonym of *Temnocerus* Thunberg, 1815; accordingly, *Temnocerus* is currently recognized.

Hamilton (1971) revised the Nearctic fauna and recognized 14 species in two natural groups: (1) *aureus, cyanellus, fossifrons, insularus, levirostris,* and *naso*, characterized by having a obliquely oriented pygidium that is covered in large part by elytral apices, and the elytral interstriae having 2 rows of small setigerous punctures; and (2) *aeratus, aeratoides, macrophthalmus, perplexus, elusus, lindae, dilatarostris, striafrons*, characterized by the vertically oriented, mostly exposed pygidium, and the elytral interstriae each having 1 row of small setigerous punctures.

Generally, the species of *Temnocerus* are morphologically similar, that along with their variable metallic luster makes many of the species difficult to separate (Hamilton 2010). Characters useful in identification include color, thoracic shape, punctation, rostral shape and length, eye protuberance, vestiture, cranial microstructure, pronotal interspaces, and certain characters of the aedeagus (Hamilton 2010).

Some species of *Temnocerus* are “tip cutters”. Females of these species oviposit in young terminal plant growth and then cut off the terminal part with their mandibles so the larvae can pupate in the ground after they develop in the dead terminal tissues (Hamilton 2010). Hamilton (1983) described the tip cutting behavior of *Temnocerus*

perplexus (Blatchley) on sweet fern (*Comptonia peregrine*) in the Midwest. The females in some other species of *Temnocerus* are known to oviposit in terminal buds or shoots without excising them (Dieckman 1974, Hamilton 1994).

Generic Diagnosis

Temnocerus can be recognized by the presence of a scutellary striole, distinct elytral striae that are more or less quadrate, and by the narrow, convex and smooth elytral interstriae.

Generic Description

Length < 4.0 mm. **Integument** dark, often with metallic reflections; **vestiture** inconspicuous, consisting of very small, fine, appressed, white setae; **head** bulbous quadrate, distance across eyes usually as wide as or wider than base of head, interspace between punctures of head and pronotum usually with bead-like granulations; **elytra** usually somewhat swollen behind middle and depressed basally, striae more or less quadrate, always in distinct rows, interstriae usually narrower than striae, with small setigerous punctures; **sexual dimorphism** present: **abdomen** (male) weakly concave and setose or (female) convex and less setose.

Generic Distribution

Temnocerus includes 25 species worldwide and is found in Brazil, Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Panama, Canada, USA, and the Palaearctic region (Alonso-Zarazaga and Lyal, 1999). Fourteen species are found in the Nearctic region, three of which occur in Wisconsin.

Key to the Wisconsin Species of *Temnocerus*

1. Pydigium largely covered by elytra, with only the apex exposed, more or less obliquely oriented; length 2.3-3.5mm ……..……. ***Temnocerus cyanellus*** **(LeConte)**

1′. Pydigium almost entirely exposed, more or less vertical; length 1.7- 2.8mm …….. **2**

2. Rostrum widening from antennal insertions apically, narrowest at antennal insertions; color shining black, without bluish sheen ……...…… ***Temnocerus perplexus*** **(Blatchley)**

2′. Rostrum subparallel-sided from antennal insertion apically, narrowest between antennal insertion and apex; color black with blue to purple sheen, generally appearing bronze to reddish or greenish-bronze ……..……. ***Temnocerus aeratus*** **(Say)**

Temnocerus aeratus **(Say)**

[Figures 86, 87; Map 32]

Rhynchites aeratus Say 1831: 5.

Pselaphorhynchites aeratus (Say); Hamilton 1971: 995.

Tenmocerus aeratus (Say); Alonso-Zarazaga 1999: 42.

Species Diagnosis

Tenmocerus aeratus can be recognized by the frons lacking a median impression, and by the distinctly angulate rostrum which is apically flattened in apical view and more or less parallel-sided from antennal insertions towards apex.

Species Description

Length 2.1-2.2 mm (male), 2.1-2.8 mm (female). **Integument** black, with brassy purplish reflections (to the naked eye bronze to reddish or greenish-bronze). **Head** quadrate, with rather widely and evenly spaced, round, setigerous punctures, distance between punctures about equal to the puncture size, more widely spaced in middle of

frons and more crowded around eye, interspace with highly reflective, dense, bead-like granulations. **Rostrum** length (male) <1.0X pronotal length or about 1.25X pronotal length (female); nearly parallel-sided for entire length, slightly widening apically, distinctly angulate just beyond antennal insertions, gradually and strongly flattened from middle to apex, with wide, weak channel dorsomesally from between antennal insertions to base. **Eyes** large, oval, weakly conical, separation equal to or slightly greater than longest diameter; distinctly protuberant (male) to moderately protuberant (female). **Antennae** inserted at basal 1/3 of rostrum (male) or between basal 2/5 and 1/5 of rostrum (female). **Pronotum** as long as wide, more elongate in male, slightly narrowing apically, less so in male, widest behind middle, with round, dense setigerous punctures, those sometime fusing, interspace with highly reflective bead-like granulation. **Elytra** with length > 2.0X pronotal length, width 1.75X pronotal width; striae quadrate, moderately impressed; interstriae weakly convex, narrower than striae, with a row of small setigerous punctures. **Sexual dimorphism** present in size, rostrum, antennal insertions, eyes and pronotum.

Natural History

Adults have been collected from Virginia pine (*Pinus virginiana*), catkins of willow (*Salix* spp.), sweet fern (*Comptonia peregrina*), white oak (*Quercus alba*), and oaks in general (*Quercus* spp.). Vogt (1964, in Kissinger), stated that larvae of this species develop in terminal buds of oak.

Phenology

In Wisconsin, this species has been collected in August and September.

Collecting Methods

The **11 Wisconsin specimens** that were examined during this study from six counties represent a **NEW STATE RECORD**. They have been collected from bur oak (*Quercus macrocarpa*) and white oak (*Quercus alba*). Another specimen was collected by beating hardwood trees, and another was collected in a flight-intercept trap.

Species Distribution

Wisconsin County Records: Eau Claire, Florence, Marinette, Marquette, Portage, Waupaca.

North America: United States: AR, AZ, CO, CT, DC, FL, GA, IA, IL, IN, MA, MD, ME, MI, MN, MO, MS, NC, NE, NJ, NM, NY, OH, PA, SC, TN, TX, UT, VA, WI, WV. **Canada:** ON. **Mexico:** BJ.

***Temnocerus cyanellus* (LeConte)**

[Figures 88, 89; Map 33]

Rhynchites cyanellus LeConte 1876:8.

Rhynchites (*Pselaphorhynchites*) *cyanellus* (LeConte); Hatch 1971: 334.

Pselaphorhynchites cyanellus (LeConte); Hamilton 1969: 237.

Tenmocerus cyanellus (LeConte); Alonso-Zarazaga 1999: 42.

Species Diagnosis

Tenmocerus cyanellus can be recognized by the unexposed pygidium, the rostrum that enlarges abruptly in the apical 1/4, strongly protuberant eyes, and by the pronotum shape (distinctly wider than long and narrowed apically).

Species Description

Length 2.4-3.4 mm (male), 2.3-2.5 mm (female). **Integument** black with bluish, aeneus and purplish reflections, antennae and extremities of legs somewhat paler. **Head** quadrate, with dense, round, setiferous punctures; interpunctural space minutely granulose, becoming longitudinally rugose in front. **Rostrum** enlarging rather abruptly in apical 1/4 to a width subequal to that of frons; sides in dorsal view nearly parallel; slightly arcuate; length (male) about 1.0X pronotal length or 1.6X pronotal length (female). **Frons** with interspaces minutely rugose. **Eyes** rather strongly protuberant. **Antennae** inserted further from rostral base, insertion to anterior margin of eye much greater than diameter of eye; in male inserted between basal 1/2 and 1/4 of rostrum, in female inserted at basal 1/3 of rostrum. **Pronotum** distinctly wider than long, narrowed apically, widest behind middle; disc with round, shallow setiferous punctures, interpunctural space finely grooved. **Elytra** with length 3.0X pronotal length, width 2.0X pronotal width; striae not impressed, with deep, quadrate to oval punctures; interstriae about 0.5X strial width, each interstria with 1 row of fine, round, setiferous punctures. **Pygidium** covered by elytra. **Sexual dimorphism** present in size, rostrum and antennal insertion.

Natural History

This species has been collected from willows (*Salix* spp.), birch (*Betula* sp.) and oaks (*Quercus* spp.).

Phenology

In Wisconsin, adults have been collected in May and June.

Collecting Methods

In Wisconsin, **7 specimens** were examined from four counties. This species can be collected by beating branches of hardwood trees.

Species Distribution

This species has previously been recorded from Bayfield County (Hamilton 1971, O'Brien and Wibmer 1982, Downie and Arnett 1996).

Additional Wisconsin County Records: Dane, Dodge, Portage.

North America: United States: AB, CO, CT, IA, IL, IN, MA, ME, MI, MN, MO, MT, NB, NE, NH, NJ, NY, OH, OR, PA, UT, WI. **Canada:** MB, NF, NS, ON, PE, PQ, SK.

***Temnocerus perplexus* (Blatchley)**

[Figures 90, 91; Map 34]

Rhynchites perplexus Blatchley 1916: 95.

Pselaphorhynchites perplexus (Blatchley); Hamilton 1969: 229.

Tenmocerus perplexus (Blatchley); Alonso-Zarazaga 1999: 42.

Species Diagnosis

Temnocerus perplexus can be recognized by the almost completely visible pygidium, the rostrum that gradually widens from the antennal insertions to apex, pronotum slightly longer than wide with dense, setigerous punctures, and by the large cranial punctures.

Species Description

Length of male1.7-2.6 mm, of female 2.0-2.7 mm. **Integument** black, shiny, with faint blue sheen or without bluish reflections; apex of rostrum, antennae and apex of

legs somewhat paler. **Head** quadrate, slightly longer than wide, with round, evenly spaced, setiferous punctures; interpunctural spaces with dense, shining, minute granules. **Rostrum** with length 1.3X length of head + pronotum, in lateral view distinctly flattened apically; sides in dorsal view gradually widening from antennal insertion apically, narrower at apex than frons; distinctly arcuate and weakly flattened apically; punctures large. **Antennae** inserted just in front of basal 0.2 of rostrum (male) to near basal 0.2 of rostrum (female). **Pronotum** slightly longer than wide, slightly narrowed apically, widest behind middle; disc with round to irregularly shaped, dense setigerous punctures, interpunctural space with a few granules. **Elytra** with length >2.0X width, width 2.0X pronotal width; striae not impressed, with deep, quadrate punctures; interstriae about 0.5X strial width, weakly convex, each interstria with 1 row of small, round, setiferous punctures. **Pygidium** almost completely visible, covered only at extreme base. **Sexual dimorphism** present in size and antennal insertions.

Natural History

According to Hamilton (1983), both *Auletobius cassandrae* (LeConte) and *T. perplexus* have the same general distribution in eastern North America; they have been collected at both separate and common sites, and occur on the same plant, sweet fern (*Comptonia peregrina*). The females of both species oviposit in, and then cut the terminal leaf primordia of sweet fern, causing this tissue to fall to the ground and provide food and protection for the larva. While adults of both species feed on leaves of sweet fern, *T. perplexus* feeds by scraping off strips of the upper epidermis.

Phenology

This species is univoltine. In Wisconsin, adults have been collected in June.

Collecting Methods

In Wisconsin, **1 specimen** was examined during this study from Wood County, adding one new county record (see below). This species is most likely collected by sweeping fields of sweet fern.

Species Distribution

This species has previously been recorded from Oconto County (O'Brien and Wibmer 1982, Downie and Arnett 1996).

Additional Wisconsin County Records: Wood.

North America: United States: CT, DC, GA, IA, IL, IN, KS, MA, ME, MI, NC, NH, NJ, NY, OH, PA, RI, WI. **Canada:** NB, ON, PE, PQ.

Tribe Auletini Desbrochers 1908

Genus *Auletobius* Desbrochers 1869

Auletobius Desbrochers 1869:396.

Type species: *Auletes basilaris* Gyllenhal 1839 (= *Involvulus sanguisorbae* Schrank 1798), by subsequent desisgnation.

Generic Diagnosis

Auletobius can be recognized by the randomly punctate elytra, except in *Auletobius cassandrae* (LeConte), slender rostrum, unexposed pygidium, absence of a scutellary striole, and by the strongly convex, protuberant eyes.

Generic Description

Length 1.8-3.8mm. **Body** stout, pear-shaped; **vestiture** consisting of short, inconspicuous setae; **head** conical, widest across eyes, surface punctate; **rostrum**

slender, weakly curved, weakly expanded apically; eyes strongly convex, protuberant; **antennae** inserted in basal 1/4 or near middle of rostrum, terminal 3 segments distinctly larger than other segments; **pronotum** narrower than elytra, disc shining and punctate; **elytra** inflated on posterior 1/2, broadly rounded apically, surface not striate, punctures randomly scattered (except *A. cassandrae*), interpunctural space shining; **pygidium** concealed by elytra.

Generic Distribution

Auletobius is nearly cosmopolitan (Alonso-Zarazaga and Lyal 1999). It contains 16 species in the Nearctic region, two of which are found in Wisconsin.

Key to the Wisconsin Species of *Auletobius*

1. Size 3.3-3.8mm; integument black, clothed with fine, gray pubescence; antennae inserted at middle of rostrum ……..….. ***Auletobius ater*** **(LeConte)**

1′. Size 1.8-2.2mm; integument brownish-yellow, clothed with fine, yellow pubescence; antennae inserted at basal 1/4 of rostrum ……. ***Auletobius cassandrae*** **(LeConte)**

Auletobius ater **(LeConte)**

[Figures 92, 93; Map 35]

Auletes ater LeConte 1876:4.

Auletobius ater (LeConte); Hamilton 1979: 31.

Auletobius (*Aletinus*) *ater* Hamilton 1969: 363.

Species Diagnosis

Auletobius ater can be recognized by the confused elytral punctures that are deep and not in rows, antennae inserted near the middle of the rostrum, cleft pretarsal claws, white pubescence, the larger size (> 3mm), and by the setose, conspicuous sex patch on the declivity of elytral apices in males.

Species Description

Length 3.3-3.8mm. **Integument** black. **Vestiture** consisting of white setae. **Head** weakly convex, with a transverse, weak impression behind eye; surface with large, close, deeply impressed punctures. **Rostrum** stouter than other *Auletobius* species; surface shining, with close, elongate, deep punctures forming longitudinal ridges, setae sparse. **Eyes** round and protuberant. **Antennae** inserted at middle of rostrum. **Pronotum** as long as wide, widest in basal 1/2; weakly arcuate laterally, very weakly constricted before apical margin; disc convex, with large, close, deeply impressed punctures, interpunctural space weakly shining, minutely reticulate. **Elytra** with length 1.2X width, width at base 1.4X pronotal width, surface with deeply impressed, very large, close, confused punctures; interpunctural space slightly shining, smooth; elytra disc not noticeably impressed in basal 1/4. **Sexual dimorphism** distinct: males with conspicuous setose sex patch on declivity of elytral apices.

Natural History

This species has been found on sweet fern (*Comptonia perengrina*), bayberry (*Myrica spp.*), and oaks (*Quercus* spp.).

Phenology

In Wisconsin, adults have been collected from May to July, with a peak in June.

Collecting Methods

The **11 Wisconsin specimens** examined during this study from four counties represent **A NEW STATE RECORD**. One specimen was collected by hand on foliage of Hill's oak (*Quercus ellipsoidalis*), another was collected by beating oak (*Quercus* spp.). It can also be collected by sweeping fields of sweet fern.

Species Distribution

Wisconsin County Records: Dane, Grant, Iowa, Wood.

North America: United States: AR, CT, IL, IN, MA, MD, ME, MI, MN, MO, NC, NJ, NY, OH, PA, RI, SC, TN, TX, WI. **Canada:** MB, ON, PQ.

***Auletobius cassandrae* (LeConte)**

[Figures 10, 94, 95; Map 36]

Auletes cassandrae LeConte 1876: 5.

Auletes albovestita Blatchley 1916: 54.

Auletes minor Blatchley 1922: 98.

Auletobius blatchleyi Voss 1935: 240.

Auletobius (*Mesauletes*) *cassandrae* (LeConte); Hamilton 1969: 368.

Auletes (*Mesauletes*) *albovestita* (Blatchley); Hamilton 1969: 371.

Auletobius cassandrae (LeConte); Hamilton 1979: 31.

Species Diagnosis

Auletobius cassandrae can be recognized by the deeply impressed, round to quadrate, weakly-rowed elytral punctures, antennae inserted in basal 1/4 of rostrum, head constricted behind the eyes, bicolored pubescence (yellow and white with the irregular, white elytral cross bands), the smaller size (around 2.0 mm), and by the small, bulbous

area on the declivity of each elytron that bears an inconspicuous, setose sex patch in males.

Species Description

Length 1.8-2.2mm. **Integument** dark reddish-brown; head and pronotum usually darker than elytra. **Vestiture** of head and pronotum consisting of white setae or white intermixed with yellow setae, that of elytra consisting of yellow and white setae, the white setae forming irregular cross bands;. **Head** strongly convex, transversely impressed behind eyes; surface with small, close, rather weakly impressed punctures. **Rostrum** length about 1.4X pronotal length, in lateral view nearly straight and distinctly flattened apically; in dorsal view narrower basally, more or less parallel-sided anterad antennal insertion and sometimes slightly constricted at apical 1/4; surface glabrous, minutely reticulate, with scattered, fine, shallow punctures. **Antennae** inserted in basal 1/4 of rostrum. **Pronotum** very slightly longer than wide, widest at middle; weakly arcuate laterally, very weakly constricted before apical margin; disc convex, with large, deeply impressed, close punctures; interpunctural space shining. **Elytra** with length 1.4X width, width at base 1.6X pronotal width; striae with punctures large, deeply impressed, placed in even rows; interstriae as wide as or slightly narrower than striae, shining, with scattered minute points; elytral disc weakly impressed on basal quarter, somewhat inflated behind; declivity of each elytron bears an inconspicuous, setose sex patch in males. **Sexual dimorphism** present in elytra.

Natural History

This species is a specialist on sweet fern (*Comptonia perengrina*); additional natural history can be found in Hamilton's publications (1983a, 1983b).

Phenology

In Wisconsin, adults have been collected from May to September.

Collecting Methods

In Wisconsin, **28 specimens** were examined during this study from eight counties, forming a total of nine county records. It is most commonly collected by sweeping fields of sweet fern. One specimen was collected in a Malaise trap, and another by sweeping forest floor.

Species Distribution

This species has previously been recorded from Oneida County (O'Brien and Wibmer 1982, Hamilton 1983, Downie and Arnett 1996).

Additional Wisconsin County Records: Bayfield, Florence, Jackson, Juneau, Marinette, Oconto, Shawano, Wood

North America: United States: AL, CT, FL, GA, IL, MA, ME, MI, MS, NC, NE, NH, NJ, NY, PA, RI, SC, TX, WI. **Canada:** NS, PQ.

Genus *Pterocolus* Say 1831

Pterocolus Say 1831: 5.

Type species: *Attelabus ovatus* Fabricius, by monotypy.

Generic Diagnosis

Pterocolus can be recognized by the metallic blue-green to blue-black integument, by the distinct lateral pronotal carinae, prothoracic hypomera strongly excavated, antennae inserted close to the eyes, and by the individually rounded elytral apices.

Generic Description

Length 2.8-3.2 mm. **Body** robust, dorsally convex; **integument** metallic bluish-green to bluish-black; **vestiture** consisting of appressed to semi-erect, inconspicuous, fine setae; **head** weakly triangular; **eyes** large, oval, more protuberant posteriorly, emarginated anteriorly; **rostrum** short, as long as or shorter than head, straight, in dorsal view more or less parallel-sided throughout, with beard-like ventral vestiture (more prominent in males); **antennae** short, inserted near basal 1/4 of rostrum, club large and strongly abrupt, compact; mandibles flat, toothed on inner and outer margins; maxillary palpi 4-segmented, labial palpi 3-segmented; **pronotum** with distinct lateral carinae; **elytra** short, apices individually rounded, striae mostly distinct, interstriae more or less convex; **pygidium** and 2 complete abdominal tergites visible; **scutellary striole** present; **mesepimeron** strongly developed laterally, visible in dorsal view between pronotum and elytra; **abdominal ventrites** with sutures entire; **prothoracic femora** thinner than mesothoracic and metathoracic femora; **tibiae** with 2, blunt-tipped mucros apically; **pretarsi** each bearing a broad, basal tooth.

Generic Distribution

Pterocolus is found in Costa Rica, Panama, Mexico, Canada, and USA (Alonso-Zarazaga and Lyal 1999). It is represented in North America north of Mexico – including Wisconsin – by one species. Three additional species are found in Mexico and Central America (Bright 1993).

***Pterocolus ovatus* (Fabricius)**

[Figures 9, 96, 97; Map 37]

Attelabus ovatus Fabricius 1801: 426.

Pterocolus ovatus (Fabricius); Blatchley and Leng 1916: 65.

Species Diagnosis

Pterocolus ovatus can be easily recognized by the metallic blue-green to blue-black integument, distinct lateral pronotal carinae, strongly excavate hypomera, antennae inserted close to the eyes, and by the individually rounded elytral apices.

Species Description

Length 2.8-3.2 mm. **Body** bright metallic blue or green; antennae, rostrum, and legs somewhat darker. **Vestiture** consisting of inconspicuous, fine setae. **Head** densely punctate on vertex. **Rostrum** length 0.7X pronotal length, constricted at antennal insertions, diverging to broad apex; surface shining, with 2 longitudinal rows of close punctures near lateral margin, area between rows very finely, sparsely punctate. **Frons** much narrower than dorsal tip of rostrum. **Pronotum** with width 1.3X length, widest at junction of elytral humeral angles; disc strongly convex, with dense, evenly spaced punctures, each bearing 1 short, recumbent, hair-like seta; interpunctural spaces shining, smooth, much narrower than diameter of puncture. **Elytra** with width 1.2X length; striae moderately impressed, with moderate, deeply impressed punctures; interstriae approximately 2.0X strial width, shining, smooth, with 1 irregular row of medium-sized punctures, each bearing 1 recumbent, fine, hair-like seta. **Visiblle abdominal tergites** with large, strong, dense punctures.

Natural History

Pterocolus ovatus is an obligate egg-predator and nidus-kleptoparasite of *H. analis* (Hall and Buss 2007). It may also use *A. bipustulatus* as host (Vogt 1992).

This species is found throughout the range of *H. analis* (Vogt 1992), except for southern Florida (Anderson 1992), as well as the eastern and southwestern United States, where other possible leaf-roller hosts such as *A. bipustulatus* are found (Vogt 1992). In Wisconsin, two individuals of *H. analis* and a specimen of *P. ovatus* were observed on different leaves of the same scrub oak (personal observation).

Phenology

In Wisconsin, adults of this species have been collected from June to September.

Collecting Methods

The **16 Wisconsin specimens** examined during this study from seven counties represent a **NEW STATE RECORD**. This species is most readily collected by beating oak, and by hand collecting from oak leaves.

Species Distribution

Wisconsin County Records: Dane, Dodge, Grant, Monroe, Sauk, Trempealeau, Waukesha.

North America: **US:** AL, AR, AZ, CT, DC, FL, GA, IA, IL, IN, KS, LA, MA, MD, ME, MI, MN, MO, NC, NJ, NY, OH, OK, PA, RI, SC, TN, TX, VA, WI. **Canada:** country only.

Figure 68. *Attelabus bipustulatus* (Fabricius), dorsal habitus.

Figure 69. *Attelabus bipustulatus* (Fabricius), lateral habitus.

Figure 70. *Attealbus nigripes* LeConte, dorsal habitus.

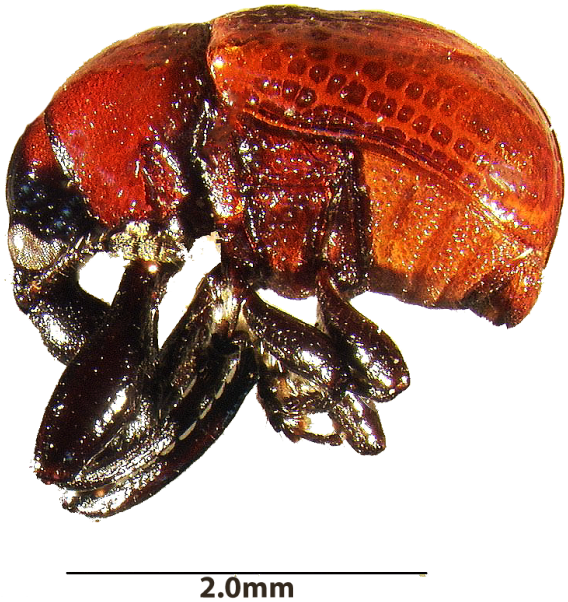


Figure 71. *Attelabus nigripes* LeConte, lateral habitus.

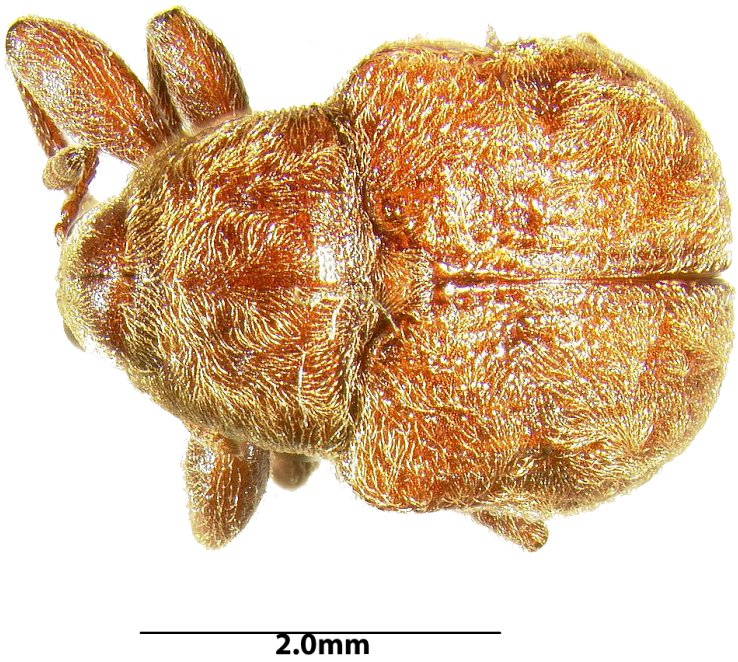


Figure 72. *Himatolabus pubescens* (Say), dorsal habitus.

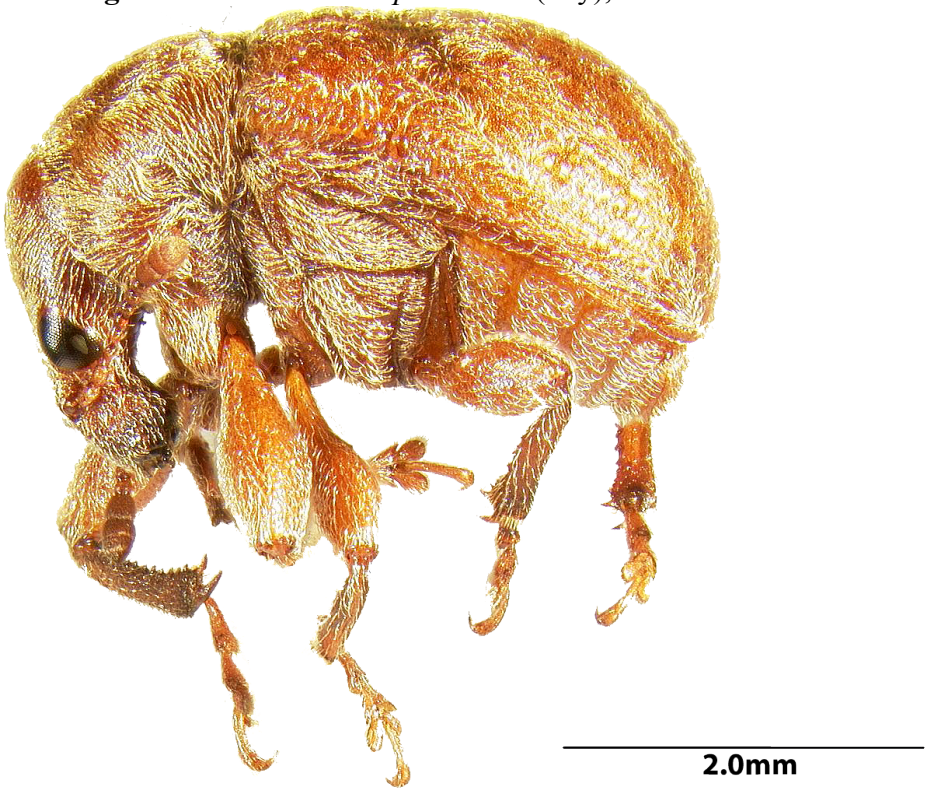


Figure 73. *Himatolabus pubescens* (Say), lateral habitus.

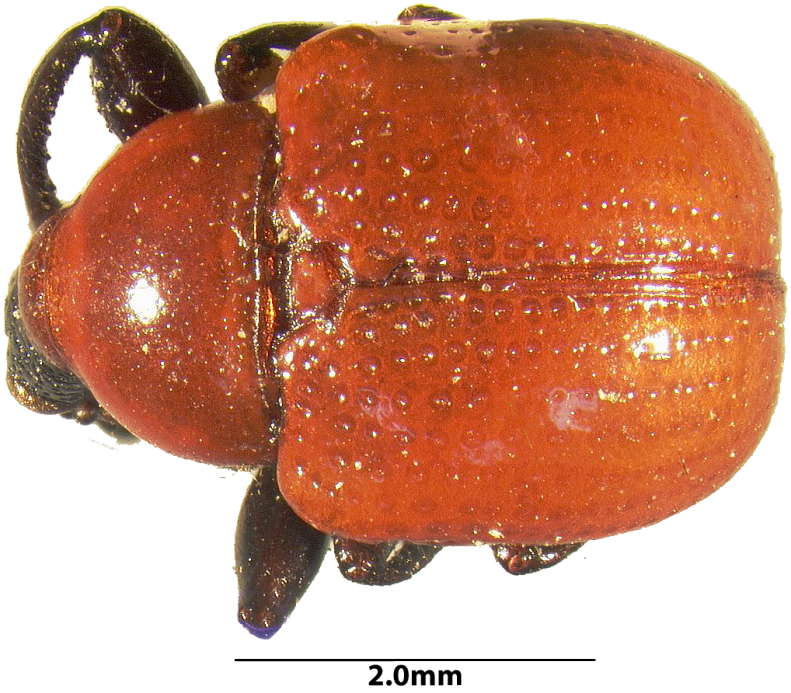


Figure 74. *Homeolabus analis* (Illiger), dorsal habitus.

Figure 75. *Homeolabus analis* (Illiger), lateral habitus.

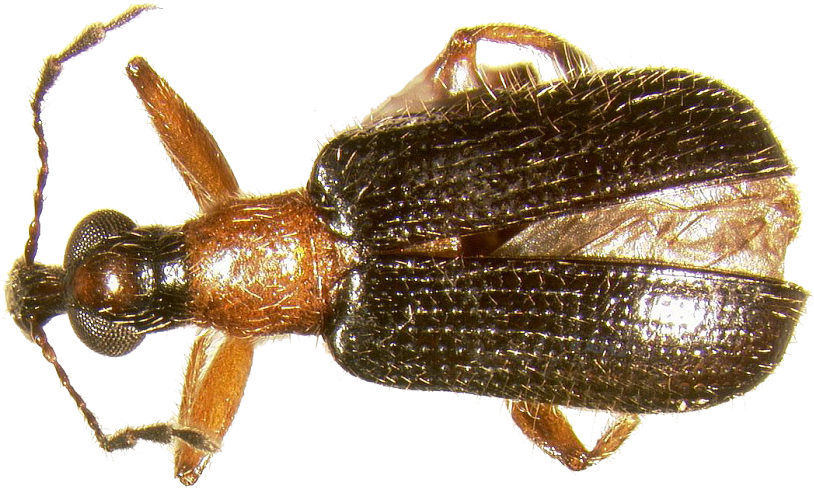


Figure 76. *Eugnamptus angustatus* (Herbst), dorsal habitus (M).

Figure 77. *Eugnamptus angustatus* (Herbst), lateral habitus (M).

Figure 78. *Eugnamptus angustatus* (Herbst), dorsal habitus (F).

Figure 79. *Eugnamptus angustatus* (Herbst), lateral habitus (F).

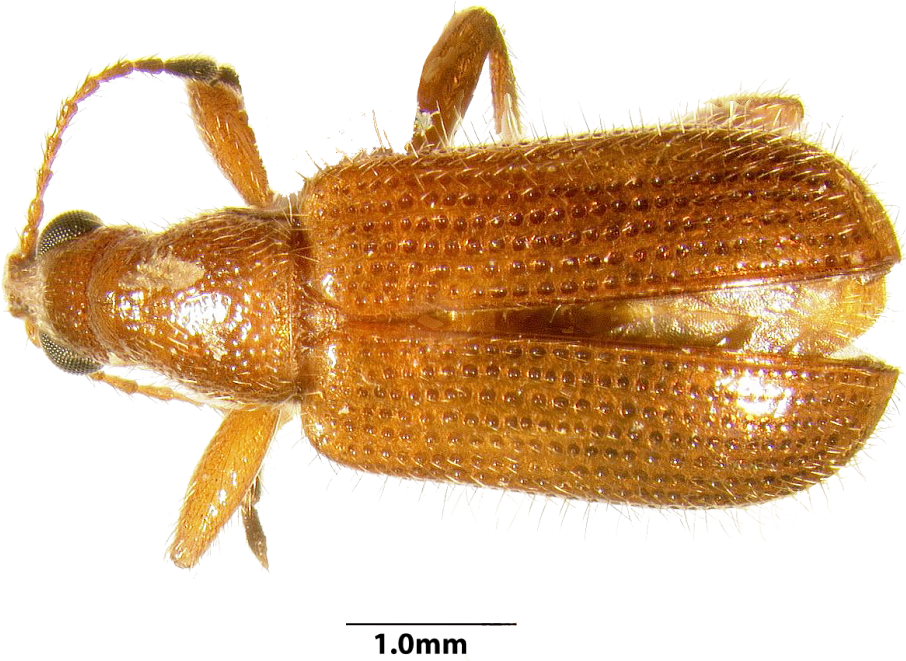


Figure 80. *Eugnamptus puncticens* LeConte, dorsal habitus.

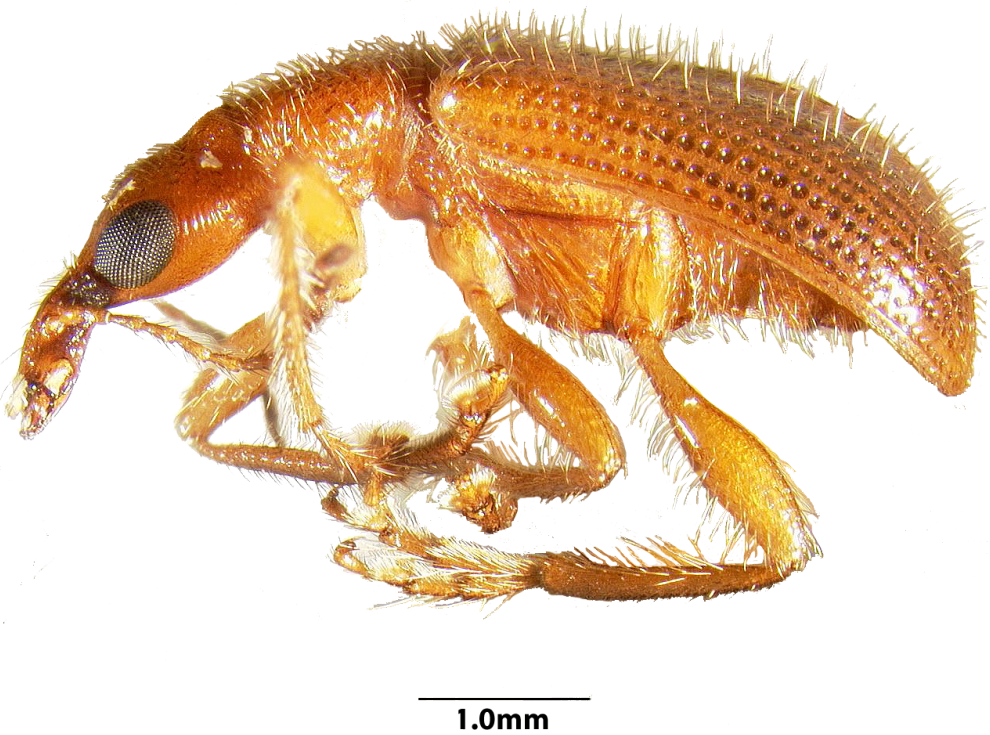


Figure 81. *Eunamptus puncticeps* LeConte, lateral habitus.

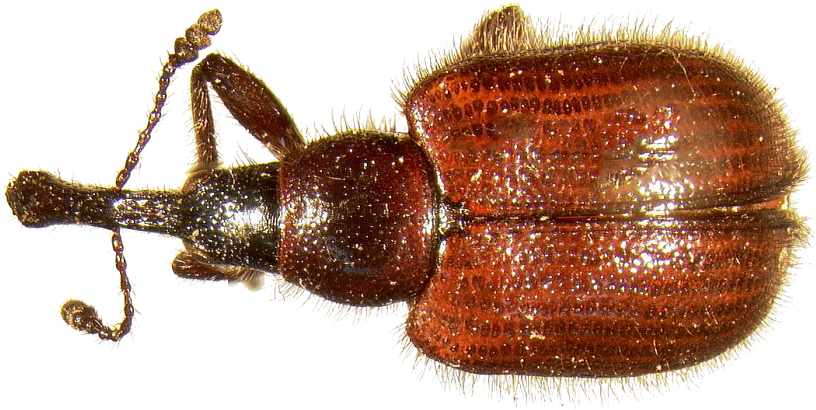


Figure 82. *Haplorhynchites aeneus* (Boheman), dorsal habitus.

Figure 83. *Haplorhynchites aeneus* (Boheman), lateral habitus.

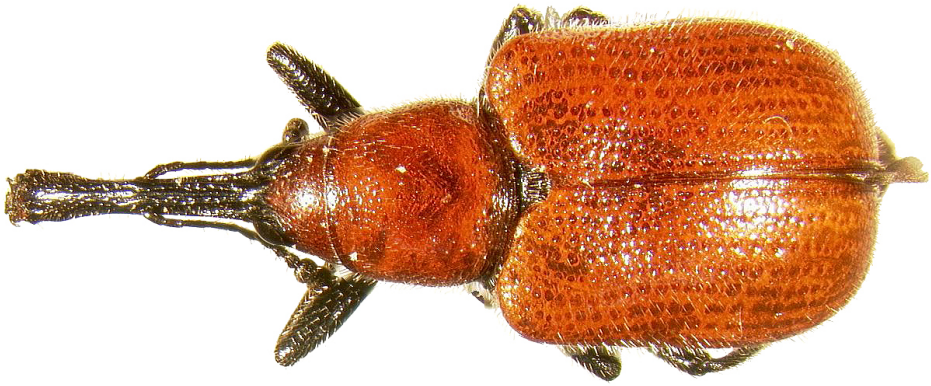


Figure 84. *Merhynchites bicolor* (Fabricius), dorsal habitus.

Figure 85. *Merhynchites bicolor* (Fabricius), lateral habitus.

Figure 86. *Temnocerus aeratus* (Say), dorsal habitus.

Figure 87. *Temnocerus aeratus* (Say), lateral habitus.

Figure 88. *Temnocerus cyanellus* (LeConte), dorsal habitus.

Figure 89. *Temnocerus cyanellus* (LeConte), lateral habitus.

Figure 90. *Temnocerus perplexus* (Blatchley), dorsal habitus.

Figure 91. *Temnocerus perplexus* (Blatchley), lateral habitus.

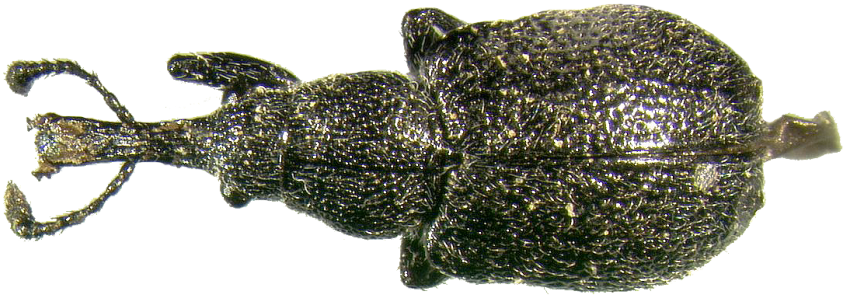


Figure 92. *Auletobius ater* (LeConte), dorsal habitus.

Figure 93. *Auletobius ater* (LeConte), lateral habitus.

Figure 94. *Auletobius cassandrae* (LeConte), dorsal habitus.

Figure 95. *Auletobius cassandrae* (LeConte), lateral habitus.

Figure 96. *Pterocolus ovatus* (Fabricius), dorsal habitus.

Figure 97. *Pterocolus ovatus* (Fabricius), lateral habitus.

Attelabus bipustulastus Fabricius

Attelabus nigripes LeConte

Maps 24, 25. *A.bipustulatus* and *A.nigripes* Wisconsin distributional maps.

Himatolabus pubescens (Say)

Homeolabus analis (Illiger)

Maps 26, 27. *H.pubescens* and *H.analis* Wisconsin distributional maps.

Eugnamptus angustatus (Herbst)

Eugnamptus puncticeps LeConte

Maps 28, 29. *E.angustatus* and *E.puncticeps* Wisconsin distributional maps.

Haplorhynchites aeneus (Boheman)

Merhynchites bicolor (Fabricius)

Maps 30, 31. *H.aeneus* and *M.bicolor* Wisconsin distributional maps.

Temnocerus aeratus (Say)

Temnocerus cyanellus (LeConte)

Maps 32, 33. *T.aeratus* and *T.cyanellus* Wisconsin distributional maps.

Temnocerus perplexus Blatchley

Auletobius ater (LeConte)

Maps 34, 35. *T.perplexus* and *A.ater* Wisconsin distributional maps.

Auletobius cassandrae (LeConte)

Pterocolus ovatus (Fabricius)

Maps 36, 37. *A.cassandrae* and *P.ovatus* Wisconsin distributional maps.

CHAPTER 5: FAMILY BRENTIDAE BILLBERG 1820

Brentidae, as presently understood, is a little more diverse than Anthribidae, with approximately 4,000 species in 400 genera and a cosmopolitan distribution. About 90% of the species belong to the subfamilies Brentinae and Apioninae, which consist of 1,700 and 1,900 species, respectively. The other subfamilies are far less speciose and tend to be geographically more restricted, with Nanophyinae consisting of 270 species, Microcerinae 67 species, Eurhynchinae 31 species and Ithycerinae but one species (Oberprieler et al. 2007). In North America, Brentidae includes approximately 150 species in 32 genera (Anderson and Kissinger 2002).

The higher-level phylogeny of the family lacks a general consensus, with some authors treating the subfamilies as distinct families while others treat them as a single family. Any of several hypotheses are currently followed. Alonso-Zarezaga and Lyal (1999) recognized Apionidae, Nanophyidae and Brentidae as distinct families. Lawrence and Newton (1995) recognized Apioninae, Nanophyinae and Brentinae as subfamilies within Brentidae. Other subfamilies they placed within Brentidae include Cyphagoginae, Trachelizinae, Cyladinae, and Ithycerinae. This study follows the system constructed by Marvaldi et al. (2002), recognizing six subfamilies within Brentidae: Apioninae, Brentinae, Eurhynchinae, Ithycerinae, Microcerinae, and Nanophyinae.

Kuschel (1995) proposed monophyly of Brentidae is supported by the adult abdominal ventrites 1-2 being more convex and protruding than the 3rd, and by the labial palpi having a reduced number of palpomeres from two to one segment. However, under the current system of six subfamilies, the above two morphological features along with

other characters that are often recognized as synapomorphies of Brentidae, such as eyes that are covered by a corneal lens, labial palpi sunk into grooves on the vental surface of the prementum, 8th male tergite being pouch-like with a medially inflexed posterior margin, among other characters, are not present in all taxa therefore can no longer be regarded as clear synapomorphies defining the family Brentidae as a monophyletic group.

Two putitive synapomorphiesd have been identified thus far that appear to be shared by all of the subfamilies. One is the single, median sensillum on the larval labrum, the other is the reduced number of Malpighian tubules (6 → 4).

Key to the Genera of Wisconsin Brentidae

[Keys genera of Apioninae generally require males. Thus, it is prudent to collect members of this group in series or as copulating pairs.]

1. Length 12-18mm; pubescence scale-like, distinct, ash-gray and pale-brown; antennae with distinct club; rostrum broad and stout ……...… ***Ithycerus*** **Schönherr**

1′. Length smaller than 12mm (except for *Arrenodes*); pubescence, antennae and rostrum variable ……..……..…… **2**

2. Trochanters short, triangular, femora each attached to side of trochanter; body elongate, narrow, length > 3.0mm, commonly > 10.0mm ……..... ***Arrenodes*** **Schönherr**

2′. Trochanters long, cylindrical, femora attached to trochanters apically; body pear-shaped, usually < 3.0mm; rostrum variable … (Subfamily Apioninae) .....……..... **3**

3. Mesothoracic coxae contiguous, not separated by junction between mesosternal process and intercoxal process of metathoracic sternum ……... **4**

3′. Mesothoracic coxae separated by junction between mesosternal process and intercoxal process of metathoracic sternum …… **5**

4. Rostrum straight in lateral view, not forming an angle at junction with frons; distal half of rostrum usually tapered; eyes not or scarcely prominent …….. ***Perapion*** **Wagner**

4′. Rostrum strongly curved in lateral view, forming a conspicuous angle at junction with frons; distal half of rostrum parallel-sided to slightly widened; eyes prominent ……. ……..….... ***Podapion*** **Riley**

5. Prothoracic femora of male with polished area on ventral surface, sometimes with striae, the area generally limited posteriorly by a prominent, longitudinal carina; metathoracic sternum generally with a pair of spicules near the middle of the posterior margin ……. ***Fallapion*** **Kissinger**

5′. Prothoracic femora of male without polished area on ventral surface ……..… **6**

6. Some or all tibiae of male mucronate ……..... **7**

6′. Tibiae of male not mucronate ……...……..... **9**

7. All tibiae of male mucronate; legs pale reddish-yellow…….….. ***Rhopalapion*** **Schilsky**

7′. Mesothoracic and/or metathoracic tibiae mucronate (except some *Trichapion*), prothoracic legs variously modified; if all tibiae mucronate, then legs dark ….……..... **8**

8. Ventral cranial surface with subcephalic ridges lacking or short, not extended basally to mid-point of eye; vestiture conspicuous, varying from whitish to yellowish-white …… ……. ***Betulapion*** **Ehret**

8′. Ventral cranial surface with subcephalic ridges moderately well, to well developed, extended to or beyond middle of eye; vestiture white ……...…. ***Trichapion*** **Wagner**

9. Elytra blue-green; legs dark; lateral pronotal margins parallel along basal half; rostrum not prominently expanded at antennal insertions ……,,…… ***Ischnopterapion*** **Bokor**

9′. Elytra not blue-green; legs variable; lateral pronotal margins variable; rostrum variously expanded at antennal insertions ……... **10**

10. Metathoracic sternum of male tuberculate mesally along posterior margin …..... …… ***Eutrichapion*** **Reitter**

10′. Metathoracic sternum of male not tuberculate …….……. **11**

11. Basitarsus of mesothoracic and/or metathoracic legs of male produced into an inner spine …….…….. ***Ceratapion*** **Schilsky**

11′. Basitarsus of mesothoracic and metathoracic legs of male lacking spine ……..... **12**

12. Elytra with transverse pattern of contrasting light and dark scales; tarsomere 2 of each prothoracic leg stout, about as wide as long; femora and tibiae robust …… ……..... ***Neapion*** **Alonso-Zarazaga**

12′. Elytra with scales more uniformly colored, not contrasting light and dark; tarsomere 2 of each prothoracic leg usually longer than wide; femora and tibiae more slender …. **13**

13. Basal pronotal flanges always distinct, conspicuous …….…… **14**

13′. Basal pronotal flanges absent, indistinct, or if present very small ……... **15**

14. Legs and antennal scape light-colored; pronotal sides parallel along basal third ……... …….. ***Sayapion*** **Kissinger**

14′. Legs and antennal scape usually dark-colored; pronotum with sides rounded at middle ……...……..… ***Alocentron*** **Schilsky**

15. Basal flanges absent; legs and integument black, base of each antenna pale; rostrum of females conspicuously longer than that of males …….. ***Kissingeria*** **Alonso-Zarazaga**

15′. Basal flanges variable, may be present but indistinct [somewhat distinct in *Coelocephalapion emaciipes* (Fall)]; legs and integument variable, base of each antenna not pale; sexual dimorphism of rostrum indistinct ……..... ***Coelocephalapion*** **Wagner**

Subfamily Ithycerinae Pascoe 1870

This subfamily consists solely of the monotypic *Ithycerus* Schönherr, represented by *Ithycerus noveboracensis* (Forster), the New York weevil. It is a relict taxon and may represent the only survivor of a group with greater species richness and wider distribution in the past (Marvaldi 1997).

Many authors still consider *I. noveboracensis* to be in its own family, Ithyceridae. However, like other brentids, adults and larvae of this subfamily have a reduced number of Malpighian tubules, and the larvae have a single median sensillum on the labrum. These putitive synapomorphies suggest Ithycerinae and other brentids form a monophyletic group. Adults of this subfamily possess autapomorphies associated with the male genitalia and the metathoracic wings (Zherikhin and Gratshev 1994).

Genus *Ithycerus* Schönherr

Ithycerus Schönherr 1823: 1136.

Pachrynchus Kirby 1837: 203.

Ithusycer Schönherr; Laporte 1840: 291. (*lapsus calami*)

Ithusycerus Schönherr; Dalla Torre and Voss 1935. (*lapsus calami*)

Type Species: *Curculio noveboracensis* Forster 1771, by monotypy.

Generic Diagnosis

Ithycerus can be recognized by the large size, bristle-like ash gray and pale brown setae, distinctly clubbed antennae, and the broad, stout rostrum.

Generic Description

Length 12.0-18.0mm. **Body** elongate oblong, robust, black, shining; **vestiture** consisting of distinct, ash gray and pale brown setae; **head** with gular sutures confluent; **rostrum** about half as long as head, broad and stout, not sexually dimorphic; **mandibles** emarginate apically; **maxilla** without lacinia, palpi 3-segmented, rigid; **labrum** absent; **mentum** large, quadrate, supported on short, broad gular peduncle; **eyes** small and round; **antennae** straight, with compact, 3-segmented club, antennal insertions lateral; **prothoracic coxae** contiguous; **trochanters** short, triangular, each with femur attached to the side; **tibiae** truncate apically ; **tarsi** broad and pubescent beneath, tarsomere 4 small, hidden beneath bilobed tarsomere 3; **pretarsus** free, armed at middle, each with a small, acute tooth; **abdomenal** ventrites 1-2 connate.

Generic Distribution

Ithycerus is found only in the Nearctic region, in Canada and USA (Alonso-Zarazaga and Lyal 1999).

***Ithycerus noveboracensis* (Forster)**

[Figures 16, 98, 99; Map 38]

Curculio noveboracensis Forster 1771: 35.

Curculio punctatulus Fabricius 1781: 187.

Rhynchites curculionoides Herbst 1797: 136.

Pachyrhynchus schonherri Kirby 1837: 203.

Ithycerus noveboracensis (Forster); Horn 1873: 447.

Species Diagnosis

Ithycerus noveboracensis can be easily recognized by its large size and its distinct pubescence: ash gray and pale brown setae, the gray setae forming bands on the pronotum and pale stripes along alternating elytral interstriae.

Species Description

Length 12.0-18.0 mm. **Body** elongate oblong, robust. **Integument** black. **Vestiture** consisting of dense, ash gray and pale brown setae; gray setae forming one, narrow median band and two wider, lateral bands on pronotum and one, narrow pale stripe along alternating elytral interstriae , the pale stripes broken by 3-4 small patches of dark setae; scutellum bearing white setae. **Head** length 0.5X pronotal length. **Rostrum** carinate along meson, surface densely rugose-punctate. **Pronotum** subcylindrical, length 1.0X width, weakly arcuate laterally; disc densely rugose-punctate. **Elytra** with width at base 2.0X pronotal width; sides parallel for 4/5 of length, converging to obtuse apex; striae indistinct; interstriae convex, densely rugose, bearing rows of pale setae. **Abdomen** of male with last visible segment strongly convex, visible from beneath. **Pygidium** deeply grooved in both sexes, projecting slightly beyond elytra.

Natural History

This species, commonly known as the New York weevil, is a generalist. It has been recorded from plants in the families Betulaceae, Juglandaceae, Fagaceae, and Rosaceae. Specific associations include white oak (*Quercus alba*), black oak (*Quercus velutina*), bur oak (*Quercus macrocarpa*), swamp white oak (*Quercus bicolor*), scarlet

oak (*Quercus coccinea*), chestnut oak (*Quercus prinus*), Hill's oak (*Quercus ellipsoidalis*), red oak (*Quercus rubra*), paper birch (*Betula papyrifera*), quaking aspen (*Populus tremuloides*), American hornbeam (*Carpinus caroliniana*), gray birch (*Betula populifolia*), butternut (*Juglans cinerea*), butternut hickory (*Carya cordiformis*), shagbark hickory (*Carya ovata*), American beech (*Fagus grandifolia*), American chestnut (*Castanea dentata*), European crab apple (*Malus sylvestris*), and American plum (*Prunus americana*) (Sanborne 1983, Stavney and Raffa 1987). The larvae feed on roots of these plants while the adults feed on the softer tissues, such as new growth, petioles and buds. It can occasionally become of economic significance in orchards.

Phenology

In Wisconsin, adults have been collected from May to August, with a peak of flight activity during June and July.

Collecting Methods

In Wisconsin, **114 specimens** were examined during this study from 23 counties, forming a total of 27 county records. This species is often collected by beating hardwood trees, especially oaks, and it is also often hand collected, mostly on the bark or trunks of hardwood trees. It has also been recovered from Malaise traps, Lindgren funnel traps, flight intercept traps, at light, and by sweeping. Stavney and Raffa (1987) collected many specimens from passive traps on red pines with white oak present within 20-30 meters.

Species Distribution

Ithycerus has previously been recorded from Burnett, Douglas, Washburn, and Waupaca counties (O'Brien and Wibmer 1982, Stavney and Raffa 1988, Downie and Arnett 1996,).

Additional Wisconsin County Records: Adams, Bayfield, Columbia, Dane, Dodge, Door, Eau Claire, Green, Iowa, Jackson, Langlade, Manitowoc, Marinette, Marquette, Milwaukee, Monroe, Ozaukee, Polk, Sauk, Walworth, Washburn, Waukesha, Waushara, Wood.

North America: United States: CT, DC, GA, IL, IN, MA, MI, NC, NE, NJ, NY, PA, SC, TX, VA, WI. **Canada:** country only.

Subfamily Brentinae Billberg 1820

Brentinae includes five monotypic genera in North America. Its members are elongate, parallel-sided and sexually dimorphic: males having large, conspicuous mandibles and females having small, cylindrical mandibles. One species, *Arrenodes minutus* (Drury), is found in Wisconsin. This species can be of economic significance in *Quercus* spp. and a few other hardwood species in the eastern US (Thomas 2007).

Members of Brentinae can be recognized by the tooth or swelling associated with the prothoracic femora (sometimes mesothoracic and metathoracic femora, as well), and by the smooth or punctate rostrum that lacks setae.

Tribe Arrhenidini Lacordaire 1866

Genus *Arrenodes* Schönherr

Arrenodes Schönherr 1823: 1137.

Brentus Panzer 1788: 159.

Arrhenodes Schönherr; Schönherr 1826: 70 (misspelling).

Eupsalis Lacordaire 1866: 430.

Platysystrophus Kleine 1917: 139.

Type species: *Brentus maxillosus* Olivier, 1807.

Generic Diagnosis

Arrenodes can be distinguished from members of Apioninae by the short, triangular trochanters with the femora attached obliquely; it differs from Ithycerinae (*Ithycerus*) by its narrow, elongate body and sexually dimorphic rostrum. *Arrenodes* can be distinguished from other brentine genera by its short head that is distinctly constricted behind the eyes, dorsally smooth pronotum, subequal antennal segments 2-11, and by the prothoracic femora each possessing a swelling on the inner margin as opposed to a tooth.

Generic Description

Length 6.5-17.0 mm. **Body** elongate; **integument** reddish-brown to black; **head** broad, hind angles obsolete, mouthparts concealed by mentum; **mandibles** of male conspicuous, flattened, each toothed on inner edge, those of female small, cylindrical; **rostrum** of male expanded laterally, that of female needle-like; **mesothoracic coxae** rounded and separated; **femora** slender, cylindrical at base; **prothoracic tibiae** sinuate.

Generic Distribution

Arrenodes is found throughout much of the eastern US and southeastern Canada in the Nearctic region (Alonso-Zarazaga and Lyal 1999, Anderson and Kissinger 2002) and it contains one species, *Arrenodes minutus* (Drury).

***Arrenodes minutus* (Drury)**

[Figures 6, 13, 100, 101, 102, 103; Map 39]

Curculio minutus Drury 1770: 95.

Brentus septentrionis Herbst 1797: 183.

Brentus brunneus Panzer 1800: 44.

Brentus maxillosus Olivier 1807: 443.

Brentus minutus (Drury); Drury and Westwood 1837: 90.

Eupsalis lecontei Power 1878: 494.

Eupsalis sallei Power 1878: 494.

Eupsalis minuta (Drury); von Scholfeldt 1908: 36.

Eupsalis minuta var. *paupercula* Blatchley 1916: 21.

Platysystrophus minutus (Drury); Klein 1927: 38.

Arrenodes minutus (Drury); Jaques 1951: 308.

Species Diagnosis

Arrenodes minutus can be easily recognized by the parallel-sided, elongate body with yellow transverse bars on the reddish-brown elytra, and the sexual dimorphic rostrum.

Species Description

Length 6.5-17.0 mm; length of male 7.0-17.0 mm; length of female 6.5 – 14.0 mm. **Body** elongate. **Integument** reddish-brown to black; elytra with narrow yellow patterning, often joining to form 2-3 transverse bars. **Rostrum** of male expanded laterally at apex; rostrum of female needle-like. **Pronotum** length 1.4X width, widest behind middle, constricted basally, broadly arcuate laterally, strongly converging towards

truncate apex; disc largely smooth, brightly shining, with minute, sparse punctures. **Elytra** with length more than 2.5X width, sides parallel along basal 2/3; broadly rounded apically; striae deeply impressed, with coarse punctures; interstriae convex, width 2.0-3.0X strial width, smooth, with scattered, finely impressed points.

Natural History

This species, commonly known as the oak timberworm, can sometimes be of economic concern associated largely with oaks in the eastern United States. It can damage timber via the small holes created by the feeding larvae. Adults are attracted to wounds on living trees and oviposit only in exposed wood (Thomas 2007). Although it primarily affects oaks (*Quercus* spp.), especially black and red oaks (*Q. velutina* and *Q. rubra*), it also develops in elms (*Ulmus* spp.), poplars (*Populus* spp.), and beech (*Fagus* spp.) (Thomas 2007). In general, it can be found under bark of dead or dying deciduous trees (Majka 2008).

This species generally has a 3-year life cycle, however, the development time ranges from 2-4 years (Thomas 2007). Males are territorial and battle to guard females during oviposition (Sanborne 1983). This species can also serve as a vector for *Ceraticystis fagacearum,* the oak wilt fungus (Thomas 2010).

In Wisconsin, this species has been collected from non-wilting red oak (*Quercus rubra*), white oak (*Quercus alba*), black oak (*Quercus velutina*), and non-wilting dead Hill's oak (*Quercus ellipsoidalis*). It has also been observed to be immobile on a leaf of the common milkweed (*Asclepias syriaca*), and on the trunk of a small maple (*Acer* sp.) tree.

Phenology

In Wisconsin, adults have been collected from February to October. This suggests that at least within wood adults may be present year around.

Collecting Methods

The **252 Wisconsin specimens** examined during this study from 34 counties represent a **NEW STATE RECORD**. This species can most readily be collected under bark or trunks of dead oak or other hardwood trees. One specimen was reported from a "light trap on elm".

Species Distribution

Wisconsin County Records: Adams, Burnett, Chippewa, Columbia, Dane, Dodge, Dunn, Eau Claire, Fond du Lac, Grant, Green, Iowa, Jackson, Juneau, Kenosha, La Crosse, Lafayette, Marquette, Milwaukee, Oconto, Ozaukee, Pierce, Portage, Racine, Richland, Rock, Sauk, Sheboygan, Taylor, Trempealeau, Walworth, Waukesha, Wood, Vernon.

North America: United States: FL, GA, IL, IN, MA, MI, NC, NE, NY, OH, SC, TX, VA, WI. **Canada:** ON, PQ.

Subfamily Apioninae Schönherr 1823

Apioninae includes small, pear-shaped weevils easily recognized by long trochanters with the femora attached apically (Anderson and Kissinger 2002). The species are often difficult to identify because of their small size (1.5-3 mm) and their uniform structure with a lack of good distinguishing characteristics (Kissinger 1968). Most of the world's described species in this subfamily had once been assigned to the speciose and difficult genus *Apion* Herbst, which consisted of about 1,600 species

worldwide, over 300 species in North and Central America (Kissinger 1990), and around 150 species in North America north of Mexico (O'Brien and Wimber 1982).

Kissinger (1968) recognized 27 genera of Apioninae worldwide along with 36 subgenera within *Apion*. However, Alonso-Zarazaga (1990) proposed supraspecific taxa wherein the former subgenera were elevated to generic rank. Moreover, many of the 27 genera recognized by Kissinger in 1968 are now placed in other subfamilies. This study follows Alonso-Zarazaga (1990) and recognizes approximately 140 species in 19 genera in North America north of Mexico; 40 species in 14 genera are presently known to occur in Wisconsin. Thirty-one of 32 apionine species that have been previously published to occur in Wisconsin include also county records (Blatchley and Leng 1916, Tuttle 1954, Kissinger 1968, Mattson 1969, O'Brien and Wibmer 1982, Downie and Arnett 1996, Sauer 2005).

Species in this subfamily are commonly seed-feeders. Many are associated with legumes and composites in prairie habitats (Salsbury 1984), and many are highly food plant-specific.

Anatomy

The Nearctic species of this subfamily are a challenge to identify, as most of them are 1.5-2.0 mm in length, generally have a dark to black integument, and have pear-shaped bodies. Accordingly, a consistent set of key characters that are commonly used in combination to identify species of this subfamily are summarized below.

The density of **vestiture** in general is a good character to distinguish certain species, especially on the mesothorax, metepisternum and below the eye. In some species, such as members of *Alocentron*, the bases of elytral interstriae 3 are condensed

into dense patches of setae. Pronotal vestiture can either be centripetal or centrifugal (Alonso-Zarazaga 1990). **Centripetal vestiture** is illustrated by setae pointed toward the pronotal midline while **centrifugal vestiture** is exemplified by setae pointed away from the pronotal midline.

Antennal scrobes in apionines can either have their dorsal margin evenly descending, obliquely descending, or with other modifications. The condition where the dorsal margin of the scrobe gradually slants down from the anterior part of the scrobe to beneath the eye is described as, "dorsal margin of scrobe nearly parallel with longitudinal axis of rostrum." Thid is the most common condition and exemplifies the condition where the dorsal margin of scrobe is evenly descending. Other species have the anterior part of the dorsal margin at an oblique angle to the posterior part; some others have the dorsal margin produced into a prominent angulation, which is visible when viewed from the sides; still others have the antennae inserted so close to the eye that the entire dorsal margin is at an oblique angle to the longitudinal axis of the rostrum. These three types of modifications are described as, "anterior dorsal margin of scrobe sharply oblique." (Kissinger 1964).

Members in certain genera, such as *Eutrichapion* and *Kissingeria*, have the color of the **antennal scape** paler than the integument.

The expansion of the rostrum dorsally at antennal insertions varies from not expanded to greatly expanded, and is an especially good character to use to distinguish species of *Trichapion.*

The **basal flanges** consists of the extended hind angles of the pronotum that, whgen present, are visible dorsally. Such flangess are seen in some genera such as

Trichapion and *Alocentron*, while not others, such as *Perapion, Ceratapion*, and *Neapion*.

The **basal fovea** on the pronotum is an autapomorphic character in Apioninae. Loss or obliteration of the basal fovea is considered to be an apomorphic state (Alonso-Zarazaga 1990).

Contiguous **mesothoracic coxae** are only seen in *Podapion* and *Perapion*, while all other Nearctic genera have separate mesothoracic coxae.

The **prothoracic baritarsus** can either be longer than wide or as long as wide. The **pretarsal claws** can either be simple or toothed.

The relative width, convexity, and number of rows of setae on the **striae and interstriae** can be a good characters to distinguish some species. For example, *Trichapion centrale* (Fall) can be recognized by the flat interstriae that are twice as wide as the striae.

Specialized setae refers to one to multiple setal types that are found on the elytral interstriae. They can be long or short, and may be of a distinctive color, brownish to golden, in contrast to the other elytral vestiture. The long specialized setae, such as found in the apical area of interstriae 7 and 9 of *Neapion herculanum* (Smith), are each set in a large, distinctive socket-like puncture; the short, specialized setae, such as those found along interstriae 3 in *Ceratapion contusum* (Smith), may lack a special punctures and may barely project beyond the surrounding vestiture (Kissinger 1989).

Sexual dimorphism of the rostrum can vary greatly across taxa, with females of certain species having a conspciously longer rostrum than the males, such as *Rhopalapion longirostre* (Olivier) and *Kissingeria capitone* (Kissinger).

Male secondary sexual characters are very important characters in certain genera. Males of *Fallapion* have the inner surface of their prothoracic femora with a shiny area that can be striated or protuberant; and their metathoracic sternum is armed with a pair of spicules medially on the posterior margin. Males of *Trichapion* have mucros present at least on their mesothoracic and metathoracic tibiae. Males of *Eutrichapion* have tubercles mesally on the posterior margin of their metasternum. Males of *Ceratapion* have the basitarsus of their mesothoracic and metathoracic legs produced into an inner spine. Finally, males of *Rhopalapion* have mucros present on the tibiae of all three pairs of legs.

The **subcephalic ridge** refers to the ridge on the ventro-lateral aspect of the head, which is a possible extension of the dorsal margin of the antennal scrobe (Kissinger 1989).

Tribe Aplemonini Kissinger 1968

Genus *Podapion* Riley

Podapion Riley 1883: 62.

Type species: *Podapion gallicola* Riley, 1883, by monotypy.

Generic Diagnosis

Podapion can be easily recognized by the contiguous mesothoracic coxae, pronotum that is broadly rounded laterally, each elytron with nine complete striae (as opposed to 10 found in most other genera in the subfamily), and by the larger size (3.1-4.8mm).

Generic Description

Length 3.1-4.8mm. **Integument** black; **rostrum** cylindrical, not expanded at antennal insertions, with little sexual dimorphism; **antennae** with 7-segmented funicle, club shorter than the combined length of last three funicular segments, scrobes evenly descending but slightly oblique; **eyes** strongly convex; **pronotum** cylindrical, rounded laterally, constricted apically; **elytra** oval, convex, wider than pronotum, distinctly rounded laterally to apex; striae in 9 regular punctate rows; interstriae without specialized setae; **pygidium** covered by elytra; **mesothoracic coxae** contiguous, not separated by sternal process; **basitarsus** as wide as long; **pretarsus** with claws simple; **legs** of male unmodified.

Generic Distribution

Podapion is found in Canada, USA, Bosnia-Herzegovina, and Spain (Alonso-Zarazaga and Lyal 1999). One species in this genus is found in Wisconsin.

***Podapion gallicola* Riley**

[Figures 104, 105; Map 40]

Podapion gallicola Riley 1883: 61.

Podapion alexanderi Sleeper 1955: 87.

Species Diagnosis

Podapion gallicola can be distinguished from other apionine species (except for *Perapion*) by the contiguous mesothoracic coxae. It can be distinguished from *Perapion* by the cylindrical pronotum that is rounded laterally, the larger size, and by the elytral striae in nine regular, punctate rows (10 in *Perapion*).

Species Description

Length 3.1-4.8mm. **Body** moderately slender. **Integument** black; antennae with base sometimes slightly lighter. **Vestiture** consisting of fine, white, moderately sparse setae. **Rostrum** of male 1.1-1.2X pronotal length, fairly strongly curved; sides in dorsal view nearly parallel throughout; surface dull, finely alutaceous, with fine, sparse, elongate punctures, nearly glabrous beyond antennal insertions. Rostrum of female 1.1-1.4X pronotal length, similar to that of male but surface largely shining, slightly alutaceous, with sparse, elongate punctures, these sparser towards apex. **Frons** 1.2-1.6X dorsal tip of rostrum, lateral edge sometimes more prominent near middle of eye. **Antennae** inserted at basal 0.1-0.2 of rostrum; scrobes evenly descending, slightly oblique due to the nearness to eye. **Pronotum** with width 0.9-1.1X length; arcuate laterally, distinctly constricted apically; disc slightly convex, flattened apically, with deep punctures and moderately fine setae. **Elytra** with length 1.5-1.8X width; striae deeply impressed, with coarse punctures; interstriae width 1.5X strial width, flat, with dense, moderately coarse setae, transverse rugae and each interstria with 1-2 rows of fine punctures bearing setae similar to those on dorsal surface of pronotum. **Sexual dimorphism** present in rostrum.

Natural History

This species is associated with pines; specifically, they have been collected from red pine (*Pinus resinosa*), patch pine (*Pinus rigida*), Virginia pine (*Pinus virginiana*), and Cooper's pine (*Pinus cooperi*).

Wilson (1965) provided a detailed summary of the 3-year life history of *Podapion gallicola.* The adult female oviposits 1-10 eggs into a niche chewed in the bark of a branch internode of a pine between June and August. The larvae eclose by August of the

first year, overwinter, and by June of the second year become second instars as they grow in developing galls. By June of the third year they become thrid instars; by May of the fourth year they pupate, and in June they emerge as adults.

Phenology

In Wisconsin, adults have been collected in June and July.

Collecting Methods

In Wisconsin, **6 specimens** were examined during this study from two counties. One specimen was reported from "*Pinus banksiana*". A series of specimens was collected from a turpentine-baited Malaise trap that was in a northern hardwood forest where pine is present, suggesting they may be attracted to turpentine.

Species Distribution

Podapion has previously been recorded from Bayfield and Vilas counties (Mattson 1969, O'Brien and Wibmer 1982, Downie and Arnett 1996, Sauer 2005).

Additional Wisconsin County Records: Marathon.

North America: United States: AL, AR, CA, DC, FL, GA, LA, MA, MD, ME, MI, MN, NH, NJ, NY, OR, SC, VA, WI, WV. **Canada:** Hud.Bay T., ON.

Genus *Perapion* Wagner

Apion (*Perapion*) Wagner 1907a: 259.

Apion (*Hemiperapion*) Wagner 1930: 1385.

Perapion Wagner; Kissinger 1968: 20.

Apion (*Rhaphidoplectron*) Alonso-Zarazaga 1990: 104.

Type Species: *Apion curtirostre* Germar, designated by Hustache 1931d:19.

Generic Diagnosis

Perapion can be recognized by the contiguous mesothoracic coxae that are not separated by the sternal process, simple pretarsal claws, cylindrical pronotum, and by the baritarsus that is longer than wide.

Generic Description

Length 1.6-3.5mm. **Integument** black, elytra often metallic; **vestiture** inconspicuous to dense, nearly uniform, sometimes condensed on sides of elytra or metepisternum, most species with more or less distinct post-scutellar spots; **head** with dorsal margin flat above posterior margin of eye, ventral surface flat; **rostrum** length >1.0X pronotal length, slightly expanded at antennal insertions; **antennae** inserted at basal 0.35-0.47 of male, 0.29-0.43 of female, scrobes ventral, slightly oblique; **pronotum** with length >1.0X width, truncate basally; basal flanges absent; subcylincrical, not constricted apically; **elytra** with interstriae at middle 2.0X strial width, with more than 2 rows of setae; **abdominal ventrites** 1 and 2 with suture in between fine, shallow medially; **mesothoracic coxae** contiguous, not separated by sternal process; **baritarsus** longer than wide; **pretarsus** with claws simple; **legs** of male lack special characters; **sexual dimorphism** of rostrum slight, with rostrum of female slightly longer.

Gerenic Distribution

Perapion is Holarctic and is also recorded from South Africa, Saudi Arabia, India and Australia (Alonso-Zarazaga and Lyal 1999). Four species of *Perapion* occur in North America, three of which are found in the northeast, and two of which are found in Wisconsin.

Key to the Species of Wisconsin *Perapion*

1. Dorsal vestiture fine and inconspicuous, not condensed into a postscutellar patch; metepisternum with single row of setae; metathoracic basitarsus (males) with small, apical spine ventrally …… ***Perapion curtirostre*** **(Germar)**

1′. Dorsal vestiture conspicuous, condensed into a conspicuous postscutellar patch; metepisternum with vestiture condensed, with 3 or 4 more rows of setae; metathoracic basitarsus (males) without apical spine ventrally ……. ***Perapion punctinasum*** **(Smith)**

Perapion curtirostre **(Germar)**

[Figures 106, 107; Map 41]

Apion curtirostre Germar 1817.

Perapion curtirostre (Germar); Kissinger 1968: 20.

Species Diagnosis

Perapion curtirostre can be distinguished from other *Perapion* species by the fine and inconspicuous dorsal vestiture, by the elytral interstriae 1 and 2 that do not condense into a postscutellar patch, the single row of setae on the metepisternum, and by the small ventral spine present on the metathoracic baritarsus (males).

Species Description

Length 2.0-2.5mm. **Integument** black. **Vestiture** consisting of dense, fine, white setae. **Rostrum** of male straight, stout, subcylindrical, length about 1.0X pronotal length; in dorsal view slightly expanded at antennal insertions; surface alutaceous, densely punctate, setae more conspicuous basad antennal insertions. Rostrum of female similar to that of male, 1.2-1.3X pronotal length. **Frons** about same width as dorsal tip of

rostrum. **Antennae** inserted at basal 0.4 of rostrum in males, 0.3 of rostrum in females. **Pronotum** with length 1.0X width, widest at middle; disc slightly convex, with deep punctures; basal flang absent. **Elytra** with length about 2.0X width, 3.0X pronotal length, enlarged beyond middle; straie deep, with 1 row of setae; interstriae flat or nearly so, at base about 1.0X strial width, at middle up to 2.0X strial width, each bearing 1-2 rows of setae.

Natural History

This species, an accidental introduction, was first collected in North America in a series near Bay Harbor, Maine, in 1968 (Whitehead 1980). It mines the stems of and develops in various species of docks (*Rumex* spp.). It has the potential of being a biological control agent of weedy dock species that are overly abundant; on the other hand, since it is a generalist, it also has the potential to negatively impact aquatic docks. Its main food plant is garden sorrel (*Rumex acetosa*), but it is also associated with sheep's sorrel (*Rumex acetosella*), patience dock (*Rumex patientia*), curly dock (*Rumex crispus*), and broad-leaved dock (*Rumex obtusifolius*).

Hopkins and Whittaker (1980) described the ovipositional behavior, larval development, emergence and hibernation of this species. The larvae develop in stems of docks. Prior to pupation the larvae chew away a circle of plant tissue at the margin of the stem to create a passage to use when they emerge as an adult. Adults emerge from mid-June to mid-July and mature the following spring after over wintering in leaf litter.

Perapion curtirostre has been reported on mugwort (*Artemisia* spp.), junegrass (*Koeleria* spp.), panicgrass (*Panicum* spp.), as well as cuman ragweed (*Ambrosia*

psilostachya). In Wisconsin, even though the earliest specimen label record for this species is 2009 it is already ubiquitous as specimens were collected very freqeuntly simply by sweeping forest understory.

Phenology

In Wisconsin, adults of this species have been collected from April to September.

Collecting Methods

The **52 Wisconsin specimens** examined during this study from 20 counties represent a **NEW STATE RECORD**. In general, this species has been collected by sweeping vegetation of fields, prairies or understory vegetation.

Species Distribution

Wisconsin County Records: Adams, Ashland, Bayfield, Clark, Columbia, Dane, Dunn, Grant, Green, Iron, Jackson, Manitowoc, Marathon, Marquette, Rusk, Sauk, Shawano, Vilas, Waushara, Wood.

North America: United States: IN, ME, NY, WI.

***Perapion punctinasum* (Smith)**

[Figures 108, 109; Map 42]

Apion punctinasum Smith 1884: 46.

Apion (*Perapion*) *punctinasum* (Smith); Kissinger 1960: 21.

Perapion punctinasum (Smith); Kissinger 1968: 20.

Species Diagnosis

Perapion punctinasum can be distinguished from other *Perapion* species by the dense, white setal patch at the base of interstriae 2 and 3, elongate setal patch behind the scutellum, metepisternum that bears 3-4 rows of dense setae, the stout, subcylindrical rostrum, and by the cylindrical pronotum.

Species Description

Length 1.7-2.5mm. **Body** slender. **Integument** black. **Vestiture** consisting of fine, sparse, white setae; elytra with small spot of dense setae at base of interstriae 2 and 3 and an elongate spot immediately behind the scutellum. **Rostrum** of male stout and subcylindrical, 1.0X pronotal length; sides in dorsal view slightly expanded at antennal insertions; surface alutaceous, finely and moderately densely punctate, setae coarser anterad antennal insertions; rostrum of female longer, 1.1-1.2X pronotal length, similar to that of male. **Frons** slightly narrower than dorsal tip of rostrum. **Antennae** inserted at basal 0.3-0.4 of rostrum; scrobes slightly oblique anteriorly. **Eye** slightly convex. **Pronotum** slightly wider than long, sides slightly diverging medially, slightly arcuate to weakly constricted apically; disc slightly convex, with deep punctures; basal flanges absent. **Elytra** with length 1.5-1.6X width; striae moderately deep, with coarse punctures; interstriae flat or nearly so, width 2.0X strial width, each bearing 1-2 rows of minute punctures bearing setae.

Natural History

This species generally is associated with plants in the family Polygonaceae. It is mostly associated with docks (*Rumex* spp.), including American golden dock (*Rumex persicarioides*).

Phenology

In Wisconsin, the only specimen collected was found in May.

Collecting Methods

In Wisconsin, **1 specimen** was examined during this study from Dane county. This species is likely collected by sweeping fields or prairies where docks (*Rumex* spp.) are found.

Species Distribution

Perapion punctinasum has previously been recorded from Dane county (Sauer 2005).

North America: United States: CA, CO, CT, IL, MA, MN, MT, ND, NE, NJ, NV, OH, OR, SD, UT, WA, WI, WY. **Canada:** AB, BC, MB, ON, SA.

Tribe Aspidapiini Alonso-Zarazaga, 1990

Genus *Alocentron* Schilsky

Apion (*Alocentron*) Schilsky 1901: G,k.

Alacentron Schilsky; Schilsky 1906: XXXVI.

Apion (*Bulborhinapion*) Schatzmayr 1926: 143.

Apion (*Nearctalox*) Alonso-Zarazaga 1990: 54.

Type Species: *Apion curvirostre* Gyllenhal, 1833, by original designation.

Generic Diagnosis

Alocentron can be recognized by the well-developed basal flangess of the pronotum, legs (males) lacking modifications, and by the elytral interstria 3 that

commonly posesses denser setae basally.

Generic Description

Length 1.5-3.4 mm. **Body** subcylindrical; **integument** black or metallic, portions piceous; **vestiture** nearly uniform, varying from inconspicuous to conspicuous, may be denser at base of interstria 3, condensed on prothoracic coxae and sides of metasternum; **head** in lateral view with dorsal margin ascending posteriorly, ventral surface of with low lateral ridges extending to near middle of eye; **rostrum** with ventral surface excavated along the median line and densely clothed with setae, densely punctate and scaly to apex; **antennae** with dorsal margin of scrobes oblique; **pronotum** with sides parallel in basal 1/2, with a distinct flat dorsal apical margin; basal flanges distinct; **elytra** interstriae more than >2.0x strial width, flat, with 2 rows of setae, interstria 9 with 1 specialized seta; **tarsus** of prothoracic legs longer than wide; **pretarsus** with claws toothed; **legs** of male lack special characters; **sexual dimorphism** of rostrum varies from weak to strong.

Generic Distribution

Alocentron is Holarctic (Alonso-Zarazaga and Lyal 1999). Two species are found in Wisconsin.

Key to the Species of Wisconsin *Alocentron*

1. Femora black; apical 3/4 of the metepimeron with 1 row of setae, appearing as single, fine line …… ***Alocentron attenuatum* (Smith)**

1′. Femora piceous to reddish-brown; metepisternum uniformly densely clothed with more than 2 rows of setae ……..... ***Alocentron fulvotibiale* (Wagner)**

***Alocentron attenuatum* (Smith)**

[Figures 110, 111; Map 43]

Apion attenuatum Smith 1884: 60, 62.

Alocentron attenuatum (Smith); Alonso-Zarazaga 1990: 54.

Species Diagnosis

Alocentron attenuatum can be recognized by having the apical 3/4 of the metepimeron with 1 row of setae, black to piceous femora and tibiae, rostrum expanded in apical 1/3 (not expanded at antennal insertions), the denser setae at base of interstria 3, and by the pronotum that is rounded medially.

Species Description

Length 1.5-2.2 mm. **Body** slender. **Integument** black, femora and tibiae black or piceous. **Vestiture** consisting of white, long, slender, moderately conspicuous, sparse setae, coarser and denser at base of interstriae 3 and laterally on the pronotum; apical ¾ of metepimeron with 1 row of punctures, bearing setae appearing as single fine line; interstria 3 with patch of several rows of coarser setae at base. **Rostrum** in both sexes moderately curved, 1.2-1.4X pronotal length; sides, in dorsal view, parallel anterad antennal insertions, not expanded at antennal insertions; surface punctate, alutaceous basally and polished apically, bearing setae that are shorter apically. **Frons** 0.9-1.1X wider than dorsal tip of rostrum. **Antennae** inserted at basal 1/3 of rostrum. **Eyes** slightly prominent. **Pronotum** with width 1.1-1.2X length, slightly expanded medially, rounded to weakly constricted apically; disc moderately convex with moderately deep puncutres; basal flangess conspicuous. **Elytra** with length 1.3-1.5X width; striae coarse,

moderately deep; interstriae nearly flat, about 2.0X strial width, with distinct transverse rugae, interstria 9 with 1 long specialized seta. **Sexual dimorphism** indistinct.

Natural History

Alocentron attenuatum has been beaten from willow (*Salix* spp.) and reported to occur in sawfly galls on willows. Specifically, it has been recorded to develop in galls of *Euura* sp. on arroyo willow (*Salix lasioleptis*) in the western US (Kissinger 1968). Species of *Alocentron* generally are associated with Malvaceae (Anderson and Kissinger 2002).

Phenology

In North America, adults have been recorded from May to September (Bright 1993), while in Wisconsin, adults have been collected from May to August.

Collecting Methods

In Wisconsin, **5 specimens** were examined during this study from four counties. One specimen was collected by sweeping prairie where prairie willow was present; another was collected by sweeping vegetation along forest edge.

Species Distribution

This species has previously been recorded from Wood County (Sauer 2005).

Additional Wisconsin County Records: Juneau, Kenosha, Lincoln.

North America: United States: CA, IL, KS, LA, MA, MI, MN, MT, NE, NJ, NY, OH, OR, SC, TX, WI, WV. **Canada:** MB, ON.

***Alocentron fulvotibiale* (Wagner)**

[Figures 112, 113; Map 44]

Apion fulvotibiale Wagner 1912b: 118.

Alocentron fulvotibiale (Wagner); Alonso-Zarazaga 1990: 54.

Species Diagnosis

Alocentron fulvotibiale can be recognized by the uniformly densely clothed metepisternum with more than two rows of setae, the piceous to reddish-brown femora, conspicuous basal flanges, and by the rostrum that is slightly expanded dorsally at the antennal insertions.

Species Description

Length 2.28-3.00mm. **Body** slender. **Integument** black, antennae castaneous, tibiae dark reddish yellow. **Vestiture** white, moderately conspicuous, coarser and denser at base of interstria 3 and laterally on the mesothorax and metepisternum, metepisternum uniformly densely clothed with more than 2 rows of setae. **Rostrum** of male 1.2-1.3X pronotal length; in lateral view moderately and strongly curved, sides nearly parallel anterad of antennal insertions; sides, in dorsal view, slightly expanded at antennal insertions, converging to apical 2/3 and gradually diverging apically; surface moderately, coarsely, and densely punctate apically, setae becoming progressively shorter. Rostrum of female 1.43-1.83X pronotal length; in lateral view strongly curved, sides distinctly expanding anterad antennal insertions; sides, in dorsal view, slightly expanded at antennal insertions; sculpture and vestiture similar to that of male. **Pronotum** with basal width 1.0-1.2X length; in lateral view moderately convex dorsally, flattened basally and apically; basal fovea moderately deep, narrow; basal flanges conspicuous. **Elytra** with basal width 1.27-1.43X pronotal width; striae moderately fine, deep; interstriae nearly

flat, at middle more than 2.0X strial width, with 1-2 rows of fine punctures and distinct transverse rugae; interstria 9 with 1 long, specialized seta.

Natural History

Adults of this species have been collected by sweeping flowers of *Cassia tomentosa.*

Phenology

In Wisconsin, the only specimen collected was found in August.

Collecting Methods

In Wisconsin, **1 specimen** has been collected. It is likely collected by sweeping fields where species of Malvaceae are present, or possibly by beating *Cassia tomentosa*.

Species Distribution

Alocentron fulvotibiale has previously been recorded from Wood County (Sauer 2005).

North America: United States: AZ, NM, TX, WI. **Mexico:** country only.

Tribe Ceratapiini Alonso-Zarazaga 1990

Genus *Ceratapion* Schilsky

Apion (*Ceratapion*) Schilsky 1901: F-k.

Ceratapion (*Ceratapion*) Schilsky; Voss 1959: 73.

Type Species: *Apion carduorum* Kirby 1808.

Generic Diagnosis

Ceratapion can be recognized by having the inner margin of each mesothoracic (and metathoracic some species) basitarsomere produced into a spine in males, by the toothed pretarsal claws, and by the elongate, subcylindrical body.

Generic Description

Length 1.60-3.50mm. **Body** cylindrical; **integument** black, sometimes legs brown or reddish; **vestiture** uniform, usually visibly condensed at base of interstria 3; **head** in lateral view dorsal margin flat, with low lateral ridges extending posteriorly to near middle of eye; **rostrum** slightly expanded at antennal insertions, slightly sexually dimorphic, that of male 1.15-1.60X pronotal length, of female 1.25-1.85X pronotal length; **frons** equal to, to moderately wider than dorsal tip of rostrum; **antennae** with dorsal margins of scrobes evenly descending; **eyes** not prominent; **pronotum** conical to subquadrate; basal flanges present or not; **elytra** with interstriae 7 and 9 each with 1 long specialized seta; **basitarsus** of mesothoracic legs (male) with inner margin produced to a spine [*C.contusum* (Smith) with metathoracic baritarsus also bearing a spine]; **tarsomere** 3 strongly bilobed; **pretarsus** with claws produced into an acute basal tooth; **sexual dimorphism** present in rostrum and mesothoracic and metathoracic basitarsus.

Generic Distribution

Ceratapion is found in the Holarctic region, the Arabian Peninsula, Ethiopia, and the Sudan (Alonso-Zarazaga and Lyal 1999). Two species are found in Wisconsin.

Key to the Wisconsin Speceis of *Ceratapion*

1. Mesothoracic and metathoracic basitarsi (males) with inner margin produced into a spine-like process; rostrum (females) 1.50-1.68X pronotal length ……... ……..……... ***Ceratapion contusum*** **(Smith)**

1′. Only the mesothoracic basitarsus (male) with inner margin produced into spine-like process; rostrum (female) 1.43-1.48X pronotal length …. ***Ceratapion parallelum* (Smith)**

***Ceratapion contusum* (Smith)**

[Figures 114, 115; Map 45]

Apion contusum Smith 1884: 61.

Apion spinipes Fall 1898: 169.

Ceratapion contusum (Smith); Schilsky 1901:F.

Apion notabile Buchanan 1922: 83.

Species Diagnosis

Ceratapion contusum can be recognized by the metepisternum with dense white setae and punctures separated by greater than half their diameter, the lighter antennal base, somewhat convex and nearly smooth elytral interstriae, strongly curved rostrum, and the by densely, coarsely punctate pronotum that has an elongate basal depression. It can be distinguished from *C. parallelum* by the spined inner margin of the mesothoracic and metathoracic barsitarsi (males), and by the broad apex of the median lobe that is produced dorsally in lateral view.

Species Description

Length 1.8-2.6mm. **Body** moderately slender. **Integument** black; antennae with base reddish brown. **Vestiture** consisting of conspicuous, white, fine, sparse setae, these becoming coarser laterally, denser on mesothrorax and metepisternum. **Rostrum** (male) strongly curved, 1.32-1.36X pronotal length; sides in dorsal view nearly parallel beyond

middle, slightly expanded at antennal insertions, expanded apically; basal 3/4 with fine, dense punctures, with sparse pubescence at base; apex smooth, nearly without punctures, nearly glabrous anterad antennal insertions. Rostrum (female) strongly curved, 1.50-1.68X pronotal length; sides in dorsal view parallel from base to near apex, expanded apically; surface alutaceous, similar to that of male but pubescence finer and sparser basally. **Frons** 0.9-1.1X dorsal tip of rostrum; surface finely punctate, punctures forming several longitudinal striae separated by narrow intervals. **Pronotum** with width at base slightly wider than long, middle wider than base; in dorsal view sides slightly, roundly expanded to widest point at middle, rounded to constricted apex; basal flanges absent; in lateral view dorsal surface moderately convex, flattened basally and apically; punctures deep, with minute setae; basal fovea variable in depth, narrow. **Elytra** with basal width about 1.39-1.54X pronotal width at base, 2.7-3.1X pronotal length; striae deep, fine, bearing setae that may be coarser than those on adjacent interstriae; interstirae >2.0X strial width, convex, smooth, with 1 row of fine punctures bearing fine setae; interstriae 7 and 9 each with 1 long specialized seta, interstria 3 with several short specialized setae in apical 1/2. **Ventrites** moderately finely, sparsely punctate. **Sexual dimorphism** in legs and rostrum: **basitarsi** of mesothoracic and metathoracic legs (male) with inner margin produced into a long spine.

Natural History

Ceratapion contusum has been collected from desert false indigo/indigobush (*Amorpha fruticosa*), bush clovers (*Lespedeza* spp.), from prairie dropseed (*Sporobolus heterolepis*), and black locust (*Robinia pseudoacacia*). It has also been collected by beating willow (*Salix* spp.) (Bright 1993).

This species is generally associated with prairies (Salsbruy 1984) and has been recorded from dry-mesic, dry-mesic drumlin, and dry hill prairies.

Phenology

In North America, adults have been recorded from April to July, while in Wisconsin, adults have been collected in May and June.

Collecting Methods

In Wisconsin, **4 specimens** were examined during this study from two counties. One specimen was collected by sweeping "mostly dropseed when there was no wind and very hot." It can be collected in general by sweeping prairies or by beating willows or black locusts.

Species Distribution

This species has previously been recorded from Dane and Grant counties (Sauer 2005).

North America: United States: AL, AZ, CA, CO, GA, IA, KS, MO, NE, OK, SC, TX, WI. **Canada:** "Dac.", PQ.

***Ceratapion parallelum* (Smith)**

[Figures 116, 117; Map 46]

Apion parallelum Smith 1884: 47.

Ceratapion parallelum (Smith); Schilsky 1901:F.

Species Diagnosis

Ceratapion parallelum can be recognized by the lighter antennal base, vestiture that consists of white, coarse setae that is denser on the metepisternum and mesothorax,

and by the convex elytral interstriae that are nearly smooth with one row of fine punctures. Males can be distinguished from those of *C.contusum* by having only the inner margin of the mesothoracic basitarsus produced into a spine.

Species Description

Length 1.37-2.00mm. **Body** moderately slender. **Integument** black, elytra with greenish luster, base of antennae paler, legs occasionally paler. **Vestiture** white, moderately sparse, moderately coarse, denser on sides of mesothorax and metepisternum. **Rostrum** of male around 1.3X pronotal length; in lateral view moderately curved, sides nearly parallel in apical 1/2, depressed apically; surface moderately coarsely alutaceous, with sparse, small punctures up to apex, smooth at apex, with sparse setae at base. Rostrum of female 1.43-1.48X pronotal length; similar to that of male but finely alutaceous throughout. **Pronotum** with middle slightly wider than base; in dorsal view slightly expanded medially, distinctly constricted apically; basal flanges absent. **Elytra** with basal width 1.20-1.32X basal pronotal width; striae coarse, deep, bearing setae that are generally coarser than those on adjacent interstriae; interstriae >2.0X strial width, convex, nearly smooth, with 1 row of minute punctures bearing setae similar to those on pronotum; interstria 7 bearing 1 long specialized seta. **Ventrites** deeply, coarsely punctate. **Sexual dimorphism** distinct in rostrum and legs: **femora** of mesothoracic legs slightly stouter than that of metathoracic legs in males; **basitarsi** of mesothoracic legs with inner apical margin produced into a spine in males.

Natural History

Ceratapion parallelum has been collected on tick-trefoil (*Desmodium* spp.), and larvae of possibly this species were reported mining the pith in the basal region of the stem in the same group of plants (Kissinger 1963; 1968).

Phenology

In North America, adults have been recorded from May to September. In Wisconsin, the only specimen collected was found in June.

Collecting Methods

In Wisconsin, **2 specimens** have been collected from two counties, though only one specimen from one county was examined during this study. This specimen was reported to emerge in a bag from collected willow twigs and galls.

Species Distribution

Ceratapion parallelum has previously been recorded from Dane and Grant counties (Sauer 2005).

North America: United States: AL, DL, IL, MA, MD, MI, MO, MS, NC, NJ, NY, TN, VA, WI.

Tribe Ixapiini Alonso-Zarazaga 1990

Genus *Neapion* Alonso-Zarazaga

Neapion Alonso-Zarazaga 1990: 75.

Xixias Kissinger 1991: 35.

Type Species: *Apion umboniferum* Fall, 1898.

Neapion includes 16 species in North and Central America, six of which are found in North America north of Mexico (Kissinger 1990). Kissinger categorized

members of this genus into two groups: peculiar-group and herculanum-group. The synapomorphies include the structure of the endophallis (which contains a large tuning fork structure) and the developmental food plant families, Caprifoliaceae and Rutaceae.

Generic Diagnosis

Neapion can be recognized by the reddish-brown integument with transverse patterns on the elytra of contrasting bands of light and dark setae, robust tarsi (also found in the *Trichapion tenuirostrum* (Smith) group and *Podapion gallicola* Riley) with basitarsus as wide as long. A unique synapomorphy of this group is the tuning fork-shaped process associated with the endophallus.

Generic Description

Length 1.77-3.32mm. **Integument** light brown; **vestiture** consisting of conspicuous, white, off-white and darker setae; ventral surface of **head** with well-developed lateral ridges extending beyond middle of eye; **eyes** prominent; **antennae** with anteriodorsal margin of scrobes oblique; **pronotum** without basal flanges; **elytra** with transverse pattern of vestiture; **interstria** 9 with 1 long specialized seta; **legs** stout, those of male lack special characters; **tarsus** broad, **basitarsus** as wide as long; **pretarsus** with claws toothed.

Generic Distribution

Neapion is found in Canada, USA, Mexico, Belize, Guatemala, Panama, Cuba, Guadeloupe, PuertoRico, Santo Domingo; Brazil, Colombia, Paraguay, Trinidad, and Venezuela (Alonso-Zarazaga and Lyal 1999). Three species are found in Wisconsin.

Key to the Species of Wisconsin *Neapion*

1. Posterior half of metepisternum clothed with 1-2 rows of sparse setae; metepisternal suture not concealed by setae ……...…….. **2**

1′. Metepisternum uniformly clothed with 5-6 indistinct rows of dense setae, setae usually concealing metepisternal suture …….. ***Neapion herculanum*** **(Smith)**

2. Rostral base polished, with short longitudinal sulci bound dorsally and laterally by prominent carinae ……..…..... ***Neapion harpax*** **(Kissinger)**

2′. Rostral base alutaceous, lacking prominent carinae …… ***Neapion idiastes*** **(Kissinger)**

Neapion harpax **(Kissinger)**

[Figures 118, 119; Map 47]

Apion (*Ixias*) *harpax* Kissinger 1968: 46.

Neapion harpax (Kissinger); Alonso-Zarazaga 1990: 75.

Species Diagnosis

Neapion harpax can be recognized by the rostral sculpturing behind antennal insertions bearing two impressed rows of coalesced punctures that are separated by a raised, shining ridge, the metepisternum bearing only 2-3 rows of setae, and by the unique lateral outline of the median lobe in the males.

Species Description

Length 2.03-2.85mm. **Body** moderately elongate. **Integument** dark castaneous. **Vestiture** conspicuous, consisting of white, off-white and darker setae, basal and apical elytral surfaces with lighter setae separated by transverse band of finer, darker setae that appear as rows; setae on metepisternum consisting of 2-3 rows. **Rostrum** 0.94-2.29X

pronotal length; base of rostrum with an impressed group of coalesced punctures dorsolaterally that appear as a moderately deep sulcus bound dorsally and laterally by moderately prominent carinae; rostral surface polished throughout, beyond antennal insertions with moderately large, deep, elongate punctures; rostrum (male) with setae approximately the same size anterad and basad antennal insertions; rostrum (female) with setae anterad antennal insertions distinctly finer than those at base. **Frons** slightly wider than dorsal tip of rostrum, with 3-4 median, fine, longitudinal sulci separated by fine carinae, lateral rows of punctures bearing setae that tend to be coalesced. **Antennae** inserted at distance in front of eyes slightly greater than width of frons. **Pronotum** with basal width about 1.1-1.2X length; sides at middle distinctly wider than at base; in lateral view dorsal surface slightly convex; surface with deep punctures; basal fovea moderately deep, extending about 1/4 pronotal length. **Elytra** with basal width about 1.3X basal pronotal width, length about 2.3X width, about 3.0X pronotal length; striae deep; interstriae slightly convex, 1.5-2.0X strial width, interstriae 2 and 5 nearly uniform in width in posterior 1/3. **Sexual dimorphism** slight, mostly apparent in setae on the rostrum.

Natural History

Neapion generally is associated with plants in the families Caprifoliaceae and Rutaceae (Kissinger 1990), especially within the genera *Zanthoxylum* and *Viburnum*. Adults of *N. harpax* are associated with maple-leaf viburnum (*Viburnum acerifolium*).

Phenology

In Wisconsin, adults have been collected in June.

Collecting Methods

The **5 Wisconsin specimens** examined during this study represent a **NEW STATE RECORD**. The only specimen with a county recorded was collected in Dane county; the others indicated state, only. This speices is likely collected by beating viburnums in general, and specifically by beating its only recorded host, the maple-leaf viburnum.

Species Distribution

Wisconsin County Records: Dane.

North America: United States: DC, IL, MA, MD, MI, NC, NJ, NY, PA, VA, WI, WV.

***Neapion herculanum* (Smith)**

[Figures 14, 120, 121; Map 48]

Apion herculanum Smith 1884: 56.

Apion puritanum Fall 1898: 157.

Apion (*Ixias*) *herculanum* (Smith); Kissinger 1968: 47.

Neapion herculanum (Smith); Alonso-Zarazaga 1990: 75.

Species Diagnosis

Neapion herculanum can be recognized by having the metepisternal vestiture uniformly dense in posterior 2/3 and that consisting of 5-6 confused rows, the relatively short rostrum, closeness of the antennal insertions to the eyes, and by the relatively small size compared to the other two Wisconsin *Neapion* species.

Species Description

Length 1.77-2.61mm. **Body** moderately elongate. **Integument** dark castaneous. **Vestiture** conspicuous, consisting of white, off-white and darker colored setae, basal and

apical elytral surfaces with lighter setae separated by transverse band of finer, darker setae that appear as a dark band; metepisternal setae uniformly dense in posterior 2/3, consisting of 5-6 confused rows.

Rostrum 1.0-2.0X pronotal length; rostrum (male) slightly stouter, clothed basad of antennal insertions with sparse setae distinctly coarser than that of the female, dull, alutaceous with tip shining, fine punctures indistinct; rostrum (female) polished, shining basad of antennal insertions, with fine, distinct, well separated punctures laterally. **Frons** wider than dorsal tip of rostrum, with 1-2 irregular, fine median sulci. **Antennae** inserted at distance in front of eye slightly less than the width of frons; dorsal margin of scrobes variable, may be distinctly angulate or may evenly descend in a straight line. **Pronotum** with basal width about 1.2X length, generally widest at base, occasionally base and middle equal in width; in lateral view dorsal surface nearly flat; surface with punctures shallow; basal fovea moderately deep and broad, extending 1/3 pronotal length. **Elytra** with basal width about 1.3X pronotal width at base, length about 1.9X width, about 2.6-2.7X pronotal length; striae deep; interstriae slightly convex, about 2.0X strial width; interstriae 2 and 5 nearly uniform in width in posterior 1/3. **Sexual dimorphism** present in sculpture of rostrum.

Natural History

This species is associated with flowers of *Viburnum* species, and the adults have been reared from fruits. More specifically, the adults have been recorded on arrowwood viburnum berries (*Viburnum dentatum*), and cranberrybush viburnum/ highbush cranberry (*Viburnum trilobum*) (personal observation).

Phenology

In Wisconsin, adults have been collected in June.

Collecting Methods

In Wisconsin, **4 specimens** were examined during this study from three counties. This species can be collected most readily by beating vibernums, specifically by beating withe berries and cranberrybush viburnum.

Species Distribution

This species has previously been recorded from Wisconsin (O'Brien and Wibmer 1982, Downie and Arnett 1996).

Wisconsin County Records: Fond du Lac, Milwaukee, Ozaukee.

North America: United States: DC, MA, MD, MI, NC, NH, NJ, NY, OH, PA, RI, VA, WI, WV.

***Neapion idiastes* (Kissinger)**

[Figures 122, 123; Map 49]

Apion (*Ixias*) *idiastes* Kissinger 1968: 47.

Neapion idiastes (Kissinger); Alonso-Zarazaga 1990: 75.

Species Diagnosis

Neapion idiastes is most similar to *N. harpax*, with similar vestiture patterns and the overlap in body size. It can be distinguished from *N. harpax* by the absence of two impressed rows of coalesced punctures on the rostrum basad the antennal insertions and by the single row of setae on the apical half of the metepisternum (2-3 rows in *N. harpax*). *Neapion idiastes* can be distinguished from *N. herculanum* by the metepisternal

vestiture: dense basally and thinning to a single row in the apical half (5-6 rows in *N. herculanum*).

Species Description

Length 2.1-2.7mm. **Body** moderately elongate. **Integument** dark reddish-brown. **Vestiture** conspicuous, consisting of white, off-white, yellow to dark setae; setae on basal and apical regions of elytra lighter, separated by transverse bands of finer, darker setae appearing as dark band near middle; metepisternal setae dense at base, thinning out to more or less single row in apical half. **Rostrum** (male) about 1.5 X pronotal length; setae anterad antennal insertions as coarse as setae at base; surface shining or moderately to densely alutaceous to near apex, with sparse, fairly coarse, round punctures. Rostrum (female) slightly longer than that of male; setae anterad antennal insertions distinctly finer than those at base, surface finely alutaceous, with sparse, fairly coarse, round punctures. **Frons** wider than dorsal tip of rostrum. **Antennae** inserted in front of eyes at distance less than length of eye. **Pronotum** with basal width about 1.2X length, slightly wider at base; sides arcuate, rounded to constricted apex; disc slightly convex, with deep punctures bearing narrow setae. **Elytra** with basal width about 1.2-1.3X pronotal width at base, length about 1.8-1.9X width, about 2.3X pronotal length; striae moderately deep; interstriae 2.0 X strial width, convex to nearly flat, mostly very finely reticulate, each interstria with a few, fine setae. **Sexual dimorphism** present in rostral form. **Legs** of males lack modifications.

Natural History

This species is associated with witherod viburnum (*Viburnum cassinoides*).

Phenology

In Wisconsin, adults have been collected from June to August.

Collecting Methods

In Wisconsin, **2 specimens** have been collected. This species is likely collected by beating witherod viburnum.

Species Distribution

This species has previously been recorded from Fond du Lac County (Sauer 2005).

North America: United States: IL, NJ, NY, VA, WI. **Canada:** ON.

Tribe Mavapiini Alonso-Zarazaga 1990

Genus *Rhopalapion* Schilsky

Rhopalapion Schilsky 1906: V, k.

Type species: *Apion longisrostre* Olivier 1807.

Generic Diagnosis

Rhopalapion can be recognized by the pale yellow to reddish legs, strong sexual dimorphism in the rostrum, mucronate tibiae (males), conspicuous vestiture, basally toothed pretarsal claws, pronotal vestiture directed towards the midline, and by the absence of a basal flanges.

Generic Description

Length 2.7-3.5mm. **Integument** black, scape, trochanters, and apex of male 5th ventrite piceous, femora and tibiae pale yellow to reddish, sometimes with black knee-spot; elytral **vestiture** consisting of uniform, fine, moderately conspicuous setae; ventral surface of **head** with low lateral ridges not reaching middle of eyes; **rostrum** strongly sexually dimorphic: 1.42-1.70X pronotal length (male) or 2.83-2.90X pronotal length

(female); **frons** not narrower than dorsal tip of rostrum; **antennae** with very long club, scrobes with dorsal margin oblique anteriorly; **pronotum** distinctly longer than wide at base, sides widest at middle, apex slightly constricted, basal flanges absent; **elytra** lacking deep pits apically, striae fine, apically joining as follows: 1+2+9, 3+4, 5+6, 7+8; elytral interstria 9 with 1 long specialized seta; **tarsomeres** of prothoracic legs distinctly longer than wide; **pretarsus** with claws basally toothed; **sexual dimorphism** distinct in rostrum and legs: **tibiae** of prothoracic, mesothoracic and metathoracic legs of male mucronate.

Generic Distribution

Rhopalapion is monotypic and its only member, *Rhopalapion longirostre* is mainly Palearctic, but can also be found in USA, Canada, and possibly Zaire (Alonso-Zarazaga and Lyal 1999).

Tribe Mavapiini Alonso-Zarazaga 1990

Rhopalapion longirostre (Olivier)

[Figures 124, 125, 126, 127; Map 50]

Apion longisrostre Olivier 1807: 35.

Apion (*Rhopalapion*) *longisrostre* Kissinger 1968:126.

Rhopalapion longisrostre (Olivier); Alonso-Zarazaga and Lyal 1999: 70.

Species Diagnosis

Rhopalapion longirostre can be recognized by the light reddish-yellow femora and tibiae, strong rostral sexual dimorphism, tibiae mucronate in males, basal flanges absent, and by the conspicuous vestiture.

Species Description

Length 2.62-3.18mm. **Body** slender. **Integument** black, femora and tibiae light reddish-yellow, coxae, trochanters, and tarsi piceous. **Vestiture** consisting of fine, moderately dense, white setae, nearly uniform. **Head** in lateral view with dorsal margin slightly ascending above posterior margin of eye. **Rostrum** (male) 1.38-1.42X pronotal length; in lateral view slightly curved, sides converging apically from antennal insertions; in dorsal view moderately expanded at antennal insertions, sides converging apically, nearly parallel in apical 1/5; surface smooth, basal 3/4 with moderately coarse, dense punctures bearing fine setae, nearly glabrous; rostrum (female) 2.67-2.82 X pronotal length; in lateral view slightly curved, sides nearly parallel in apical 1/3; in dorsal view sides slightly prominent at antennal insertions, distinctly expanded apically; surface polished, basad antennal insertions with fine, elongate punctures, anterad antennal insertions nearly glabrous, with fine, sparse punctures. **Frons** 1.0-1.3X width of dorsal tip of rostrum. **Antennae** (male) inserted at distance from eye 1.33-1.44X width of frons, at basal 0.27-0.28 of rostrum; (female) inserted at distance from eye 2.2-2.7X width of frons, at basal 0.23-0.25 of rostrum. **Eyes** slightly prominent, slightly wider than long. **Pronotum** with basal width 0.86-0.89X length, nearly parallel at base, roundly expanding to widest point near middle, rounding to slightly constricted apex; in lateral view dorsal margin moderately convex; basal flanges absent; dorsal surface with punctures, frequently two or more punctures merging to form an elongate puncture

running parallel with longitudinal axis of pronotum; basal fovea moderately deep, elongate, fine. **Elytra** with basal width 1.36-1.57X pronotal width at base, 2.4-2.6X pronotal length, length 1.65-1.80X width; striae fine, deep; interstriae at middle slightly more than twice as wide as striae, nearly flat, surface with 2-3 rows of fine punctures bearing setae similar to those on pronotum. **Femora** of prothoracic legs stout, length about 2.7X width. **Sexual dimorphism** distinct in antennae, rostrum and legs: **tibiae** of prothoracic, mesothoracic and metathoracic legs of male mucronate.

Natural History

This species, native to Europe and China (Tuttle 1954), is associated with mallows (*Malva* spp.), hollyhocks (*Alcea* spp.), and cottons (*Gossypium* spp.). In the Nearctic region, it is found primarily on the common hollyhock (*Alcea rosea*).

In July, the adult female uses her long rostrum to puncture the flower of hollyhock and oviposit a single egg into it. Larval development takes 4-6 weeks, the newely emerged adults are then found in seeds of hollyhock in August, along with some larvae and pupae. The earlier instars are found in the flower buds while the later instars enter the seeds. This species overwinter as adults (Tuttle 1954). Wilhelm et al. (2011) discussed sexual dimorphism in the rostrum and its role in egg deposition.

Phenology

In Wisconsin, adults have been collected from April to July.

Collecting Methods

In Wisconsin, **161 specimens** were examined during this study from seven counties. This species is most commonly collected by hand on the common hollyhock;

however, there is a series that was collected by sweeping gooseberry (*Ribes uvacrispa*). One specimen was collected in a pan trap.

Species Distribution

This species has previously been recorded from Dane County (Kissinger 1968, O'Brien and Wimber 1982, Downie and Arnett 1996, Sauer 2005).

Additional Wisconsin County Records: Fond du Lac, Kenosha, Ozaukee, Racine, Washington, Winnebago.

North America: United States: AR, CA, CO, GA, IL, KY, MA, MD, MO, NC, NY, OH, OR, PA, SC, TN, VA, WA, WI. **Canada:** ON.

Tribe Oxystomatini Alonso-Zarazaga 1990

Subtribe Oxystomatina Alonso-Zarazaga 1990

Genus *Eutrichapion* Reitter

Apion (*Eutrichapion*) Reitter 1916: 243.

Pseudotrichapion Bokor 1923: 101.

Eutrychapion Hoffman 1952: 143.

Type species: *Attelabus viciae* Paykull, 1800, by original designation.

Generic Diagnosis

Eutrichapion can be easily recognized by the tubercle on the median posterior margin of the metathoracic sternum (male), the pale antennal scape, and by the absence of basal flanges in both sexes.

Generic Description

Length 1.90-3.20mm**. Integument** mostly black, antennae and legs partly or entirely testaceous; **vestiture** consisting of conspicuous setae that are denser laterally on the mesothorax and the metepisternum, and condensed into a subocular patch below eyes; **frons** wider than dorsal tip of rostrum, may be depressed with respect to dorsal rim of eye; **head** flat above posterior margin of eyes, ventral surface with low lateral ridges extending to near middle of eyes; **antennae** with scrobes evenly descending; **eyes** moderately prominent; **pronotum** narrowed and constricted apically; basal flanges absent; **basitarsus** longer than wide; **pretarsus** with claws bearing an acute basal tooth; **legs** of male lack modifications; suture between **abdominal ventrites** 1 and 2 reduced; **sexual dimorphism** of rostrum and sternum marked: **metathoracic sternum** (male) with median tubercle.

Generic Distribution

Eutrichapion is Holarctic (Alonso-Zarazaga and Lyal 1999), and two species are found in Wisconsin.

Key to the Species of Wisconsin *Eutrichapion*

1. Frons deeply impressed adjacent to eyes, sometimes entirely impressed below level of eyes; rostrum 0.8-1.0X longer than pronotum (males), 1.30-1.35X longer than pronotum (females); antennae (males) inserted at basal 0.3 of rostrum; length 1.6-2.5mm ……. …...……***Eutrichapion cavifrons*** **(LeConte)**

1′. Frons flat, not impressed near eyes; rostrum 1.1-1.2X longer than pronotum (males), 1.2-1.3X longer than promotum (females); antennae (males) inserted at basal 0.3-0.4 of rostrum; length 1.7-2.3mm ……... ***Eutrichapion huron*** **(Fall)**

***Eutrichapion cavifrons* (LeConte)**

[Figures 128, 129; Map 51]

Apion cavifrons LeConte 1857: 53.

Apion (*Trichapion*) *cavifrons* (LeConte); Kissinger 1968: 241.

Eutrichapion cavifrons (LeConte); Alonso-Zarazaga and Lyal 1990: 146.

Species Diagnosis

Eutrichapion cavifrons is most similar to *E. huron*, the only congeneric species in in Wisconsin. It can be most easily distinguished from *E. huron* by the deeply impressed frons adjacent to the eyes (flat frons in *E. huron*), by the interstriae that have two rows of setae, pretarsal claws with an acute basal tooth, antennae inserted at basal 0.3 of rostral length, and by the more marked sexual dimorphism in the length of the rostrum.

Speices Description

Length 1.62-2.46mm. **Body** moderately robust. **Integument** black, antennae yellowish or reddish, especially at base. **Vestiture** consisting of conspicuous, white setae, denser and coarser laterlly in males. **Rostrum** (male) 0.81-1.0X pronotal length, in lateral view very slightly curved, sides converging apically; in dorsal view sides not expanded at antennal insertions, converging from antennal insertions towards apex; surface densely, finely punctate, with dense, fine vestiture, extreme apex bare; rostrum (female) 1.30-1.35X pronotal length, in lateral view slightly curved, sides nearly parallel in apical 1/2; surface basad antennal insertions coarsely alutaceous, with fine, sparse vestiture, anterad antennal insertions finely alutaceous, with sparse, fine punctures, nearly glabrous. **Frons** with width 1.0-1.3X dorsal tip of rostrum, strongly depressed adjacent to eyes. **Antennae** inserted between basal 0.28-0.32 of rostrum; inserted at distance in front

of eyes 1.08-1.20X width of frons (male), 1.15-1.33X width of frons (female). **Pronotum** with basal width 0.93-1.24X length, width at middle 1.0-1.3X width at base, width at apex 0.81-0.88X width at base, slightly constricted apically, in lateral view dorsal margin nearly flat; basal flanges absent; surface with deep punctures, interspace alutaceous; basal fovea narrow, shallow, elongate. **Elytra** with basal width 1.38-1.44X pronotal width at base, 2.1-2.7X pronotal length; striae deep, coarse, bearing setae similar to those on adjacent interstria; interstriae < 2.0X strial width, nearly flat, with 2 rows of setae, interstria 7 with 1 long, specialized seta. **Sexual dimorphism** distinct in antennae, rostrum, and sternum: **metathoracic sternum** (male) with median, low, blunt tubercle on posterior margin.

Natural History

Adults of this species have been recorded from flowers and foliage of wild pea (*Lathyrus sulphureus*), giant vetch (*Vicia gigantea*), as well as other species of vetches (*Vicia* spp.). Adults have also been reared from flower buds of wild pea, and have been reported on Douglis fir (*Pseudotsuga menziesii*) and ponderosa pine (*Pinus ponderosa*), which may be incidental records.

Phenology

In North American, adults of this species have been recorded from February to September (Bright 1993); the only Wisconsin specimen examined during this study was collected in June.

Collecting Methods

The **1 Wisconsin specimen** examined during this study from Bayfield county represents a **NEW STATE RECORD**. The only specimen was found at Moquah

Barrens State Natural Area within Chequamegon-Nicolet National Forest, by sweeping forest vegetation along road side. This species is also likely collected by sweeping vetches or wild pea.

Species Distribution

Wisconsin County Records: Bayfield.

North America: United States: CA, MT, NV, OR, UT, WA, WI. **Canada:** AB, BC.

***Eutrichapion huron* (Fall)**

[Figures 130, 131, 132, 133; Map 52]

Apion huron Fall 1898: 159.

Apion (*Eutrichapion*) *huron* (Fall); Kissinger 1968: 243.

Eutrichapion huron (Fall); Alonso-Zarazaga and Lyal 1990: 146.

Species Diagnosis

Eutrichapion huron can be distinguished from *E. cavifrons* by the flat frons that is not impressed near the eyes and by having a single row of setae on the elytral insterstriae.

Speices Description

Length 1.7-2.3mm. **Body** moderately slender. **Integument** black; antennae with base and club pale. **Vestiture** consisting of conspicuous, white setae, coarser and denser laterally in males. **Rostrum** (male) 1.1-1.2X pronotal length, slightly curved; sides in dorsal view converging apically, not expanded at antennal insertions; surface densely, finely punctate, with dense, fine setae; rostrum (female) 1.2-1.3X pronotal length; sides in dorsal view nearly parallel in apical half, converging slightly anterad antennal

insertions; surface basad of antennal insertions coarsely alutaceous, with sparse, minute setae, surface anterad antennal insertions nearly smooth, with minute punctures. **Frons** wider than dorsal tip of rostrum, generally flat, rarely slightly impressed near eye. **Antennae** inserted between basal 0.3-0.4 of rostrum (male), basal 0.3 (female). **Eyes** moderately prominent. **Pronotum** with basal width 1.1-1.2X length, slightly constricted apically; basal flanges absent; disc nearly flat, surface with deep punctures. **Elytra** with length 1.2-1.3X width; striae deeply impressed, with coarse punctures; interstriae > 2.0X strial width, nearly flat, each interstria with 1 row of setae; interstria 7 with 1, specialized seta. **Sexual dimorphism** apparent in vestiture, rostrum and sternum: **metathoracic sternum** (male) with a median, low tubercle near posterior margin.

Natural History

In general, adults of *E. huron* are associated with plants in the family Fabaceae (Anderson and Kissinger 2002). Associated habitats include wet prairies and sedge meadows (Sauer 2005).

Phenology

In North America, this species is recorded from May to August, while in Wisconsin, adults have been collected in May and June.

Collecting Methods

In Wisconsin, **5 specimens** were examined in this study from two counties, forming a total of three county records. Some of these specimens were collected by sweeping tall grass.

Species Distribution

This species has previously been recorded from Marquette, Oconto and Polk counties (Kissinger 1968, O'Brien and Wimber 1982, Downie and Arnett 1996, Sauer 2005).

North America: United States: IL, IN, MI, MN, ND, NJ, WI. **Canada:** AB, MB, ON.

Subtribe Synapina

Genus *Ischnopterapion* Bokor

Apion (*Ischnopterapion*) Bokor 1923: 101.

Leptapion Wagner 1932: 1395.

Apion (*Chlorapion*) Gyorffy 1956: 56.

Type species: *Apion loti* Kirby, 1808.

Generic Diagnosis

In general, *Ischnopterapion* can be distinguished by the metallic blue-green elytra, the tibiae (males) not mucronate, pronotum parallel along basal half dorsally, and by the rostrum that is slightly expanded at antennal insertions. It is perhaps most similar to *Ceratapion* and *Eutrichapion*. It can be distinguishehd from *Ceratapion* by the joining of striae at the elytral apices and by the absence of a spine on the mesothoracic (and in some species the metathoracic) basitarsus. It can be distinguished from *Eutrichapion* by having elytral stria 1 deeper than those along the remainder of the disc, absence of a median tubercle on the metathoracic sternum (male), and by having only interstria 7 with a specialized seta.

Generic Description

Length 1.8-2.6mm. **Integument** metallic or black with leaden or brassy tint; **vestiture** conspicuous, centripetal on pronotum; **rostrum** curved, slightly tapering apically, concave laterally, slightly expanded dorsally at antennal insertions, sexual dimorphism moderate to absent; **antennae** with scrobes sulciform, ventral; **frons** flat to convex; **pronotum** subquadeate, base straight to slightly projecting medially towards scutellum, basal flanges absent; **elytra** oblong-ovate, widest behind middle, interstriae 1.5-2.0X strial width, interstria 7 with 1, specialized seta on apical 1/3; **legs** of male unmodified; **pretarsus** with claws toothed; **abdominal ventrites** 1 and 2 slightly convex.

Generic Distribution

Ischnopterapion is primarily Palearctic (Alonso-Zarazaga and Lyal 1999), but one species is found in the Nearctic region, including Wisconsin.

***Ischnopterapion virens* (Herbst)**

[Figures 134, 135; Map 53]

Apion virens Herbst 1797: M.

Ischnopterapion virens (Herbst); Alonso-Zarazaga 1990: 121.

Species Diagnosis

Ischnopterapion virens can be distinguished by the black integument with metallic green reflection, a curved rostrum in both sexes, the low subocular ridges on the ventral surface of head, the pronotum that is moderately constricted behind middle, and by the absence of basal flanges.

Species Description

Length 1.8-2.6mm. **Body** moderately slender. **Integument** black, with aeneous or metallic greenish reflection, elytra distinctly metallic greenish or greenish-blue, shining. **Vestiture** consisting of fine, uniform setae. **Rostrum** (male) shorter, slightly curved, length about 1.25X pronotal length, with sparse setae apically; rostrum (female) longer, curved, length about 1.5X pronotal length, with sparse setae basally. **Frons** slightly convex, finely and sparsely punctate apically, striate transversely and shining basally. **Eyes** prominent, medium to large, nearly round. **Pronotum** slightly wider than long, widest behind middle, slightly convex longitudinally; basal flanges absent; surface sparsely, finely and shallowly punctate; basal fovea distinct but short. **Elytra** with length 2.6X pronotal length, rounded laterally, widest behind middle, slightly convex longitudinally, separately rounded at apex, disc somewhat depressed; striae moderately strongly punctate, joined apically as follows: 1+2+9, 3+4+7, 5+8+6; stria 1 deeper than those of remainder of disc; interstriae each with 1 row of setae, interstria 7 with 1, long specialized seta. **Sexual dimorphism** present in rostrum.

Natural History

The species was first collected in North America in 1994 from a pitfall trap in Pennsylvania (Hoebeke et al. 2000).

In general, it feeds on plants in the family Fabaceae, especially clovers (*Trifolium* spp.). Adults feed on the foliage while larvae mine the petioles and stems. The larvae have been recorded to mine the stems of red clover (*Trifolium pratense*) and bore downwards towards the rootcrown and the root. Adults have also been recorded from hop trefoil (*Trifolium campestre*), Egyptian clover (*Trifolium alexandrinum*), haresfoot

clover (*Trifolium arvense*), crimson clover (*Trifolium incarnatum*), and strawberry clover (*Trifolium fragifernum*).

Adults overwinter in the soil near the food plants or amongst plant debris at the base of the food plants, and reappear in the spring. After emerging from their overwintering sites (February-March), a period of feeding begins, and a period of mating follows (April-June). Oviposition begins in mid-April to early May and continues to late May into early June. The first instar ecloses after 7-8 days, and after four weeks the larva completes its development and pupates. After a week, adults begin to emerge and continue to emerge through August. These adults feed for about four weeks followed by a 40-day non-feeding period. Adults migrate during late summer and early autumn, and mating occurs in early to mid-autumn (Hoebeke et al. 2000).

Phenology

In Wisconsin, the only series of specimens collected were found in October.

Collecting Methods

The **3 Wisconsin specimens** examined during this study from Kenosha County represent a **NEW STATE RECORD**. This series was collected at Chiwaukee Prairie State Natural Area, by sweeping prairie. This species is likely collected by sweeping clovers (*Trifolium* spp.).

Species Distribution

Wisconsin County Records: Kenosha.

North America: United States: CN, DE, MD, MJ, NY, PE, VA, WI.

Subtribe Trichapiina

Genus *Betulapion* Ehret

Betulapion Ehret 1994: 17.

Type Species: *Apion simile* Kirby 1811, by original designation.

Generic Diagnosis

Betulapion can be recognized by the conspicuous, white to yellow vestiture that is sparse on elytral interstriae 2-5, by the nearly flat ventral surface of head that lacks or possesses only a low subcephalic ridge that does not reach the middle of the eyes, the presence of 1 specialized seta on insterstria 9, and by the mucronate mesothoracic and metathoracic tibiae (males). *Trichapion*, the genus most similar to *Betulapion*, can be distinguished from *Betulapion* by the relatively densely setose interstriae 2-5 that consist of 2 or more rows of setae each, by the relatively well-developed subcephalic ridge that reaches the middle of the eyes, and by the presence of 1 specialized seta each on interstriae 7 and 9.

Generic Description

Length 1.8-2.5mm. **Integument** black, with aeneus luster; **vestiture** consisting of white to yellow, sparse setae dorsally, denser laterally, long and setaceous near lower margin of eye; **frons** punctate, not or barely striated; **head** smooth; **rostrum** nearly straight, as long as the pronotum (male), weakly narrowed apically, slightly dilated in basal ½, surface with sparse setae; rostrum (female) slightly shorter than head+pronotum, more strongly narrowed apically, surface smoother, glabrous, polished apically; **eyes** prominent, convex; **pronotum** subcylindrical, slightly wider than long, slightly narrowed apically, surface strongly punctate; **elytra** slightly widened basally, interstriae wider than striae; **tibiae** of mesothoracic and metathoracic legs (male) mucronate.

Generic Distribution

Betulapion is Holarctic (Alonso-Zarazaga and Lyal 1999) and includes two species worldwide: *Betulapion simile* (Kirby) and *Betulapion balchaschense* (Bajtenov), both of which are associated with birch (*Betula* spp.). *Betulapion simile* (Kirby), the only species occurring in North America, is found in Wisconsin.

***Betulapion simile* (Kirby)**

[Figures 136, 137, 138, 139, 140 ; Map 54]

Apion simile Kirby 1811: 351.

Apion superciliosum Gyllenhal 1813: 58.

Apion triste Germar 1817: 223.

Apion pedicellare C.G. Thomson 1865: 78.

Apion walshii Smith 1884:57.

Apion vicinum Smith 1884:58.

Apion eppelsheimi Faust 1887b: 179.

Betulapion simile (Kirby); Ehret 1994: 17.

Species Diagnosis

Betulapion simile can be recognized by the yellowish-white, long and conspicuous vestiture that is denser around the eyes, the pronotum, and the bases of interstria 3, but is sparse and consists of only 1 row of setae on interstriae 2-5. It can also be distinguished by the low (or lacking) subcephalic ridges, and by the mucronate mesothoracic and metathoracic tibiae (males).

Species Description

Length 1.7-2.2mm. **Body** elongate, moderately slender. **Integument** black. **Vestiture** conspicuous, consisting of sparse, white to yellow, fine, long setae; setae denser around eyes, on pronotum and at base of interstria 3. **Head** with margined area on ventral surface not extending posteriorly to middle of eye, area alutaceous, limited laterally by very low carina, posterior margin lacking. **Rostrum** (male) 1.2-1.3X pronotal length, slightly curved, cylindrical, slightly expanded at antennal insertions; surface at basal 2/3 moderately densely punctate, with sparse, long setae, smooth, more shining apically; rostrum (female) 1.5-2.0X pronotal length, slightly curved, in lateral view nearly parallel, in dorsal view slightly expanded apically; surface finely punctate throughout, slightly more shining apically. **Frons** moderatley wide, wider than dorsal tip of rostrum, median sulcus more or less distinct, with lateral row of shallow punctures, surface alutaceous. **Antennae** (male) inserted at distance from eyes about 2.0X width of frons, at basal 2/5 of rostrum, (female) inserted at distinace from eyes 1.5X width of frons, at basal 1/3 of rostrum; dorsal margin of scrobes slightly oblique anteriorly. **Eyes** moderately prominent, length about 1.15X width (male), or nearly round (female). **Pronotum** with basal width 1.14-1.25X length, middle slightly wider than base, basal flanges present; in lateral view dorsal surface slightly arcuate, flatter apically and basally; surface with punctures moderately deep; basal fovea shallow, rounded. **Elytra** with basal width 1.25-1.33X pronotal width at base, length 3.2-3.5X pronotal length; striae deep; interstriae about 2.0X strial width, variable but usually convex, with 1-2 rows of fine punctures bearing fine setae, interstria 9 with 1, specialized seta on posterior 1/4. **Ventrites** with fine, moderately sparse punctures. **Sexual dimorphsim** present in rosrum, antennae, sterna, head and legs: **tibiae** of mesothoracic and metathoracic legs

mucronate (male), with similar, acute mucros; **head**, **sterna**, and **prothoracic coxae** ventrally with setae of males denser than those of female.

Natural History

Larvae of this species are known to develop within clusters of paper birch (*Betula papyrifera*), while adults feed on the leaves of the same tree (Bright 1993). In Wisconsin, *B. simile* has also been reported on oak (*Quercus* spp.) and honey suckle (*Lonicera* spp.), the latter may be have been coincidental as the honey suckle bush was under branches of oak and birch.

Phenology

In Wisconsin, adults of this species have been collected in April, May, August and October.

Collecting Methods

The **15 Wisconsin specimens** examined during this study from four counties represent a **NEW STATE RECORD**. A few specimens were collected by beating birch, another one by beating oak, and another one by beating honey suckle, all of which were collected in the same habitat where a lot of birch was present. Another series was collected by beating hardwood trees in general.

Species Distribution

Wisconsin County Records: Marathon, Oconto, Richland, Vilas.

North America: United States: CA, CO, CT, DC, IA, IL, IN, MA, ME, MD, MI, MN, MT, NB, NC, NH, NJ, NY, OH, PA, RI, SD, UT, VT, WA, WI. **Canada:** MB, NF, NS, ON, PQ.

Genus *Kissingeria* Alonso-Zarazaga

Kissingeria Alonso-Zarazaga 1990: 117.

Type species: *Apion amarum* Kissinger 1968, by original designation.

Generic Diagnosis

Kissingeria can be recognized by the pale, basal antennal segment, absence of a basal flanges, the pronotum that is subparallel in the basal 1/2, and by the relatively small size.

Generic Description

Length 1.06-2.10mm. **Integument** black, rostrum piceous, legs dark, basal segment of antennae pale, remainder of antennae generally dark; **vestiture** generally uniform, may be slightly coarser at bases of elytra; **head** in lateral view with dorsal margin nearly flat above eye, ventral surface with low lateral ridges not reaching middle of eyes; **rostrum** slightly expanded at antennal insertions; **antennae** with dorsal margins of scrobes evenly descending; **frons** slightly less than to moderately wider than dorsal tip of rostrum; **elytra** interstriae 7 and 9 each with 1, long specialized seta near apex, elytral striae joining apically as follows: 1+2+9, 3+4,5+6,7+8, striae not strongly impressed apically; **tarsomere** 3 broadly dilated, bilobed; **pretarsus** with claws distinctly toothed basally; **tibiae** of male lack mucros; **sexual dimorphism** of rostrum weak to very strong.

Generic Distribution

Kissingeria is found in Canada, USA and Mexico (Alonso-Zarazaga and Lyal 1999), with two species found in Wisconsin.

Key to the Species of Wisconsin *Kissingeria*

1. Prothoracic femora stouter in both sexes; distance between eyes and antennal insertions ≤ maximal width of prothoracic femora; width of frons generally >1.1X width of dorsal rostral tip; eyes in dorsal view less parallel, setae around eyes less coarse; female rostrum 1.31-1.59X length of pronotum ……. ***Kissingeria amarum*** **(Kissinger)**

1′. Prothoracic femora more slender; distance between eyes and antennal insertions > maximum width of prothoracic femora; width of frons < 1.1X width of dorsal rostral tip; eyes in dorsal view more parallel, setae around eyes coarse; female rostrum 2.0-2.3 X length of pronotum, curved only in apical 1/4 …...….... ***Kissingeria capitone*** **(Kissinger)**

Kissingeria amarum **(Kissinger)**

[Figures 141, 142, 143, 144; Map 55]

Apion (*Pseudapion*) *amarum* Kissinger 1968: 228.

Kissingeria amarum (Kissinger); Alonso-Zarazaga 1990: 117.

Species Diagnosis

Kissingeria amarum can be distinguished from most other species by the pale antennal base small size. It is most similar to *K. capitone*, from which it differs by the comparatively shorter rostrum, stouter prothoracic femora, antennae inserted closer to the eyes, and by the frons that is usually distinctly wider than dorsal rostral tip.

Species Description

Length 1.51-2.03mm. **Body** moderately robust. **Integument** black, elytra with slight aeneous luster, base of antennae paler. **Vestiture** consisting of moderately fine, moderately sparse, white setae; setae coarser and denser laterally on mesothorax and metepisternum and beneath the eye in males. **Rostrum** (male) 1.1-1.16X pronotal length,

in lateral view slightly curved, sides very slighly converging in apical 1/3; sides in dorsal view slightly expanded at antennal insertions, nearly parallel in apical 1/3; surface largely polished anterad antennal insertions, laterally with sparse, moderately coarse punctures becoming finer and sparser toward apex, basad antennal insertions with sparse, moderately fine setae; rostrum (female) 1.31-1.59X pronotal length, similar to rostrum of male except basad antennal insertions setae finer and sparser. **Frons** 1.08-1.25X dorsal rostral tip. **Antennae** (male) with anterior margin of scrobes at basal 0.27-0.31 of rostrum, at distance in front of eyes 1.00-1.21X width of frons; antennae (female) with anterior margin of scrobes at basal 0.23-0.27 of rostrum, at distance in front of eyes 1.33-1.56X width of frons. **Eyes** in dorsal view slightly prominent. **Pronotum** with basal width 1.08-1.18X length, narrowing apically; in lateral view dorsal surface moderately convex, highest point situated near basal 1/3; in dorsal view generally slightly diverging to widest point near basal 1/3, rounding to slightly constricted apically; basal flanges absent; surface with moderately deep punctures bearing fine setae; setae may be oriented traversely toward median line of pronotum, finely alutaceous; basal fovea small. **Elytra** with basal width 1.36-1.42X pronotal width at base, length 2.2-2.6X pronotal length, 1.18-1.39X width; striae fine, moderately deep, bearing setae generally similar to those on adjacent interstria; interstriae flat, near middle approximately 3.0X strial width, with 1-2 in part confused rows of fine punctures bearing setae in general coarser than those on dorsal surface of pronotum, interstriae 7 and 9 each with 1, long specialized seta. **Femora** in lateral view with maximum width greater than distance between antennal insertions and eyes. **Legs** (male) lacking modifications. **Sexual dimorphism** present in rostrum.

Natural History

Adults of this species are associated with prairie clovers (*Dalea* spp.) in general. They have also been collected from seed heads of white prairie clover (*Dalea candida*), leadplant (*Amorpha canescens*), tick-trefoil (*Desmodium* spp.), fragrant mimosa (*Mimosa borealis*), little bluestem (*Schizachyrium scoparium*), sideoats grama (*Bouteloua curtipendula*), prairie dropseed (*Sporobolus heterolepis*), and three-awns (*Aristida* spp.).

Sauer (2005) found adults on lead plant (*Amorpha canescens*) and tick-trefoil (*Desmodium* spp.) in Wisconsin.

Phenology

In Wisconsin, adults of this species have been collected from June to September.

Collecting Methods

In Wisconsin, **43 specimens** were examined during this study from eight counties, forming a total of nine county records. Most specimens were collected by sweeping prairies, including dry, dry-mesic, mesophytic, dry bluff, dry steep pasture, mesic hill, sand, restored sand, and native prairies, as well as weedy roadsides. Adults have also been reared from seeds of prairie clovers (*Dalea* spp.), including *Dalea tinctoria*. A series of nine specimens were collected from seeds of white prairie clover (*Dalea candida*).

Species Distribution

This species has previously been recorded from Columbia, Crawford, Dane, Green, Iowa, Jefferson, Kenosha, and Pierce counties (Sauer 2005).

Additional Wisconsin County Records: Trempealeau.

North America: United States: AZ, CA, CO, IA, ID, KS**,** MT, ND, NM, OK, OR, TX, UT, WA, WI. **Canada:** AB, **Mexico:** BJ, MB.

***Kissingeria capitone* (Kissinger)**

[Figures 145, 146, 147, 148; Map 56]

Apion (*Pseudapion*) *capitone* Kissinger 1968: 230.

Kissingeria capitone (Kissinger); Alonso-Zarazaga 1990: 117.

Species Diagnosis

Females of *K. capitone* can be easily recognized by the very long rostrum (2-2.33X length of pronotum (1.31-1.59X in females of *K. amarum*). The rostrum of males is comparatively longer than the pronotum, the frons narrower (0.9-1.1X dorsal rostral tip), and the prothoracic femora in lateral view are more slender (maximal width ≤ distance between the anterior margin of the scrobe and anterior margin of the eye).

Species Description

Length 1.45-1.93mm. **Body** moderately slender. **Integument** black, elytra with faint aeneous luster, base of antennae pale. **Vestiture** consisting of moderately coarse, moderately sparse, white setae denser laterally on mesothorax and metepisternum. **Rostrum** (male) 1.0-1.9X pronotal length, in lateral view moderately curved, sides in apical 1/3 nearly parallel; sides in dorsal view very slightly expanded at antennal insertions, slightly expanding apically; laterally with moderately coarse, sparse punctures, becoming finer apically, basad antennal insertions with very sparse vestiture, mostly confined to region near eye; rostrum (female) 2.00-2.33X pronotal length, in lateral view slightly curved except strongly curved in apical 1/4, sides in apical 1/4 very slightly

converging; sides in dorsal view not expanded at antennal insertions, surface with moderately dense, elongate punctures becoming finer and sparser apically, basad antennal insertions with very few, small setae, mostly situated near anterior margin of eye. **Antennae** (male) inserted at basal 0.31-0.34 of rostrum at distance in front of eye 1.54-1.77X width of frons; antennae (female) inserted at basal 0.21-0.24X of rostrum, at distance in front of eye 1.92-2.54X width of frons. **Eyes** in dorsal view slightly prominent. **Pronotum** with basal width 1.10-1.11X length; in lateral view dorsal margin slightly convex, flattened apically; in dorsal view generally slightly diverging to widest point near basal 1/3, rounding to slightly constricted apex; basal flanges absent; dorsal surface with moderately deep punctures, bearing moderately coarse setae; basal fovea shallow to moderately deep. **Elytra** with basal width 1.36-1.46 X pronotal width at base, length 2.0-2.3X pronotal length, 1.20-1.37X width; striae fine, moderatly deep, joining apically as follows: 1+2+9, 3+4, 5+6, 7+8; interstriae nearly flat, at middle about 3.0X strial width, bearing 1-2 in part confused rows of fine punctures bearing setae similar but slightly coarser to those on pronotum, interstriae 7 and 9 each bearing 1, long specialized seta. **Femora** in lateral view with maximal width < distance between anterior margin of scrobes and anterior margin of eye. **Legs** (male) lacking modifications. **Sexual dimorphism** distinct in rostrum.

Natural History

This species can generally be collected from flowers of prairie clovers (*Dalea* spp.). It has also been collected from purple prairie clover (*Dalea purpurea*), white prairie clover (*Dalea candida*), false indigo (*Amorpha* spp.), leadplant (*Amorpha canescens*), cone-flowers (*Rudbeckia* spp.), little bluestem (*Schizachyrium scoparium*),

sideoats grama (*Bouteloua curtipendula*), hairy grama (*Bouteloua hirsuta*), prairie dropseed (*Sporobolus heterolepis*), tickseed (*Coreopsis* spp.), and mixed grasses. It was collected by sweeping switch grass (*Panicum vigatum*) in a sand prairie.

This species occurs sympatrically with *Kissingeria amarum* in several areas in the USA.

Phenology

In Wisconsin, adults of this species have been recorded from May to October.

Collecting Methods

In Wisconsin, **187 specimens** were examined in this study from 15 counties, forming a total of 17 county records. Most specimens have been collected by sweeping prairies, including dry bluff, bluff, dry hill, mesophytic, dry, dry-mesic, mesic, wet, native, and sand prairies. It has also been collected by sweeping in a grassland/ scrub oak community, as well as reared from purple prairie clover (*Dalea purpurea*).

Species Distribution

This species has previously been recorded from Barron, Buffalo, Columbia, Dane, Grant, Green, Iowa, Jefferson, Kenosha, Monroe, Pierce, Sauk, Trempealeau, Walworth, Waukesha, and Winnebago counties (Sauer 2005).

Additional Wisconsin County Records: La Crosse.

North America: United States: CO, IA, IL, MN, MT, ND, NE, NM, OK, TX, WI. **Canada:** AB, SA.

Genus *Trichapion* Wagner

Apion subgenus *Trichapion* Wagner 1912: 116.

Type species: *Apion aurichalceum*, by subsequent designation (Kissinger 1959: 248).

Trichapion is the most diverse apionine genus in the Nearctic and Neotropical regions, with about 115 species in North and Central America (Kissinger 1989).

Generic Diagnosis

Trichapion can be recognized by the mucronate mesothoracic and metathoracic tibiae in males [prothoracic tibiae also mucronate in males of *Trichapion oblitum* (Smith)*, Trichapion roseae* (Kissinger)*,* and *Trichapion tenuirostrum* (Smith)], ventral cranial surface with moderate to well-developed subcephalic ridges that extend to beyond middle of the eyes, presence of a basal flanges (except for *Trichapion leporinum* (Salsbury)*, T. roseae* and *T. tenuirostrum*), and by the dark integument.

Generic Description

Length 1.3-3.5mm. **Integument** black; **rostrum** of female usually longer than that of male; **frons** wider than dorsal rostral tip,with or without a wide, median area bearing a median longitudinal sulcus or depression; **pronotum** mostly with basal flanges distinct (not so in *T. leporinum, T. roseae* and *T. tenuirostrum*, among Wisconsin species); **elytra** with interstriae1+2+9 joining; **pretarsi** with claws toothed; **abdominal ventrites** 1 and 2 with suture obliterated; **sexual dimorphism** present in rostrum and legs: **tibiae** of mesothoracic and metathoracic legs (male) mucronate; prothoracic tibiae of male may also be mucronate.

Generic Distribution

Trichapion is found in the Nearctic and the Neotropical regions (Alonso-Zarazaga and Lyal 1999). Twelve species are confirmed from Wisconsin. An additional

species,*Trichapion oblitum* (Smith), could be in Wsconsin but remains uncertain due to the condition of the specimen.

Key to the Species of Wisconsin *Trichapion*

[Keys species of *Trichapion* generally require males. Thus, it is prudent to collect members of this group in series or as copulating pairs.]

1. Males with tibiae of all legs mucronate; basal flanges absent ……..…… **2**

1′. Males with mesothoracic and metathoracic tibiae mucronate; basal flanges present (except for *T.leporinum*) ……...…… **3**

2. Elytra with setae somewhat denser at base of interstria 3; femora and tibiae reddish to piceous; prothoracic sternum with basal median tubercle; pronotum in lateral view with dorsal surface distintly convex ……..... ***Trichapion roseae*** **(Kissinger)**

2′. Elytra with setae distinctly denser at base of interstria 3; femora and tibiae dark; prothoracic sternum without basal median tubercle; pronotum in lateral view not distinctly convex ……***Trichapion tenuirostrum*** **(Smith)**

3. Pronotum without basal flanges; vestiture consisting of long and white attenuate setae over the entire body, dense along the metepisternum and metasternum ……..

……...…… ***Trichapion leporinum*** **(Salsbury)**

3′. Pronotum with basal flanges; vestiture variable ……..……..… **4**

4. Prothoracic tarsus of males dilated, with dense, moderately long vestiture on ventral surface; middle of pronotum distinctly wider than base, with sides rounded; rostrum expanded dorsally at antennal insertions …….. ***Trichapion nigrum*** **(Herbst)**

4′. Prothoracic tarsus not so modified; pronotum variable; rostrum variably expanded at antennal insertions ……. **5**

5. Rostrum in lateral view tapering from base to apex; elytral interstriae with 2 rows of punctures bearing fine setae, with 2, long specialized setae; ventral cranial surface with moderately high lateral ridge extending beyond middle of eyes; setae dense around eyes; rostrum of male very short ……..…….. ***Trichapion modicum*** **(Kissinger)**

5′. Rostrum not tapering from base to apex; elytral interstriae bearing 1-2 rows of punctures bearing setae, number of specialized seta variable; ventral cranial surface variable; setae around eyes variable; rostrum of male not particularly short …… **6**

6. Length > 2.5mm ……...……. **7**

6′. Length < 2.5mm ……... **8**

7. Length 2.4-3.0mm; setae on elytral interstriae inconspicuous, interstriae strongly convex, slightly wider than striae ……..… ***Trichapion porcatum*** **(Boheman)**

7′. Length 3.0-3.5mm; setae on elytral striae coarser than those on interstriae, interstirae flat, about 2X width of striae ……..… ***Trichapion rostrum*** **(Say)**

8. Elytral interstriae flat or nearly so ……...…….. **9**

8′. Elytral interstriae convex ……...……..… **11**

9. Pronotum widest at middle, distinctly constricted apically; elytral interstriae flat, 2X width of striae; rostrum distinctly expanded dorsally at antennal inseritons; dorsal cranial margin slightly declivitous above posterior margins of eyes ... ***Trichapion centrale*** **(Fall)**

9′. Pronotum variable; elytral interstriae variable; rostral exapnsion variable at antennal insertions; dorsal cranial margin not declivitous above posterior margins of eyes ……. **10**

10. Pronotum with basal flanges present but inconspicuous; anterior margin of antennal scrobes oblique; rostrum 1.25-1.47X pronotal lenghth, slightly curved …….. ……..…… ***Trichapion perforicolle*** **(Fall)**

10′. Pronotum with basal flanges conspicuous; antennal scrobes evenly descending; rostrum 1.4-1.7X pronotal length, moderately curved …….. ……..….. ***Trichapion reconditum*** **(Gyllenhal)**

11. Rostrum not expanded dorsally at antennal insertions; vestiture fine, denser laterally on mesepimeron and metepisternum; length 1.56-2.18mm .. ***Trichapion patruele*** **(Smith)**

11′. Rostrum expanded dorsally at antennal insertions; vestiture conspicuous, coarse, not much denser laterally; length 1.50-1.67mm ……. ***Trichapion minor*** **(Smith)**

Trichapion centrale **(Fall)**

[Figures 149, 150; Map 57]

Apion centrale Fall 1898: 151.

Trichapion centrale (Fall); Alonso-Zarazaga 1990: 116.

Species Diagnosis

Trichapion centrale can be recognized by the flat elytral interstriae that are twice as wide as the striae, rostrum expanded over the antennal insertions, pronotum widest at the middle and distinctly constricted apically, dorsal margins of scrobes oblique anteriorly, dorsal crainal margin slightly declivitous above the posterior margins of eyes, and by the vestiture that is slightly denser laterally and ventrally. *Trichapion reconditum* also has flat elytral interstriae that are wider than the striae, but is is usually smaller and the antennal scrobes are evenly descending.

Species Description

Length 2.0-2.5mm. **Body** robust. **Integument** black. **Vestiture** consisting of white, fine, sparse setae that are slightly coarser laterally and ventrally. **Rostrum** (male) 1.25-1.35X pronotal length, evenly, slightly curved, expanded laterally and ventrally at antennal insertions, rather abruptly narrowed anterad antennal insertions, nearly cylindrical from middle to apex, width at base 1.3X width at apex; punctures in basal 2/3 coarse and sparse, vestiture inconspicuous; rostrum (female) 1.4-1.6X pronotal length, similar to that of male; glabrous anterad antennal insertions, with fine, sparse punctures. **Frons** 1.2-1.3X dorsal rostral tip, with shallow median impression bordered laterally by 2 rows of punctures. **Antennae** inserted in basal 0.2 of rostrum; scrobes with dorsal margin oblique anteriorly. **Eyes** convex, nearly round. **Pronotum** with basal width 1.2-1.3X length, sides on basal 2/3 slightly diverging medially, sides rounded to slightly constricted apex; basal flanges present; disc slightly, evenly convex, surface with coarse, deep punctures. **Elytra** with length 1.1-1.3X width, striae deeply impressed, with 1 row of seate coarser than those on adjacent interstriae; interstriae 2.0X strial width, flat to very slightly convex, each interstria with 1 row of fine punctures bearing setae, interstria 9 with 1, long specialized seta, interstriae 4+5+6+7+8, and 3+9 joining apically. **Sexual dimorphism** present in rostrum and legs: **tibiae** of mesothoracic and metathoracic legs (male) with subangulate mucros.

Natural Histroy

This species is likely associated with forested areas, but nothing else is known of its natural history.

Phenology

In Wisconsin, this species has been recorded from May to July.

Collecting Methods

In Wisconsin, **13 specimens** were examined during this study from five counties. A series of specimens has been collected at Moquah Barrens State Natural Area within Chequamegon-Nicolet National Forest by sweeping forest floor near open barrens when it was raining.

Species Distribution

This species has previously been recorded from Jackson and Winnebago counties (Kissinger 1968, O'Brien and Wibmer 1982, Downie and Arnett 1996, Sauer 2005).

Additional Wisconsin County Records: Bayfield, Dodge, Wood.

North America: United States: AZ, CO, IA, ID, MN, MT, ND, WA, WI, WY. **Canada:** AB, BC, Hud. Bay T., MB, ON, SA.

***Trichapion leporinum* (Salsbury)**

[Figures 153, 154; Map 58]

Apion (*Trichapion*) *leporinum* Salsbury 1987: 237.

Trichapion leporinum (Salsbury); Alonso-Zarazaga 1990: 116.

Species Diagnosis

Trichapion leporunum is most similar to *T. tenuirostrum*, but can be distinguished by the long ,white attenuate setae that are dense along the metepisternum and metasternum (short, truncate setae that are not dense laterally in *T. tenuirostrum*), prothoracic tibiae not mucronate (male), and by the rostrum (female) only slighlty longer than that of male and that is distinctly curved and not narrowed anterad the antennal

insertions (female rostrum is much longer than that of the male and is slightly curved and narrowed anterad antennal insertions before gradually widening apically in *T. tenuirostrum*). In general, *T. leporinum* can also be distinguished by the absence of basal flanges and by the coarse setae around the eyes.

Species Description

Length 1.45-1.65mm. **Integument** shining black, with aeneous luster. **Vestiture** consisting of long, white setae, setae on legs coraser, setae on mesepimeron and mesepisternum long, white, coarse, and very dense; on elytra consisting of long setae arranged in discrete pattern. **Rostrum** (male) 0.60-0.67mm, (female) 0.69-0.70mm; surface with small, dense, punctures that becomes spraser apically, with coarse setae basad antennal insertions, polished anterad antennal insertions, sides nearly parallel anterad antennal insertions. **Antennae** (male) inserted at 0.15-0.19mm from eyes. **Pronotum** with basal width 1.1-1.2X length, length (male) 0.35-0.45 mm, (female) 0.41-0.49mm; surface with deep punctures, each bearing 1, long, coarse, white seta; basal half of pronotum with a large, deep, median sulcus, median line without setae; prothoracic coxae with large, deep, elongate pit dorsally. **Elytra** 1.00-1.25mm, length about 2.8X pronotal length; striae wide, with coarse, deep punctures; interstriae convex, uneven in width, interstriae 3 and 5 with dense setae basally, setae in 1 row on interstriae except 2 rows on interstria 3, interstria 9 with 1, long specialized seta. **Sternum** coarsely, deeply, densely punctate, with long white setae. **Pretarsus** with claws bearing a well-developed tooth. **Sexual dimorphism** present in rostrum and legs: **tibiae** of mesothoracic and metathoracic legs (male) mucronate.

Natural History

This species is associated with foxtail prairie clover (*Dalea leporina*). Adults feed on the leaves soon after the plant emerges, later moving to flowers and fruits as they develop while larvae feed on the fruit, and are also found on the peduncles and the pedicels (Salsbury 1987).

Pteromalid wasps are known to be parasitoids of the larvae and pupae of this species.

Phenology

The only specimen found in Wisconsin was collected in July.

Collecting Methods

In Wisconsin, **1 specimen** was examined during this study from Kenosha County. This species is most likely collected by sweeping prairies where foxtail prairie clovers are present.

Species Distribution

This species has previously been recorded from Kenosha County (Sauer 2005).

North America: United States: KS, WI.

***Trichapion minor* (Smith)**

[Figures 153, 154, 155, 156; Map 59]

Apion minor Smith 1884: 56.

Apion (*Trichapion*) *minor* (Smith); Kissinger 1968: 54.

Trichapion minor (Smith); Alonso-Zarazaga 1990: 116.

Species Diagnosis

Trichapion minor can be recognized by the small size, by the rostrum that is slightly expanded dorsally at the antennal insertions, the coarsely, deeply punctate pronotum that is rounded at the middle, coarsely punctate metathoracic sternum and abdominal ventrites 1 and 2, and by the distinctive structure of the parameres (with very long, moderately broad, sclerotized apical lobes that lack setae). *Trichapion minor* is most easily confused with *T. modicum*, but can be distinguished by the longer rostrum in the males – 1.14-1.25X pronotum length (1.0-1.1X in *T. modicum*), by the large, slender mucro on the metathoracic tibiae (male), rostrum that does not taper apically in lateral view, and by the antennae that are inserted at a distance somewhat greater than than the width of frons. *Trichapion minor* may also be confused with *T. reconditum* given their similar size as well as the prominent mucro on the metathoracic legs of males. It can be distinguished by the inconspicuous vestiture that is not much denser laterally, and by the stout legs.

Species Description

Length 1.50-1.67 mm. **Body** moderately slender. **Integument** black. **Vestiture** consisting of white, conspicuous, coarse setae that are not much denser laterally. **Head** with dorsal margin slightly declivitous above posterior margins of eyes; ventral surface with low lateral ridges to near middle of eyes. **Rostrum** (male) 1.14 -1.26X pronotal length, slightly curved; sides converging apically anterad antennal insertions, slightly expanded dorsally at antennal insertions; surface on basal 2/3 dull, alutaceous, with sparse vestiture basad antennal insertions, apical 1/3 smoother, shining, glabrous; rostrum (female) 1.60-1.75X pronotal length, slightly curved; sides converging anterad antennal insertions to apical 1/3, apical 1/3 nearly cylindrical; basal 3/4 dull, alutaceous, apical 1/4

smooth, shining. **Frons** 1.25-1.57X dorsal rostral tip. **Antennae** (male) inserted at distance in front of eye 1.18-1.35X width of frons, at basal 0.27-0.28 of rostrum; antennae (female) inserted at distance in front of eyes 1.5X width of frons at basal 0.22 of rostrum; dorsal margin of scrobes evenly descending. **Eyes** moderately prominent. **Pronotum** of suequal width at middle and at base, sides slightly expanding medially, then narrowing apically, in lateral view dorsal surface nearly flat; basal flanges present; surface with deep punctures; basal fovea deep, punctiform. **Elytra** 2.4-2.7X pronotal length; striae fine, moderately deep; interstriae about 2.0X strial width, rather convex, with 1 row of pucntures; interstriae 7 and 9 each with 1, specialized seta, may be abraded. **Scutellum** triangular. **Metathoracic sternum** and **abdominal ventrites** 1 and 2 deeply, coarsely punctate. **Legs** stout; prothoracic femora with length >3.0X width. **Sexual dimorphism** distinct in rostrum and legs: **tibiae** of mesothoracic and metathoracic legs (male) with simple mucros, mucros of metathoracic legs large and slender.

Natural History

Adults of this species have been collected from leadplant (*Amorpha canescens*), wild lupine (*Lupinus perennis*), prairie clovers **(***Dalea* spp.), tick-trefoil (*Desmodium* spp.), little blue stem (*Schizachyrium scoparium*), prairie dropseed (*Sporobolus heterolepis*), as well as grasses and forbes.

According to Sauer (2005), *T. minor* and *T. modicum* are often collected sympatrically; however, *T. minor* is more widespread throughout Wisconsin while *T. modicum* is more abundant, locally.

Phenology

In Wisconsin, adults of this species have been collected from May to September.

Collecting Methods

In Wisconsin, **133 specimens** were examined during this study from 14 counties. Most specimens have been collected by sweeping prairies, including dry, dry-mesic, wet-mesic, dry bluff, bluff, native, mesic hill, sand hill, dry hill, and untilled prairies.

Species Distribution

This species has previously been recorded from Adams, Columbia, Crawford, Dane, Grant, Green, Iowa, La Crosse, Marquette, and Walworth counties (Sauer 2005).

Additional Wisconsin County Records: Monroe, Pierce, Sauk, Trempealeau.

North America: United States: IA, IL, KS, MO, NE, NM, WI. **Mexico:** BJ.

***Trichapion modicum* (Kissinger)**

[Figures 157, 158, 159, 160; Map 60]

Apion (*Trichapion*) *modicum* Kissinger 1968: 55.

Apion modestum Smith 1884: 58.

Trichapion modicum (Kissinger); Alonso-Zarazaga 1990: 116.

Species Diagnosis

Trichapion modicum is most easily confused with *T. minor,* but can be distinguished by the rostrum that tapers apically in lateral view, is very short in males and nearly glabrous in the apical 1/2, coarse setae around the eyes, pronotum conspicuously rounded at middle, and by the vestiture that becomes coarser laterally on the prothorax. In general, it can be recognized by its small size, prominent nearly round eyes, frons that is wider than the dorsal rostral tip, and by the low lateral ridges on the ventral cranial surface that extend to near middle of the eyes.

Species Description

Length 1.36 -1.62 mm. **Body** moderately robust. **Integument** black; antennae piceous at base. **Vestiture** consisting of conspicuous, white, sparse, coarse, setae that becomes coarser laterally on the prothorax. Ventral surface of **head** with low lateral ridges extending posteriorly to middle of eyes, lacking posterior ridges. **Rostrum** (male) 1.0-1.1X pronotal length, nearly straight; in lateral view tapered apically, in dorsal view slightly expanded at antennal insertions; surface punctate and dense with setae in basal 2/3, smooth, bare, shining in apical 1/3; rostrum (female) 1.34-1.50X pronotal length, slightly curved; sides slightly converging apically anterad antennal insertions, apex slightly expanded laterally; surface with sparse setae basad antennal insertions and with sparse, moderately coarse punctures laterally, smoother apically. **Frons** (male) 1.12-1.38X dorsal rostral tip; (female) 1.50X dorsal rostral tip. **Antennae** (male) inserted at distance in front of eye 0.73-1.00X width of frons at basal 0.2-0.22 of rostrum; antennae (female) inserted at distance in front of eye 0.67-0.84X width of frons at basal 0.16-0.20 of rostrum; dorsal margin of scrobes evenly descending anteriorly. **Eyes** prominent, nearly round. **Pronotum** widest at base and middle; basal flanges present, in dorsal view sides beyond basal flanges slightly narrowing medially, at middle rounded laterally, then narrowed to constricted apex; in lateral view dorsal surface nearly flat; surface with deep punctures; basal fovea punctiform, moderately deep. **Elytra** 2.6-3.0X pronotal length; striae fine, deep; interstriae 2.0X strial width, nearly flat on dorsal surface, generally with 1 row of setae, which may be confused and appear in part as 2 rows of setae; interstriae 7 and 9 each with 1, long specialized setae, interstria 3 with several small specialized setae. **Legs** stout, prothoracic femora with length 3.0X width. **Sterna** with deep, moderately

coarse punctures. **Sexual dimorphism** distinct in rostrum, frons, and legs: **tibiae** of mesothoracic and metathoracic legs (male) with mucros about 30 microns long, mucro of mesothoracic legs excurved, nearly simple, mucro of metathoracic legs projects nearly in line with tibia, subangulate.

Natural History

Adults of this species have been collected from leadplant (*Amorpha canescens*), beard-tongue (*Penstemon* spp.), prairie dropseed (*Sporobolus heterolepis*) and grass tops in general.

Phenology

In Wisconsin, adults of this species have been collected from May to September.

Collecting Methods

In Wisconsin, **159 specimens** have been collected across 11 counties. Most specimens were collected by sweeping prairies, including dry, dry-mesic, wet-mesic, bluff, native, mesophytic, hill, and sand hill prairies.

Species Distribution

This species has previously been recorded from Columbia, Crawford, Dane, Grant, Green, Iowa, Jackson, Jefferson, and Marquette counties (Sauer 2005).

Additional Wisconsin County Records: Kenosha, Green Lake.

North America: United States: AZ, CO, IL, KS, NE, WI. **Canada:** MB.

***Trichapion nigrum* (Herbst)**

[Figures 161, 162, 163, 164; Map 61]

Apion nigrum Herbst 1797: 112.

Apion (*Trichapion*) *nigrum* (Herbst); Kissinger 1968: 88.

Trichapion nigrum (Herbst); Alonso-Zarazaga 1990: 116.

Species Diagnosis

Males of *T. nigrum* can be easily recognized by the dilated prothoracic tarsi with long setae on the ventral surface and by the prominent metathoracic mucro. In general, both sexes of *T. nigrum* can be recognized by the vestiture of the abdominal ventrites: dense with setae that are as coarse as those on the mesothoracic sternum and under the eyes. Also, the rostrum has scant to dense setae in the basal 2/3, antennal scrobes have oblique anterior margins, the pronotum that is rounded and widest at the middle, head moderately declivitous above the poserior margins of eyes, frons with a median smooth area flanked with two rows of punctures, rostrum expanded at antennal insertions, and by the deep basal fovea that extends about 1/2 the pronotal length.

Species Description

Length 1.83-2.62mm. **Body** moderately robust. **Integument** black. **Vestiture** consisting of white, fine, scant setae that are coarser and more conspicuous laterally. **Head** with dorsal margin moderately declivitous above posterior margins of eyes; ventral median area with low lateral ridges not reaching middle of eyes, median and posterior carinae lacking. **Rostrum** (male) 1.19-1.25X pronotal length, slightly curved; in dorsal view moderately expanded laterally at antennal insertions, sides converging anterad antennal insertions to apical 1/3, apical 1/3 nearly cylindrical; surface of basal 2/3 dull, punctate, with scant to dense vestiture, apical 1/3 smoother, moderately shining; rostrum (female) 1.40-1.56X pronotal length, slightly curved; sides narrowing beyond basal 1/3 medially, nearly cylindrical from there apically; surface anterad antennal insertions

glabrous, alutaceous and moderately punctate. **Frons** 1.31-1.46X dorsal rostral tip, with median smooth area flanked by 2 lateral rows of punctures. **Antennae** (male) inserted at distance anterad eyes of 1.40-1.65X width of frons, at basal 0.33-0.38 of rostrum; antennae (female) 1.55-1.80X width of frons, at basal 0.31-0.33 of rostrum; dorsal margin of scrobes oblique anteriorly. **Eyes** prominent, slightly wider than long. **Pronotum** with basal width 1.05-1.30X length; in doral view roundly expanded to widest point at middle, rounding to constricted apex, basal flanges moderately conspicuous, in some females sides more broadly rounded and basal flanges greatly reduced; in lateral view dorsal surface slightly arcuate, flattened basally and apically; surface with moderately deep punctures, interspaces nearly flat, alutaceous; basal fovea deep, linear, extending 1/3 pronotal length. **Elytra** with basal width 1.25-1.40X pronotal width at base, length 2.35-2.90X pronotal length; striae deep; interstriae 2.0X striae, moderately convex, with 1-2 rows of punctures bearing fine setae, interstria 9 with 1, long specialized seta. **Sterna** relatively densely setose. **Sexual dimorphism** present in rosrum, antennae, pronotum and legs: **prothoracic tarsus** (male) dilated, with dense, long setae on ventral surface; **tibiae** of mesothoracic and metathoracic legs (male) mucronate, mucros on mesothoracic legs dentate ventrally, mucros on metathoracic legs simple, prominent.

Natural History

This species is associated with black locust (*Robinia pseudoacacia*); the adults feed on the leaves of this plant. Females puncture unopened flower buds and oviposit in the holes. All stages of development, eggs, larvae, pupae and adults were reported in punctate buds after they had fallen onto the ground, with usually only one stage of the

insect found in an individual bud (Cotton 1905). Cotton (1905) also documented that development from egg to adult takes only about three weeks, allowing the adults to be active from May to September, prior to overwintering.

In Wisconsin, label data note that a specimen was, “feeding on locust”.

Phenology

In Wisconsin, adults have been collected from May to July.

Collecting Methods

In Wisconsin, **13 specimens** have been collected from five counties. This species is most likely collected by beating black locust. It is also likely collected by rearing from black locust buds.

Species Distribution

This species has previously been recorded from Barron, Richland, Rock, and Waupaca counties (Kissinger 1959, Kissinger 1968, O’Brien and Wibmer 1982, Downie and Arnett 1996, Sauer 2005).

Additional Wisconsin County Records: Dane.

North America: United States: AL, AR, DC, GA, IA, IL, IN, KS, LA, MA, MD, MS, NC, NH, NJ, NY, OH, PA, SC, TN, VA, VT, WI, WV.

***Trichapion patruele* (Smith)**

[Figures 165, 166; Map 62]

Apion patruele Smith 1884: 64.

Apion (*Trichapion*) *patruele* (Smith); Kissinger 1968: 97.

Trichapion patruele (Smith); Alonso-Zarazaga 1990: 116.

Species Diagnosis

Trichapion patruele can be distinguished by having the rostrum not expanded at the antennal insertions in dorsal view, by the oblique anterior dorsal margin of the scrobes, curved rostrum, robust body, frons that has a deep median sulcus and 1 lateral row of confluent punctures, and by the strongly dentate mucros in males.

Species Description

Length 1.56-2.18mm. **Body** robust. **Integument** black. **Vestiture** consisting of fine, sparse, white setae that are coarser and denser laterally on mesothoracic and metathorax. **Head** with ventral surface lacking lateral ridges. **Rostrum** (male) stout, 1.29-1.45X pronotal length, slightly curved; in dorsal view not expanded laterally antennal insertions, apical 1/3 nearly cylindrical, more coarsely punctate laterally, with 1 row of confluent punctures above antennal insertions, punctures to near tip bearing minute setae; rostrum (female) 1.42-1.55X pronotal length, moderately strongly curved; in dorsal view nearly cylindrical anterad antennal insertions, finely, sparsely punctate apically, punctures bearing minute setae. **Frons** 1.00-1.35X dorsal rostral tip, with deep median sulcus and 1 lateral row of somewhat confluent punctures. **Antennae** inserted at distance in front of eye equal to, to slightly greater than width of frons, (male) between basal 0.21-0.24 of rostrum, (female) between basal 0.20-0.21 of rostrum; dorsal margin of scrobes oblique anteiorly. **Eyes** moderately prominent, nearly round. **Pronotum** with basal width 1.1-1.5X length, middle narrower than base, apex 0.7X width at base; basal flanges moderately distinct, sides beyond basal flanges nearly parallel to middle, rounded to constricted apex; in lateral view dorsal surface slightly arcuate; surface with punctures moderately deep, interspaces alutaceous. **Elytra** with basal width 1.18-1.67X pronotal

width at base, 2.65-3.00X pronotal length; striae deep, fine; interstriae 2.0X strial width, distinctly convex, generally with 1 row of fine setae, interstria 9 with 1, long specialized seta. **Scutellum** triangular. **Sexual dimorphism** present in rostrum, antennae and legs: **tibiae** of mesothoracic and metathoracic legs (male) mucronate; mucro on mesothoracic legs dentate, mucro on metathoracic legs also dentate, but more slender and shorter.

Natural History

This species is associated with groundnut (*Apios americana*). Adults are often found on the foliage of this plant, while larvae develop within the flower buds.

Phenology

In Wisconsin, adults have been collected in June, July, and September.

Collecting Methods

In Wisconsin, **18 specimens** were examined during this study from five counties, forming a total of six county records. This species is likely collected by sweeping prairie or fields where groundnut is present.

Species Distribution

This species has previously been recorded from Green Lake County (Kissinger 1968, O'Brien and Wibmer 1982, Downie and Arnett 1996).

Additional Wisconsin County Records: Buffalo, Grant, Iowa, Jackson,Vernon.

North America: United States: AL, CT, DC, FL, GA, IL, IN, KS, MA, MD, MI, MO, MS, NC, NJ, NY, OH, PA, RI, TN, TX, VA, WI, WV.

***Trichapion perforicolle* (Fall)**

[Figures 167, 168; Map 63]

Apion perforicolle Fall 1898: 144.

Trichapion perforicolle (Fall); Alonso-Zarazaga 1990: 116.

Species Diagnosis

Trichapion perforicolle can be distinguished by having the vestiture denser laterally on mesothorax and metepisternum, rostrum expanded at antennal insertions in dorsal view, middle of the pronotum about as wide as base, inconspicuous basal flanges (in dorsal view sides with minute basal expansion), by the deep basal fovea that extends about 1/3 the length of the pronotum, and by the triangular scutellum.

Species Description

Length 1.8-2.4mm. **Body** moderately robust. **Integument** black, elytra faintly aeneous. **Vestiture** consisting of rather coarse, sparse, white setae that are denser laterally on mesothorax and metepisternum. **Head** with ventral surface lacking lateral margins. **Rostrum** (male) 1.25-1.44X pronotal length, slightly, evenly curved; in dorsal view expanded laterally at antennal insertions, apical 1/2 nearly cylindrical; surface more coarsely punctate above antennal insertions, and more finely punctate dorsally, apical 1/3 polished; rostrum (female) 1.32-1.47X pronotal length, similar to that of male. **Frons** 1.4-1.45X dorsal rostral tip. **Antennae** inserted at distance in front of eyes equal to or slight greater than width of frons; anteriodorsal aspect of scrobes oblique. **Eyes** moderately prominent, nearly round. **Pronotum** with basal width 1.10-1.33X length, width at middle subequal to base; basal flanges present but inconspicuous, sides beyond minute basal expansion slightly expanded medially, then rounded apically, not constricted at apex; in

lateral view dorsal surface slightly arcuate, surface with punctures deep, interspaces strongly alutaceous; basal fovea deep, narrow, extending about 1/3 the length of the pronotum. **Elytra** length 1.22-1.33X width; striae moderately deep, fine; interstriae 2.0X strial width, nearly flat, with 1 row of fine setae, interstriae 9 with 1, long specialized seta. **Scutellum** triangular. **Sexual dimorphism** present: **tibiae** of mesothoracic and metathoracic legs (male) with subdentate mucros.

Natural History

This species has been recorded from goat's rue (*Tephrosia virginiana*), spiked hoarypea (*Tephrosia spicata*), leadplant (*Amorpha canescens*), prairie junegrass (*Koeleria macrantha*) and, in general, species of *Tephrosia. Trichapion perforicolle* can found in very sandy sites, such as beaches, sand prairies, and sandy oak barrens.

Phenology

In Wisconsin, adults have been collected from May to August.

Collecting Methods

In Wisconsin, **17 specimens** were examined during this study from six counties, forming a total of eight county records. Label data for one specimen indicated, "collected from prairie species in oak opening", and another was collected by "sweeping grass". This species is most likely collected by sweeping sandy prairie areas.

Species Distribution

This species has previously been recorded from Adams, Dunn, Grant, La Crosse, Marquette, Sauk, and Sawyer counties (Sauer 2005).

Additional Wisconsin County Records: Iowa.

North America: United States: AL, DC, FL, GA, IN, LA, MS, NC, NJ, SC, WI.

***Trichapion porcatum* (Boheman)**

[Figures 169, 170; Map 64]

Apion porcatum Boheman 1839: 374.

Apion (*Trichapion*) *porcatum* (Boheman); Kissinger 1968: 99.

Trichapion porcatim (Boheman); Alonso-Zarazaga 1990: 116.

Species Diagnosis

Trichapion porcatum can be recognized by the large size (the only larger species within *Trichapion* is *T. rostrum*), and by the interstriae that are strongly convex and slightly wider than the striae.

Species Description

Length 2.46-3.00mm. **Body** robust. **Integument** black. **Vestiture** consisting of inconspicuous, very fine, white, uniform setae. **Rostrum (**male) 1.23-1.35X pronotal length, slightly cylindrical, surface moderately punctate, finely alutaceous; rostrum (female) 1.35-1.47X pronotal length, similar to that of male except more slender and punctures sparser and finer. **Frons** 1.1-1.2X dorsal rostral tip, median area wide, bearing shallow depression and 1 lateral line of punctures. **Antennae** inserted between basal 0.2 and 0.3 of rostrum. **Eyes** prominent, nearly round. **Pronotum** width at base 1.2-1.4X length; basal flanges moderately conspicuous; sides slightly arcuate medially from base, rounded to constricted apex; disc slightly and evenly convex, surface with deep punctures, interpuncture spaces irregular, alutaceous. **Elytra** with length 1.2-1.3X width; striae deep, surface with coarse punctures; interstriae strongly convex, slightly wider than striae, each interstria with 1 row of moderate punctures bearing inconspicuous setae,

interstria 9 with 1 long specialized seta. **Sexual dimorphism** present in rostrum and legs: **tibiae** of mesothoracic and metathoracic legs (male) with slender, dentate mucros.

Natrual History

This species is associated with black locust (*Robinia pseudoacacia*). One specimen was taken from prairie dropseed (*Sporobolus heterolepis*) on a very small prairie remnant heavily encroached upon by black locust. This species is best viewed as a non-prairie associate (Sauer 2005).

Phenology

In Wisconsin, the only specimen collected was found in July.

Collecting Methods

In Wisconsin, **1 specimen** was examined during this study in Fond du Lac County. *Trichapion porcatum* is most readily collected by beating black locust.

Species Distribution

This species has previously been recorded from Fond du Lac County (Sauer 2005).

North America: United States: DC, IA, IL, IN, GA, KY, MA, MD, ME, MO, NC, NE, NH, NJ, NY, OH, PA, SC, TN, VA, VT, WI, WV

***Trichapion reconditum* (Gyllenhal)**

[Figures 171, 172, 173, 174; Map 65]

Apion reconditum Gyllenhal 1839: 132.

Apion turbulentum Smith 1884: 56.

Apion (*Trichapion*) *reconditum* (Gyllenhal); Kissinger 1968: 100.

Trichapion reconditum (Gyllenhal); Alonso-Zarazaga 1990: 116.

Species Diagnosis

Trichapion reconditum can be recognized by the flat elytral interstriae, antennal scrobes evenly descending, the relatively small size, vestiture denser laterally on mesothorax and metepisternum (similar to *T. patruele* and *T. perforicolle* , but the vestiture in this area is the densest in *T. patruele*), and by the slightly metallic integument.

Species Description

Length 1.5-2.1mm. **Body** moderately robust. **Integument** black, with slight metallic sheen. **Vestiture** consisting of fine, sparse, white setae that are denser laterally on mesothorax and metepisternum. **Rostrum** (male) 1.4-1.6X pronotal length, moderately, evenly curved; sides in dorsal view slightly dilated laterally and ventrally at antennal insertions, narrowing medially, apical half nearly cylindrical; surface with lateral rows of strong punctures and fine, sparse dorsal punctures, apex smoother; rostrum (female) 1.5-1.7X pronotal length, evenly, moderately curved; sides in dorsal view slightly dilated laterally at antennal insertions, apical 2/3 nearly cylindrical; surface finely punctate and shining anterad antennal insertions. **Frons** 1.0-1.3X dorsal rostral tip, surface with a broad, median, V-shaped sulcus and 1 lateral row of deep, confluent punctures. **Antennae** inserted between basal 0.2-0.3 of rostrum, scrobes with dorsal margin evenly descending. **Eyes** slightly prominent. **Pronotum** with basal width 1.2-1.3X length; basal flanges moderately conspicuous; sides in dorsal view nearly parallel medially, rounded to constricted apex; disc nearly flat, surface with deep, irregular punctures, interpuncture spaces flat, shining, alutaceous. **Elytra** with length 1.2-1.3X

width; striae deep, each with 1 row of conspicuous setae; interstriae wider than striae, flat, smooth, with 1 row of fine punctures bearing inconspicuous setae, interstria 9 with 1, specialized seta. **Sexual dimorphism** present in rostrum and legs: **tibiae** of mesothoracic and metathoracic legs (male) mucronate.

Natural History

This species has been reported to be swept from dogbane (*Apocynum* spp.), rose (*Rosa* spp.) and cherry (*Prunus* spp.). It has also been collected from flowers of red osier dogwood (*Cornus sericea*), on leaves of prairie dock (*Silphium terebinthinaceum*), in loments of tick-trefoil (*Desmodium* spp.), on flower buds of showy tick-trefoil (*Desmodium canadense*), and from smooth small-leaf ticktrefoil (*Desmodium marilandicum*), Illinois ticktrefoil (*Desmodium illinoense*), purple prairie clover (*Dalea purpurea*), paper birch (*Betula papyrifera*), bush clover (*Lespedeza* spp.), sunflower (*Helianthus* spp.), prairie cordgrass (*Spartina pectinata*), golden zizia (*Zizia aurea*), compass plant (*Silphium laciniatum*), prairie dropseed (*Sporobolis heterolepis*), and big bluestem (*Andropogon gerardii*).

This species is generally associated with mesic sites.

Phenology

In Wisconsin, adults have been collected from May to October.

Collecting Methods

In Wisconsin, **176 specimens** were examined from 21 counties, forming a total of 22 county records. This species is most readily collected by sweeping prairies. It has also been reared from tick-trefoil (*Desmodium* spp.).

Species Distribution

This species has previously been recorded from Columbia, Dane, Grant, Green, Jefferson, Kenosha, Milwaukee, Rock, Sawyer, Walworth, Waukesha, and Winnebago counties (O'Brien and Wibmer 1982, Downie and Arnett 1996, Sauer 2005).

Additional Wisconsin County Records: Calumet, Dodge, La Crosse, Menominee, Ozaukee, Pepin, Sauk, Sheboygan, Trempealeau, Wood.

North America: United States: AL, AR, CT, DC, FL, GA, IA, IL, IN, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, NE, NH, NJ, NY, OH, PA, TN, TX, VA, WI, WV. **Canada:** ON, PQ.

Trichapion roseae (Kissinger)

[Figures 175, 176; Map 66]

Apion aeneipenne Smith 1884: 61 (homonym of *A. aeneipenne* Pascoe 1883)

Apion smithi Wagner 1909: 767 (homonym of *A. smithi* Scudder 1893)

Apion roseae Kissinger 1963: 21.

Apion (*Trichapion*) *roseae* (Kissinger); Kissinger 1968: 110

Trichapion roseae (Kissinger); Alonso-Zarazaga 1990: 116.

Species Diagnosis

Males of *T. roseae* can easily be recognized by secondary sexual characters: the 1st abdominal ventrite has a basal median tubercle, and all tibiae are mucronate (the mucros on the prothoracic tibiae may be minute). Both sexes can be distinguished by the piceous to reddish legs, by the pronotum that is distinctly wider in the basal 1/3 than at the base, by the distinctly convex dorsal pronotal surface in lateral view, absence of basal

flanges, frons wider than the dorsal rostral tip, and by the basitarsus that is longer than tarsomere 2.

Species Description

Length 2.1-2.5 mm. **Body** slender. **Integument** black, with strong aeneous luster; femora, tibiae and antennae reddish-brown. **Vestiture** consisting of white setae. **Head** with dorsal margin slightly ascending posteriorly; ventral surface with low lateral margins extending to middle of eyes. **Rostrum** with length 0.93-1.15X pronotal length, in lateral view moderately curved, sides nearly parallel in apical 1/3, depressed slightly at apex; in dorsal view sides slightly expanded at antennal insertions, slightly expanded in apical 1/4; surface finely, sparsely punctate, coarsely alutaceous, polished apically, vestiture anterad antennal insertions fine, sparse. **Frons** wider than dorsal rostral tip. **Antennae** inserted near basal 0.25-0.3 of rostrum; dorsal margin of scrobes slightly oblique. **Eyes** slightly prominent. **Pronotum** with basal width 1.00-1.13X length, width at apex 0.8-0.87X basal width, basal 1/3 distinctly wider than base; basal flanges absent; sides slightly expanding medially, rounded to constricted apex; in lateral view dorsal margin moderately convex, flattened basally and apically; surface with deep punctures; basal fovea moderately deep, narrow. **Elytra** with basal width 1.4-1.5X pronotal width at base, length 2.5-2.7X pronotal length, around 1.4-1.5X width; striae fine, deep, joining apically as follows: 1+2+9, 3+4, 5+6, 7+8; interstriae about 2.0X strial width, flat to distinctly convex, smooth, with 1-2 rows of fine punctures bearing setae, apex of setae reaching base of next setae in series, interstriae 7 and 9 each with 1, specialized seta. **Sterna** deeply, coarsely, densely punctate. **Sexual dimorphism** distinct in legs and

prothoracic sternum: **tibiae** of all legs (male) mucronate; **prothoracic sternum** (male) with median basal region tuberculate.

Natural History

Adults have been recorded feeding on leaves of tick-trefoil (*Desmodium* spp.); they have also been recorded on sunflowers (*Helianthus* spp.) though Kissinger (1968) considered that association resulted from a misidentification.

Phenology

In Wisconsin, the only specimen collected was found in June.

Collecting Methods

In Wisconsin, the **1 specimen** examined during this study from Dane County represents a **NEW STATE RECORD**. *T.roseae* is likely collected by sweeping prairie.

Species Distribution

Wisconsin County Records: Dane.

North America: United States: AL, DC, GA, IA, IL, IN, LA, MD, MO, MS, NC, OH, SC, TN, WI.

***Trichapion rostrum* (Say)**

[Figures 12, 177, 178; Map 67]

Apion rostrum Say 1826: 253.

Apion (*Trichapion*) *rostrum* (Say); Kissinger 1968: 90.

Trichapion rostrum (Say); Alonso-Zarazaga 1990: 116.

Species Diagnosis

Trichapion rostrum is easily recognized by its large size and by the strial setae that are coarser than those on the interstriae.

Species Description

Length 3.0-3.5mm. **Body** robust. **Integument** black. **Vestiture** consisting of fine, sparse, white setae that are coarser laterally on mesothoracic and metathorax. **Rostrum** (male) 1.1-1.4X pronotal length, evenly, slightly curved, sides in dorsal view moderately expanded over antennal insertions, narrowed to apical 1/3; surface with shallow sculpture, moderately punctate throughout, more shining apically, with sparse setae; rostrum (female) 1.4-1.6X pronotal length, moderately curved, sides in dorsal view narrowed from antennal insertions to middle; surface with moderate, shallow punctures in basal 2/3, apical 1/3 smoother, alutaceous. **Frons** 1.2-1.4X dorsal rostral tip, with deep, median impression and 1 lateral line of coalesced punctures. **Antennae** inserted at basal 0.3 of rostrum (male), between basal 0.2-0.3 of rostrum (female); dorsal margin of scrobes nearly evenly descending. **Eyes** prominent, nearly round to slightly oval. **Pronotum** with basal width 1.2-1.3X length; basal flanges present but poorly developed; sides arcuate medially, converging to slightly constricted apex; disc moderately convex, surface with deep punctures, interpunctures spaces cariniform, alutaceous, convex. **Elytra** with length 1.3-1.4X width; striae deeply impressed; interstriae flat, about 2.0X strial width, each interstria with 1 row of fine punctures bearing fine setae, interstria 9 with 1, long specialized seta. **Sexual dimorphism** present in rostrum and legs: **tibiae** of mesothoracic and metathoracic legs (male) mucronate.

Natural History

This species is most frequently associated with white wild indigo (*Baptisia alba*). Adults are often found on leaves, flowers, stems, and inside seedpods, while larvae and pupae are found inside seedpods. Adults feed on the leaves while larvae feed on the seeds. Other plant associations include cream indigo (*Baptisia bracteata*), horseflyweed (*Baptisia tinctoria*), longbrack wild indigo (*Baptisia leucophaea*), and white false indigo (*Baptisia lacteal*).

This species is mostly associated with prairies, but it has also been recorded from oak-savannas, oak openings, and floodplain grasslands.

Phenology

In Wisconsin, adults have been collected from April to November.

Collecting Methods

In Wisconsin, **174 specimens** were examined during this study from 14 counties, forming a total of 16 county records. *Trichapion rostrum* is readily collected by sweeping prairies, including dry, mesic, pasture, sand, and wet riparian prairies. It has also been often hand-collected from white wild indigo, as well as reared from the seed pods of the same plant.

Species Distribution

This species has previously been recorded from Columbia, Crawford, Dane, Dunn, Grant, Iowa, Monroe, Richland, Rock, Sauk, and Waupaca counties (Blatchley and Leng 1916, Tuttle 1954, Kissinger 1968, O'Brien and Wibmer 1982, Sauer 2005).

Additional Wisconsin County Records: Adams, Milwaukee, Ozaukee, Richland, Waukesha.

North America: United States: AL, CT, DC, FL, GA, IA, IL, IN, KS, LA, MA, MD, MI, NC, NH, NJ, NY, OH, PA, RI, SC, TX, VA, VT, WI, WV.

***Trichapion tenuirostrum* (Smith)**

[Figures 179, 180, 181, 182; Map 68]

Apion tenuirostrum Smith 1884: 62.

Apion (*Trichapion*) *tenuirostrum* (Smith); Kissinger 1968:115.

Trichapion tenuirostrum (Smith); Alonso-Zarazaga 1990: 116.

Species Diagnosis

Trichapion tenuirostrum can be recognized by the vestiture that is denser along elytral interstria 3, absence of a basal flanges, and by all pairs of legs that are mucronate (males).

Species Description

Length 2.1-2.34mm. **Body** moderately slender. **Integument** black, elytra with aeneous luster. **Vestiture** conspicuous, consisting of coarse, white setae arranged in a distinct pattern on elytra, denser and more uniformly arranged laterally and ventrally; setae along interstria 3 denser. **Head** in lateral view with dorsal margin slightly declivitous above posterior margin of eyes; ventral surface nearly flat. **Rostrum** (male) 1.16-1.33X pronotal length, in lateral view slightly curved, sides nearly parallel in apical 1/3, depressed slightly at apex; in dorsal view sides minutely expanded at antennal insertions, nearly parallel in apical 1/2, basal surface alutaceous, with sparse setae, polished anterad antennal insertions, nearly glabrous, with deep, fine, elongate punctures becoming finer apically; rostrum (female) 1.48-1.56X pronotal length, similar to that of

male. **Frons** 1.0-1.2X dorsal rostral tip. **Antennae** (male) inserted at basal 0.26-0.28 of rostrum, (female) at basal 0.22-0.24 of rostrum, in both sexes at distance in front of eyes 1.46-1.70X width of frons; dorsal margin of scrobes slightly oblique anteriorly, minutely dentate. **Eyes** slightly prominent. **Pronotum** at base very slightly longer than wide to slightly wider than long, sides weakly arcuate from base medially, rounded to slightly constricted apex; basal flanges absent; disc slightly convex, surface with deep punctures bearing coarse setae, interpuncture space smooth, much narrower than diameter of punctures. **Elytra** with length 1.6X width; striae fine, moderately deep; interstriae variable in width, narrowed basally, convex, smooth, interstriae 1 and 2 with 1 irregular row of fine setae, interstria 3 with 2-3 rows of coarse setae, interstria 9 with 1, long specialized setae. **Sexual dimorphism** present in rostrum and legs: **tibiae** of all legs mucronate (male).

Natural History

This species is associated with white prairie clover (*Dalea candida*), purple prairie clover (*Dalea purpurea*), and foxtail prairie clover (*Dalea leporina*). It has also been reared from seeds of white prairie clover (*Dalea candida*). Some specimens were swept from prairie areas where prairie dropseed (*Sporobolus heterolepis*), little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), and Indiangrass (*Sorghastrum nutans*) were present.

Trichapion tenuirostrum is primarily associated with prairies, including bluff, native, sand, mesophytic, dry, mesic, and dry-bluff prairies.

Phenology

In Wisconsin, adults have been collected from June to September and November.

Collecting Methods

In Wisconsin, **39 specimens** were examined during this study from 10 counties, forming a total of 12 county records. This species can be collected by sweeping prairies, especially where clovers are present. It has also been reported from areas with prairie dropseed, little bluestem, big bluestem, and Indian grass.

Species Distribution

Trichapion tenuirostrum has previously been recorded from Buffalo, Columbia, Dane, Grant, Kenosha, La Crosse, Lafayette, Rock, Sauk, Walworth, Waukesha, and Winnebago counties (Sauer 2005).

North America: United States: AZ, CO, IA, KS, MT, ND, NE, NM, TX, WI. **Canada:** AB, MB, SA. **Mexico:** BJ.

Tribe Piezotrychelini Voss 1959

Genus *Fallapion* Kissinger

Apion (*Fallapion*) Kissinger 1968: 129.

Fallapion Kissinger 1992: 66.

Type species: *Apion impunctistriatum* Smith, 1884, by original designation.

Generic Diagnosis

Males of *Fallapion* can be easily recognized by the polished area on the anterioventral side of the prothoracic femora. Species of *Fallapion* can also be recognized by the absence of basal flanges, fine vestiture, and by the strong sexual dimorphism in the rostrum.

Generic Description

Length 1.7-2.8mm. **Integument** dark, generally with distinct brassy luster; **vestiture** consisting of fine, sparse setae; ventral surface of **head** with low lateral ridges extending posteriorly to middle of eyes; **rostrum** with strong sexual dimorphism; **pronotum** without basal flanges; **elytra** with striae varying from fine to coarse, joining apically as follows: 1+2+9, interstria 9 with 1 speciazlied seta; **abdominal ventrites** 1 and 2 with suture in between fine but distinct; **basitarsus** distinctly longer than wide; **sexual dimorphism** marked in rostrum, legs and metathoracic sternum: **prothoracic femora** (male) with polished area on anterioventral region limited posteriorly usually by raised carina; **tibiae** of mesothoracic and metathoracic legs (male) mucronate; **metathoracic sternum** (male) with 1 pair of spicules.

Generic Distribution

Fallapion occurs in Canada, USA, and Mexico (Alonso-Zarazaga and Lyal 1999). Seven species are found in Wisconsin.

Key to the Species of Wisconsin *Fallapion*

1. Abdominal ventrites coarsely and deeply punctate …..…….. **2**

1′. Abdominal ventrites finely and sparsely punctate, shallow or deep ……..…… **3**

2. Shiny area of prothoracic femora (male) with large, prominent, pointed tubercle; femora black ……. ***Fallapion impunctistriatum* (Smith)**

2′. Shiny area of prothoracic femora (male) moderately swollen, without pointed tubercle; femora reddish-brown …..…… ***Fallapion impeditum* (Fall)**

3. Femora much paler than elytra; body slender, elytra elongate, length 2.2-2.8mm,

rostrum (female) long, 1.9-2.0X longer than pronotum; polished area of prothoracic femora (male) with fine, distinct striae, each separated by 5.0X their length …….. ……..…….. ***Fallapion occidentale*** **(Fall)**

3′. Femora usually black, sometimes slightly paler than elytra; body variable, elytra not as elongate, size usually smaller; rostral length of females variable; prothoracic femora of male with polished area variable …… **4**

4. Prothoracic tibiae (male) strongly expanded apically …… ***Fallapion finitimum*** **(Fall)**

4′. Prothoracic tibiae not strongly expanded apically …… **5**

5. Frons convex; prothoracic femora (male) with polished area finely striated, with limiting ridge low and nearly straight ……...…. ***Fallapion bischoffi*** **(Fall)**

5′. Frons not convex; prothoracic femora (male) with polished area variable ….…….. **6**

6. Body relatively robust; rostrum long; prothoracic femora (male) not swollen, polished area either without striae or with faint striae near limiting carina …… …….. ***Fallapion pennsylvanicum*** **(Boheman)**

6′. Body relatively slender; rostrum shorter and stouter; prothoracic femora (male) protuberant, polished area densely striate ……..… ***Fallapion melanarium*** **(Gerstaecker)**

Fallapion bischoffi **(Fall)**

[Figures 183, 184, 185, 186; Map 69]

Apion bischoffi Fall 1925: 86.

Apion atripes Fall 1898: 116 (misidentification, in part; homonym of *Apion atripes* Smith 1884).

Apion (*Fallapion*) *bischoffi* (Fall); Kissinger 1968: 131.

Fallapion bischoffi (Fall); Kissinger 1992: 66.

Species Diagnosis

Fallapion bischoffi can be distinguished from the other *Fallapion* species by the strongly convex frons, robust body with elytra 1.1-1.3X longer than wide, strongly curved rostrum distinctly expanded at the antennal insertions, and by the eyes that are distinctly longer than wide. Additionally, males are easily recognized by the slightly swollen prothoracic femora with a ventrolateral polished area that is finely striated, extends 1/3 the length of the femur, and has a low and nearly straight lateral limiting margin.

Species Description

Length 1.7-2.1mm. **Body** moderately robust. **Integument** black. **Vestiture** consisting of very fine, sparse setae. **Rostrum** (male) moderately strongly curved, 1.2-1.3X pronotal length; sides in dorsal view nearly parallel beyond middle, distinctly expanded at antennal insertions; surface minutely punctate, basal 2/3 coarsely alutaceous, more polished apically, setae minute at base, short, erect, very sparse anterad antennal insertions; rostrum (female) strongly curved, 1.3-1.4X pronotal length; sides in dorsal view slightly expanded at antennal insertions, slightly converging apically, slightly expanded at apex; surface sparsely, finely punctate, finely alutaceous on basal 3/4, polished apically, setae minute at base, short and sparse anterad antennal insertions. **Frons** convex, (male) width 1.2-1.4X dorsal rostral tip, (female) 1.4-1.6X dorsal rostral tip. **Antennae** inserted between basal 0.2-0.3 of rostrum. **Eyes** prominent, distinctly longer than wide. **Pronotum** with basal width 1.0-1.2X length, sides arcuate, widest near middle, converging to weakly constricted apex; basal flanges absent; disc convex,

flattened apically, surface with fine punctures bearing fine setae. **Elytra** with length 1.1-1.3X width; striae deep, fine; striae joined apically as follows: 1+2+ 9, 7 + 8, ending in deep puncture; interstriae > 2.0X strial width, slightly convex, each interstria with 1-2 partially confused rows of punctures bearing fine setae. **Sexual dimorphism** distinct in rostrum and legs: **prothoracic femora** (male) slightly swollen, with area polished and finely striated, extending 0.3X length of femur, lateral limiting ridge of polished area low, nearly straight; **tibiae** of mesothoracic and metathoracic legs (male) mucronate.

Natural History

Generally, *Fallapion* species are is associated with plants of the families Asteraceae and Umbelliferae. *Fallapion bischoffi* is generally associated with wet-mesic prairies (Sauer 2005).

Phenology

In Wisconsin, adults have been collected from May to October.

Collecting Methods

In Wisconsin, **11 specimens** were examined from six counties, forming a total of seven county records. This species is most likely collected by sweeping wet-mesic prairies.

Species Distribution

This species has previously been recorded from Green Lake, Iowa, Juneau, and Kenosha counties (Sauer 2005).

Additional Wisconsin County Records: Ashland, Waukesha, Wood.

North America: United States: DC, FL, IL, MA, MD, ND, NJ, NY, PA, TX, VA, WI.

***Fallapion finitimum* (Fall)**

[Figures 187, 188; Map 70]

Apion finitumum Fall 1898: 116.

Apion (*Fallapion*) *finitimum* (Fall); Kissinger1968: 135.

Fallapion finitimum (Fall); Kissinger 1992: 66.

Species Diagnosis

Fallapion finitimum can be recognized by the striated frons, relatively smaller size, and by the rostrum that is distinctly expanded at the antennal insertions. Males can be easily recognized by the apically strongly widened prothoracic tibiae, and by the swollen prothoracic femora with a ventrolateral polished area that has coarse, dense, uniform striae and a nearly straight limiting ridge. Females can also be recognized by the rostrum that is 1.6-2.2X longer than the pronotum. *Fallapion finitimum* is extremely similar to *Fallapion diffractum* (Fall), which is not confirmed from Wisconsin but occurs in nearby Illinois. Both species have segment 1 of the antennal funiculus similarly enlarged and clothed with large setae. However, males of *F. diffractum* have striae on the polished area on the ventral surface of the prothoracic femora somewhat closer together than those of *F. finitimum*, the lower margins of the prothoracic femora are more strongly prominent than in *F. finitimum*, and the posterior limiting ridge is distinctly reduced in *F. diffractim*, but is very prominent in *F. finitimum.*

Species Description

Length 1.7-2.1mm. **Body** moderately slender. **Integument** black, legs sometimes slightly lighter. **Vestiture** consisting of very fine, minute, sparse setae. **Rostrum (**male) moderately curved, 1.1-1.2X pronotal length; sides in dorsal view nearly

parallel beyond middle, slightly depressed apically, distinctly expanded at antennal insertions; surface finely and sparsely punctate apically, coarsely alutaceous near antennal insertions, finely alutaceous elsewhere; rostrum (female) moderately curved, 1.6-2.2X pronotal length; sides in dorsal view gradually converging anterad antennal insertions; surface in basal 3/4 finely alutaceous, with fine, sparse, slightly elongate punctures, polished apically, nearly impunctate. **Frons** striated, 1.3-1.6X dorsal rostral tip. **Antennae** inserted at basal 0.3 of rostrum. **Eyes** moderately convex. **Pronotum** with width 0.9-1.0X length, sides in basal 1/3 slightly converging, expanding to apical 4/5, then narrowing to slightly constricted apex; basal flanges absent; disc slightly convex, surface with deep punctures bearing fine setae. **Elytra** with length 1.3-1.5X width; striae deep, with moderately coarse punctures; interstriae about 2.0X strial width, flat, slightly narrowed basally, each interstria with 1 row of randomly placed minute punctures, these bearing setae similar to those in pronotum. **Sexualy dimorphism** distinct: **prothoracic femora** (male) strongly swollen, polished area with nearly straight limiting ridge, extending about 0.4X femoral length; ventral surface of polished area striated, striae distinct, coarse, dense, uniform; **prothoracic tibiae** (male) strongly widened apically; mesothoracic and metathoracic tibiae (male) mucronate.

Natural History

This species is associated with sedges (*Carex* spp.) (Bright 1993) abd is, therefore, generally associated with marshy habitats.

Phenology

In Wisconsin, adults have been collected from July to September.

Collecting Methods

In Wisconsin, **5 specimens** were examined during this study from five counties, forming a total of six county records. One specimen was collected by beating dead leaves at the Renak-Polak Maple Beech Woods State Natural Area in Racine County. In general, *F. finitimum* is likely collected by sweeping marshy habitats where sedges are present.

Species Distribution

This species has previously been recorded from Dodge County (O'Brien and Wibmer 1982, Downie and Arnett 1996, Kissinger 1968).

Additional Wisconsin County Records: Grant, Iowa, Racine, Walworth, Winnebago.

North America: United Stats: DC, ID, IN, MA, ME, MI, ND, NJ, NY, WA, WI **Canada:** BC, MB, ON, PQ, SA.

***Fallapion impeditum* (Fall)**

[Figures 189, 190; Map 71]

Apion impeditum Fall 1898: 113.

Fallapion impeditum (Fall); Kissinger 1992: 66.

Species Diagnosis

Fallapion impeditum can be recognized by the reddish-brown legs and antennae, and coarsely, deeply punctate abdominal ventrites. Males can also be recognized by the moderately protuberant prothoracic femora with the ventral polished area exhibiting a reduced lateral ridge, and distinct elytral striae separated by about 5.0X the their width. Females may be easily confused with those of *Fallapion anceps* (Fall), a species not

known to occur in Wisconsin recorded from Illinois. However, *F.impeditum* females have a longer rostrum (1.45-1.56X pronotal length – 1.36X in *F. anceps*), antennae inserted at a distance 1.5-1.75X the width of frons (about the width of frons in *F. anceps*), and by the pronotum that is longer than wide.

Species Description

Length 1.80-2.25mm. **Body** slender. **Integument** black, legs and antennae reddish brown. **Vestiture** consisting of sparse, very fine, white, uniform setae. **Head** with dorsal margin slightly prominent above posterior margin of eyes. **Rostrum** (male) 1.3X pronotal length, in lateral view moderately curved, sides nearly parallel in apical 1/2, may be narrowest at middle; in dorsal view sides slightly expanded at antennal insertions, narrowed to apical 1/3, slightly expanded apically; coarsely alutaceous to apical 1/3, apex smoother with small pucntures, nearly glabrous anterad antennal insertions; rostrum (female) 1.45-1.56X pronotal length, in lateral view moderatly curved, sides nearly parallel in apical 1/2; in dorsal view sides slightly expanded at antennal insertions and at apex, alutaceous to apical 1/4, smoother apically, with fine punctures, with minute setae anterad the antennal insertions, especially ventrally. **Frons** 1.0-1.18X dorsal rostral tip. **Antennae** inserted between 0.23-0.26 of rostrum at distance in front of eye 1.3X width of frons (male), 1.50-1.75X width of frons (female); dorsal margin of scrobes evenly descending. **Eyes** moderately prominent. **Pronotum** with basal width 1.0-1.06X length, width at apex 0.88-0.92X width at base; sides in dorsal view nearly parallel throughout, slightly constricted apically, basal flanges absent; in lateral view dorsal surface slightly convex; basal fovea moderately deep, nearly a complete line or much shorter. **Elytra** with humeri more or less reduced, width at base

1.32-1.49X pronotal width at base, 2.4-2.6X pronotal length; striae deep, moderately fine; interstriae at middle 2.0X strial width, narrowed basally, with sparse, transverse rugae, with 1 row of minute punctures bearing setae. **Abdominal ventrites** deeply, moderately coarsely punctate. **Sexualy dimorphism** distinct: **prothoracic femora** (male) moderately protuberant, lateral ridge somewhat reduced, nearly straight; polished area about 0.3X length of femur, largely ventral; straie near limiting ridge, strong, very sparse, seperarated by distance 5.0X width of individual stria, becoming slightly denser towards anterior border; t**ibiae** of mesothoracic and metathoracic legs (male) mucronate.

Natural History

One specimen was collected from a sandy inland site (Sauer, 2005), another was collected from cranberries.

Phenology

In Wisconsin, adults have been collected in July and August.

Collecting Methods

In Wisconsin, **3 specimens** were examined during this study from three counties.

Species Distribution

This species has previously been recorded from Sauk County (Sauer 2005).

Additional Wisconsin County Records: Jackson, Sauk, Wood.

North America: United States: AL, CT, DC, IL, IN, MA, MD, NJ, NY, OH, VA, WI, WV. **Canada:** PQ.

***Fallapion impunctistriatum* (Smith)**

[Figures 191, 192; Map 72]

Apion impunctistriatum Smith 1884: 45, 48.

Fallapion impunctistriatum (Smith); Kissinger 1992: 66.

Species Diagnosis

Fallapion impunctistriatum can be recognized by the coarsely, deeply punctate abdominal ventrites, elytral interstriae that are strongly narrowed basally and flat at the middle, and by the frons that is 1.2-1.3X dorsal rostral tip, and that has several shallow, traverse sulci. Females can also be recognized by the long rostrum (1.80-2.13X pronotal length). Males can also be easily recognized by the prothoracic femora that are protuberantly produced with an entirely ventral polished area extending 0.3X femoral length and densely striate, with a low lateral limiting ridge.

Species Description

Length 1.95-2.46mm. **Body** moderately slender. **Integument** black, elytra with strong aeneous luster. **Vestiture** consisting of minute, sparse, uniform setae. **Head** in lateral view with dorsal margin slightly convex over eye, declivitous to point behind posterior margin of eyes. **Rostrum** (male) 1.29-1.41X pronotal length, in lateral view rostrum slightly curved, more strongly so in apical 1/2, sides nearly parallel in apical 1/3, somewhat depressed at apex; in dorsal view sides strongly expanded at antennal insertions, sides very slightly expanded apically; surface in basal 3/4 alutaceous, with sparse, fine, moderately deep punctures, apex nearly impunctate; rostrum (female) 1.80-2.13X pronotal length, in lateral view moderately, nearly evenly curved, sides slightly expanding apically, except depressed medially at apex; in dorsal view sides slightly expanded at antennal insertions, strongly expanded at apex; in basal 3/4 surface finely alutaceous, with fine, sparse, shallow punctures, apex polished, nearly impunctate.

Frons 1.20-1.33X dorsal rostral tip, with several shallow, traverse sulci. **Antennae** (male) inserted at basal 0.30-0.32 of rostrum at distance in front of eyes 1.5-1.6X width of frons, (female) inserted at basal 0.26-0.27 of rostrum at distance in front of eye 2.0X width of frons; dorsal margin of scrobes (male) slightly oblique anteriorly, (female) nearly evenly descending. **Pronotum** with basal width 0.91-0.96X length, width at apex 0.85-0.91X width at base; in dorsal view sides slightly converging beyond base, rounded to widest point near middle, rounded to slightly constricted apex; basal flanges absent; in lateral view dorsal margin slightly convex, flattened basally and apically; basal fovea fine, moderately deep, extends more or less entire length of pronotum. **Elytra** with basal width 1.33-1.40X pronotal width at base, length 2.7-3.0X pronotal length; striae moderately fine, moderately deep; interstriae strongly narrowed basally, at middle flat, > 2.0X strial width, more or less polished, very finely alutaceous, with 1-2 rows of moderately fine punctures bearing setae similar to those on pronotum. **Abdominal ventrites** coarsely, densely punctate. **Sexualy dimorphism** distinct: **prothoracic femora** (male) with inner margin protuberantly produced in apical 1/3; area with lateral limiting ridge moderately low, broad, somewhat arcuate, anterior margin of ridge well behind middle of femur; area slightly less than 0.3X length of femur, nearly entirely ventral, finely, densely striate, striae seperated by width of individual stria; **tibiae** of mesothoracic and metathoracic legs (male) mucronate.

Natural History

Fallapion impunctistriatum is associated with asters such as ragweeds (*Ambrosia* spp.), black-eyed-susans (*Rudbeckia* spp.), and golden asters (*Heterotheca* spp.). The larvae feed in or on seeds of the legumes, as well as leaves and stems of plants and may

cause galls; the adults breed inside the stems of ragweeds and golden asters, and they tend to congregate on the same leaf (Tuttle 1954).

Phenology

In North America, the earliest adults recorded are around February to March in New Jersey (Blatchley and Leng 1916); the peak adult flight period is from mid-May to mid-June. This species has been collected in Wisconsin during May-June, and August to October.

Collecting Methods

In Wisconsin, **18 specimens** were examined during this study from 10 counties. *Fallapion impunctistriatum* likely collected by sweeping fields in marshy areas.

Species Distribution

This species has previously been recorded from Dane County (Sauer 2005).

Additional Wisconsin County Records: Calumet, Dodge, Iowa, Juneau, Milwaukee, Ozaukee, Sauk, Washington, Waukesha, Winnebago.

North America: United States: DC, IA, IL, IN, KS, KY, LA, MD, MO, NJ, NY, OH, PA, SD, TX, VA, WI.

***Fallapion melanarium* (Gerstaecker)**

[Figures 193, 194, 195, 196; Map 73]

Apion melanarium Gerstaecker 1854: 261.

Fallapion impunctistriatum (Gerstaecker); Kissinger 1992: 66.

Species Diagnosis

Fallapion melanarium can be distinguished by the slender body, deeply, sparsely, finely punctate abdominal ventrites, black legs, and by the medium size (2.0-2.5mm). Males can be recognized by the polished area of the prothoracic femora that are protuberant and densely striate. *Fallapion melanarium* may be easily confused with *Fallapion pennsylvanicum* (Boheman) but it can be distinguished by the more slender body and rostrum that tends to be shorter and stouter.

Species Description

Length 2.0-2.5mm. **Body** slender. **Integument** black, antennae slightly paler. **Vestiture** consisting of very fine, sparse, white setae. **Rostrum** (male) 1.3-1.4X pronotal length, moderately curved; sides in dorsal view nearly parallel in apical half, depressed apically, expanded at antennal insertions; surface on basal 2/3 finely alutaceous, finely punctate; apex smooth, with minute setae basad antennal insertions; rostrum (female) 1.5-2.0X pronotal length, moderately curved; sides in dorsal view nearly parallel in apical 1/2, surface on basal 5/6 finely alutaceous, finely punctate; apex smooth, minutely punctate. **Frons** 1.0-1.3X dorsal rostral tip. **Antennae** inserted between basal 0.2-0.3 of rostrum at distance in front of eyes 1.25-1.33X width of frons (male), 1.42-1.77X (female). **Eyes** moderately prominent. **Pronotum** with basal width 1.0-1.1X length, sides slightly converging basally, rounded medially from base, moderately constricted apically; basal flanges absent; disc slighly convex, surface with deep punctures and very fine setae, interpuncture space finely alutaceous. **Elytra** with length 1.4-1.6X width; striae deep, with fine punctures; interstriae >2.0 X strial width, flat to slightly convex, each interstria with 1 row of minute punctures bearing setae similar to those on pronotum. **Sexualy dimorphism** distinct: **prothoracic femora** (male) protuberant,

limiting lateral ridge evident; polished area reflects light, extremely densely striate, individual striae not evident; **tibiae** of mesothoracic and metathoracic legs (male) mucronate.

Natural History

This species is generally associated with *Bidens*, including devil's beggartick (*Bidens frondosa*) and nodding beggartick (*Bidens cernua*). Adults feed on the leaves and the larvae have been dissected from the stems of *Bidens* spp. (Tuttle 1954). They tend to be associated with plants that are found in aquatic or wet habitats.

Fallapion melanarium is univoltine, adults mate in July followed by female oviposition. Larvae feed and mature, reaching the pupal stage in September and overwintering as adults (Tuttle 1954).

Phenology

In Wisconsin, adults have been collected from March to October.

Collecting Methods

In Wisconsin, **22 specimens** were examined during this study from eight counties. This species is most likely collected by sweeping vegetation in marshy areas or other wet habitats.

Species Distribution

Fallapion melanarium has previously been recorded to Dane, Dodge, Jackson, Kenosha, and Langlade counties (Kissinger 1968, O'Brien and Wibmer 1982, Downie and Arnett 1996, Sauer 2005).

Additional Wisconsin County Records: Monroe, Ozaukee, Richland.

North America: United States: DC, GA, IA, IL, IN, KS, MA, MD, MI, MO, NC, ND, NJ, NY, OH, OK, PA, SC, SD, TX, VA, WI. **Canada:** ON.

***Fallapion occidentale* (Fall)**

[Figures 197, 198; Map 74]

Apion occidentale Fall 1898: 123.

Apion (*Fallapion*) *occidentale* (Fall); Kissinger 1968: 142.

Fallapion occidentale (Fall); Kissinger 1992: 66.

Species Diagnosis

Fallapion occidentale can be distinguished by the slender body with elytra 1.6-1.7X longer than wide, prominent elytral humerae, reddish legs, the relatively larger size (2.2-2.8mm), and by the distance between the eyes and antennal insertions greater than the width of frons. Females can be recognizaed by the rostrum that is twice as long as the pronotum. Males can be distinguished by the slightly swollen prothoracic femora with a polished area on the ventrolateral surface having an acute limiting ridge, and the polished area bearing fine striae separated by about 5.0X their width. This species can be rather similar to *F. impunctistriatum* and *F. pennsylvanicum* at first glance, especially the females given the long rostrum, but it can be distinguished by the more slender body, reddish legs, and by the rostrum not as curved in lateral view. It can be further distinguished from *F. impunctistriatum* by the finely, sparsely, deeply punctate sterna (as opposed to coarsely, deeply punctate). Males can be further distinguished from those of *F. pennsylvanicum* by the rostrum that is 1.27-1.35X the pronotal length (1.44-1.53X in *F.pennsylvanicum*), and by the elytral length (> 1.5X longer than wide).

Species Description

Length 2.2-2.8mm. **Body** slender. **Integument** black; antennae and legs paler. **Vestiture** consisting of fine, sparse, white setae. **Rostrum** (male) 1.3X pronotal length, slightly curved; sides in dorsal view slightly expanded at antennal insertions, narrowing to apical 1/3, very slightly expanded at apex; surface alutaceous to apical 1/5, with fine, sparse, minute punctures; setae minute anterad antennal insertions; rostrum (female) approximately 2.0X pronotal length, similar to that of male except basal 4/5 alutaceous, surface finely punctate, smoother, and more finely and sparsely puncured apically. **Frons** (male) 1.0-1.1X dorsal rostral tip, (females) 1.1-1.3X dorsal rostral tip. **Antennae** inserted at basal 1/3 of rostrum. **Eyes** moderately convex. **Pronotum** with basal width about equal to length, sides nearly parallel, slightly constricted apically; disc slightly convex, flattened basally and apically, surface with deep punctures bearing minute setae. **Elytra** with length 1.6-1.7X width; striae moderately deeply impressed, with fine punctures; interstriae about 2.0X strial width, flat to slightly convex, each with 1-2 rows of minute punctures bearing fine setae similar to those on dorsal surface of pronotum. **Abdominal stenra** finely, sparsely, deeply punctate. **Sexual dimorphism** very distinct, in rostrum, frons, and legs: **prothoracic femora** (male) slightly swollen, polished area on ventrolateral surface distinct, with fine striae separated by about 5.0X their width, area with acute limiting ridge; **tibiae** of mesothoracic and metathoracic legs (male) mucronate.

Natural History

This species is associated with sunflowers (*Helianthus* spp.). One specimen was swept from leadplant (*Amorpha canescens*) in an unburned prairie.

Phenology

In Wisconsin, the only specimen collected was found in September.

Collecting Methods

The **1 Wisconsin specimen** examined during this study from Vernon County represents a **NEW STATE RECORD**. It is most likely collected by sweeping prairies.

Species Distribution

Wisconsin County Records: Vernon.

North America: United States: AZ, CA, CO, IA, ID, IL, KS, MO, NE, NM, OK, OR, TX, UT, WI, WY.

***Fallapion pennsylvanicum* (Boheman)**

[Figures 199, 200, 201, 202; Map 75]

Apion pennsylvanicum Boheman 1839: 417.

Apion erythrocerum Smith 1884: 44.

Fallapion pennsylvanicum (Boheman); Kissinger 1992: 66.

Species Diagnosis

Fallapion pennsylvanicum can be recognized by the distance between the eyes and antennal insertions being ≥ the width of frons. Females can be recognized by the long rostrum (1.6-2.4X pronotal length). Males of *F. pennsylvanicum* can be distinguished from those of *F. melanarium* by the prothoracic femora that are not swollen and with the polished area lacking or with but very faint striae occuring near the limiting ridge (in *F.melanarium* the prothoracic femora are slightly swollen on the inner side and the polished area lacks distinct striae). Males of *F. pennsylvanicum* can be distinguished

from males of *F. occidentale* also by the prothoracic femora (*F. occidentale* has fine, distinct striae throughout the polished area); both sexes of *F. pennsylvanicum* can be distinguished from those of *F. occidentale* by the smaller size and the elytral length (1.3-1.4X longer than wide compared to 1.6-1.7X longer than wide in *F. occidentale*). The female rostrum can be up to 2.4X the pronotal length, which is the longest of all *Fallapion* species found in Wisconsin.

Species Description

Length 1.8-2.3mm. **Body** moderately slender. **Integument** black, with light metallic luster. **Vestiture** consisting of very fine, sparse, white setae. **Rostrum** (male) 1.5X pronotal length, slightly curved; sides in dorsal view parallel in apical 1/3, very slightly expanded at antennal insertions, very slightly expanded apically; surface finely alutaceous, punctate in basal 2/3, polished in apical 1/3; rostrum (female)1.6-2.4X pronotal length, moderately curved; sides in dorsal view parallel in apical 1/4, slightly expanded at antennal insertions; surface of basal 3/4 finely alutaceous, with fine, sparse, elongate punctures. **Frons** 1.1-1.4X dorsal rostral tip, with fine, irregular, longitudinal sulci. **Antennae** inserted between basal 0.2-0.3 of rostrum. **Eyes** moderately prominent. **Pronotum** with basal width about 1.0X length, sides slightly converging basally, rounded medially, moderately constricted apically; basal flanges absent; disc slightly convex, flattened basally and apically; surface with moderately deep punctures bearing minute setae, interpuncture space finely alutaceous. **Elytra** with length 1.3-1.4X width; striae moderately fine, moderately deep; interstriae about 2.0X strial width, flat to slightly convex, each with 1-2 rows of minute punctures bearing setae similar to those on pronotum. **Sexual dimorphism** distinct: **prothoracic femora** (male) with inner margin

slightly swollen near apical 1/3; on ventral surface area with limiting ridge distinct, acute, straight, situated at about middle of femur, nearly midway between anterior and posterior ridges of tibial articulations; area extends 1/3 femoral length, generally not striate, rarely with 3-4 very fine, indistinct striae separated by 5.0X their width, located adjacent to the limiting ridge; t**ibiae** of mesothoracic and metathoracic legs mucronate.

Natural History

This species is associated with water hemlock (*Cicuta* spp.), water parsnip (*Berula* spp.), poison hemlock (*Conium maculatum*), watercress (*Nosturtium officinal*), and wild parsnip (*Pastinaca sativa*). It is generally found in mesic areas.

Phenology

In Wisconsin, adults have been recorded from April to July.

Collecting Methods

In Wisconsin, **10 specimens** were examined during this study from six counties. This species is typically collected by sweeping vegetation in wet or aquatic habitats, especially those where water hemlock and water parsnip are present.

Species Distribution

Fallapion pennsylvanicum has previously been recorded from Dane and Oconto counties (Sauer 2005).

Additional Wisconsin County Records: Eau Claire, Fond du Lac, Sauk, Wood.

North America: United States: CA, DC, FL, IA, ID, IL, KS, MA, MD, MI, MN, ND, NJ, NY, OH, OR, PA, SC, WA, WI, WV. **Canada:** BC, MB, ON, SA. **Mexico:** BJ.

Genus *Coelocephalapion* Wagner

Apion (*Coelocephalapion*) Wagner 1914:145.

Coelocephalapion (Wagner); Kissinger 1992: 66.

Type species: *Apion bryanti*, by original designation, Kissinger 1968.

Generic Diagnosis

Coelocephalapion can be recognized by the relatively stout rostrum that is not or but weakly expanded at the antennal insertions, relatively sparse vestiture, and by the general lack of basal flanges (indistinct or slightly distinct in Wisconsin species). The tibiae (male) lack mucros and the genitalia have the free ring of the basal piece fused with the tegmen of the paramere. In contrast, males of *Trichapion* have mucronate mesothoracic tibiae and a distinct articulation between the free ring and the tegminal plate.

Generic Description

Length 1.5-2.0mm. **Integument** generally black, antennae, femora, tarsi, and tibiae possibly paler, brownish to orangish; **vestiture** consisting of sparse setae; **head** with dorsal margin slightly declivitous above posterior margins of eyes, ventral surface with low to moderately high lateral ridges extending to near middle of eyes; **rostrum** not to weakly expanded at antennal insertions, relatively stout; **frons** generally slightly less than to slightly greater than dorsal rostral tip, ranges in extreme cases 0.6-1.3X as wide as dorsal rostral tip; **antennae** with dorsal margin of scrobes varying from slightly oblique to evenly descending; **pronotum** with sides subparallel in basal 1/2, basal flanges lacking to distinct; **elytra** with striae joining at elytral apices as follows: 1+2+9, or 1+9 and 1, 2+9; elytral interstria 9 with 1, specialized seta; **legs** (male) simpe or with mesothoracic and metathoracic basitarsi spined; **sexual dimorphism** of rostrum reduced; **paramere**

fused to basal piece, distinctly produced laterally, lateral region broadly joined to basal piece, generally lacking setae, apical lobes generally consisting rows of teeth; teeth may be large.

Generic Distribution

Coelocephalapion is found in the Nearctic and Neotropical regions as well as Australia (Alonso-Zarazaga and Lyal 1999). It contains 54 species in seven species groups throughout North and Central America (Kissinger 1992), but is generally more diverse in tropical regions. Three species are found in Wisconsin.

Key to the Species of Wisconsin *Coelocephalapion*

1. Legs dark; setae behind eyes coarse; elytral interstriae convex ……..…
……. ***Coelocephalapion carinatum*** **(Smith)**

1′. Legs pale or brownish-orange, may be mottled; setae behind eyes less coarse; elytral interstriae flat to slightly convex …… **2**

2. Setae around eyes and on femora coarser than those on body; rostrum slightly longer, more strongly curved ……...…….... ***Coelocephalapion decoloratum*** **(Smith)**

2′. Setae around eyes, on femora and on antennae of equal coarseness, not coarser than those on body; rostrum slightly shorter and less curved …….....
..... ***Coelocephalapion emanciipes*** **(Fall)**

Coelocephalapion carinatum **(Smith)**

[Figures 203, 204; Map 76]

Apion carinatum Smith 1884:52.

Apion concoloratum Smith 1884:52.

Apion (*Coelocephalapion*) *carinatum* (Smith); Kissinger 1968:177.

Coelocephalapion carinatum (Smith); Kissinger 1992: 66.

Species Diagnosis

Coelocephalapion carinatum can be distinguished by the deep striae bearing punctures and the convex interstriae that are twice as wide as the striae, cylindrical rostrum, and by the dark legs. It differs from *C. emanciipes* by having the setae on the head behind the eyes and on the femora coarser than those on the antennae. It can be distinguished further from *C. decoloratum* by having the setae behind the eyes coarser than those laterally on the pronotum.

Species Description

Length 1.5-1.8 mm. **Body** robust. **Integument** black; antennae, tarsi, and posterior parts of the tibiae slightly lighter. **Vestiture** consisting of inconspicuous, minute, white setae on head and femora, setae finer on antennae. **Rostrum** (male) 1.2-1.4X pronotal length, moderately curved; sides in dorsal view nearly parallel anterad antennal insertions, slightly expanded at antennal insertions; surface alutaceous; rostrum (female) similar to that of male, slightly longer, polished apically. **Frons** 1.0-1.3X dorsal rostral tip. **Antennae** inserted between basal 0.2-0.3 of rostrum. **Eyes** moderately convex. **Pronotum** with basal width 1.1-1.3X length, sides nearly parallel to middle, rounded to constricted apex, with small basal flanges; disc moderately convex, with minute setae and deep punctures. **Elytra** with length 1.2-1.4X width; striae deep, with fine punctures; interstriae 2.0X strial width, convnex, each interstria with a somewhat confused row of minute setae, interstria 9 with 1, long specialized seta. **Legs** (male) lacking modifications. **Sexual dimorphism** indistinct, present only in the sculpture of

the rostrum.

Natural History

This species is assocaited with tick-trefoil (*Desmodium* spp.). It has also been collected from "forest understory".

Phenology

In Wisconsin, adults have been collected in May and June.

Collecting Methods

The **2 Wisconsin specimens** examined during this study from two counties represent a **NEW STATE RECORD**. One specimen was collected by sweeping forest understory near a river. In general, this species is likely collected by sweeping wet, mesic areas where tick-trefoil is present.

Species Distribution

Wisconsin County Records: Dodge, Trempealeau.

North America: United States: AL, DC, FL, GA, IA, IL, IN, LA, MA, MD, MI, MS, NC, NJ, NY, OH, PA, SC, TX, VA, WI. **Canada:** ON. **Mexico:** country only.

***Coelocephalapion decoloratum* (Smith)**

[Figures 205, 206; Map 77]

Apion decoloratum Smith 1884:52.

Apion (*Coelocephalapion*) *decoloratum* (Smith); Kissinger 1968:178.

Coelocephalapion decoloratum (Smith); Kissinger 1992: 66.

Species Diagnosis

Coelocephalapion decoloratum can be distinguished by the oblique dorsal margin of the antennal scrobes, the pale and mottled legs, prominently convex eyes, the nearly flat elytral interstriae with coarse setae at bases of interstriae 1-4, and by the pale antennae. It is most similar to *C. emanciipes* but can be distinguished by the setae around the eyes and on the femora that are coarser than those on the body, and by the lack of sexual dimorphism in the rostrum.

Species Description

Length 1.5-2.0mm. **Body** robust. **Integument** black; femora, tibiae, tarsi and antennae, varying from light to dark reddish-brown, often brownish-orange with mottled black. **Vestiture** consisting of distinct, moderately fine, sparse, white setae. **Rostrum** 1.1-1.4X pronotal length, moderately curved; sides in dorsal view converging slightly from antennal insertions apically, weakly expanded at antennal insertions; surface deeply punctate, alutaceous, with distinct setae anterad antennal insertions, smooth, nearly glabrous apically. **Frons** 1.0-1.3X dorsal rostral tip. **Antennae** inserted in basal 0.2-0.3 of rostrum. **Eyes** prominent, convex. **Pronotum** withbasal width 1.2-1.3X length; sides nearly parallel medially, arcuate and constricted apically, with small basal flanges; disc moderately convex, with coarse pucntures. **Elytra** with basal width 1.24-1.38X pronotal width at base, length 2.5-2.7X pronotal length; striae deeply impressed, with coarse punctures; interstriae about 2.0X strial width, nearly flat, finely alutaceous, each interstria with 1-2 irregular rows of setae, these coarser at base of interstriae 1-4, especially on 3, interstria 9 with 1, long specialized seta. **Legs** (male) lacking modifications. **Sexual dimorphism** indistinct: basal flanges (male) slightly more prominent.

Natural History

Coelocephalapion decoloratum is generally associated with legumes such as bush-clover (*Lespedeza* spp.) and tick-trefoil (*Desmodium* spp.). The larvae develop in legumes of bush-clover (*Lespedeza* spp.), in loments of tick-trefoil (*Desmodium* spp.), in seeds of prairie clover (*Dalea* spp.), and in downy milkpea (*Galactia volubilis*) (Bright 1993). One specimen was also been collected from New Jersey tea (*Ceanothus americanus*).

It is thought to be generally associated with prairies, thus, it not surprising that most Wisconsin specimens came from southern regions, with the northern-most county being La Crosse County.

Phenology

In Wisconsin, the adults have been collected from June to August and October.

Collecting Methods

In Wisconsin, **26 specimens** were examined during this study from four counties. Adults have been collected from a roadside savanna in Dane county from the seed heads of showy tick-trefoil (*Desmodium canadense*) (Sauer 2005). One specimen has collected from a patch of New Jersey tea, another two were beaten from showy tick-trefoil, and one was recovered from a Malaise trap in a prairie restoration.

Species Distribution

This species has previously been recorded from Dane County (Sauer 2005).

Additional Wisconsin County Records: La Crosse, Milwaukee, Ozaukee.

North America: United States: AL, AR, AZ, DC, GA, IA, KS, LA, MA, MD, MI, MO, MS, NC, ND, NJ, NY, OK, PA, SC, TN, VA, WI. **Mexico:** country only.

***Coelocephalapion emanciipes* (Fall)**

[Figures 207, 208; Maps 78]

Apion emanciipes Fall 1898: 166.

Apion (*Coelocephalapion*) *emanciipes* (Fall); Kissinger 1968: 179.

Coelocephalapion emanciipes (Fall); Kissinger 1992: 66.

Species Diagnosis

Coelocephalapion emanciipes can be distinguished from *C. decoloratum* by having the setae around the eyes, on the femora and on the antennae of equal coarseness, pronotum narrower at the middle than at the base, the stout rostrum that tends to be a little shorter and less strongly curved, the more conspicuous basal flanges of the pronotum, and by the deeper striae. It can be distinguished from *C. carinatum* by the brownish-orange, mottled legs.

Species Description

Length 1.5-2.0mm. **Body** robust. **Integument** black; femora black to brownish, tibiae black with apical third dark brown to entirely brown; tarsi and antennae largely brownish-orange. **Vestiture** consisting of inconspicuous, very fine, short, yellowish setae, setae behind the eyes, on the femora, and on antennae of similar coarseness. **Rostrum** 1.0-1.4X pronotal length, stout, slightly curved; sides in dorsal view slightly expanded at antennal insertions, parallel on apical 1/3; surface finely punctate and coarsely alutaceous to near apex, with minute, uniform setae. **Frons** about as wide as dorsal rostral tip. **Antennae** inserted at basal 0.2-0.3 of rostrum. **Eyes** prominent, outline circular except obliquely truncate posteriorly. **Pronotum** with basal width 1.3-1.4X length, middle narrower than base; sides in dorsal view with basal flanges, beyond basal flanges slightly converging past middle than rounded to strongly constricted apex, in

lateral view dorsal surface slightly arcuate; surface with deep punctures, interspaces irregular, nearly flat, finely alutaceous; basal fovea punctiform, deep. **Elytra** with basal width 1.35-1.45X pronotal width at base, length 2.9-3.2X pronotal length; striae deep, moderately coarse; interstriae slightly convex, with 1 row of minute, very fine, yellowish setae, surface nearly smooth, interstria 9 with 1, long specialized seta. **Scutellum** triangular. **Sexual dimorphism** indistinct.

Natural History

Coelocephalapion emanciipes is most commonly associated with tick-trefoil (*Desmodium* spp.).

Phenology

In Wisconsin, adults have been collected in May.

Collecting Methods

In Wisconsin, **3 specimens** were examined during this study from Dane County. One specimen was reported from "nest of marsh heron". It is most commonly collected by sweeping prairies or collecting by hand from loments of tick-trefoil.

Species Distribution

This species has previously been recorded from Dane County (Sauer 2005).

North America: United States: AL, DC, FL, IA, IL, IN, MA, MD, MI, MS, NC, ND, NH, NJ, NY, OH, PA, SC, TN, TX, VA, WI. **Canada:** ON. **Mexico:** country only.

Genus *Sayapion* Kissinger

Sayapion Kissinger 1999: 72.

Type Species: *Apion segnipes* Say, by original designation, Kissinger 1999: 72.

Generic Diagnosis

Sayapion can be recognized by the presence of basal flanges, the light, reddish-yellow femora, tibiae and antennal bases, the distinctly uniform vestiture, and by the legs of males that lack modifications.

Generic Description

Length 2.10 -2.87 mm. **Integument** black, femora, tibiae and base of antennae light reddish-yellow; **vestiture** conisiting of distinct, uniform and white setae, may be more prominent laterally on thorax; **head** with low lateral ridges extending to near middle of eyes on ventral surface, dorsal margin in lateral view more or less distinctly broadly rounded above eyes; **frons** equal to to much wider than dorsal rostral tip; **antennae** with dorsal margin of scrobes oblique, may be dentiform; **rostrum** of female longer than that of male; **pronotum** with basal flanges more or less distinct, may be reduced, sides in basal 1/2 parallel to distinctly converging; **elytra** with striae joining apically as follows: 3+4, 5+6, 7+8; elytral interstriae 7 and 9 with each with 1, specialized apical seta, interstria 3 with several short, specialized setae; **legs** (male) lacking modifications; **sexual dimorphism** present in rostrum.

Generic Distribution

Sayapion includes 10 species in the Nearctic and Neotropical regions, ranging from eastern North America to southern Arizona and Panama. The "*Apion segnipes* species group" once was placed within the "subgenus" *Coelocephalapion* Wagner, until *Coelocephalapion* was raised to the generic level (Kissinger 1992). Kissinger (1999) proposed a new genus, *Sayapion*, to include these 10 species, one of which occurs in Wisconsin.

***Sayapion segnipes* (Say)**

[Figures 209, 210, 211, 212; Map 79]

Apion segnipes Say 1831: 6.

Apion (*Coelocephalapion*) *segnipes* (Say); Kissinger 1968: 166.

Sayapion segnipes (Say); Kissinger 1999: 72.

Species Diagnosis

Sayapion segnipes can be recognized by the reddish to light brown legs and antennae, flat or slightly prominent eyes, distinct basal flanges, conspicuous vestiture, setae that are condensed at base of interstria 3, and by the rostrum (female) that is 1.6-1.9X the pronotal length.

Species Description

Length 2.2-2.9mm. **Body** robust. **Integument** black; femora, tibiae, and bases of antennae reddish, antennae and tarsi with apical portions light brownish. **Vestiture** consisting of conspicuous, coarse, white setae, coarser laterally on mesothorax, metepisternum, elytra and denser at base of interstria 3. **Rostrum** (male) 1.2-1.3X pronotal length, slightly curved; sides nearly parallel in apical 1/3, not expanded at antennal insertions, sometimes narrowed at apical 1/4, then expanded at apex; setae on rostrum confined to area below antennal insertions; surface glabrous at apex, with coarse, dense punctures; rostrum (female) 1.6-1.9X pronotal length, slightly curved; sides slightly converging from antennal insertions apically, not expanded at antennal insertions; surface with moderately coarse, dense punctures, these becoming finer and sparser apically; setae at base of rostrum fine, sparse, absent anterad antennal insertions. **Frons** 1.3-1.7X dorsal rostral tip. **Antennae** inserted at basal 0.3 of rostrum (male) or

basal 0.2-0.3 (female). **Eyes** slightly prominent or flat. **Pronotum** with basal width 1.2-1.4X length; sides nearly parallel in basal 1/3, rounded to distinctly constricted apex, with distinct basal flanges; disc moderately convex, with deep, dense punctures. **Elytra** with length 1.3-1.4X width; striae deeply impressed, with moderately fine punctures; interstriae nearly flat, >2.0X strial width, punctures on interstriae in 2 rows, randomly placed, bearing setae, setae on punctures sometime appearing as 3 rows, interstriae 7 and 9 each with 1, specialized seta, interstria 3 with short, erect specialized setae. **Legs** (male) lacking modifications. **Sexual dimorphism** distinct in rostrum.

Natural History

This species is associated with goat's rue (*Tephrosia virginiana*).

Phenology

In Wisconsin, adults have been collected in April, May, July, September, and October.

Collecting Methods

In Wisconsin, **26 specimens** were examined during this study from five counties, forming a total of six county records. Specimens were reared from goat's rue, collected from its pods, and swept from grass. It can also be collected by sweeping prairies where goat's rue is present.

Species Distribution

This species has previously been recorded from Bayfield, Dane, Iowa, and Sauk counties (Kissinger 1968, O'Brien and Wibmer 1982, Downie and Arnett 1996, Sauer 2005).

Additional Wisconsin County Records: Grant, Vernon.

North America: United States: AL, AR, DC, FL, IN, KS, MA, MD, MO, NC, NJ, NY, OH, SC, TN, TX, VA, WI, WV. **Canada:** ON.

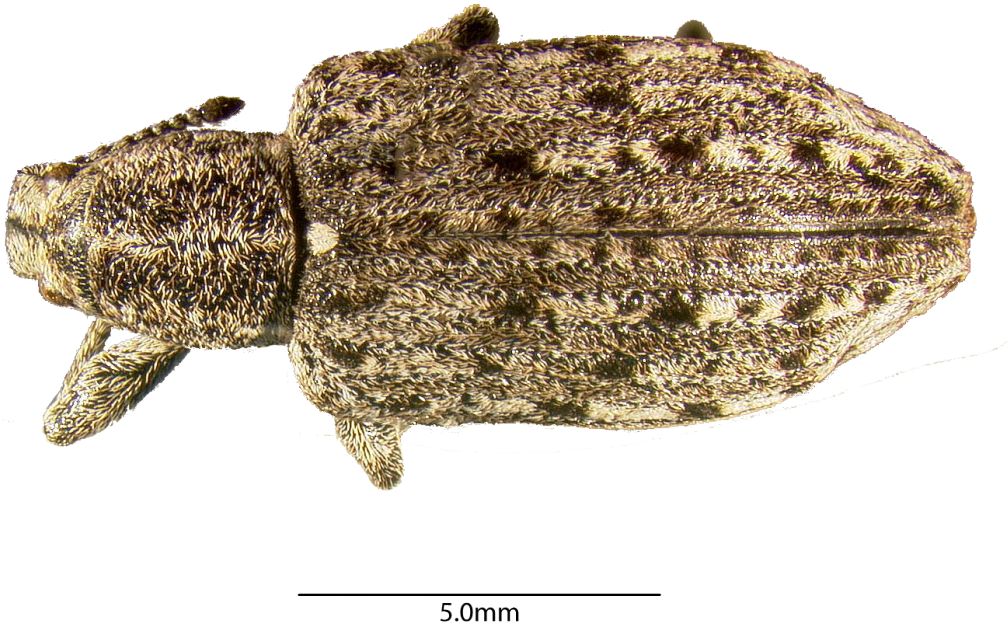


Figure 98. *Ithycerus noveboracensis* (Forster), dorsal habitus.

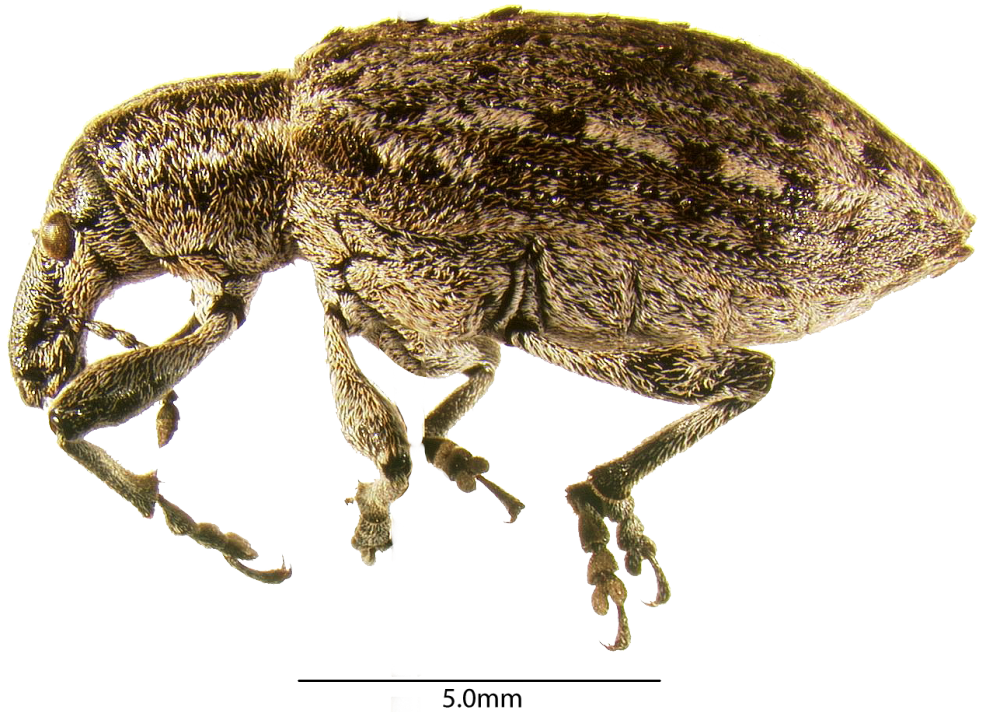


Figure 99. *Ithycerus noveboracensis* (Forster), lateral habitus.

Figure 100. *Arrenodes minutus* (Drury), dorsal habitus (M).

Figure 101. *Arrenodes minutus* (Drury), lateral habitus (M).

Figure 102. *Arrenodes minutus* (Drury), dorsal habitus (F).

Figure 103. *Arrenodes minutus* (Drury), lateral habitus (F).

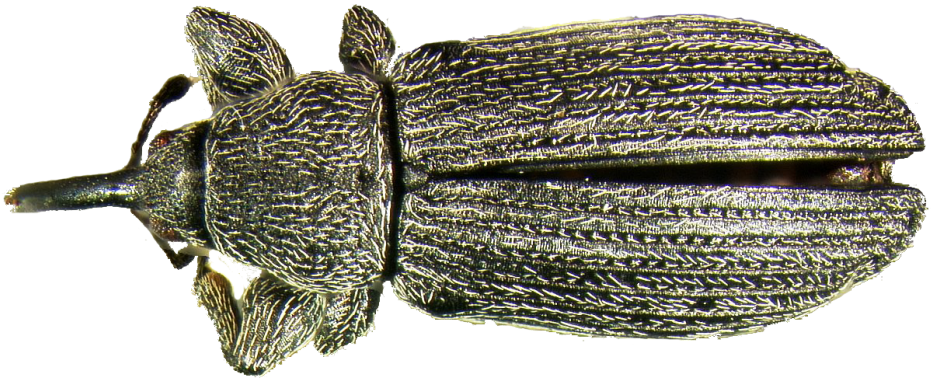


Figure 104. *Podapion gallicola* Riley, dorsal habitus.

Figure 105. *Podapion gallicola* Riley, lateral habitus.

Figure 106. *Perapion curtirostre* (Germar), dorsal habitus.

Figure 107. *Perapion curtirostre* (Germar), lateral habitus.

Figure 108. *Perapion punctinasum* (Smith), dorsal habitus.

Figure 109. *Perapion punctinasum* (Smith), lateral habitus.

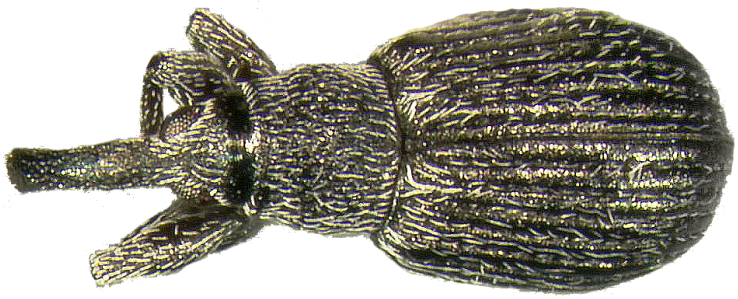


Figure 110. *Alocentron attenuatum* (Smith), dorsal habitus.

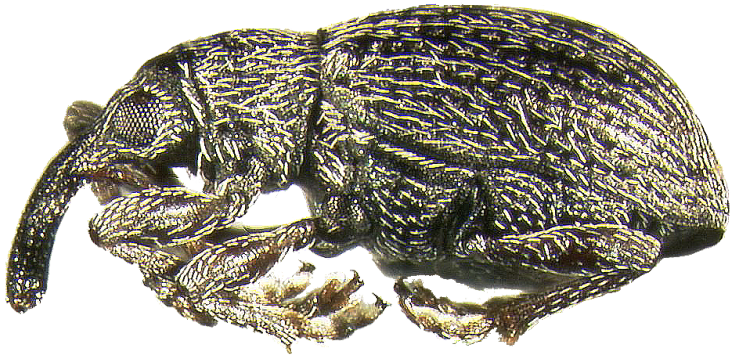


Figure 111. *Alocentron attenuatum* (Smith), lateral habitus.

Figure 112. *Alocentron fulvotibiale* (Wagner), dorsal habitus.

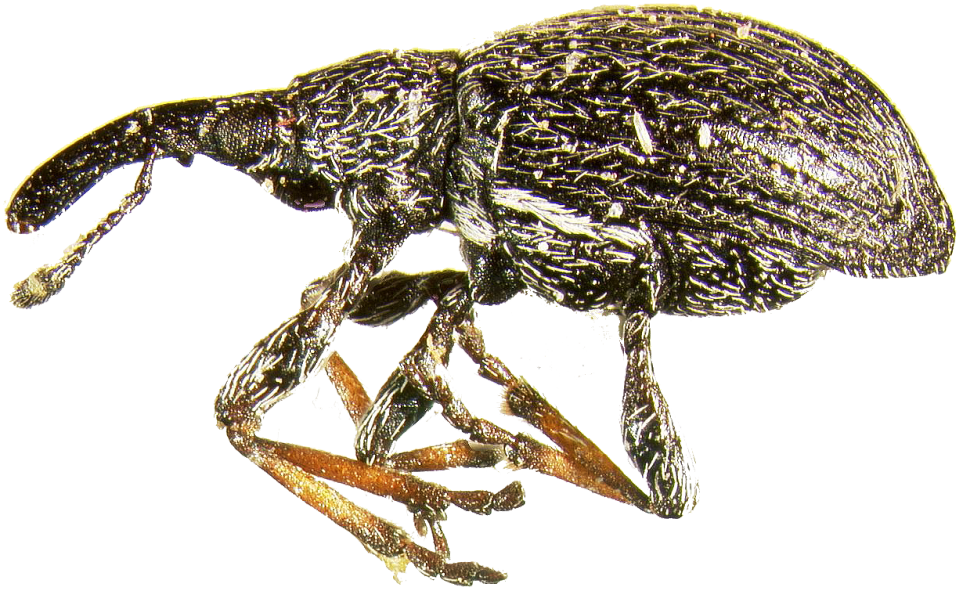


Figure 113. *Alocentron fulvotibiale* (Wagner), lateral habitus.

Figure 114. *Ceratapion contusum* (Smith), dorsal habitus.

Figure 115. *Ceratapion contusum* (Smith), lateral habitus.

Figure 116. *Ceratapion parallelum* (Smith), dorsal habitus.

Figure 117. *Ceratapion parallelum* (Smith), lateral habitus.

Figure 118. *Neapion harpax* (Kissinger), dorsal habitus.

Figure 119. *Neapion harpax* (Kissinger), lateral habitus.

Figure 120. *Neapion herculanum* (Smith), dorsal habitus.

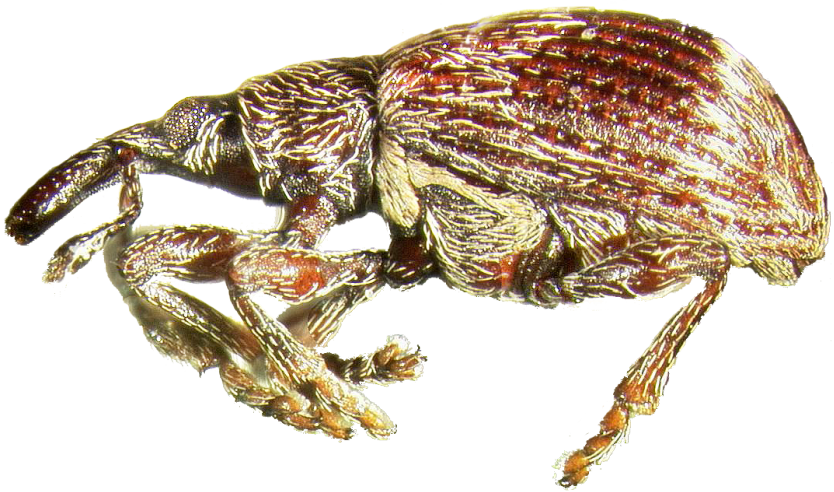


Figure 121. *Neapion herculanum* (Smith), lateral habitus.

Figure 122. *Neapion idiastes* (Kissinger), dorsal habitus.

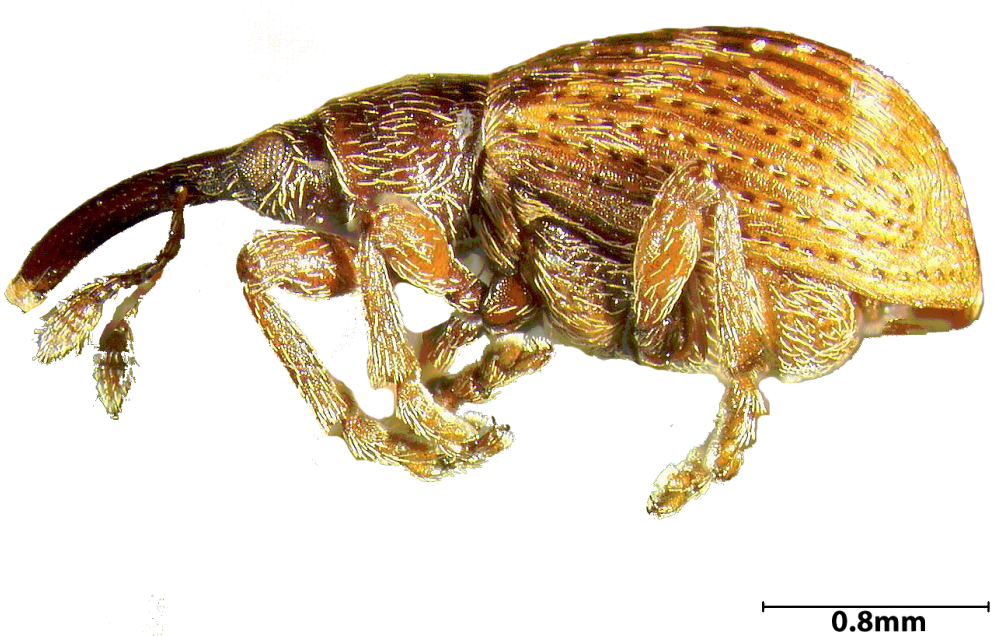


Figure 123. *Neapion idiastes* (Kissinger), lateral habitus.

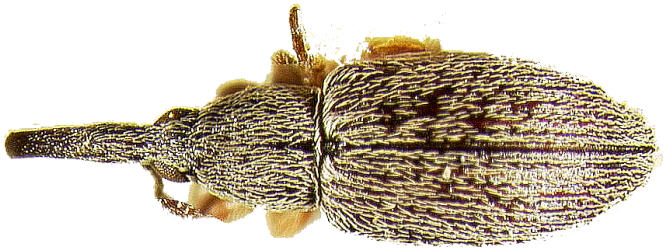


Figure 124. *Rhopalapion longirostre* (Olivier), dorsal habitus (M).

Figure 125. *Rhopalapion longirostre* (Olivier), lateral habitus (M).

Figure 126. *Rhopalapion longirostre* (Olivier), dorsal habitus (F).

Figure 127. *Rhopalapion longirostre* (Olivier), lateral habitus (F).

Figure 128. *Eutrichapion cavifrons* (LeConte), dorsal habitus.

Figure 129. *Eutrichapion cavifrons* (LeConte), lateral habitus.

Figure 130. *Eutrichapion huron* (Fall), dorsal habitus (M).

Figure 131. *Eutrichapion huron* (Fall), lateral habitus (M).

Figure 132. *Eutrichapion huron* (Fall), dorsal habitus (F).

Figure 133. *Eutrichapion huron* (Fall), lateral habitus (F).

Figure 134. *Ischnopterapion virens* (Herbst), dorsal habitus.

Figure 135. *Ischnopterapion virens* (Herbst), lateral habitus.

2.0mm

Figure 136. *Betulapion simile* (Kirby), dorsal habitus (M).

2.0mm

Figure 137. *Betulapion simile* (Kirby), lateral habitus (M).

2.0mm

Figure 138. *Betulapion simile* (Kirby), dorsal habitus (F).

2.0mm

Figure 139. *Betulapion simile* (Kirby), lateral habitus (F).

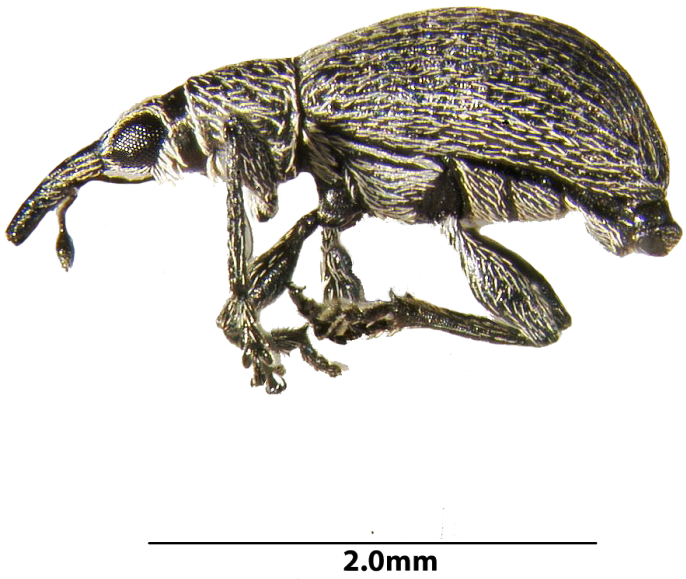


Figure 140. *Betulapion simile* (Kirby), lateral habitus (M).

Figure 141. *Kissingeria amarum* (Kissinger), dorsal habitus (M).

Figure 142. *Kissingeria amarum* (Kissinger), lateral habitus (M).

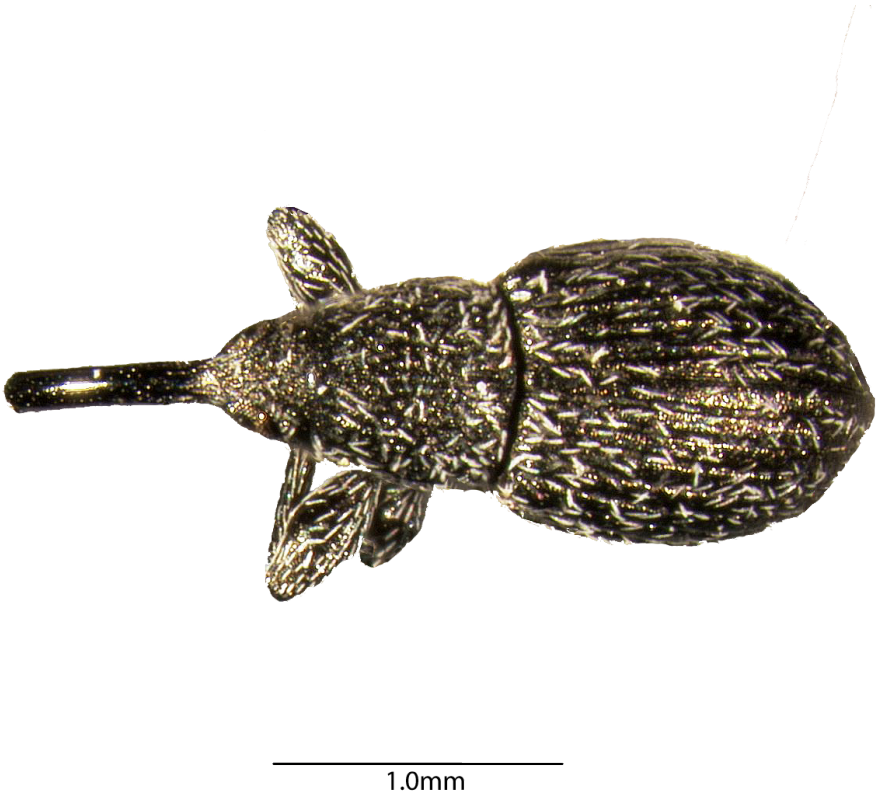


Figure 143. *Kissingeria amarum* (Kissinger), dorsal habitus (F).

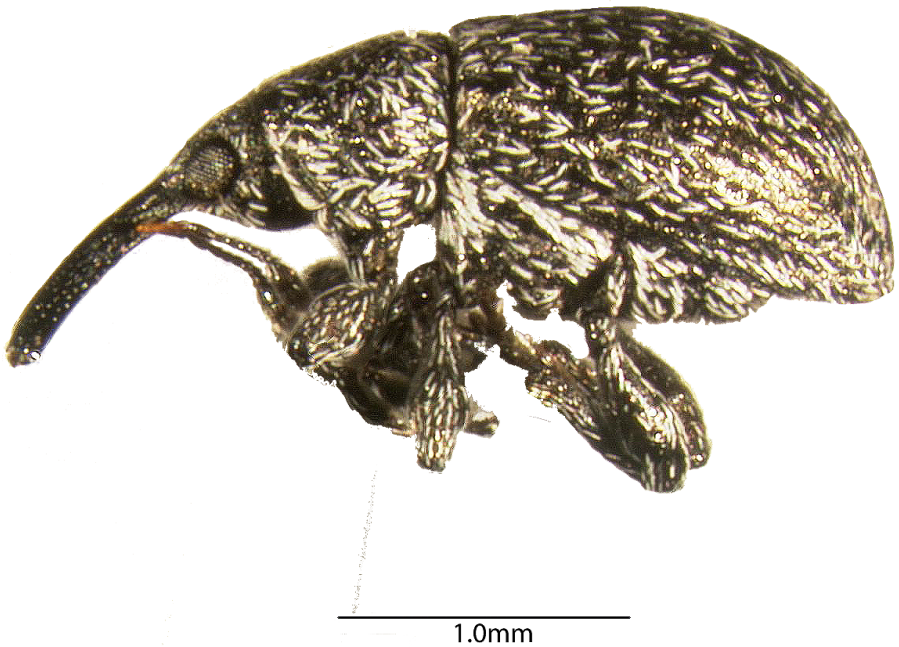


Figure 144. *Kissingeria amarum* (Kissinger), lateral habitus (F).

Figure 145. *Kissingeria capitone* (Kissinger), dorsal habitus (M).

Figure 146. *Kissingeria capitone* (Kissinger), lateral habitus (M).

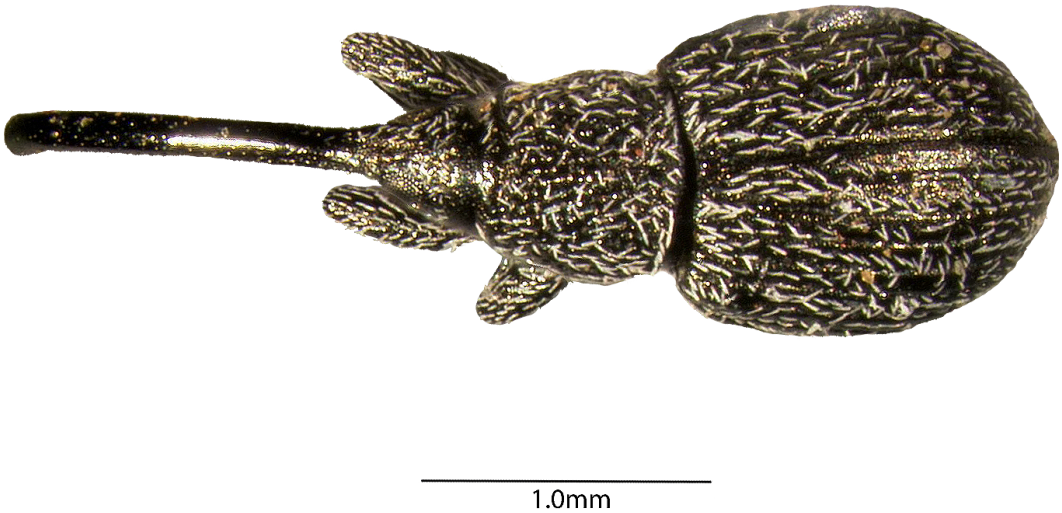


Figure 147. *Kissingeria capitone* (Kissinger), dorsal habitus (F).

Figure 148. *Kissingeria capitone* (Kissinger), lateral habitus (F).

Figure 149. *Trichapion centrale* (Fall), dorsal habitus.

Figure 150. *Trichapion centrale* (Fall), lateral habitus .

Figure 151. *Trichapion leporinum* (Salsbury), dorsal habitus.

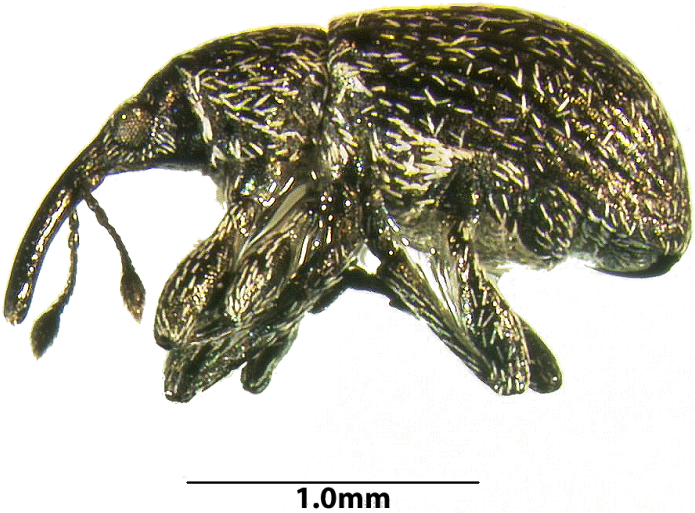


Figure 152. *Trichapion leporinum* (Salsbury), lateral habitus.

Figure 153. *Trichapion minor* (Smith), dorsal habitus (M).

Figure 154. *Trichapion minor* (Smith), lateral habitus (M).

Figure 155. *Trichapion minor* (Smith), dorsal habitus (F).

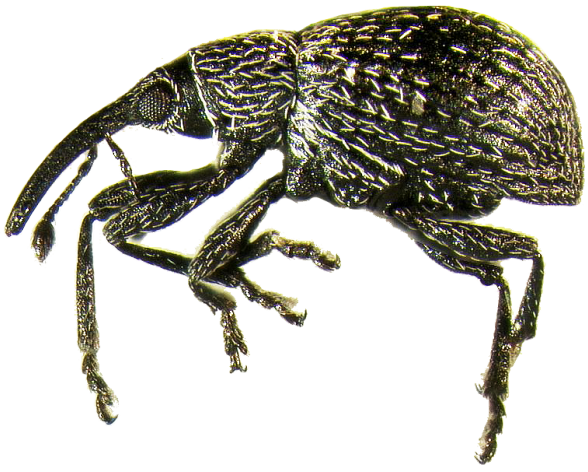


Figure 156. *Trichapion minor* (Smith), lateral habitus (F).

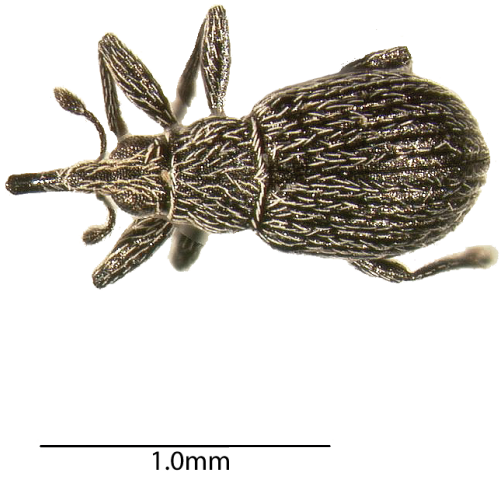


Figure 157. *Trichapion modicum* (Kissinger), dorsal habitus (M).

Figure 158. *Trichapion modicum* (Kissinger), lateral habitus (M).

Figure 159. *Trichapion modicum* (Kissinger), dorsal habitus (F).

Figure 160. *Trichapion modicum* (Kissinger), lateral habitus (F).

Figure 161. *Trichapion nigrum* (Herbst), dorsal habitus (M).

Figure 162. *Trichapion nigrum* (Herbst), lateral habitus (M).

Figure 163. *Trichapion nigrum* (Herbst), dorsal habitus (F).

Figure 164. *Trichapion nigrum* (Herbst), lateral habitus (F).

Figure 165. *Trichapion patruele* (Smtih), dorsal habitus.

Figure 166. *Trichapion patruele* (Smtih), lateral habitus.

Figure 167. *Trichapion perforicolle* (Fall), dorsal habitus.

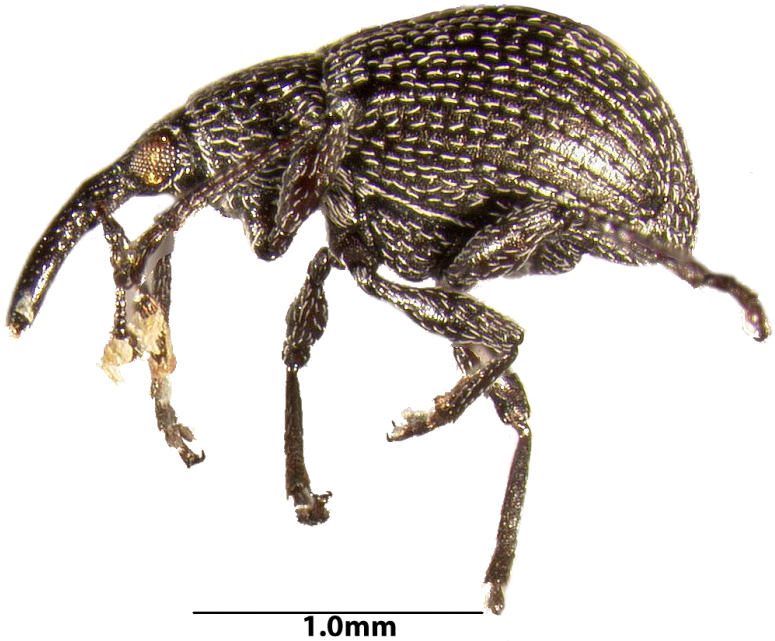


Figure 168. *Trichapion perforicolle* (Fall), lateral habitus.

Figure 169. *Trichapion porcatum* (Boheman), dorsal habitus.

Figure 170. *Trichapion porcatum* (Boheman), lateral habitus.

Figure 171. *Trichapion reconditum* (Gyllenhal), dorsal habitus (M).

Figure 172. *Trichapion reconditum* (Gyllenhal), lateral habitus (M).

Figure 173. *Trichapion reconditum* (Gyllenhal), dorsal habitus (F).

Figure 174. *Trichapion reconditum* (Gyllenhal), lateral habitus (F).

Figure 175. *Trichapion roseae* (Kissinger), dorsal habitus.

Figure 176. *Trichapion roseae* (Kissinger), lateral habitus.

Figure 177. *Trichapion rostrum* (Say), dorsal habitus

Figure 178. *Trichapion rostrum* (Say), lateral habitus.

Figure 179. *Trichapion tenuirostrum* (Smith), dorsal habitus (M).

Figure 180. *Trichapion tenuirostrum* (Smith), lateral habitus (M).

Figure 181. *Trichapion tenuirostrum* (Smith), dorsal habitus (F).

Figure 182. *Trichapion tenuirostrum* (Smith), lateral habitus (F).

1.0mm

Figure 183. *Fallapion bischoffi* (Fall), dorsal habitus (M).

1.0mm

Figure 184. *Fallapion bischoffi* (Fall), lateral habitus (M).

Figure 185. *Fallapion bischoffi* (Fall), dorsal habitus (F).

Figure 186. *Fallapion bischoffi* (Fall), lateral habitus (F).

Figure 187. *Fallapion finitimum* (Fall), dorsal habitus.

Figure 188. *Fallapion finitimum* (Fall), lateral habitus.

Figure 189. *Fallapion impeditum* (Fall), dorsal habitus.

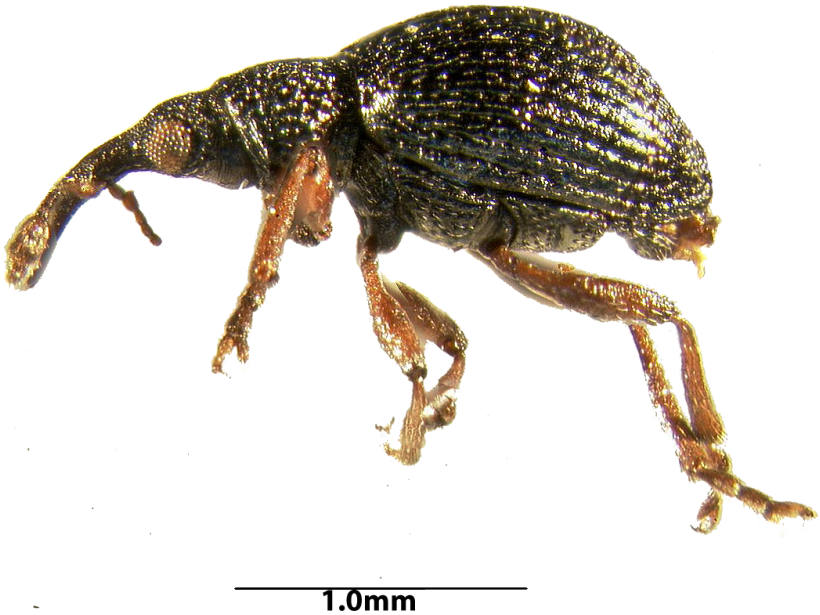


Figure 190. *Fallapion impeditum* (Fall), lateral habitus.

Figure 191. *Fallapion impunctistriatum* (Smith), dorsal habitus (M).

Figure 192. *Fallapion impunctistriatum* (Smith), lateral habitus (M).

Figure 193. *Fallapion melanarium* (Gerstaecker), dorsal habitus (M).

Figure 194. *Fallapion melanarium* (Gerstaecker), lateral habitus (M).

Figure 195. *Fallapion melanarium* (Gerstaecker), dorsal habitus (F).

Figure 196. *Fallapion melanarium* (Gerstaecker), lateral habitus (F).

Figure 197. *Fallapion occidentale* (Fall), dorsal habitus.

Figure 198. *Fallapion occidentale* (Fall), lateral habitus.

Figure 199. *Fallapion pennsylvanicum* (Boheman), dorsal habitus (M).

Figure 200. *Fallapion pennsylvanicum* (Boheman), lateral habitus (M).

Figure 201. *Fallapion pennsylvanicum* (Boheman), dorsal habitus (F).

Figure 202. *Fallapion pennsylvanicum* (Boheman), lateral habitus (F).

Figure 203. *Coelocephalapion carinatum* (Smith), dorsal habitus.

Figure 204. *Coelocephalapion carinatum* (Smith), lateral habitus.

Figure 205. *Coelocephalapion decoloratum* (Smith), dorsal habitus.

Figure 206. *Coelocephalapion decoloratum* (Smith), lateral habitus.

Figure 207. *Coelocephalapion emanciipes* (Fall), dorsal habitus.

Figure 208. *Coelocephalapion emanciipes* (Fall), lateral habitus.

2.0mm

Figure 209. *Sayapion segnipes* (Say), dorsal habitus (M).

2.0mm

Figure 210. *Sayapion segnipes* (Say), dorsal habitus (F).

2.0mm

Figure 211. *Sayapion segnipes* (Say), dorsal habitus (F).

2.0mm

Figure 212. *Sayapion segnipes* (Say), lateral habitus (F).

Ithycerus noveboracensis (Forster)

Arrenodes minutus (Drury)

Maps 38, 39. *I. noveboracensis* and *A. minutus* Wisconsin distributional maps.

Podapion gallicola Riley

Map 40. *P. gallicola* Wisconsin distributional map.

Perapion curtirostre (Germar)

Perapion punctinasum (Smith)

Maps 41, 42. *P. curtirostre* and *P. punctinasum* Wisconsin distributional maps.

Alocentron attenuatum (Smith)

Alocentron fulvotibiale (Wagner)

Maps 43, 44. *A. attenuatum* and *A. fulvotibiale* Wisconsin distributional maps.

Ceratapion contusum (Smith)

Ceratapion parallelum (Smith)

Maps 45, 46. *C. contusum* and *C. parallelum* Wisconsin distributional maps.

Neapion harpax (Kissinger)

Neapion herculanum (Smith)

Maps 47, 48. *N. harpax* and *N. herculanum* Wisconsin distributional maps.

Neapion idiastes (Kissinger)

Rhopalapion longirostre (Olivier)

Maps 49, 50. *N. idiastes* and *R. longirostre* Wisconsin distributional maps.

Eutrichapion cavifrons (LeConte)

Eutrichapion huron (Fall)

Maps 51, 52. *E. cavifrons* and *E. huron* Wisconsin distributional maps.

Ischnopterapion virens (Herbst)

Betulapion simile (Kirby)

Maps 53, 54. *I. virens* and *B. simile* Wisconsin distributional maps.

Kissingeria amarum (Kissinger)

Kissingeria capitone (Kissinger)

Maps 55, 56. *K. amarum* and *K. capitone* Wisconsin distributional maps.

Trichapion centrale (Fall)

Trichapion leporinum (Salsbury)

Maps 57, 58. *T. centrale* and *T. leporinum* Wisconsin distributional maps.

Trichapion minor (Smith)

Trichapion modicum (Kissinger)

Maps 59, 60. *T. minor* and *T. modicum* Wisconsin distributional maps.

Trichapion nigrum (Herbst)

Trichapion patruele (Smith)

Maps 61, 62. *T. nigrum* and *T. patruele* Wisconsin distributional maps.

Trichapion perforicolle (Fall)

Trichapion porcatum (Boheman)

Maps 63, 64. *T. perforicolle* and *T. porcatum* Wisconsin distributional maps.

Trichapion reconditum (Gyllenhal)

Trichapion roseae (Kissinger)

Maps 65, 66. *T. reconditum* and *T. roseae* Wisconsin distributional maps.

Trichapion rostrum (Say)

Trichapion tenuirostrum (Smith)

Maps 67, 68. *T. rostrum* and *T. tenuirostrum* Wisconsin distributional maps.

Fallapion bischoffi (Fall)

Fallapion finitimum (Fall)

Maps 69, 70. *F. bischoffi* and *F. finitimum* Wisconsin distributional maps.

Fallapion impeditum (Fall)

Fallapion impunctistriatum (Smith)

Maps 71, 72. *F. impeditum* and *F. impunctistriatum* Wisconsin distributional maps.

Fallapion melanarium (Gerstaecker)

Fallapion occidentale (Fall)

Maps 73, 74. *F. melanarium* and *F. occidentale* Wisconsin distributional maps.

Fallapion pennsylvanicum (Boheman)

Map 75. *F. pennsylvanicum* Wisconsin distributional map.

Coelocephalapion carinatum (Smith)

Coelocephalapion decoloratum (Smith)

Maps 76, 77. *C. carinatum* and *C. decoloratum* Wisconsin distributional maps.

Coelocephalapion emanciipes (Fall)

Sayapion segnipes (Say)

Maps 78, 79. *C. emanciipes* and *S. segnipes* Wisconsin distributional maps.

Table 1: Families and Subfamilies of Curculionoidea

(Oberprieler, Marvaldi and Anderson, 2007)

Family	**Subfamily**
Nemonychidae	Cimberidinae, Nemonychinae, Rhinorhynchinae
Anthribidae	Anthribinae, Choraginae, Urodontinae
Belidae	Belinae, Oxycoryninae
Attelabidae	Attelabinae, Rhynchitinae
Caridae	Carinae
Brentidae	Apioninae, Brentinae, Eurhynchinae, Ithycerinae, Microcerinae, Nanophyinae
Curculionidae	Baridinae, Brachycerinae (including Erirhininae), Cossoninae, Curculioninae, Cyclominae, Dryophthorinae, Entiminae, Molytinae, Platypodinae, Scolytinae

Table 2: Commonly Visited Sites and Associated Habitat Types

Site	County	Habitat type
Quincy Bluff State Natural Area	Adams	Northern wet-mesic forest, northern and southern sedge meadow, shrub-carr, pine barrens, and sand prairie
Moquah Barrens State Natural Area	Bayfield	Pine barrens
Kettle Moraine State Forest-Northen Unit	Fond du Lac/ Sheboygan	Upland hardwood forest
Chiwaukee Prairie State Natural Area	Kenosha	Southern sedge meadow, wet prairie, wet-mesic prairie, dry-mesic prairie
Dunbar Barrens State Natural Area	Marinette	Pine barrens, oak-jackpine forest
Mecan River Fishery Area	Marquette	Upland forest and grassland
Lower Wisconsin State Riverway - Lone Rock Unit	Richland	Bottomland hardwood forest, wetlands, prairies, savanna
Hemlock Draw State Natural Area	Sauk	Norther hardwood forest
Spring Green Preserve State Natural Area	Sauk	Sand prairie
Navirino State Wildlife Area	Shawano	Floodplain forest, sedge meadow, emergent marsh, dry-mesic forest
Kettle Moraine State Forest-Southern Unit	Waukesha	Southern hardwood forest

Table 3: Sexual Dimorphic Characters Across Species and Genera

Taxa	Male	Female
Cimberis	Prothoracic tibiae longer	Abdominal sternites 3-4 with sex patch
Araecerus	Pygidium evenly rounded apically; metasternum with pale trichobothrium (setal patch) at center	Pygidium oblique or pointed apically
Allandrus bifasciatus	Rostrum with keel-like, sharply elevated longitudinal carina; protibiae curved	Rostrum with carina but not elevated
Allandrus brevicornis	Rostrum with elevated longitudinal carina	Rostrum with carina but not distinctly elevated
Attelabinae	Tibial apices uni-unciate	Tibial apices biunciate
Attelabus	Profemora armed with 1 or 2 blunt spine-like projections	Profemora unarmed or armed with a peg-like projection
Homeolabus	Submental area with two teeth	Submental area without teeth
Himatolabus	More elongate head; more strongly developed front legs; more strongly concave sternites	
Eugnamptus	Mandible with 1 tooth on outer margin; smaller; rostrum shorter with antennae inserted at middle; abdominal sterna more concave and setose; eyes larger together (exp *E. puncticeps*)	Mandible with 2 teeth on outer margin; bigger; rostrum longer
Haplorhynchites aeneus	Rostrum shorter	
Merhynchites	Procoxae with round to oval and densely setose pits on apex.	
Temnocerus	Abdomen weakly concave and setose	Abdomen convex and less setose
Temnocerus aeratus	Rostrum shorter; eyes more protuberant; antennae inserted at basal 1/3 of rostrum; pronotum longer	Rostrum longer; eyes moderately protuberant; antennae inserted at basal 1/5-2/5 of rostrum; pronotum shorter
Temnocerus cyanellus	Rostrum as long as pronotum; antennae inserted	Rostrum 1.6X pronotum; antennae inserted in basal

	between basal ½-1/4 of rostrum	1/3 of rostrum
Temnocerus perplexus	Antennae inserted just in front of basal 0.2 of rostrum	Antennae inserted near basal 0.2 of rostrum
Auletobius ater	Declivity of elytral apices with setose conspicuous sex patch	
Ithycerus noveboracensis	Abdomen with last visible segment strongly convex, visible from beneath	
Arrenodes minutus	Rostrum expanded laterally at apex	Rostrum of female needle-like
Ceratapion	Meso- and metathoracic legs with tarsomere 1 produced into an inner spine	
Rhopalapion	Tibiae of pro-, meso- and metathoracic legs mucronate	Rostrum conspicuously longer
Eutrichapion	Metasternum with spicules	
Betulapion	Sterna, procoxae anteriorlly and head ventrally with setae denser; tibiae of meso- and metathoracic legs mucronate	
Kissingeria		Rostrum conspicuously longer
Trichapion	Tibiae of meso- and metathoracic legs always mucronate, protibiae of male may be mucronate	
Trichapion nigrum	Protarsus of male dilated, with dense, long setae on ventral surface	
Trichapion roseae	Abdominal sternum 1 of males with median basal region tuberculate.	
Trichapion tenuirostrum	Tibiae of all three pairs of legs mucronate	Rostrum conspicuously longer
Fallapion	Profemur with polished area on ventral anterior region limited posteriorly usually by raised carina; tibiae of meso- and metathoracic legs mucronate; metasternum with a pair of spicules.	

Fallapion finitimum	Tibiae of prothoracic legs of male strongly widened toward apex	
Sayapion segnipes		Rostrum conspicuously longer

Table 4: Summary of Wisconsin Primitive Weevil Species

Species	# specimens	Year of first + last detection	Counties found + # new county records	Counties Published+ literature	Phenology
Nemonychidae					
Cimberis					
Cimberis elongata (LeConte)	25	1950 / 2013	Adams, Dane, Douglas, Florence, Juneau, Marathon, Marinette, Marquette, Monroe, Richland, Shawano, Waupaca, Wood **(13)**	Wisconsin (O'Brien & Wibmer 1982, Kuschel 1989, Downie & Arnett 1996)	April, May, July
Cimberis pilosa (LeConte)	19	1960 / 2013	Douglas, Florence, Juneau, Marathon, Marquette, Richland, Shawano, Wood **(8)**	**NEW STATE RECORD**	April - June
Anthribidae					
Choraginae					
Aracerus					
Aracerus fasciculatus (De Geer)				Wisconsin (Downie & Arnett 1996)	
Choragus					
Choragus zimmermanni	7	2001 / 2011	Milwaukee, Ozaukee, Sauk **(3)**	**NEW STATE RECORD**	July, August
Euxenus					
Euxenus punctatus	2	2001 / 2008	Iowa, Racine **(2)**	**NEW STATE RECORD**	July
Allandrus					
Allandrus bifasciatus LeConte 1876	49	1889 / 2013	Dane, Dodge, Eau Claire, Grant, Iowa, Milwaukee, Ozaukee, Polk, Racine, Sauk, Waukesha **(11)**	Wisconsin (Blatchley & Leng 1916)	June - September
Allandrus brevicornis Frost	9	1976 / 2013	Jackson, La Crosse, Oneida, Sauk, Waukesha **(5)**	**NEW STATE RECORD**	June - September
Anthribus					
Anthribus nebulosus	1	2012	Dane **(1)**	**NEW STATE RECORD**	July
Euparius					
Euparius	113	1913 / 2013	Adams, Brown,	**NEW STATE**	March -

marmoreus Olivier			Burnett, Dane, Dodge, Grant, Green, Iowa, Jackson, Jefferson, Juneau, La Crosse, Marathon, Marinette, Marquette, Monroe, Ozaukee, Richland, Rock, Sauk, Waukesha, Walworth, Winnebago **(23)**	**RECORD**	November
Euparius paganus Gyllenhal	50	1954 / 2013	Columbia, Dane, Grant, Iowa, Ozaukee, Sauk, Sheboygan, Trempealeau, Washington, Waukesha, Winnebago **(11)**	Wisconsin (Valentine 1960, Downie & Arnett 1996)	April - August
Goniocloeus					
Goniocloeus bimaculatus Olivier				Wisconsin (Blatchley & Leng 1916, Downie & Arnett 1996, Valentine 1998)	
Eusphyrus					
Eusphyrus walshii LeConte	2	2001 / 2013	Lafayette, Ozaukee **(2)**	**NEW STATE RECORD**	July, August
Ormiscus					
Ormiscus saltator LeConte	29	1897 / 2013	Barron, Chippewa, Columbia, Dane, Dodge, Dunn, Fond du Lac, Grant, Jackson, Jefferson, La Crosse, Milwaukee, Oneida, Ozaukee, Sheboygan, Trempealeau, Vernon, Waukesha **(18)**	**NEW STATE RECORD**	June - August
Piesocorynus					
Piesocorynus mixtus	1	2012	Adams	**NEW STATE RECORD**	September

Piesocorynus moestus LeConte	2	1975 / 2003	Adams, Grant **(2)**	**NEW STATE RECORD**	June, September
Trigonorhinus					
Trigonorhinus alternatus Say	2	1909 / 1954	Dane, Dodge **(2)**	**NEW STATE RECORD**	June, July
Trigonorhinus limbatus LeConte	31	1889 / 1997	Buffalo, Dane, Grant, Milwaukee, Pierce **(5)**	**NEW STATE RECORD**	July - September
Trigonorhinus rotundatus LeConte	9	1997 / 2002	Green Lake, Jackson, Juneau, Oconto, Wood **(5)**	**NEW STATE RECORD**	June, August
Trigonorhinus sticticus Boheman	52	1897 / 2012	Adams, Buffalo, Columbia, Dane, Dodge, Door, Fond du Lac, Iowa, Grant, Jackson, Jefferson, Kenosha, Lafayette, Marquette, Milwaukee, Oconto, Ozaukee, Rock, Sauk, Sheboygan, Walworth **(21)**	**NEW STATE RECORD**	April - August, October
Trigonorhinus tomentosus Say	203	1928 / 2013	Adams, Barron, Columbia, Crawford, Dane, Dunn, Eau Claire, Fond du Lac, Grant, Green, Green Lake, Iowa, Jackson, Jefferson, Juneau, Lafayette, La Crosse, Marquette, Menominee, Monroe, Ozaukee, Pepin, Pierce, Portage, Rock, Sauk, Sawyer, Shawano, Sheboygan, Trempealeau, Waushara, Wood **(32)**	**NEW STATE RECORD**	June - September
Eurymycter					
Eurymycter fasciatus Olivier	3	1897 / 2009	Adams, Oneida **(2)**	**NEW STATE RECORD**	June, July
Eurymycter tricarinatus Pierce	28	1977 / 2013	Barron, Chippewa, Dodge, Grant,	Wisconsin (Valentine 1960, Downie & Arnett	May - September

			Jackson, Langlade, Marathon, Ozaukee, Pierce, Polk, Rusk, Sauk, Shawano, Waupaca **(13)**	1996); Milwaukee (Pierce 1930)	
Gonotropis					
Gonotropis gibbosus LeConte	2	1897	Wisconsin	Wisconsin (Valentine 1998)	
Attelabidae					
Attelabinae					
Attelabus					
Attelabus bipustulatus Fabricius	25	1948/2013	Adams, Columbia, Jackson, Marquette, Monroe, Sauk, Shawano, Waupaca, Waushara, Wood**(10)**	Wisconsin (Blatchley & Leng 1916, O'Brien & Wibmer 1982, Downie & Arnett 1996)	May - August
Attelabus nigripes LeConte	50	1911/2012	Burnett, Crawford, Dane, Dunn, Grant, La Crosse, Manitowoc, Monroe, Pierce, Polk, Sauk, Vernon **(12)**	**NEW STATE RECORD**	May - August, October
Homeolabus					
Homoeolabus analis Illiger	67	1898 / 2013	Adams, Crawford, Dane, Dodge, Grant, Iowa, Jackson, Marquette, Monroe, Richland, Sauk, Waukesha, Waushara, Wood**(14)**	Wisconsin (O'Brien & Wibmer 1982, Downie & Arnett 1996)	May - July
Himatolabus					
Himatolabus pubescens Say	25	1897 / 1999	Dane, Dodge, Door, Jackson, Polk **(5)**	Wisconsin (O'Brien & Wibmer 1982, Downie & Arnett 1996)	May- July
Rhynchitinae					
Auletobius					
Auletobius ater LeConte	11	1897 / 2013	Dane, Grant, Wood, Iowa **(4)**	**NEW STATE RECORD**	May, June
Auletobius cassandrae LeConte	28	1911 / 2013	Bayfield, Florence, Jackson, Juneau, Marinette, Oconto,	Wisconsin (O'Brien & Wibmer 1982, Downie & Arnett 1996);	May - September

			Shawano, Wood **(8)**	Oneida (Hamilton 1983)	
Eugnamptus					
Eugnamptus angustatus Herbst	31	1897 / 2013	Columbia, Dane, Grant, Lafayette, Pierce, Rock, Sauk, St. Croix, Vernon, Waukesha, Wood**(11)**	Wisconsin (O'Brien & Wibmer 1982, Downie & Arnett 1996); Monroe, Washburn, (Hamilton 1990)	June - September
Eugnamptus puncticeps LeConte	9	1996	Crawford, Grant, Iowa, Vernon **(4)**	**NEW STATE RECORD**	July, August
Haplorhynchites					
Haplorhynchites aeneus Boheman	32	1889 / 1998	Burnett, Grant, Kenosha, Milwaukee **(4)**	Wisconsin (Blatchley & Leng 1916, O'Brien & Wibmer 1982, Downie & Arnett 1996)	July - September
Merhynchites					
Merhynchites bicolor Fabricius	239	1897 / 2013	Ashland, Barron, Brown, Burnett, Dane, Dodge, Douglas, Grant, Green, Iowa, Jackson, Jefferson, Kenosha, Manitowoc, Marathon, Marinette, Marquette, Milwaukee, Monroe, Polk, Portage, Racine, Richland, Sauk, St. Croix, Waukesha, Waushara, Winnebago, Wood **(27)**	Wisconsin (O'Brien & Wibmer 1982, Downie & Arnett 1996); Barron, Crawford, Kenosha	April - August
Temnocerus					
Temnocerus aeratus Say	11	1897 / 2012	Eau Claire, Florence, Marinette, Marquette, Portage, Waupaca **(6)**	**NEW STATE RECORD**	August, September
Temnocerus cyanellus LeConte	7	1898 / 1968	Bayfield, Dane, Dodge, Portage **(3)**	Wisconsin (O'Brien & Wibmer 1982, Downie	May, July

				& Arnett 1996); Bayfield (Hamilton 1971)	
Temnocerus perplexus Blatchley	1 (2?)	1931	Wood **(1)**	Wisconsin (O'Brien & Wibmer 1982, Downie & Arnett 1996); Oconto	June
Pterocolus			/		
Pterocolus ovatus	16	1898 / 2013	Dane, Dodge, Grant, Monroe, Sauk, Trempealeau, Waukesha **(7)**	**NEW STATE RECORD**	June-September
Brentidae					
Brentinae					
Ithycerinae					
Ithycerus					
Ithycerus noveboracensis Foster 1771	114	1898 / 2013	Adams, Bayfield, Columbia, Dane, Dodge, Door, Eau Claire, Green, Iowa, Jackson, Langlade, Manitowoc, Marinette, Marquette, Milwaukee, Monroe, Ozaukee, Polk, Sauk, Walworth, Washburn, Waukesha, Waushara, Wood **(23)**	Wisconsin (O'Brien & Wibmer 1982, Downie & Arnett 1996); Burnett, Douglas, Washburn, Waupaca (Stavney & Raffa 1988)	May-August
Arrenodes					
Arrenodes minutus (Drury)	252	1893 / 2013	Adams, Burnett, Chippewa, Columbia, Dane, Dodge, Dunn, Eau Claire, Fond du Lac, Grant, Green, Iowa, Jackson, Juneau, Kenosha, La Crosse, Lafayette, Marquette, Milwaukee, Oconto, Ozaukee, Pierce, Portage, Racine, Richland, Rock,	**NEW STATE RECORD**	February - October

			Sauk, Sheboygan, Taylor, Trempealeau, Vernon, Walworth, Waukesha, Wood**(34)**		
Apioninae					
Podapion					
Podapian gallicola Riley 1883	6	1961 / 2012	Marathon, Vilas **(1)**	Wisconsin (O'Brien & Wibmer 1982, Downie & Arnett 1996); Bayfield (Mattson 1969); Vilas (Sauer 2005)	June, July
Perapion					
Perapion punctinasum Smith 1884	1	1900/ 1975	Dane	Dane (Sauer 2005)	May
Perapion curtirostre	52	2009/ 2013	Adams, Ashland, Bayfield, Clark, Columbia, Dane, Dunn, Grant, Green, Iron, Jackson, Manitowoc, Marathon, Marquette, Rusk, Sauk, Shawano, Vilas, Waushara, Wood**(20)**	**NEW STATE RECORD**	April - Sept
Alocentron					
Alocentron attenuatum Smith 1884	5	1930 / 2013	Juneau, Kenosha, Lincoln, Wood **(3)**	Wood (Sauer 2005)	May-August
Alocentron fulvotibiale Wagner	1	1977 / 1977	Wood	Wood (Sauer 2005)	August
Ceratapion					
Ceratapion contusum Smith	4	1995 / 1999	Dane, Grant	Dane, Grant (Sauer 2005)	May- July
Ceratapion parallelum Smith	1	1996	Dane	Dane, Grant (Sauer 2005)	June
Neapion					
Neapion harpax	5	1897 / 1995	Dane **(1)**	**NEW STATE RECORD**	June
Neapion herculanum Smith	4	1897 / 2013	Fond du Lac, Milwaukee,	Wisconsin (O'Brien & Wibmer 1982, Downie	June

			Ozaukee **(3)**	& Arnett 1996)	
Neapion idiastes Kissinger	2	1975 / 1977	Fond du Lac	Fond du Lac (Sauer 2005)	June - August
Rhopalapion					
Rhopalapion longirostre Olivier 1807	161	1956 / 2012	Dane, Fond du Lac, Kenosha, Ozaukee, Racine, Washington, Winnebago **(6)**	Wisconsin (Kissinger 1968), (O'Brien & Wibmer 1982, Downie & Arnett 1996); Dane (Sauer 2005)	April-July, September, October
Eutrichapion					
Eutrichapion huron Fall 1898	5	1995 / 1998	Marquette, Oconto	Wisconsin (O'Brien & Wibmer 1982, Downie & Arnett 1996); Polk (Kissinger 1968); Marquette, Oconto, (Sauer 2005)	May, June
Eutrichapion cavifrons	1	2012 / 2012	Bayfield **(1)**	**NEW STATE RECORD**	June
Ischnocerapion					
Ischnocerapion virens	3	2011 / 2011	Kenosha **(1)**	**NEW STATE RECORD**	October
Betulapion					
Betulapion simile	15	1993/ 2013	Marathon, Oconto, Richland, Vilas **(4)**	**NEW STATE RECORD**	April - June, August - October
Kissingeria					
Kissingeria amaurum Kissinger 1968	43	1986/ 2007	Columbia, Crawford, Dane, Green, Iowa, Jefferson, Kenosha, Pierce, Trempealeau **(1)**	Columbia, Crawford, Dane, Green, Iowa, Jefferson, Kenosha, Pierce (Sauer 2005)	June - September
Kissingeria capitone Kissinger 1968	187	1995 / 2013	Barron, Buffalo, Dane, Jefferson, Grant, Green, Iowa, Kenosha, La Crosse, Monroe, Pierce, Sauk, Walworth, Waukesha, Winnebago **(1)**	Wisconsin (O'Brien & Wibmer 1982, Downie & Arnett 1996); Dane (Kissinger 1968); Barron, Buffalo, Columbia, Dane, Grant, Green, Iowa, Jefferson, Kenosha, Monroe, Pierce, Sauk, Trempealeau, Walworth, Waukesha, Winnebago (Sauer 2005)	May-October

Fallapion					
Fallapion bischoffi Fall 1925	11	1978 / 2012	Ashland, Green Lake, Iowa, Kenosha, Waukesha, Wood **(3)**	Green Lake, Iowa, Juneau, Kenosha (Sauer 2005)	May – October
Fallapion finitimum Fall	5	2001 / 2013	Grant, Iowa, Racine, Walworth, Winnebago **(5)**	Wisconsin (O'Brien & Wibmer 1982, Downie & Arnett 1996); Dodge (Kissinger 1968)	July - September
Fallapion impeditum Fall	3	1930 / 1997	Jackson, Sauk, Wood **(2)**	Sauk (Sauer 2005)	July, August
Fallapion impunctistriatum Smtih	18	1910 / 2013	Calumet, Dane, Dodge, Iowa, Juneau, Milwaukee, Ozaukee, Sauk, Washington, Waukesha, Winnebago **(10)**	Dane (Sauer 2005)	May, June, August, September, October
Fallapion melanarium Gerstaecker 1854	22	1894 / 2013	Dane, Dodge, Jackson, Langlade, Monroe, Ozaukee, Richland **(3)**	Wisconsin (O'Brien & Wibmer 1982, Downie & Arnett 1996); Dodge, Kenosha (Kissinger 1968); Jackson, Dane, Langlade (Sauer 2005)	March, April - July, August - October
Fallapion pennsylvanicum Boheman 1839	10	1910 / 2013	Dane, Dodge, Fond du Lac, Oconto, Sauk, Wood **(4)**	Dane, Oconto (Sauer 2005)	April - July
Fallapion occidentale	1	2009	Vernon **(1)**	**NEW STATE RECORD**	September
Trichapion					
Trichapion centrale Fall 1898	13	1897 / 2012	Bayfield, Dodge, Jackson, Winnebago, Wood **(3)**	Wisconsin (Kissinger 1968), (O'Brien & Wibmer 1982, Downie & Arnett 1996); Jackson, Winnebago (Sauer 2005)	May - July
Trichapion leporinum	1		Kenosha	Kenosha (Sauer 2005)	July
Trichapion minor Smith 1884	133	1899 / 2007	Adams, Columbia, Crawford, Dane, Grant, Green, Iowa, La Crosse, Marquette, Monroe, Pierce, Sauk, Trempealeau	Adams, Columbia, Crawford, Dane, Grant, Green, Iowa, La Crosse, Marquette, Walworth (Sauer 2005)	May - September

			Walworth **(4)**		
Trichapion modicum Kissinger 1968	159	1986 / 2013	Columbia, Crawford, Dane, Grant, Green, Green Lake Iowa, Jackson, Jefferson, Kenosha, Marquette **(2)**	Columbia, Crawford, Dane, Grant, Green, Iowa, Jackson, Jefferson, Marquette (Sauer 2005)	May – September
Trichapion nigrum Herbst 1797	13	1920 / 1983	Barron, Dane, Richland, Rock, Waupaca **(1)**	Wisconsin (Kissinger 1959, O'Brien & Wibmer 1982, Downie & Arnett 1996); Waupaca (Kissinger 1968); Barron,Richland, Rock, Waupaca (Sauer 2005)	May - July
Trichapion patruele Smith	18	1975 / 2013	Buffalo, Grant, Iowa, Jackson, Vernon **(5)**	Wisconsin (O'Brien & Wibmer 1982, Downie & Arnett 1996);Green Lake (Kissinger 1968)	June, July, September
Trichapion perforicolle Fall	17	1949 / 1977	Adams, Grant, Iowa, La Crosse, Marquette, Sauk **(2)**	Adams, Dunn, Grant, La Crosse, Marquette, Sauk, Sawyer (Sauer 2005)	May - August
Trichapion porcatum Boheman	1	1998	Fond du Lac	Fond du Lac (Sauer 2005)	July
Trichapion reconditum Gyllenhal	176	1897 / 2013	Calumet, Columbia, Dane, Dodge, Grant, Green, Jefferson, Kenosha, La Crosse, Menominee, Milwaukee, Ozaukee, Pepin, Rock, Sauk, Sawyer, Sheboygan, Trempealeau, Waukesha Walworth, Wood **(9)**	Wisconsin (O'Brien & Wibmer 1982, Downie and Arnett 1996); Milwaukee (Kissinger 1968); Columbia, Dane, Grant, Green, Jefferson, Kenosha, Rock, Sawyer, Waukesha, Walworth, Winnebago (Sauer 2005)	May - October
Trichapion rostrum Say	174	1917 / 2013	Adams, Columbia, Crawford, Dane, Grant, Iowa, Milwaukee, Monroe, Ozaukee, Rock, Sauk, Waukesha,	Wisconsin (Blatchley & Leng 1916, Tuttle 1954, O'Brien & Wibmer 1982); Dane (Kissinger 1968); Columbia, Crawford, Dane, Dunn,	April - November

			Waupaca **(4)**	Grant, Iowa, Monroe, Richland, Rock, Sauk, Waupaca (Sauer 2005)	
Trichapion tenuirostrum Smith	39	1970 / 2011	Buffalo, Dane, Kenosha, La Crosse, Lafayette, Rock, Sauk, Walworth, Waukesha, Winnebago	Buffalo, Columbia, Dane, Grant, Kenosha, La Crosse, Lafayette, Rock, Sauk, Walworth, Waukesha, Winnebago (Sauer 2005)	June - September, November
Trichapion roseae	1	1967	Dane **(1)**	**NEW STATE RECORD**	June
Coelocephalapion					
Coelocephalapion decoloratum Smith	26	1898 / 2012	Dane, La Crosse, Milwaukee, Ozaukee **(3)**	Dane (Sauer 2005)	June - August, October
Coelocephalapion emaciipes Fall	3	1898 / 1983	Dane	Dane (Sauer 2005)	May
Coelocephalapion carinatum	2	1911 / 2012	Dodge, Trempealeau **(2)**	**NEW STATE RECORD**	May, June
Sayapion					
Sayapion segnipes Say	26	1897 / 2002	Dane, Grant, Iowa, Sauk, Vernon **(2)**	Wisconsin (O'Brien & Wibmer 1982, Downie and Arnett 1996); Bayfield (Kissinger 1968); Dane, Iowa, Sauk (Sauer 2005)	April, May, July - October

Appendix A: Checklist of the of Primitive Weevils of Wisconsin

Family Nemonychidae Bedel
- **Subfamily Cimberidinae** Gozis
  - ***Cimberis*** Gozis
    - *Cimberis elongata* (LeConte)
    - *Cimberis pilosa* (LeConte)

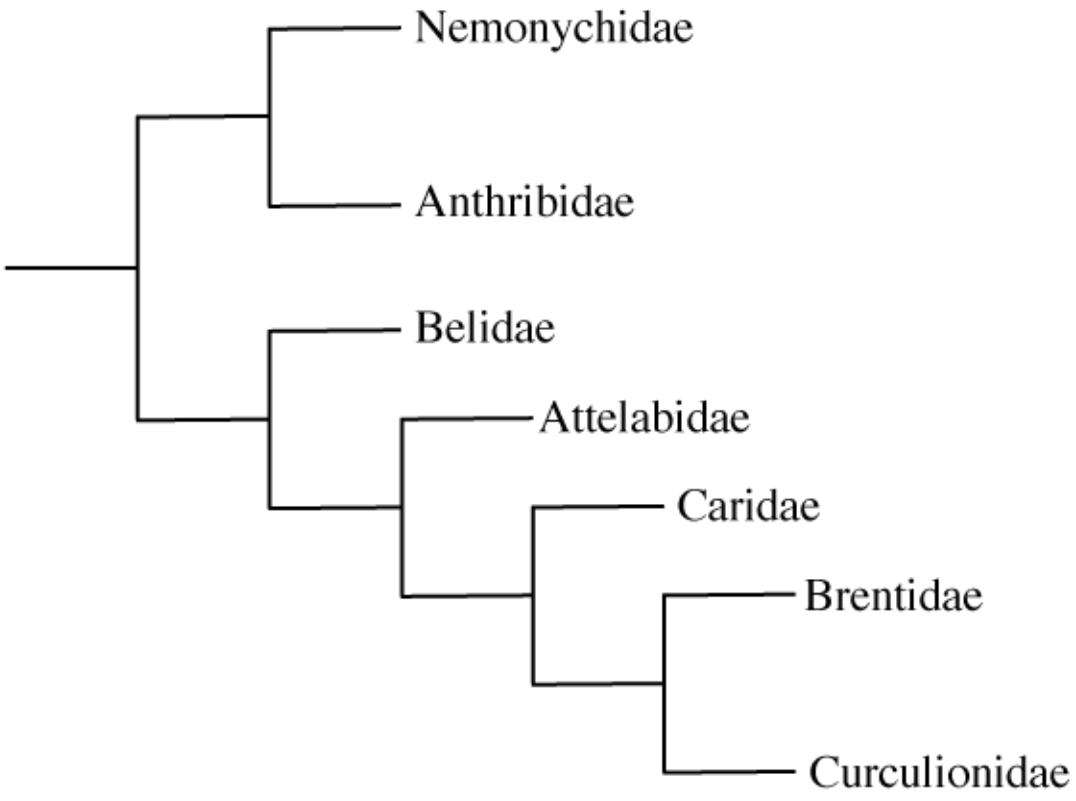
Family Anthribidae Billberg
- **Subfamily Choraginae** Kirby
  - ***Araecerus*** Schönherr
    - *Araecerus fasciatus* (De Geer)
  - ***Choragus*** Kirby
    - *Choragus zimmermanni* LeConte
  - ***Euxenus*** LeConte
    - *Euxenus punctatus* LeConte
- **Subfamily Anthribinae** Billberg
  - ***Allandrus*** LeConte
    - *Allandrus bifasciatus* LeConte
    - *Allandrus brevicornis* Frost
  - ***Anthribus*** Geoffroy
    - *Anthribus nebulosus* Forster
  - ***Euparius*** Schönherr
    - *Euparius marmoreus* (Olivier)
    - *Euparius paganus* Gyllenhal
  - ***Piesocorynus*** Dejean
    - *Piesocorynus moestus* (LeConte)
  - ***Goniocloeus*** Jordan
    - *Goniocloeus bimaulatus* (Olivier)
  - ***Trigonorhinus*** Wollaston
    - *Trigonorhinus alternatus* (Say)
    - *Trigonorhinus limbatus* (Say)
    - *Trigonorhinus rotundatus* (LeConte)
    - *Trigonorhinus sticticus* (Boheman)
    - *Trigonorhinus tomentosus* (Say)
  - ***Gonotropis*** LeConte
    - *Gonotropis gibbosus* LeConte
  - ***Eurymycter*** LeConte
    - *Eurymycter fasciatus* (Olivier)
    - *Eurymycter tricarinatus* Pierce
  - ***Eusphyrus*** LeConte
    - *Eusphyrus walshii* LeConte
  - ***Ormiscus*** Waterhouse
    - *Ormiscus saltator* LeConte

Family Attelabidae Billberg
- **Subfamily Attelabinae** Billberg
  - ***Attelabus*** Linneaus

Attelabus bipustulatus Fabricius
Attelabus nigripes LeConte
Homeolabus Jekel
Homeolabus analis (Illiger)
Himatolaus Jekel
Himatolabus pubescens (Say)
Subfamily Rhynchitinae Gistel
Eugnamptus Schönherr
Eugnamptus angustatus (Herbst)
Eugnamptus puncticeps LeConte
Haplorhynchites Voss
Haplorhynchites aeneus (Boheman)
Merhynchites Sharp
Merhynchites bicolor (Fabricius)
Tenmocerus Thunberg
Tenmocerus aeratus (Say)
Tenmocerus cyanellus (LeConte)
Tenmocerus perplexus (Blatchley)
Auletobius Debrochers
Auletobius ater (LeConte)
Auletobius cassandrae (LeConte)
Pterocolus Say
Pterocolus ovatus (Fabricius)
Family Brentidae Billberg
Subfamily Brentinae Billberg
Arrenodes Schönherr
Arrenodes minutus (Drury)
Subfamily Ithycerinae Pascoe
Ithycerus Schönherr
Ithycerus noveboracensis (Forster)
Subfamily Apioninae Schönherr
Podapion Riley
Podapion gallicola Riley
Perapion Wagner
Perapion curtirostre (Germar)
Perapion punctinasum (Smith)
Alocentron Schilsky
Alocentron attenuatum (Smith)
Alocentron fulvotibiale (Wagner)
Ceratapion Schilsky
Ceratapion contusum (Smith)
Ceratapion parallelum (Smith)
Neapion Alonso-Zarazaga
Neapion harpax (Kissinger)
Neapion herculanum (Smith)
Neapion idiastes (Kissinger)

Rhopalapion Schilsky
Rhopalapion longirostre (Olivier)
Eutrichapion Reitter
Eutrichapion huron (Fall)
Eutrichapion cavifrons (LeConte)
Ischnopterapion Bokor
Ischnopterapion virens (Herbst)
Betulapion Ehret
Betulapion simile (Kirby)
Kissingeria Alonso-Zarazaga
Kissingeria amarum (Kissinger)
Kissingeria capitone (Kissinger)
Trichapion Wagner
Trichapion centrale (Fall)
Trichapion leporinum (Salsbury)
Trichapion minor (Smith)
Trichapion modicum (Kissinger)
Trichapion nigrum (Herbst)
Trichapion patruele (Smith)
Trichapion perforicolle (Fall)
Trichapion porcatum (Boheman)
Trichapion reconditum (Gyllenhal)
Trichapion roseae (Kissinger)
Trichapion rostrum (Say)
Trichapion tenuirostrum (Smith)
Fallapion Kissinger
Fallapion bischoffi (Fall)
Fallapion finitimum (Fall)
Fallapion impeditum (Fall)
Fallapion impunctistriatum (Smith)
Fallapion melanarium (Gerstaecker)
Fallapion occidentale (Fall)
Fallapion pennsylvanicum (Boheman)
Coelocephalapion Wagner
Coelocephalapion carinatum (Smith)
Coelocephalapion decoloratum (Smith)
Coelocephalapion emanciipes (Fall)
Sayapion Kissinger
Sayapion segnipes (Say)

Appendix B: Phylogeny of Curculionoidea (Marvaldi et al., 2002)



Appendix C: Weevil Viewer

Weevil Viewer: An interactive mapping application for geographic and phenological exploration of Wisconsin's primitive weevils

Julia Janicki[a], Chaohe Guo[b], Max Conway[c], Richard Donohue[d], and Robert E. Roth[e]

[a] Department of Entomology, University of Wisconsin, Madison, USA; [b] Department of Civil Engineering, University of Wisconsin, Madison, USA; [c] Department of Geography, University of Wisconsin, Madison, USA.

(Received 23 December 2012; resubmitted 11 December 2013; accepted 1 February 2014)

ABSTRACT

Geographically-referenced faunal surveys are essential for land managers, conservation biologists, and entomologists to understand the distribution and diversity of organisms in the landscape. Further, the provision of faunal surveys through online and interactive mapping tools may generate new insights into species occurrence and location, ultimately leading to better informed decisions about how best to manage these species and their habitats. With these considerations in mind, we developed Weevil Viewer, an online, interactive mapping application for displaying the results of a faunal survey conducted on the four primitive weevil families found in Wisconsin. Design of Weevil Viewer was informed by Shneiderman's information seeking mantra, providing a pair of map overviews that can be filtered or zoomed iteratively by species, location, and time to glean new insights into the faunal distribution and diversity as well as to identify potential sites for future surveys. Weevil Viewer continues to be populated with new survey information and serves as a proof-of-concept application that can be extended to support the visual exploration of other biodiversity surveys.

KEYWORDS

interactive maps, geovisualization, spatiotemporal visualization, systematic entomology, ecological informatics, faunal surveys, weevils

1. Introduction

Systematic entomology is a subfield of entomology that focuses on the evolutionary relationships and classification of the various taxa of insects and related arthropods. Many of us deem insects as little more than a nuisance, but there are many positive aspects that come with insects and they can be beneficial in many ways. To list a couple, insects play important roles in sustaining ecosystems and numerous insect species can serve as biological control agents for invasive plant populations. Understanding the life histories and the geographic and phenological distributional patterns of insects therefore is essential for understanding and maintaining ecosystems.

Faunal surveys are the primary method for establishing baseline knowledge regarding the distribution and diversity of insect species. When geographically-

referenced, these surveys support land managers in making better informed management decisions and enable conservation biologists to assess the conservation values of the surveyed areas. Geographically-referenced survey information are also essential for research in biogeography, metapopulation studies, and habitat modeling. While important, the geographic and temporal components of these surveys commonly are

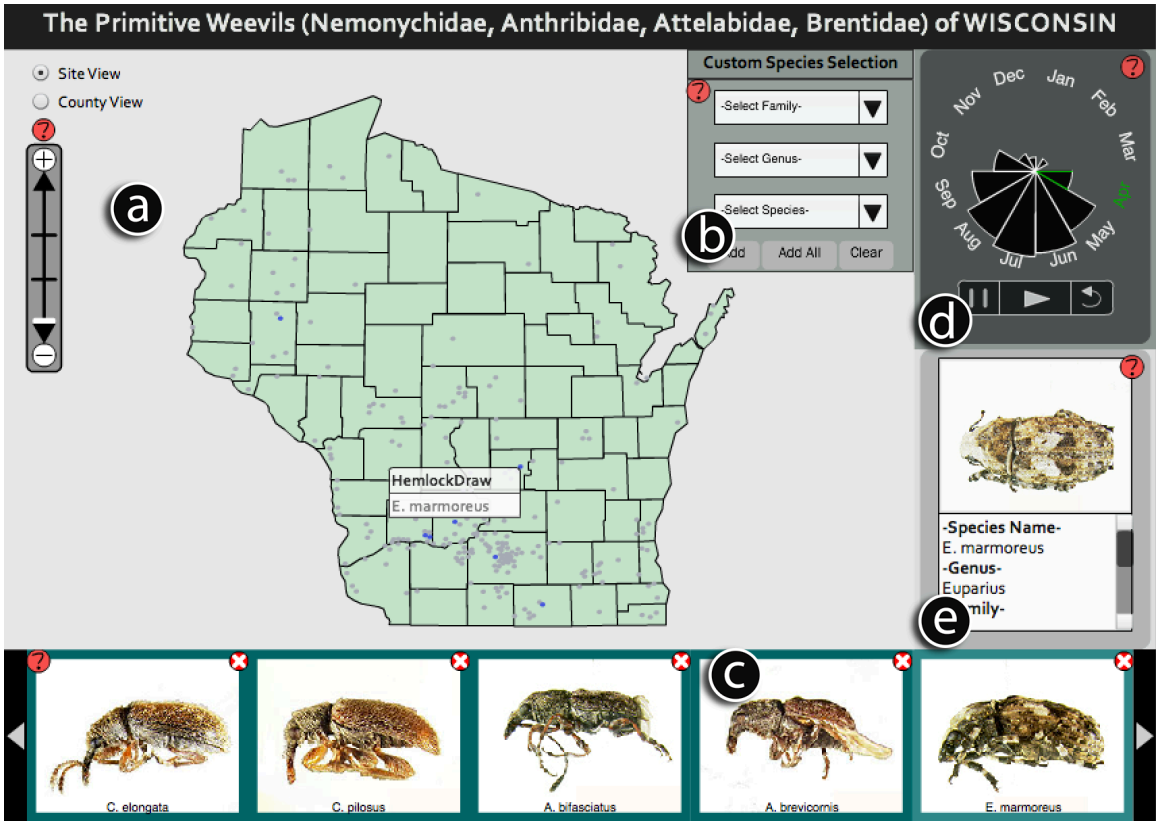


Figure 1: Weevil Viewer (http://www.geography.wisc.edu/maps/WeevilViewer/) consists of five coordinated panels: (a) the Map Panel (shown when Site View is selected), (b) the Custom Species Selection Panel, (c) the Selected Species Panel, (d) the Nightingale Temporal Clock Panel, and (e) the Information Panel.

underutilized, in part due to the lack of training in GIS concepts and tools by the domain experts who collect and analyze data associated with the surveys. We introduce and describe Weevil Viewer, an online and interactive mapping application describing the diversity, distribution, phenology, and natural history of four taxa of primitive weevils, a group of beetles most easily recognizable by the presence of a snout with straight antennae (Figure 1, main map: http://www.geography.wisc.edu/maps/WeevilViewer/). This particular weevil survey is part of a larger effort by the Young Lab of the UW–Madison Entomology Department, investigating the systematics of various insect taxa over the past 30 years. The purpose of this paper is to describe the design and development of a set of interactive mapping tools powerful enough to support exploration and analysis of space-time patterns in the weevil survey information, but usable by individuals without expertise in GIS. Weevil Viewer serves as a proof-of-concept application that can be expanded to other biodiversity surveys that incorporates both geographical and temporal data.

2. Background

2.1. Interactive Mapping of Faunal and Floral Surveys

Several existing online, interactive mapping applications depicting faunal or floral surveys are discussed within the framing of ecological informatics, or the use of information technology to support ecology. Best et al. (2007) developed an online application for indexing and mapping the geographically-referenced OBIS-SEAMAP marine animal biogeographical database. The resulting OBIS-SEAMAP information system—which leveraged a variety of geospatial web technologies—improved both the access to the survey data and the accessibility to higher level analytics (e.g., statistical models, scientific workflows) for interpreting the survey data. McGuire, Gangopadhyay, Komlodi, and Swan (2008) developed an online ecological data warehouse, which includes a suite of geoprocessing tools for the analysis and visualization of faunal and floral distributions in the context of their environmental and habitat conditions. Interestingly, the authors followed a user-centered approach to inform the design and development of the online data warehouse and associated interactive mapping tools. Finally, Auer, Maceachren, Mccabe, Pezanowski, and Styker (2011) developed an online, interactive mapping application called HerbariaViz that supports space-time exploration and analysis of a floral survey maintained by the Consortium of California Herbaria. HerbariaViz leverages best practices in cartographic design and interactive geovisualization, topics highly relevant to the design and development of Weevil Viewer.

2.2 Faunal Survey of Primitive Weevils

The superfamily Curculionoidea, or weevils, is a mega-diverse taxon of beetles with over 60,000 species that include both primitive and true weevils. Four primitive weevil families occur in Wisconsin: Nemonychidae, Anthribidae, Attelabidae and Brentidae. These primitive weevils are phylogenetically basal to true weevils (family Curculionidae) and can be distinguished by their straight antennae, as opposed to the geniculate antennae found in the true weevils. A faunal survey of these four families of primitive weevils was conducted to characterize the geographic (space) and phenological (time) distribution of all primitive weevil species in Wisconsin, including their associated habitats, host plants, and general diversity. The geographic dataset mapped in Weevil Viewer included information about 70 different species of primitive weevils from over 100 survey sites across Wisconsin. Both historical and original survey information were included in the mapped dataset. First, historical species occurrence records were compiled from published Wisconsin records. These published historical records were appended with unidentified or unpublished material from museum and private collections to expand the included list of species. Second, additional sites were identified based on weevil habitat types, with original survey information collected over two seasons to improve the number and distribution of survey sites. The resulting survey dataset is loaded into Weevil Viewer as a flat .csv file to provide a straightforward way for domain experts to update and append the survey dataset after the deployment of Weevil Viewer. The .csv file is structured to list the geographic units as rows and the species by month as columns; the geographic linework and species images are loaded dynamically when the application initializes.

2.3 User-Centered Design and Development of Weevil Viewer

Design and development of Weevil Viewer was informed by three key concepts

important to user-centered design: (1) the target user group, (2) the application's utility, and (3) the application's usability (Roth, Maceachren, & Mccabe, 2009). Targeted users of Weevil Viewer include land managers, conservation biologists, ecologists, and entomologists; the targeted users therefore have a high degree of expertise in the application domain, but relatively minimal experience using GIS or mapping tools. The primary goals of the targeted user group were the exploration and analysis of the faunal survey in space and time (MacEachren, 1994); the end goal was to generate and confirm new insights about the distribution and diversity of primitive weevils in Wisconsin.

Once the target user group was identified and articulated, we addressed the application's utility and usability. In practice, system utility and usability often result in a tradeoff (Robinson, Roth & Maceachren, 2011). To balance this tradeoff, we first identified a small set of core requirements for Weevil Viewer based on the primary needs of the targeted user group (described below); we limited the core requirements due to the aforementioned unfamiliarity with GIS and mapping tools by the target user group. We then worked through static mockups of the interface to identify potentially usable designs implementing this functionality. While informal feedback was collected throughout design and development of Weevil Viewer, we did not complete a formal usability assessment due to limitations in project resources. Weevil Viewer was deployed in May 2012 after three months of design and development.

3. Application description

Weevil Viewer consists of five coordinated panels (Figure 1): (a) a central Map Panel, displaying the distribution and diversity of species in the faunal survey, (b) a Custom Species Selection Panel, which allows users to filter the map by species, (c) a Selected Species Panel, which provides feedback to the user about the species contained within the filter criteria, (d) a Nightingale Temporal Clock Panel (Auer et al., 2011), which allows users to filter the map by time, and (e) an Information Panel, which provides details to the user about a single, selected species. The navigation of Weevil Viewer across these panels was designed in accordance with Shneiderman's (1996: 337) information seeking mantra of "overview first, zoom and filter, then details on demand", a well-established design philosophy for revealing new insights into voluminous datasets. As described below, the user can reexpress the Map Panel between two visually isomorphic overviews, or different representations of the same information set (Dou et al., 2010): a Site View and a County View. From the overviews, the user then can filter the information by species or month using the Custom Species Selection (attributes) and Nightingale Temporal Clock (time) Panels respectively. The user also can zoom to a site or county of interest (space) within the Map Panel. The ability to filter or zoom in space, time, and attribute follows Peuquet's (1994) TRIAD model of spatiotemporal information. Finally, additional details are available in the Information Panel when the user selects specific species, sites, or counties. A description of each coordinated panel is provided below.

The Map Panel can be displayed as two different isomorphic overviews: a Site View that presents the individual survey sites and a County View that aggregates the survey sites by county. The Site View plots the sites as points atop a vector basemap of Wisconsin. Sites containing survey data that match the user's filter criteria (e.g., species and month) are highlighted in bright blue, while sites that do not match the filter criteria

are deemphasized visually in gray. Flexible map browsing (i.e., panning and zooming) is supported in the Map Panel (Roth and Harrower, 2008), allowing the user to zoom to a site of interest through direct manipulation of the map itself (e.g., double-click) and through a zoom slider widget. Brushing a site activates an information window containing the site's name and the list of the species identified at the site that match the filter criteria. The user then can select a species from the list to retrieve details about the given species in the Information Panel.

The County View (Figure 2) has similar functionality as the Site View, but is presented as a choropleth map in which the county is the enumeration unit and the color scheme is associated with the number of species that are found in each county that match the filter criteria (Slocum et al., 2009). The County View primarily supports meta-analysis of the weevil survey, allowing for examination of the existing coverage of state and county records by weevil species. Although it is recommended to standardize enumerated information when portrayed in a choropleth map, the County View depicts raw number counts due to the low number of the survey sites (Krygier and Wood, 2011) and feedback from the targeted user group. As with the Site View, brushing a county activates an information window containing the county's name and the list of the species within the county that match the filter criteria.

The Custom Species Selection Panel allows the user to filter information by family, genus, or species, an important hierarchical structure in systematics. By default,

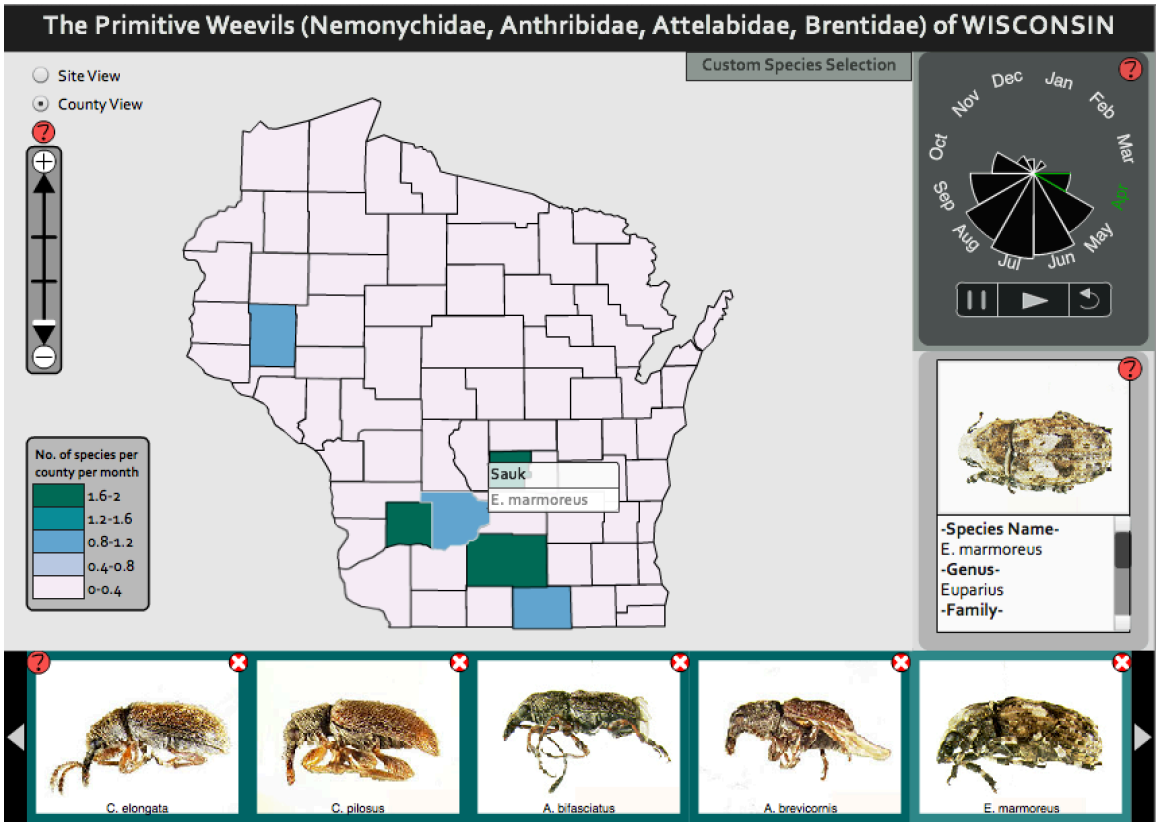


Figure 2: The County View.

all four families of primitive weevils are included in the Map Panel. The three dropdown menus included in the Custom Species Selection Panel are dynamically linked such that selection of a family (the top dropdown) updates the available selection parameters in the genus and species dropdown menus (Figure 3). The Selected Species Panel then provides feedback to the user about which species have been selected and are currently displayed in the Map Panel, providing a dorsal image of each species included within the filter criteria (Figure 4). Brushing a species image in the Selected Species Panel highlights the site or county containing the given species in the Map Panel and provides additional details about the species in the Information Panel. The user can further refine their species filter criteria using the close buttons included with each species image in the Selected Species Panel.

The Nightingale Temporal Clock Panel (Figure 5) provides an overview of the phenological information contained within the weevil survey, aggregated by month of the year. The size of each slice of the Nightingale Temporal Clock represents the relative number of species identified within that month, regardless of year, and thus provides an impression of seasonal variation. The Nightingale Temporal Clock Panel also allows the users to filter the Map Panel by time through direct manipulation of the Nightingale Temporal Clock itself or through the provided set of VCR sequence controls.

Finally, the Information Panel is populated with details about a selected weevil species, displaying a ventral image of the species and information about its family, genus, habitat, and host plant. A 'how-to' feature is provided for every panel to improve the usability of the application (Harrower and Brewer, 2003). Upon selecting the how-to button within a panel, the map activates an information panel containing a set of instructions for using the given panel.

4. Conclusion

Weevil Viewer is an online, interactive mapping application that depicts a faunal survey of primitive weevils of Wisconsin. The application supports the visual exploration and analysis tasks of land managers, conservation biologists, and entomologists. Following Shneiderman's information seeking mantra, users are able to generate a pair of overview maps, filter or zoom by space, time, and attribute, and retrieve details about individual species of interest, ultimately enabling the generation of new insights. We have continued to populate Weevil Viewer with new weevil records since its deployment in 2012. Weevil Viewer is a proof-of-concept application with potential extension to other biodiversity surveys. Future work includes evaluation of and refinement to the Weevil Viewer interface and transition of the Weevil Viewer concept to other insect taxa under study at the UW–Madison Young Lab.

Software

Weevil Viewer was built using Adobe Flash.

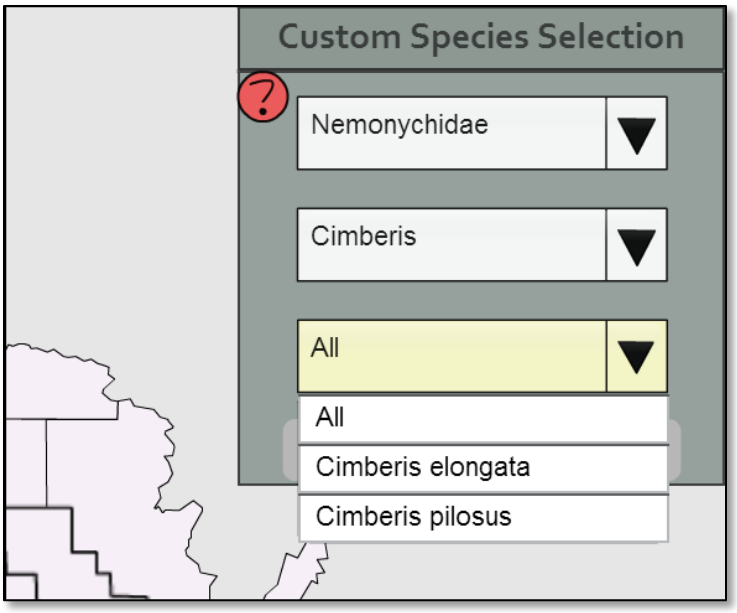


Figure 3: The Custom Species Selection Panel, allowing filtering by family, genus, and species. Parameters of the dropdown menus update according to prior selections. In this case, the family Nemonychidae and genus *Cimberis* have been selected.

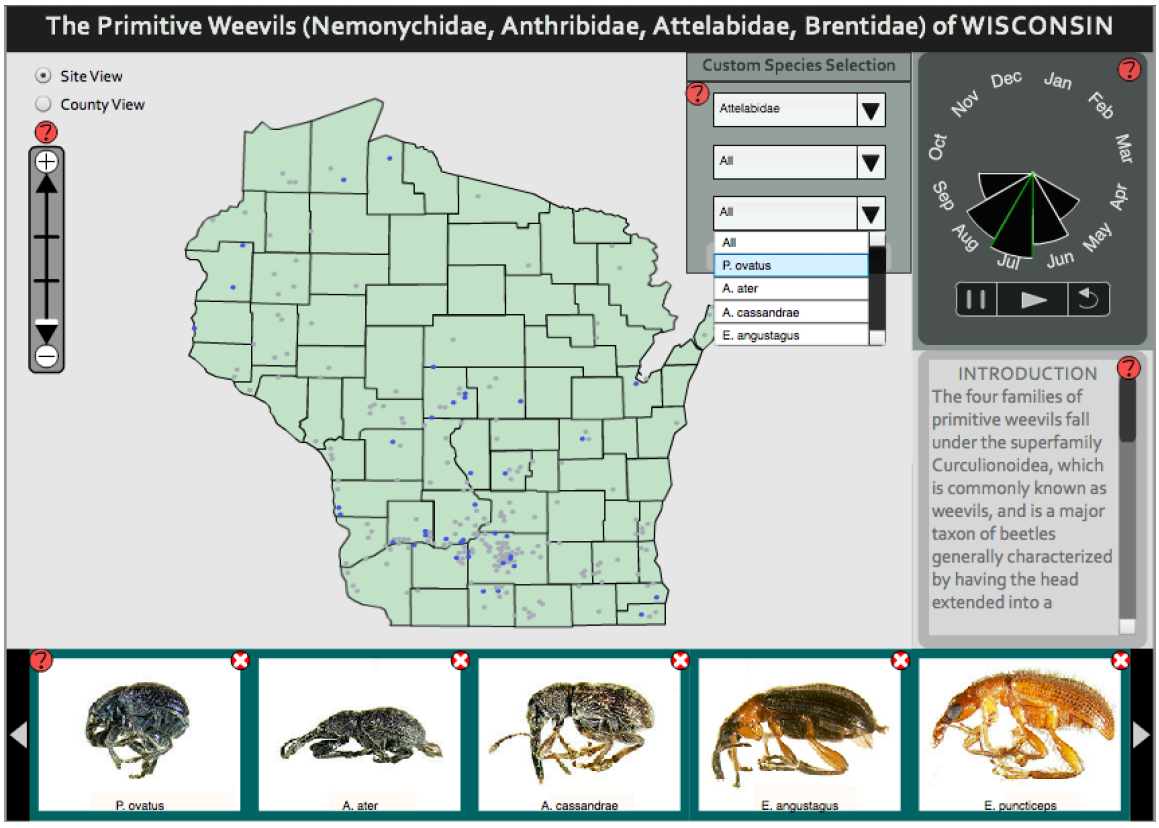


Figure 4: The Selected Species Panel, updating content according to the user's filter criteria in the Custom Species Selection Panel.

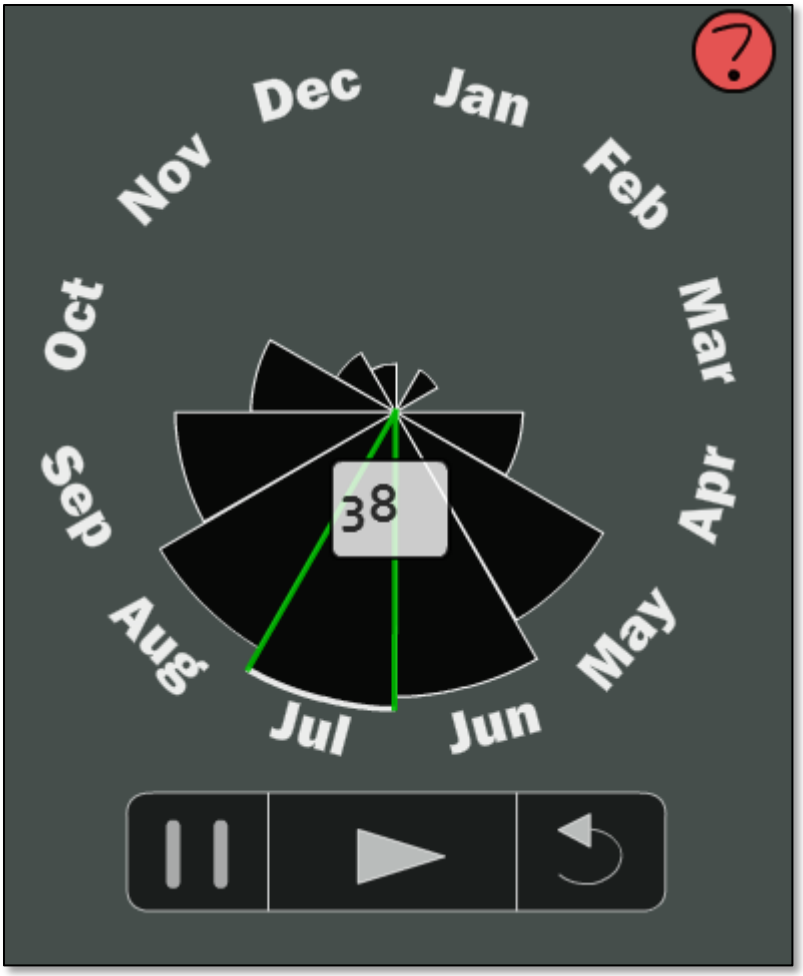


Figure 5: The Nightingale Temporal Clock Panel, which updates according filter criteria in the Selected Species Panel.

Acknowledgements

We wish to acknowledge the UW–Madison Young Lab for supporting the field collection of the survey dataset, as well as input and feedback on the Weevil Viewer application, and the Wisconsin Insect Research Collection for providing the historical information included in the survey dataset.

References

AUER, T., MACEACHREN, A., MCCABE, C., PEZANOWSKI, S., and STYKER, M., 2011. HerbariaViz: A web-based client-server interface for mapping and exploring flora observation data. *Ecological Informatics*. 6, 93-110.

BEST, B., HALPIN, P., FUJIOKA, E., READ, A., QIAN, S., HAZEN, L., and SCHICK, R., 2007. Geospatial web services within a scientific workflow: Predicting marine mammal habitats in a dynamic environment. *Ecological Informatics*. 2, 210-223.

DOU, W., ZIEMKIEWICZ, C., HARRISON, L., JEONG, D. H., RYAN, R., RIBARSKY, W., WANG, X. and CHANG, R. 2010. Comparing different levels of interaction constraints for deriving visual problem isomorphs. Visual Analytics Science and Technology (VAST), 2010 IEEE Symposium on, 195-202.

HARROWER, M. and BREWER, C.A., 2003. ColorBrewer.org: An online tool for selecting colour schemes for maps. *The Cartographic Journal 40*, 1, 27-37.

KRYGIER, J. and WOOD, D., 2011. Making Maps: A Visual Guide to Map Design for GIS. Guilford Press.

MACEACHREN, A.M., 1994. Visualization in modern cartography: Setting the agenda. In *Visualization in modern cartography*, A.M. MACEACHREN and D.R.F. TAYLOR Eds. Pergamon, Oxford, England, 1-12.

MCGUIRE, M., GANGOPADHYAY, A., KOMLODI, A., and SWAN, C., 2008. A user-centered design for a spatial data warehouse for data exploration in environmental research. *Ecological Informatics*. 3, 273-285.

PEUQUET, D.J. 1994. It's about time: A conceptual framework for the representation of temporal dynamics in geographic information systems. *Annals of the Association of American Geographers*, vol. 84, no. 3, pp. 441-461.

ROBINSON, A., ROTH, R., and MACEACHREN, A., 2011. Designing a web-based learning portal for geographic visualization and analysis in public health. *Health Informatics 17*, 191-208.

ROTH, R.E. and HARROWER, M., 2008. Addressing map interface usability: Learning from the Lakeshore Nature Preserve Interactive Map. *Cartographic Perspectives 60*, Spring, 46-66.

ROTH, R.E., MACEACHREN, A.M., and MCCABE, C.A., 2009. A workflow learning model to improve geovisual analytics utility. In *24th International Cartographic Conference*, Santiago, Chile, 1-10

SHNEIDERMAN, B., 1996. The eyes have it: A task by type taxonomy for information visualization. In *Conference on Visual Languages*, Boulder, CO, pp. 336-343, 1996.

SLOCUM, T.A., MCMASTER, R.B., KESSLER, F.C., HOWARD, H. H., 2009. *Thematic Cartography and Geovisualization*. (Third Edition). Prentice Hall Series in Geographic Information Science. Prentice Hall.

atalog Numb	Determined By (LAST)	Determined By (FIRST)	Repository	CollectedBy (LAST	CollectedBy(FIRST	Date Collected(Start	Date Collected(End	Collecting Information - Remarks	Collecting Method	Locality	County	Latitude	Longitude	Townshp	Rang	Section	Genus	Species	Fami
IRC0002615	Warner	R.	WIRC	Shenefelt	R. D.	1950/05/03		from Pinus banksiana	Hand collected	Griffith st. nuresry	Wood						Cimberis	elongata	Nemo
IRC0002616	L. J. B.		WIRC	Shenefelt	R. D.	1952/05/13		on PJ	Hand collected	Hwy Y, E of Gordon	Douglas						Cimberis	elongata	Nemo
IRC0002615	L. J. B.		WIRC	Shenefelt	R. D.	1952/05/13		on PJ	Hand collected	Hwy Y, E of Gordon	Douglas						Cimberis	elongata	Nemo
IRC0002616	Warner	R.	WIRC	Shenefelt	R. D.	1952/05/14		On PJ	Hand collected	4 mi E. of Gordon	Douglas						Cimberis	elongata	Nemo
IRC0002615	Warner	R.	WIRC	Shenefelt	R. D.	1952/05/14		On PJ	Hand collected	4 mi E. of Gordon	Douglas						Cimberis	elongata	Nemo
IRC0000972	Young	Daniel		Pope	Katy	1996/05/30			Flight Intercept trap	Necedah National Wildlife Refuge	Juneau		0.0 E				Cimberis	elongata	Nemo
SIL00009591	Young	Daniel		Pope	Katy	1996/06/04			Flight Intercept trap	Necedah National Wildlife Refuge	Juneau		0.0 E				Cimberis	elongata	Nemo
IRC0002616	Janicki	Julia	WIRC	Maxwell	Judith A.	1997/05/22		on fresh cut pinus banksiana logs, pine forest	hand collected	Fort McCoy, 1 mi SE of Big Sandy Lake	Monroe						Cimberis	elongata	Nemo
IRC0002617	Janicki	Julia	WIRC	Young	Daniel K.	2010/04/09	2010/04/19	Malaise trap in old populus deadfall	Malaise trap	Quincy Bluff SNA	Adams	43.86966° N	89.87946° W				Cimberis	elongata	Nemo
IRC0002617	Janicki	Julia	WIRC	Gullickson	Kari	2012/04/05		Malaise trap: mixed hardwood forested, baited with turpentin	Malaise trap	N. of Co. WW, E of Co. W	Marathon	45.04425° N	89.59853° W				Cimberis	elongata	Nemo
IRC0002616	Janicki	Julia	WIRC	Janicki	Julia	2012/04/22		Beating Pinus banksiana	Beating	Mecan River public hunting ground	Marquette	32.952646° N	89.339483° W				Cimberis	elongata	Nemo
IRC0002749	Janicki	Julia	MAPC	Pynnonen	Mark	2012/04/22		Beating Pinus bamksiana branches with male cones	Beating	Mecan River Public Hunting Ground	Marquette	43.95264° N	89.34044° W				Cimberis	elongata	Nemo
IRC0002749	Janicki	Julia	MAPC	Pynnonen	Mark	2012/04/22		Beating Pinus bamksiana branches with male cones	Beating	Mecan River Public Hunting Ground	Marquette	43.95264° N	89.34044° W				Cimberis	elongata	Nemo
IRC0002749	Janicki	Julia	MAPC	Pynnonen	Mark	2012/04/22		Beating Pinus bamksiana branches with male cones	Beating	Mecan River Public Hunting Ground	Marquette	43.95264° N	89.34044° W				Cimberis	elongata	Nemo
IRC0002750	Janicki	Julia	MAPC	Pynnonen	Mark	2012/04/29		Beating Pinus strobus branches	Beating	LWRSGA Lone Rock Unit	Richland	43.19352° N	90.23922° W				Cimberis	elongata	Nemo
IRC0002616	Janicki	Julia	WIRC	Janicki	Julia	2012/05/04		Beating Pinus banksiana	Beating	Mecan River Public Hunting Ground	Marquette	43.952646° N	89.339483° W				Cimberis	elongata	Nemo
IRC0002616	Janicki	Julia	WIRC	Janicki	Julia	2013/05/04		Beating Pinus banksiana	Beating	Navarino Wildlife Area	Shawano	44.676913° N	88.515587° W				Cimberis	elongata	Nemo
IRC0002617	Janicki	Julia	WIRC	Janicki	Julia	2013/05/04		Beating Pinus banksiana	Beating	Deer Creek State Wildlife Area	Waupaca	44.596474° N	88.638431° W				Cimberis	elongata	Nemo
IRC0002616	Janicki	Julia	WIRC	Janicki	Julia	2013/05/04		Beating Pinus banksiana	Beating	Navarino Wildlife Area	Shawano	44.676913° N	88.515587° W				Cimberis	elongata	Nemo
IRC0002616	Janicki	Julia	WIRC	Janicki	Julia	2013/05/04		Beating Pinus banksiana	Beating	Navarino Wildlife Area	Shawano	44.676913° N	88.515587° W				Cimberis	elongata	Nemo
IRC0002617	Janicki	Julia	WIRC	Janicki	Julia	2013/05/04		Beating Pinus banksiana	Beating	Navarino Wildlife Area	Shawano	44.676913° N	88.515587° W				Cimberis	elongata	Nemo
IRC0002617	Janicki	Julia	WIRC	Janicki	Julia	2013/05/04		Beating Pinus banksiana	Beating	Deer Creek State Wildlife Area	Waupaca	44.596474° N	88.638431° W				Cimberis	elongata	Nemo
IRC0002617	Janicki	Julia	WIRC	Janicki	Julia	2013/05/04		Beating Pinus banksiana	Beating	Navarino Wildlife Area	Shawano	44.676913° N	88.515587° W				Cimberis	elongata	Nemo
IRC0002617	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Beating Pinus banksiana	Beating	Dunbar Barrens	Marinette	45.658935° N	88.250000° W				Cimberis	elongata	Nemo
IRC0002617	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Beating Pinus banksiana	Beating	Road to Spread Eagle Barrens SNA	Florence	45.817430° N	88.167477° W				Cimberis	elongata	Nemo
IRC0002616	Hamilton	R.	WIRC	Shenefelt	R. D.	1960/06/13			Malaise Trap	Wisconsin Rapids, Griffith Nursery	Wood						Cimberis	pilosa	Nemo
IRC0002616	Janicki	Julia	WIRC	Shenefelt	R. D.	1962/05/13		On PJ	Hand collected	Hwy Y, E. of Gordon	Douglas						Cimberis	pilosa	Nemo
SIL00009723	Young	Daniel		Pope	Katy	1996/05/28			Flight Intercept trap	Necedah National Wildlife Refuge	Juneau		0.0 E				Cimberis	pilosa	Nemo
IRC0002617	Janicki	Julia	WIRC	Gullickson	Kari	2012/04/05		Malaise Trap: Mixed hardwood forest, baited with turpentine	Malaise Trap	N of Co. WW, E of Co. W	Marathon	45.04425° N	89.59853° W				Cimberis	pilosa	Nemo
IRC0002618	Janicki	Julia	WIRC	Gullickson	Kari	2012/04/05	2012/04/23	Malaise Trap: Mixed hardwood forest, baited with turpentine	Malaise Trap	N of Co. WW, E of Co. W	Marathon	45.04425° N	89.59853° W				Cimberis	pilosa	Nemo
IRC0002619	Janicki	Julia	WIRC	Janicki	Julia	2012/04/22		Beating Pinus banksiana	Beating	Mecan River Public Hunting Ground	Marquette	43.952646° N	89.339483° W				Cimberis	pilosa	Nemo

IRC0002618	Janicki	Julia	WIRC	Janicki	Julia	2012/04/22		Lindgren funnel trap/ jack pine	Lindgren funnel trap	Mecan River Public Hunting Ground	Marquette	43.952646° N	89.339483° W				Cimberis	pilosa	Nemo
IRC0002617	Janicki	Julia	WIRC	Gullickson	Kari	2012/04/23	2012/05/05	Malaise Trap: Mixed hardwood forest, baited with turpentine	Malaise Trap	N of Co. WW, E of Co. W	Marathon	45.04425° N	89.59853° W				Cimberis	pilosa	Nemo
IRC0002618	Janicki	Julia	WIRC	Gullickson	Kari	2012/04/23		Malaise Trap: Mixed hardwood forest, baited with turpentine	Malaise Trap	N of Co WW, E of Co W	Marathon	45.04425° N	89.59853° W				Cimberis	pilosa	Nemo
IRC0002618	Janicki	Julia	WIRC	Gullickson	Kari	2012/04/23	2012/05/05	Malaise Trap: Mixed hardwood forest, baited with turpentine	Malaise Trap	N of Co. WW, E of Co. W	Marathon	45.04425° N	89.59853° W				Cimberis	pilosa	Nemo
IRC0002619	Janicki	Julia	WIRC	Janicki	Julia	2012/04/29		Beating red pine	Beating	Lone Rock: Lower WI SRW	Richland	43° 11' 36" N	90° 14' 20" W				Cimberis	pilosa	Nemo
IRC0002619	Janicki	Julia	WIRC	Janicki	Julia	2012/04/29		Beating red pine	Beating	Lone Rock: Lower WI SRW	Richland	43° 11' 36" N	90° 14' 20" W				Cimberis	pilosa	Nemo
IRC0002618	Janicki	Julia	WIRC	Gullickson	Kari	2012/05/20	2012/05/27	Malaise Trap: Mixed hardwood forest, baited with turpentine	Malaise trap	N of Co. WW, E of Co. W	Marathon	45.04425° N	89.59853° W				Cimberis	pilosa	Nemo
IRC0002619	Janicki	Julia	WIRC	Janicki	Julia	2013/05/04		Beating Pinus banksiana	Beating	Navarino Wildlife Area	Shawano	44.676913° N	88.515587° W				Cimberis	pilosa	Nemo
IRC0002618	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Beating Pinus banksiana	Beating	Dunbar Barrens SNA	Marinette	45.648935° N	88.255000° W				Cimberis	pilosa	Nemo
IRC0002618	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Beating Pinus banksiana	Beating	Dunbar Barrens SNA	Marinette	45.648935° N	88.255000° W				Cimberis	pilosa	Nemo
IRC0002618	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Beating Pinus banksiana	Beating	Dunbar Barrens SNA	Marinette	45.648935° N	88.255000° W				Cimberis	pilosa	Nemo
IRC0002618	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Beating Pinus banksiana	Beating	Road to spread eagle barrens	Florence	45.817430° N	88.167477° W				Cimberis	pilosa	Nemo
IRC0002621	Janicki	Julia	WIRC	Young	Daniel K.	2001/07/11	2001/07/19		Lindgren Funnel Tra	Hemlock Draw	Sauk	43° 21' 34" N	89° 56' 54" W				Choragus	zimmermanni	Anthr
IRC0002621	Janicki	Julia	WIRC	Young	Daniel K.	2001/07/11	2001/07/19		Lindgren Funnel Tra	Hemlock Draw	Sauk	43° 21' 34" N	89° 56' 54" W				Choragus	zimmermanni	Anthr
IRC0002622	Janicki	Julia	WIRC	Messer	P	2001/07/13		Woods Swept Day	Sweep net	Milwaukee	Milwaukee	42.925° N	87.906° W				Choragus	zimmermanni	Anthr
IRC0002621	Janicki	Julia	WIRC	Young	Daniel K.	2001/07/19	2001/07/25		Flight intercept trap	Hemlock Draw	Sauk	43° 21' 58" N	89° 56' 52" W				Choragus	zimmermanni	Anthr
IRC0002621	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2009/07/19		Beaten from branches of dry Tilia americana tree, dry-mesic southern forest, early evening	Beating	Spring Green Pres. SNA	Sauk	43° 11' 58" N	90° 03' 32" W				Choragus	zimmermanni	Anthr
IRC0002622	Janicki	Julia	WIRC	Young	Daniel K.	2011/07/25	2011/08/03	Fagus-Acer forest	Malaise trap	UW Milwaukee Field Station	Ozaukee	43.38567° N	88.02638° W				Choragus	zimmermanni	Anthr
IRC0002622	Janicki	Julia	WIRC	Young	Daniel K.	2011/07/25	2011/08/03	Fagus-Acer forest	Malaise trap	UW Milwaukee Field Station	Ozaukee	43.38567° N	88.02638° W				Choragus	zimmermanni	Anthr
IRC0002621	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2001/07/29		Near slime mold plasmodium under bark of fallen tree in southern mesic hardwood forest	Hand collected	Renak Polak Woods SNA	Racine	42° 48' 10" N	87° 52' 14" W				Euxenus	punctatus	Anthr
IRC0002747	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2008/07/12		found at point where one log was sitting atop another, edge of small woods near Helena Marsh, early afternoon	hand collected	LWRSWA Helena Unit	Iowa	43° 09' 45" N	90° 01' 31" W				Euxenus	punctatus	Anthr
IRC0002699	Janicki	Julia	MPM	Rauterberg	F			before Oct 1897		N/A							Allandrus	bifasciatus	Anthr
IRC0002699	Janicki	Julia	MPM	Rauterberg	F			before Oct 1897		N/A							Allandrus	bifasciatus	Anthr
IRC0002699	Janicki	Julia	MPM	Rauterberg	F			before Oct 1897		N/A							Allandrus	bifasciatus	Anthr
IRC0002699	Janicki	Julia	MPM	Wheeler	W			before Oct 1889		N/A	Milwaukee						Allandrus	bifasciatus	Anthr
IRC0002699	Janicki	Julia	MPM	Rauterberg	F			before Oct 1897		N/A							Allandrus	bifasciatus	Anthr
IRC0002699	Janicki	Julia	MPM	Rauterberg	F			before Oct 1897		N/A							Allandrus	bifasciatus	Anthr
IRC0002699	Janicki	Julia	MPM	Wheeler	W			before Oct 1889		N/A	Milwaukee						Allandrus	bifasciatus	Anthr
IRC0002624	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2009/08/22		Beaten from branches of live Tilia americana tree, mixed hardwood forest edge at top of steep dry bluff prairie	Beating	Blue River Bluffs SNA	Grant	43° 10' 38" N	90° 36' 47" W				Allandrus	bifasciatus	Anthr
IRC0002626	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2009/08/22		Beaten from branches of live Tilia americana tree, mixed hardwood forest edge at top of steep dry bluff prairie	Beating	Blue River Bluffs SNA	Grant	43° 10' 38" N	90° 36' 47" W				Allandrus	bifasciatus	Anthr
IRC0002626	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2009/08/22		Beaten from branches of live Tilia americana tree, mixed hardwood forest edge at top of steep dry bluff prairie	Beating	Blue River Bluffs SNA	Grant	43° 10' 38" N	90° 36' 47" W				Allandrus	bifasciatus	Anthr

IRC0002624	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2009/08/22		Beaten from branches of live Tilia americana tree, mixed hardwood forest edge at top of steep dry bluff prairie	Beating	Blue River Bluffs SNA	Grant	43° 10' 38" N	90° 36' 47" W				Allandrus	bifasciatus	Anthr
IRC0002626	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2009/08/22		Beaten from branches of live Tilia americana tree, mixed hardwood forest edge at top of steep dry bluff prairie	Beating	Blue River Bluffs SNA	Grant	43° 10' 38" N	90° 36' 47" W				Allandrus	bifasciatus	Anthr
IRC0002624	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2009/08/22		Beaten from branches of live Tilia americana tree, mixed hardwood forest edge at top of steep dry bluff prairie	Beating	Blue River Bluffs SNA	Grant	43° 10' 38" N	90° 36' 47" W				Allandrus	bifasciatus	Anthr
IRC0002626	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2009/08/22		Beaten from branches of live Tilia americana tree, mixed hardwood forest edge at top of steep dry bluff prairie	Beating	Blue River Bluffs SNA	Grant	43° 10' 38" N	90° 36' 47" W				Allandrus	bifasciatus	Anthr
IRC0002626	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2010/08/01		Beaten from branches of live Tilia americana tree, dry-mesic southern forest	Beating	Spring Green Pres. SNA	Sauk	43° 11' 58" N	90° 03' 32" W				Allandrus	bifasciatus	Anthr
IRC0002627	Janicki	Julia	WIRC	Gullickson	Kari	2012/07/01	2012/07/13	Mixed hardwood forest, baited with Turpentine	Malaise trap	S of Hwy 8, E of Hwy 46	Polk	45.38746° N	92.34577° W				Allandrus	bifasciatus	Anthr
IRC0002625	Janicki	Julia	WIRC	Gullickson	Kari	2012/07/25	2012/08/01	Lindgren, mixed hardwoods	Lindgren funnel trap	N of Co. QQ, E of Hwy 53	Eau Claire	44.82344° N	91.40142° W				Allandrus	bifasciatus	Anthr
IRC0002627	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/07/28		Beaten from branches of live Tilia americana tree, roadside, edge of recently cleared prairie pasture	Beating	Langberry Rd., 7.1km, ESE of Ridgeway	Iowa	42° 59' 17" N	89° 54' 20" W				Allandrus	bifasciatus	Anthr
IRC0002627	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/07/28		Beaten from branches of live Tilia americana tree, roadside, edge of recently cleared prairie pasture	Beating	Langberry Rd., 7.1km, ESE of Ridgeway	Iowa	42° 59' 17" N	89° 54' 20" W				Allandrus	bifasciatus	Anthr
IRC0002625	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/04		Beaten from branches of live Tilia americana tree, forest/grassland interface, hardwood dominated forest	Beating	Goose Lake SWA	Dane	43° 06' 22" N	89° 02' 32" W				Allandrus	bifasciatus	Anthr
IRC0002625	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/04		Beaten from branches of live Tilia americana tree, forest/grassland interface, hardwood dominated forest	Beating	Goose Lake SWA	Dane	43° 06' 22" N	89° 02' 32" W				Allandrus	bifasciatus	Anthr
IRC0002625	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/04		Beaten from branches of live Tilia americana tree, forest/grassland interface, hardwood dominated forest	Beating	Goose Lake SWA	Dane	43° 06' 22" N	89° 02' 32" W				Allandrus	bifasciatus	Anthr
IRC0002625	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/04		Beaten from branches of live Tilia americana tree, forest/grassland interface, hardwood dominated forest	Beating	Goose Lake SWA	Dane	43° 06' 22" N	89° 02' 32" W				Allandrus	bifasciatus	Anthr
IRC0002625	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/04		Beaten from branches of live Tilia americana tree, forest/grassland interface, hardwood dominated forest	Beating	Goose Lake SWA	Dane	43° 06' 22" N	89° 02' 32" W				Allandrus	bifasciatus	Anthr
IRC0002626	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/04		Beaten from branches of live Tilia americana tree, forest/grassland interface, hardwood dominated forest	Beating	Goose Lake SWA	Dane	43° 06' 22" N	89° 02' 32" W				Allandrus	bifasciatus	Anthr
IRC0002625	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/04		Beaten from branches of live Tilia americana tree, forest/grassland interface, hardwood dominated forest	Beating	Goose Lake SWA	Dane	43° 06' 22" N	89° 02' 32" W				Allandrus	bifasciatus	Anthr
IRC0002625	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/04		Beaten from branches of live Tilia americana tree, forest/grassland interface, hardwood dominated forest	Beating	Goose Lake SWA	Dane	43° 06' 22" N	89° 02' 32" W				Allandrus	bifasciatus	Anthr
IRC0002625	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/04		Beaten from branches of live Tilia americana tree, forest/grassland interface, hardwood dominated forest	Beating	Goose Lake SWA	Dane	43° 06' 22" N	89° 02' 32" W				Allandrus	bifasciatus	Anthr
IRC0002624	Janicki	Julia	WIRC	Janicki	Julia	2012/08/07		Beating dead branches of live Tilia americana	Beating	Red Cedar State Trail	Dunn	44.774274° N	91.931964° W				Allandrus	bifasciatus	Anthr
IRC0002624	Janicki	Julia	WIRC	Janicki	Julia	2012/08/07		Beating dead branches of live Tilia americana	Beating	Red Cedar State Trail	Dunn	44.774274° N	91.931964° W				Allandrus	bifasciatus	Anthr
IRC0002624	Janicki	Julia	WIRC	Janicki	Julia	2012/08/07		Beating dead branches of live Tilia americana	Beating	Red Cedar State Trail	Dunn	44.774274° N	91.931964° W				Allandrus	bifasciatus	Anthr
IRC0002624	Janicki	Julia	WIRC	Janicki	Julia	2012/08/25		Beating Tilia americana	Beating	Sanders Park	Racine	42° 40' 29" N	87° 50' 24" W				Allandrus	bifasciatus	Anthr
IRC0002624	Janicki	Julia	WIRC	Janicki	Julia	2012/08/25		Beating Tilia americana	Beating	Sanders Park	Racine	42° 40' 29" N	87° 50' 24" W				Allandrus	bifasciatus	Anthr
IRC0002625	Janicki	Julia	WIRC	Janicki	Julia	2012/08/28		Beating Tilia americana	Beating	Hemlock Draw	Sauk	43.36063° N	89.94788° W				Allandrus	bifasciatus	Anthr
IRC0002746	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/09/14		beaten from branches of Tilia americana tree, mixed hardwood forest	Beating	Madison, Olin-Tuville Park	Dane	43° 03' 11" N	89° 22' 22" W				Allandrus	bifasciatus	Anthr
IRC0002745	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/09/14		beaten from branches of Tilia americana tree, mixed hardwood forest	Beating	Madison, Olin-Tuville Park	Dane	43° 03' 11" N	89° 22' 22" W				Allandrus	bifasciatus	Anthr
IRC0002627	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/09/15		Beaten from branches of live Tilia americana tree, roadside, edge of recently cleared prairie pasture	Beating	Langberry Rd., 7.1 km ESE of Ridgeway	Iowa	42° 59' 17" N	89° 54' 20" W				Allandrus	bifasciatus	Anthr
IRC0002627	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/09/15		Beaten from branches of live Tilia americana tree, roadside, edge of recently cleared prairie pasture	Beating	Langberry Rd., 7.1 km ESE of Ridgeway	Iowa	42° 59' 17" N	89° 54' 20" W				Allandrus	bifasciatus	Anthr
IRC0002626	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/09/15		Beaten from branches of live Tilia americana tree, roadside, edge of recently cleared prairie pasture	Beating	Langberry Rd., 7.1 km ESE of Ridgeway	Iowa	42° 59' 17" N	89° 54' 20" W				Allandrus	bifasciatus	Anthr
IRC0002746	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/06/23		beaten from branches of Tilia americana tree, mixed hardwood/conifer forest	Beating	Kettle Moraine State Forest Southern Unit	Waukesha	42° 52' 25" N	88° 31' 38" W				Allandrus	bifasciatus	Anthr
IRC0002746	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/07/27		beaten from branches of Tilia americana tree, mixed hardwood forest	beating	Ledge County Park	Dodge	43° 28' 11" N	88° 34' 57" W				Allandrus	bifasciatus	Anthr
IRC0002746	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/07/27		beaten from branches of Tilia americana tree, mixed hardwood forest	beating	Ledge County Park	Dodge	43° 28' 11" N	88° 34' 57" W				Allandrus	bifasciatus	Anthr

IRC0002746	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/07/27		beaten from branches of Tilia americana tree, mixed hardwood forest	beating	Ledge County Park	Dodge	43° 28' 11" N	88° 34' 57" W				Allandrus	bifasciatus	Anthr
IRC0002626	Janicki	Julia	WIRC	Young	Daniel K.	2013/08/20		Fagus-Acer forest	Malaise trap	UW Milwaukee Field Station	Ozaukee	43.38295° N	88.02534° W				Allandrus	bifasciatus	Anthr
IRC0002626	Janicki	Julia	WIRC	Young	Daniel K.	2013/08/20		Fagus-Acer forest	Malaise trap	UW Milwaukee Field Station	Ozaukee	43.38295° N	88.02534° W				Allandrus	bifasciatus	Anthr
IRC0002746	Janicki	Julia	WIRC			2013/08/24		Beaten from branches of Tilia americana tree, meisc Tilia-Carya-Acer-Quercus-Ostrya-Ulmus-Fraxinus forest	beating	Mayville Ledge Beech-Maple Woods SNA	Dodge	43.45399° N	88.53861° W				Allandrus	bifasciatus	Anthr
IRC0002745	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/08/24		beaten from branches of Tilia americana tree, mixed hardwood forest	Beating	Ledge County Park	Dodge	43° 27' 56" N	88° 35' 05" W				Allandrus	bifasciatus	Anthr
IRC0002745	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/08/24		beaten from branches of Tilia americana tree, mixed hardwood forest	Beating	Ledge County Park	Dodge	43° 27' 56" N	88° 35' 05" W				Allandrus	bifasciatus	Anthr
IRC0002554	Lindsey	Joshua	WIRC			1976/07/06	1976/07/13	Gypsy Moth M. T.	Malaise Trap	N/A	Oneida			35N	11E	17	Allandrus	brevicornis	Anthr
IRC0002553	Lindsey	Joshua	WIRC			1976/08/09	1976/08/16	Gypsy Moth M.T.	Malaise Trap	N/A	Jackson			21N	4W	33	Allandrus	brevicornis	Anthr
IRC0002553	Lindsey	Joshua	WIRC			1976/08/09	1976/08/16	Gypsy Moth M.T.	Malaise Trap	N/A	Jackson			21N	4W	33	Allandrus	brevicornis	Anthr
IRC0002553	Lindsey	Joshua	WIRC			1977/06/20	1977/06/27	Gypsy Moth M.T.	Malaise Trap	N/A	Oneida			46N	9W	16	Allandrus	brevicornis	Anthr
IRC0002554	Lindsey	Joshua	WIRC			1977/06/20	1977/06/27	Gypsy Moth M.T.	Malaise Trap	N/A	Oneida			46N	9W	16	Allandrus	brevicornis	Anthr
IRC0002554	Lindsey	Joshua	WIRC			1977/06/27	1977/07/06	Gypsy Moth M.T	Malaise Trap	N/A	Oneida			46N	9W	16	Allandrus	brevicornis	Anthr
IRC0002554	Lindsey	Joshua	WIRC			1977/07/12	1977/07/19	Gypsy Moth M.T.	Malaise Trap	N/A	Oneida			46N	9W	16	Allandrus	brevicornis	Anthr
IRC0002624	Janicki	Julia	WIRC	Young	Daniel K.	2001/08/20	2001/09/11		Lindgren funnel trap	Hemlock Draw	Sauk	43° 21' 46" N	89° 56' 34" W				Allandrus	brevicornis	Anthr
IRC0002746	Janicki	Julia	WIRC	Gullickson	Kari	2013/07/15	2013/07/21	in mixed hardwood forest	Malaise trap	N of Bangor, E of Co DE	La Crosse	43.96191° N	91.01372° W				Allandrus	brevicornis	Anthr
IRC0002745	Janicki	Julia	CMBC	Brabant	Craig	2002/07/29	2002/08/12	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, southern unit	Waukesha	42.872520° N	88.513994° W				Allandrus	brevicornis	Anthr
IRC0002622	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/07/14		Beaten from branches of live Tilia americana tree, shore of Lake Monona, mixed hardwood forest	Beating	Olin-Turville Park, Madison	Dane	43° 03' 11" N	89° 22' 22" W				Anthribus	nebulosus	Anthr
IRC0002628	Janicki	Julia	WIRC	Janicki	Julia			In fungi on fallen dead log of big toothed aspen	Hand collected	Quincy Bluff SNA	Adams	43° 53' 30" N	89° 52' 12" W				Euparius	marmoreus	Anthr
IRC0002556	Lindsey	Joshua	WIRC	Haas	G				Light Trap	N/A	Dane						Euparius	marmoreus	Anthr
IRC0002628	Janicki	Julia	WIRC	Janicki	Julia			In fungi on fallen dead log of big toothed aspen	Hand collected	Quincy Bluff SNA	Adams	43° 53' 30" N	89° 52' 12" W				Euparius	marmoreus	Anthr
IRC0002554	Lindsey	Joshua	WIRC	Pope	Katy			Flight intercept trap # 0306	Flight intercept trap	Necedah National Wildlife Refuge	Juneau						Euparius	marmoreus	Anthr
IRC0002628	Janicki	Julia	WIRC	Janicki	Julia			In fungi on fallen dead log of big toothed aspen	Hand collected	Quincy Bluff SNA	Adams	43° 53' 30" N	89° 52' 12" W				Euparius	marmoreus	Anthr
IRC0002628	Janicki	Julia	WIRC	Janicki	Julia			In fungi on fallen dead log of big toothed aspen	Hand collected	Quincy Bluff SNA	Adams	43° 53' 30" N	89° 52' 12" W				Euparius	marmoreus	Anthr
IRC0002628	Janicki	Julia	WIRC	Janicki	Julia			In fungi on fallen dead log of big toothed aspen	Hand collected	Quincy Bluff SNA	Adams	43° 53' 30" N	89° 52' 12" W				Euparius	marmoreus	Anthr
IRC0002718			MPM			1913/07/17				Army Lake near East Troy	Walworth						Euparius	marmoreus	Anthr
IRC0002718			MPM			1914/10/31				Beaver Dam	Dodge						Euparius	marmoreus	Anthr
IRC0002718			MPM			1914/10/31				Beaver Dam	Dodge						Euparius	marmoreus	Anthr
IRC0002718			MPM			1914/10/31				Beaver Dam	Dodge						Euparius	marmoreus	Anthr
IRC0002718			MPM			1915/06/25				Beaver Dam	Dodge						Euparius	marmoreus	Anthr
IRC0002718			MPM			1923/08/01				Beaver Dam	Dodge						Euparius	marmoreus	Anthr
IRC0002718			MPM			1926/05/31				Beaver Dam	Dodge						Euparius	marmoreus	Anthr
IRC0002705	Janicki	Julia	UWO			1970/04/23				Oshkosh	Winnebago						Euparius	marmoreus	Anthr

IRC0002705	Janicki	Julia	UWO			1971/05/06				Oshkosh, 4 mi W of	Winnebago						Euparius	marmoreus	Anthr
IRC0002705	Janicki	Julia	UWO			1971/05/11				Oshkosh, 4 mi W, Gravel pits area	Winnebago						Euparius	marmoreus	Anthr
IRC0002705	Janicki	Julia	UWO			1971/05/12				Oshkosh, 4 mi W., Gravel pits area	Winnebago						Euparius	marmoreus	Anthr
IRC0002555	Lindsey	Joshua	WIRC			1975/06/17	1975/06/24	Gypsy Moth M.T.	Malaise Trap	N/A	Grant			6N	6W	17	Euparius	marmoreus	Anthr
IRC0002555	Lindsey	Joshua	WIRC			1976/06/07	1976/06/14	Gypsy Moth M.T.	Malaise Trap	N/A	Grant			6N	6W	17	Euparius	marmoreus	Anthr
IRC0002556	Lindsey	Joshua	WIRC			1976/07/03	1976/07/13	Gypsy Moth M.T.	Malaise Trap	N/A	Rock						Euparius	marmoreus	Anthr
IRC0002704	Janicki	Julia	UWO			1978/04/25				Oshkosh, 4 mi W	Winnebago						Euparius	marmoreus	Anthr
IRC0002556	Lindsey	Joshua	WIRC	Faustini	D	1980/06/07				Oregon	Dane						Euparius	marmoreus	Anthr
IRC0002556	Lindsey	Joshua	WIRC	Prilias	M.	1981/09/09				Madison	Dane						Euparius	marmoreus	Anthr
IRC0002629	Janicki	Julia	WIRC	Young	Daniel K.	1985/06/22				UW Milwaukee Field Station	Ozaukee						Euparius	marmoreus	Anthr
IRC0002556	Lindsey	Joshua	WIRC	Buchli	B	1986/08/20		lights	Light trap	6 Goodland Ave., Deerfield	Dane						Euparius	marmoreus	Anthr
IRC0002629	Janicki	Julia	WIRC	Young	Daniel K.	1987/04/11				Baxter's Hollow	Sauk						Euparius	marmoreus	Anthr
IRC0002629	Janicki	Julia	WIRC	Young	Daniel K.	1987/04/11				Baxter's Hollow	Sauk						Euparius	marmoreus	Anthr
IRC0002556	Lindsey	Joshua	WIRC	Young	Daniel K.	1994/04/15				Madison School Forest, 3 mi SW Verona	Dane						Euparius	marmoreus	Anthr
IRC0002629	Janicki	Julia	WIRC	Young	Daniel K.	1994/04/15				Madison School Forest, 3 mi SW Verona	Dane						Euparius	marmoreus	Anthr
IRC0002629	Janicki	Julia	WIRC	Young	Daniel K.	1994/05/06				Goose Lake Wildlife Area 4 mi NNE Deerfield	Dane						Euparius	marmoreus	Anthr
IRC0002556	Lindsey	Joshua	WIRC	Young	Daniel K.	1994/05/06				Goose Lake Wildlife Area, 4 mi NNE Deerfield	Dane						Euparius	marmoreus	Anthr
IRC0002631	Janicki	Julia	WIRC	Knudson	E.	1995/04/30		Beneath bark of decaying log	By hand	L WI R Wildlife Area, 2 mi W Lone Rock	Richland						Euparius	marmoreus	Anthr
IRC0002632	Janicki	Julia	WIRC	Butler	G	1995/06/15				Lake Mills	Jefferson						Euparius	marmoreus	Anthr
IRC0002631	Janicki	Julia	WIRC	King	R	1996/05/29	1996/06/21		Lindgren funnel trap	Necedah National Wildlife Refuge, N Rynears	Juneau	44° 4' 34" N	90° 10' 13" W				Euparius	marmoreus	Anthr
IRC0002632	Janicki	Julia	WIRC	King	R	1996/05/29	1996/06/21		Lindgren funnel trap	Necedah National Wildlife Refuge, N Rynears	Juneau	44° 4' 34" N	90° 10' 13" W				Euparius	marmoreus	Anthr
IRC0002631	Philips	T	WIRC	King	R	1996/05/29	1996/06/21		Lindgren funnel trap	Necedah National Wildlife Refuge, N. Rynears	Juneau	44° 43' 4" N	90° 10' 13" W				Euparius	marmoreus	Anthr
IRC0002554	Lindsey	Joshua	WIRC	Pope	Katy	1996/06/04		Flight intercept trap # 136	Flight intercept trap	Necedah national wildlife refuge	Juneau						Euparius	marmoreus	Anthr
IRC0002554	Lindsey	Joshua	WIRC	Pope	Katy	1996/06/18		Flight intercept trap # 153	Flight intercept trap	Necedah National Wildlife Refuge	Juneau						Euparius	marmoreus	Anthr
IRC0002554	Lindsey	Joshua	WIRC	Pope	Katy	1996/06/25		Collected from flight intercept trap #130	Flight intercept trap	Necedah national wildlife refuge	Juneau						Euparius	marmoreus	Anthr
IRC0002555	Janicki	Julia	WIRC	Maxwell	Judith A.	1996/06/25		On shelf fungi in oak woods	hand collected	Fort McCoy	Monroe			19N	2W	21	Euparius	marmoreus	Anthr
IRC0002554	Lindsey	Joshua	WIRC	Pope	Katy	1996/06/25		Collected from flight intercept trap # 136	Flight intercept trap	Necedah National Wildlife Refuge	Juneau						Euparius	marmoreus	Anthr
IRC0002554	Lindsey	Joshua	WIRC	Pope	Katy	1996/07/09		Flight intercept trap # 154	Flight intercept trap	Necedah National Wildlife Refuge	Juneau						Euparius	marmoreus	Anthr
IRC0002629	Janicki	Julia	WIRC	Young	Daniel K.	1997/05/06				Hemlock Draw	Sauk						Euparius	marmoreus	Anthr
IRC0002629	Janicki	Julia	WIRC	Young	Daniel K.	1997/05/06				Hemlock Draw	Sauk						Euparius	marmoreus	Anthr
IRC0002629	Janicki	Julia	WIRC	Young	Daniel K.	1997/05/30				Hemlock Draw	Sauk						Euparius	marmoreus	Anthr
IRC0002555	Krauth	Steve	WIRC	Maxwell	Judith A.	1997/06/23	1997/06/26	Collected in flight intercept trap, oak savannah, mid-successional	Flight intercept trap	Fort McCoy, 1.5 mi E. of Badger Drop Zone	Monroe						Euparius	marmoreus	Anthr

IRC0002555	Krauth	Steve	WIRC	Maxwell	Judith A.	1997/06/26	1997/06/30	Collected in flight intercept trap, oak savannah, mid-successional	Flight intercept trap	Fort McCoy, 1.5 mi E of Badger Drop Zone	Monroe						Euparius	marmoreus	Anthr
IRC0002555	Krauth	Steve	WIRC	Maxwell	Judith A.	1997/06/30	1997/07/03	Collected in flight intercept trap, oak savannah, mid-successional	Flight intercept trap	Fort McCoy, 1.5 mi E. of Badger Drop Zone	Monroe						Euparius	marmoreus	Anthr
IRC0002631	Janicki	Julia	WIRC	Hawkinson	Cynthia	1997/09/28		Collected from soil sample- Berlese	Berlese	Mazomanie Wildlife Area, 3 mi NNW Mazoma	Dane						Euparius	marmoreus	Anthr
IRC0002555	Krauth	Steve	WIRC	Williams	Andrew H.	1998/07/02		on trunk of dead and or living black in sandy black oak savannah, 9pm	Hand collected	Ft. McCoy	Monroe			19N	2W	33	Euparius	marmoreus	Anthr
IRC0002740	Janicki	Julia	CMBC	Brabant	Craig	1998/09/07		during day off of vegetation/flowers in sandy oak barrens	hand collected	LWSR-Lone Rock Unit. elev: 695'asi	Richland	43.193612° N	89.238961° W				Euparius	marmoreus	Anthr
IRC0002740	Janicki	Julia	CMBC	Brabant	Craig	1999/04/12		hand collected from under bark of dead tree in mixed decid. hardwood forest	hand collected	Goose Lake Wildlife Area	Dane	43.093027° N	89.046070° W				Euparius	marmoreus	Anthr
IRC0002740	Janicki	Julia	CMBC	Brabant	Craig	1999/05/27		off low foliage in prairie remnant, 10am-2pm	hand collected	Mecan River State Fishery Area. (WDNR). el:8	Marquette	43.952670° N	89.339428° W				Euparius	marmoreus	Anthr
IRC0002631	Janicki	Julia	WIRC	Gruber	Jeffrey P.	1999/06/08		unbaited Lindgren funnel trap in oak/pine forest	Lindgren funnel trap	Black River State Forest	Jackson			20N	2W	17	Euparius	marmoreus	Anthr
IRC0002631	Janicki	Julia	WIRC	Gruber	Jeffrey P.	1999/08/05		Under bark of fallen tree in sandy oak barrens	By hand	Blue River PHG	Grant			8N	1W	5	Euparius	marmoreus	Anthr
IRC0002740	Janicki	Julia	CMBC	Brabant	Craig	2000/04/15		from under bark of downed oak sp. in oak savannah during day, cloudy	hand collected	LWSR-Muscoda Unit	Grant	43.194577° N	90.524932° W				Euparius	marmoreus	Anthr
IRC0002740	Janicki	Julia	CMBC	Brabant	Craig	2000/04/22		from under bark of downed cottomwood, ~60F, sunny, 10:30-11am	hand collected	Hemlock Draw ~TNC. elev: 681'asi	Sauk	43.358491° N	89.949128° W				Euparius	marmoreus	Anthr
IRC0002704	Janicki	Julia	UWO			2000/04/29				Oshkosh, 2 mi W	Winnebago						Euparius	marmoreus	Anthr
IRC0002741	Janicki	Julia	CMBC	Brabant	Craig	2000/06/08		collected from woody fungus in mixed deciduous coniferous forest. sunny, ~85F	hand collected	Reforestation Camp, Brown County Parks, ele	Brown	44.660572° N	88.087758° W				Euparius	marmoreus	Anthr
IRC0002741	Janicki	Julia	CMBC	Brabant	Craig	2000/06/08		collected from woody fungus in mixed deciduous coniferous forest. sunny, ~85F	hand collected	Reforestation Camp, Brown County Parks, ele	Brown	44.660572° N	88.087758° W				Euparius	marmoreus	Anthr
IRC0002740	Janicki	Julia	CMBC	Brabant	Craig	2000/06/24		off of small shelf-like polypore on dead standing tree, overcast	hand collected	Blue Mound State Park	Iowa	43.025787° N	89.844452° W				Euparius	marmoreus	Anthr
IRC0002630	Janicki	Julia	WIRC	Young	Daniel K.	2001/04/23	2001/05/03		Lindgren Funnel Tra	Hemlock Draw	Sauk	43° 21' 46" N	89° 56' 34" W				Euparius	marmoreus	Anthr
IRC0002555	Young	Daniel	WIRC	Gruber	Jeffrey P.	2001/05/05	2001/05/19	Flight intercept trap in sandy oak barrens	Flight intercept trap	Spring Green Preserve SNA	Sauk	43° 11' 53" N	90° 03' 41" W				Euparius	marmoreus	Anthr
IRC0002555	Young	Daniel	WIRC	Gruber	Jeffrey P.	2001/05/05	2001/05/19	Flight intercept trap in sandy oak barrens	Flight intercept trap	Spring Green Preserve SNA	Sauk	43° 11' 53" N	90° 03' 41" W				Euparius	marmoreus	Anthr
IRC0002630	Janicki	Julia	WIRC	Young	Daniel K.	2001/05/10	2001/05/17		Lindgren Funnel Tra	Hemlock Draw	Sauk	43° 21' 34" N	89° 56' 54" W				Euparius	marmoreus	Anthr
IRC0002740	Janicki	Julia	CMBC	Brabant	Craig	2001/05/27		off of fungus on dead tree in mesic sugar maple forest remnant	hand collected	Abraham's Woods State Natural Area (UW). el	Green	42.684164° N	89.483638° W				Euparius	marmoreus	Anthr
IRC0002741	Janicki	Julia	CMBC	Brabant	Craig	2001/05/27		off of fungus on dead tree in mesic sugar maple forest remnant	hand collected	Abraham's Woods State Natural Area (UW). el	Green	42.684164° N	89.483638° W				Euparius	marmoreus	Anthr
IRC0002740	Janicki	Julia	CMBC	Brabant	Craig	2001/05/27		off of fungus on dead tree in mesic sugar maple forest remnant	hand collected	Abraham's Woods State Natural Area (UW). el	Green	42.684164° N	89.483638° W				Euparius	marmoreus	Anthr
IRC0002740	Janicki	Julia	CMBC	Brabant	Craig	2001/05/27		off of fungus on dead tree in mesic sugar maple forest remnant	hand collected	Abraham's Woods State Natural Area (UW). el	Green	42.684164° N	89.483638° W				Euparius	marmoreus	Anthr
IRC0002741	Janicki	Julia	CMBC	Brabant	Craig	2001/06/11	2001/06/18	unbaited Townes Malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, Southern Unit. el	Waukesha	42.872520° N	88.513994° W				Euparius	marmoreus	Anthr
IRC0002741	Janicki	Julia	CMBC	Brabant	Craig	2001/06/11	2001/06/18	unbaited Townes Malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, Southern Unit. el	Waukesha	42.872520° N	88.513994° W				Euparius	marmoreus	Anthr
IRC0002555	Young	Daniel	WIRC	Gruber	Jeffrey P.	2001/06/16		Flight intercept trap in sandy oak barrens	Flight intercept trap	Spring Green Preserve SNA	Sauk	43° 11' 53" N	90° 03' 41" W				Euparius	marmoreus	Anthr
IRC0002744	Janicki	Julia	CMBC	Price	Michele	2001/07/03	2001/07/18	in sand prairie/barrens	flight intercept trap	Crew Meadows Wildlife Area, Main Dyke Roa	Burnett	45.83806° N	92.67889° W				Euparius	marmoreus	Anthr
IRC0002630	Janicki	Julia	WIRC	Young	Daniel K.	2001/07/11	2001/07/19		Lindgren Funnel Tra	Hemlock Draw	Sauk	43° 21' 34" N	89° 56' 54" W				Euparius	marmoreus	Anthr
IRC0002741	Janicki	Julia	CMBC	Brabant	Craig	2001/09/23		under bark of standing dead tree, ~55F, overcast, drizzle, early afternoon	hand collected	LWSR-Lone Rock Unit. elev: 695'asi	Richland	43.193612° N	89.238961° W				Euparius	marmoreus	Anthr
IRC0002741	Janicki	Julia	CMBC	Brabant	Craig	2002/04/14		under bark of standing dead tree, p. sunny, mid-60sF, 10-2pm, oak/sand barrens	hand collected	LWSR~LoneRock Unit, elev: 695'asi	Richland	43.193612° N	89.238961° W				Euparius	marmoreus	Anthr
IRC0002741	Janicki	Julia	CMBC	Brabant	Craig	2002/04/14		under bark of standing dead tree, p. sunny, mid-60sF, 10-2pm, oak/sand barrens	hand collected	LWSR~LoneRock Unit, elev: 695'asi	Richland	43.193612° N	89.238961° W				Euparius	marmoreus	Anthr
IRC0002741	Janicki	Julia	CMBC	Brabant	Craig	2002/04/14		under bark of standing dead tree, p. sunny, mid-60sF, 10-2pm, oak/sand barrens	hand collected	LWSR~LoneRock Unit, elev: 695'asi	Richland	43.193612° N	89.238961° W				Euparius	marmoreus	Anthr

IRC0002743	Janicki	Julia	CMBC	Brabant	Craig	2002/05/31	2002/06/11	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest	Waukesha	42.872520° N	88.513994° W				Euparius	marmoreus	Anthr
IRC0002745	Janicki	Julia	CMBC	Brabant	Craig	2002/06/11	2002/06/24	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Euparius	marmoreus	Anthr
IRC0002744	Janicki	Julia	CMBC	Brabant	Craig	2002/06/24	2002/07/07	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Euparius	marmoreus	Anthr
IRC0002630	Janicki	Julia	WIRC	Young	Daniel K.	2002/06/28	2002/07/15		Lindgren Funnel Tra	Quincy Bluff TNC	Adams	43° 52' 04" N	89° 53' 04" W				Euparius	marmoreus	Anthr
IRC0002631	Janicki	Julia	WIRC	Young	Daniel K.	2002/09/06	2002/09/17		Lindgren funnel trap	Quincy Bluff TNC	Adams	43° 52' 03" N	89° 53' 08" W				Euparius	marmoreus	Anthr
IRC0002630	Janicki	Julia	WIRC	Young	Daniel K.	2002/10/07	2002/10/14		Lindgren Funnel Tra	Quincy Bluff TNC	Adams	42° 52' 03" N	89° 53' 08" W				Euparius	marmoreus	Anthr
IRC0002627	Janicki	Julia	WIRC	Arango	Rachel	2006/07/03		in floodplain forest	Lindgren funnel trap	Lemonweir Bottomland Hardwood forest	Juneau	43° 41' 46" N	90° 34' 8" W				Euparius	marmoreus	Anthr
IRC0002629	Janicki	Julia	WIRC	Young	Daniel K.	2007/07/06	2007/07/17	2+ yr dead Populus grandidentata snag	Lindgren funnel trap	Quincy Bluff	Adams	43° 52' 12" N	89° 52' 45" W				Euparius	marmoreus	Anthr
IRC0002630	Janicki	Julia	WIRC	Arango	Rachel	2007/08/22	2007/09/10	In northern mesic forest	Lindgren funnel trap	Bloch Oxbow and Pines	Marinette	45.00482° N	87.41562° W				Euparius	marmoreus	Anthr
IRC0002752	Janicki	Julia	MAPC	Arango	Rachel	2007/08/22	2007/09/10	northern dry mesic forest	Lindgren Trap	Council Crounds State Park- Kruger Pines	Marinette	45° 10' 8" N	87° 41' 56" W				Euparius	marmoreus	Anthr
IRC0002630	Janicki	Julia	WIRC	Trampush	Lynsey	2007/10/22				Rozelville	Marathon	90° 01' 29" N	44° 44' 34" W				Euparius	marmoreus	Anthr
IRC0002630	Janicki	Julia	WIRC	Foltz	Sarah	2008/04/21		On underside of Trametes hirsute	By hand	Swamp Lover's Inc	Dane	43.133276° N	89.657504° W				Euparius	marmoreus	Anthr
IRC0002628	Janicki	Julia	WIRC	Janicki	Julia	2008/04/24				UW Arboretum	Dane	43.042896° N	89.424010° W				Euparius	marmoreus	Anthr
IRC0002556	Janicki	Julia	WIRC	Zivicki	Kelly	2008/05/05		Taken from shell fungus on fallen log	Hand collected	Swamp Lover's Site	Dane	43° 07' 54" N	89° 40' 38" W				Euparius	marmoreus	Anthr
IRC0002631	Janicki	Julia	WIRC	Forthman	Michael	2009/11/03				Swamp Lover's Reserve	Dane	43° 07' 40" N	89° 40' 39" W				Euparius	marmoreus	Anthr
IRC0002631	Janicki	Julia	WIRC	Botero	C.	2009/11/06		in shell fungi	Hand collected	Swamp Lovers	Dane	43° 07' 52" N	89° 39' 58" W				Euparius	marmoreus	Anthr
IRC0002628	Janicki	Julia	WIRC	Young	Daniel K.	2010/04/09	2010/04/19	in old Populus deadfall	Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Euparius	marmoreus	Anthr
IRC0002627	Janicki	Julia	WIRC	Young	Daniel K.	2010/05/12	2010/05/17	In oak-pine barrens	Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Euparius	marmoreus	Anthr
IRC0002628	Janicki	Julia	WIRC	Young	Daniel K.	2010/05/17	2010/05/24		Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Euparius	marmoreus	Anthr
IRC0002627	Janicki	Julia	WIRC	Young	Daniel K.	2010/05/24		In oak-aspen savannah	Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Euparius	marmoreus	Anthr
IRC0002627	Janicki	Julia	WIRC	Young	Daniel K.	2010/06/07	2010/06/14	In old Populus deadfall	Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Euparius	marmoreus	Anthr
IRC0002627	Janicki	Julia	WIRC	Young	Daniel K.	2010/06/14		Malaise in oak-aspen savanna	Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Euparius	marmoreus	Anthr
IRC0002628	Janicki	Julia	WIRC	Young	Daniel K.	2010/06/21	2010/06/28	in old Populus deadfall	Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Euparius	marmoreus	Anthr
IRC0002751	Janicki	Julia	MAPC	Pynnonen	Mark	2011/09/05		under bark	hand collected	Hemlock Draw SNA	Sauk	43.35777° N	89.94860° W				Euparius	marmoreus	Anthr
IRC0002628	Janicki	Julia	WIRC	Young	Daniel K.	2012/03/21		streamlet flood plain, Quercus/Betula	trap	Hemlock Draw TNC	Sauk	43.36449° N	89.94002° W				Euparius	marmoreus	Anthr
IRC0002752	Janicki	Julia	MAPC	Pynnonen	Mark	2012/04/07		under bark/fungus-encrusted Quercus log	hand collected	Spring Green Preserve SNA	Sauk	43.20279° N	90.05082° W				Euparius	marmoreus	Anthr
IRC0002752	Janicki	Julia	MAPC	Pynnonen	Mark	2012/04/07		under bark/fungus-encrusted Quercus log	hand collected	Spring Green Preserve SNA	Sauk	43.20279° N	90.05082° W				Euparius	marmoreus	Anthr
IRC0002752	Janicki	Julia	MAPC	Pynnonen	Mark	2012/04/07		under bark/fungus-encrusted Quercus log	hand collected	Spring Green Preserve SNA	Sauk	43.20279° N	90.05082° W				Euparius	marmoreus	Anthr
IRC0002630	Janicki	Julia	WIRC	Janicki	Julia	2012/08/01		Beating Stereum-infested dead oak branch	Beating	Lone Rock Lower WI SRW	Richland	43° 11' 36" N	90° 14' 20" W				Euparius	marmoreus	Anthr
IRC0002629	Janicki	Julia	WIRC	Janicki	Julia	2012/08/01		Beating Stereum-infested dead oak branch	Beating	Lone Rock Lower WI SRW	Richland	43° 11' 36" N	90° 14' 20" W				Euparius	marmoreus	Anthr
IRC0002630	Janicki	Julia	WIRC	Kravik	Alexandria	2013/04/20		Water bucket, found dead	Hand collected	Cambridge, my residence	Dane	43.968446° N	89.013225° W				Euparius	marmoreus	Anthr
IRC0002748	Janicki	Julia	WIRC	Gullickson	Kari	2013/08/06		in mixed hardwood forest	Malaise trap	N of Bangor, E of Co DE	La Crosse	43.96191° N	91.01372° W				Euparius	marmoreus	Anthr

IRC0002556	Lindsey	Joshua	WIRC	Haas	G	1954/07/23			Light Trap	N/A	Dane						Euparius	paganus	Anthr
IRC0002557	Lindsey	Joshua	WIRC	Haas	G	1954/07/29			Light Trap	N/A	Dane						Euparius	paganus	Anthr
IRC0002557	Lindsey	Joshua	WIRC			1977/07/13	1977/07/20	GMP-M.T.	Malaise Trap	N/A	Grant			6N	5E	17	Euparius	paganus	Anthr
IRC0002701	Janicki	Julia	MPM	Yanek	C	1980/07/31		collected at blacklight, old filed, marsh and oak woods habitat	blacklight	ca 4 mi E and 4.5 mi S Hartford, nr jct hwy 1	Washington						Euparius	paganus	Anthr
IRC0002634	Janicki	Julia	WIRC	Dahl	R	1984/08/02				Menasha, To B/L, N. shore golf course	Winnebago						Euparius	paganus	Anthr
IRC0002557	Lindsey	Joshua	WIRC	Buchli	B	1987/06/23		Lights	Light Trap	6 Goodland Ave., Deerfield	Dane						Euparius	paganus	Anthr
IRC0002557	Lindsey	Joshua	WIRC	Messer	P	2000/07/09		Black light, 9-11pm, suburban lawn	Black light trap	N/A	Ozaukee	43.2106° N	87.9649° W				Euparius	paganus	Anthr
IRC0002557	Lindsey	Joshua	WIRC	Messer	P	2001/07/21		Black light evening suburb field	Black light trap	Suburban mequon	Ozaukee	43.210° N	87.965° W				Euparius	paganus	Anthr
IRC0002744	Janicki	Julia	CMBC	Brabant	Craig	2002/05/31	2002/06/11	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest	Waukesha	42.872520° N	88.513994° W				Euparius	paganus	Anthr
IRC0002745	Janicki	Julia	CMBC	Brabant	Craig	2002/07/29	2002/08/12	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, southern unit	Waukesha	42.872520° N	88.513994° W				Euparius	paganus	Anthr
IRC0002635	Janicki	Julia	WIRC	Hernandez	Natalie	2007/06/13	2007/06/27	Striacosta albicosta pheromone baited trap	Pheromone baited tr	Trempealeau, Hwy 35	Trempealea	44.02061° N	91.44083° W				Euparius	paganus	Anthr
IRC0002634	Janicki	Julia	WIRC	Goth	Jerry	2007/08/07		Hilltop oak/walnut/hickory dominated forest, collected at lights along path through habitat, 10pm-12am, N-2007-24	At light	Swamp Lover's Preserve	Dane	43° 07' 9" N	89° 39' 49" W				Euparius	paganus	Anthr
IRC0002748	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2008/10/25		leaf litter near fallen tree, mixed hardwood forest	Leaf litter/hand colle	Blue River Bluffs SNA	Grant	43° 10' 38" N	90° 36' 47" W				Euparius	paganus	Anthr
IRC0002752	Janicki	Julia	MAPC	Pynnonen	Mark	2011/07/17		porch light/bldg entrance	at light	Nakoma Towers Apt/ night, Madison	Dane	43.03889° N	89.45361° W				Euparius	paganus	Anthr
IRC0002635	Janicki	Julia	WIRC	Gullickson	Kari	2011/07/27	2011/08/03		Malaise Trap	N of Hwy 10, W of Strum	Trempealea	44.558690° N	91.406030° W				Euparius	paganus	Anthr
IRC0002635	Janicki	Julia	WIRC	Johnson	Kyle	2011/08/23		hilltop dry-mesic Quercus-Juglans-Carya woodland overlooking valley mesic tall grass prairie restoration; ex house lights, 2	At light	Swamp Lovers Preserve	Dane	43.13215° N	89.66327° W				Euparius	paganus	Anthr
IRC0002632	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03		Reared from Irpex lacteus infected dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034963° W				Euparius	paganus	Anthr
IRC0002632	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03		Reared from Irpex lacteus infected dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034963° W				Euparius	paganus	Anthr
IRC0002632	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002632	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002632	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002632	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002632	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002633	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002633	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002633	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002633	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002633	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002633	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr

IRC0002633	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002634	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002634	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002634	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002634	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002634	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002634	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches, from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034968° W				Euparius	paganus	Anthr
IRC0002635	Janicki	Julia	WIRC	Janicki	Julia	2012/05/03	2012/08/03	Reared from Irpex lacteus infested dead oak branches from April 9th sample, some found dead	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.03496° W				Euparius	paganus	Anthr
IRC0002632	Janicki	Julia	WIRC	Janicki	Julia	2012/05/07		Reared from IRpex lacteus infested dead oak branches from April 9th sample	Reared	Spring Green Prairie SNA	Sauk	43.115404° N	90.034963° W				Euparius	paganus	Anthr
IRC0002635	Janicki	Julia	WIRC	Johnson	Kyle	2012/06/22		summit of dry limestone bluff praire with moderate Juniperus virginiana-Prunus-Rhamnus-Rhus encroachment, UV sheet, 15	UV sheet	Stagecoach Prairie	Dane	43.09935° N	89.63911° W				Euparius	paganus	Anthr
IRC0002635	Janicki	Julia	WIRC	Young	Daniel K.	2012/07/20		prairie restor. edge	Malaise trap	UW Milwaukee Field Station	Ozaukee	43.38885° N	88.02678° W				Euparius	paganus	Anthr
IRC0002635	Janicki	Julia	WIRC	Janicki	Julia	2012/08/19		Beating dead branches of black walnut that is infested by Irpex lacteus	Beating	Rocky Run Oak Savannah	Columbia	43° 27' 33" N	89° 19' 30" W				Euparius	paganus	Anthr
IRC0002635	Janicki	Julia	WIRC	Janicki	Julia	2012/08/19		Beating dead branches of black walnut that is infested by Irpex lacteus	Beating	Rocky Run Oak Savannah	Columbia	43° 27' 33" N	89° 19' 30" W				Euparius	paganus	Anthr
IRC0002635	Janicki	Julia	WIRC	Janicki	Julia	2012/08/19		Beating dead branches of black walnut that is infested by Irpex lacteus	Beating	Rocky Run Oak Savannah	Columbia	43° 27' 33" N	89° 19' 30" W				Euparius	paganus	Anthr
IRC0002635	Janicki	Julia	WIRC	Janicki	Julia	2012/08/19		Beating dead branches of black walnut that is infested by Irpex lacteus	Beating	Rocky Run Oak Savannah	Columbia	43° 27' 33" N	89° 19' 30" W				Euparius	paganus	Anthr
IRC0002634	Janicki	Julia	WIRC	Janicki	Julia	2013/07/21		On Irpex lacteus infested dead log	Hand collected	Kohler Andrae State Park	Sheboygan	43.668418° N	87.717321° W				Euparius	paganus	Anthr
IRC0002749	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/09/29		found on branches of fallen dead hardwood tree that had whitish fungus on them, mixed hardwood forest	hand collected	Alt private property, 6.1 km SSE of Spring Gr	Iowa	43° 07' 46" N	90° 01' 38" W				Euparius	paganus	Anthr
IRC0002795	Janicki	Julia	MAPC	Pynnonen	Mark	2012/09/02		in mixed forest	At fluorescent lights	Quincy Bluff Wetlands SNA	Adams	43.86468° N	89.88355° W				Piesocorynus	mixtus	Anthr
IRC0001571	Lindsey	Joshua	IRCW	Gypsy Moth-M.		1975/06/17	1975/06/24		Malasise Trap	Grant County	Grant		0.0 E	6N	6W	17	Piesocorynus	moestus	Anthr
IRC0002637	Janicki	Julia	WIRC	Young	Daniel K.	2003/09/04	2003/09/18		Lindgren Funnel Tra	Quincy Bluff TNC	Adams	43° 51' 36" N	89° 52' 42" W				Piesocorynus	moestus	Anthr
IRC0002698	Schwartz	E	MPM	Snyder	W	1909/06/14				Beaver Dam	Dodge						Trigonorhinus	alternatus	Anthr
IRC0002637	Janicki	Julia	WIRC	Haas	G			Sweeping apple	Sweep net	N/A	Dane						Trigonorhinus	alternatus	Anthr
IRC0002647	Janicki	Julia	WIRC	Woleer	?			Grassland		N/A	Dane			8N	7E	8	Trigonorhinus	limbatus	Anthr
IRC0002647	Janicki	Julia	WIRC	Williams	Andrew H.			mating atop flower of Helenium autumnale, 1:30 pm, 70F	hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002647	Janicki	Julia	WIRC	Williams	Andrew H.			mating atop flower of Helenium autumnale, 1:30 pm, 70F	hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002700	Janicki	Julia	MPM	Wheeler	W	1889/10/00		before Oct 1889		N/A	Milwaukee						Trigonorhinus	limbatus	Anthr
IRC0002701	Janicki	Julia	MPM	Wheeler	W	1889/10/00		before Oct 1889		N/A	Milwaukee						Trigonorhinus	limbatus	Anthr
IRC0002698	Janicki	Julia	MPM	Rauterberg	F	1897/00/00		before 1897		N/A	Milwaukee						Trigonorhinus	limbatus	Anthr
IRC0002698	Janicki	Julia	MPM	Rauterberg	F	1897/00/00		before 1897		N/A	Milwaukee						Trigonorhinus	limbatus	Anthr
IRC0002698	Janicki	Julia	MPM	Rauterberg	F	1897/00/00		before 1897		N/A	Milwaukee						Trigonorhinus	limbatus	Anthr
IRC0002698	Janicki	Julia	MPM	Rauterberg	F	1897/00/00		before 1897		N/A	Milwaukee						Trigonorhinus	limbatus	Anthr

IRC0002699	Janicki	Julia	MPM			1910/07/27	1910/08/03	Milwuakee Public Museum Expedition		Maiden Rock	Pierce						Trigonorhinus	limbatus	Anthr
IRC0002698	Janicki	Julia	MPM			1910/08/04	1910/08/10	Milwaukee Public Museum Expedition		Maiden Rock	Pierce						Trigonorhinus	limbatus	Anthr
IRC0002699	Janicki	Julia	MPM			1910/08/12	1910/08/17	Milwaukee Public Museum Expedition		Fountain City	Buffalo						Trigonorhinus	limbatus	Anthr
IRC0002701	Janicki	Julia	MPM	Snyder	W	1925/06/11				Beaver Dam	Dodge						Trigonorhinus	limbatus	Anthr
IRC0002647	Janicki	Julia	WIRC	Ravdin	N.	1983/09/27				Prairie du Sac	Dane						Trigonorhinus	limbatus	Anthr
IRC0002647	Janicki	Julia	WIRC	Ravdin	N.	1983/09/27				Prairie du Sac	Dane						Trigonorhinus	limbatus	Anthr
IRC0002647	Janicki	Julia	WIRC			1995/08/04		B.U:, DNR study 053	Sweep net	Martin Prairie	Dane Count			8N	11E	9	Trigonorhinus	limbatus	Anthr
IRC0002647	Janicki	Julia	WIRC			1995/08/04		B.U:, DNR study 053	Sweep net	Martin Prairie	Dane Count			8N	11E	9	Trigonorhinus	limbatus	Anthr
IRC0002601	Janicki	Julia	WDNR			1996/07/29		Sweep net to EtOH, mixed grasses, DNR study 053	Sweep net	UW Arboretum, Curtis Prairie	Dane			7N	9E	33	Trigonorhinus	limbatus	Anthr
IRC0002646	Janicki	Julia	WIRC	Williams	Andrew H.	1996/09/19		solitary, on flowers of Helenium autumnale, 10am, sun, 65F	Hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002646	Janicki	Julia	WIRC	Williams	Andrew H.	1996/09/19		solitary, on flowers of Helenium autumnale, 10am, sun, 65F	Hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002646	Janicki	Julia	WIRC	Williams	Andrew H.	1996/09/19		solitary, on flowers of Helenium autumnale, 10am, sun, 65F	Hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002646	Janicki	Julia	WIRC	Williams	Andrew H.	1996/09/19		solitary, on flowers of Helenium autumnale, 10am, sun, 65F	Hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002557	Janicki	Julia	WIRC	Williams	Andrew H.	1997/09/30		Matting and perhaps feeding on flowers of Helenium autumnale, 3pm, sunny, 68F	Hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002558	Janicki	Julia	WIRC	Williams	Andrew H.	1997/09/30		Matting and perhaps feeding on flowers of Helenium autumnale, 3pm, sunny, 68F	Hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002557	Janicki	Julia	WIRC	Williams	Andrew H.	1997/09/30		Matting and perhaps feeding on flowers of Helenium autumnale, 3pm, sunny, 68F	Hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002558	Janicki	Julia	WIRC	Williams	Andrew H.	1997/09/30		Matting and perhaps feeding on flowers of Helenium autumnale, 3pm, sunny, 68F	Hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002557	Janicki	Julia	WIRC	Williams	Andrew H.	1997/09/30		Matting and perhaps feeding on flowers of Helenium autumnale, 3pm, sunny, 68F	Hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002557	Janicki	Julia	WIRC	Williams	Andrew H.	1997/09/30		Matting and perhaps feeding on flowers of Helenium autumnale, 3pm, sunny, 68F	Hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002558	Janicki	Julia	WIRC	Williams	Andrew H.	1997/09/30		Matting and perhaps feeding on flowers of Helenium autumnale, 3pm, sunny, 68F	Hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002558	Janicki	Julia	WIRC	Williams	Andrew H.	1997/09/30		Matting and perhaps feeding on flowers of Helenium autumnale, 3pm, sunny, 68F	Hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002558	Janicki	Julia	WIRC	Williams	Andrew H.	1997/09/30		Matting and perhaps feeding on flowers of Helenium autumnale, 3pm, sunny, 68F	Hand collected	Thomas Wet Prairie	Grant			7N	1W	7	Trigonorhinus	limbatus	Anthr
IRC0002646	Janicki	Julia	WIRC	Otto	Robert	1997/06/01		Swept in grass	Sweep net	Becker Road	Oconto			30N	17E	28	Trigonorhinus	rotundatus	Anthr
IRC0002646	Janicki	Julia	WIRC	Otto	Robert	1997/06/01		Swept in grass	Sweep net	Becker Road	Oconto			30N	17E	28	Trigonorhinus	rotundatus	Anthr
IRC0002559	Krauth	Steve	WIRC	Kirk	Kathyrn	1997/08/14		Dike 17 sweep, pine/oak barrens, WDNR-ER	Sweep net	Black River State Forest	Jackson			21N	2W	S2SE12	Trigonorhinus	rotundatus	Anthr
IRC0002646	Janicki	Julia	WIRC			1997/08/22		SE of Oak Island in Praoroe Dropseed/ WM prairie	Sweep net	Puchyan Praoroe U:2	Green Lake			16N	12E	01	Trigonorhinus	rotundatus	Anthr
IRC0002646	Janicki	Julia	WIRC			1997/08/22		SE of Oak Island in Praoroe Dropseed/ WM prairie	Sweep net	Puchyan Praoroe U:2	Green Lake			16N	12E	01	Trigonorhinus	rotundatus	Anthr
IRC0002558	Krauth	Steve	WIRC	Kirk	Kathyrn	1998/08/19		Woods opening, WDNR- BER sweep net	Sweep net	Meadow Valley Wildlife Area	Juneau			18N	3E	NENE1	Trigonorhinus	rotundatus	Anthr
IRC0002558	Krauth	Steve	WIRC	Kirk	Kathyrn	1998/08/19		Woods opening, WDNR- BER sweep net	Sweep net	Meadow Valley Wildlife Area	Juneau			18N	3E	NENE1	Trigonorhinus	rotundatus	Anthr
IRC0002558	Krauth	Steve	WIRC	Kirk	Kathyrn	1998/08/19		Woods opening, WDNR- BER sweep net	Sweep net	Meadow Valley Wildlife Area	Juneau			18N	3E	NENE1	Trigonorhinus	rotundatus	Anthr
IRC0002558	Krauth	Steve	WIRC	Kirk	Kathyrn	1998/08/19		Woods Opening, WDNR-ER sweep net	Sweep net	Sandhill Wildlife Area	Wood			21N	3E	NENW1	Trigonorhinus	rotundatus	Anthr

IRC0002561	Janicki	Julia	WIRC	Messer	P			Sweep meadow weeds day	Sweep net	N/A	Kenosha	42.3350° N	87.5726° W				Trigonorhinus	sticticus	Anthr
IRC0002560	Janicki	Julia	WIRC					alfalfa	Hand collected	Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002561	Janicki	Julia	WIRC	Messer	P			Sweep meadow weeds day	Sweep net	N/A	Kenosha	42.3350° N	87.5726° W				Trigonorhinus	sticticus	Anthr
IRC0002559	Janicki	Julia	WIRC					Alfalfa		Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002559	Janicki	Julia	WIRC					Alfalfa		Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002636	Janicki	Julia	WIRC					Sweepnet in Cordgrass (Spartina) and Forbs, mesic prairie, DNR study 053	Sweep net	Bluejoint Prairie	Jefferson			8N	13E	15NE4	Trigonorhinus	sticticus	Anthr
IRC0002561	Janicki	Julia	WIRC	Messer	P			Sweep meadow weeds day	Sweep net	N/A	Kenosha	42.3350° N	87.5726° W				Trigonorhinus	sticticus	Anthr
IRC0002559	Janicki	Julia	WIRC					Alfalfa		Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002561	Janicki	Julia	WIRC	Messer	P			Sweep meadow weeds day	Sweep net	N/A	Kenosha	42.3350° N	87.5726° W				Trigonorhinus	sticticus	Anthr
IRC0002559	Janicki	Julia	WIRC					Alfalfa		Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002718			MPM			1897/10/00		before Oct 1897		N/A							Trigonorhinus	sticticus	Anthr
IRC0002561	Janicki	Julia	WIRC			1969/05/02				Kenosha	Kenosha						Trigonorhinus	sticticus	Anthr
IRC0002562	Janicki	Julia	WIRC			1976/05/28	1976/06/07	Gypsy Moth-M.T.	Malaise Trap	N/A	Grant			6N	6W	17	Trigonorhinus	sticticus	Anthr
IRC0002561	Janicki	Julia	WIRC			1977/07/12	1977/07/19	GMP-MT	Malaise Trap	N/A	Fond du La			13N	19E	23	Trigonorhinus	sticticus	Anthr
IRC0002636	Janicki	Julia	WIRC	Faber	D. B.	1977/10/04		On corn stalk	Hand collected	Madison	Dane						Trigonorhinus	sticticus	Anthr
IRC0002636	Janicki	Julia	WIRC	Faber	D. B.	1977/10/04		On corn stalk	Hand collected	Madison	Dane						Trigonorhinus	sticticus	Anthr
IRC0002560	Janicki	Julia	WIRC			1979/05/21		D-Vac Alfalfa	hand collected	Arlington Farms	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002560	Janicki	Julia	WIRC	Harrington	J	1980/07/31		On Alfalfa	hand collected	Arlington Farms	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002560	Janicki	Julia	WIRC	Harrington	J	1980/07/31		On Alfalfa	hand collected	Arlington Farms	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002560	Janicki	Julia	WIRC	Harrington	J	1980/07/31		On Alfalfa	hand collected	Arlington Farms	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002560	Janicki	Julia	WIRC	Harrington	J	1981/08/00				Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002560	Janicki	Julia	WIRC	Harrington	J	1981/08/00				Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002560	Janicki	Julia	WIRC	Harrington	J	1981/08/00				Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002560	Janicki	Julia	WIRC	Massley	T.	1981/08/00				Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002559	Janicki	Julia	WIRC	Massley	T.	1981/08/05				Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002559	Janicki	Julia	WIRC	Massley	T.	1981/08/05				Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002559	Janicki	Julia	WIRC	Massley	T.	1981/08/05				Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002560	Janicki	Julia	WIRC	Massley	T.	1981/08/29				Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002559	Janicki	Julia	WIRC	Massley	T.	1981/08/29				Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002559	Janicki	Julia	WIRC	Massley	T.	1981/08/29				Arlington	Columbia						Trigonorhinus	sticticus	Anthr
IRC0002637	Janicki	Julia	WIRC	Young	Daniel K.	1990/06/14		Sweep bog margin vegetation	Sweep net	Summerton Bog TNC, 3 mi. SE Oxford	Marquette						Trigonorhinus	sticticus	Anthr
IRC0002637	Janicki	Julia	WIRC	Young	Daniel K.	1990/06/14		Sweep bog margin vegetation	Sweep net	Summerton Bog TNC, 3 mi. SE Oxford	Marquette						Trigonorhinus	sticticus	Anthr

IRC0002636	Janicki	Julia	WIRC	Otto	Robert	1995/05/30		Swept in tall weeds	Sweep net	4 mi w. Suring, Strawberry Lane	Oconto						Trigonorhinus	sticticus	Anthr
IRC0002636	Janicki	Julia	WIRC	Otto	Robert	1995/05/30		Swept in tall weeds	Sweep net	4 mi w. Suring, Strawberry Lane	Oconto						Trigonorhinus	sticticus	Anthr
IRC0002636	Janicki	Julia	WIRC	Otto	Robert	1995/05/30		Swept in tall weeds	Sweep net	4 mi w. Suring, Strawberry Lane	Oconto						Trigonorhinus	sticticus	Anthr
IRC0002636	Janicki	Julia	WIRC	Otto	Robert	1995/05/30		Swept in tall weeds	Sweep net	4 mi w. Suring, Strawberry Lane	Oconto						Trigonorhinus	sticticus	Anthr
IRC0002691	Janicki	Julia	WDNR			1995/09/26		large steep bluff prairie. DNR study 053	Sweep net	Golden Valley Bluff	Buffalo			24N	13W	15NW	Trigonorhinus	sticticus	Anthr
IRC0002601	Janicki	Julia	WDNR			1996/06/06		Sweep net to EtOH, unburned/ 70F clear, mesic RR prairie, Study 053/ SNA 195	Sweep net	Ipswich Prairie U:N	Lafayette			T3N	R1E	Sec31	Trigonorhinus	sticticus	Anthr
IRC0002601	Janicki	Julia	WDNR			1996/06/06		Sweep net to EtOH, unburned/ 70F clear, mesic RR prairie, Study 053/ SNA 195	Sweep net	Ipswich Prairie U:N	Lafayette			T3N	R1E	Sec31	Trigonorhinus	sticticus	Anthr
IRC0002692	Janicki	Julia	WDNR			1996/06/06		to EtOH, unburned/70F clear, mesic RR prairie. study 053/ SNA195	Sweep net	Ipswich Prairie, U: N	Lafayette			3N	1E	31	Trigonorhinus	sticticus	Anthr
IRC0002636	Janicki	Julia	WIRC	Henderson	Richard A.	1996/06/13		DNR study 053		Black Earth Pr.	Dane			8N	6E	27SW	Trigonorhinus	sticticus	Anthr
IRC0002637	Janicki	Julia	WIRC			1997/08/29		In dry prairie	Sweep net	Beloit Prairie	Rock			1N	12E	1W	Trigonorhinus	sticticus	Anthr
IRC0002636	Janicki	Julia	WIRC	Suter	W.	1998/06/28			Sweep net	E/ of Woodworth, Benedict Prairie	Kenosha						Trigonorhinus	sticticus	Anthr
IRC0002637	Janicki	Julia	WIRC			1998/08/10		prairie dropseed, dry-mesic hill prairie, DNR study 053	D-Vac	Redderman-Young Prairie	Columbia			11N	10E	31SW	Trigonorhinus	sticticus	Anthr
IRC0002562	Janicki	Julia	WIRC	Kirk	Kathryn	1999/06/10		Niagra Esc Degraded Alvar by Potawatomi, sweep net. #52	Sweep net	Degraded Alvar	Door			28N	25E	27NE	Trigonorhinus	sticticus	Anthr
IRC0002636	Janicki	Julia	WIRC	Gruber	Jeffrey P.	1999/07/16		Swept from foliage in oldfield area	Sweep net	LWRSWA Mazomanie	Dane			9N	6E	29	Trigonorhinus	sticticus	Anthr
IRC0002562	Janicki	Julia	WIRC			1999/07/27		Gen. sweep/L.blue,dropseed,sideoats. Dry-mesic prairie. DNR study 053	Sweep net	Thronson Prairie	Iowa			6N	5E	13NE4	Trigonorhinus	sticticus	Anthr
IRC0002561	Janicki	Julia	WIRC	Messer	P	2000/08/26		Sweep meadow weeds day	Sweep net	N/A	Ozaukee	43.1744° N	87.5620° W				Trigonorhinus	sticticus	Anthr
IRC0002637	Janicki	Julia	WIRC	Young	Daniel K.	2001/04/23	2001/05/03		Lindgren funnel trap	Hemlock Draw	Sauk	43° 21' 46" N	89° 56' 34" W				Trigonorhinus	sticticus	Anthr
IRC0002561	Janicki	Julia	WIRC	Messer	P	2001/05/17		Sweep weeds pond area day	Sweep net	N/A	Ozaukee	43.262° N	87.723° W				Trigonorhinus	sticticus	Anthr
IRC0002561	Janicki	Julia	WIRC	Messer	P	2001/06/16		Kleizech park day sweep weed	Sweep net	N/A	Milwaukee	43.139° N	87.942° W				Trigonorhinus	sticticus	Anthr
IRC0002561	Janicki	Julia	WIRC	Messer	P	2001/07/08		Interdune milkweed grass day		N/A	Sheboygan	43.657° N	87.723° W				Trigonorhinus	sticticus	Anthr
IRC0002637	Janicki	Julia	WIRC	Janicki	Julia	2012/05/15		Sweeping forest floor	Sweep net	Quincy Bluff SNA	Adams	43° 53' 30" N	89° 52' 12" W				Trigonorhinus	sticticus	Anthr
IRC0002637	Janicki	Julia	WIRC	Janicki	Julia	2012/05/21		Sweeping field along forest	Sweep net	Black River State Forest	Jackson	44.171786° N	90.603400° W				Trigonorhinus	sticticus	Anthr
IRC0002637	Janicki	Julia	WIRC	Janicki	Julia	2012/05/27		Sweeping prairie/ grassy field	Sweep net	Kettle Moraine Oak Opening	Walworth	42.836406° N	88.600044° W				Trigonorhinus	sticticus	Anthr
IRC0002642	Janicki	Julia	WIRC					gypsy moth, malaise trap	Malaise trap	N/A	Iowa			6N	5E	S1	Trigonorhinus	tomentosus	Anthr
IRC0002566	Janicki	Julia	WIRC					Disturbed field		Middleton	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002645	Janicki	Julia	WIRC					Sweeping unburned prairie	Sweep net	Hawkhill (Gruske) Prairie	Dane			9N	8E	4NW	Trigonorhinus	tomentosus	Anthr
IRC0002642	Janicki	Julia	WIRC					gypsy moth, malaise trap	Malaise trap	N/A	Iowa			6N	5E	S1	Trigonorhinus	tomentosus	Anthr
IRC0002701	Janicki	Julia	MPM	Nash	G.	1928/06/12				Wisconsin Rapids	Wood						Trigonorhinus	tomentosus	Anthr
IRC0002562	Janicki	Julia	WIRC			1929/08/06				Cranmoor	Wood						Trigonorhinus	tomentosus	Anthr
IRC0002566	Janicki	Julia	WIRC	Schwehr	D. W.	1967/08/07				Madison, Chicago & N.W. Railroad, Near trail,	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002564	Janicki	Julia	WIRC	Schwehr	D. W.	1967/08/07				Madison, Chicage & N.W. Railroad, near trail, i	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002563	Janicki	Julia	WIRC	Litsinger	J	1970/08/21		Sweep alfalfa	Sweep net	Newark Twsp	Rock						Trigonorhinus	tomentosus	Anthr

IRC0002563	Janicki	Julia	WIRC	Litsinger	J	1970/08/21		Sweep alfalfa	Sweep net	Newark Twsp	Rock						Trigonorhinus	tomentosus	Anthr
IRC0002642	Janicki	Julia	WIRC			1975/09/18	1975/09/19	Gypsy moth	Malaise Trap	N/A	Dane			7N	7E	19	Trigonorhinus	tomentosus	Anthr
IRC0002563	Janicki	Julia	WIRC			1976/07/20	1976/07/27	Gypsy Moth - M.T.	Malaise Trap	N/A	Jackson			21N	4W	33	Trigonorhinus	tomentosus	Anthr
IRC0002562	Janicki	Julia	WIRC			1976/08/02	1976/08/09	Gypsy Moth- M.T.	Malaise Trap	N/A	Rock			4N	13E	25	Trigonorhinus	tomentosus	Anthr
IRC0002562	Janicki	Julia	WIRC			1976/08/02	1976/08/09	Gypsy Moth- M.T.	Malaise Trap	N/A	Rock			4N	13E	25	Trigonorhinus	tomentosus	Anthr
IRC0002564	Janicki	Julia	WIRC	Faber	D	1977/06/29				Madison	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002569	Janicki	Julia	WIRC			1977/07/25	1977/08/01	Gypsy Moth- M.T.	Malaise Trap	N/A	Iowa			6N	5E	1	Trigonorhinus	tomentosus	Anthr
IRC0002569	Janicki	Julia	WIRC			1977/07/25	1977/08/01	Gypsy Moth- M.T.	Malaise Trap	N/A	Iowa			6N	5E	1	Trigonorhinus	tomentosus	Anthr
IRC0002569	Janicki	Julia	WIRC			1977/07/25	1977/08/01	Gypsy Moth- M.T.	Malaise Trap	N/A	Iowa			6N	5E	1	Trigonorhinus	tomentosus	Anthr
IRC0002569	Janicki	Julia	WIRC			1977/08/05	1977/08/15	Gypsy Moth- M.T.	Malaise Trap	N/A	Iowa			6N	5E	1	Trigonorhinus	tomentosus	Anthr
IRC0002569	Janicki	Julia	WIRC			1977/08/05	1977/08/15	Gypsy Moth- M.T.	Malaise Trap	N/A	Iowa			6N	5E	1	Trigonorhinus	tomentosus	Anthr
IRC0002569	Janicki	Julia	WIRC			1977/08/22	1977/08/29	Gypsy Moth- M.T.	Malaise Trap	N/A	Iowa			6N	5E	1	Trigonorhinus	tomentosus	Anthr
IRC0002568	Janicki	Julia	WIRC			1977/08/22	1977/08/29	Gypsy Moth- M.T.	Malaise Trap	N/A	Iowa			6N	5E	1	Trigonorhinus	tomentosus	Anthr
IRC0002568	Janicki	Julia	WIRC			1977/08/22	1977/08/29	Gypsy Moth- M.T.	Malaise Trap	N/A	Iowa			6N	5E	1	Trigonorhinus	tomentosus	Anthr
IRC0002569	Janicki	Julia	WIRC			1977/08/22	1977/08/29	Gypsy Moth- M.T.	Malaise Trap	N/A	Iowa			6N	5E	1	Trigonorhinus	tomentosus	Anthr
IRC0002570	Janicki	Julia	WIRC			1977/08/29	1977/09/07	Gypsy Moth- M.T.	Malaise Trap	N/A	Iowa			6N	5E	1	Trigonorhinus	tomentosus	Anthr
IRC0002570	Janicki	Julia	WIRC	Faber	D	1977/08/30				Babcock	Wood						Trigonorhinus	tomentosus	Anthr
IRC0002570	Janicki	Julia	WIRC	Faber	D	1977/08/30				Babcock	Wood						Trigonorhinus	tomentosus	Anthr
IRC0002570	Janicki	Julia	WIRC	Faber	D	1977/08/30				Babcock	Wood						Trigonorhinus	tomentosus	Anthr
IRC0002570	Janicki	Julia	WIRC	Faber	D	1977/08/30				Babcock	Wood						Trigonorhinus	tomentosus	Anthr
IRC0002570	Janicki	Julia	WIRC	Faber	D	1977/08/30				Babcock	Wood						Trigonorhinus	tomentosus	Anthr
IRC0002570	Janicki	Julia	WIRC	Faber	D	1977/08/30				Babcock	Wood						Trigonorhinus	tomentosus	Anthr
IRC0002570	Janicki	Julia	WIRC	Faber	D	1977/08/30				Babcock	Wood						Trigonorhinus	tomentosus	Anthr
IRC0002568	Janicki	Julia	WIRC	Harrington	B	1978/08/10			Sweep net	Madison	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002568	Janicki	Julia	WIRC	Harrington	B	1978/08/10			Sweep net	Madison	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002568	Janicki	Julia	WIRC	Harrington	B	1978/08/10			Sweep net	Madison	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002568	Janicki	Julia	WIRC	Harrington	B	1978/08/10			Sweep net	Madison	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002568	Janicki	Julia	WIRC	Harrington	B	1978/08/10			Sweep net	Madison	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002568	Janicki	Julia	WIRC	Harrington	B	1978/08/10			Sweep net	Madison	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002563	Janicki	Julia	WIRC	Massley	T.	1981/08/00				Arlington	Columbia						Trigonorhinus	tomentosus	Anthr
IRC0002563	Janicki	Julia	WIRC	Massey	T	1981/08/05				Arlington	Columbia						Trigonorhinus	tomentosus	Anthr
IRC0002563	Janicki	Julia	WIRC			1981/08/05		Alfalfa	D-vac	Arlington	Columbia						Trigonorhinus	tomentosus	Anthr

IRC0002563	Janicki	Julia	WIRC			1981/08/13		Alfalfa		Arlington	Columbia						Trigonorhinus	tomentosus	Anthr
IRC0002569	Janicki	Julia	WIRC	Massley	T.	1981/08/29				Arlington	Columbia						Trigonorhinus	tomentosus	Anthr
IRC0002569	Janicki	Julia	WIRC	Massley	T.	1981/08/29				Arlington	Columbia						Trigonorhinus	tomentosus	Anthr
IRC0002569	Janicki	Julia	WIRC	Massley	T.	1981/08/29				Arlington	Columbia						Trigonorhinus	tomentosus	Anthr
IRC0002567	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi E. of Stone Lake st.70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002567	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi E. of Stone Lake st.70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002567	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi E. of Stone Lake st.70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002567	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi E. of Stone Lake st.70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002567	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi E. of Stone Lake st.70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002644	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi. E. of Stone LK St. 70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002568	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi E. of Stone Lake st.70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002567	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi E. of Stone Lake st.70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002568	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi E. of Stone Lake st.70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002566	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi E. of Stone Lake st.70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002567	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi E. of Stone Lake st.70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002567	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi E. of Stone Lake st.70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002567	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi E. of Stone Lake st.70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002567	Janicki	Julia	WIRC	Harrington	B	1982/08/23				4 mi E. of Stone Lake st.70	Sawyer						Trigonorhinus	tomentosus	Anthr
IRC0002642	Janicki	Julia	WIRC			1983/08/09				Bra7cdu#1	Wood						Trigonorhinus	tomentosus	Anthr
IRC0002566	Janicki	Julia	WIRC	Ravdin	N.	1983/08/19				Madison	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002570	Janicki	Julia	WIRC	Marosy	M	1983/08/23				Wyoming Twp.	Iowa						Trigonorhinus	tomentosus	Anthr
IRC0002566	Janicki	Julia	WIRC	Ravdin	N.	1983/09/07				Cross Plains	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002566	Janicki	Julia	WIRC	Maresy	M	1983/09/08				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002566	Janicki	Julia	WIRC	Maresy	M	1983/09/08				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002566	Janicki	Julia	WIRC	Maresy	M	1983/09/08				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002644	Janicki	Julia	WIRC	Harrington	B	1985/09/23				Madison, Cherokee	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002643	Janicki	Julia	WIRC	Harrington	B	1985/09/23				Madison, Cherokee	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002643	Janicki	Julia	WIRC	Harrington	B	1985/09/23				Madison, Cherokee	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002643	Janicki	Julia	WIRC	Harrington	B	1985/09/23				Madison, Cherokee	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002643	Janicki	Julia	WIRC	Harrington	B	1985/09/23				Madison, Cherokee	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002644	Janicki	Julia	WIRC	Harrington	B	1985/09/23				Madison, Cherokee	Dane						Trigonorhinus	tomentosus	Anthr

IRC0002643	Janicki	Julia	WIRC	Harrington	B	1985/09/23				Madison, Cherokee	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002642	Janicki	Julia	WIRC	Harrington	B	1985/09/23				Madison, Cherokee	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002643	Janicki	Julia	WIRC	Harrington	B	1985/09/23				Madison, Cherokee	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002643	Janicki	Julia	WIRC	Harrington	B	1985/09/23				Madison, Cherokee	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002643	Janicki	Julia	WIRC	Harrington	B	1985/09/23				Madison, Cherokee	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002643	Janicki	Julia	WIRC	Harrington	B	1985/09/23				Madison, Cherokee	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002644	Janicki	Julia	WIRC	Lisken	A	1987/08/20		Taken from: 3 sweep net in native prairie	Sweep net	Arlington Farm Prairie	Columbia			10N	10E	31/NW	Trigonorhinus	tomentosus	Anthr
IRC0002565	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002565	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002564	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002565	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002566	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002564	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002564	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002565	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002565	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002565	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002564	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002644	Janicki	Julia	WIRC	Harrington	B	1987/09/01				Cross Plains	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002564	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002565	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002564	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002564	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002565	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002565	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002565	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002564	Janicki	Julia	WIRC	Krauth	S	1987/09/01				Festge County Park	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002645	Janicki	Julia	WIRC	Young	Daniel K.	1990/07/06		Sweep vegetation beneath Quercus	Sweep net	Summerton Bog TNC, 3 mi SE Oxford	Marquette						Trigonorhinus	tomentosus	Anthr
IRC0002645	Janicki	Julia	WIRC	Young	Daniel K.	1990/07/06		Sweep vegetation beneath Quercus	Sweep net	Summerton Bog TNC, 3 mi SE Oxford	Marquette						Trigonorhinus	tomentosus	Anthr
IRC0002644	Janicki	Julia	WIRC			1995/08/21		Found in mullein, Verbascum thapius. SNA 184, DNR study 053	Hand collected	La Crosse R. Tr. Pr.	La Crosse			17N	4W		Trigonorhinus	tomentosus	Anthr
IRC0002645	Janicki	Julia	WIRC			1995/08/22		DNR study 053. SNA 184	Sweep net	La Crosse R. Tr. Pr.	La Crosse			17N	4W		Trigonorhinus	tomentosus	Anthr
IRC0002645	Janicki	Julia	WIRC			1995/08/22		DNR study 053. SNA 184	Sweep net	La Crosse R. Tr. Pr.	La Crosse			17N	4W		Trigonorhinus	tomentosus	Anthr

IRC0002644	Janicki	Julia	WIRC			1995/08/29		Sweepnet in native prairie, burned 1995, 75-80F. SNA 184, DNR study 053	Sweep net	La Crosse R. Tr. Pr.	La Crosse			17N	5W	36	Trigonorhinus	tomentosus	Anthr
IRC0002644	Janicki	Julia	WIRC			1995/08/30		Sweep net in sand prairie, burned, 80F, partly cloudy	Sweep net	Morgan Coulee Prairie	Pierce			25N	16W	34	Trigonorhinus	tomentosus	Anthr
IRC0002729	Krauth	S	WDNR			1995/08/30		sweep net sand prairie burned 95, 80F, partly cloudy, study053 SNA 205	Sweep net	Morgan Coulee Prairie	Pierce			25N	16W	34	Trigonorhinus	tomentosus	Anthr
IRC0002642	Janicki	Julia	WIRC			1995/08/30		Dry prairie, burned, 12:30-2:30 pm. SNA 205	Sweep net	Morgan Coulee Prairie	Pierce			25N	16W	34	Trigonorhinus	tomentosus	Anthr
IRC0002562	Janicki	Julia	WIRC			1996/06/06		Study 053 SNA 195, sweep net in burned mesic prairie, 70F, partly cloudy	Sweep net	Ipswitch Prairie U:S	Lafayette			3N	1		Trigonorhinus	tomentosus	Anthr
IRC0002566	Krauth	S	WIRC			1996/06/26		Sweep net in dry prairie-savannah, DNR study 053	Sweep net	Wright Oak Savannah	Dane			8N	7E	11/SW	Trigonorhinus	tomentosus	Anthr
IRC0002692	Janicki	Julia	WDNR			1996/08/00		to EtOH. mesic RR prairie. study053, SNA 184	Sweep net	La Crosse River Tr.	La Crosse			16N	W	3	Trigonorhinus	tomentosus	Anthr
IRC0002692	Janicki	Julia	WDNR			1996/08/00		to EtOH. mesic RR prairie. study053, SNA 184	Sweep net	La Crosse River Tr.	La Crosse			16N	W	3	Trigonorhinus	tomentosus	Anthr
IRC0002642	Janicki	Julia	WIRC			1996/08/06		Sand prairie, WI DNR study 053	Sweep net	Walking Iron U:I	Dane			8N	6E	8	Trigonorhinus	tomentosus	Anthr
IRC0002601	Janicki	Julia	WDNR			1996/08/07		Sweep net to EtOh, Dry/ dry-mesic prairie, DNR study 053	Sweep net	Hogback Prairie	Crawford			9N	4W	32N	Trigonorhinus	tomentosus	Anthr
IRC0002562	Janicki	Julia	WIRC			1996/08/07		DNR Study 053, sweep net ti ETOH , dry/dry-mesic prairie	Sweep net	Hogback Prairie	Crawford			9N	4W	32N	Trigonorhinus	tomentosus	Anthr
IRC0002729	Krauth	S	WDNR			1996/08/14		Sweep net to EtOH, mixed grasses, dry, dry-mesic prairie, dnr study 053	Sweep net	Drenchenberg Prairie	Iowa			8N	5E	31NW4	Trigonorhinus	tomentosus	Anthr
IRC0002601	Janicki	Julia	WDNR	Henderson	R. A.	1997/06/25		Sweep netted from wet prairie along sugar river	Sweep net	N/A	Dane			6N	8E	20NW1	Trigonorhinus	tomentosus	Anthr
IRC0002642	Janicki	Julia	WIRC			1997/07/09		Sweep net in Prairie dropseed	Sweep net	Beloit Prairie	Rock			1N/R	12E	1/W	Trigonorhinus	tomentosus	Anthr
IRC0002562	Janicki	Julia	WIRC	Kirk	Kathyrn	1997/07/18		Staffon Marsh sweepnet, WDNR-gnd.Res.	Sweep net	Black River State Forest, Staffon Marsh	Jackson			22N	3W	NESE2	Trigonorhinus	tomentosus	Anthr
IRC0002642	Janicki	Julia	WIRC	Chapman	S	1997/07/19		Collected in black light trap near wooded area	Black light trap	1 mi NE of Wiota	Lafayette						Trigonorhinus	tomentosus	Anthr
IRC0002641	Janicki	Julia	WIRC			1997/08/22		Sweep net in low prairie, 15:00, 80F. Study 053 SNA 100	Sweep net	Fountain Creek Pr.	Green Lake			14N	11E	17	Trigonorhinus	tomentosus	Anthr
IRC0002562	Janicki	Julia	WIRC			1997/08/22		Sweep net in prairie reconstruction	Sweep net	Muir Park	Marquette			14N	9E	14/23	Trigonorhinus	tomentosus	Anthr
IRC0002646	Janicki	Julia	WIRC			1997/08/29		Sweep net in dry prairie. DNR study 053	Sweep net	Rock River Prairie	Rock			1N	12E	2/SW	Trigonorhinus	tomentosus	Anthr
IRC0002641	Janicki	Julia	WIRC			1997/08/29		Dry prairie	Sweep net	Rock River Prairie	Rock			1N	12E	2/SW	Trigonorhinus	tomentosus	Anthr
IRC0002645	Janicki	Julia	WIRC			1997/08/29		Sweep net in dry prairie. DNR study 053	Sweep net	Rock River Prairie	Rock			1N	12E	2/SW	Trigonorhinus	tomentosus	Anthr
IRC0002645	Janicki	Julia	WIRC			1997/08/29		Sweep net in dry prairie. DNR study 053	Sweep net	Rock River Prairie	Rock			1N	12E	2/SW	Trigonorhinus	tomentosus	Anthr
IRC0002646	Janicki	Julia	WIRC			1997/08/29		Sweep net in dry prairie. DNR study 053	Sweep net	Rock River Prairie	Rock			1N	12E	2/SW	Trigonorhinus	tomentosus	Anthr
IRC0002563	Janicki	Julia	WIRC	Kirk	Kathyrn	1998/05/20		RR Prairie, WDRN EndRes, 21A		Along Hwy 21	Monroe			18N	1E	SESE14	Trigonorhinus	tomentosus	Anthr
IRC0002563	Janicki	Julia	WIRC	Kirk	Kathyrn	1998/08/19		Woods Opening. WDNR-BER. 092	Sweep net	Meadow Valley Wildlife Area	Juneau			18N	3E	NENE1	Trigonorhinus	tomentosus	Anthr
IRC0002644	Janicki	Julia	WIRC			1999/06/24		dry/sand RR prairie, DNR study 053	Sweep net	Eau Claire RR Prairie	Eau Claire			27N	9W	4S	Trigonorhinus	tomentosus	Anthr
IRC0002644	Janicki	Julia	WIRC			1999/06/25		Grassy river beach, DNR study 053	Sweep net	Chippewa Sand Ledge	Dunn			26N	12W	29NEN	Trigonorhinus	tomentosus	Anthr
IRC0002691	Janicki	Julia	WDNR	Secrist	Eric	1999/07/23		Sandy hill prairie	Sweep net	Roundhill Prairie	Pepin			25N	13W	31W	Trigonorhinus	tomentosus	Anthr
IRC0002563	Janicki	Julia	WIRC			1999/08/04		Sandy hill prairie east of Ravine, DNR study 053	Sweep net	Roundhill Prairie	Pepin			25N	13W	31W	Trigonorhinus	tomentosus	Anthr
IRC0002642	Janicki	Julia	WIRC			1999/08/04		General sweep Indian Gr. dominated dry-mesic prairie	Sweep net	Perrot Ridge Prairie	Trempealea			18N	9W	20SE	Trigonorhinus	tomentosus	Anthr
IRC0002691	Janicki	Julia	WDNR	Secrist	Eric	1999/08/04		sandy hill prairie	Sweep net	Roundhill Prairie	Pepin			25N	13W	31W	Trigonorhinus	tomentosus	Anthr
IRC0002691	Janicki	Julia	WDNR	Secrist	Eric	1999/08/11		starr@piedmont, sandy urban RR prairie	Sweep net	Eau Claire RR prairie	Eau Claire			27N	9W	4	Trigonorhinus	tomentosus	Anthr

IRC0002691	Janicki	Julia	WDNR	Secrist	Eric	1999/08/16				Rock Falls Raceway	Dunn			26N	10W	7	Trigonorhinus	tomentosus	Anthr
IRC0002729	Krauth	S	WDNR			2000/06/19		general sweep, dry, dry-mesic prairie, DNR study 053	Sweep net	Schlimgen Prairie, U:S1	Dane						Trigonorhinus	tomentosus	Anthr
IRC0002729	Krauth	S	WDNR			2000/08/07		dropseed, Lysimachia flora/Potentilla fruticosa, wet-mesic prairie	Sweep net	Paintbrush Prairie	Jefferson			5N	16E	32NE4	Trigonorhinus	tomentosus	Anthr
IRC0002572	Janicki	Julia	WIRC	Messer	P	2000/08/08		Swept meadow weeds Shamrock Hill Farm day	Sweep net	N/A	Sheboygan	43.3612° N	88.0433° W				Trigonorhinus	tomentosus	Anthr
IRC0002572	Janicki	Julia	WIRC	Messer	P	2000/08/10		Sweep meadow weeds day	Sweep net	N/A	Ozaukee	43.269° N	87.923° W				Trigonorhinus	tomentosus	Anthr
IRC0002572	Janicki	Julia	WIRC	Messer	P	2000/08/10		Sweep meadow weeds day	Sweep net	N/A	Ozaukee	43.269° N	87.923° W				Trigonorhinus	tomentosus	Anthr
IRC0002572	Janicki	Julia	WIRC	Messer	P	2000/08/15		Swept weed field Shamrock Hill Farm day	Sweep net	N/A	Sheboygan	43.3612° N	88.0433° W				Trigonorhinus	tomentosus	Anthr
IRC0002572	Janicki	Julia	WIRC	Messer	P	2000/08/15		Swept weed field Shamrock Hill Farm day	Sweep net	N/A	Sheboygan	43.3612° N	88.0433° W				Trigonorhinus	tomentosus	Anthr
IRC0002645	Janicki	Julia	WIRC	Zahn	J.	2002/06/12		Sweeping E prairie	Sweep net	4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002571	Janicki	Julia	WIRC	Zahn	J.	2002/07/26		Sweeping SW sand	Sweep net	4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002571	Janicki	Julia	WIRC	Zahn	J.	2002/07/26		Sweeping SW sand	Sweep net	4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002571	Janicki	Julia	WIRC	Zahn	J.	2002/07/26		Sweeping SW sand	Sweep net	4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002571	Janicki	Julia	WIRC	Zahn	J.	2002/07/26		Sweeping SW sand	Sweep net	4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002570	Janicki	Julia	WIRC	Suter	W.	2002/08/05		Raspberry/oak sand sw		4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002571	Janicki	Julia	WIRC	Suter	W.	2002/08/05		Sweeping SE beefield	Sweep net	4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002571	Janicki	Julia	WIRC	Suter	W.	2002/08/05		Raspberry/oak sand sw		4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002571	Janicki	Julia	WIRC	Suter	W.	2002/08/05		Raspberry/oak sand SW		4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002571	Janicki	Julia	WIRC	Suter	W.	2002/08/05		Raspberry/oak sand SW		4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002571	Janicki	Julia	WIRC	Suter	W.	2002/08/05		Sweeping SE beefield	Sweep net	4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002645	Janicki	Julia	WIRC	Suter	W.	2002/08/05		Sweeping SE bee field	Sweep net	4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002571	Janicki	Julia	WIRC	Suter	W.	2002/08/05		Sweeping SE beefield	Sweep net	4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002645	Janicki	Julia	WIRC	Suter	W.	2002/09/08		Sand SW	Sweep net	4 mi W. Plainfield, Hamerstrom Property	Waushara						Trigonorhinus	tomentosus	Anthr
IRC0002737	Janicki	Julia	CMBC	Brabant	Craig	2003/07/21		landed on shirt while in oak barrens on edge of sand prairie. mostly cloudy, 3:30-4:30 pm, 74F	hand collected	Spring Green Preserve ~(TNC), elevation: 733	Sauk	43.199364° N	90.059100° W				Trigonorhinus	tomentosus	Anthr
IRC0002691	Janicki	Julia	WDNR	Sauer	S	2006/08/10		sand prairie	Sweep net	Jelle Prairie Unit B	Dane			5N	6E	26SEN	Trigonorhinus	tomentosus	Anthr
IRC0002691	Janicki	Julia	WDNR	Sauer	S	2006/08/10		sand prairie	Sweep net	Jelle Prairie Unit B	Dane			5N	6E	26SEN	Trigonorhinus	tomentosus	Anthr
IRC0002691	Janicki	Julia	WDNR	Sauer	S	2006/08/10		sand prairie. DNR	Sweep net	Jelle Prairie unit B	Dane			5N	6E	26SEN	Trigonorhinus	tomentosus	Anthr
IRC0002640	Janicki	Julia	WIRC	Gullickson	Kari	2011/08/27		Edge of mixed hardwood forest by open grass field	Malaise trap	S of Chetek, W of Hwy 53	Barron	45.225060° N	91.672977° W				Trigonorhinus	tomentosus	Anthr
IRC0002638	Janicki	Julia	WIRC	Gullickson	Kari	2011/09/07	2011/09/14		Malaise trap	N of Hwy 10, W of Strum	Trempealea	44.558690° N	91.406030° W				Trigonorhinus	tomentosus	Anthr
IRC0002638	Janicki	Julia	WIRC	Janicki	Julia	2012/06/19		Sweeping tallgrass prairies	Sweep net	Avoca Prairie SNA	Iowa	43.200793° N	90.292872° W				Trigonorhinus	tomentosus	Anthr
IRC0002640	Janicki	Julia	WIRC	Janicki	Julia	2012/06/21		Sweeping grassy field with big blue stem and sideoats grama	Sweep net	Mazomanie Bottoms SNA	Dane	43.208008° N	89.828331° W				Trigonorhinus	tomentosus	Anthr
IRC0002640	Janicki	Julia	WIRC	Janicki	Julia	2012/06/21		Sweeping grassy field with big blue stem and sideoats grama	Sweep net	Mazomanie Bottoms SNA	Dane	43.208008° N	89.828331° W				Trigonorhinus	tomentosus	Anthr
IRC0002639	Janicki	Julia	WIRC	Janicki	Julia	2012/06/21		Sweeping grassy field with big blue stem and sideoats grama	Sweep net	Mazomanie Bottoms SNA	Dane	43.208008° N	89.828331° W				Trigonorhinus	tomentosus	Anthr

IRC0002640	Janicki	Julia	WIRC	Janicki	Julia	2012/06/21		Sweeping grassy field with big blue stem and sideoats grama	Sweep net	Mazomanie Bottoms SNA	Dane	43.208008° N	89.828331° W				Trigonorhinus	tomentosus	Anthr
IRC0002640	Janicki	Julia	WIRC	Janicki	Julia	2012/06/21		Sweeping grassy field with big blue stem and sideoats grama	Sweep net	Mazomanie Bottoms SNA	Dane	43.208008° N	89.828331° W				Trigonorhinus	tomentosus	Anthr
IRC0002640	Janicki	Julia	WIRC	Janicki	Julia	2012/07/26		Sweeping prairie	Sweep net	Ripon prairie SNA	Fond du La	45° 51' 31" N	88° 47' 44" W				Trigonorhinus	tomentosus	Anthr
IRC0002639	Janicki	Julia	WIRC	Janicki	Julia	2012/07/27		Sweeping vegetation along road	Sweep net	Blue River sand barrens	Grant	43° 11' 02" N	90° 35' 47" W				Trigonorhinus	tomentosus	Anthr
IRC0002641	Janicki	Julia	WIRC	Janicki	Julia	2012/07/28		Sweeping grassy prairie	Sweep net	Buena Vista Quarry Prairie	Portage	44° 19' 41" N	89° 38' 11" W				Trigonorhinus	tomentosus	Anthr
IRC0002641	Janicki	Julia	WIRC	Janicki	Julia	2012/07/28		Sweeping grassy prairie	Sweep net	Buena Vista Quarry Prairie	Portage	44° 19' 41" N	89° 38' 11" W				Trigonorhinus	tomentosus	Anthr
IRC0002638	Janicki	Julia	WIRC	Janicki	Julia	2012/08/08		Sweeping grasses (big bluestem)	Sweep net	Lake Altoona County Park	Eau Claire	44° 48' 39" N	91° 25' 18" W				Trigonorhinus	tomentosus	Anthr
IRC0002638	Janicki	Julia	WIRC	Janicki	Julia	2012/08/08		Sweeping grasses (big bluestem)	Sweep net	Lake Altoona County Park	Eau Claire	44° 48' 39" N	91° 25' 18" W				Trigonorhinus	tomentosus	Anthr
IRC0002638	Janicki	Julia	WIRC	Janicki	Julia	2012/08/08		Sweeping grasses (big bluestem)	Sweep net	Lake Altoona County Park	Eau Claire	44° 48' 39" N	91° 25' 18" W				Trigonorhinus	tomentosus	Anthr
IRC0002640	Janicki	Julia	WIRC	Janicki	Julia	2012/08/20		Sweeping grassy area with wild corn and prairie grasses	Sweep net	Browntown- Cadiz Springs SRA	Green	42° 35' 11" N	89° 45' 36" W				Trigonorhinus	tomentosus	Anthr
IRC0002640	Janicki	Julia	WIRC	Janicki	Julia	2012/08/20		Sweeping grassy area with wild corn and prairie grasses	Sweep net	Browntown- Cadiz Springs SRA	Green	42° 35' 11" N	89° 45' 36" W				Trigonorhinus	tomentosus	Anthr
IRC0002639	Janicki	Julia	WIRC	Janicki	Julia	2012/08/23		Sweeping grassy area with legumes around oak shrubs	Sweep net	Quincy Bluff SNA	Adams	43° 53' 30" N	89° 52' 12" W				Trigonorhinus	tomentosus	Anthr
IRC0002639	Janicki	Julia	WIRC	Janicki	Julia	2012/08/23		Sweeping grassy area with legumes around oak shrubs	Sweep net	Quincy Bluff SNA	Adams	43° 53' 30" N	89° 52' 12" W				Trigonorhinus	tomentosus	Anthr
IRC0002640	Janicki	Julia	WIRC	Hernandez	Natalie	2012/08/30		10 pan traps located within 0.25 mi of GPS, with yellow tile, filled with propylene glycol surrounded by lake, marshes, forest,	Pans traps	Eagle Heights/ Biocore	Dane	43.088242° N	89.830422° W				Trigonorhinus	tomentosus	Anthr
IRC0002639	Janicki	Julia	WIRC	Janicki	Julia	2012/09/03		Sweeping panic grass	Sweep net	Spring Green Prairie	Sauk	43.115404° N	90.034963° W				Trigonorhinus	tomentosus	Anthr
IRC0002640	Janicki	Julia	WIRC	Janicki	Julia	2012/09/03		Sweeping panic grass	Sweep net	Spring Green Prairie	Sauk	43.115404° N	90.034963° W				Trigonorhinus	tomentosus	Anthr
IRC0002639	Janicki	Julia	WIRC	Janicki	Julia	2012/09/03		Sweeping panic grass	Sweep net	Spring Green Prairie	Sauk	43.115404° N	90.034963° W				Trigonorhinus	tomentosus	Anthr
IRC0002639	Janicki	Julia	WIRC	Janicki	Julia	2012/09/03		Sweeping panic grass	Sweep net	Spring Green Prairie	Sauk	43.115404° N	90.034963° W				Trigonorhinus	tomentosus	Anthr
IRC0002638	Janicki	Julia	WIRC	Janicki	Julia	2013/06/18		Sweeping sandy area with vegetation among oak scrubs	Sweep net	Blue River Sand Barrens SNA	Grant	43.194086° N	90.533867° W				Trigonorhinus	tomentosus	Anthr
IRC0002641	Janicki	Julia	WIRC	Janicki	Julia	2013/06/18		Sweeping sandy prairie	Sweep net	Spring Green Preserve	Sauk	43.115404° N	90.034963° W				Trigonorhinus	tomentosus	Anthr
IRC0002641	Janicki	Julia	WIRC	Janicki	Julia	2013/06/18		Sweeping sandy prairie	Sweep net	Spring Green Preserve	Sauk	43.115404° N	90.034963° W				Trigonorhinus	tomentosus	Anthr
IRC0002641	Janicki	Julia	WIRC	Janicki	Julia	2013/06/18		Sweeping sandy prairie	Sweep net	Spring Green Preserve	Sauk	43.115404° N	90.034963° W				Trigonorhinus	tomentosus	Anthr
IRC0002638	Janicki	Julia	WIRC	Janicki	Julia	2013/06/18		Sweeping sandy area with vegetation among oak scrubs	Sweep net	Blue River Sand Barrens SNA	Grant	43.194086° N	90.533867° W				Trigonorhinus	tomentosus	Anthr
IRC0002638	Janicki	Julia	WIRC	Janicki	Julia	2013/06/18		Sweeping sandy area with vegetation among oak scrubs	Sweep net	Blue River Sand Barrens SNA	Grant	43.194086° N	90.533867° W				Trigonorhinus	tomentosus	Anthr
IRC0002638	Janicki	Julia	WIRC	Janicki	Julia	2013/07/26		Sweep vegetation along road	Sweep net	On road off of Hwy 47	Menominee	44.909779° N	88.6972550°				Trigonorhinus	tomentosus	Anthr
IRC0002638	Janicki	Julia	WIRC	Janicki	Julia	2013/07/26		Sweep vegetation along road	Sweep net	On road off of Hwy 47	Menominee	44.909779° N	88.6972550°				Trigonorhinus	tomentosus	Anthr
IRC0002639	Janicki	Julia	WIRC	Janicki	Julia	2013/08/07		Sweep vegetation along road	Sweep net	Off of Co. Hwy VV	Menominee	44.880790° N	88.672476° W				Trigonorhinus	tomentosus	Anthr
IRC0002641	Janicki	Julia	WIRC	Janicki	Julia	2013/08/07		Sweeping oak-pine barren with sweet fern and prairie grasses	Sweep net	Navarino State Wildlife Area	Shawano	44.676913° N	88.515587° W				Trigonorhinus	tomentosus	Anthr
IRC0002639	Janicki	Julia	WIRC	Janicki	Julia	2013/08/07		Sweep vegetation along road	Sweep net	Off of Co. Hwy VV	Menominee	44.880790° N	88.672476° W				Trigonorhinus	tomentosus	Anthr
IRC0002639	Janicki	Julia	WIRC	Janicki	Julia	2013/08/07		Sweep vegetation along road	Sweep net	Off of Co. Hwy VV	Menominee	44.880790° N	88.672476° W				Trigonorhinus	tomentosus	Anthr
IRC0002641	Janicki	Julia	WIRC	Janicki	Julia	2013/08/07		Sweeping oak-pine barren with sweet fern and prairie grasses	Sweep net	Navarino State Wildlife Area	Shawano	44.676913° N	88.515587° W				Trigonorhinus	tomentosus	Anthr
IRC0002641	Janicki	Julia	WIRC	Janicki	Julia	2013/08/07		Sweeping oak-pine barren with sweet fern and prairie grasses	Sweep net	Navarino State Wildlife Area	Shawano	44.676913° N	88.515587° W				Trigonorhinus	tomentosus	Anthr

IRC0002698	Janicki	Julia	MPM	Rauterberg	F	1897/10/00		before October 1897		N/A							Gonotropis	gibbosus	Anthr
IRC0002698	Janicki	Julia	MPM	Rauterberg	F	1897/10/00		before October 1897		N/A							Gonotropis	gibbosus	Anthr
IRC0002718			MPM			1897/10/00		before Oct 1897		N/A							Eurymycter	fasciatus	Anthr
IRC0002572	Janicki	Julia	WIRC			1977/06/13	1977/06/20	GMP-MT	Malaise Trap	N/A	Oneida			46N	9W	16	Eurymycter	fasciatus	Anthr
IRC0002572	Janicki	Julia	WIRC			1977/06/27	1977/07/06	GMP-MT	Malaise trap	N/A	Oneida			46N	9W	16	Eurymycter	fasciatus	Anthr
IRC0002621	Janicki	Julia	WIRC	Young	Daniel K.	2009/07/09	2009/07/21	Malaise trap in oak/pine barrens	Malaise trap	Quincy Bluff TNC	Adams	43.86746° N	89.88538° W				Eurymycter	fasciatus	Anthr
IRC0002572	Janicki	Julia	WIRC			1977/06/13	1977/06/20	GMP-MT	Malaise Trap	N/A	Jackson			21N	4W	33	Eurymycter	tricarinatus	Anthr
IRC0002620	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/23	1984/07/25		Malaise Trap	Baxter's Hollow	Sauk			11N	6E	32	Eurymycter	tricarinatus	Anthr
IRC0002620	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/23	1984/07/25		Malaise Trap	Baxter's Hollow	Sauk			11N	6E	32	Eurymycter	tricarinatus	Anthr
IRC0002572	Janicki	Julia	WIRC	Young	Daniel K.	1998/07/02				Hemlock Draw, 1.5 mi N. Leland	Sauk						Eurymycter	tricarinatus	Anthr
IRC0002572	Janicki	Julia	WIRC	Young	Daniel K.	1999/06/03				Hemlock Draw, 1.5 mi N. Leland	Sauk			10N	5E	7	Eurymycter	tricarinatus	Anthr
IRC0002620	Janicki	Julia	WIRC	Gruber	Jeffrey P.	1999/09/04		Feeding on fungus on fallen tree	Hand collected	Mud Lake Sci. Tract	Waupaca			25N	12E	18	Eurymycter	tricarinatus	Anthr
IRC0002741	Janicki	Julia	CMBC	Lambrecht	Krista	2001/07/09	2001/07/20	in northern mesic forest	Flight intercept trap	1.3 mi NE Wittenberg	Shawano	44° 50' 41" N	89° 08' 48" W				Eurymycter	tricarinatus	Anthr
IRC0002619	Janicki	Julia	WIRC	Dorshorst	John J.	2004/05/17		Malaise trap, dry lime prairie	Malaise trap	Dewey Heights Prairie SNA	Grant	42° 44' 08" N	91° 01' 08" W				Eurymycter	tricarinatus	Anthr
IRC0002620	Janicki	Julia	WIRC	Dorshorst	John J.	2004/06/03	2004/06/10	Flight intercept trap baited with canthridin in old growth northern mesic forest	Flight intercept trap	Big Eau Pleine Woods SNA, Big Eau Pleine Wo	Marathon	44° 44' 23" N	89° 50' 43" W				Eurymycter	tricarinatus	Anthr
IRC0002620	Janicki	Julia	WIRC	Gullickson	Kari	2011/07/01	2011/07/09	Lindgren Funnel Trap (w/ Turpentine bait), mixed hardwood forest	Lindgren Funnel Tra	S of Chetek, W of Hwy 53	Barron	45.228623° N	91.683750° W				Eurymycter	tricarinatus	Anthr
IRC0002619	Janicki	Julia	WIRC	Young	Daniel K.	2011/08/02	2011/08/09	Malaise Trap in oak pine forest	Malaise Trap	Near Levis Creek	Jackson	43.31134° N	90.82335° W				Eurymycter	tricarinatus	Anthr
IRC0002794	Janicki	Julia	JHJC	Gullickson	Kari	2012/06/02	2012/06/10	in mixed hardwoods	Malaise trap	Martell; SE of Hwy 63	Pierce	44.826940° N	92.395040° W				Eurymycter	tricarinatus	Anthr
IRC0002620	Janicki	Julia	WIRC	Gullickson	Kari	2012/06/02	2012/06/11	Malaise trap: in mixed hardwood forest, baited with turpentine.	Malaise Trap	S of Hwy 8, E of Hwy 46	Polk	45.38746° N	92.34577° W				Eurymycter	tricarinatus	Anthr
IRC0002620	Janicki	Julia	WIRC	Gullickson	Kari	2012/06/02	2012/06/11	Malaise trap: in mixed hardwood forest, baited with turpentine.	Malaise Trap	S of Hwy 8, E of Hwy 46	Polk	45.38746° N	92.34577° W				Eurymycter	tricarinatus	Anthr
IRC0002620	Janicki	Julia	WIRC	Gullickson	Kari	2012/06/02	2012/06/11	Malaise trap: in mixed hardwood forest, baited with turpentine.	Malaise Trap	S of Hwy 8, E of Hwy 46	Polk	45.38746° N	92.34577° W				Eurymycter	tricarinatus	Anthr
IRC0002620	Janicki	Julia	WIRC	Gullickson	Kari	2012/06/13	2013/06/21	Lindgren Funnel Trap with Turpentine bait, mixed hardwood forest	Lindgren Funnel Tra	NW of Hwy 29, W of Co. XX	Chippewa	44.960017° N	91.226867° W				Eurymycter	tricarinatus	Anthr
IRC0002619	Janicki	Julia	WIRC	Gullickson	Kari	2012/06/18	2012/06/25	Malaise trap: in mixed hardwood forest, baited with turpentine.	Malaise Trap	S of Hwy 8, E of Hwy 46	Polk	45.38746° N	92.34577° W				Eurymycter	tricarinatus	Anthr
IRC0002620	Janicki	Julia	WIRC	Gullickson	Kari	2012/06/18	2012/06/25	Malaise trap: in mixed hardwood forest, baited with turpentine.	Malaise Trap	S of Hwy 8, E of Hwy 46	Polk	45.38746° N	92.34577° W				Eurymycter	tricarinatus	Anthr
IRC0002619	Janicki	Julia	WIRC	Gullickson	Kari	2012/07/13	2012/07/23	Malaise Trap: Mixed hardwood forest, baited with turpentine	Malaise trap	S of Hwy 8, E of Hwy 46	Polk	45.38746° N	92.34577° W				Eurymycter	tricarinatus	Anthr
IRC0002619	Janicki	Julia	WIRC	Gullickson	Kari	2012/07/13	2012/07/23	Malaise Trap: Mixed hardwood forest, baited with turpentine	Malaise trap	S of Hwy 8, E of Hwy 46	Polk	45.38746° N	92.34577° W				Eurymycter	tricarinatus	Anthr
IRC0002621	Janicki	Julia	WIRC	Janicki	Julia	2012/07/20	2012/09/07	Malaise trap at the edge of mixed hardwood forest and field	Malaise trap	Flambeau Adventures	Rusk	45° 34' 23" N	90° 56' 55" W				Eurymycter	tricarinatus	Anthr
IRC0002619	Janicki	Julia	WIRC	Gullickson	Kari	2012/07/23	2012/08/11	Malaise Trap: Mixed hardwood forest, baited with turpentine	Malaise trap	S of Hwy 8, E of Hwy 48	Polk	45.38746° N	92.34577° W				Eurymycter	tricarinatus	Anthr
IRC0002621	Janicki	Julia	WIRC	Gullickson	Kari	2012/07/24	2012/08/09	Malaise trap, mixed hardwoods by marsh	Malaise trap	L.E. Phillips Scout Res.	Barron	45.61752° N	91.84151° W				Eurymycter	tricarinatus	Anthr
IRC0002621	Janicki	Julia	WIRC	Janicki	Julia	2013/06/01	2013/06/28	oak-pine barrens	Malaise trap	Navarino State Wildlife Area	Shawano	44.657025° N	88.516600° W				Eurymycter	tricarinatus	Anthr
IRC0002621	Janicki	Julia	WIRC	Janicki	Julia	2013/06/01	2013/06/28	oak-pine barrens	Malaise trap	Navarino State Wildlife Area	Shawano	44.657025° N	88.516600° W				Eurymycter	tricarinatus	Anthr
IRC0002792	Janicki	Julia	WDNR			2013/06/17	2013/06/24	Fagus Acer forest	Malaise trap	UW Milwaukee Field Station	Ozaukee	43.38567° N	88.02638° W				Eurymycter	tricarinatus	Anthr

IRC0002748	Janicki	Julia	WIRC	Gullickson	Kari	2013/07/13	2013/07/20	in mixed hardwood forest	Malaise trap	Gardner Dam BSA Camp	Langlade	45.13667° N	88.68449° W				Eurymycter	tricarinatus	Anthr
IRC0002748	Janicki	Julia	WIRC	Gullickson	Kari	2013/07/27	2013/08/03	in mixed hardwood forest	Malaise trap	Gardner Dam BSA Camp	Langlade	45.13667° N	88.68449° W				Eurymycter	tricarinatus	Anthr
IRC0002747	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/08/24		sitting motionless debarked trunk of dead standing hardwood tree,meisc Tilia-Carya-Acer-Quercus-Ostrya-Ulmus-Fraxinus	hand collected	Mayville Ledge Beech Maple Woods SNA	Dodge	43.45399° N	88.53861° W				Eurymycter	tricarinatus	Anthr
IRC0002622	Janicki	Julia	WIRC	Brabant	Craig	2001/07/11	2001/08/05	unbaited Townes malaise trap on edge of southern mixed deciduous forest	Malaise trap	3 mi north of Argyle Thomas Wedel Property	Lafayette	42° 44' 05" N	89° 51' 09" W				Eusphyrus	walshi	Anthr
IRC0002622	Janicki	Julia	WIRC	Young	Daniel	2013/07/09	2013/07/16	Fagus-Acer forest	Malaise trap	UW Milwaukee Field Station	Ozaukee	43.38567° N	88.02638° W				Eusphyrus	walshi	Anthr
IRC0002700	Janicki	Julia	MPM	Rauterberg	F	1897/10/00		before Oct 1897		N/A							Ormiscus	saltator	Anthr
IRC0002700	Janicki	Julia	MPM	Rauterberg	F	1897/10/00		before Oct 1897		N/A							Ormiscus	saltator	Anthr
IRC0002699	Janicki	Julia	MPM	Rauterberg	F	1897/10/00		before Oct 1897		N/A							Ormiscus	saltator	Anthr
IRC0002557	Janicki	Julia	WIRC	Sanders	J. G.	1916/07/17				Milwaukee	Milwaukee						Ormiscus	saltator	Anthr
IRC0002623	Janicki	Julia	WIRC			1975/07/21	1975/07/28	Gypsy moth	Malaise trap	N/A	Jackson			21N	4W	27	Ormiscus	saltator	Anthr
IRC0002747	Janicki	Julia	WIRC			1976/07/06	1976/07/13	Gypsy moth, M.T.	Malaise trap	N/A	Oneida			35N	11E	17	Ormiscus	saltator	Anthr
IRC0002624	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2003/07/24		Swept from foliage in hardwood dominated forest	Sweep net	Coulee Experimental State Forest	La Crosse	43° 51' 32" N	91° 01' 00" W				Ormiscus	saltator	Anthr
IRC0002623	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2010/07/25		Beaten from branches with dried brown leaves, fallen dead Quercus sp. tree	Beating	Rocky Run Ck SFA	Columbia	43° 27' 34" N	89° 19' 31" W				Ormiscus	saltator	Anthr
IRC0002623	Janicki	Julia	WIRC	Gullickson	Kari	2011/06/23	2011/07/27	Lindgren funnel trap (w/ Turpentine bait), mixed hardwood forest	Lindgren funnel trap	Wheeler; W of Hwy 170	Dunn	45.021371° N	91.843229° W				Ormiscus	saltator	Anthr
IRC0002622	Janicki	Julia	WIRC	Gullickson	Kari	2011/06/25	2011/07/01	Edge of mixed hardwood forest by open grassy area	Malaise trap	S of Chetek, W of Hwy 53	Barron	45.225120° N	91.673050° W				Ormiscus	saltator	Anthr
IRC0002622	Janicki	Julia	WIRC	Gullickson	Kari	2011/06/29	2011/07/06		Malaise trap	N of Hwy 10, W of Strum	Trempealea	44.558690° N	91.406030° W				Ormiscus	saltator	Anthr
IRC0002623	Janicki	Julia	WIRC	Gullickson	Kari	2011/07/13	2011/07/19		Malaise trap	N of Hwy 10, W of Strum	Trempealea	44.558690° N	91.406030° W				Ormiscus	saltator	Anthr
IRC0002622	Janicki	Julia	WIRC	Gullickson	Kari	2011/08/03	2011/08/10	Lindgren funnel trap (w/ cis-vaccenyl acetate), mixed hardwoods by pond	Lindgren funnel trap	W of Strum, N of Hwy 10	Trempealea	44.558690° N	91.406030° W				Ormiscus	saltator	Anthr
IRC0002622	Janicki	Julia	WIRC	Gullickson	Kari	2011/08/07	2011/08/14	Lindgren funnel trap (w/turpentine bait) Mixed hardwood forest	Lindgren funnel trap	N of Co. Q, E of Hwy 53	Chippewa	44.984430° N	91.431470° W				Ormiscus	saltator	Anthr
IRC0002738	Janicki	Julia	CMBC	Brabant	Craig	2012/06/24		hand collected from branches/vegetation using beating sheet in hardwood stand	beating	Goose Lake Wildlife Area (WDNR) elev: 911'a	Dane	43.107327° N	89.037256° W				Ormiscus	saltator	Anthr
IRC0002738	Janicki	Julia	CMBC	Brabant	Craig	2012/06/24		hand collected from branches/vegetation using beating sheet in hardwood stand	beating	Goose Lake Wildlife Area (WDNR) elev: 911'a	Dane	43.107327° N	89.037256° W				Ormiscus	saltator	Anthr
IRC0002623	Janicki	Julia	WIRC	Janicki	Julia	2013/06/18		Sweeping sandy area with vegetation among oak scrubs	Sweep net	Blue River Sand Barrens SNA	Grant	43.194086° N	90.533867° W				Ormiscus	saltator	Anthr
IRC0002623	Janicki	Julia	WIRC	Janicki	Julia	2013/06/18		Sweeping sandy area with vegetation among oak scrubs	Sweep net	Blue River Sand Barrens SNA	Grant	43.194086° N	90.533867° W				Ormiscus	saltator	Anthr
IRC0002747	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/06/23		beaten from branches of hardwood tree, mixed hardwood/conifer forest	Beating	Kettle Moraine SF, Southern Unit	Waukesha	42° 52' 25" N	88° 31' 38" W				Ormiscus	saltator	Anthr
IRC0002747	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/06/23		beaten from branches of hardwood tree, mixed hardwood/conifer forest	Beating	Kettle Moraine SF, Southern Unit	Waukesha	42° 52' 25" N	88° 31' 38" W				Ormiscus	saltator	Anthr
IRC0002623	Janicki	Julia	WIRC	Janicki	Julia	2013/06/27		Beating bushes	Beating	Kettle Moraine State Forest Northern Unit: Lo	Fond du La	43.663634° N	88.165728° W				Ormiscus	saltator	Anthr
IRC0002747	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/06/30		beaten from branches of Tilia americana tree, roadside	Beating	Campsite Trail (Rd), 6.4km W of Viroqua	Vernon	43° 32' 53" N	90° 58' 03" W				Ormiscus	saltator	Anthr
IRC0002747	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/06/30		beaten from branches of hardwood tree, junction of oldfield/grassland and mixed forest	beating	Romance Prairie SNA	Vernon	43° 33' 11" N	91° 08' 36" W				Ormiscus	saltator	Anthr
IRC0002747	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/06/30		beaten from branches of hardwood tree, junction of oldfield/grassland and mixed forest	beating	Romance Prairie SNA	Vernon	43° 33' 11" N	91° 08' 36" W				Ormiscus	saltator	Anthr
IRC0002623	Janicki	Julia	WIRC	Young	Daniel K.	2013/07/09	2013/07/16	Fagus-Acer forest	Malaise trap	UW Milwaukee Field Station	Ozaukee	43.38567° N	88.02638° W				Ormiscus	saltator	Anthr
IRC0002623	Janicki	Julia	WIRC	Janicki	Julia	2013/07/21		Beating hardwood tree	Beating	Kohler Andrae State Park	Sheboygan	43.668418° N	87.71732° W				Ormiscus	saltator	Anthr
IRC0002747	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/07/25		Beaten from branches of Carya ovata tree, hardwood forest fragment within wet prairie meadow	Beating	Waterloo Prairie SNA	Jefferson	43° 09' 50" N	88° 56' 24" W				Ormiscus	saltator	Anthr

IRC0002747	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/07/25		Beaten from branches of Ostrya sp. tree, mesic Tilia-Carya-Acer-Quercus-Ostrya-Ulmus-Fraxinus forest	Beating	Mayville Ledge Beech Maple Woods SNA	Dodge	43.45399° N	88.53861° W				Ormiscus	saltator	Anthr
IRC0001619			IRCW	Shenefelt	R	1948/07/28				Griffith St. Nursery	Wood		0.0 E				Attelabus	bipustulatus	Attela
IRC0001619			IRCW	McNeel	W	1949/06/23				Wood Co., Wis. 27	Wood		0.0 E				Attelabus	bipustulatus	Attela
IRC0001619			IRCW	Shenefelt	R	1951/07/23				1/2 mi. W. of GSN	Wood		0.0 E				Attelabus	bipustulatus	Attela
IRC0001619			IRCW	Shenefelt	R	1951/07/27				Nepco Lake, Nepco Boys Camp	Wood		0.0 E				Attelabus	bipustulatus	Attela
IRC0001620	Baker	J	IRCW			1975/06/10				N/A	Jackson		0.0 E	21N	4W	33	Attelabus	bipustulatus	Attela
IRC0002595	Janicki	Julia	WIRC	Maxwell	Judith A.	1997/06/15	1997/06/19	Collected in flight intercept trap- oak savanna mid successional	Flight intercept trap	Fort McCoy - 1.5 Mi E. of Badger Drop Zone	Monroe						Attelabus	bipustulatus	Attela
IRC0001620	Krauth	S	IRCW	Maxwell	Judith	1997/06/26	1997/06/30			Fort McCoy-1.5 Mi. E. of Badger Drop Zone	Monroe		0.0 E				Attelabus	bipustulatus	Attela
IRC0001619	Krauth	S	IRCW	Maxwell	J	1997/08/25	1997/08/29			Fort McCoy-N. Post 1mi. W. of Big Rock	Monroe		0.0 E				Attelabus	bipustulatus	Attela
IRC0002595	Janicki	Julia	WIRC	Kirk	Kathyrn	1998/07/15		Woods/wetland edge. WDNR-BER funnel trap	funnel trap	Meadow Valley WA	Jackson			21N	1E	SESE4	Attelabus	bipustulatus	Attela
IRC0001619			IRCW	R. D. Shenefelt		1998/07/24				Griffith St. Nursery	Wood		0.0 E				Attelabus	bipustulatus	Attela
IRC0002742	Janicki	Julia	CMBC	Brabant	Craig	1999/05/27		during the day off low foliage, 10am-2pm	hand collected	Mecan River State Fishery Area (WDNR). el: 8	Marquette	43.952670° N	89.339428° W				Attelabus	bipustulatus	Attela
IRC0002742	Janicki	Julia	CMBC	Brabant	Craig	1999/05/27		swept off low foliage in late pm; grassy field	Sweep net	Katovich family property, elev: 982'asi	Waukesha	44.129736° N	89.235042° W				Attelabus	bipustulatus	Attela
IRC0002737	Janicki	Julia	CMBC	Brabant	Craig	2001/06/16		off scrub oak leavesm 11am, sunny, ~73F	hand collected	~1mi S of Brockway in Hwy 27 r.o.w, el:839'a	Jackson	44.268407° N	90.841762° W				Attelabus	bipustulatus	Attela
IRC0002737	Janicki	Julia	CMBC	Brabant	Craig	2001/06/16		off scrub oak leavesm 11am, sunny, ~73F	hand collected	~1mi S of Brockway in Hwy 27 r.o.w, el:839'a	Jackson	44.268407° N	90.841762° W				Attelabus	bipustulatus	Attela
IRC0002737	Janicki	Julia	CMBC	Brabant	Craig	2001/06/16		off scrub oak leavesm 11am, sunny, ~73F	hand collected	~1mi S of Brockway in Hwy 27 r.o.w, el:839'a	Jackson	44.268407° N	90.841762° W				Attelabus	bipustulatus	Attela
IRC0002743	Janicki	Julia	CMBC	Brabant	Craig	2003/07/26	2003/08/01	unbaited Townes malaise trap in sand/oak barrens	Malaise trap	just north of Spring Green	Sauk	43.199357° N	90.062699° W				Attelabus	bipustulatus	Attela
IRC0002652	Janicki	Julia	WIRC	Young	Daniel K.	2004/05/20		On scrub oak leaf	Hand collected	Mecan River SGA	Marquette	43.952646° N	89.339483° W				Attelabus	bipustulatus	Attela
IRC0002595	Janicki	Julia	WIRC	Kirk	Kathryn	2006/05/25		Sandy barrens. WDNR- Henry's Elfin Study		Jackson Co. Forest	Jackson			21N	3W	SWSW1	Attelabus	bipustulatus	Attela
IRC0002652	Janicki	Julia	WIRC	Young	Daniel K.	2009/06/11		ex: foliage Quercus alba Linneaus	Hand collected	environs Coloma	Waushara	44.03282° N	89.53226° W				Attelabus	bipustulatus	Attela
IRC0002652	Janicki	Julia	WIRC	Young	Daniel K.	2009/06/23	2009/07/03	in oak/pine barrnes	Malaise trap	Quincy Bluff TNC	Adams	43.86746° N	89.88538° W				Attelabus	bipustulatus	Attela
IRC0002652	Janicki	Julia	WIRC	Young	Daniel K.	2010/05/03	2010/05/12	oak-pine savanna	Yellowvane trap	Quincy Bluff TNC	Adams	43.87119° N	89.88017° W				Attelabus	bipustulatus	Attela
IRC0002749	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/18		Beaten from branches of Quercus sp. tree	Beating	Rocky Run CK SFA	Columbia	43° 27' 18" N	89° 22' 49" W				Attelabus	bipustulatus	Attela
IRC0002743	Janicki	Julia	CMBC	Brabant	Craig	2012/08/18		hand collected with beating sheet from Quercus sp. branches	beating	Rocky Run Crk Fishery Area, north of Morse	Columbia	43.456071° N	89.383760° W				Attelabus	bipustulatus	Attela
IRC0002652	Janicki	Julia	WIRC	Janicki	Julia	2013/06/01		beating white oak	Beating	Navarino state wildlife area	Shawano	44.676913° N	88.515587° W				Attelabus	bipustulatus	Attela
IRC0002652	Janicki	Julia	WIRC	Janicki	Julia	2013/06/02		Beating red oak	Beating	Deer Creek Wildlife Area	Waupaca	44.59647° N	88.638431° W				Attelabus	bipustulatus	Attela
IRC0002711			MPM			1911/07/07				Genoa	Vernon						Attelabus	nigripes	Attela
IRC0002711			MPM			1911/07/20	1911/07/12			Wylusing	Grant						Attelabus	nigripes	Attela
IRC0002598	Dodge	H	WIRC	Sanders	J. G.	1916/06/11				St Croix Fl	Polk						Attelabus	nigripes	Attela
IRC0002598	Janicki	Julia	WIRC	Fluke	Chas	1917/08/01				Madison	Dane						Attelabus	nigripes	Attela
IRC0002597	Janicki	Julia	WIRC	Marshall	Wm. S.	1920/05/26		Collection of Wm. S. Marshall		N/A	Dane						Attelabus	nigripes	Attela
IRC0002597			WIRC	Marshall	Wm. S.	1920/05/26		Collection of Wm. S. Marshall		N/A	Dane						Attelabus	nigripes	Attela

IRC0002596	Janicki	Julia	WIRC	Chambers	E. L.	1922/05/10				Hatchville	Dunn						Attelabus	nigripes	Attela
IRC0002597	Janicki	Julia	WIRC	Chambers	E. L.	1922/05/10				Hatchville	Dunn						Attelabus	nigripes	Attela
IRC0002597	Janicki	Julia	WIRC	Chambers	E. L.	1922/05/10				Hatchville	Dunn						Attelabus	nigripes	Attela
IRC0002597	Janicki	Julia	WIRC	Chambers	E. L.	1922/05/10				Hatchville	Dunn						Attelabus	nigripes	Attela
IRC0002597	Janicki	Julia	WIRC	Chambers	E. L.	1922/05/10				Hatchville	Dunn						Attelabus	nigripes	Attela
IRC0002597	Janicki	Julia	WIRC	Chambers	E. L.	1922/05/10				Hatchville	Dunn						Attelabus	nigripes	Attela
IRC0002597	Janicki	Julia	WIRC	Chambers	E. L.	1922/05/10				Hatchville	Dunn						Attelabus	nigripes	Attela
IRC0002597	Janicki	Julia	WIRC	Chambers	E. L.	1922/05/10				Hatchville	Dunn						Attelabus	nigripes	Attela
IRC0002598	Dodge	H	WIRC			1929/06/30				Madison	Dane						Attelabus	nigripes	Attela
IRC0002598	Janicki	Julia	WIRC	Fluke	Chas	1929/07/08				Madison	Dane						Attelabus	nigripes	Attela
IRC0002598	Dodge	H	WIRC	Callenbach Jr.	J.	1932/06/21				Gay Mills	Crawford						Attelabus	nigripes	Attela
IRC0002598	Janicki	Julia	WIRC	Fluke	Chas	1935/07/09				Madison	Dane						Attelabus	nigripes	Attela
IRC0002597			WIRC	Schwehr	D	1967/08/11		Open oaks		Grady Tract, trail inter 25	Dane						Attelabus	nigripes	Attela
IRC0002651	Janicki	Julia	WIRC	Schuh	B	1981/10/03				Valders	Manitowoc						Attelabus	nigripes	Attela
IRC0002596	Krauth	S	WIRC	Maxwell	Judith A.	1995/06/10		on flowers, oak barrens	Hand collected	Fort McCoy	Monroe			17N	2W	5	Attelabus	nigripes	Attela
IRC0002691	Janicki	Julia	WDNR			1995/08/10		sand pr./ burned 95. 80F, p/cloudy, 12:00. study 053/ SNA 205	Sweep net	Morgan Coulee Prairie	Pierce			25N	16W	34	Attelabus	nigripes	Attela
IRC0002731	Krauth	S	WDNR			1995/08/22		sweep net "Battle Hollow", dry-mesic savanna, DNR study 053/ SNA 177	sweep net	Battle Bluff Pr. U:2	Vernon			11N	7W	4NE4	Attelabus	nigripes	Attela
IRC0002690	Janicki	Julia	WDNR			1995/08/29		bluff pr./burned 1996, 85F 12:00. study 053 SNA 170	Sweep net	Rush Creek Pr.	Crawford			10N	6W	6SW4	Attelabus	nigripes	Attela
IRC0002731	Krauth	S	WDNR			1996/07/30		sweep net on "Evans site", DNR study 053	sweep net	Spring Green (E) U:8	Sauk			8N	4E	6NE	Attelabus	nigripes	Attela
IRC0002731	Krauth	S	WDNR			1996/08/07		sweep net to EtOH bluff prairie, DNR study 053, SNA 170	sweep net	Rush Creek Prairie	Crawford			10N	6W	65W4	Attelabus	nigripes	Attela
IRC0002596	Krauth	S	WIRC			1996/08/07		Sweep net to EtOH, bluff prairie. Study 053/SNA 170	Sweep net	Rush Creek Prairie	Crawford			10N	6W	6SW4	Attelabus	nigripes	Attela
IRC0002731	Krauth	S	WDNR			1996/08/07		sweep net to EtOH bluff prairie, DNR study 053, SNA 170	sweep net	Rush Creek Prairie	Crawford			10N	6W	65W4	Attelabus	nigripes	Attela
IRC0002690	Janicki	Julia	WDNR			1996/08/26		study053/SNA210		Black Earth Prairie	Dane			8N	6E	27SW4	Attelabus	nigripes	Attela
IRC0002731	Krauth	S	WDNR			1996/09/06		sweep net on "Evans site". DNR study 053	sweep net	Spring Green (E) U:8	Sauk			8N	4E	6NE	Attelabus	nigripes	Attela
IRC0002731	Krauth	S	WDNR			1997/06/25		taken from sweep net in prairie dropseed. DNR study 053	sweep net	Black Earth U:3	Dane			8N	6E	27SW	Attelabus	nigripes	Attela
IRC0002730	Krauth	S	WDNR			1997/07/22		taken from pitfall trap in native prairie. DNR study 053	pitfall trap	Drachenberg Pr. U:	Iowa			8N	5E	30N	Attelabus	nigripes	Attela
IRC0002731	Krauth	S	WDNR			1997/08/01		sweep in little blue stem and side oats grama. TNC/DNR study 053/ SNA 170	sweep net	Hogback Prairie	Crawford			9N	4W	32N	Attelabus	nigripes	Attela
IRC0002610	Krauth	Steve	WDNR			1997/08/03		Sweep mixed short grasses/ unburned sand prairie	Sweep net	Crex Meadows	Burnett			39N	19W	13N4	Attelabus	nigripes	Attela
IRC0002731	Krauth	S	WDNR			1997/08/29		DNR study 053	sweep net	Spring Green West	Sauk			9N	3E	35NE	Attelabus	nigripes	Attela
IRC0002596	Krauth	S	WIRC	Williams	Andrew H.	1999/08/11		Feeding on leaves of Rhus typhina, 2PM, cloudy, 76F	Hand collected	Hwy 133 sandy prairie	Grant			8N	2W	19	Attelabus	nigripes	Attela
IRC0002596	Krauth	S	WIRC	Williams	Andrew H.	1999/08/11		Feeding on leaves of Rhus typhina, 2PM, cloudy, 76F	Hand collected	Hwy 133 sandy prairie	Grant			8N	2W	19	Attelabus	nigripes	Attela
IRC0002596	Krauth	S	WIRC	Williams	Andrew H.	1999/08/11		Feeding on leaves of Rhus typhina, 2PM, cloudy, 76F	Hand collected	Hwy 133 sandy prairie	Grant			8N	2W	19	Attelabus	nigripes	Attela

IRC0002596	Krauth	S	WIRC	Williams	Andrew H.	1999/08/11		Feeding on leaves of Rhus typhina, 2PM, cloudy, 76F	Hand collected	Hwy 133 sandy prairie	Grant			8N	2W	19	Attelabus	nigripes	Attela
IRC0002739	Janicki	Julia	CMBC	Brabant	Craig	2001/05/30		during the day off of smooth sumac on edge of sandy prairie	hand collected	Spring Green Preserve¬(TNC) elevationo: 73	Sauk	43.199364° N	90.059100° W				Attelabus	nigripes	Attela
IRC0002595	Krauth	S	WIRC	Messer	P	2003/06/08		On sumac forest area day	Hand collected	Devil's Lake SP	Sauk	43.428° N	87.729° W				Attelabus	nigripes	Attela
IRC0002596	Janicki	Julia	WIRC	Messer	P	2003/06/08		On sumac forest area day	Hand collected	Devil's Lake SP	Sauk	43.428° N	87.729° W				Attelabus	nigripes	Attela
IRC0002596	Janicki	Julia	WIRC	Messer	P	2003/06/08		On sumac forest area day	Hand collected	Devil's Lake SP	Sauk	43.428° N	87.729° W				Attelabus	nigripes	Attela
IRC0002596	Janicki	Julia	WIRC	Messer	P	2003/06/08		On sumac forest area day	Hand collected	Devil's Lake SP	Sauk	43.428° N	87.729° W				Attelabus	nigripes	Attela
IRC0002595	Janicki	Julia	WIRC	Messer	P	2003/06/08		On sumac forest area day	Hand collected	Devil's Lake SP	Sauk	43.428° N	87.729° W				Attelabus	nigripes	Attela
IRC0002652	Janicki	Julia	WIRC	Dorshorst	John J.	2004/05/17	2004/05/24	dry lime prairie	Malaise trap	Dewey Heights Prairie SNA	Grant	42° 44' 08" N	91° 01' 08" W				Attelabus	nigripes	Attela
IRC0002750	Janicki	Julia	MAPC	Pynnonen	Mark	2012/05/21		Beating Querus branches	Beating	LWRSWA Mazomanie Unit	Dane	43.22893° N	89.80245° W				Attelabus	nigripes	Attela
IRC0002651	Janicki	Julia	WIRC	Janicki	Julia	2012/06/25		on sumac	Hand collected	Rim of the city road lookout	La Crosse	43.826763° N	91.202192° W				Attelabus	nigripes	Attela
IRC0002651	Janicki	Julia	WIRC	Janicki	Julia	2012/06/25		on sumac	Hand collected	Rim of the city road lookout	La Crosse	43.826763° N	91.202192° W				Attelabus	nigripes	Attela
IRC0002599	Janicki	Julia	WIRC	Stevens	Jim			Wild rose	Hand collected	N/A	Waukesha						Homeolabus	analis	Attela
IRC0002599	Janicki	Julia	WIRC					Collection of Wm. S. Marshall		N/A	Dane						Homeolabus	analis	Attela
IRC0002652	Janicki	Julia	WIRC	Janicki	Julia			On scrub oak leaf along with another H.analis and a Pterocolus ovatus	Hand collected	Spring Green Preserve	Sauk	43.115404° N	90.034963° W				Homeolabus	analis	Attela
IRC0002652	Janicki	Julia	WIRC	Janicki	Julia			On scrub oak leaf along with another H.analis and a Pterocolus ovatus	Hand collected	Spring Green Preserve	Sauk	43.115404° N	90.034963° W				Homeolabus	analis	Attela
IRC0002599	Janicki	Julia	WIRC	Stevens	Jim			Wild rose	Hand collected	N/A	Waukesha						Homeolabus	analis	Attela
IRC0002711			MPM			1897/10/00		before Oct 1897		N/A							Homeolabus	analis	Attela
IRC0002711			MPM			1897/10/00		before Oct 1897		N/A							Homeolabus	analis	Attela
IRC0002711			MPM			1897/10/00		before Oct 1897		N/A							Homeolabus	analis	Attela
IRC0002598	Janicki	Julia	WIRC			1898/06/15		Collection of Wm. S. Marshall		N/A	Dane						Homeolabus	analis	Attela
IRC0002598	Janicki	Julia	WIRC			1898/06/15		Collection of Wm. S. Marshall		N/A	Dane						Homeolabus	analis	Attela
IRC0002598	Janicki	Julia	WIRC			1898/06/15		Collection of Wm. S. Marshall		N/A	Dane						Homeolabus	analis	Attela
IRC0002598			WIRC			1898/06/15		Collection of Wm. S. Marshall		N/A	Dane						Homeolabus	analis	Attela
IRC0002599	Janicki	Julia	WIRC	Ball	E	1917/07/25				St. Croix Fl	Polk						Homeolabus	analis	Attela
IRC0002599	Janicki	Julia	WIRC	Harley	H	1918/07/27				Lorain	Polk						Homeolabus	analis	Attela
IRC0002701	Janicki	Julia	MPM	Snyder	W	1923/07/01				Beaver Dam	Dodge						Homeolabus	analis	Attela
IRC0002599	Janicki	Julia	WIRC	Shenefelt	R. D.	1947/06/21				Griffith St. Nursery	Wood						Homeolabus	analis	Attela
IRC0002599	Janicki	Julia	WIRC	Shenefelt	R. D.	1947/07/25				Griffith St. Nursery	Wood						Homeolabus	analis	Attela
IRC0002599	Janicki	Julia	WIRC	Shenefelt	R. D.	1951/06/19				Griffith St. Nursery, S. 14 Mi Ca.	Wood						Homeolabus	analis	Attela
IRC0002654	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002653	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002653	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela

IRC0002653	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002653	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002654	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002654	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002654	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002653	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002654	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002654	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002653	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002653	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002654	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002654	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002654	Janicki	Julia	WIRC	Young	Daniel K.	1992/07/15				LWESWA Mazomanue Unit	Dane	43.223811° N	89.803778° W				Homeolabus	analis	Attela
IRC0002655	Janicki	Julia	WIRC	Young	Daniel K.	1994/06/29				Mazomanie Wildlife Area 3 mi NNW Mazoma	Dane						Homeolabus	analis	Attela
IRC0002653	Janicki	Julia	WIRC	Gruber	Jeffrey P.	1999/06/03		on leaf of Quercus sp.	hand collected	Mecan river SWA	Marquette			17N	10E	8	Homeolabus	analis	Attela
IRC0002742	Janicki	Julia	CMBC	Brabant	Craig	2000/05/15		off oak leaves in sand/oak barrens, 1-4pm, ~67F, mostly cloudy	hand collected	Blue River Sand Barrens, ~WDNR. elev: 681'a	Grant	43.195083° N	90.535035° W				Homeolabus	analis	Attela
IRC0002742	Janicki	Julia	CMBC	Brabant	Craig	2000/05/15		off oak leaves in sand/oak barrens, 1-4pm, ~67F, mostly cloudy	hand collected	Blue River Sand Barrens, ~WDNR. elev: 681'a	Grant	43.195083° N	90.535035° W				Homeolabus	analis	Attela
IRC0002742	Janicki	Julia	CMBC	Brabant	Craig	2000/05/15		off oak leaves in sand/oak barrens, 1-4pm, ~67F, mostly cloudy	hand collected	Blue River Sand Barrens, ~WDNR. elev: 681'a	Grant	43.195083° N	90.535035° W				Homeolabus	analis	Attela
IRC0002738	Janicki	Julia	CMBC	Brabant	Craig	2000/05/25		from vegetation/flowers on periphery of old sand quarry, sunny, windy, 68F	hand collected	Ft. McCoy Barrens State Natural Area ~WDNR	Monroe	43.987193° N	90.696849° W				Homeolabus	analis	Attela
IRC0002738	Janicki	Julia	CMBC	Brabant	Craig	2000/05/25		from vegetation/flowers on periphery of old sand quarry, sunny, windy, 68F	hand collected	Ft. McCoy Barrens State Natural Area ~WDNR	Monroe	43.987193° N	90.696849° W				Homeolabus	analis	Attela
IRC0002738	Janicki	Julia	CMBC	Brabant	Craig	2000/05/29		off leaves of scrub oak in sandy oak barrensm ~68F, cloudy	hand collected	Blue River Sand Barrens, ~WDNR	Grant	43.195083° N	90.535035° W				Homeolabus	analis	Attela
IRC0002738	Janicki	Julia	CMBC	Brabant	Craig	2000/05/29		off leaves of scrub oak in sandy oak barrensm ~68F, cloudy	hand collected	Blue River Sand Barrens, ~WDNR	Grant	43.195083° N	90.535035° W				Homeolabus	analis	Attela
IRC0002742	Janicki	Julia	CMBC	Brabant	Craig	2000/06/17		off scrub oak leaves in sand barrens, 12-2pm, sunny, ~65F, calm	hand collected	Blue River Sand Barrens. ~WDNR	Grant	43.195083° N	90.535035° W				Homeolabus	analis	Attela
IRC0002654	Janicki	Julia	WIRC	Young	Daniel K.	2000/07/26		off of oak foliage in oak/sand/pine barrens	Hand collected	2 mi NNW of Lone Rock LWRSWA- Lone Rock	Richland	43° 11' 38" N	90° 14' 20" W				Homeolabus	analis	Attela
IRC0002655	Janicki	Julia	WIRC	Young	Daniel K.	2000/07/26		off of oak foliage in oak/sand/pine barrens	Hand collected	2 mi NNW of Lone Rock LWRSWA- Lone Rock	Richland	43° 11' 38" N	90° 14' 20" W				Homeolabus	analis	Attela
IRC0002738	Janicki	Julia	CMBC	Brabant	Craig	2001/05/18		from under leaf of scrub oak, 10:40 a ~ noon, ~65F, mostly cloudy, calm	hand collected	Blue River Sand Barrens ~WDNR	Grant	43.195083° N	90.535035° W				Homeolabus	analis	Attela
IRC0002656	Janicki	Julia	WIRC	Hillstrom	Mike	2001/06/16				Black River State Forest	Jackson	44° 16' 12" N	90° 50' 49" W				Homeolabus	analis	Attela
IRC0002737	Janicki	Julia	CMBC	Brabant	Craig	2001/06/16		off scrub oak leavesm 11am, sunny, ~73F	hand collected	~1mi S of Brockway in Hwy 27 r.o.w, el:839'a	Jackson	44.268407° N	90.841762° W				Homeolabus	analis	Attela
IRC0002599	Young	Daniel K.	WIRC	Williams	Andrew H.	2001/06/20		On leaf of oak grub 2 ft tall	Hand collected	Hwy 133 sandy prairie	Grant			8N	1W	10,11	Homeolabus	analis	Attela
IRC0002742	Janicki	Julia	CMBC	Brabant	Craig	2001/07/15	2001/08/05	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest	Waukesha	42.872520° N	88.513994° W				Homeolabus	analis	Attela
IRC0002743	Janicki	Julia	CMBC	Brabant	Craig	2002/05/31	2002/06/11	unbaited Townes Malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Homeolabus	analis	Attela
IRC0002743	Janicki	Julia	CMBC	Brabant	Craig	2002/05/31	2002/06/11	unbaited Townes Malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Homeolabus	analis	Attela

IRC0002743	Janicki	Julia	CMBC	Brabant	Craig	2002/05/31	2002/06/11	unbaited Townes Malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Homeolabus	analis	Attela
IRC0002744	Janicki	Julia	CMBC	Brabant	Craig	2002/06/11	2002/06/24	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Homeolabus	analis	Attela
IRC0002744	Janicki	Julia	CMBC	Brabant	Craig	2002/06/11	2002/06/24	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Homeolabus	analis	Attela
IRC0002738	Janicki	Julia	CMBC			2002/06/11	2002/06/24	unbaited Townes Malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest - S. Unit	Waukesha	42.872520° N	88.513994° W				Homeolabus	analis	Attela
IRC0002744	Janicki	Julia	CMBC	Brabant	Craig	2002/06/24	2002/07/07	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Homeolabus	analis	Attela
IRC0002737	Janicki	Julia	CMBC	Brabant	Craig	2002/06/24		off sandy trail between grassland and mixed decid. hardwoods	hand collected	Kettle Moraine St. Forest, ~Southern Unit, 90	Waukesha	42.872520° N	88.513994° W				Homeolabus	analis	Attela
IRC0002744	Janicki	Julia	CMBC	Brabant	Craig	2002/06/24	2002/07/07	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Homeolabus	analis	Attela
IRC0002738	Janicki	Julia	CMBC	Brabant	Craig	2002/07/18		2:30~3:30pm, overcast, ~82F, rain, sandy oak savanna habitat		Quincy Bluff The Nature Conservancy el:894'	Adams	43.867589° N	89.885783° W				Homeolabus	analis	Attela
IRC0002655	Janicki	Julia	WIRC	Young	Daniel K.	2005/07/05		foliage of Quercus sp.	hand collected	Quincy Bluff TNC	Adams	43° 52' 03" N	89° 53' 08" W				Homeolabus	analis	Attela
IRC0002599	Janicki	Julia	WIRC	Engelhardt	Cheri	2006/06/22				Spring Green Prairie	Sauk	43° 11' 53" N	90° 03' 33" W				Homeolabus	analis	Attela
IRC0002655	Young	Daniel K.	WIRC	Young	Daniel K.	2006/06/22		Quercus lf: oak savanna	hand collected	Sppring Green Prairie	Sauk	43° 11' 57" N	90° 03' 34" W				Homeolabus	analis	Attela
IRC0002655	Young	Daniel K.	WIRC	Young	Daniel K.	2006/06/22		Quercus lf: oak savanna	hand collected	Sppring Green Prairie	Sauk	43° 11' 57" N	90° 03' 34" W				Homeolabus	analis	Attela
IRC0002655	Young	Daniel K.	WIRC	Young	Daniel K.	2006/06/22		Quercus lf: oak savanna	hand collected	Sppring Green Prairie	Sauk	43° 11' 57" N	90° 03' 34" W				Homeolabus	analis	Attela
IRC0002655	Young	Daniel K.	WIRC	Young	Daniel K.	2006/06/22		Quercus lf: oak savanna	hand collected	Sppring Green Prairie	Sauk	43° 11' 57" N	90° 03' 34" W				Homeolabus	analis	Attela
IRC0002655	Janicki	Julia	WIRC	Young	Daniel K.	2009/06/11		ex: foliage Quercus alba Linneaus	hand collected	environs Coloma	Waushara	44.03282° N	89.53226° W				Homeolabus	analis	Attela
IRC0002655	Janicki	Julia	WIRC	Young	Daniel K.	2009/06/12		foliage Quercus sp.	hand collected	LWRSGA Mazomanie Unit	Dane	43.23196° N	89.79784° W				Homeolabus	analis	Attela
IRC0002655	Janicki	Julia	WIRC	Young	Daniel K.	2009/06/12		foliage Quercus sp.	hand collected	LWRSGA Mazomanie Unit	Dane	43.23196° N	89.79784° W				Homeolabus	analis	Attela
IRC0002652	Janicki	Julia	WIRC	Brabant	Craig	2011/06/26		off leaves of Quercus sp., 11a-2p, ~78F, mostly sunny	Hand collected	<1 mile south of Gotham, Gotham Pine Barre	Richland	43.209230° N	90.289731° W				Homeolabus	analis	Attela
IRC0002653	Janicki	Julia	WIRC	Brabant	Craig	2011/06/26		off leaves of Quercus sp., 11a-2p, ~78F, mostly sunny	Hand collected	<1 mile south of Gotham, Gotham Pine Barre	Richland	43.209230° N	90.289731° W				Homeolabus	analis	Attela
IRC0002653	Janicki	Julia	WIRC	Janicki	Julia	2011/07/21		On oak scrub	Hand collected	Quincy Bluff SNA	Adams	43° 53' 30" N	89° 52' 12" W				Homeolabus	analis	Attela
IRC0002750	Janicki	Julia	MAPC	Pynnonen	Mark	2012/05/14		Beating Quercus branches	Beating	Arena Pines and Sand Barrens SNA	Iowa	43.17614° N	89.93231° W				Homeolabus	analis	Attela
IRC0002750	Janicki	Julia	MAPC	Pynnonen	Mark	2012/05/14		Beating Quercus branches	Beating	Spring Green Preserve SNA	Sauk	43.19903° N	90.06176° W				Homeolabus	analis	Attela
IRC0002750	Janicki	Julia	MAPC	Pynnonen	Mark	2013/06/08		Beating Quercus branches	Beating	Mecan River Public Hunting Ground	Marquette	43.95268° N	89.33950° W				Homeolabus	analis	Attela
IRC0002717			MPM			1897/10/00		before Oct 1897		N/A							Himatolabus	pubescens	Attela
IRC0002600	Janicki	Julia	WIRC					Collection of Wm. S. Marshall		Wisconsin							Himatolabus	pubescens	Attela
IRC0002717			MPM			1897/10/00		before Oct 1897		N/A							Himatolabus	pubescens	Attela
IRC0002717			MPM			1897/10/00		before Oct 1897		N/A							Himatolabus	pubescens	Attela
IRC0002717			MPM			1897/10/00		before Oct 1897		N/A							Himatolabus	pubescens	Attela
IRC0002717			MPM			1897/10/00		before Oct 1897		N/A							Himatolabus	pubescens	Attela
IRC0002717			MPM			1897/10/00		before Oct 1897		N/A							Himatolabus	pubescens	Attela
IRC0002717			MPM			1897/10/00		before Oct 1897		N/A							Himatolabus	pubescens	Attela
IRC0002600	Janicki	Julia	WIRC			1898/06/15		Collection of Wm. S. Marshall		N/A	Dane						Himatolabus	pubescens	Attela

IRC0002716			MPM			1909/05/30				Beaver Dam	Dodge						Himatolabus	pubescens	Attela
IRC0002716			MPM			1909/07/17				Beaver Dam	Dodge						Himatolabus	pubescens	Attela
IRC0002717			MPM			1910/06/19				Beaver Dam	Dodge						Himatolabus	pubescens	Attela
IRC0002716			MPM			1915/06/23				Beaver Dam	Dodge						Himatolabus	pubescens	Attela
IRC0002716			MPM			1915/07/23				Beaver Dam	Dodge						Himatolabus	pubescens	Attela
IRC0002600	Janicki	Julia	WIRC	Ball	E	1917/07/22				St. Croix Fl	Polk						Himatolabus	pubescens	Attela
IRC0002600	Janicki	Julia	WIRC	Ball	E	1917/07/22				St. Croix Fl	Polk						Himatolabus	pubescens	Attela
IRC0002601	Janicki	Julia	WIRC	Harley	H	1918/07/13				Amery	Polk						Himatolabus	pubescens	Attela
IRC0002600	Janicki	Julia	WIRC	Harley	H	1918/07/13				Amery	Polk						Himatolabus	pubescens	Attela
IRC0002600	Janicki	Julia	WIRC	Harley	H	1918/07/13				Amery	Polk						Himatolabus	pubescens	Attela
IRC0002600	Janicki	Julia	WIRC	Harley	H	1918/07/13				Amery	Polk						Himatolabus	pubescens	Attela
IRC0002600	Janicki	Julia	WIRC	Harley	H	1918/07/13				Amery	Polk						Himatolabus	pubescens	Attela
IRC0002601	Janicki	Julia	WIRC	Harley	H	1918/07/13				Amery	Polk						Himatolabus	pubescens	Attela
IRC0002600	Janicki	Julia	WIRC	Harley	H	1920/07/23			Sweeping	Lake Wingra	Dane						Himatolabus	pubescens	Attela
IRC0002600	Dodge	H	WIRC	Fluke	Chas	1931/06/26				N/A	Door						Himatolabus	pubescens	Attela
IRC0002651	Janicki	Julia	WIRC	Gruber	Jeffrey P.	1999/07/25		swept from foliage in oak/pine forest	Sweep net	Black River State Forest	Jackson			20N	2W	5/8	Himatolabus	pubescens	Attela
IRC0002706			MPM			1897/10/00		before Oct 1897		N/A							Eugnamptus	angustatus	Attela
IRC0002574	Janicki	Julia	WIRC	Messer	P			Swept meadow weeds day	Sweep net	N/A	Waukesha	42.920° N	88.471° W				Eugnamptus	angustatus	Attela
IRC0002706			MPM			1897/10/00		before Oct 1897		N/A							Eugnamptus	angustatus	Attela
IRC0002700	Janicki	Julia	MPM	Rauterberg	F	1897/10/00		before Oct 1897		N/A							Eugnamptus	angustatus	Attela
IRC00027067			MPM			1897/10/00		before Oct 1897		N/A							Eugnamptus	angustatus	Attela
IRC00027002	Janicki	Julia	MPM	Rauterberg	F	1897/10/00		before Oct 1897		N/A							Eugnamptus	angustatus	Attela
IRC00025742	Janicki	Julia	WIRC			1898/06/22		Collection of Wm. S. Marshall		N/A	Dane						Eugnamptus	angustatus	Attela
IRC00027068			MPM			1910/07/13	1910/07/19			Prescott	Pierce						Eugnamptus	angustatus	Attela
IRC00027004	Janicki	Julia	MPM			1910/07/13	1910/07/19	Milwaukee Public Museum Expedition		Prescott	Pierce						Eugnamptus	angustatus	Attela
IRC00025745	Dodge	H	WIRC	Burrill	A. C.	1912/07/13			Sweep net	Monona Lake	Dane						Eugnamptus	angustatus	Attela
IRC00025747	Janicki	Julia	WIRC	DeLong	D	1916/07/18				Blue River	Grant						Eugnamptus	angustatus	Attela
IRC00025749	Janicki	Julia	WIRC	Shenefelt	R. D.	1947/07/08		Collected from misc. veg. oak wilt pot on Hwy 73	Hand collected	Hwy 73	Wood						Eugnamptus	angustatus	Attela
IRC00025750	Janicki	Julia	WIRC	McNeel	W.	1949/06/02		Collected from wilted oak	Hand collected	N/A	Grant						Eugnamptus	angustatus	Attela
IRC00025751	Janicki	Julia	WIRC	McNeel	W.	1949/08/01		Collected from forest floor	Hand collected	N/A	St. Croix						Eugnamptus	angustatus	Attela
IRC00025746	Janicki	Julia	WIRC	Haas	G	1955/06/18		On Hazelnut	Hand collected	N/A	Dane						Eugnamptus	angustatus	Attela
IRC00027021	Janicki	Julia	MPM	Borkin	S	1982/06/23		low prairie, oak opening, adjacent lowland forest		ca 5 mi S Broadhead, Swenson Prairie and Oak Opening	Rock						Eugnamptus	angustatus	Attela

IRC00025744	Janicki	Julia	WIRC	Messer	P	2001/06/30		Field sweep forest edge day	Sweep net	N/A	Waukesha	42.939° N	88.461° W				Eugnamptus	angustatus	Attela
IRC00026513	Young	Daniel K.	WIRC	Brabant	Craig	2001/07/11	2001/08/05	Unbaited malaise trap on edge of southern mixed deciduous hardwood forest	Malaise trap	3 miles north of Argyle Thomas Wedel property	Lafayette	42° 44' 05" N	89° 51' 09" W				Eugnamptus	angustatus	Attela
IRC00027429	Janicki	Julia	CMBC	Brabant	Craig	2001/07/15	2001/08/05	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest	Waukesha	42.872520° N	88.513994° W				Eugnamptus	angustatus	Attela
IRC00027299	Krauth	S	WDNR	Sauer	S	2003/07/11		Sweep net pass 1 of 3, prairie dropseed, dry/dry-mesic prairie. WDNR	Sweep net	Drachenberg Prairie	Iowa			8N	5E	32NW4	Eugnamptus	angustatus	Attela
IRC00027435	Janicki	Julia	CMBC	Brabant	Craig	2003/07/26	2003/08/01	unbaited Townes malaise trap in sand/oak barrens	Malaise trap	just north of Spring Green	Sauk	43.199357° N	90.062699° W				Eugnamptus	angustatus	Attela
IRC00026508	Janicki	Julia	WIRC	Foltz	Sarah	2007/07/12		On vegetation or fungus	Hand collected	Hemlock Draw	Sauk						Eugnamptus	angustatus	Attela
IRC00026509	Janicki	Julia	WIRC	Janicki	Julia	2011/08/18		In mixed hardwood forest on uphill slope	Malaise Trap	Hemlock Draw	Sauk	43.36063° N	89.94788° W				Eugnamptus	angustatus	Attela
IRC00026511	Janicki	Julia	WIRC	Hernandez	Natalie	2012/06/19	2012/06/27	15 pan traps located within 1.25mi GPS, with yellow tile, filled with propylene glycol surrounded by lake, marshes, forest, prairie, savanna and horticulture	pan traps	UW Arboretum	Dane	43.046053° N	89.420825° W				Eugnamptus	angustatus	Attela
IRC00026512	Janicki	Julia	WIRC	Hernandez	Natalie	2012/06/19	2012/06/27	15 pan traps located within 1.25mi GPS, with yellow tile, filled with propylene glycol surrounded by lake, marshes, forest, prairie, savanna and horticulture	pan traps	UW Arboretum	Dane	43.046053° N	89.420825° W				Eugnamptus	angustatus	Attela
IRC00027389	Janicki	Julia	CMBC	Brabant	Craig	2012/06/24		hand collected from branches/vegetation using beating sheet in hardwood stand	beating	Goose Lake Wildlife Area (WDNR) elev: 911'asl	Dane	43.107327° N	89.037256° W				Eugnamptus	angustatus	Attela
IRC00026510	Janicki	Julia	WIRC	Janicki	Julia	2012/06/25		Sweeping vegetation around round	Sweep net	Battle Bluff Prairie	Vernon	43° 26' 41" N	91° 11' 53" W				Eugnamptus	angustatus	Attela
IRC00026507	Janicki	Julia	WIRC	Janicki	Julia	2012/06/26		Sweeping forest understory	Sweep net	Near brady bluff prairie in perrot state park	Trempealeau	44° 01' 07" N	91° 28' 02" W				Eugnamptus	angustatus	Attela
IRC00027496	Janicki	Julia	MAPC	Pynnonen	Mark	2012/06/27		at florescent light at the edge of mixed forest	At florescent light	Madison School Forest	Dane	43.94812° N	89.58753° W				Eugnamptus	angustatus	Attela
IRC00027483	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/07/14		mating pair beaten from branches of Carya ovata tree, oak savanna forest	beating	Rocky Run CK SFA	Columbia	43° 27' 28" N	89° 20' 12" W				Eugnamptus	angustatus	Attela
IRC00027482	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/07/14		mating pair beaten from branches of Carya ovata tree, oak savanna forest	beating	Rocky Run CK SFA	Columbia	43° 27' 28" N	89° 20' 12" W				Eugnamptus	angustatus	Attela
IRC00025757	Krauth	S	WIRC					Sweep net to EtOH, 26/30, D-M Savannah Prairie, Study 053/ SNA 177	Sweep net	Battle Bluff Prairie	Vernon			11N	7W	4NE4	Eugnamptus	puncticeps	Attela
IRC00025756	Krauth	S	WIRC			1996/08/07		Sweep net to EtOH Bluff Prairie, Study 053/SNA 170, U:4	Sweep net	Rush Creek Prairie	Crawford			10N	6W	6SW4	Eugnamptus	puncticeps	Attela
IRC00025753	Krauth	S	WIRC	Willliams	Andrew	1999/07/02		Very active, on tips of leaflets of Rhus glabra, excavating lower surface, leaving circular scars visible above and below, upper epidermis undamaged, limy hill prai	Hand collected	Middle Sime Bald G10	Grant			8N	3W	36	Eugnamptus	puncticeps	Attela
IRC00025752	Krauth	S	WIRC	Willliams	Andrew	1999/07/02		Very active, on tips of leaflets of Rhus glabra, excavating lower surface, leaving circular scars visible above and below, upper epidermis undamaged, limy hill prai	Hand collected	Middle Sime Bald G10	Grant			8N	3W	36	Eugnamptus	puncticeps	Attela
IRC00025755	Krauth	S	WIRC	Willliams	Andrew	1999/07/02		Very active, on tips of leaflets of Rhus glabra, excavating lower surface, leaving circular scars visible above and below, upper epidermis undamaged, limy hill prai	Hand collected	Middle Sime Bald G10	Grant			8N	3W	36	Eugnamptus	puncticeps	Attela
IRC00025748	Krauth	S	WIRC	Willliams	Andrew	1999/07/02		Very active, on tips of leaflets of Rhus glabra, excavating lower surface, leaving circular scars visible above and below, upper epidermis undamaged, limy hill prai	Hand collected	Middle Sime Bald G10	Grant			8N	3W	36	Eugnamptus	puncticeps	Attela
IRC00025754	Krauth	S	WIRC	Willliams	Andrew	1999/07/02		Very active, on tips of leaflets of Rhus glabra, excavating lower surface, leaving circular scars visible above and below, upper epidermis undamaged, limy hill prai	Hand collected	Middle Sime Bald G10	Grant			8N	3W	36	Eugnamptus	puncticeps	Attela
IRC00026109	Krauth	Steve	WDNR	Sauer	S	2003/07/11		Sweep net pass 3 of 3, prairie dropseed, dry/dry-mesic prairie	Sweep net	Drachenberg Prairie	Iowa			8N	5E	3NW4	Eugnamptus	puncticeps	Attela
IRC00027074			MPM			1897/10/00		before Oct 1897		N/A							Haplorhynchites	aeneus	Attela
IRC00027072			MPM			1909/07/28	1909/07/31			Yellow River	Burnett						Haplorhynchites	aeneus	Attela
IRC00027075			MPM			1897/10/00		before Oct 1897		N/A							Haplorhynchites	aeneus	Attela
IRC00027070			MPM			1911/07/30	1911/08/04			Rutlege	Grant						Haplorhynchites	aeneus	Attela
IRC00027069			MPM			1911/08/05	1911/08/10			Rutlege	Grant						Haplorhynchites	aeneus	Attela
IRC00027071			MPM			1909/07/28	1909/07/31			Yellow River	Burnett						Haplorhynchites	aeneus	Attela
IRC00027076			MPM			1889/09/00		before Sept 1889		Milwaukee	Milwaukee						Haplorhynchites	aeneus	Attela
IRC00027073			MPM			1909/08/05	1909/08/07			Randall	Burnett						Haplorhynchites	aeneus	Attela

IRC00025759	Krauth	S	WIRC	LeGue	C	1998/08/19		yellow flower mix		E. of Woodworth, Benedict Prairie	Kenosha						Haplorhynchites	aeneus	Attela
IRC00025758	Krauth	S	WIRC	LeGue	C	1998/08/19		yellow flower mix		E. of Woodworth, Benedict Prairie	Kenosha						Haplorhynchites	aeneus	Attela
IRC00025760	Krauth	S	WIRC	Suter	W.	1981/09/13			Sweep net	E. of Woodworth, Benedict Prairie	Kenosha						Haplorhynchites	aeneus	Attela
IRC00016184	Krauth	S	IRCW	LeGue	C	1998/07/29				Benedict Prairie, E. of Woodworth	Kenosha		0.0 E				Haplorhynchites	aeneus	Attela
IRC00016190	Krauth	S	IRCW	Suter	W	1998/07/26			Sweep RR	Benedict Prairie, E. of Woodworth	Kenosha		0.0 E				Haplorhynchites	aeneus	Attela
IRC00016179	Krauth	S	IRCW	Suter	W	1998/07/26				Benedict Prairie, E. of Woodworth	Kenosha		0.0 E				Haplorhynchites	aeneus	Attela
IRC00016187	Krauth	S	IRCW	Suter	W	1998/07/17			sweep	Benedict Prairie, E. of Woodworth	Kenosha		0.0 E				Haplorhynchites	aeneus	Attela
IRC00016180	Krauth	S	IRCW	Suter	W	1998/08/11			sweep	Benedict Prairie, E. of Woodworth	Kenosha		0.0 E				Haplorhynchites	aeneus	Attela
IRC00016185	Krauth	S	IRCW	LeGue	C	1998/07/19			sweep	Benedict Prairie, E. of Woodworth	Kenosha		0.0 E				Haplorhynchites	aeneus	Attela
IRC00016181	Krauth	S	IRCW	Suter	W	1998/08/19			Sweep	Benedict Prairie, E. of Woodworth	Kenosha		0.0 E				Haplorhynchites	aeneus	Attela
IRC00016182	Krauth	S	IRCW	Suter	W	1998/08/25			sweep	Benedict Prairie, E. of Woodworth	Kenosha		0.0 E				Haplorhynchites	aeneus	Attela
IRC00016183	Krauth	S	IRCW	Suter	W	1998/07/17			sweep	Benedict Prairie, E. of Woodworth	Kenosha		0.0 E				Haplorhynchites	aeneus	Attela
IRC00016189	Krauth	S	IRCW	LeGue	C	1998/08/19				Benedict Prairie, E. of Woodworth	Kenosha		0.0 E				Haplorhynchites	aeneus	Attela
IRC00016186	Krauth	S	IRCW	LeGue	C	1998/07/08				Benedict Prairie, E. of Woodworth	Kenosha		0.0 E				Haplorhynchites	aeneus	Attela
IRC00016188	Krauth	S	IRCW	LeGue	C	1998/07/29				Benedict Prairie, E. of Woodworth	Kenosha		0.0 E				Haplorhynchites	aeneus	Attela
IRC00025768	Krauth	S	WIRC	Williams	Andrew H.	1997/08/12		On disc flowers of Helianthus pauciflorous, 2pm	Hand collected	N/A	Burnett			41N	15W	14	Haplorhynchites	aeneus	Attela
IRC00025769	Krauth	S	WIRC	Williams	Andrew H.	1997/08/13		On disc flowers of Solidalgo ptarmicoides, morning	Hand collected	N/A	Burnett						Haplorhynchites	aeneus	Attela
IRC00025766	Krauth	S	WIRC	Williams	Andrew H.	1997/08/12		On disc flowers of Helianthus pauciflorous, 2pm	Hand collected	N/A	Burnett			41N	15W	14	Haplorhynchites	aeneus	Attela
IRC00025765	Krauth	S	WIRC	Williams	Andrew H.	1997/08/12		On disc flowers of Helianthus pauciflorous, 2pm	Hand collected	N/A	Burnett			41N	15W	14	Haplorhynchites	aeneus	Attela
IRC00025764	Krauth	S	WIRC	Williams	Andrew H.	1997/08/12		On disc flowers of Helianthus pauciflorous, 2pm	Hand collected	N/A	Burnett			41N	15W	14	Haplorhynchites	aeneus	Attela
IRC00025761	Krauth	S	WIRC	Williams	Andrew H.			On disc flowers of Helianthus occidentalis, 2pm	Hand collected	N/A	Burnett			41N	15W	14	Haplorhynchites	aeneus	Attela
IRC00025767	Krauth	S	WIRC	Williams	Andrew H.	1997/08/12		On disc flowers of Helianthus pauciflorous, 2pm	Hand collected	N/A	Burnett			41N	15W	14	Haplorhynchites	aeneus	Attela
IRC00025763	Krauth	S	WIRC	Williams	Andrew H.	1997/08/12		On disc flowers of Helianthus pauciflorous	Hand collected	N/A	Burnett			41N	15W	14	Haplorhynchites	aeneus	Attela
IRC00025762	Krauth	S	WIRC	Williams	Andrew H.			On disc flowers of Helianthus occidentalis, 2pm	Hand collected	N/A	Burnett			41N	15W	14	Haplorhynchites	aeneus	Attela
IRC00025911	Janicki	Julia	WIRC					Collection of Wm. S. Marshall		N/A							Merhynchites	bicolor	Attela
IRC00025908	Janicki	Julia	WIRC					Collection of Wm. S. Marshall		N/A							Merhynchites	bicolor	Attela
IRC00025854	Janicki	Julia	WIRC					Collector initials: LMB		Madison	Dane						Merhynchites	bicolor	Attela
IRC00025909	Janicki	Julia	WIRC					Collection of Wm. S. Marshall		N/A							Merhynchites	bicolor	Attela
IRC00025910	Janicki	Julia	WIRC					Collection of Wm. S. Marshall		N/A							Merhynchites	bicolor	Attela
IRC00025787	Janicki	Julia	WIRC	Balduf	W.			From hips of Rosa blanda or carolina. Aquisition number 80	Chetek	Chetek	Barron						Merhynchites	bicolor	Attela
IRC00025847	Janicki	Julia	WIRC	Sanders	J. G.					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025788	Janicki	Julia	WIRC	Balduf	W.			From hips of Rosa blanda or carolina. Aquisition number 80	Reared	Chetek	Barron						Merhynchites	bicolor	Attela

IRC00027027	Janicki	Julia	UWO	Meyer	M.					0.5 mi S Oshkosh	Winnebago						Merhynchites	bicolor	Attela
IRC00025881	Janicki	Julia	WIRC					Mating. Collection of Wm. S. Marshall		Verona	Dane						Merhynchites	bicolor	Attela
IRC00025852	Janicki	Julia	WIRC			1111/07/13				Madison	Dane						Merhynchites	bicolor	Attela
IRC00025861	Janicki	Julia	WIRC	Roark		1111/07/14		Rose		Madison	Dane						Merhynchites	bicolor	Attela
IRC00025856	Janicki	Julia	WIRC			1111/07/16				Madison	Dane						Merhynchites	bicolor	Attela
IRC00027097			MPM			1897/10/00		before Oct 1987		N/A							Merhynchites	bicolor	Attela
IRC00027099			MPM			1897/10/00		before Oct 1987		N/A							Merhynchites	bicolor	Attela
IRC00027096			MPM			1897/10/00		before Oct 1987		N/A							Merhynchites	bicolor	Attela
IRC00027098			MPM			1897/10/00		before Oct 1987		N/A							Merhynchites	bicolor	Attela
IRC00027090			MPM			1907/00/00		before 1907		Milwaukee	Milwaukee						Merhynchites	bicolor	Attela
IRC00027088			MPM			1907/00/00		before 1907		Milwaukee	Milwaukee						Merhynchites	bicolor	Attela
IRC00027089			MPM			1907/00/00		before 1907		Milwaukee	Milwaukee						Merhynchites	bicolor	Attela
IRC00027085			MPM			1907/08/08				Milwaukee	Milwaukee						Merhynchites	bicolor	Attela
IRC00027082			MPM			1907/08/08				Milwaukee	Milwaukee						Merhynchites	bicolor	Attela
IRC00027086			MPM			1907/08/08				Milwaukee	Milwaukee						Merhynchites	bicolor	Attela
IRC00027084			MPM			1907/08/08				Milwaukee	Milwaukee						Merhynchites	bicolor	Attela
IRC00027083			MPM			1907/08/08				Milwaukee	Milwaukee						Merhynchites	bicolor	Attela
IRC00027103			MPM			1909/07/09				Cement Mills	Milwaukee						Merhynchites	bicolor	Attela
IRC00027104			MPM			1909/07/09				Cement Mills	Milwaukee						Merhynchites	bicolor	Attela
IRC00027102			MPM			1909/07/09				Cement Mills	Milwaukee						Merhynchites	bicolor	Attela
IRC00025862	Janicki	Julia	WIRC	Kodish		1910/00/00				Madison	Dane						Merhynchites	bicolor	Attela
IRC00025829	Janicki	Julia	WIRC	Sanders	J. G.	1910/04/10				Madison	Dane						Merhynchites	bicolor	Attela
IRC00025830	Janicki	Julia	WIRC	Sanders	J. G.	1910/04/10				Madison	Dane						Merhynchites	bicolor	Attela
IRC00027100			MPM			1910/07/07	1910/07/12			North Hudson	St. Croix						Merhynchites	bicolor	Attela
IRC00027106			MPM			1910/07/25				N/A	Dodge						Merhynchites	bicolor	Attela
IRC00027105			MPM			1910/07/25				N/A	Dodge						Merhynchites	bicolor	Attela
IRC00027087			MPM			1911/06/26				Two Rivers	Manitowoc						Merhynchites	bicolor	Attela
IRC00025833	Janicki	Julia	WIRC	Wilcox		1912/07/11		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025834	Janicki	Julia	WIRC	Wilcox		1912/07/11		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025831	Janicki	Julia	WIRC	Wilcox		1912/07/11		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025832	Janicki	Julia	WIRC	Wilcox		1912/07/11		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025835	Janicki	Julia	WIRC	Wilcox		1912/07/11		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela

IRC00025836	Janicki	Julia	WIRC	Wilcox		1912/07/11		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00027095			MPM			1913/06/25				Beaver Dam	Dodge						Merhynchites	bicolor	Attela
IRC00027093			MPM			1913/06/25				Beaver Dam	Dodge						Merhynchites	bicolor	Attela
aaa00027091			MPM			1913/06/25				Beaver Dam	Dodge						Merhynchites	bicolor	Attela
IRC00027094			MPM			1913/06/25				Beaver Dam	Dodge						Merhynchites	bicolor	Attela
IRC00027092			MPM			1913/06/25				Beaver Dam	Dodge						Merhynchites	bicolor	Attela
IRC00027101			MPM			1913/07/00		wild rose	hand collected	N/A	Waushara						Merhynchites	bicolor	Attela
IRC00025863	Janicki	Julia	WIRC	Burrill	A. C.	1914/06/16		on Rosa rugosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025838	Janicki	Julia	WIRC	Burrill	A. C.	1914/06/16		On Rosa rugosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025839	Janicki	Julia	WIRC	Burrill	A. C.	1914/06/16		On Rosa rugosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025837	Janicki	Julia	WIRC	Burrill	A. C.	1914/06/16		On Rosa rugosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025820	Janicki	Julia	WIRC	Chandler	G	1914/07/01		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025828	Janicki	Julia	WIRC	Chandler	G	1914/07/01		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025827	Janicki	Julia	WIRC	Chandler	G	1914/07/01		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025825	Janicki	Julia	WIRC	Chandler	G	1914/07/01		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025821	Janicki	Julia	WIRC	Chandler	G	1914/07/01		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025824	Janicki	Julia	WIRC	Chandler	G	1914/07/01		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025826	Janicki	Julia	WIRC	Chandler	G	1914/07/01		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025823	Janicki	Julia	WIRC	Chandler	G	1914/07/01		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025822	Janicki	Julia	WIRC	Chandler	G	1914/07/01		On Rosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025858	Janicki	Julia	WIRC	Chandler	G	1914/07/02				Madison	Dane						Merhynchites	bicolor	Attela
IRC00025857	Janicki	Julia	WIRC			1914/07/04				Madison	Dane						Merhynchites	bicolor	Attela
IRC00025853	Janicki	Julia	WIRC	Chandler	G	1914/07/05				Madison	Dane						Merhynchites	bicolor	Attela
IRC00025794	Janicki	Julia	WIRC	Chandler	S. C.	1914/07/06		On Rosa rugosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025840	Janicki	Julia	WIRC	Chandler	G	1914/07/06				Madison	Dane						Merhynchites	bicolor	Attela
IRC00025809	Janicki	Julia	WIRC	Chandler	G	1914/07/06				Madison	Dane						Merhynchites	bicolor	Attela
IRC00025804	Janicki	Julia	WIRC	Chandler	G	1914/07/06				Madison	Dane						Merhynchites	bicolor	Attela
IRC00025805	Janicki	Julia	WIRC	Chandler	G	1914/07/06				Madison	Dane						Merhynchites	bicolor	Attela
IRC00025842	Janicki	Julia	WIRC	Chandler	G	1914/07/06				Madison	Dane						Merhynchites	bicolor	Attela
IRC00025791	Janicki	Julia	WIRC	Chandler	S. C.	1914/07/06		On Rosa rugosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025802	Janicki	Julia	WIRC	Chandler	G	1914/07/06				Madison	Dane						Merhynchites	bicolor	Attela
IRC00025797	Janicki	Julia	WIRC	Chandler	S. C.	1914/07/06		On Rosa rugosa	Hand	Madison	Dane						Merhynchites	bicolor	Attela

IRC00025841	Janicki	Julia	WIRC	Chandler	G	1914/07/06					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025792	Janicki	Julia	WIRC	Chandler	S. C.	1914/07/06		On Rosa rugosa		Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025799	Janicki	Julia	WIRC	Chandler	S. C.	1914/07/06		On Rosa rugosa		Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025793	Janicki	Julia	WIRC	Chandler	S. C.	1914/07/06		On Rosa rugosa		Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025796	Janicki	Julia	WIRC	Chandler	S. C.	1914/07/06		On Rosa rugosa		Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025795	Janicki	Julia	WIRC	Chandler	S. C.	1914/07/06		On Rosa rugosa		Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025807	Janicki	Julia	WIRC	Chandler	G	1914/07/06					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025808	Janicki	Julia	WIRC	Chandler	G	1914/07/06					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025810	Janicki	Julia	WIRC	Chandler	G	1914/07/06					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025801	Janicki	Julia	WIRC	Chandler	G	1914/07/06					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025806	Janicki	Julia	WIRC	Chandler	G	1914/07/06					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025811	Janicki	Julia	WIRC	Chandler	G	1914/07/06					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025798	Janicki	Julia	WIRC	Chandler	S. C.	1914/07/06		On Rosa rugosa		Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025800	Janicki	Julia	WIRC	Chandler	S. C.	1914/07/06		On Rosa rugosa		Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025803	Janicki	Julia	WIRC	Chandler	G	1914/07/06					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025848	Janicki	Julia	WIRC	DeLong	D	1916/07/06					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025817	Janicki	Julia	WIRC	Fluke	Chas. L.	1917/06/24					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025813	Janicki	Julia	WIRC	Fluke	Chas. L.	1917/06/24					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025816	Janicki	Julia	WIRC	Fluke	Chas. L.	1917/06/24					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025859	Janicki	Julia	WIRC	Fluke	Chas. L.	1917/06/24					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025814	Janicki	Julia	WIRC	Fluke	Chas. L.	1917/06/24					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025815	Janicki	Julia	WIRC	Fluke	Chas. L.	1917/06/24					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025818	Janicki	Julia	WIRC	Fluke	Chas. L.	1917/06/24					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025812	Janicki	Julia	WIRC	Fluke	Chas. L.	1917/06/24					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025819	Janicki	Julia	WIRC	Fluke	Chas. L.	1917/06/24					Madison	Dane						Merhynchites	bicolor	Attela
IRC00027109			MPM			1917/07/21		on lakeshore			Oshkosh	Winnebago						Merhynchites	bicolor	Attela
IRC00027108			MPM			1917/07/21		on lakeshore			Oshkosh	Winnebago						Merhynchites	bicolor	Attela
IRC00025899	Janicki	Julia	WIRC			1918/07/20		Collection of Wm. S. Marshall			Marshfield	Marathon						Merhynchites	bicolor	Attela
IRC00025880	Janicki	Julia	WIRC			1920/06/27		Collection of Wm. S. Marshall			Nakoma	Dane						Merhynchites	bicolor	Attela
IRC00025879	Janicki	Julia	WIRC			1920/07/25		Collection of Wm. S. Marshall			Blue Mounds	Dane						Merhynchites	bicolor	Attela
IRC00025860	Janicki	Julia	WIRC			1922/04/28					Madison	Dane						Merhynchites	bicolor	Attela
IRC00025871	Janicki	Julia	WIRC	Chambers	E. L.	1923/07/03					Waterloo	Jefferson						Merhynchites	bicolor	Attela

IRC00025883	Janicki	Julia	WIRC	Holmquist	A	1923/08/03				Amery	Polk						Merhynchites	bicolor	Attela	
IRC00025884	Janicki	Julia	WIRC	Holmquist	A	1923/08/03				Amery	Polk						Merhynchites	bicolor	Attela	
IRC00025866	Janicki	Julia	WIRC	Chambers	E. L.	1924/06/28				Cravitz	Marinette						Merhynchites	bicolor	Attela	
IRC00025865	Janicki	Julia	WIRC	Chambers	E. L.	1924/06/28				Cravitz	Marinette						Merhynchites	bicolor	Attela	
IRC00025868	Janicki	Julia	WIRC	Chambers	E. L.	1924/06/28				Cravitz	Marinette						Merhynchites	bicolor	Attela	
IRC00025867	Janicki	Julia	WIRC	Chambers	E. L.	1924/06/28				Cravitz	Marinette						Merhynchites	bicolor	Attela	
IRC00025889	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025896	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025892	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025895	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025888	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025887	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025898	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025890	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025894	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025893	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025891	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025897	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025886	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025885	Janicki	Julia	WIRC	Chambers	E. L.	1924/07/01				Green Bay	Brown						Merhynchites	bicolor	Attela	
IRC00025869	Janicki	Julia	WIRC	Chambers	E. L.	1925/07/03				Baraboo	Sauk						Merhynchites	bicolor	Attela	
IRC00025870	Janicki	Julia	WIRC	Chambers	E. L.	1925/07/03				Baraboo	Sauk						Merhynchites	bicolor	Attela	
IRC00027019	Janicki	Julia	MPM	Nash	Guy	1930/06/24				Wisconsin Rapids	Wood						Merhynchites	bicolor	Attela	
IRC00027020	Janicki	Julia	MPM	Nash	Guy	1930/06/29				Wisconsin Rapids	Wood						Merhynchites	bicolor	Attela	
IRC00027111			MPM			1930/07/04		on wild rose	hand collected	Oshkosh	Winnebago						Merhynchites	bicolor	Attela	
IRC00027113			MPM			1930/07/04		on wild rose	hand collected	Oshkosh	Winnebago						Merhynchites	bicolor	Attela	
IRC00027110			MPM			1930/07/04		on wild rose	hand collected	Oshkosh	Winnebago						Merhynchites	bicolor	Attela	
IRC00027112			MPM			1930/07/04		on wild rose	hand collected	Oshkosh	Winnebago						Merhynchites	bicolor	Attela	
IRC00027018	Janicki	Julia	MPM	Nash	Guy	1930/07/05				Wisconsin Rapids	Wood						Merhynchites	bicolor	Attela	
IRC00027080			MPM			1931/06/06				Lincoln Park	Milwaukee						Merhynchites	bicolor	Attela	
IRC00027079			MPM			1931/06/06				Lincoln Park	Milwaukee						Merhynchites	bicolor	Attela	
IRC00027081			MPM			1931/06/06				Lincoln Park	Milwaukee						Merhynchites	bicolor	Attela	

IRC00025851	Janicki	Julia	WIRC			1936/06/14				Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025855	Janicki	Julia	WIRC			1936/06/24				Madison	Dane						Merhynchites	bicolor	Attela	
IRC00027107			MPM			1937/06/15		on grass near woods	hand collected	Oshkosh	Winnebago						Merhynchites	bicolor	Attela	
IRC00025843	Janicki	Julia	WIRC			1938/06/00				Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025846	Janicki	Julia	WIRC			1938/06/00				Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025845	Janicki	Julia	WIRC			1938/06/00				Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025844	Janicki	Julia	WIRC			1938/06/00				Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025878	Janicki	Julia	WIRC			1941/00/00				Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025873	Janicki	Julia	WIRC			1941/05/00				Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025872	Janicki	Julia	WIRC			1941/05/00				Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025877	Janicki	Julia	WIRC			1941/06/00				Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025876	Janicki	Julia	WIRC			1941/06/00				Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025875	Janicki	Julia	WIRC			1941/06/00				Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025874	Janicki	Julia	WIRC			1941/06/00				Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025907	Janicki	Julia	WIRC	Balduf	W.	1945/07/01		From hips of rosa carolina villosa, aquisition number 2a-d	Reared	Endeavor	Marquette						Merhynchites	bicolor	Attela	
IRC00025906	Janicki	Julia	WIRC	Balduf	W.	1945/07/01		From hips of rosa carolina villosa, aquisition number 2a-d	Reared	Endeavor	Marquette						Merhynchites	bicolor	Attela	
IRC00025954			WIRC	Balduf	W.	1945/07/02		From hips of rosa rugosa	Reared	Ashland	Ashland						Merhynchites	bicolor	Attela	
IRC00025785	Janicki	Julia	WIRC	Balduf	W.	1946/05/22		From hips of Rosa blanda glandulosa. Aquisition number 31	Reared	Gordon	Douglas						Merhynchites	bicolor	Attela	
IRC00025915	Janicki	Julia	WIRC			1947/04/20				N/A	Dane						Merhynchites	bicolor	Attela	
IRC00025784	Janicki	Julia	WIRC	Balduf	W.	1947/06/09		From hips of Rosa blanda. Aquisition number 79		Solon Springs	Douglas						Merhynchites	bicolor	Attela	
IRC00025780	Janicki	Julia	WIRC	Balduf	W.	1947/06/09		From hips of Rosa carolina. Aquisition number 81		Black River Falls	Jackson						Merhynchites	bicolor	Attela	
IRC00025849	Janicki	Julia	WIRC	Balduf	W.	1947/06/10		From hips of Rosa arkansana, aquisition number 37	Reared	Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025850	Janicki	Julia	WIRC	Balduf	W.	1947/06/12		From hips of Rosa arkansana, aquisition number 37	Reared	Madison	Dane						Merhynchites	bicolor	Attela	
IRC00025776	Janicki	Julia	WIRC	Balduf	W.	1947/06/16		From hips of Rosa carolina. Aquisition number 81	Reared	Black River Falls	Jackson						Merhynchites	bicolor	Attela	
IRC00025783	Janicki	Julia	WIRC	Balduf	W.	1948/05/24		From hips of Rosa blanda, from hips of Rosa carolina. Aquisition number 103	Reared	Rice Lake	Barron						Merhynchites	bicolor	Attela	
IRC00025782	Janicki	Julia	WIRC	Balduf	W.	1948/05/24		From hips of Rosa blanda, from hips of Rosa carolina. Aquisition number 103	Reared	Rice Lake	Barron						Merhynchites	bicolor	Attela	
IRC00025781	Janicki	Julia	WIRC	Balduf	W.	1948/05/31		From hips of Rosa blanda. Aquisition number 79	Reared	Solon Springs	Douglas						Merhynchites	bicolor	Attela	
IRC00025779	Janicki	Julia	WIRC	Balduf	W.	1948/06/05		From hips of Rosa carolina. Aquisition number 81	Reared	Black River Falls	Jackson						Merhynchites	bicolor	Attela	
IRC00025778	Janicki	Julia	WIRC	Balduf	W.	1948/06/08		From hips of Rosa carolina. Aquisition number 81	Reared	Black River Falls	Jackson						Merhynchites	bicolor	Attela	
IRC00025777	Janicki	Julia	WIRC	Balduf	W.	1948/06/14		From hips of Rosa carolina. Aquisition number 81	Reared	Black River Falls	Jackson						Merhynchites	bicolor	Attela	
IRC00025775	Janicki	Julia	WIRC	Shenefelt	R. D.	1949/06/24		Sec. 129		Port Edwards	Wood						Merhynchites	bicolor	Attela	
IRC00025901	Janicki	Julia	WIRC			1949/06/30				University of Wisconsin Arboretum	Dane						Merhynchites	bicolor	Attela	

IRC00025789	Janicki	Julia	WIRC	Balduf	W.	1950/06/06		From hips of Rosa blanda or carolina. Aquisition number 80		Chetek	Barron						Merhynchites	bicolor	Attela
IRC00025900	Janicki	Julia	WIRC	Ball	H.	1950/08/00				Madison	Dane						Merhynchites	bicolor	Attela
IRC00025786	Janicki	Julia	WIRC	Balduf	W.	1951/06/02		From hips of Rosa carolina or blanda. Aquisition number 80	Reared	Chetek	Barron						Merhynchites	bicolor	Attela
IRC00025790	Janicki	Julia	WIRC	Balduf	W.	1951/06/03		From hips of Rosa blanda or carolina. Aquisition number 80		Chetek	Barron						Merhynchites	bicolor	Attela
IRC00025771	Janicki	Julia	WIRC	Shenefelt	R. D.	1959/06/19				Griffith St. Nursery, S. 14 Mi. Ck.	Wood						Merhynchites	bicolor	Attela
IRC00025770	Janicki	Julia	WIRC	Shenefelt	R. D.	1959/06/19				Griffith St. Nursery, S. 14 Mi. Ck.	Wood						Merhynchites	bicolor	Attela
IRC00025774	Janicki	Julia	WIRC	Shenefelt	R. D.	1959/06/19				Griffith St. Nursery, S. 14 Mi. Ck.	Wood						Merhynchites	bicolor	Attela
IRC00025772	Janicki	Julia	WIRC	Shenefelt	R. D.	1959/06/19				Griffith St. Nursery, S. 14 Mi. Ck.	Wood						Merhynchites	bicolor	Attela
IRC00025773	Janicki	Julia	WIRC	Shenefelt	R. D.	1959/06/19				Griffith St. Nursery, S. 14 Mi. Ck.	Wood						Merhynchites	bicolor	Attela
IRC00025864	Janicki	Julia	WIRC	Carney	Don	1960/06/23				Campus	Dane						Merhynchites	bicolor	Attela
IRC00025926	Janicki	Julia	WIRC	Schwehr	D	1967/06/27		On rose	Hand	Madison, Arb. Nursery	Dane						Merhynchites	bicolor	Attela
IRC00025927	Schwehr	D	WIRC	Schwehr	D	1967/07/03		On wild rose bloom	Hand	Madison, Dunn's Marsh	Dane						Merhynchites	bicolor	Attela
IRC00025928	Schwehr	D	WIRC	Schwehr	D	1967/07/10				Madison, Greene Prairie	Dane						Merhynchites	bicolor	Attela
IRC00025904	Janicki	Julia	WIRC	Bayer	L. J.	1972/06/30		Ex: Rose	Hand	Arboretum	Dane						Merhynchites	bicolor	Attela
IRC00025902	Janicki	Julia	WIRC	Bayer	L. J.	1972/06/30		Ex: Rose	Hand	Arboretum	Dane						Merhynchites	bicolor	Attela
IRC00025905	Janicki	Julia	WIRC	Bayer	L. J.	1972/06/30		Ex: Rose	Hand	Arboretum	Dane						Merhynchites	bicolor	Attela
IRC00025903	Janicki	Julia	WIRC	Bayer	L. J.	1972/06/30		Ex: Rose	Hand	Arboretum	Dane						Merhynchites	bicolor	Attela
IRC00025882	Baker	J	WIRC	Hall	D.	1974/07/13				Oregon	Dane						Merhynchites	bicolor	Attela
IRC00025941			WIRC			1978/06/25				UW Green Bay	Brown						Merhynchites	bicolor	Attela
IRC00025914	Janicki	Julia	WIRC	Buchli	B	1986/06/15		On Rose	Hand	Nelson Rd., DNR trail west, Deerfield	Dane						Merhynchites	bicolor	Attela
IRC00025913	Janicki	Julia	WIRC	Buchli	B	1986/06/15		On Rose	Hand	Nelson Rd., DNR trail west, Deerfield	Dane						Merhynchites	bicolor	Attela
IRC00025912	Janicki	Julia	WIRC	Buchli	B	1986/06/15		On Rose	Hand	Nelson Rd., DNR trail west, Deerfield	Dane						Merhynchites	bicolor	Attela
IRC00025921	Williams	Andrew H.	WIRC	Williams	Andrew H.	1994/06/25		Mating in flower of Rosa sp, 10 AM, 73F, sunny	Hand	Vale Prairie	Green			3N	8E	23	Merhynchites	bicolor	Attela
IRC00025920	Williams	Andrew H.	WIRC	Williams	Andrew H.	1994/06/25		Mating in flower of Rosa sp, 10 AM, 73F, sunny	Hand	Vale Prairie	Green			3N	8E	23	Merhynchites	bicolor	Attela
IRC00027308	Young	Daniel K.	WDNR			1995/06/19		dry-mesic prairie, study 053/ SNA 139	Sweep net	Muralt Bluff Prairie U:2	Green			3N	8E	36NW	Merhynchites	bicolor	Attela
IRC00025917	Williams	Andrew H.	WIRC	Williams	Andrew H.	1995/06/29		In flowers of rosa sp, 78F, noon, cloudy	Hand	Bush Clover Prairie	Grant			5N	3W	17	Merhynchites	bicolor	Attela
IRC00026107	Willliams	Andrew	WDNR			1995/07/06		DNR study 053	Sweep net	Thomson Prairie U:4	Iowa			6N	5E	24/NE	Merhynchites	bicolor	Attela
IRC00025931	Krauth	S	WIRC	Maxwell	J	1995/07/11		On Rosa sp, oak savanna	Hand	Fort McCoy	Monroe			19N	3W	25	Merhynchites	bicolor	Attela
IRC00027300	Young	Daniel K.	WDNR	Henderson	R. A.	1995/07/11		TNC/DNR study 053	Sweep net	Meffert Prairie	Dane			8N	8E	14SW	Merhynchites	bicolor	Attela
IRC00027306	Williams	A	WDNR			1995/07/11		dry mesic prairie. DNR study053	sweep net	Koch Prairie	Dane			8N	8E	27NE4	Merhynchites	bicolor	Attela
IRC00027307	Williams	A	WDNR			1996/00/00		yellow pan trap in native prairie, summer 1996, DNR study 053	pan trap	Omro Prairie	Winnebago			18N	15E	19NE	Merhynchites	bicolor	Attela
IRC00025918	Williams	Andrew H.	WIRC	Williams	Andrew H.	1996/06/19		1 or 2 seen on leaves of Rosa sp, 65F, cloudy, 10AM	Hand	Bush Clover Prairie	Grant			5N	3W	17	Merhynchites	bicolor	Attela

IRC00027301	Williams	A	WDNR			1996/07/04		sweep net in prairie dropseed. DNR study 053	Sweep net	Klassy Prairie	Green			3N	7E	15	Merhynchites	bicolor	Attela
IRC00027304	Young	Daniel K.	WDNR	Lisken	Antje	1996/07/11		in burned prairie	Sweep net	Westport Drumlin Prairie	Dane			8N	9E	11	Merhynchites	bicolor	Attela
IRC00027305	Maurer	E	WDNR			1996/08/01		from wild rose, dry-mesic prairie, DNR study 053	hand collected	Vale Prairie	Green			3N	8E	23SW4	Merhynchites	bicolor	Attela
IRC00027303	Williams	A	WDNR			1997/07/24		taken from sweep net in native prairie. DNR/TNC study 053	Sweep net	Thousand Rock Pt. Prairie	Iowa			6N	5E	24NE	Merhynchites	bicolor	Attela
IRC00025924	Williams	Andrew H.	WIRC	Williams	Andrew H.	1997/07/24		Male of mating pair in flower of Rosa sp, 7pm, fiar, 70F	Hand	Barnes Prairie, RC01	Racine						Merhynchites	bicolor	Attela
IRC00025929	Janicki	Julia	WIRC	Katovich	K	1998/05/17				1.5 mi W. Lone Rock; LWRSGA -L.R. Unit	Richland						Merhynchites	bicolor	Attela
IRC00025919	Williams	Andrew H.	WIRC	Williams	Andrew H.	1998/06/19		1 of several, some mating, in flowers of Rosa sp, 5PM, fair, 80F		Barnes Prairie	Grant			3N	21	28	Merhynchites	bicolor	Attela
IRC00025930	Janicki	Julia	WIRC	Suter	W.	1998/06/28			Sweep net	E. of Woodworth, Benedict Prairie	Kenosha						Merhynchites	bicolor	Attela
IRC00025922	Williams	Andrew H.	WIRC	Williams	Andrew H.	1998/07/11		Inside flower of Rosa sp., 11AM, sunny,74F	Hand	Muralt Prairie	Green			3N	8E	25	Merhynchites	bicolor	Attela
IRC00027420	Janicki	Julia	CMBC	Brabant	Craig	1999/06/08		from vegetation/flowers on periphery of old sand quarry during the day	hand collected	Ft. McCoy Barrens State Natural Area. ~WDNR	Monroe	43.987193° N	90.694849° W				Merhynchites	bicolor	Attela
IRC00027421	Janicki	Julia	CMBC	Brabant	Craig	1999/06/08		from vegetation/flowers on periphery of old sand quarry during the day	hand collected	Ft. McCoy Barrens State Natural Area. ~WDNR	Monroe	43.987193° N	90.694849° W				Merhynchites	bicolor	Attela
IRC00025925	Janicki	Julia	WIRC	Suter	W.	2000/06/17				E of Woodworth, Benedict Prairie	Kenosha						Merhynchites	bicolor	Attela
IRC00027302	Williams	A	WDNR			2000/06/23		from low-growing rose species. DNR study 053	hand collected	Williams pasture	Iowa			6N	5E	35NWN	Merhynchites	bicolor	Attela
IRC00025923	Williams	Andrew H.	WIRC	Williams	Andrew H.	2000/07/10		On flower of Rosa sp, 10 AM, sunny, 73F	Hand	Hwy 54 & RR ROW Prairie, PG01	Portage			22	23N	R78E	Merhynchites	bicolor	Attela
IRC00025916	Janicki	Julia	WIRC	Brabant	Craig	2001/06/18	2001/06/30	unbaited townsend malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, Southern Unit	Waukesha	42° 52' 21" N	88° 30' 46" W				Merhynchites	bicolor	Attela
IRC00027030	Janicki	Julia	UWO	Adams		2001/06/28				Oshkosh South	Winnebago						Merhynchites	bicolor	Attela
IRC00027031	Janicki	Julia	UWO	Adams		2001/06/28				Oshkosh South	Winnebago						Merhynchites	bicolor	Attela
IRC00027029	Janicki	Julia	UWO	Adams		2001/06/28				Oshkosh South	Winnebago						Merhynchites	bicolor	Attela
IRC00027449	Janicki	Julia	CMBC	Brabant	Craig	2002/06/11	2002/06/24	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Merhynchites	bicolor	Attela
IRC00027450	Janicki	Julia	CMBC	Brabant	Craig	2002/06/11	2002/06/24	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Merhynchites	bicolor	Attela
IRC00027448	Janicki	Julia	CMBC	Brabant	Craig	2002/06/11	2002/06/24	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Merhynchites	bicolor	Attela
IRC00027028	Janicki	Julia	UWO	Anderson	T.	2006/06/13				Oshkosh at River side cemetary	Winnebago						Merhynchites	bicolor	Attela
IRC00027059	Janicki	Julia	UWO	Anderson	Tim	2006/06/13				Oshkosh at riverside cemetary	Winnebago						Merhynchites	bicolor	Attela
IRC00027396	Janicki	Julia	CMBC	Brabant	Craig	2007/07/26		off Rosa sp. in power line right-of-way on a sandy roadside	hand collected	PBEC 2003-47; Midtown Rd E of Kruger Rd, el 991'asi	Burnett	45.831131° N	92.338003° W				Merhynchites	bicolor	Attela
IRC00027397	Janicki	Julia	CMBC	Brabant	Craig	2007/07/26		off Rosa sp. in power line right-of-way on a sandy roadside	hand collected	PBEC 2003-47; Midtown Rd E of Kruger Rd, el 991'asi	Burnett	45.831131° N	92.338003° W				Merhynchites	bicolor	Attela
IRC00025935	Janicki	Julia	WIRC	Evans	M	2009/06/10		On rose buds, back yard, 7:15pm, 73 deg. F, overcast & humid	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025934	Janicki	Julia	WIRC	Evans	M	2009/06/10		On rose buds, back yard, 7:15pm, 73 deg. F, overcast & humid	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025937	Janicki	Julia	WIRC	Evans	M	2009/06/11		On roses	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025936	Janicki	Julia	WIRC	Evans	M	2009/06/11		On roses	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025933	Janicki	Julia	WIRC	Evans	M	2009/06/12		On roses, photo'd	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025932	Janicki	Julia	WIRC	Evans	M	2009/06/12		On roses, photo'd	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025939	Janicki	Julia	WIRC	Evans	M	2010/06/11		On roses in backyard, 6:30pm	Hand	Madison	Dane						Merhynchites	bicolor	Attela

IRC00025940	Janicki	Julia	WIRC	Evans	M	2010/06/11		On roses in backyard, 6:30pm	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00025938	Janicki	Julia	WIRC	Evans	M	2010/06/11		On roses in backyard, 6:30pm	Hand	Madison	Dane						Merhynchites	bicolor	Attela
IRC00027037	Janicki	Julia	WIRC	Evans	M	2011/07/07		flew to rose in backyard	hand collected	Madison	Dane						Merhynchites	bicolor	Attela
IRC00027041	Janicki	Julia	WIRC	Janicki	Julia	2012/06/18		on wild rose	hand collected	UW Arboretum	Dane	43.042896° N	89.424010° W				Merhynchites	bicolor	Attela
IRC00027036	Janicki	Julia	WIRC	Janicki	Julia	2012/06/18		on wild rose	hand collected	UW Arboretum	Dane	43.042896° N	89.424010° W				Merhynchites	bicolor	Attela
IRC00027035	Janicki	Julia	WIRC	Janicki	Julia	2012/06/18		on wild rose	hand collected	UW Arboretum	Dane	43.042896° N	89.424010° W				Merhynchites	bicolor	Attela
IRC00027040	Janicki	Julia	WIRC	Janicki	Julia	2013/06/23		on rose	hand collected	Kettle Moraine Southern Unit	Waukesha	42.875886° N	88.525545° W				Merhynchites	bicolor	Attela
IRC00027038	Janicki	Julia	WIRC	Janicki	Julia	2013/06/23		on rose	hand collected	Kettle Moraine Southern Unit	Waukesha	42.875886° N	88.525545° W				Merhynchites	bicolor	Attela
IRC00027039	Janicki	Julia	WIRC	Janicki	Julia	2013/06/23		on rose	hand collected	Kettle Moraine Southern Unit	Waukesha	42.875886° N	88.525545° W				Merhynchites	bicolor	Attela
IRC00027077			MPM			1897/10/00		before Oct 1897		N/A							Temnocerus	aeratus	Attela
IRC00027078			MPM			1897/10/00		before Oct 1897		N/A							Temnocerus	aeratus	Attela
IRC00025946			WIRC	McNeel	W.	1949/08/23		Collected from non-wilting Q.macrocarpa	Hand collected	N/A	Waupaca						Temnocerus	aeratus	Attela
IRC00025945			WIRC	McNeel	W.	1949/08/23		Collected from non-wilting Quercus alba	Hand collected	N/A	Waupaca						Temnocerus	aeratus	Attela
IRC00025944			WIRC	McNeel	W.	1949/08/26		Collected from non-wilting Q. macrocarpa	Hand collected	N/A	Marquette						Temnocerus	aeratus	Attela
IRC00025942			WIRC	Shenefelt	R. D.	1951/08/09		Collected from non-wilting Q. macrocarpa	Hand collected	2.2 Miles E. of Plover	Portage						Temnocerus	aeratus	Attela
IRC00025943			WIRC	Shenefelt	R. D.	1951/08/09		Collected from non-wilting Q. macrocarpa	Hand collected	2.2 Miles E. of Plover	Portage						Temnocerus	aeratus	Attela
IRC00026515	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2000/08/24	2000/09/12	Flight-intercept trap in dry-mesic northern hardwood forest	Flight-intercept trap	Eau Claire Co. Forest	Eau Claire	44° 41' 06" N	90° 56' 55" W				Temnocerus	aeratus	Attela
IRC00027493	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/15		S	beating	Spread Eagle Barrens SNA	Florence						Temnocerus	aeratus	Attela
IRC00027492	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/15		S	beating	Spread Eagle Barrens SNA	Florence						Temnocerus	aeratus	Attela
IRC00026514	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/16		Beaten from branches of Quercus sp. tree; aspen, oak and Jack pine forest surrounding pine barrnes	Beating	Dubnar Barrens SNA	Marinette	45° 39' 00" N	88° 14' 59" W				Temnocerus	aeratus	Attela
IRC00025949			WIRC	Wickham				Collection of Wm. S. Marshall		Bayfield	Bayfield						Temnocerus	cyanellus	Attela
IRC00025951			WIRC			1898/05/29		Collection of Wm. S. Marshall		N/A	Dane						Temnocerus	cyanellus	Attela
IRC00025950			WIRC			1899/05/30		Collection of Wm. S. Marshall		N/A	Dane						Temnocerus	cyanellus	Attela
IRC00027114			MPM			1911/06/01				Beaver Dam	Dodge						Temnocerus	cyanellus	Attela
IRC00027928	Janicki	Julia	WIRC	Marshall	Wm. S.	1922/07/00				Lake Namakagon	Bayfield						Temnocerus	cyanellus	Attela
IRC00025947	Hamilton	R.	WIRC	Barak	A	1968/05/22				Hull	Portage						Temnocerus	cyanellus	Attela
IRC00025948	Hamilton	R.	WIRC	Barak	A	1968/05/25				Hull	Portage						Temnocerus	cyanellus	Attela
IRC00025953			WIRC			1931/06/23				Wisconsin Rapids	Wood						Temnocerus	perplexus	Attela
IRC00025952	Hamilton	R.	WIRC			1931/06/27				Cranmoor	Wood						Temnocerus	perplexus	Attela
IRC00027063			MPM			1897/10/00		before Oct 1897		N/A							Auletobius	ater	Attela
IRC00027064			MPM			1897/10/00		before Oct 1897		N/A							Auletobius	ater	Attela
IRC00027061			MPM			1897/10/00		before Oct 1897		N/A							Auletobius	ater	Attela

IRC00027062			MPM			1897/10/00		before Oct 1897		N/A							Auletobius	ater	Attela	
IRC00025734	Janicki	Julia	WIRC			1898/06/15		Collection of Wm. S. Marshall		N/A	Dane						Auletobius	ater	Attela	
IRC00025736	Janicki	Julia	WIRC			1898/06/21		Collection of Wm. S. Marshall		N/A	Dane						Auletobius	ater	Attela	
IRC00025735	Janicki	Julia	WIRC			1900/05/24		Collection of Wm. S. Marshall		N/A	Dane						Auletobius	ater	Attela	
IRC00026506	Janicki	Julia	WIRC	Shenefelt	R. D.	1947/07/07				OW Hwy13	Wood						Auletobius	ater	Attela	
IRC00026505	Janicki	Julia	WIRC			1977/06/17				Arena	Iowa	43° 10' N	89° 55' W				Auletobius	ater	Attela	
IRC00026923	Janicki	Julia	WDNR			1996/08/06		to EtOH, sand prairie. DNR study 053	Sweep net	Walking Iron Park	Dane			8N	6E	8NWSE	Auletobius	ater	Attela	
IRC00027398	Janicki	Julia	CMBC	Brabant	Craig	2000/05/29		off leaves of scrub oak in sandy oak barrens, ~68F, cloudy	hand collected	Blue River Sand Barrens ~WDNR elev: 681'asi	Grant	43.195083° N	90.535035° W				Auletobius	ater	Attela	
IRC00027399	Janicki	Julia	CMBC	Brabant	Craig	2001/05/30		collected during day in sand/oak barrens, partly cloudy, ~75F		Blue River Sand Barrens ~WDNR, elev: 681'asi	Grant	43.195083° N	90.535035° W				Auletobius	ater	Attela	
IRC00026504	Janicki	Julia	WIRC	Young	Daniel K.	2009/06/12		ex: foliage Quercus ellipsoidalis E. J. Hill	Hand collected	LWRSGA, Mazomanie Unit	Dane	43.22702° N	89.80288° W				Auletobius	ater	Attela	
IRC00026503	Janicki	Julia	WIRC	Janicki	Julia	2013/06/18		Beating oak	Beating	Blue River Sand Barrens SNA	Grant	43.194086° N	90.533867° W				Auletobius	ater	Attela	
IRC00025738	Janicki	Julia	WIRC			1911/07/20		Wis. Exp. Sta. Ace. No. 222		Cranmoor	Wood						Auletobius	cassandrae	Attela	
IRC00025740	Janicki	Julia	WIRC	Shenefelt	R. D.	1946/09/05		Collected from Pj+ PN+ misc. veg.		NW area	Marinette						Auletobius	cassandrae	Attela	
IRC00025741	Janicki	Julia	WIRC	Shenefelt	R. D.	1946/09/05		Collected from Pj+ PN+ misc. veg.		NW area	Marinette						Auletobius	cassandrae	Attela	
IRC00025739	Janicki	Julia	WIRC	McNeel	W.	1949/08/14		Collected from forest floor	Hand collected	N/A	Jackson						Auletobius	cassandrae	Attela	
IRC00026481	Janicki	Julia	WIRC	Lirsinger	J.	1968/07/22		sweep sample	Sweep net	N/A	Juneau						Auletobius	cassandrae	Attela	
IRC00026483	Janicki	Julia	WIRC			1975/05/12	1975/05/22	Gypsy Moth- M.T.	Malaise Trap	N/A	Bayfield			46N	9W	16	Auletobius	cassandrae	Attela	
IRC00026482	Janicki	Julia	WIRC	Roberts	S. L.	1981/09/04				Cranmoor	Wood						Auletobius	cassandrae	Attela	
IRC00026480	Janicki	Julia	WIRC	Otto	Robert	1995/05/20		Swept in forest understory	Sweep net	5 mi SE Mountain Chute road	Oconto						Auletobius	cassandrae	Attela	
IRC00026479	Janicki	Julia	WIRC	Kirk	Kathyrn	1996/07/30		lupines. WDNR-BER	Sweep net	Staffon Rd.	Jackson			22N	2W	SENW34	Auletobius	cassandrae	Attela	
IRC00026478	Janicki	Julia	WIRC	Kirk	Kathyrn	1996/07/30		lupines. WDNR-BER	Sweep net	Staffon Rd.	Jackson			22N	2W	SENW34	Auletobius	cassandrae	Attela	
IRC00026477	Janicki	Julia	WIRC	Kirk	Kathyrn	1996/07/31		pan trap, grass under young pines, WDNR-BER	pan trap	West Castle Mound	Jackson			21N	3W	NWNW2	Auletobius	cassandrae	Attela	
IRC00026485	Janicki	Julia	WIRC	Kirk	Kathyrn	1997/09/06		wetland habitat; WDNR-End. Res.		Black River SF	Jackson						Auletobius	cassandrae	Attela	
IRC00026484	Janicki	Julia	WIRC	Kirk	Kathyrn	1997/09/08		Pine/oak barrens; Dike 17 W.A. ; WDNR-End Res.		Black River SF	Jackson			21N	2W	2SE12	Auletobius	cassandrae	Attela	
IRC00026489	Janicki	Julia	WIRC	Janicki	Julia	2012/05/23		Sweeping marshy vegetation	Sweep net	Moquah barrens SNA	Bayfield	46.624503° N	91.209213° W				Auletobius	cassandrae	Attela	
IRC00026490	Janicki	Julia	WIRC	Janicki	Julia	2012/05/23		Sweeping marshy vegetation	Sweep net	Moquah barrens SNA	Bayfield	46.624503° N	91.209213° W				Auletobius	cassandrae	Attela	
IRC00026491	Janicki	Julia	WIRC	Janicki	Julia	2012/06/23		Sweeping marshy barren with many semi-aquatic to aquatic vegetation	Sweep net	Within Chequamegon SP, Moquon auto tour 1	Bayfield	46° 37' 36" N	91° 12' 35" W				Auletobius	cassandrae	Attela	
IRC00026493	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Sweeping Comptonia peregrina	Sweep net	Dunbar Barrens SNA	Marinette	45.658935° N	88.255000° W				Auletobius	cassandrae	Attela	
IRC00026492	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Sweeping Comptonia peregrina	Sweep net	Dunbar Barrens SNA	Marinette	45.658935° N	88.255000° W				Auletobius	cassandrae	Attela	
IRC00026494	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Sweeping Comptonia peregrina	Sweep net	Dunbar Barrens SNA	Marinette	45.658935° N	88.255000° W				Auletobius	cassandrae	Attela	
IRC00026496	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Sweeping Comptonia peregrina	Sweep net	Dunbar Barrens SNA	Marinette	45.658935° N	88.255000° W				Auletobius	cassandrae	Attela	
IRC00026499	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Sweeping Comptonia peregrina	Sweep net	Road to Spread Eagle Barrens	Florence	45.817430° N	88.167477° W				Auletobius	cassandrae	Attela	

IRC00026498	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Sweeping Comptonia peregrina	Sweep net	Road to Spread Eagle Barrens	Florence	45.817430° N	88.167477° W				Auletobius	cassandrae	Attela
IRC00026495	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Sweeping Comptonia peregrina	Sweep net	Dunbar Barrens SNA	Marinette	45.658935° N	88.255000° W				Auletobius	cassandrae	Attela
IRC00026497	Janicki	Julia	WIRC	Janicki	Julia	2013/05/16		Sweeping Comptonia peregrina	Sweep net	Road to Spread Eagle Barrens	Florence	45.817430° N	88.167477° W				Auletobius	cassandrae	Attela
IRC00026500	Janicki	Julia	WIRC	Janicki	Julia	2013/06/01		Sweeping Comptonia peregrine	Sweep net	Navirino State Wildlife Area	Shawano	44.676913° N	88.515587° W				Auletobius	cassandrae	Attela
IRC00026488	Janicki	Julia	WIRC	Janicki	Julia	2013/06/28		Sweeping oak-pine barren with sweet fern and prairie grasses	Sweep net	Navarino State Wildlife Area	Shawano	44.676913° N	88.515587° W				Auletobius	cassandrae	Attela
IRC00026487	Janicki	Julia	WIRC	Janicki	Julia	2013/08/07		Sweeping oak-pine barren with sweet fern and prairie grasses	Sweep net	Navarino Wildlife Area	Shawano	44.676913° N	88.515387° W				Auletobius	cassandrae	Attela
IRC00026486	Janicki	Julia	WIRC	Janicki	Julia	2013/08/07		Sweeping oak-pine barren with sweet fern and prairie grasses	Sweep net	Navarino Wildlife Area	Shawano	44.676913° N	88.515387° W				Auletobius	cassandrae	Attela
IRC00025732	Hamilton	R.	WIRC					Collection of Wm. S. Marshall		N/A	Dane						Pterocolus	ovatus	Attela
IRC00025731	Hamilton	R.	WIRC			1898/06/01		Collection of Wm. S. Marshall		N/A	Dane						Pterocolus	ovatus	Attela
IRC00027178			MPM			1911/06/12				Beaver Dam	Dodge						Pterocolus	ovatus	Attela
IRC00027179			MPM			1911/10/00		before Oct 1911		Beaver Dam	Dodge						Pterocolus	ovatus	Attela
IRC00027180			MPM			1911/10/00		before Oct 1911		Beaver Dam	Dodge						Pterocolus	ovatus	Attela
IRC00025730	Hamilton	R.	WIRC	McNeel	W.	1949/07/28		collected from forest floor	hand collected	N/A	Trempealeau						Pterocolus	ovatus	Attela
IRC00025733	Krauth	S	WIRC	Maxwell	J	1997/08/01	1997/08/05	Collected in flight intercept trap in oak savannah	Flight intercept trap	Fort McCoy, S.point, 1 mi W. of Lafayette Pass	Monroe						Pterocolus	ovatus	Attela
IRC00027400	Janicki	Julia	CMBC	Gruber	Jeffrey P.	2000/06/17	2000/06/25	unbaited flight intercept trap in sandy oak barrens	flight intercept trap	Blue River Sand Barrens ~WDNR, elev: 681'asi	Grant	43.195083° N	90.535035° W				Pterocolus	ovatus	Attela
IRC00027445	Janicki	Julia	CMBC	Brabant	Craig	2002/05/31	2002/06/11	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S.Unit	Waukesha	42.872520° N	88.513994° W				Pterocolus	ovatus	Attela
IRC00027438	Janicki	Julia	CMBC	Brabant	Craig	2002/05/31	2002/06/11	unbaited Townes malaise trap in sandy oak barrens	malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Pterocolus	ovatus	Attela
IRC00027452	Janicki	Julia	CMBC	Brabant	Craig	2002/06/11	2002/06/24	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine State Forest, S. Unit	Waukesha	42.872520° N	88.513994° W				Pterocolus	ovatus	Attela
IRC00027454	Janicki	Julia	CMBC	Brabant	Craig	2003/08/14	2003/08/21	unbaited Townes malaise trap in sandy trail in oak-dominated northern dry forest (site#2)	Malaise trap	9 mi S. of Adams-Frndshp Quincy Bluff	Adams	43.86511° N	89.87704° W				Pterocolus	ovatus	Attela
IRC00027453	Janicki	Julia	CMBC	Brabant	Craig	2003/08/14	2003/08/21	unbaited Townes malaise trap in sandy trail in oak-dominated northern dry forest (site#2)	Malaise trap	9 mi S. of Adams-Frndshp Quincy Bluff	Adams	43.86511° N	89.87704° W				Pterocolus	ovatus	Attela
IRC00026501	Janicki	Julia	WIRC	Arevalo	R.	2009/09/06		Sweep net along road side	Sweep net	Devils Lake State Park	Sauk	43° 24' 11" N	89° 44' 49" W				Pterocolus	ovatus	Attela
IRC00027485	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/06/08		Beaten from branches of Quercus sp. tree, junction of prairie grassland and mixed hardwood/conifer forest	Beating	Kettle Moraine SF Southern Unit	Waukesha	42° 52' 26" N	88° 30' 46" W				Pterocolus	ovatus	Attela
IRC00027486	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/06/08		Beaten from branches of Quercus sp. tree, junction of prairie grassland and mixed hardwood/conifer forest	Beating	Kettle Moraine SF Southern Unit	Waukesha	42° 52' 26" N	88° 30' 46" W				Pterocolus	ovatus	Attela
IRC00027487	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/06/08		Beaten from branches of Quercus sp. tree, junction of prairie grassland and mixed hardwood/conifer forest	Beating	Kettle Moraine SF Southern Unit	Waukesha	42° 52' 26" N	88° 30' 46" W				Pterocolus	ovatus	Attela
IRC00026502	Janicki	Julia	WIRC	Janicki	Julia	2013/06/18		On leaf of oak scrub with Homeolabus analis	Hand collected	Spring Green Preserve	Sauk	43.115404° N	90.034963° W				Pterocolus	ovatus	Attela
IRC00026576	Janicki	Julia	WIRC	Young	Daniel K.			on ead Quercus	hand collected	Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00025521	Janicki	Julia	WIRC							UW Arboretum	Dane						Arrhenodes	minutus	Brent
IRC00025443	Janicki	Julia	WIRC	McNeel	W.			collected from non-wilted quercus alba	Hand collected	N/A	Rock						Arrhenodes	minutus	Brent
IRC00025511	Janicki	Julia	WIRC	Haas	G				Light trap	N/A	Dane						Arrhenodes	minutus	Brent
IRC00025519	Janicki	Julia	WIRC							UW Arboretum	Dane						Arrhenodes	minutus	Brent
IRC00026600	Janicki	Julia	WIRC	Young	Daniel K.		2010/06/01	in old Populus deadfall	Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87964° W				Arrhenodes	minutus	Brent
IRC00025437	Janicki	Julia	WIRC	McNeel	W.			Collected from wilted oak under bark		N/A	Grant						Arrhenodes	minutus	Brent

IRC00025498	Janicki	Julia	WIRC	Sanders	J. G.			white oak	hand collected	Madison	Dane						Arrhenodes	minutus	Brent
IRC00025438	Janicki	Julia	WIRC	McNeel	W.			Collected from wilted oak under bark		N/A	Grant						Arrhenodes	minutus	Brent
IRC00027931	Janicki	Julia	UWEC	Hansen	T					Bloomer	Chippewa						Arrhenodes	minutus	Brent
IRC00025432	Janicki	Julia	WIRC	McNeel	W.			collected from non-wilting quercus sorealis	hand collected	Waukesha	Waukesha						Arrhenodes	minutus	Brent
IRC00025458	Janicki	Julia	WIRC	Rocheleau	T					Rocky Run Scientific Area 220	Columbia						Arrhenodes	minutus	Brent
IRC00025520	Janicki	Julia	WIRC							UW Arboretum	Dane						Arrhenodes	minutus	Brent
IRC00025408	Kissinger	David	WIRC					Collection of Wm. S. Marshall		Wisconsin							Arrhenodes	minutus	Brent
IRC00025420	Janicki	Julia	WIRC	Shenefelt	R. D.					Griffith st Nursery	Wood						Arrhenodes	minutus	Brent
IRC00026603	Janicki	Julia	WIRC	Young	Daniel K.			in oak-aspen savanna	Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Arrhenodes	minutus	Brent
IRC00026580	Janicki	Julia	WIRC	Arango	Rachel		2006/06/17		Lindgren trap	Browntown Oak Forest	Green						Arrhenodes	minutus	Brent
IRC00025423	Shenefelt	R. D.	WIRC	Shenefelt	R. D.					Griffith st Nursery	Wood						Arrhenodes	minutus	Brent
IRC00025500	Janicki	Julia	WIRC			1111/02/28				Evansville	Rock						Arrhenodes	minutus	Brent
IRC00025507	Janicki	Julia	WIRC			1111/06/00				Madison	Dane						Arrhenodes	minutus	Brent
IRC00025505	Janicki	Julia	WIRC			1111/06/00				Madison	Dane						Arrhenodes	minutus	Brent
IRC00025506	Janicki	Julia	WIRC			1111/06/00				Madison	Dane						Arrhenodes	minutus	Brent
IRC00027151			MPM			1893/03/07				Beaver Dam	Dodge						Arrhenodes	minutus	Brent
IRC00027149			MPM			1893/03/07				Beaver Dam	Dodge						Arrhenodes	minutus	Brent
IRC00027150			MPM			1893/03/07				Beaver Dam	Dodge						Arrhenodes	minutus	Brent
IRC00027152			MPM			1893/03/07				Beaver Dam	Dodge						Arrhenodes	minutus	Brent
IRC00027156			MPM			1901/06/17				Beaver Dam	Dodge						Arrhenodes	minutus	Brent
IRC00027153			MPM			1901/06/17				Beaver Dam	Dodge						Arrhenodes	minutus	Brent
IRC00027154			MPM			1901/06/17				Beaver Dam	Dodge						Arrhenodes	minutus	Brent
IRC00027155			MPM			1901/06/17				Beaver Dam	Dodge						Arrhenodes	minutus	Brent
IRC00027162			MPM			1907/07/07				Milwaukee	Milwaukee						Arrhenodes	minutus	Brent
IRC00025493	Janicki	Julia	WIRC	Sanders	J. G.	1912/07/15		white oak		Madison							Arrhenodes	minutus	Brent
IRC00025492	Janicki	Julia	WIRC	Sanders	J. G.	1912/07/15		white oak		Madison							Arrhenodes	minutus	Brent
IRC00027157			MPM			1915/08/06				Beaver Dam	Dodge						Arrhenodes	minutus	Brent
IRC00027158			MPM			1915/08/06				Beaver Dam	Dodge						Arrhenodes	minutus	Brent
IRC00025497	Janicki	Julia	WIRC	Harley	H	1916/08/05				Madison	Dane						Arrhenodes	minutus	Brent
IRC00025518	Janicki	Julia	WIRC			1916/08/05				Madison	Dane						Arrhenodes	minutus	Brent
IRC00025494	Janicki	Julia	WIRC	Harley	H	1916/08/05											Arrhenodes	minutus	Brent
IRC00025496	Janicki	Julia	WIRC	Harley	H	1916/08/05				Madison	Dane						Arrhenodes	minutus	Brent

IRC00025513	Janicki	Julia	WIRC	Pea	James	1917/06/07			Leaf litter	Madison	Dane						Arrhenodes	minutus	Brent
IRC00025495	Janicki	Julia	WIRC	Harley	H	1918/06/15				Amery	Polk						Arrhenodes	minutus	Brent
IRC00025534	Dodge	H	WIRC	Harley	H	1918/07/20				Loraine							Arrhenodes	minutus	Brent
IRC00025533	Dodge	H	WIRC	Harley	H	1918/07/27				Loraine							Arrhenodes	minutus	Brent
IRC00025532	Dodge	H	WIRC			1925/05/15		student collector		Madison	Dane						Arrhenodes	minutus	Brent
IRC00027164			MPM			1925/06/30				Lake Genessee	Waukesha						Arrhenodes	minutus	Brent
IRC00027160			MPM			1928/08/16				Beaver Dam	Dodge						Arrhenodes	minutus	Brent
IRC00027159			MPM			1928/08/16				Beaver Dam	Dodge						Arrhenodes	minutus	Brent
IRC00025499	Dodge	H	WIRC			1929/06/04				Madison	Dane						Arrhenodes	minutus	Brent
IRC00027161			MPM			1931/07/15				Army Lake, near East Troy	Walworth						Arrhenodes	minutus	Brent
IRC00025485	Janicki	Julia	WIRC			1932/06/12				Madison	Dane						Arrhenodes	minutus	Brent
IRC00025504	Janicki	Julia	WIRC			1939/05/00				Madison	Dane						Arrhenodes	minutus	Brent
IRC00025502	Janicki	Julia	WIRC			1941/05/00				Madison	Dane						Arrhenodes	minutus	Brent
IRC00025484	Janicki	Julia	WIRC			1941/05/00				Madison	Dane						Arrhenodes	minutus	Brent
IRC00025501	Janicki	Julia	WIRC			1941/06/00				Madison	Dane						Arrhenodes	minutus	Brent
IRC00025510	Janicki	Julia	WIRC			1941/06/00				Madison	Dane						Arrhenodes	minutus	Brent
IRC00025503	Janicki	Julia	WIRC			1941/06/00				Madison	Dane						Arrhenodes	minutus	Brent
IRC00025416	Shenefelt	R. D.	WIRC	Shenefelt	R. D.	1947/06/29				Griffith st Nursery	Wood						Arrhenodes	minutus	Brent
IRC00025418	Janicki	Julia	WIRC	Shenefelt	R. D.	1947/07/25				Griffith st Nursery	Wood						Arrhenodes	minutus	Brent
IRC00025419	Janicki	Julia	WIRC	Shenefelt	R. D.	1947/07/28				Griffith st Nursery	Wood						Arrhenodes	minutus	Brent
IRC00025424	Janicki	Julia	WIRC	Shenefelt	R. D.	1947/08/04				Griffith st Nursery	Wood						Arrhenodes	minutus	Brent
IRC00025422	Shenefelt	R. D.	WIRC	Shenefelt	R. D.	1947/08/12				Griffith st Nursery	Wood						Arrhenodes	minutus	Brent
IRC00025491	Schwehr	D	WIRC	Zimmerman	J.	1948/06/26				2114 Van Hise Ave., Madison	Dane						Arrhenodes	minutus	Brent
IRC00025486	Janicki	Julia	WIRC	Zimmerman	J.	1948/06/28				2114 Van Hise Ave.	Dane						Arrhenodes	minutus	Brent
IRC00025428	Janicki	Julia	WIRC	Underwood	N	1949/00/00		in disintegrating basswood, emerged before 06/19/1950	reared	N/A	Fond du Lac						Arrhenodes	minutus	Brent
IRC00025427	Janicki	Julia	WIRC	Underwood	N	1949/00/00		in disintegrating basswood, emerged before 06/19/1950	reared	N/A	Fond du Lac						Arrhenodes	minutus	Brent
IRC00025429	Janicki	Julia	WIRC	Underwood	N	1949/00/00		in disintegrating basswood, emerged before 06/19/1950	reared	N/A	Fond du Lac						Arrhenodes	minutus	Brent
IRC00025430	Janicki	Julia	WIRC	Underwood	N	1949/00/00		in disintegrating basswood, emerged before 06/19/1950	reared	N/A	Fond du Lac						Arrhenodes	minutus	Brent
IRC00025431	Janicki	Julia	WIRC	Underwood	N	1949/00/00		in disintegrating basswood, emerged before 06/19/1950	reared	N/A	Fond du Lac						Arrhenodes	minutus	Brent
IRC00025426	Janicki	Julia	WIRC	Underwood	N	1949/00/00		in disintegrating basswood, emerged before 06/19/1950	reared	N/A	Fond du Lac						Arrhenodes	minutus	Brent
IRC00025425	Janicki	Julia	WIRC	Underwood	N	1949/00/00		in disintegrating basswood, emerged before 06/19/1950	reared	N/A	Fond du Lac						Arrhenodes	minutus	Brent
IRC00025439	Janicki	Julia	WIRC	McNeel	W.	1949/06/02		Collected from Hicova orata	Hand collected	No.4	Grant						Arrhenodes	minutus	Brent

IRC00025415	Janicki	Julia	WIRC	Shenefelt	R. D.	1949/06/02				Griffith st Nursery	Wood						Arrhenodes	minutus	Brent
IRC00025413	Janicki	Julia	WIRC	Shenefelt	R. D.	1949/06/17				Griffith st Nursery	Wood						Arrhenodes	minutus	Brent
IRC00025417	Janicki	Julia	WIRC	Shenefelt	R. D.	1949/07/02				Griffith st Nursery	Wood						Arrhenodes	minutus	Brent
IRC00025433	Janicki	Julia	WIRC	McNeel	W.	1949/08/02		Collected from under bark of wilted oak	hand collected	No. 16	Pierce						Arrhenodes	minutus	Brent
IRC00025436	Janicki	Julia	WIRC	McNeel	W.	1949/08/02		Collected from under bark of wilted oak	hand collected	No. 16	Pierce						Arrhenodes	minutus	Brent
IRC00025434	Janicki	Julia	WIRC	McNeel	W.	1949/08/02		Collected from under bark of wilted oak	hand collected	No. 16	Pierce						Arrhenodes	minutus	Brent
IRC00025435	Janicki	Julia	WIRC	McNeel	W.	1949/08/02		Collected from under bark of wilted oak	hand collected	No. 16	Pierce						Arrhenodes	minutus	Brent
IRC00025414	Janicki	Julia	WIRC	Shenefelt	R. D.	1950/06/16				Griffith st Nursery	Wood						Arrhenodes	minutus	Brent
IRC00025421	Janicki	Julia	WIRC			1951/06/29				Griffith st Nursery	Wood						Arrhenodes	minutus	Brent
IRC00025457	Janicki	Julia	WIRC	McMallen	L.	1951/08/19		collected from non-wilting dead Q.ellipsoides	hand collected	New Rome	Adams						Arrhenodes	minutus	Brent
IRC00025456	Janicki	Julia	WIRC	McMallen	L.	1951/08/19		collected from non-wilting dead Q.ellipsoides	hand collected	New Rome	Adams						Arrhenodes	minutus	Brent
IRC00025509	Janicki	Julia	WIRC			1953/06/11				N/A	Dane						Arrhenodes	minutus	Brent
IRC00025523	Janicki	Julia	WIRC			1960/07/23		elm tree, light trap	light trap	Middleton	Dane						Arrhenodes	minutus	Brent
IRC00025517	Janicki	Julia	WIRC			1960/07/23		elm tree, light trap	light trap	Middleton	Dane						Arrhenodes	minutus	Brent
IRC00025490	Janicki	Julia	WIRC	Zimmerman	J.	1962/06/25		On log copulating	hand collected	Verona, Madison School Forest	Dane						Arrhenodes	minutus	Brent
IRC00025488	Janicki	Julia	WIRC	Zimmerman	J.	1962/06/25		on log	hand collected	Verona, Madison School Forest	Dane						Arrhenodes	minutus	Brent
IRC00025489	Janicki	Julia	WIRC	Zimmerman	J.	1962/06/25		On log copulating	hand collected	Verona, Madison School Forest	Dane						Arrhenodes	minutus	Brent
IRC00025524	Janicki	Julia	WIRC			1964/06/08				Platteville	Grant						Arrhenodes	minutus	Brent
IRC00025508	Janicki	Julia	WIRC	Medler	J. T.	1966/07/04				UW Arboretum	Dane						Arrhenodes	minutus	Brent
IRC00025487	Janicki	Julia	WIRC	Zimmerman	J.	1966/07/05				UW Arboretum low prairie	Dane						Arrhenodes	minutus	Brent
IRC00025448	Janicki	Julia	WIRC			1972/05/00		Ex:Firewood		Monroe	Green						Arrhenodes	minutus	Brent
IRC00025447	Janicki	Julia	WIRC			1972/05/00		Ex:Firewood		Monroe	Green						Arrhenodes	minutus	Brent
IRC00025463	Janicki	Julia	WIRC	Stevens	Jim	1972/06/13		North slope oak forest		Spring coulee near Genoa	Vernon						Arrhenodes	minutus	Brent
IRC00025464	Janicki	Julia	WIRC	Shapas	Ted	1972/11/29				Madison	Dane						Arrhenodes	minutus	Brent
IRC00025522	Janicki	Julia	WIRC	Shapas	Ted	1972/11/29				Madison	Dane						Arrhenodes	minutus	Brent
IRC00025449	Krauth	Steve	WIRC			1976/06/07	1976/06/14	Gypsy Moth M.T.		N/A	Grant			6N	26W	17	Arrhenodes	minutus	Brent
IRC00025450	Janicki	Julia	WIRC			1976/06/07	1976/06/14	Gypsy Moth M.T.		N/A	Grant			6N	26W	17	Arrhenodes	minutus	Brent
IRC00025460	Janicki	Julia	WIRC	Maxwell	Judith A.	1976/06/21		on oak logs at road side of TARP area, oak savannah	hand collected	Fort McCoy, 1 mi s of Pike's Peak							Arrhenodes	minutus	Brent
IRC00025442	Janicki	Julia	WIRC			1976/06/23	1976/06/30	Gypsy Moth M.T.		N/A	Rock			4N	13E	25	Arrhenodes	minutus	Brent
IRC00025441	Janicki	Julia	WIRC			1977/06/27	1977/07/03	Gypsy Moth MT		N/A	Jackson			21N	4W	533	Arrhenodes	minutus	Brent
IRC00025444	Janicki	Julia	WIRC			1978/02/27		Quercus velutina, gypsy moth project 780004		N/A	Juneau			14N	6E	32	Arrhenodes	minutus	Brent
IRC00026614	Janicki	Julia	WIRC	Suter	W.	1978/06/09		u/ bark, oak	hand collected	Brighton	Kenosha						Arrhenodes	minutus	Brent

IRC00027163			MPM			1979/04/20				Greenfield, found in apt.	Milwaukee						Arrhenodes	minutus	Brent
IRC00027165			MPM			1980/05/30				2.9 mi W. Spring Green on Kennedy rd.	Sauk						Arrhenodes	minutus	Brent
IRC00025525	Janicki	Julia	WIRC	Hainze	J	1981/07/11				Palmyra	Jefferson						Arrhenodes	minutus	Brent
IRC00025512	Janicki	Julia	WIRC	Bentz	J	1981/08/31				Pine Bluff	Dane						Arrhenodes	minutus	Brent
IRC00025514	Janicki	Julia	WIRC	Drilias	M	1981/10/14				Madison	Dane						Arrhenodes	minutus	Brent
IRC00026563	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/02				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026564	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/02				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026562	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/02				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026561	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/02				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026566	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/03				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026567	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/03				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026565	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/03				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026571	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/12				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026573	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/12				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026572	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/12				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026575	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/13	1984/07/16			Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026569	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/18				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026568	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/18				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026570	Janicki	Julia	WIRC	Young	Daniel K.	1984/07/25				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026574	Janicki	Julia	WIRC	Young	Daniel K.	1984/08/07				Baxter's Hollow	Sauk			11N	6E	32	Arrhenodes	minutus	Brent
IRC00026577	Janicki	Julia	WIRC	Young	Daniel K.	1985/06/05				Pine Hollow	Sauk			10W	5E	4	Arrhenodes	minutus	Brent
IRC00025483	Janicki	Julia	WIRC	Lieber	K.	1986/06/02	1986/06/06			UW Arboretum	Dane						Arrhenodes	minutus	Brent
IRC00025531	Janicki	Julia	WIRC	Miller	Scott	1987/07/02		Found on cut wood	hand collected	Leopold Memorial Reserve	Sauk						Arrhenodes	minutus	Brent
IRC00025409	Kissinger	David	WIRC	Buchli	B	1988/05/28			Black light trap	Madison rd, DNR Woods, Deerfield	Dane						Arrhenodes	minutus	Brent
IRC00025410	Kissinger	David	WIRC	Buchli	B	1988/06/24			Black light trap	Hwy 12 and 18, Hansen Woods, Deerfield	Dane						Arrhenodes	minutus	Brent
IRC00025411	Kissinger	David	WIRC	Goodman	L	1988/07/13		under bark of Quercus spp., Coleman cabin wood pile	hand collected	Leopold Reserve	Sauk						Arrhenodes	minutus	Brent
IRC00025412	Kissinger	David	WIRC	Goodman	L	1988/07/13		under bark of Quercus spp., Coleman cabin wood pile	hand collected	Leopold Reserve	Sauk						Arrhenodes	minutus	Brent
IRC00025516	Janicki	Julia	WIRC	Katovich	Kerry	1989/06/18		Taken from freshly fallen oak	hand collected	UW Arboretum	Dane						Arrhenodes	minutus	Brent
IRC00025515	Janicki	Julia	WIRC	Katovich	Kerry	1989/06/18		Taken from freshly fallen oak	hand collected	UW Arboretum	Dane						Arrhenodes	minutus	Brent
IRC00025462	Janicki	Julia	WIRC	Rocheleau	T	1992/06/24				Dewey State Park	Grant						Arrhenodes	minutus	Brent
IRC00025527	Janicki	Julia	WIRC	Young	Daniel K.	1993/10/02				Lower Wisconsin River Wildlife Area 3 mi NW Mazomanie	Dane						Arrhenodes	minutus	Brent
IRC00025529	Janicki	Julia	WIRC	Young	Daniel K.	1993/10/02				Lower Wisconsin River Wildlife Area 3 mi NW Mazomanie	Dane						Arrhenodes	minutus	Brent

IRC00025530	Janicki	Julia	WIRC	Young	Daniel K.	1993/10/02				Lower Wisconsin River Wildlife Area 3 mi NW Mazomanie	Dane						Arrhenodes	minutus	Brent
IRC00025528	Janicki	Julia	WIRC	Young	Daniel K.	1993/10/02				Lower Wisconsin River Wildlife Area 3 mi NW Mazomanie	Dane						Arrhenodes	minutus	Brent
IRC00025481	Janicki	Julia	WIRC	Otto	Robert	1994/07/16		collected on oak log	hand collected	Madison, Picnic Point	Dane						Arrhenodes	minutus	Brent
IRC00025482	Janicki	Julia	WIRC	Katovich	Kerry	1995/04/05		Under bark of dying quercus velutina, 3pm, sunny, 63F	hand collected	Mazomanie public hunting ground	Dane			9N	6E	29	Arrhenodes	minutus	Brent
IRC00025467	Janicki	Julia	WIRC	Otto	Robert	1995/06/01		Collected on oak log	hand collected	Madison, UW campus	Dane						Arrhenodes	minutus	Brent
IRC00025465	Janicki	Julia	WIRC	Otto	Robert	1995/06/01		Collected on oak log	hand collected	Madison, UW campus	Dane						Arrhenodes	minutus	Brent
IRC00025466	Janicki	Julia	WIRC	Otto	Robert	1995/06/01		Collected on oak log	hand collected	Madison, UW campus	Dane						Arrhenodes	minutus	Brent
IRC00025480	Janicki	Julia	WIRC	Otto	Robert	1995/06/04		Collected on a log	hand collected	Madison, UW campus	Dane						Arrhenodes	minutus	Brent
IRC00025472	Janicki	Julia	WIRC	Otto	Robert	1995/06/06		collected on oak log	hand collected	Madison, Picnic Point	Dane						Arrhenodes	minutus	Brent
IRC00025473	Janicki	Julia	WIRC	Otto	Robert	1995/06/06		collected on oak log	hand collected	Madison, Picnic Point	Dane						Arrhenodes	minutus	Brent
IRC00025468	Janicki	Julia	WIRC	Otto	Robert	1995/06/06		collected on oak log	hand collected	Madison, Picnic Point	Dane						Arrhenodes	minutus	Brent
IRC00025469	Janicki	Julia	WIRC	Otto	Robert	1995/06/06		collected on oak log	hand collected	Madison, Picnic Point	Dane						Arrhenodes	minutus	Brent
IRC00025477	Janicki	Julia	WIRC	Otto	Robert	1995/06/06		collected on oak log	hand collected	Madison, Picnic Point	Dane						Arrhenodes	minutus	Brent
IRC00025478	Janicki	Julia	WIRC	Otto	Robert	1995/06/06		collected on oak log	hand collected	Madison, Picnic Point	Dane						Arrhenodes	minutus	Brent
IRC00025474	Janicki	Julia	WIRC	Otto	Robert	1995/06/06		collected on oak log	hand collected	Madison, Picnic Point	Dane						Arrhenodes	minutus	Brent
IRC00025476	Janicki	Julia	WIRC	Otto	Robert	1995/06/06		collected on oak log	hand collected	Madison, Picnic Point	Dane						Arrhenodes	minutus	Brent
IRC00025479	Janicki	Julia	WIRC	Otto	Robert	1995/06/06		collected on oak log	hand collected	Madison, Picnic Point	Dane						Arrhenodes	minutus	Brent
IRC00025471	Janicki	Julia	WIRC	Otto	Robert	1995/06/06		collected on oak log	hand collected	Madison, Picnic Point	Dane						Arrhenodes	minutus	Brent
IRC00025475	Janicki	Julia	WIRC	Otto	Robert	1995/06/06		collected on oak log	hand collected	Madison, Picnic Point	Dane						Arrhenodes	minutus	Brent
IRC00025470	Janicki	Julia	WIRC	Otto	Robert	1995/06/06		collected on oak log	hand collected	Madison, Picnic Point	Dane						Arrhenodes	minutus	Brent
IRC00027282	Krauth	S	WDNR	Henderson	R. A.	1995/06/22		taken at night at light in oak savannah	at light	N/A	Dane			6N	8E	7,SW1/4	Arrhenodes	minutus	Brent
IRC00025459	Katovich	Kerry	WIRC	Maxwell	Judith A.	1995/08/01		under bark of dead Quercus spp., oak savannah		Fort McCoy McCreddens Pass	Adams						Arrhenodes	minutus	Brent
IRC00009786	Young	Daniel		Pope	Katy	1996/07/01			Flight Intercept trap #0309	Necedah National Wildlife Refuge	Juneau		0.0 E				Arrhenodes	minutus	Brent
IRC00026589	Janicki	Julia	WIRC	Young	Daniel K.	1997/07/02				Hemlock Draw	Sauk						Arrhenodes	minutus	Brent
IRC00026588	Janicki	Julia	WIRC	Young	Daniel K.	1997/07/02				Hemlock Draw	Sauk						Arrhenodes	minutus	Brent
IRC00026590	Janicki	Julia	WIRC	Young	Daniel K.	1997/07/02				Hemlock Draw	Sauk						Arrhenodes	minutus	Brent
IRC00027362	Janicki	Julia	CMBC	Dunford	James C.	1998/05/19		at night on standing dead oak sp. with first layer of bark removed	hand collected	LWSR- Lone Rock Unit	Richland	43.193612° N	89.238961° W				Arrhenodes	minutus	Brent
IRC00027287	Young	Daniel K.	WDNR			1998/05/20		collected from black oak logs, DNR study 053	hand collected	Page Creek	Marquette			15N	9E	22	Arrhenodes	minutus	Brent
IRC00027291	Young	Daniel K.	WDNR			1998/05/20		collected from black oak logs, DNR study 053	hand collected	Page Creek	Marquette			15N	9E	22	Arrhenodes	minutus	Brent
IRC00027293	Young	Daniel K.	WDNR			1998/05/20		collected from black oak logs, DNR study 053	hand collected	Page Creek	Marquette			15N	9E	22	Arrhenodes	minutus	Brent
IRC00027290	Young	Daniel K.	WDNR			1998/05/20		collected from black oak logs, DNR study 053	hand collected	Page Creek	Marquette			15N	9E	22	Arrhenodes	minutus	Brent
IRC00027288	Young	Daniel K.	WDNR			1998/05/20		collected from black oak logs, DNR study 053	hand collected	Page Creek	Marquette			15N	9E	22	Arrhenodes	minutus	Brent

IRC00027289	Young	Daniel K.	WDNR			1998/05/20		collected from black oak logs, DNR study 053	hand collected	Page Creek	Marquette			15N	9E	22	Arrhenodes	minutus	Brent
IRC00027294	Young	Daniel K.	WDNR			1998/05/20		collected from black oak logs, DNR study 053	hand collected	Page Creek	Marquette			15N	9E	22	Arrhenodes	minutus	Brent
IRC00027284	Young	Daniel K.	WDNR			1998/05/20		collected from black oak logs, DNR study 053	hand collected	Page Creek	Marquette			15N	9E	22	Arrhenodes	minutus	Brent
IRC00027286	Young	Daniel K.	WDNR			1998/05/20		collected from black oak logs, DNR study 053	hand collected	Page Creek	Marquette			15N	9E	22	Arrhenodes	minutus	Brent
IRC00027292	Young	Daniel K.	WDNR			1998/05/20		collected from black oak logs, DNR study 053	hand collected	Page Creek	Marquette			15N	9E	22	Arrhenodes	minutus	Brent
IRC00027285	Young	Daniel K.	WDNR			1998/05/20		collected from black oak logs, DNR study 053	hand collected	Page Creek	Marquette			15N	9E	22	Arrhenodes	minutus	Brent
IRC00025451	Janicki	Julia	WIRC	Dunford	James C.	1999/06/10		on trunk of tree, in forest, evening	hand collected	Chequamegon National Forest, Kathryn Lake CG	Taylor			31N	2W	4	Arrhenodes	minutus	Brent
IRC00027363	Janicki	Julia	CMBC	Brabant	Craig	1999/06/21		at night in sandy area	hand collected	Kettle Moraine St. Forest Southern Unit, 903 asi	Waukesha	42.872520° N	88.513994° W				Arrhenodes	minutus	Brent
IRC00025454	Janicki	Julia	WIRC	Gruber	Jeffrey P.	1999/08/03		on bark of fallen tree in northern mesic forest		Hemlock Draw	Sauk			10N	5E	7	Arrhenodes	minutus	Brent
IRC00026596	Janicki	Julia	WIRC	Gruber	Jeffrey P.	1999/08/03		on bark of fallen tree in northern mesic forest	hand collected	Hemlock Draw	Sauk			10N	5E	7	Arrhenodes	minutus	Brent
IRC00026591	Janicki	Julia	WIRC	Gruber	Jeffrey P.	1999/08/11		under bark of fallen Quercus sp.	hand collected	Ft McCoy sand Quar.	Monroe			17N	3W	2	Arrhenodes	minutus	Brent
IRC00025452	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2000/05/15		on trunk of small Acer sp. tree in southern mesic forest	hand collected	Renak Polak Woods State Natural Area	Racine	42° 48' 33" N	87° 51' 39" W				Arrhenodes	minutus	Brent
IRC00027394	Janicki	Julia	CMBC	Brabant	Craig	2000/05/28		from under pieces of wood on top of tree stumps, overcast, ~52F	hand collected	1.8 niles north of Leland Hemlock Draw ~ TNC. elevation:	Sauk	43.358491° N	89.949128° W				Arrhenodes	minutus	Brent
IRC00027392	Janicki	Julia	CMBC	Brabant	Craig	2000/05/28		from under pieces of wood on top of tree stumps, overcast, ~52F	hand collected	1.8 niles north of Leland Hemlock Draw ~ TNC. elevation:	Sauk	43.358491° N	89.949128° W				Arrhenodes	minutus	Brent
IRC00027393	Janicki	Julia	CMBC	Brabant	Craig	2000/05/28		from under pieces of wood on top of tree stumps, overcast, ~52F	hand collected	1.8 niles north of Leland Hemlock Draw ~ TNC. elevation:	Sauk	43.358491° N	89.949128° W				Arrhenodes	minutus	Brent
IRC00027047	Janicki	Julia	UWO			2000/06/10				N/A	Rock			3N	12E	36	Arrhenodes	minutus	Brent
IRC00027531	Janicki	Julia	WIRC	Price	Michele	2000/06/18		on bark of recently fallen Maple tree in oak/maple/pine forest	hand collected	Mecan River PHG	Marquette	43° 57' 10" N	89° 20' 22" W				Arrhenodes	minutus	Brent
IRC00027532	Janicki	Julia	WIRC	Price	Michele	2000/06/18		on bark of recently fallen Maple tree in oak/maple/pine forest	hand collected	Mecan River PHG	Marquette	43° 57' 10" N	89° 20' 22" W				Arrhenodes	minutus	Brent
IRC00025453	Janicki	Julia	WIRC	Suter	W.	2000/06/24				Celedoniz VV (?) Renak Polak W8S							Arrhenodes	minutus	Brent
IRC00025440	Janicki	Julia	WIRC	Brust	Matthew	2000/06/26				Way Point 835	Oconto			28N	17E	NWSW2	Arrhenodes	minutus	Brent
IRC00027371	Janicki	Julia	CMBC	Brabant	Craig	2000/06/27		collected under boards at edge of forest, 2:30 pm	hand collected	Coulee Experimental St., Forest- WDNR, el:1247'	La Crosse	43.844376° N	91.019922° W				Arrhenodes	minutus	Brent
IRC00026578	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2001/05/12	2001/05/27	in southern mesic hardwood forest	flight-intercept trap	Wedel Property, ~3mi north of Argyle	Lafayette	42° 44' 17" N	89° 51' 05" W				Arrhenodes	minutus	Brent
IRC00025455	Young	Daniel K.	WIRC	Gruber	Jeffrey P.	2001/06/10	2001/06/24	flight intercept trap in soutnern mixed hardwood forest	flight intercept trap	Wedel Property about 3 miles north of Argyle	Lafayette	42° 44' 17" N	89° 51' 05" W				Arrhenodes	minutus	Brent
IRC00027364	Janicki	Julia	CMBC	Brabant	Craig	2001/06/11	2001/06/18	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine St. Forest, Southern Unit, 903 asi	Waukesha	42.872520° N	88.513994° W				Arrhenodes	minutus	Brent
IRC00027365	Janicki	Julia	CMBC	Brabant	Craig	2001/06/11	2001/06/18	unbaited Townes malaise trap in sandy oak barrens	Malaise trap	Kettle Moraine St. Forest, Southern Unit, 903 asi	Waukesha	42.872520° N	88.513994° W				Arrhenodes	minutus	Brent
IRC00025445	Young	Daniel K.	WIRC	Williams	Andrew H.	2001/06/17		immobile on leaf of Asclepias syriaca, 10 am, sunny 72F		RK08, Norman's Sandy Prairie	Rock			1N	11E	31	Arrhenodes	minutus	Brent
IRC00025446	Krauth	Steve	WIRC	Brabant	Craig	2001/06/18	2001/06/30	unbaited Townes malaise trap in sandy oak barrens	malaise trap	Kettle Moraine State Forest Southern Unit	Waukesha	45° 52' 21" N	88° 30' 46" W				Arrhenodes	minutus	Brent
IRC00025526	Williams	Andrew H.	WIRC	Gruber	Jeffrey P.	2001/06/23	2001/07/01	flight intercept trap in sandy barrens	flight intercept trap	Arena Pines Sand Barrens SNA	Iowa	43° 10' 33" N	89° 53' 55" W				Arrhenodes	minutus	Brent
IRC00025461	Janicki	Julia	WIRC	Hillstrom	M	2002/05/31	2002/06/10	Lindgren funnel traps hung on dead Quercus and Populus trees, baited with Ipsdienol	Lindgren funnel trap	Hemlock Draw	Sauk	43° 21' 9" N	89° 56' 8" W				Arrhenodes	minutus	Brent
IRC00027391	Janicki	Julia	CMBC	Brabant	Craig	2002/06/08		sandy hillside in gas pipeline right-of-way: 74F, mostly cloudy; ex: oak leaf	hand collected	Gas pipeline r.o.w. at Cty Hwy M; el: 934'asi	Waushara	44.180072° N	89.040149° W				Arrhenodes	minutus	Brent
IRC00026584	Janicki	Julia	WIRC	Young	Daniel K.	2002/06/28	2002/07/15		Lindgren funnel trap	Quincy Bluff TNC	Adams	43° 51' 57" N	89° 52' 35" W				Arrhenodes	minutus	Brent
IRC00026583	Janicki	Julia	WIRC	Young	Daniel K.	2002/06/28	2002/07/15		Lindgren funnel trap	Quincy Bluff TNC	Adams	43° 51' 57" N	89° 52' 35" W				Arrhenodes	minutus	Brent

IRC00026613	Janicki	Julia	WIRC	Biggs	Devin	2004/06/16		under bark or in rotting wood; mostly Quercus and some Pinus, logging slash in clearcut;5-10 years old	hand collected	Wood County SWA	Wood	44° 18' 22" N	90° 07' 49" W				Arrhenodes	minutus	Brent
IRC00026624	Janicki	Julia	WIRC	Young	Daniel K.	2004/09/02	2004/09/10	oak/pine savanna	Lindgren trap	Quincy Bluff TNC	Adams	43° 51' 45" N	89° 52' 51" W				Arrhenodes	minutus	Brent
IRC00026626	Janicki	Julia	WIRC	Young	Daniel K.	2005/06/16	2005/06/23		Lindgren trap	Quincy Bluff TNC	Adams	43° 52' 05" N	89° 53' 02" W				Arrhenodes	minutus	Brent
IRC00027370	Janicki	Julia	CMBC	Brabant	Craig	2005/06/28		off of unknown plant on sandy roadside, 2:55pm, ~73F, overcast, wind 3-6mph (PBEC 2003-19)	hand collected	~2.5 mi WSW of Webster on E side of Heier Road	Burnett	45.862876° N	92.415804° W				Arrhenodes	minutus	Brent
IRC00026611	Janicki	Julia	WIRC	Young	Daniel K.	2005/08/24	2005/08/31	trap #3	Lindgren funnel trap	Quincy Bluff TNC	Adams	43° 52' 05" N	89° 53' 02" W				Arrhenodes	minutus	Brent
IRC00026615	Janicki	Julia	WIRC	Arango	Rachel	2006/07/03	2006/07/28	in Quercus spp. savanna	Lindgren funnel trap	Fox River Wildlife Refuge	Marquette	43° 41' 05" N	89° 23' 8" W				Arrhenodes	minutus	Brent
IRC00026608	Janicki	Julia	WIRC	Arango	Rachel	2006/07/12	2006/08/23	in relict stand of Tsuga spp. and Betula alleghaniensis	Lindgren funnel trap	Mt. Pisgah Hemlock Hardwoods	Vernon	43° 41' 30" N	90° 34' 8" W				Arrhenodes	minutus	Brent
IRC00026606	Janicki	Julia	WIRC	Arango	Rachel	2006/07/12	2006/08/23	in relict stand of Tsuga spp. and Betula alleghaniensis	Lindgren funnel trap	Mt. Pisgah Hemlock Hardwoods	Vernon	43° 41' 30" N	90° 34' 8" W				Arrhenodes	minutus	Brent
IRC00026609	Janicki	Julia	WIRC	Arango	Rachel	2006/07/12	2006/08/23	in relict stand of Tsuga spp. and Betula alleghaniensis	Lindgren funnel trap	Mt. Pisgah Hemlock Hardwoods	Vernon	43° 41' 30" N	90° 34' 8" W				Arrhenodes	minutus	Brent
IRC00026607	Janicki	Julia	WIRC	Arango	Rachel	2006/07/12	2006/08/23	in relict stand of Tsuga spp. and Betula alleghaniensis	Lindgren funnel trap	Mt. Pisgah Hemlock Hardwoods	Vernon	43° 41' 30" N	90° 34' 8" W				Arrhenodes	minutus	Brent
IRC00026586	Janicki	Julia	WIRC	Young	Daniel K.	2006/07/29		beneath bark; stand/dead Quercus	hand collected	LWRSGA Lone Rock Unit	Richland	43° 11' 44" N	90° 14' 31" W				Arrhenodes	minutus	Brent
IRC00026587	Janicki	Julia	WIRC	Young	Daniel K.	2006/07/29		beneath bark; stand/dead Quercus	hand collected	LWRSGA Lone Rock Unit	Richland	43° 11' 44" N	90° 14' 31" W				Arrhenodes	minutus	Brent
IRC00026585	Janicki	Julia	WIRC	Young	Daniel K.	2006/07/29		beneath bark; stand/dead Quercus	hand collected	LWRSGA Lone Rock Unit	Richland	43° 11' 44" N	90° 14' 31" W				Arrhenodes	minutus	Brent
IRC00026581	Janicki	Julia	WIRC	Young	Daniel K.	2006/09/24		ex: standing dead Quercus	hand collected	Mecan River Public Hunting Ground	Marquette	43° 57' 36" N	89° 20' 17" W				Arrhenodes	minutus	Brent
IRC00026582	Janicki	Julia	WIRC	Young	Daniel K.	2006/09/24		ex: standing dead Quercus	hand collected	Mecan River Public Hunting Ground	Marquette	43° 57' 36" N	89° 20' 17" W				Arrhenodes	minutus	Brent
IRC00026579	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2006/10/07		collected dead, under bark of standing dead Quercus sp tree, oak forest/ savanna	hand collected	Wood Co. SWA	Wood	44° 18' 25" N	90° 07' 34" W				Arrhenodes	minutus	Brent
IRC00026612	Janicki	Julia	WIRC	Arango	Rachel	2007/07/12	2007/07/20	in mature, second growth southern dry-mesic forest	Flight intercept trap	Kettle Moraine Red Oaks	Sheboygan	43° 45' 48" N	88° 04' 8" W				Arrhenodes	minutus	Brent
IRC00026605	Janicki	Julia	WIRC	Young	Daniel K.	2008/06/24	2008/07/08	Lindgren in lowland forest	Lindgren trap	Swamp lovers Inc	Dane	43° 08' 12" N	89° 39' 47" W				Arrhenodes	minutus	Brent
IRC00026597	Janicki	Julia	WIRC	Johnson	Kyle	2009/06/19		mixed oak woodland margin, bordering sandy soil oak savannah and tall grass prairie restoration, collected at UV light, ~75-70F, cloudy/muggy night, light breeze	at UV light	UW Arboretum	Dane	43° 01' 7" N	89° 26' 29" W				Arrhenodes	minutus	Brent
IRC00026598	Janicki	Julia	WIRC	Johnson	Kyle	2009/06/19		mixed oak woodland margin, bordering sandy soil oak savannah and tall grass prairie restoration, collected at UV light, ~75-70F, cloudy/muggy night, light breeze	at UV light	UW Arboretum	Dane	43° 01' 7" N	89° 26' 29" W				Arrhenodes	minutus	Brent
IRC00027516	Pynnonen	Mark	MAPC	Pynnonen	Mark	2009/06/22		under bark/standing dead Quercus	Hand collected	Quincy Bluff Wetlands SNA	Adams	43° 54' 24" N	89° 50' 53" W				Arrhenodes	minutus	Brent
IRC00027515	Pynnonen	Mark	MAPC	Pynnonen	Mark	2009/07/26		under loose bark/ hardwood log	Hand collected	Hemlock Draw SNA	Sauk	43° 21' 9" N	89° 56' 8" W				Arrhenodes	minutus	Brent
IRC00027367	Janicki	Julia	CMBC	Brabant	Craig	2009/08/23		collected from under bark of fallen trees along edge of power line right-of-way	hand collected	<1 mi WNW of Babcock Wood County Wildlife Ar	Wood	44.304897° N	90.126673° W				Arrhenodes	minutus	Brent
IRC00027369	Janicki	Julia	CMBC	Brabant	Craig	2009/08/23		collected from under bark of fallen trees along edge of power line right-of-way	hand collected	<1 mi WNW of Babcock Wood County Wildlife Ar	Wood	44.304897° N	90.126673° W				Arrhenodes	minutus	Brent
IRC00027366	Janicki	Julia	CMBC	Brabant	Craig	2009/08/23		collected from under bark of fallen trees along edge of power line right-of-way	hand collected	<1 mi WNW of Babcock Wood County Wildlife Ar	Wood	44.304897° N	90.126673° W				Arrhenodes	minutus	Brent
IRC00027368	Janicki	Julia	CMBC	Brabant	Craig	2009/08/23		collected from under bark of fallen trees along edge of power line right-of-way	hand collected	<1 mi WNW of Babcock Wood County Wildlife Ar	Wood	44.304897° N	90.126673° W				Arrhenodes	minutus	Brent
IRC00026625	Janicki	Julia	WIRC	Young	Daniel K.	2010/05/17	2010/05/24		Malaise trap	Quincy Bluff SNA	Adams	43.86966° N	89.87446° W				Arrhenodes	minutus	Brent
IRC00026599	Janicki	Julia	WIRC	Young	Daniel K.	2010/05/17	2010/05/24	oak-pine savanna	yellowpan trap	Quincy Bluff TNC	Adams	43.87119° N	89.88017° W				Arrhenodes	minutus	Brent
IRC00027058	Janicki	Julia	UWO	Bac	Nick	2010/05/23				N/A	Portage			21N	10E	13	Arrhenodes	minutus	Brent
IRC00026592	Janicki	Julia	WIRC	Young	Daniel K.	2010/05/24	2010/06/01	Malaise in old Populus deadfall	Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Arrhenodes	minutus	Brent
IRC00026604	Janicki	Julia	WIRC	Young	Daniel K.	2010/05/24	2010/06/01	in old Populus deadfall	Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Arrhenodes	minutus	Brent
IRC00027395	Janicki	Julia	CMBC	Berres	Mark	2010/05/30	2010/06/06	unbaited Townes Malaise trap at edge of mixed hardwoods and fallow field	Malaise trap	~4mi SSE Spring Green, Berres' Property	Iowa	43.124577° N	90.022940° W				Arrhenodes	minutus	Brent

IRC00027514	Pynnonen	Mark	MAPC	Pynnonen	Mark	2010/06/06		under bark of Poplus log	Hand collected	Hemlock Draw SNA	Sauk	43° 21' 9" N	89° 58' 8" W				Arrhenodes	minutus	Brent
IRC00026601	Janicki	Julia	WIRC	Young	Daniel K.	2010/06/14	2010/06/21	in old Populus deadfall	Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Arrhenodes	minutus	Brent
IRC00026602	Janicki	Julia	WIRC	Young	Daniel K.	2010/06/14	2010/06/21	in old Populus deadfall	Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Arrhenodes	minutus	Brent
IRC00027513	Pynnonen	Mark	MAPC	Pynnonen	Mark	2010/06/28		Under bark/freshly cut log	Hand collected	Wonewoc-Center School Forest	Juneau	43° 39' 04" N	89° 51' 28" W				Arrhenodes	minutus	Brent
IRC00027511	Pynnonen	Mark	MAPC	Pynnonen	Mark	2010/06/28		Under bark/freshly cut log	Hand collected	Wonewoc-Center School Forest	Juneau	43° 39' 04" N	89° 51' 28" W				Arrhenodes	minutus	Brent
IRC00027512	Pynnonen	Mark	MAPC	Pynnonen	Mark	2010/06/28		Under bark/freshly cut log	Hand collected	Wonewoc-Center School Forest	Juneau	43° 39' 04" N	89° 51' 28" W				Arrhenodes	minutus	Brent
IRC00027517	Janicki	Julia	MAPC	Pynnonen	Mark	2010/07/18		under bark/hardwood log	hand collected	Wonewoc Center School Forest	Juneau	43° 39' 055" N	89° 51' 29" W				Arrhenodes	minutus	Brent
IRC00026610	Janicki	Julia	WIRC	Young	Daniel K.	2010/07/26	2010/08/02	in old Populus deadfall	Malaise trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Arrhenodes	minutus	Brent
IRC00025000	Janicki	Julia	WIRC	Gullickson	Kari	2011/04/24			hand-collected	Mike Gullickson's Property	Dunn	45.021187° N	91.842946° W				Arrhenodes	minutus	Brent
IRC00026619	Janicki	Julia	WIRC	Buchli	B	2011/06/03			blacklight trap	Lake Kegonesa State Park, Stoughton	Dane						Arrhenodes	minutus	Brent
IRC00026620	Janicki	Julia	WIRC	Buchli	B	2011/06/03			blacklight trap	Lake Kegonesa State Park, Stoughton	Dane						Arrhenodes	minutus	Brent
IRC00026618	Janicki	Julia	WIRC	Buchli	B	2011/06/03			blacklight trap	Lake Kegonesa State Park, Stoughton	Dane						Arrhenodes	minutus	Brent
IRC00027518	Janicki	Julia	MAPC	Pynnonen	Mark	2011/06/25		Under bark of standing dead Quercus	Hand collected	Quincy Bluff and Wetlands SNA	Adams	43.86799° N	89.88118° W				Arrhenodes	minutus	Brent
IRC00026621	Janicki	Julia	WIRC	Buchli	B	2011/06/30			blacklight trap	Olstand rd 5 mi West Oak Park rd, Deer Field	Dane						Arrhenodes	minutus	Brent
IRC00026622	Janicki	Julia	WIRC	Buchli	B	2011/07/17			blacklight trap	2821 Evergreen Dr., Cambridge	Dane						Arrhenodes	minutus	Brent
IRC00027510	Pynnonen	Mark	MAPC	Pynnonen	Mark	2011/08/29		On standing dead Quercus	Hand collected	Spring Green Preserve SNA	Sauk	43.19780° N	90.05912° W				Arrhenodes	minutus	Brent
IRC00026594	Janicki	Julia	WIRC	Brabant	Craig	2012/05/29		Mating on dead oak tree	hand collected	Baxter's Hollow SNA	Sauk	43.375866° N	89.798291° W				Arrhenodes	minutus	Brent
IRC00026595	Janicki	Julia	WIRC	Brabant	Craig	2012/05/29		Mating on dead oak tree	hand collected	Baxter's Hollow SNA	Sauk	43.375866° N	89.798291° W				Arrhenodes	minutus	Brent
IRC00027436	Janicki	Julia	CMBC	Brabant	Craig	2012/08/18		from under bark of downed dead Quercus sp.	hand collected	Rocky Run Crk. Fishery Area, north of Morse Rd.	Columbia	43.454891° N	89.379913° W				Arrhenodes	minutus	Brent
IRC00026593	Janicki	Julia	WIRC	Lee	Scott	2012/10/08		under bark	Hand collected	Mazomanie Bottoms SNA	Dane	43.208008° N	89.828331° W				Arrhenodes	minutus	Brent
IRC00027948	Janicki	Julia	JHJC	Gullickson	Kari	2013/05/30	2013/07/10	in mixed hardwoods	Lindgren trap	NW of Hwy 29, W of Co. XX	Chippewa	44.96001° N	91.22691° W				Arrhenodes	minutus	Brent
IRC00026623	Janicki	Julia	WIRC	Janicki	Julia	2013/06/16		walking on path	hand collected	UW Arboretum	Dane	43.044762° N	89.424563° W				Arrhenodes	minutus	Brent
IRC00027926	Janicki	Julia	WDNR			2013/06/17	2013/06/24	Fagus Acer forest	Malaise trap	UW Milwaukee Field Station	Ozaukee	43.38295° N	88.02534° W				Arrhenodes	minutus	Brent
IRC00027927	Janicki	Julia	WDNR	Gullickson	Kari	2013/06/19	2013/06/26		Malaise trap	N of Hwy 10, W of Strum	Trempealeau	44.55696° N	91.40357° W				Arrhenodes	minutus	Brent
IRC00027932	Janicki	Julia	WIRC	Gullickson	Kari	2013/06/19	2013/06/26		Malaise trap	N of Hwy 10, W of Strum	Trempealeau	44.55696° N	91.40357° W				Arrhenodes	minutus	Brent
IRC00026617	Janicki	Julia	WIRC	Janicki	Julia	2013/06/23		under bark of dead oak log	Hand collected	Kettle Moraine Southern Unit	Waukesha	42.875886° N	88.525545° W				Arrhenodes	minutus	Brent
IRC00026616	Janicki	Julia	WIRC	Janicki	Julia	2013/06/23		under bark of dead oak log	Hand collected	Kettle Moraine Southern Unit	Waukesha	42.875886° N	88.525545° W				Arrhenodes	minutus	Brent
IRC00027530	Janicki	Julia	WIRC	Gullickson	Kari	2013/06/26	2013/07/03		Malaise trap	N of Hwy 10; W of Strum	Trempealeau	44.55696° N	91.40357° W				Arrhenodes	minutus	Brent
IRC00027529	Janicki	Julia	WIRC	Gullickson	Kari	2013/07/17	2013/07/29	Mixed Hardwood forest	Lindgren Funnel Trap	NE of Hwy 53, N of Co. AA	Eau Claire	44.78100° N	91.42686° W				Arrhenodes	minutus	Brent
IRC00025037	Janicki	Julia	WIRC					Collection of Wm S. Marshall		N/A							Ithycerus	noveboracensis	Brent
IRC00025034	Janicki	Julia	WIRC			1111/05/13				Fish Creek	Door						Ithycerus	noveboracensis	Brent
IRC00025031	Janicki	Julia	WIRC			1111/05/13		JGSanders Collection		Fish Creek	Door						Ithycerus	noveboracensis	Brent

IRC00025036	Janicki	Julia	WIRC			1111/05/13				Fish Creek	Door						Ithycerus	noveboracensis	Brent
IRC00027122			MPM			1897/10/00		before Oct 1897		Milwaukee	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00025019	Janicki	Julia	WIRC			1898/07/12		Collection of Wm S. Marshall		N/A	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00025053	Janicki	Julia	WIRC			1899/05/30		Collection of Wm S. Marshall		N/A	Dane						Ithycerus	noveboracensis	Brent
IRC00027142			MPM			1899/06/04				Beaver Dam	Dodge						Ithycerus	noveboracensis	Brent
IRC00027127			MPM			1900/07/10				Milwaukee	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00027128			MPM			1900/07/10				Milwaukee	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00025027	Janicki	Julia	WIRC	Hardenberg	C.	1906/08/14				Cranmoor	Wood						Ithycerus	noveboracensis	Brent
IRC00027140			MPM			1908/00/00				Milwaukee	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00027146			MPM			1908/00/00				Milwaukee	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00027145			MPM			1908/00/00				Milwaukee	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00027139			MPM			1908/06/13				Milwaukee	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00027144			MPM			1908/06/14				Milwaukee	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00027143			MPM			1908/06/14				Milwaukee	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00027148			MPM			1908/06/15				Milwaukee	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00027123			MPM			1909/05/28				Johnson's Woods	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00027120			MPM			1909/07/05				Fischer Woods	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00025052	Janicki	Julia	WIRC	Sanders	J. G.	1910/00/00				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025051	Janicki	Julia	WIRC	Sanders	J. G.	1910/00/00				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025015	Janicki	Julia	WIRC			1912/00/00				Sturgeon Bay	Door						Ithycerus	noveboracensis	Brent
IRC00025016	Janicki	Julia	WIRC			1912/00/00				Sturgeon Bay	Door						Ithycerus	noveboracensis	Brent
IRC00025014	Janicki	Julia	WIRC			1912/00/00				Sturgeon Bay	Door						Ithycerus	noveboracensis	Brent
IRC00025046			WIRC	Burrill	A. C.	1912/07/10				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025047	Janicki	Julia	WIRC	Burrill	A. C.	1914/05/25				Lake Wingra	Dane						Ithycerus	noveboracensis	Brent
IRC00025039	Janicki	Julia	WIRC	Wilgoy	N	1914/06/08				N/A	Green Lake						Ithycerus	noveboracensis	Brent
IRC00027135			MPM			1915/06/21				Beaver Dam	Dodge						Ithycerus	noveboracensis	Brent
IRC00027138			MPM			1915/06/21				Beaver Dam	Dodge						Ithycerus	noveboracensis	Brent
IRC00027141			MPM			1915/06/21				Beaver Dam	Dodge						Ithycerus	noveboracensis	Brent
IRC00027121			MPM			1915/06/21				Beaver Dam	Dodge						Ithycerus	noveboracensis	Brent
IRC00027133			MPM			1915/06/21				Beaver Dam	Dodge						Ithycerus	noveboracensis	Brent
IRC00027136			MPM			1915/06/21				Beaver Dam	Dodge						Ithycerus	noveboracensis	Brent
IRC00027137			MPM			1915/06/21				Beaver Dam	Dodge						Ithycerus	noveboracensis	Brent

IRC00027134			MPM			1915/06/21				Beaver Dam	Dodge						Ithycerus	noveboracensis	Brent
IRC00027132			MPM			1915/06/21				Beaver Dam	Dodge						Ithycerus	noveboracensis	Brent
IRC00025041	Janicki	Julia	WIRC	Sanders	J. G.	1916/06/05				Amery	Wood						Ithycerus	noveboracensis	Brent
IRC00025043	Janicki	Julia	WIRC	Haack	T.	1916/06/18				Lake Geneva	Walworth						Ithycerus	noveboracensis	Brent
IRC00025040	Janicki	Julia	WIRC	Harley	H	1918/07/11				Amery	Wood						Ithycerus	noveboracensis	Brent
IRC00025038	Janicki	Julia	WIRC	Harley	H	1918/07/11				Amery	Wood						Ithycerus	noveboracensis	Brent
IRC00025056	Janicki	Julia	WIRC	Fluke	Chas. L.	1919/06/05				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025057	Janicki	Julia	WIRC	Fluke	Chas. L.	1919/06/05				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025049	Janicki	Julia	WIRC	Fluke	Chas. L.	1919/06/05				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025058	Janicki	Julia	WIRC	Fluke	Chas. L.	1919/06/05				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025055	Janicki	Julia	WIRC	Fluke	Chas. L.	1919/06/05				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025060	Janicki	Julia	WIRC	Fluke	Chas. L.	1919/06/05				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025059	Janicki	Julia	WIRC	Fluke	Chas. L.	1919/06/05				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025061	Janicki	Julia	WIRC	Fluke	Chas. L.	1919/06/05				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025048	Janicki	Julia	WIRC			1922/05/00				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025013	Janicki	Julia	WIRC	Granovsky	A	1923/06/23				Egg Harbor	Door						Ithycerus	noveboracensis	Brent
IRC00027131			MPM			1925/06/04				Grafton	Ozaukee						Ithycerus	noveboracensis	Brent
IRC00027130			MPM			1925/06/04				Grafton	Ozaukee						Ithycerus	noveboracensis	Brent
IRC00027126			MPM			1925/06/04				Grafton	Ozaukee						Ithycerus	noveboracensis	Brent
IRC00027129			MPM			1925/06/04				Grafton	Ozaukee						Ithycerus	noveboracensis	Brent
IRC00025044	Janicki	Julia	WIRC	Fluke	Chas. L.	1926/07/12				Columbus	Columbia						Ithycerus	noveboracensis	Brent
IRC00025012	Janicki	Julia	WIRC	Granovsky	A	1926/07/15				N/A	Door						Ithycerus	noveboracensis	Brent
IRC00027125			MPM			1928/06/04				Grafton	Ozaukee						Ithycerus	noveboracensis	Brent
IRC00025026	Janicki	Julia	WIRC			1931/07/15				Cranmoor	Wood						Ithycerus	noveboracensis	Brent
IRC00025050	Janicki	Julia	WIRC			1934/00/00				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025042			WIRC			1934/05/17				Gays Mills	Wood						Ithycerus	noveboracensis	Brent
IRC00025054	Janicki	Julia	WIRC	Carpenter	T	1936/06/00				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00025022			WIRC	Shenefelt	R. D.	1947/06/21				Griffith St. Nursery	Wood						Ithycerus	noveboracensis	Brent
IRC00025028	Janicki	Julia	WIRC	Shenefelt	R. D.	1947/06/21				Griffith St. Nursery	Wood						Ithycerus	noveboracensis	Brent
IRC00025029	Janicki	Julia	WIRC	Shenefelt	R. D.	1947/07/27		collected from oak wilt, plot hwy 13, Q.borealis		N/A	Wood						Ithycerus	noveboracensis	Brent
IRC00025024			WIRC	Shenefelt	R. D.	1948/06/26		collected from non-wilting Q.ellipsoidalis		Griffith St. Nursery	Wood						Ithycerus	noveboracensis	Brent
IRC00025025	Janicki	Julia	WIRC	McNeel	W.	1949/06/23		collected from non-wilting Quercus velutina		(Griffith St. Nursery, guess)	Wood						Ithycerus	noveboracensis	Brent

IRC00025020	Janicki	Julia	WIRC	McNeel	W.	1949/07/06		collected from forest floor	hand collected	N/A	Green						Ithycerus	noveboracensis	Brent
IRC00025030	Janicki	Julia	WIRC	McMullen	L	1951/07/14				Griffith St. Nursery	Wood						Ithycerus	noveboracensis	Brent
IRC00025023	Janicki	Julia	WIRC	McMullen	L	1954/07/17				Griffith St. Nursery	Wood						Ithycerus	noveboracensis	Brent
IRC00025045	Janicki	Julia	WIRC			1957/06/11		Curculles on red oak		McKays							Ithycerus	noveboracensis	Brent
IRC00025018	Janicki	Julia	WIRC	Torgersen	T	1963/07/11				Point Beach State Forest	Manitowoc						Ithycerus	noveboracensis	Brent
IRC00026635	Janicki	Julia	WIRC			1965/06/24				Madison	Dane						Ithycerus	noveboracensis	Brent
IRC00027929	Janicki	Julia	UWEC	Olson	Dan	1966/06/25				N/A	Washburn						Ithycerus	noveboracensis	Brent
IRC00027051	Janicki	Julia	UWO			1971/05/30				Mountain	Waukesha						Ithycerus	noveboracensis	Brent
IRC00027050	Janicki	Julia	UWO			1971/06/01				Pardeeville	Columbia						Ithycerus	noveboracensis	Brent
IRC00025008	Janicki	Julia	WIRC			1974/07/24		on Quercus ellipsoidalis	hand collected	N/A	Bayfield			46N	9W	16	Ithycerus	noveboracensis	Brent
IRC00025011	Janicki	Julia	WIRC			1978/05/30		on Q.velutina	hand collected	N/A	Iowa						Ithycerus	noveboracensis	Brent
IRC00025021	Janicki	Julia	WIRC	Gould	W.	1984/06/12				N/A	Sauk						Ithycerus	noveboracensis	Brent
IRC00025017	Janicki	Julia	WIRC	Klepzig	K	1984/07/14				Spring Green	Sauk						Ithycerus	noveboracensis	Brent
IRC00027281	Krauth	S	WDNR	Lineteur	G.	1989/07/14		Taken from screen trap on pines	Screen trap	Spooner	Washburn						Ithycerus	noveboracensis	Brent
IRC00026636	Janicki	Julia	WIRC	Hunt	Lveia	1995/06/20				Hemlock Draw	Sauk						Ithycerus	noveboracensis	Brent
IRC00025004	Katovich	Kerry	WIRC	Maxwell	Judith A.	1997/06/22	1997/06/26	oak forest with flowering prunus	Lindgren funnel trap	Fort McCoy, North Post, Hazeldell Lake Area	Monroe						Ithycerus	noveboracensis	Brent
IRC00025010	Young	Daniel K.	WIRC	Kirk	Kathryn	1997/07/09		grassy barrens		Black River State Forest	Jackson			20N	2W	SWSE17	Ithycerus	noveboracensis	Brent
IRC00025003	Katovich	Kerry	WIRC	Maxwell	Judith A.	1997/07/25	1997/07/29	mesic oak forest	Flight intercept trap	Fort McCoy,, North Post, Dorn's Cut	Monore						Ithycerus	noveboracensis	Brent
IRC00027283	Krauth	S	WDNR			1998/05/20		collected from black oak logs, DNR study 053	hand collected	Page Creek	Marquette			15N	9E	22	Ithycerus	noveboracensis	Brent
IRC00027373	Janicki	Julia	CMBC	Brabant	Craig	1999/05/27		off low branch of undet. tree on the periphery of "procnow's meadow"	hand collected	White River Fishery Area ~ Waushara, elev: 899'asi	Waushara	44.053782° N	89.366916° W				Ithycerus	noveboracensis	Brent
IRC00025007	Gruber	Jeffrey P.	WIRC	Gruber	Jeffrey P.	1999/06/18	1999/06/24	oak/pine forest	unbaited Lindgren funnel tr	Black River State Forest	Jackson			20N	2W	5/8	Ithycerus	noveboracensis	Brent
IRC00026640	Gruber	Jeffrey P.	WIRC	Gruber	Jeffrey P.	1999/06/18	1999/06/24	unbaited trap in oak/pine forest	Lindgren funnel trap	Black River State Forest	Jackson			20N	2W	5/8	Ithycerus	noveboracensis	Brent
IRC00025002	Gruber	Jeffrey P.	WIRC	Gruber	Jeffrey P.	1999/07/12	1999/07/25	oak/pine forest	unbaited Lindgren funnel tr	Black River State Forest	Jackson			20N	2W	5/8	Ithycerus	noveboracensis	Brent
IRC00025006	Gruber	Jeffrey P.	WIRC	Gruber	Jeffrey P.	1999/07/12	1999/07/25	sandy prairie/oak savanna	unbaited Lindgren funnel tr	Fort McCoy, Sand Quar.	Monroe			17N	3W	2	Ithycerus	noveboracensis	Brent
IRC00025001	Gruber	Jeffrey P.	WIRC	Gruber	Jeffrey P.	1999/07/12			sweep net	Black River State Forest	Jackson			20N	2W	5/8	Ithycerus	noveboracensis	Brent
IRC00025005	Gruber	Jeffrey P.	WIRC	Gruber	Jeffrey P.	1999/07/22		swept from foliage in pine barrens	Sweep net	Dunbar Barrens SNA	Marinette			37N	18E	21	Ithycerus	noveboracensis	Brent
IRC00027372	Janicki	Julia	CMBC	Dunford	James C.	2000/05/25		collected dead on sandy trail	hand collected	Ft. McCoy Barrens State Natural Area ~WDNR	Monroe	43.987193° N	90.694849° W				Ithycerus	noveboracensis	Brent
IRC00025009	Janicki	Julia	WIRC	LaBerge	M	2001/07/08		on blacktop/cement	hand collected	Lake Delton	Sauk						Ithycerus	noveboracensis	Brent
IRC00026634	Janicki	Julia	WIRC	Young	Daniel K.	2002/06/28	2002/07/15		Lindgren funnel trap	Quincy Bluff TNC	Adams	43° 52' 06" N	89° 52' 52" W				Ithycerus	noveboracensis	Brent
IRC00026633	Janicki	Julia	WIRC	Young	Daniel K.	2002/07/15	2002/07/18		Lindgren funnel trap	Quincy Bluff TNC	Adams	43° 52' 06" N	89° 52' 52" W				Ithycerus	noveboracensis	Brent
IRC00026629	Janicki	Julia	WIRC	Young	Daniel K.	2005/06/16	2005/06/23	trap #5	Lindgren funnel trap	Quincy Bluff TNC	Adams	43.86966° N	89.87946° W				Ithycerus	noveboracensis	Brent
IRC00026632	Janicki	Julia	WIRC	Young	Daniel K.	2005/07/05	2005/07/14	trap #2	Lindgren funnel trap	Quincy Bluff TNC	Adams	43° 52' 04" N	89° 53' 05" W				Ithycerus	noveboracensis	Brent

IRC00026630	Janicki	Julia	WIRC	Young	Daniel K.	2005/07/19	2005/07/28	1 year fallen Populus	Lindgren trap	Quincy Bluff TNC	Adams	43° 52' 12" N	89° 52' 46" W				Ithycerus	noveboracensis	Brent
IRC00026639	Janicki	Julia	WIRC	Hernandez	Natalie	2007/06/13	2007/06/27		Striacosta albicosta phero	7540 Balsam Rd.	Eau Claire	44.72347° N	91.48966° W				Ithycerus	noveboracensis	Brent
IRC00027528	Janicki	Julia	MAPC	Fricke	Emily	2007/07/18		found on Rubus strigosus in oak savannah near edge of potato field	hand collected	potato field near Oxford	Marquette						Ithycerus	noveboracensis	Brent
IRC00027060	Janicki	Julia	UWO			2008/07/13				Pidgeon Field Station, 4 mi W Drummond	Bayfield						Ithycerus	noveboracensis	Brent
IRC00026627	Janicki	Julia	WIRC	Young	Daniel K.	2009/06/23	2009/07/03	in oak/pine barrens	Malaise Trap	Quincy Bluff TNC	Adams	43.86946° N	89.88538° W				Ithycerus	noveboracensis	Brent
IRC00026628	Janicki	Julia	WIRC	Young	Daniel K.	2009/06/23	2009/07/03	in oak/pine barrens	Malaise Trap	Quincy Bluff TNC	Adams	43.86946° N	89.88538° W				Ithycerus	noveboracensis	Brent
IRC00026631	Janicki	Julia	WIRC	Young	Daniel K.	2010/05/17	2010/05/24		Malaise trap	Quincy Bluff SNA	Adams	43.86966° N	89.87946° W				Ithycerus	noveboracensis	Brent
IRC00027930	Janicki	Julia	UWEC	Abrams	N.	2011/05/25				Tower Ridge	Eau Claire						Ithycerus	noveboracensis	Brent
IRC00026637	Janicki	Julia	WIRC	Janicki	Julia	2011/06/07		under bark of live white oak	hand collected	UW, Eagle Heights woods	Dane	43.085890° N	89.429178° W				Ithycerus	noveboracensis	Brent
IRC00027525	Pynnonen	Mark	MAPC	Pynnonen	Mark	2012/05/27		Beating Quercus branches	Beating	Quincy Bluff and Wetlands SNA	Adams	43.86740° N	89.88613° W				Ithycerus	noveboracensis	Brent
IRC00027527	Pynnonen	Mark	MAPC	Pynnonen	Mark	2012/06/03		Beating Quercus branches	Beating	Quincy Bluff and Wetlands SNA	Adams	43.86740° N	89.88613° W				Ithycerus	noveboracensis	Brent
IRC00027526	Pynnonen	Mark	MAPC	Pynnonen	Mark	2012/06/03		Beating Quercus branches	Beating	Quincy Bluff and Wetlands SNA	Adams	43.86740° N	89.88613° W				Ithycerus	noveboracensis	Brent
IRC00027147			MPM			2013/06/13				Milwaukee	Milwaukee						Ithycerus	noveboracensis	Brent
IRC00026641	Janicki	Julia	WIRC	Janicki	Julia	2013/06/23		beating oak	beating	Kettle Moraine Southern Unit	Waukesha	42.875886° N	88.525545° W				Ithycerus	noveboracensis	Brent
IRC00026638	Janicki	Julia	WIRC	Gullickson	Kari	2013/06/29	2013/07/06	in mixed hardwood forest	Malaise trap	Gardner Dam BSA Camp	Langlade	45.13667° N	88.68449° W				Ithycerus	noveboracensis	Brent
IRC00025115	Kissinger	David	WIRC			1961/07/14		Pinus banksiana, N.H. 61-95R-1-9		N. Highland	Vilas			90N	8E	8S	Podapion	gallicola	Brent
IRC00026667	Janicki	Julia	WIRC	Gullickson	Kari	2012/06/17	2012/06/27	Mixed hardwood forest/ baited with Turpentine	Malaise trap	N of Co. WW, E of Co. W	Marathon	45.04425° N	85.59853° W				Podapion	gallicola	Brent
IRC00026666	Janicki	Julia	WIRC	Gullickson	Kari	2012/06/17	2012/06/27	Mixed hardwood forest/ baited with Turpentine	Malaise trap	N of Co. WW, E of Co. W	Marathon	45.04425° N	85.59853° W				Podapion	gallicola	Brent
IRC00026668	Janicki	Julia	WIRC	Gullickson	Kari	2012/06/17	2012/06/27	Mixed hardwood forest/ baited with Turpentine	Malaise trap	N of Co. WW, E of Co. W	Marathon	45.04425° N	85.59853° W				Podapion	gallicola	Brent
IRC00026665	Janicki	Julia	WIRC	Gullickson	Kari	2012/06/17	2012/06/27	Mixed hardwood forest/ baited with Turpentine	Malaise trap	N of Co. WW, E of Co. W	Marathon	45.04425° N	85.59853° W				Podapion	gallicola	Brent
IRC00026669	Janicki	Julia	WIRC	Gullickson	Kari	2012/06/27	2012/07/18	Mixed hardwood forest/ baited with Turpentine	Malaise trap	N of Co. WW, E of Co. W	Marathon	45.04425° N	89.59853° W				Podapion	gallicola	Brent
IRC00026685	Janicki	Julia	WIRC	Janicki	Julia			Sweeping forest floor along road	Sweep net	Off of Hwy 153, W of Mosinee	Marathon	44.793660° N	89.777676° W				Perapion	curtirostre	Brent
IRC00026104	Janicki	Julia	WDNR	Zahn	J.	2002/06/12		Sweeping E. prairie	Sweep net	4 mi W. Plainfield, Hamerstrom Property	Waushara						Perapion	curtirostre	Brent
IRC00026105	Janicki	Julia	WDNR	Sauer	S	2009/07/13		Sweep net, sand prairie, Artemisia, Koeleria, Panicum	Sweep net	Swan Lake SWA	Columbia			12N	9E	15NE4	Perapion	curtirostre	Brent
IRC00026106	Janicki	Julia	WDNR	Sauer	S	2009/08/05		Sweep net, sand pr., Panicum spp., Ambrosia psilostachya	Sweep net	XCEL Sand Barrens Pr.	Dunn			26N	12W	28SWNE	Perapion	curtirostre	Brent
IRC00026704	Janicki	Julia	WIRC	Gullickson	Dan	2011/07/05	2011/07/12	in open field by pond by mixed hardwood forest	Malaise trap	NW of Cty Rd H, W of Hwy 40	Rusk	44.637380° N	90.622520° W				Perapion	curtirostre	Brent
IRC00026680	Janicki	Julia	WIRC	Gullickson	Kari	2011/07/05	2011/07/13	trap 1 (w/ Turpentine bait), mixed hardwood forest	Lindgren funnel trap	E of Co G, W of Hwy 73	Clark	44.627000° N	90.621240° W				Perapion	curtirostre	Brent
IRC00026700	Janicki	Julia	WIRC	Gullickson	Kari	2011/07/12	2011/07/19	In open field by pond by mixed hardwood forest	Malaise trap	NW of Cty Rd H, W of Hwy 40	Rusk	44.637380° N	90.623520° W				Perapion	curtirostre	Brent
IRC00026699	Janicki	Julia	WIRC	Gullickson	Kari	2011/07/12	2011/07/19	In open field by pond by mixed hardwood forest	Malaise trap	NW of Cty Rd H, W of Hwy 40	Rusk	44.637380° N	90.623520° W				Perapion	curtirostre	Brent
IRC00026698	Janicki	Julia	WIRC	Gullickson	Kari	2011/07/12	2011/07/19	In open field by pond by mixed hardwood forest	Malaise trap	NW of Cty Rd H, W of Hwy 40	Rusk	44.637380° N	90.623520° W				Perapion	curtirostre	Brent
IRC00026697	Janicki	Julia	WIRC	Gullickson	Kari	2011/07/12	2011/07/19	In open field by pond by mixed hardwood forest	Malaise trap	NW of Cty Rd H, W of Hwy 40	Rusk	44.637380° N	90.623520° W				Perapion	curtirostre	Brent
IRC00026701	Janicki	Julia	WIRC	Gullickson	Kari	2011/07/12	2011/07/19	In open field by pond by mixed hardwood forest	Malaise trap	NW of Cty Rd H, W of Hwy 40	Rusk	44.637380° N	90.623520° W				Perapion	curtirostre	Brent

IRC00026679	Janicki	Julia	WIRC	Gullickson	Kari	2011/07/14	2011/07/20	open tall grassy area by mixed hardwood forest	Malaise trap	E of Cty Rd G, W of Hwy 73	Clark	44.627030° N	90.622749° W				Perapion	curtirostre	Brent
IRC00026702	Janicki	Julia	WIRC	Gullickson	Kari	2011/07/19	2011/07/26	In open field by pond by mixed hardwood forest	Malaise trap	NW of Cty Rd H, W of Hwy 40	Rusk	44.637380° N	90.623530° W				Perapion	curtirostre	Brent
IRC00026703	Janicki	Julia	WIRC	Gullickson	Kari	2011/07/26	2011/08/02	By pond by mixed hardwood forest	Malaise trap	NW of Cty Rd H, W of Hwy 40	Rusk	44.637380° N	90.623520° W				Perapion	curtirostre	Brent
IRC00026705	Janicki	Julia	WIRC	Gullickson	Kari	2011/08/02	2011/08/09	in open field by pond by mixed harwood forest	Malaise trap	NW of Cty Rd H, W of Hwy 40	Rusk	44.637380° N	90.623520° W				Perapion	curtirostre	Brent
IRC00026686	Janicki	Julia	WIRC	Janicki	Julia	2012/04/22		Beating Jack pine	Beating	Mecan River Public Hunting Ground	Marquette	43.952646° N	89.339483° W				Perapion	curtirostre	Brent
IRC00026689	Janicki	Julia	WIRC	Janicki	Julia	2012/05/04		Sweeping field	Sweep net	Mecan River Public Hunting Ground	Marquette	43.952646° N	89.339488° W				Perapion	curtirostre	Brent
IRC00026687	Janicki	Julia	WIRC	Janicki	Julia	2012/05/04		Sweeping field	Sweep net	Mecan River Public Hunting Ground	Marquette	43.952646° N	89.339488° W				Perapion	curtirostre	Brent
IRC00026690	Janicki	Julia	WIRC	Janicki	Julia	2012/05/04		Sweeping field	Sweep net	Mecan River Public Hunting Ground	Marquette	43.952646° N	89.339488° W				Perapion	curtirostre	Brent
IRC00026688	Janicki	Julia	WIRC	Janicki	Julia	2012/05/04		Sweeping field	Sweep net	Mecan River Public Hunting Ground	Marquette	43.952646° N	89.339488° W				Perapion	curtirostre	Brent
IRC00026692	Janicki	Julia	WIRC	Janicki	Julia	2012/05/08		Sweeping forest floor	Sweep net	Mazomanie bottoms SNA	Dane	43.208008° N	89.828331° W				Perapion	curtirostre	Brent
IRC00026670	Janicki	Julia	WIRC	Janicki	Julia	2012/05/12		Sweeping forest floor	Sweep net	Pine hollow	Sauk	43.385103° N	89.756740° W				Perapion	curtirostre	Brent
IRC00026693	Janicki	Julia	WIRC	Janicki	Julia	2012/05/15		Sweeping forest floor	Sweep net	Quincy Bluff SNA	Adams	43° 53' 30" N	89° 52' 12" W				Perapion	curtirostre	Brent
IRC00026694	Janicki	Julia	WIRC	Janicki	Julia	2012/05/15		Sweeping forest floor	Sweep net	Quincy Bluff SNA	Adams	43° 53' 30" N	89° 52' 12" W				Perapion	curtirostre	Brent
IRC00026695	Janicki	Julia	WIRC	Janicki	Julia	2012/05/15		Sweeping forest floor	Sweep net	Quincy Bluff SNA	Adams	43° 53' 30" N	89° 52' 12" W				Perapion	curtirostre	Brent
IRC00026706	Janicki	Julia	WIRC	Janicki	Julia	2012/05/17		Sweeping prairie	Sweep net	Muralt Bluff Prairie	Green	42° 42' 19" N	89° 29' 49" W				Perapion	curtirostre	Brent
IRC00026708	Janicki	Julia	WIRC	Janicki	Julia	2012/05/17		Sweeping prairie	Sweep net	Muralt Bluff Prairie	Green	42° 42' 19" N	89° 29' 49" W				Perapion	curtirostre	Brent
IRC00026707	Janicki	Julia	WIRC	Janicki	Julia	2012/05/17		Sweeping prairie	Sweep net	Muralt Bluff Prairie	Green	42° 42' 19" N	89° 29' 49" W				Perapion	curtirostre	Brent
IRC00026683	Janicki	Julia	WIRC	Janicki	Julia	2012/05/21		Sweeping field along forest	Sweep net	Black River State Forest	Jackson	44.171786° N	90.603400° W				Perapion	curtirostre	Brent
IRC00026681	Janicki	Julia	WIRC	Janicki	Julia	2012/05/21		Sweeping field along forest	Sweep net	Black River State Forest	Jackson	44.171786° N	90.603400° W				Perapion	curtirostre	Brent
IRC00026684	Janicki	Julia	WIRC	Janicki	Julia	2012/05/21		Sweeping field along forest	Sweep net	Black River State Forest	Jackson	44.171786° N	90.603400° W				Perapion	curtirostre	Brent
IRC00026682	Janicki	Julia	WIRC	Janicki	Julia	2012/05/21		Sweeping field along forest	Sweep net	Black River State Forest	Jackson	44.171786° N	90.603400° W				Perapion	curtirostre	Brent
IRC00026676	Janicki	Julia	WIRC	Janicki	Julia	2012/05/22		Sweeping along road in forest	Sweep net	Presque Isle Lake	Vilas	46.228355° N	89.789823° W				Perapion	curtirostre	Brent
IRC00026675	Janicki	Julia	WIRC	Janicki	Julia	2012/05/22		Sweeping along road in forest	Sweep net	Presque Isle Lake	Vilas	46.228355° N	89.789823° W				Perapion	curtirostre	Brent
IRC00026678	Janicki	Julia	WIRC	Janicki	Julia	2012/05/23		Sweeping grassy area along road	Sweep net	within Chequamegon NF	Bayfield	46.624503° N	91.209213° W				Perapion	curtirostre	Brent
IRC00026674	Janicki	Julia	WIRC	Janicki	Julia	2012/05/23		Sweeping grassy understory	Sweep net	ATV trail off Hwy2 by junction 169	Iron	46.31066° N	90.31743° W				Perapion	curtirostre	Brent
IRC00026673	Janicki	Julia	WIRC	Janicki	Julia	2012/05/23		Sweeping grassy area by pond (including alfalfa, dogwood and various flowers)	Sweep net	Caville road and U.S. 2	Ashland	46.610105° N	90.716277° W				Perapion	curtirostre	Brent
IRC00026672	Janicki	Julia	WIRC	Janicki	Julia	2012/05/23		Sweeping grassy area by pond (including alfalfa, dogwood and various flowers)	Sweep net	Caville road and U.S. 2	Ashland	46.610105° N	90.716277° W				Perapion	curtirostre	Brent
IRC00026715	Janicki	Julia	WIRC	Janicki	Julia	2012/05/24		Sweeping forest floor along road	Sweep net	Off of Hwy 153, W of Mosinee	Marathon	44.793660° N	89.777676° W				Perapion	curtirostre	Brent
IRC00026714	Janicki	Julia	WIRC	Janicki	Julia	2012/05/24		Sweeping forest floor along road	Sweep net	Off of Hwy 153, W of Mosinee	Marathon	44.793660° N	89.777676° W				Perapion	curtirostre	Brent
IRC00026691	Janicki	Julia	WIRC	Janicki	Julia	2012/06/21		Sweeping field	Sweep net	Mazomanie Bottoms SNA	Dane	43.208008° N	89.828331° W				Perapion	curtirostre	Brent
IRC00026716	Janicki	Julia	WIRC	Janicki	Julia	2012/06/23		Sweeping vegetation/ rainy	Sweep net	Moquah Barrens SNA	Bayfield	46.624503° N	91.209223° W				Perapion	curtirostre	Brent
IRC00026696	Janicki	Julia	WIRC	Janicki	Julia	2012/07/27		Beating red and black oak	Beating	Blue River Sand Barrens	Grant	43° 11' 01" N	90° 35' 47" W				Perapion	curtirostre	Brent

IRC00027494	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2012/08/18		Beaten from branches of Quercus sp. tree	Beating	Rocky Run CK SFA	Columbia	43° 27' 18" N	89° 22' 49" W				Perapion	curtirostre	Brent
IRC00027437	Janicki	Julia	CMBC	Brabant	Craig	2012/08/18		head collected with beating sheet from foliage/branches of oak or hickory trees on periphery of sand	beating	Rocky Run Clk. Fishery Area, north of Morse Rd.	Columbia	43.458968° N	89.384326° W				Perapion	curtirostre	Brent
IRC00026671	Janicki	Julia	WIRC	Janicki	Julia	2012/09/03		Sweeping panic grass	Sweep net	Spring Green Prairie	Sauk	43.115404° N	90.034963° W				Perapion	curtirostre	Brent
IRC00026677	Janicki	Julia	WIRC	Janicki	Julia	2012/09/16		Beating oak	Beating	Wood County SWA	Wood	44° 18' 10" N	90° 07' 45" W				Perapion	curtirostre	Brent
IRC00026713	Janicki	Julia	WIRC	Janicki	Julia	2013/06/01		Sweeping along road	Sweep net	N/A	Vilas	45.851043° N	89.731418° W				Perapion	curtirostre	Brent
IRC00026711	Janicki	Julia	WIRC	Janicki	Julia	2013/06/01		Sweeping grassy vegetation	Sweep net	Navarino State Wildlife Area	Shawano	44.676913° N	88.515587° W				Perapion	curtirostre	Brent
IRC00026710	Janicki	Julia	WIRC	Janicki	Julia	2013/06/11		Sweeping field	Sweep net	Woodland Dunes SNA	Manitowoc	44.144499° N	87.602479° W				Perapion	curtirostre	Brent
IRC00026709	Janicki	Julia	WIRC	Janicki	Julia	2013/06/11		Sweeping field	Sweep net	Woodland Dunes SNA	Manitowoc	44.144499° N	87.602479° W				Perapion	curtirostre	Brent
IRC00026712	Janicki	Julia	WIRC	Janicki	Julia	2013/06/18		Sweeping sandy prairie	Sweep net	Spring Green Preserve	Sauk	43.115404° N	90.034963° W				Perapion	curtirostre	Brent
IRC00025113	Kissinger	David	WIRC	Krauth	S	1975/05/18				Madison	Dane						Perapion	punctinasum	Brent
IRC00025109	Kissinger	David	WIRC					Collection of Wm. S. Marshall		N/A							Alocentron	attenuatum	Brent
IRC00025111	Kissinger	David	WIRC			1930/07/20				Mather	Juneau						Alocentron	attenuatum	Brent
IRC00025110	Kissinger	David	WIRC	Faber	D	1977/08/30				Babcock	Wood						Alocentron	attenuatum	Brent
IRC00026654	Janicki	Julia	WIRC	Janicki	Julia	2013/05/31		Sweeping vegetation. near stream, relatively mesic habitat.	Sweep net	Bill Cross State Wildlife Area	Lincoln	45.242164° N	89.811476° W				Alocentron	attenuatum	Brent
IRC00026655	Janicki	Julia	WIRC	Janicki	Julia	2013/06/13		Sweeping prairie area with willows and legumes	Sweep net	Chiwaukee prairie	Kenosha	42.527800° N	87.817020° W				Alocentron	attenuatum	Brent
IRC00025112	Kissinger	David	WIRC	Faber	D	1977/08/30				Babcock	Wood						Alocentron	fulvotibiale	Brent
IRC00026117	Kissinger	David	WDNR			1995/05/22		Taken from sweep net in native prairie, TNC/DNR study 053	Sweep net	Westport Drln SNA 146	Dane			8N	9E	11/S	Ceratapion	contusum	Brent
IRC00027319	Krauth	S	WDNR			1995/06/20		sweep net in native prairie	sweep net	Raymond Rd. North	Dane			6N	8E	2NE	Ceratapion	contusum	Brent
IRC00027320	Kissinger	David	WDNR	Lisken	Antje	1996/07/09		dry-mesic	Sweep net	Hawkhill Prairie	Dane			9N	8E	5	Ceratapion	contusum	Brent
IRC00026118	Kissinger	David	WDNR			1999/06/08		Mostly dropseed, no winds/ very hot (90)	Sweep net	Sime Balds (Middle)	Grant			8N	3W	36NW4	Ceratapion	contusum	Brent
IRC00026112	Kissinger	David	WDNR	Henderson	R. A.	1996/06/14		DNR study 053, B:U:E		Westport Drumlin	Dane			8N	9E	11S	Ceratapion	parallelum	Brent
IRC00026970	Janicki	Julia	MPM	Rauterberg	F			before 1897 October		N/A							Neapion	harpax	Brent
IRC00027023	Janicki	Julia	MPM	Rauterberg	F	1897/10/00		before Oct 1897		N/A							Neapion	harpax	Brent
IRC00027025	Janicki	Julia	MPM	Rauterberg	F	1897/10/00		before Oct 1897		N/A							Neapion	harpax	Brent
IRC00027024	Janicki	Julia	MPM	Rauterberg	F	1897/10/00		before Oct 1897		N/A							Neapion	harpax	Brent
IRC00026642	Janicki	Julia	WIRC	Otto	Robert	1995/06/01		Swept in forest understory	Sweep net	Madison, UW campus	Dane						Neapion	harpax	Brent
IRC00027533			MPM	Rauterberg	F	1897/10/00		before October 1897		N/A							Neapion	herculanum	Brent
IRC00026643	Janicki	Julia	WIRC	Messer	P	2000/06/08		Back yard wooded area day		N/A	Ozaukee	42° 12' 24" N	87° 58' 20" W				Neapion	herculanum	Brent
IRC00026644	Janicki	Julia	WIRC	Messer	P	2001/06/09		Swept meadow weeds day	Sweep net	N/A	Milwaukee	43.129° N	89.970° W				Neapion	herculanum	Brent
IRC00026645	Janicki	Julia	WIRC	Janicki	Julia	2013/06/28		Beating Viburnum trilobum	Beating	Long Lake Recreational Area	Fond du Lac	43.663979° N	88.165921° W				Neapion	herculanum	Brent
IRC00025108	Kissinger	David	WIRC			1977/08/02	1977/08/10	Gypsy Moth - M.T.		N/A	Fond du Lac			13N	19E	23	Neapion	idiastes	Brent
IRC00025107	Kissinger	David	WIRC			1977/08/02	1977/08/10	Gypsy Moth - M.T.		N/A	Fond du Lac			13N	19E	23	Neapion	idiastes	Brent

IRC00025148	Janicki	Julia	WIRC	Haas	G			In copula on Hollyhock	hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025146	Janicki	Julia	WIRC	Haas	G			In copula on Hollyhock	hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025150	Janicki	Julia	WIRC	Haas	G			In copula on Hollyhock	hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00027945	Janicki	Julia	WIRC					hollyhock	hand collected	Ripon	Fond du Lac						Rhopalapion	longirostre	Brent	
IRC00027944	Janicki	Julia	WIRC					hollyhock	hand collected	Ripon	Fond du Lac						Rhopalapion	longirostre	Brent	
IRC00025149	Janicki	Julia	WIRC	Haas	G			In copula on Hollyhock	hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025154	Janicki	Julia	WIRC	Haas	G			In copula on Hollyhock	hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025157	Janicki	Julia	WIRC	Haas	G			In copula on Hollyhock	hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025156	Janicki	Julia	WIRC	Haas	G			In copula on Hollyhock	hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025153	Janicki	Julia	WIRC	Haas	G			In copula on Hollyhock	hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025147	Janicki	Julia	WIRC	Haas	G			In copula on Hollyhock	hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025155	Janicki	Julia	WIRC	Haas	G			In copula on Hollyhock	hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00027941	Janicki	Julia	WIRC					hollyhock	hand collected	Ripon	Fond du Lac						Rhopalapion	longirostre	Brent	
IRC00027940	Janicki	Julia	WIRC					hollyhock	hand collected	Ripon	Fond du Lac						Rhopalapion	longirostre	Brent	
IRC00025152	Janicki	Julia	WIRC	Haas	G			In copula on Hollyhock	hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025158	Janicki	Julia	WIRC	Haas	G			In copula on Hollyhock	hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025151	Janicki	Julia	WIRC	Haas	G			In copula on Hollyhock	hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00027939	Janicki	Julia	WIRC					hollyhock	hand collected	Ripon	Fond du Lac						Rhopalapion	longirostre	Brent	
IRC00027942	Janicki	Julia	WIRC					hollyhock	hand collected	Ripon	Fond du Lac						Rhopalapion	longirostre	Brent	
IRC00027943	Janicki	Julia	WIRC					hollyhock	hand collected	Ripon	Fond du Lac						Rhopalapion	longirostre	Brent	
IRC00027946	Janicki	Julia	WIRC					hollyhock	hand collected	Ripon	Fond du Lac						Rhopalapion	longirostre	Brent	
IRC00025145	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025134	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025258	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhock		N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025129	Kissinger	David	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025143	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025116	Kissinger	David	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025128	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025259	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhock		N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025131	Kissinger	David	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
ıaa########	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	
IRC00025144	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent	

IRC00025132	Kissinger	David	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025133	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025137	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025141	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025130	Kissinger	David	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025136	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025123	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025124	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025122	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025138	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025139	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025142	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025125	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025127	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025135	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025119	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025120	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025117	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025126	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025140	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025121	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025118	Janicki	Julia	WIRC	Smith	P.	1956/06/24		Hollyhocks	Hand collected	N/A	Dane						Rhopalapion	longirostre	Brent
IRC00025159	Janicki	Julia	WIRC	Hymer	W	1957/05/11				N/A	Dane						Rhopalapion	longirostre	Brent
IRC00027053	Janicki	Julia	UWO			1972/07/27				Oshkosh	Winnebago						Rhopalapion	longirostre	Brent
IRC00027052	Janicki	Julia	UWO			1972/07/27				Oshkosh	Winnebago						Rhopalapion	longirostre	Brent
IRC00025238	Kissinger	David	WIRC			1975/10/13		gypsy moth, #750063A; hollyhock		N/A	Dane			6N	9E	3	Rhopalapion	longirostre	Brent
IRC00025237	Janicki	Julia	WIRC			1975/10/13		gypsy moth, #750063A; hollyhock		N/A	Dane			6N	9E	3	Rhopalapion	longirostre	Brent
IRC00025236	Janicki	Julia	WIRC			1975/10/13		gypsy moth, #750063A; hollyhock		N/A	Dane			6N	9E	3	Rhopalapion	longirostre	Brent
IRC00025190	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025207	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025161	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025174	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent

IRC00025181	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025200	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025231	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025191	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025173	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025172	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025206	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025166	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025169	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025203	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025209	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025160	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025208	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025168	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025163	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025229	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025192	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025179	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025233	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025171	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025177	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025235	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025225	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025213	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025224	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025195	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025232	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025180	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025170	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025230	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025215	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025202	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent

IRC00025194	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025214	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025210	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025187	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025188	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025182	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025167	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025196	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025199	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025162	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025201	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025223	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025186	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025205	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025164	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025197	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025227	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025218	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025189	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025234	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025175	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025219	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025216	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025221	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025204	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025222	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025193	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025228	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025183	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025165	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025198	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025220	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent

IRC00025184	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025185	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025176	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025226	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025211	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025217	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025178	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025212	Janicki	Julia	WIRC	Phillips	J	1976/09/28				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00026971	Janicki	Julia	MPM	Lukasavitz	K	1979/07/13				near Hartford	Washington			9N	19E	7	Rhopalapion	longirostre	Brent
IRC00025254	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025255	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025246	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025244	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025241	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025248	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025256	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025257	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025245	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025251	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025242	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025253	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025240	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025247	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025252	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025243	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025249	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00025250	Kissinger	David	WIRC	Walgenbach	K	1983/06/29				Madison	Dane						Rhopalapion	longirostre	Brent
IRC00026658	Janicki	Julia	WIRC			1985/07/03				N/A	Racine						Rhopalapion	longirostre	Brent
IRC00026661	Janicki	Julia	WIRC	Messer	P	2000/06/11		sweep meadow weeds day	Sweep net	N/A	Kenosha	42.3350° N	87.5726° W				Rhopalapion	longirostre	Brent
IRC00026659	Janicki	Julia	WIRC	Messer	P	2000/06/21		Weedy field sweep, suburban backyard, 8am	Sweep net	N/A	Ozaukee	43.2106° N	87.8649° W				Rhopalapion	longirostre	Brent
IRC00026657	Janicki	Julia	WIRC	Dorshorst	John J.	2001/04/28		taken from grasshouse	hand collected	Madison, UW campus	Dane						Rhopalapion	longirostre	Brent
IRC00026660	Janicki	Julia	WIRC	Messer	P	2001/06/17		Sweep meadow weeds day	Sweep net	N/A	Ozaukee	43.208° N	87.968° W				Rhopalapion	longirostre	Brent

IRC00026656	Janicki	Julia	WIRC	Hernandez	Natalie	2012/05/14	2012/05/21	10 pan traps located within 0.25 mi of GPS. with yellow tile filled with propolene glycol, surrounded by lake, marshes, forest, prairie, savanna, and horticulture are	pan trap	Eagle Heights/Biocore	Dane	43.088242° N	89.430422° W				Rhopalapion	longirostre	Brent
IRC00026653	Janicki	Julia	WIRC	Janicki	Julia	2012/06/23		Sweep forest floor. rainy.	Sweep net	Moquah Barrens SNA	Bayfield	46.624503° N	91.209213° W				Eutrichapion	cavifrons	Brent
IRC00025106	Kissinger	David	WIRC	Otto	Robert	1995/06/29		Swept in tall grass	Sweep net	5 mi NW Suring, Wiscobee Lake	Oconto						Eutrichapion	huron	Brent
IRC00025105	Kissinger	David	WIRC	Otto	Robert	1995/06/29		Swept in tall grass	Sweep net	5 mi NW Suring, Wiscobee Lake	Oconto						Eutrichapion	huron	Brent
IRC00026926	Janicki	Julia	WDNR			1998/05/20		in sedge meadow. study053 SNA 96	Sweep net	J. Muir Co. Park	Marquette			14N	9E	14/SE	Eutrichapion	huron	Brent
IRC00027326	Kissinger	David	WDNR			1998/05/20		in wet prairie/sedge meadow, DNR study 053	sweep net	Page Creek	Marquette			15N	9E	22	Eutrichapion	huron	Brent
IRC00027325	Kissinger	David	WDNR			1998/05/20		in wet prairie/sedge meadow, DNR study 053	sweep net	Page Creek	Marquette			15N	9E	22	Eutrichapion	huron	Brent
IRC00026648	Janicki	Julia	WIRC	Janicki	Julia	2011/10/23		Sweeping prairie	Sweep net	Chiwaukee Prairie SNA	Kenosha	42.527800° N	87.817020° W				Ischnopterapion	virens	Brent
IRC00026647	Janicki	Julia	WIRC	Janicki	Julia	2011/10/23		Sweeping prairie	Sweep net	Chiwaukee Prairie SNA	Kenosha	42.527800° N	87.817020° W				Ischnopterapion	virens	Brent
IRC00026646	Janicki	Julia	WIRC	Janicki	Julia	2011/10/23		Sweeping prairie	Sweep net	Chiwaukee Prairie SNA	Kenosha	42.527800° N	87.817020° W				Ischnopterapion	virens	Brent
IRC00026738	Janicki	Julia	WIRC	Otto	Robert	1993/05/20		In tall grass at strawberry lane		Suring: farm 5 mi w of Suring	Oconto						Betulapion	simile	Brent
IRC00026739	Janicki	Julia	WIRC	Otto	Robert	1996/05/31		Swept in tall grass	Sweep net	Strawberry Lane	Oconto			29N	17E	18	Betulapion	simile	Brent
IRC00026740	Janicki	Julia	WIRC	Janicki	Julia	2011/10/02		Beating oak	Beating	Lone Rock, Lower WI SRW	Richland	43° 11' 36" N	90° 14' 20" W				Betulapion	simile	Brent
IRC00026737	Janicki	Julia	WIRC	Gullickson	Kari	2012/04/05	2012/04/19	in mixed hardwoods by stream, baited with turpentine	Malaise trap	N of Co. K, W of Co. M	Vilas	46.12307° N	89.64408° W				Betulapion	simile	Brent
IRC00026736	Janicki	Julia	WIRC	Janicki	Julia	2012/04/29		Beating honey suckle	Beating	Lone Rock Lower WI SRW	Richland	43° 11' 36" N	90° 14' 20" W				Betulapion	simile	Brent
IRC00026741	Janicki	Julia	WIRC	Gullickson	Kari	2012/05/19		Malaise trap in mixed hardwoods by stream, baited with turpentine	Malaise trap	N of Co K, W of Co M	Vilas	46.12307° N	89.64408° W				Betulapion	simile	Brent
IRC00026744	Janicki	Julia	WIRC	Janicki	Julia	2012/08/01		Beating Birch	Beating	Lone Rock, Lower WI SRW	Richland	43° 11' 36" N	90° 14' 20" W				Betulapion	simile	Brent
IRC00026743	Janicki	Julia	WIRC	Janicki	Julia	2012/08/01		Beating Birch	Beating	Lone Rock, Lower WI SRW	Richland	43° 11' 36" N	90° 14' 20" W				Betulapion	simile	Brent
IRC00026742	Janicki	Julia	WIRC	Janicki	Julia	2012/08/01		Beating Birch	Beating	Lone Rock, Lower WI SRW	Richland	43° 11' 36" N	90° 14' 20" W				Betulapion	simile	Brent
IRC00027505	Janicki	Julia	MAPC	Pynnonen	Mark	2013/05/20		Beating Ulmus branches	Beating	LWRSGA Lone Rock Unit	Richland	43.19352° N	90.23922° W				Betulapion	simile	Brent
IRC00027046	Janicki	Julia	WIRC	Gruber	Jeffrey P.	2013/09/07		Beaten from branches of hardwood tree, northern mesic forest	Beating	Big Eau Pleine County Park	Marathon	44° 44' 24" N	89° 50' 09" W				Betulapion	simile	Brent
IRC00027043	Janicki	Julia	WIRC	Janicki	Julia	2013/09/08		Beaten from branches of hardwood trees, northern mesic forest	Beating	Big Eau Pleine County Park	Marathon	44° 44' 24" N	89° 50' 09" W				Betulapion	simile	Brent
IRC00027044	Janicki	Julia	WIRC	Janicki	Julia	2013/09/08		Beaten from branches of hardwood trees, northern mesic forest	Beating	Big Eau Pleine County Park	Marathon	44° 44' 24" N	89° 50' 09" W				Betulapion	simile	Brent
IRC00027042	Janicki	Julia	WIRC	Janicki	Julia	2013/09/08		Beaten from branches of hardwood trees, northern mesic forest	Beating	Big Eau Pleine County Park	Marathon	44° 44' 24" N	89° 50' 09" W				Betulapion	simile	Brent
IRC00027045	Janicki	Julia	WIRC	Janicki	Julia	2013/09/08		Beaten from branches of hardwood trees, northern mesic forest	Beating	Big Eau Pleine County Park	Marathon	44° 44' 24" N	89° 50' 09" W				Betulapion	simile	Brent
IRC00027579	Kissinger	David	WDNR	Henderson	Richard A.	1986/08/13		Taken from sweep net in native prairie	Sweep net	Hawkhill Prairie	Dane						Kissingeria	amarum	Brent
IRC00027581	Kissinger	David	WDNR	Lisken	A	1986/08/18		taken from sweep net in native prairie	sweep net	Muralt Bluff Prairie	Green			3N	8E	25	Kissingeria	amarum	Brent
IRC00027582	Kissinger	David	WDNR	Henderson	Richard A.	1987/07/08		taken from sweep net in native prairie	sweep net	Black Earth Prairie	Dane			8N	6E	27SW	Kissingeria	amarum	Brent
IRC00027584	Kissinger	David	WDNR	Henderson	Richard A.	1987/08/17		taken from sweep net in native prairie	sweep net	Hawkhill Prairie	Dane			9N	8E	5	Kissingeria	amarum	Brent
IRC00027583	Kissinger	David	WDNR	Henderson	Richard A.	1987/08/17		taken from sweep net in native prairie	sweep net	Hawkhill Prairie	Dane			9N	8E	5	Kissingeria	amarum	Brent
IRC00027580	Kissinger	David	WDNR	Lisken	A	1987/08/20		taken from sweep net in native prairie	sweep net	Arlington Farm Prairie	Columbia			10N	10E	31NW	Kissingeria	amarum	Brent
IRC00027585	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net #2 to 70% EtOH, Apioninae #3	sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Kissingeria	amarum	Brent

IRC00027563	Kissinger	David	WDNR	Henderson	Richard A.	1991/08/31		seed pods of Ptealosternon candidum, dry-meisc priairie	Hand collected	Hawkhill Prairie	Dane			9N	8E	5	Kissingeria	amarum	Brent
IRC00027570	Kissinger	David	WDNR	Henderson	Richard A.	1991/08/31		seed pods of Ptealosternon candidum, dry-meisc priairie	Hand collected	Hawkhill Prairie	Dane			9N	8E	5	Kissingeria	amarum	Brent
IRC00027565	Kissinger	David	WDNR	Henderson	Richard A.	1991/08/31		seed pods of Ptealosternon candidum, dry-meisc priairie	Hand collected	Hawkhill Prairie	Dane			9N	8E	5	Kissingeria	amarum	Brent
IRC00027562	Kissinger	David	WDNR	Henderson	Richard A.	1991/08/31		seed pods of Ptealosternon candidum, dry-meisc priairie	Hand collected	Hawkhill Prairie	Dane			9N	8E	5	Kissingeria	amarum	Brent
IRC00027566	Kissinger	David	WDNR	Henderson	Richard A.	1991/08/31		seed pods of Ptealosternon candidum, dry-meisc priairie	Hand collected	Hawkhill Prairie	Dane			9N	8E	5	Kissingeria	amarum	Brent
IRC00027568	Kissinger	David	WDNR	Henderson	Richard A.	1991/08/31		seed pods of Ptealosternon candidum, dry-meisc priairie	Hand collected	Hawkhill Prairie	Dane			9N	8E	5	Kissingeria	amarum	Brent
IRC00027564	Kissinger	David	WDNR	Henderson	Richard A.	1991/08/31		seed pods of Ptealosternon candidum, dry-meisc priairie	Hand collected	Hawkhill Prairie	Dane			9N	8E	5	Kissingeria	amarum	Brent
IRC00027569	Kissinger	David	WDNR	Henderson	Richard A.	1991/08/31		seed pods of Ptealosternon candidum, dry-meisc priairie	Hand collected	Hawkhill Prairie	Dane			9N	8E	5	Kissingeria	amarum	Brent
IRC00027567	Kissinger	David	WDNR	Henderson	Richard A.	1991/08/31		seed pods of Ptealosternon candidum, dry-meisc priairie	Hand collected	Hawkhill Prairie	Dane			9N	8E	5	Kissingeria	amarum	Brent
IRC00027555	Kissinger	David	WDNR			1995/06/22		sand prairie, DNR study 053	sweep net	Walking Iron Park	Dane			8N	6E	8NWSE	Kissingeria	amarum	Brent
IRC00027554	Kissinger	David	WDNR			1995/06/22		sand prairie, DNR study 053	sweep net	Walking Iron Park	Dane			8N	6E	8NWSE	Kissingeria	amarum	Brent
IRC00027551	Kissinger	David	WDNR			1995/06/22		sand prairie, DNR study 053	sweep net	Walking Iron Park	Dane			8N	6E	8NWSE	Kissingeria	amarum	Brent
IRC00027553	Kissinger	David	WDNR			1995/06/22		sand prairie, DNR study 053	sweep net	Walking Iron Park	Dane			8N	6E	8NWSE	Kissingeria	amarum	Brent
IRC00027550	Kissinger	David	WDNR			1995/06/22		sand prairie, DNR study 053	sweep net	Walking Iron Park	Dane			8N	6E	8NWSE	Kissingeria	amarum	Brent
IRC00027552	Kissinger	David	WDNR			1995/06/22		sand prairie, DNR study 053	sweep net	Walking Iron Park	Dane			8N	6E	8NWSE	Kissingeria	amarum	Brent
IRC00027549	Kissinger	David	WDNR			1995/06/22		sand prairie, DNR study 053	sweep net	Walking Iron Park	Dane			8N	6E	8NWSE	Kissingeria	amarum	Brent
IRC00027556	Kissinger	David	WDNR			1995/07/21		dry-mesic prairie, unburned, DNR study 053	sweep net	Hawkhill (Miller)	Dane			9N	8E	5SW4	Kissingeria	amarum	Brent
IRC00027557	Kissinger	David	WDNR			1995/07/21		dry-mesic prairie, unburned, DNR study 053	sweep net	Hawkhill (Miller)	Dane			9N	8E	5SW4	Kissingeria	amarum	Brent
IRC00027561	Kissinger	David	WDNR	Henderson	Richard A.	1995/07/25		DNR study 053, SNA 054		Chiwaukee Prairie	Kenosha			1N	23E	31	Kissingeria	amarum	Brent
IRC00027560	Kissinger	David	WDNR			1995/07/25		DNR study 053, SNA 230-7	sweep net	Bald Bluff Prairie	Jefferson			5N	16E	33SE	Kissingeria	amarum	Brent
IRC00027559	Kissinger	David	WDNR	Henderson	Richard A.	1996/06/05		TNC/DNR study 053		Underwood Pr. U:1	Iowa			6N	5E	35NE	Kissingeria	amarum	Brent
IRC00027577	Kissinger	David	WDNR			1996/08/06		sweep net to EtOH, sand prairie	sweep net	Walking Iron Park	Dane			8N	6E	8NWSE	Kissingeria	amarum	Brent
IRC00027576	Kissinger	David	WDNR			1996/08/06		sweep net to EtOH, sand prairie	sweep net	Walking Iron Park	Dane			8N	6E	8NWSE	Kissingeria	amarum	Brent
IRC00026745	Janicki	Julia	WIRC			1997/07/16		taken from sweep net in dry prairie. DNR study 053	Sweep net	Hawkhill (M) U:2	Dane			9N	8E	5SE	Kissingeria	amarum	Brent
IRC00027547	Kissinger	David	WDNR			1998/07/29		prairie dropseed, dry-mesic prairie, DNR study 053	sweep net	Mud Lake SWA	Columbia			11N	10E	28NE	Kissingeria	amarum	Brent
IRC00027548	Kissinger	David	WDNR			1998/07/29		prairie dropseed, dry-mesic prairie, DNR study 053	sweep net	Mud Lake SWA	Columbia			11N	10E	28NE	Kissingeria	amarum	Brent
IRC00027546	Kissinger	David	WDNR			1998/07/29		prairie dropseed, dry-mesic prairie, DNR study 053	sweep net	Mud Lake SWA	Columbia			11N	10E	28NE	Kissingeria	amarum	Brent
IRC00027558	Kissinger	David	WDNR			1999/08/30		sand prairie, burned 95, 85F, 12:30-14:30. DNR study 053 SNA 205	Sweep net	Morgan Coulee Prairie	Pierce			25N	16W	34	Kissingeria	amarum	Brent
IRC00027578	Kissinger	David	WDNR	Sauer	S	2000/06/28		dry mesic hill prairie, Study053 SNA 205	sweep net	Morgan Coulee Prairie	Pierce			25N	16W	34	Kissingeria	amarum	Brent
IRC00027574	Kissinger	David	WDNR			2000/08/10		dry prairie, little blue, sideoats, Dalea spp., Amorpha, study 053 SNA 220	sweep net	Rocky Run O. O.	Dane			12N	10E	32S4	Kissingeria	amarum	Brent
IRC00027572	Kissinger	David	WDNR			2000/08/10		dry prairie, little blue, sideoats, Dalea spp., Amorpha, study 053 SNA 220	sweep net	Rocky Run O. O.	Dane			12N	10E	32S4	Kissingeria	amarum	Brent
IRC00027575	Kissinger	David	WDNR			2000/08/10		dry prairie, little blue, sideoats, Dalea spp., Amorpha, study 053 SNA 220	sweep net	Rocky Run O. O.	Dane			12N	10E	32S4	Kissingeria	amarum	Brent

IRC00027573	Kissinger	David	WDNR			2000/08/10		dry prairie, little blue, sideoats, Dalea spp., Amorpha, study 053 SNA 220	sweep net	Rocky Run O. O.	Dane			12N	10E	32S4	Kissingeria	amarum	Brent
IRC00027571	Kissinger	David	WDNR			2000/08/10		dry prairie, little blue, sideoats, Dalea spp., Amorpha, study 053 SNA 220	sweep net	Rocky Run O. O.	Dane			12N	10E	32S4	Kissingeria	amarum	Brent
IRC00026155	Janicki	Julia	WDNR	Sauer	S	2007/07/24		General sweep net, WDNR	Sweep net	Perrot Trail Prairie	Trempealeau			18N	9W	16SW	Kissingeria	amarum	Brent
IRC00026156	Janicki	Julia	WDNR	Sauer	S	2007/07/24		General sweep net, WDNR	Sweep net	Perrot Trail Prairie	Trempealeau			18N	9W	16SW	Kissingeria	amarum	Brent
IRC00026778	Janicki	Julia	WIRC	Sauer	S			Sweep net. prairie dropseed / Dalea purpurea, dry hill prairie. WDNR	Sweep net	Kestol Dry Pr. # 230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027588	Kissinger	David	WDNR					dry bluff prairie, DNR study 053	sweep net	Bald Bluff #230-7	Jefferson			5N	16E	33SE4	Kissingeria	capitone	Brent
IRC00027591	Kissinger	David	WDNR					dry bluff prairie, DNR study 053	sweep net	Bald Bluff #230-7	Jefferson			5N	16E	33SE4	Kissingeria	capitone	Brent
IRC00027586	Kissinger	David	WDNR					dry bluff prairie, DNR study 053	sweep net	Bald Bluff #230-7	Jefferson			5N	16E	33SE4	Kissingeria	capitone	Brent
IRC00026784	Janicki	Julia	WIRC	Sauer	S			Sweep net. prairie dropseed / Dalea purpurea, dry hill prairie. WDNR	Sweep net	Kestol Dry Pr. # 230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00026783	Janicki	Julia	WIRC	Sauer	S			Sweep net. prairie dropseed / Dalea purpurea, dry hill prairie. WDNR	Sweep net	Kestol Dry Pr. # 230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00026787	Janicki	Julia	WIRC	Sauer	S			Sweep net. prairie dropseed / Dalea purpurea, dry hill prairie. WDNR	Sweep net	Kestol Dry Pr. # 230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00025102	Kissinger	David	WIRC							Barron	Barron						Kissingeria	capitone	Brent
IRC00025099	Kissinger	David	WIRC							Barron	Barron						Kissingeria	capitone	Brent
IRC00026785	Janicki	Julia	WIRC	Sauer	S			Sweep net. prairie dropseed / Dalea purpurea, dry hill prairie. WDNR	Sweep net	Kestol Dry Pr. # 230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027587	Kissinger	David	WDNR					dry bluff prairie, DNR study 053	sweep net	Bald Bluff #230-7	Jefferson			5N	16E	33SE4	Kissingeria	capitone	Brent
IRC00026780	Janicki	Julia	WIRC	Sauer	S			Sweep net. prairie dropseed / Dalea purpurea, dry hill prairie. WDNR	Sweep net	Kestol Dry Pr. # 230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027621	Kissinger	David	WNDR					mesic prairie, study 053 SNA 054	sweep net	Chiwaukee Prairie	Kenosha			1N	23E	32	Kissingeria	capitone	Brent
IRC00025100	Kissinger	David	WIRC							Barron	Barron						Kissingeria	capitone	Brent
IRC00026782	Janicki	Julia	WIRC	Sauer	S			Sweep net. prairie dropseed / Dalea purpurea, dry hill prairie. WDNR	Sweep net	Kestol Dry Pr. # 230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027590	Kissinger	David	WDNR					dry bluff prairie, DNR study 053	sweep net	Bald Bluff #230-7	Jefferson			5N	16E	33SE4	Kissingeria	capitone	Brent
IRC00026779	Janicki	Julia	WIRC	Sauer	S			Sweep net. prairie dropseed / Dalea purpurea, dry hill prairie. WDNR	Sweep net	Kestol Dry Pr. # 230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00026781	Janicki	Julia	WIRC	Sauer	S			Sweep net. prairie dropseed / Dalea purpurea, dry hill prairie. WDNR	Sweep net	Kestol Dry Pr. # 230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027589	Kissinger	David	WDNR					dry bluff prairie, DNR study 053	sweep net	Bald Bluff #230-7	Jefferson			5N	16E	33SE4	Kissingeria	capitone	Brent
IRC00026786	Janicki	Julia	WIRC	Sauer	S			Sweep net. prairie dropseed / Dalea purpurea, dry hill prairie. WDNR	Sweep net	Kestol Dry Pr. # 230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00025101	Kissinger	David	WIRC							Barron	Barron						Kissingeria	capitone	Brent
IRC00026788	Janicki	Julia	WIRC	Sauer	S			Sweep net. prairie dropseed / Dalea purpurea, dry hill prairie. WDNR	Sweep net	Kestol Dry Pr. # 230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00025090	Kissinger	David	WIRC	Haas	G	1955/07/24		reared from Petalostemon purpureum		N/A	Dane						Kissingeria	capitone	Brent
IRC00025089	Kissinger	David	WIRC	Haas	G	1955/07/24		reared from Petalostemon purpureum		N/A	Dane						Kissingeria	capitone	Brent
IRC00025088	Kissinger	David	WIRC	Haas	G	1955/07/24		reared from Petalostemon purpureum		N/A	Dane						Kissingeria	capitone	Brent
IRC00025087	Kissinger	David	WIRC	Haas	G	1955/07/24		reared from Petalostemon purpureum		N/A	Dane						Kissingeria	capitone	Brent
IRC00025080	Kissinger	David	WIRC	Haas	G	1955/07/24		reared from Petalostemon purpureum		N/A	Dane						Kissingeria	capitone	Brent
IRC00025084	Kissinger	David	WIRC	Haas	G	1955/07/24		reared from Petalostemon purpureum		N/A	Dane						Kissingeria	capitone	Brent

IRC00025085	Kissinger	David	WIRC	Haas	G	1955/07/24		reared from Petalostemon purpureum		N/A	Dane						Kissingeria	capitone	Brent
IRC00025082	Kissinger	David	WIRC	Haas	G	1955/07/24		reared from Petalostemon purpureum		N/A	Dane						Kissingeria	capitone	Brent
IRC00025081	Kissinger	David	WIRC	Haas	G	1955/07/24		reared from Petalostemon purpureum		N/A	Dane						Kissingeria	capitone	Brent
IRC00025086	Kissinger	David	WIRC	Haas	G	1955/07/24		reared from Petalostemon purpureum		N/A	Dane						Kissingeria	capitone	Brent
IRC00025083	Kissinger	David	WIRC	Haas	G	1955/07/24		reared from Petalostemon purpureum		N/A	Dane						Kissingeria	capitone	Brent
IRC00025079	Kissinger	David	WIRC	Haas	G	1955/07/24		reared from Petalostemon purpureum		N/A	Dane						Kissingeria	capitone	Brent
IRC00026770	Janicki	Julia	WIRC	Schwehr	D. W.	1967/07/20				far west end of Curtis trail intersection, Madison	Dane						Kissingeria	capitone	Brent
IRC00026769	Janicki	Julia	WIRC	Schwehr	D. W.	1967/07/20				far west end of Curtis trail intersection, Madison	Dane						Kissingeria	capitone	Brent
IRC00025091	Kissinger	David	WIRC	Suter	W.	1981/07/31		Sweep		Carol Beach, Chiwaukee Prairie	Kenosha						Kissingeria	capitone	Brent
IRC00025093	Kissinger	David	WIRC	Suter	W.	1981/07/31		Sweep		Carol Beach, Chiwaukee Prairie	Kenosha						Kissingeria	capitone	Brent
IRC00025092	Kissinger	David	WIRC	Suter	W.	1981/07/31		Sweep		Carol Beach, Chiwaukee Prairie	Kenosha						Kissingeria	capitone	Brent
IRC00025098	Kissinger	David	WIRC	Suter	W.	1981/07/31		Sweep		Carol Beach, Chiwaukee Prairie	Kenosha						Kissingeria	capitone	Brent
IRC00025096	Kissinger	David	WIRC	Suter	W.	1981/07/31		Sweep		Carol Beach, Chiwaukee Prairie	Kenosha						Kissingeria	capitone	Brent
IRC00025097	Kissinger	David	WIRC	Suter	W.	1981/07/31		Sweep		Carol Beach, Chiwaukee Prairie	Kenosha						Kissingeria	capitone	Brent
IRC00025094	Kissinger	David	WIRC	Suter	W.	1981/07/31		Sweep		Carol Beach, Chiwaukee Prairie	Kenosha						Kissingeria	capitone	Brent
IRC00025095	Kissinger	David	WIRC	Suter	W.	1981/07/31		Sweep		Carol Beach, Chiwaukee Prairie	Kenosha						Kissingeria	capitone	Brent
IRC00027619	Kissinger	David	WDNR			1994/08/16		dry bluff prairie, DNR study 053	sweep net	Bald Bluff # 230-7	Jefferson			5N	16E	33SE4	Kissingeria	capitone	Brent
IRC00027620	Kissinger	David	WDNR			1995/06/13		wet prairie. Study 053, SNA 006	sweep net	Schuppernong prairie	Waukesha			5N	17E	16NW4	Kissingeria	capitone	Brent
IRC00027602	Kissinger	David	WDNR			1995/06/13		dry bluff prairie, DNR study 053	sweep net	Bald Bluff Prairie #230-7	Jefferson			5N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027599	Kissinger	David	WDNR			1995/06/13		dry bluff prairie, DNR study 053	sweep net	Bald Bluff Prairie #230-7	Jefferson			5N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027598	Kissinger	David	WDNR			1995/06/13		dry bluff prairie, DNR study 053	sweep net	Bald Bluff Prairie #230-7	Jefferson			5N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027601	Kissinger	David	WDNR			1995/06/13		dry bluff prairie, DNR study 053	sweep net	Bald Bluff Prairie #230-7	Jefferson			5N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027603	Kissinger	David	WDNR			1995/06/13		dry bluff prairie, DNR study 053	sweep net	Bald Bluff Prairie #230-7	Jefferson			5N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027600	Kissinger	David	WDNR			1995/06/13		dry bluff prairie, DNR study 053	sweep net	Bald Bluff Prairie #230-7	Jefferson			5N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027635	Kissinger	David	WNDR			1995/06/29		prairie clover road	sweep net	Thomson Prairie	Iowa			6N	5E	W4	Kissingeria	capitone	Brent
IRC00027632	Kissinger	David	WNDR			1995/07/07		DNR study 053	sweep net	Schluckebier Prairie	Sauk			9N	6E	4NW	Kissingeria	capitone	Brent
IRC00027622	Kissinger	David	WNDR			1995/07/21		mesic prairie, study 053 SNA 054	sweep net	Chiwaukee Prairie	Kenosha			1N	23E	32	Kissingeria	capitone	Brent
IRC00027658	Kissinger	David	WNDR	Henderson	Richard A.	1995/07/21			sweep net	Chiwaukee Prairie	Kenosha			1N	23E	32	Kissingeria	capitone	Brent
IRC00027594	Kissinger	David	WDNR			1995/07/26		dry bluff prairie, DNR study 053	sweep net	Kestol Dry Prairie #230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027593	Kissinger	David	WDNR			1995/07/26		dry bluff prairie, DNR study 053	sweep net	Kestol Dry Prairie #230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027597	Kissinger	David	WDNR			1995/07/26		dry bluff prairie, DNR study 053	sweep net	Kestol Dry Prairie #230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027595	Kissinger	David	WDNR			1995/07/26		dry bluff prairie, DNR study 053	sweep net	Kestol Dry Prairie #230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent

IRC00027596	Kissinger	David	WDNR			1995/07/26		dry bluff prairie, DNR study 053	sweep net	Kestol Dry Prairie #230-8	Walworth			4N	16E	4NE4	Kissingeria	capitone	Brent
IRC00027592	Kissinger	David	WDNR			1995/08/25		prairie dropseed, mesophytic prairie, study 053, SNA 132	sweep net	Young Prairie	Walworth			4N	16E	5NW4	Kissingeria	capitone	Brent
IRC00027605	Kissinger	David	WDNR			1995/08/30		sand prairie, burned 95, 85F, 12:30-14:30. Study 053, SNA 205	sweep net	Morgan Coulee Prairie	Pierce			25N	16W	34	Kissingeria	capitone	Brent
IRC00027604	Kissinger	David	WDNR			1995/08/30		sand prairie, burned 95, 85F, 12:30-14:30. Study 053, SNA 205	sweep net	Morgan Coulee Prairie	Pierce			25N	16W	34	Kissingeria	capitone	Brent
IRC00027654	Kissinger	David	WNDR	Henderson	Richard A.	1996/06/05				Underwood Pr.	Iowa						Kissingeria	capitone	Brent
IRC00027624	Kissinger	David	WNDR			1996/06/14				Schluckebier Prairie	Sauk			9N	6E	4SW4	Kissingeria	capitone	Brent
IRC00027626	Kissinger	David	WNDR			1996/06/20			sweep net	Drachenberg Prairie	Iowa			8N	5E	30N	Kissingeria	capitone	Brent
IRC00027625	Kissinger	David	WNDR			1996/06/20			sweep net	Drachenberg Prairie	Iowa			8N	5E	30N	Kissingeria	capitone	Brent
IRC00027655	Kissinger	David	WNDR	Henderson	Richard A.	1996/06/27				Weber Prairie	Grant			4N	6E	9NW	Kissingeria	capitone	Brent
IRC00027614	Kissinger	David	WDNR	Henderson	Richard A.	1996/07/01		wet meisc, S of Phil Sander, W of 2nd Ave, DNR study 053, SNA 054		Chiwaukee Prairie	Kenosha			1N	23E		Kissingeria	capitone	Brent
IRC00027615	Kissinger	David	WDNR	Henderson	Richard A.	1996/07/01		wet meisc, S of Phil Sander, W of 2nd Ave, DNR study 053, SNA 054		Chiwaukee Prairie	Kenosha			1N	23E		Kissingeria	capitone	Brent
IRC00027617	Kissinger	David	WDNR	Henderson	Richard A.	1996/07/01		wet meisc, S of Phil Sander, W of 2nd Ave, DNR study 053, SNA 054		Chiwaukee Prairie	Kenosha			1N	23E		Kissingeria	capitone	Brent
IRC00027618	Kissinger	David	WDNR	Henderson	Richard A.	1996/07/01		wet meisc, S of Phil Sander, W of 2nd Ave, DNR study 053, SNA 054		Chiwaukee Prairie	Kenosha			1N	23E		Kissingeria	capitone	Brent
IRC00027616	Kissinger	David	WDNR	Henderson	Richard A.	1996/07/01		wet meisc, S of Phil Sander, W of 2nd Ave, DNR study 053, SNA 054		Chiwaukee Prairie	Kenosha			1N	23E		Kissingeria	capitone	Brent
IRC00027643	Kissinger	David	WNDR			1996/07/02		dry bluff prairie	sweep net	Bald Bluff	Jefferson			5N	16E	33SE	Kissingeria	capitone	Brent
IRC00027638	Kissinger	David	WNDR			1996/07/02		dry bluff prairie	sweep net	Bald Bluff	Jefferson			5N	16E	33SE	Kissingeria	capitone	Brent
IRC00027656	Kissinger	David	WNDR			1996/07/02		burned 1996	sweep net	Kestol Prairie	Walworth			4N	16E	32	Kissingeria	capitone	Brent
IRC00027641	Kissinger	David	WNDR			1996/07/02		dry bluff prairie	sweep net	Bald Bluff	Jefferson			5N	16E	33SE	Kissingeria	capitone	Brent
IRC00027639	Kissinger	David	WNDR			1996/07/02		dry bluff prairie	sweep net	Bald Bluff	Jefferson			5N	16E	33SE	Kissingeria	capitone	Brent
IRC00027610	Kissinger	David	WDNR	Henderson	Richard A.	1996/07/02		TNC/DNR study 053	sweep net	Weber Prairie U:1	Green			4N	6E	9NW	Kissingeria	capitone	Brent
IRC00027640	Kissinger	David	WNDR			1996/07/02		dry bluff prairie	sweep net	Bald Bluff	Jefferson			5N	16E	33SE	Kissingeria	capitone	Brent
IRC00027644	Kissinger	David	WNDR			1996/07/02		collected from purple prairie clover	hand collected	Bald Bluff	Jefferson			5N	16E	33SE	Kissingeria	capitone	Brent
IRC00027611	Kissinger	David	WDNR	Henderson	Richard A.	1996/07/02		TNC/DNR study 053	sweep net	Weber Prairie U:1	Green			4N	6E	9NW	Kissingeria	capitone	Brent
IRC00027636	Kissinger	David	WNDR			1996/07/02		dry bluff prairie	sweep net	Bald Bluff	Jefferson			5N	16E	33SE	Kissingeria	capitone	Brent
IRC00027609	Kissinger	David	WDNR	Henderson	Richard A.	1996/07/02		TNC/DNR study 053	sweep net	Weber Prairie U:1	Green			4N	6E	9NW	Kissingeria	capitone	Brent
IRC00027642	Kissinger	David	WNDR			1996/07/02		dry bluff prairie	sweep net	Bald Bluff	Jefferson			5N	16E	33SE	Kissingeria	capitone	Brent
IRC00027613	Kissinger	David	WDNR	Henderson	Richard A.	1996/07/02		TNC/DNR study 053	sweep net	Weber Prairie U:1	Green			4N	6E	9NW	Kissingeria	capitone	Brent
IRC00027645	Kissinger	David	WNDR			1996/07/02		collected from purple prairie clover	hand collected	Bald Bluff	Jefferson			5N	16E	33SE	Kissingeria	capitone	Brent
IRC00027612	Kissinger	David	WDNR	Henderson	Richard A.	1996/07/02		TNC/DNR study 053	sweep net	Weber Prairie U:1	Green			4N	6E	9NW	Kissingeria	capitone	Brent
IRC00027637	Kissinger	David	WNDR			1996/07/02		dry bluff prairie	sweep net	Bald Bluff	Jefferson			5N	16E	33SE	Kissingeria	capitone	Brent
IRC00027646	Kissinger	David	WNDR			1996/07/02		collected from purple prairie clover	hand collected	Bald Bluff	Jefferson			5N	16E	33SE	Kissingeria	capitone	Brent
IRC00027634	Kissinger	David	WNDR			1996/07/10		in mixed greens, mostly prairie dropseed	sweep net	Drachenberg Prairie	Iowa			8N	5E	30N	Kissingeria	capitone	Brent

RIC00027660	Kissinger	David	WNDR			1996/08/01		feeding on spp of Dalea (Prairie clover)	hand collected	Buttenhoff Prairie	Green						Kissingeria	capitone	Brent
IRC00027659	Kissinger	David	WNDR			1996/08/13		dry mesic prairie	sweep net	Kestol Prairie	Walworth			4N	16E	32	Kissingeria	capitone	Brent
IRC00027631	Kissinger	David	WNDR			1996/08/21		in dry gravel prairie north of bog	sweep net	Lulu Lake	Walworth			4N	17E	1SW	Kissingeria	capitone	Brent
IRC00027647	Kissinger	David	WNDR			1996/08/30			sweep net	Chiwaukee Prairie	Kenosha			1N	23E	32	Kissingeria	capitone	Brent
IRC00026114	Kissinger	David	WDNR			1996/08/30		North of 122nd street, near railroad tracks, DNR study 053	Sweep net	Chiwaukee Prairie	Kenosha			1N	23E	32 U:1	Kissingeria	capitone	Brent
IRC00027649	Kissinger	David	WNDR			1996/08/30			sweep net	Chiwaukee Prairie	Kenosha			1N	23E	32	Kissingeria	capitone	Brent
IRC00027648	Kissinger	David	WNDR			1996/08/30			sweep net	Chiwaukee Prairie	Kenosha			1N	23E	32	Kissingeria	capitone	Brent
IRC00027651	Kissinger	David	WNDR			1997/07/17			sweep net	Chiwaukee Prairie	Kenosha			1N	23E	32	Kissingeria	capitone	Brent
IRC00027650	Kissinger	David	WNDR			1997/07/17			sweep net	Chiwaukee Prairie	Kenosha			1N	23E	32	Kissingeria	capitone	Brent
IRC00027608	Kissinger	David	WDNR			1997/08/05		in dry prairie, DNR study 053	sweep net	Kestrol Prairie	Walworth			4N	16E	41NE	Kissingeria	capitone	Brent
IRC00027606	Kissinger	David	WDNR			1997/08/05		in dry prairie, DNR study 053	sweep net	Kestrol Prairie	Walworth			4N	16E	41NE	Kissingeria	capitone	Brent
IRC00027623	Kissinger	David	WNDR			1997/08/05		wet-mesic prairie	sweep net	Kettle Moraine PR	Waukesha			5N	17E	9	Kissingeria	capitone	Brent
IRC00027607	Kissinger	David	WDNR			1997/08/05		in dry prairie, DNR study 053	sweep net	Kestrol Prairie	Walworth			4N	16E	41NE	Kissingeria	capitone	Brent
IRC00025104	Kissinger	David	WIRC	Maxwell	Judith A.	1997/08/13		Collected in sweep of Panicum virgatum in sand prairie		Fort McCoy, northern edge of Badger Drop Zone	Monroe						Kissingeria	capitone	Brent
IRC00027628	Kissinger	David	WNDR			1997/10/07		north of 122nd, block 3 unit 1.2, 80F, clear sky		Chiwaukee Prairie	Kenosha			1N	23E		Kissingeria	capitone	Brent
IRC00027629	Kissinger	David	WNDR			1997/10/07		north of 122nd, block 3 unit 1.2, 80F, clear sky		Chiwaukee Prairie	Kenosha			1N	23E		Kissingeria	capitone	Brent
IRC00027652	Kissinger	David	WNDR			1997/10/09			sweep net	Chiwaukee Prairie	Kenosha			1N	23E	32	Kissingeria	capitone	Brent
IRC00027653	Kissinger	David	WNDR			1997/10/09			sweep net	Chiwaukee Prairie	Kenosha			1N	23E	32	Kissingeria	capitone	Brent
IRC00026153	Janicki	Julia	WDNR	Suter	W.	1998/06/28			Sweep	Carol beach, Chiwaukee Prairie	Kenosha						Kissingeria	capitone	Brent
IRC00026154	Janicki	Julia	WDNR	Suter	W.	1998/06/28			Sweep	Carol beach, Chiwaukee Prairie	Kenosha						Kissingeria	capitone	Brent
IRC00026152	Janicki	Julia	WDNR	Suter	W.	1998/06/30			Sweep	Carol beach, Chiwaukee Prairie	Kenosha						Kissingeria	capitone	Brent
IRC00026151	Janicki	Julia	WDNR	Suter	W.	1998/06/30		Daisy		Carol Beach, Chiwaukee Prairie	Kenosha						Kissingeria	capitone	Brent
IRC00027627	Kissinger	David	WNDR			1998/07/28		in RR prairie, abundant purple prairie clover	sweep net	Oshkosh Larsen Trail	Winnebago			20N	16E	8NW4	Kissingeria	capitone	Brent
IRC00027630	Kissinger	David	WNDR			1998/08/12		general sweep, large dry, dry-mesic bluff prairie	sweep net	Eagle Valley Preserve, Cottonwood Prairie	Grant			4N	6W	27W2	Kissingeria	capitone	Brent
IRC00027657	Kissinger	David	WNDR			1998/08/25		dry bluff prairie, mostly dropseed	D-vac	Taylor Prairie	Dane			9N	6E	24SE4	Kissingeria	capitone	Brent
IRC00027633	Kissinger	David	WNDR			1999/07/02		general sweep, dry mesic prairie	sweep net	Arlington Farm Prairie	Columbia			10N	10E	31NW4	Kissingeria	capitone	Brent
IRC00025103	Kissinger	David	WIRC	Beilfuss	Katherine	1999/09/11		Swept in the grassland/scrub oak community		UW Madison Arboretum, Grady Tract	Dane						Kissingeria	capitone	Brent
IRC00027661	Kissinger	David	WNDR			2000/06/28		dry mesic hill prairie	sweep net	Morgan Coulee Prairie	Pierce			25N	16W		Kissingeria	capitone	Brent
IRC00027663	Kissinger	David	WNDR			2000/08/10		dry prairie, little blue, side oats, Dalea	sweep net	Rocky Run O. O.	Dane			12N	10E		Kissingeria	capitone	Brent
IRC00027662	Kissinger	David	WNDR			2000/08/10		dry prairie, little blue, side oats, Dalea	sweep net	Rocky Run O. O.	Dane			12N	10E		Kissingeria	capitone	Brent
IRC00026776	Janicki	Julia	WIRC	Sauer	S	2003/07/11		pass 2 of 3, prairie dropseed, dry/dry-mesic prairie. WDNR	Sweep net	Drachenberg Prairie	Iowa			8N	5E	31NW4	Kissingeria	capitone	Brent
IRC00026777	Janicki	Julia	WIRC	Sauer	S	2003/07/11		pass 2 of 3, prairie dropseed, dry/dry-mesic prairie. WDNR	Sweep net	Drachenberg Prairie	Iowa			8N	5E	31NW4	Kissingeria	capitone	Brent

IRC00026771	Janicki	Julia	WIRC			2003/07/18		South unit, unburned DM prairie, Dalea/Amorpha/Prairie dropseed. DNR study 053 misc	Sweep net	Underwood Pr, U:S	Iowa			6N	5E	35NE4	Kissingeria	capitone	Brent
IRC00026775	Janicki	Julia	WIRC			2003/07/18		Prairie dropseed/ some Dalea, dry-mesic prairie. DNR study 053	Sweep net	Nittany Knoll Farm, Unit: N	Iowa			6N	5E	35	Kissingeria	capitone	Brent
IRC00026774	Janicki	Julia	WIRC			2003/07/18		Prairie dropseed/ some Dalea, dry-mesic prairie. DNR study 053	Sweep net	Nittany Knoll Farm, Unit: N	Iowa			6N	5E	35	Kissingeria	capitone	Brent
IRC00026773	Janicki	Julia	WIRC			2003/07/18		South unit, unburned DM prairie, Dalea/Amorpha/Prairie dropseed. DNR study 053 misc	Sweep net	Underwood Pr, U:S	Iowa			6N	5E	35NE4	Kissingeria	capitone	Brent
IRC00026772	Janicki	Julia	WIRC			2003/07/18		South unit, unburned DM prairie, Dalea/Amorpha/Prairie dropseed. DNR study 053 misc	Sweep net	Underwood Pr, U:S	Iowa			6N	5E	35NE4	Kissingeria	capitone	Brent
IRC00026766	Janicki	Julia	WIRC			2003/07/20		general sweep net, unburned portion, dry-mesic prairie	Sweep net	Foster Cemetary Pr.	Pierce			27N	18W	2SE	Kissingeria	capitone	Brent
IRC00026768	Janicki	Julia	WIRC			2003/07/20		general sweep net, unburned portion, dry-mesic prairie	Sweep net	Foster Cemetary Pr.	Pierce			27N	18W	2SE	Kissingeria	capitone	Brent
IRC00026767	Janicki	Julia	WIRC			2003/07/20		general sweep net, unburned portion, dry-mesic prairie	Sweep net	Foster Cemetary Pr.	Pierce			27N	18W	2SE	Kissingeria	capitone	Brent
IRC00026764	Janicki	Julia	WIRC			2003/07/20		general sweep net, unburned portion, dry-mesic prairie	Sweep net	Foster Cemetary Pr.	Pierce			27N	18W	2SE	Kissingeria	capitone	Brent
IRC00026763	Janicki	Julia	WIRC			2003/07/20		general sweep net, unburned portion, dry-mesic prairie	Sweep net	Foster Cemetary Pr.	Pierce			27N	18W	2SE	Kissingeria	capitone	Brent
IRC00026765	Janicki	Julia	WIRC			2003/07/20		general sweep net, unburned portion, dry-mesic prairie	Sweep net	Foster Cemetary Pr.	Pierce			27N	18W	2SE	Kissingeria	capitone	Brent
IRC00026791	Janicki	Julia	WIRC	Sauer	S	2003/08/22		mostly pr. dropseed, meosphytic prairie. WDNR, SNA088	Sweep net	Kettle Moraine Pr.				5N	17E	9	Kissingeria	capitone	Brent
IRC00026789	Janicki	Julia	WIRC	Sauer	S	2003/08/22		pass 2, dropseed/Amorpha, dry bluff pr.. WDNR	Sweep net	Bald bluff #230-7	Jefferson			5N	16E	33SE4	Kissingeria	capitone	Brent
IRC00026790	Janicki	Julia	WIRC	Sauer	S	2003/08/22		pass 2, dropseed/Amorpha, dry bluff pr.. WDNR	Sweep net	Bald bluff #230-7	Jefferson			5N	16E	33SE4	Kissingeria	capitone	Brent
IRC00026139	Janicki	Julia	WDNR	Sauer	S	2007/07/03		Prairie dropseed, leadplant, Coreopsis, WDNR	Sweep net	Overlook prairie	La Crosse			16N	R7	34NW	Kissingeria	capitone	Brent
IRC00026142	Janicki	Julia	WDNR	Sauer	S	2007/07/03		Prairie dropseed, leadplant, Coreopsis, WDNR	Sweep net	Overlook prairie	La Crosse			16N	R7	34NW	Kissingeria	capitone	Brent
IRC00026145	Janicki	Julia	WDNR	Sauer	S	2007/07/03		Prairie dropseed, leadplant, Coreopsis, WDNR	Sweep net	Overlook prairie	La Crosse			16N	R7	34NW	Kissingeria	capitone	Brent
IRC00026146	Janicki	Julia	WDNR	Sauer	S	2007/07/03		Prairie dropseed, leadplant, Coreopsis, WDNR	Sweep net	Overlook prairie	La Crosse			16N	R7	34NW	Kissingeria	capitone	Brent
IRC00026143	Janicki	Julia	WDNR	Sauer	S	2007/07/03		Prairie dropseed, leadplant, Coreopsis, WDNR	Sweep net	Overlook prairie	La Crosse			16N	R7	34NW	Kissingeria	capitone	Brent
IRC00026147	Janicki	Julia	WDNR	Sauer	S	2007/07/03		Prairie dropseed, leadplant, Coreopsis, WDNR	Sweep net	Overlook prairie	La Crosse			16N	R7	34NW	Kissingeria	capitone	Brent
IRC00026141	Janicki	Julia	WDNR	Sauer	S	2007/07/03		Prairie dropseed, leadplant, Coreopsis, WDNR	Sweep net	Overlook prairie	La Crosse			16N	R7	34NW	Kissingeria	capitone	Brent
IRC00026138	Janicki	Julia	WDNR	Sauer	S	2007/07/03		Prairie dropseed, leadplant, Coreopsis, WDNR	Sweep net	Overlook prairie	La Crosse			16N	R7	34NW	Kissingeria	capitone	Brent
IRC00026140	Janicki	Julia	WDNR	Sauer	S	2007/07/03		Prairie dropseed, leadplant, Coreopsis, WDNR	Sweep net	Overlook prairie	La Crosse			16N	R7	34NW	Kissingeria	capitone	Brent
IRC00026144	Janicki	Julia	WDNR	Sauer	S	2007/07/03		Prairie dropseed, leadplant, Coreopsis, WDNR	Sweep net	Overlook prairie	La Crosse			16N	R7	34NW	Kissingeria	capitone	Brent
IRC00026149	Janicki	Julia	WDNR	Sauer	S	2007/07/24		General sweep, 18:00 hours, WDNR	Sweep net	Overlook Prairie	La Crosse			16N	7W	34NW	Kissingeria	capitone	Brent
IRC00026150	Janicki	Julia	WDNR	Sauer	S	2007/07/24		General sweep, 18:00 hours, WDNR	Sweep net	Overlook Prairie	La Crosse			16N	7W	34NW	Kissingeria	capitone	Brent
IRC00026148	Janicki	Julia	WDNR	Sauer	S	2007/07/24		General sweep, 18:00 hours, WDNR	Sweep net	Overlook Prairie	La Crosse			16N	7W	34NW	Kissingeria	capitone	Brent
IRC00026124	Janicki	Julia	WDNR	Sauer	S	2009/07/31		Prairie above leatherleaf bog Dalea purpurea	Sweep net	Lulu Lake	Walworth	88.455479° N	42.828625° W				Kissingeria	capitone	Brent
IRC00026120	Janicki	Julia	WDNR	Sauer	S	2009/07/31		Prairie above leatherleaf bog Dalea purpurea	Sweep net	Lulu Lake	Walworth	88.455479° N	42.828625° W				Kissingeria	capitone	Brent
IRC00026123	Janicki	Julia	WDNR	Sauer	S	2009/07/31		Prairie above leatherleaf bog Dalea purpurea	Sweep net	Lulu Lake	Walworth	88.455479° N	42.828625° W				Kissingeria	capitone	Brent
IRC00026121	Janicki	Julia	WDNR	Sauer	S	2009/07/31		Prairie above leatherleaf bog Dalea purpurea	Sweep net	Lulu Lake	Walworth	88.455479° N	42.828625° W				Kissingeria	capitone	Brent
IRC00026122	Janicki	Julia	WDNR	Sauer	S	2009/07/31		Prairie above leatherleaf bog Dalea purpurea	Sweep net	Lulu Lake	Walworth	88.455479° N	42.828625° W				Kissingeria	capitone	Brent

IRC00026131	Janicki	Julia	WDNR	Sauer	S	2009/08/06		General sweep and Dalea purpurea, burned entirely 2009, 91.985959,44.5522	Sweep net	Hurlburt Prairie	Buffalo						Kissingeria	capitone	Brent
IRC00026130	Janicki	Julia	WDNR	Sauer	S	2009/08/06		General sweep and Dalea purpurea, burned entirely 2009, 91.985959,44.5522	Sweep net	Hurlburt Prairie	Buffalo						Kissingeria	capitone	Brent
IRC00026129	Janicki	Julia	WDNR	Sauer	S	2009/08/06		General sweep and Dalea purpurea, burned entirely 2009, 91.985959,44.5522	Sweep net	Hurlburt Prairie	Buffalo						Kissingeria	capitone	Brent
IRC00026133	Janicki	Julia	WDNR	Sauer	S	2009/08/06		General sweep and Dalea purpurea, burned entirely 2009, 91.985959,44.5522	Sweep net	Hurlburt Prairie	Buffalo						Kissingeria	capitone	Brent
IRC00026137	Janicki	Julia	WDNR	Sauer	S	2009/08/06		General sweep and Dalea purpurea, burned entirely 2009, 91.985959,44.5522	Sweep net	Hurlburt Prairie	Buffalo						Kissingeria	capitone	Brent
IRC00026136	Janicki	Julia	WDNR	Sauer	S	2009/08/06		General sweep and Dalea purpurea, burned entirely 2009, 91.985959,44.5522	Sweep net	Hurlburt Prairie	Buffalo						Kissingeria	capitone	Brent
IRC00026125	Janicki	Julia	WDNR	Sauer	S	2009/08/06		General sweep and Dalea purpurea, burned entirely 2009, 91.985959,44.5522	Sweep net	Hurlburt Prairie	Buffalo						Kissingeria	capitone	Brent
IRC00026126	Janicki	Julia	WDNR	Sauer	S	2009/08/06		General sweep and Dalea purpurea, burned entirely 2009, 91.985959,44.5522	Sweep net	Hurlburt Prairie	Buffalo						Kissingeria	capitone	Brent
IRC00026128	Janicki	Julia	WDNR	Sauer	S	2009/08/06		General sweep and Dalea purpurea, burned entirely 2009, 91.985959,44.5522	Sweep net	Hurlburt Prairie	Buffalo						Kissingeria	capitone	Brent
IRC00026132	Janicki	Julia	WDNR	Sauer	S	2009/08/06		General sweep and Dalea purpurea, burned entirely 2009, 91.985959,44.5522	Sweep net	Hurlburt Prairie	Buffalo						Kissingeria	capitone	Brent
IRC00026135	Janicki	Julia	WDNR	Sauer	S	2009/08/06		General sweep and Dalea purpurea, burned entirely 2009, 91.985959,44.5522	Sweep net	Hurlburt Prairie	Buffalo						Kissingeria	capitone	Brent
IRC00026134	Janicki	Julia	WDNR	Sauer	S	2009/08/06		General sweep and Dalea purpurea, burned entirely 2009, 91.985959,44.5522	Sweep net	Hurlburt Prairie	Buffalo						Kissingeria	capitone	Brent
IRC00026127	Janicki	Julia	WDNR	Sauer	S	2009/08/06		General sweep and Dalea purpurea, burned entirely 2009, 91.985959,44.5522	Sweep net	Hurlburt Prairie	Buffalo						Kissingeria	capitone	Brent
IRC00026758	Janicki	Julia	WIRC	Janicki	Julia	2011/09/04		Sweeping prairie	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026761	Janicki	Julia	WIRC	Janicki	Julia	2011/09/04		Sweeping prairie	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026754	Janicki	Julia	WIRC	Janicki	Julia	2011/09/04		Sweeping prairie	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026762	Janicki	Julia	WIRC	Janicki	Julia	2011/09/04		Sweeping prairie	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026757	Janicki	Julia	WIRC	Janicki	Julia	2011/09/04		Sweeping prairie	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026755	Janicki	Julia	WIRC	Janicki	Julia	2011/09/04		Sweeping prairie	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026759	Janicki	Julia	WIRC	Janicki	Julia	2011/09/04		Sweeping prairie	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026760	Janicki	Julia	WIRC	Janicki	Julia	2011/09/04		Sweeping prairie	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026753	Janicki	Julia	WIRC	Janicki	Julia	2011/09/04		Sweeping prairie	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026756	Janicki	Julia	WIRC	Janicki	Julia	2011/09/04		Sweeping prairie	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026751	Janicki	Julia	WIRC	Janicki	Julia	2012/05/19		Sweeping prairie	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026752	Janicki	Julia	WIRC	Janicki	Julia	2012/05/19		Sweeping prairie	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026793	Janicki	Julia	WIRC	Mayry	Jessica	2012/07/08		Aerial sweep in bluff prairie	Sweep net	bluff prairie 1.2 mile south of Blue River	Grant	43.170590° N	90.558065° W				Kissingeria	capitone	Brent
IRC00026792	Janicki	Julia	WIRC	Mayry	Jessica	2012/07/08		Aerial sweep in bluff prairie	Sweep net	bluff prairie 1.2 mile south of Blue River	Grant	43.170590° N	90.558065° W				Kissingeria	capitone	Brent
IRC00026747	Janicki	Julia	WIRC	Janicki	Julia	2013/06/13		Sweeping prairie in area with willow and legumes	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026748	Janicki	Julia	WIRC	Janicki	Julia	2013/06/13		Sweeping prairie in area with willow and legumes	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026746	Janicki	Julia	WIRC	Janicki	Julia	2013/06/13		Sweeping prairie in area with willow and legumes	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026750	Janicki	Julia	WIRC	Janicki	Julia	2013/06/13		Sweeping prairie in area with willow and legumes	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent
IRC00026749	Janicki	Julia	WIRC	Janicki	Julia	2013/06/13		Sweeping prairie in area with willow and legumes	Sweep net	Chiwaukee Prairie	Kenosha	42.527800° N	87.817020° W				Kissingeria	capitone	Brent

IRC00025277	Kissinger	David	WIRC					Collection of Wm. S. Marshall		N/A								Trichapion	centrale	Brent
IRC00025275	Kissinger	David	WIRC					Collection of Wm. S. Marshall		N/A								Trichapion	centrale	Brent
IRC00025276	Kissinger	David	WIRC					Collection of Wm. S. Marshall		N/A								Trichapion	centrale	Brent
IRC00027014	Janicki	Julia	MPM	Rauterberg	F	1897/10/00		before Oct 1897		N/A								Trichapion	centrale	Brent
IRC00027015	Janicki	Julia	MPM	Snyder	W	1922/06/30				Beaver Dam	Dodge							Trichapion	centrale	Brent
IRC00025278	Kissinger	David	WIRC			1929/07/03				Grand Rapids	Wood							Trichapion	centrale	Brent
IRC00025274	Kissinger	David	WIRC			1976/06/03	1976/06/07	Gypsy Moth - M.T.		N/A	Jackson			21N	4W	33		Trichapion	centrale	Brent
IRC00025280	Kissinger	David	WIRC	Fluke	Chas. L.	1976/06/10				Oshkosh	Winnebago							Trichapion	centrale	Brent
IRC00025279	Kissinger	David	WIRC	Fluke	Chas. L.	1976/06/10				Oshkosh	Winnebago							Trichapion	centrale	Brent
IRC00026797	Janicki	Julia	WIRC	Janicki	Julia	2012/05/23		sweeping grassy area along road	Sweep net	Within Chequamegon National Forest	Bayfield	46.624503° N	91.209213° W					Trichapion	centrale	Brent
IRC00026796	Janicki	Julia	WIRC	Janicki	Julia	2012/05/23		sweeping grassy area along road	Sweep net	Within Chequamegon National Forest	Bayfield	46.624503° N	91.209213° W					Trichapion	centrale	Brent
IRC00026794	Janicki	Julia	WIRC	Janicki	Julia	2012/05/23		sweeping grassy area along road	Sweep net	Within Chequamegon National Forest	Bayfield	46.624503° N	91.209213° W					Trichapion	centrale	Brent
IRC00026795	Janicki	Julia	WIRC	Janicki	Julia	2012/05/23		sweeping grassy area along road	Sweep net	Within Chequamegon National Forest	Bayfield	46.624503° N	91.209213° W					Trichapion	centrale	Brent
IRC00026113	Kissinger	David	WDNR	Henderson	R. A.	1995/07/21		DNR study 053, SNA 054, B: U:	Sweep net	Chiwaukee Prairie	Kenosha			1N	23E	31		Trichapion	leporinum	Brent
IRC00025281	Kissinger	David	WIRC			1899/05/30		Collection of Wm. S. Marshall		N/A	Dane							Trichapion	minor	Brent
IRC00025282	Kissinger	David	WIRC	McNeel	W.	1949/08/25		collected from prairie species in oak opening		23	Adams							Trichapion	minor	Brent
IRC00025283	Kissinger	David	WIRC	McNeel	W.	1949/08/25		collected from prairie species in oak opening		23	Adams							Trichapion	minor	Brent
IRC00027201	Kissinger	David	WDNR	Henderson	R. A.	1986/08/13		Taken from sweep net in native prairie	Sweep net	Hawkhill Prairie	Dane							Trichapion	minor	Brent
IRC00027200	Kissinger	David	WDNR	Henderson	R. A.	1987/08/17		Taken from sweep net in native prairie	Sweep net	Hawkhill Prairie	Dane			9N	8E	5		Trichapion	minor	Brent
IRC00027199	Kissinger	David	WDNR	Henderson	R. A.	1987/08/17		Taken from sweep net in native prairie	Sweep net	Hawkhill Prairie	Dane			9N	8E	5		Trichapion	minor	Brent
IRC00027198	Kissinger	David	WDNR	Lisken	A	1987/08/19				Muralt Bluff Prairie	Green							Trichapion	minor	Brent
IRC00027209	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26		Trichapion	minor	Brent
IRC00027197	Kissinger	David	WDNR	Lisken	A	1987/08/20		Taken from sweep net in native prairie	Sweep net	Arlington farm prairie	Columbia			10N	10E	31NW		Trichapion	minor	Brent
IRC00027208	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26		Trichapion	minor	Brent
IRC00027226	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26		Trichapion	minor	Brent
IRC00027196	Kissinger	David	WDNR	Lisken	A	1987/08/20		Taken from sweep net in native prairie	Sweep net	Arlington farm prairie	Columbia			10N	10E	31NW		Trichapion	minor	Brent
IRC00027229	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26		Trichapion	minor	Brent
IRC00027223	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26		Trichapion	minor	Brent
IRC00027222	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26		Trichapion	minor	Brent
IRC00027212	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26		Trichapion	minor	Brent
IRC00027219	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26		Trichapion	minor	Brent
IRC00027227	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26		Trichapion	minor	Brent

IRC00027217	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027195	Kissinger	David	WDNR	Lisken	A	1987/08/20		Taken from sweep net in native prairie	Sweep net	Arlington farm prairie	Columbia			10N	10E	31NW	Trichapion	minor	Brent
IRC00027191	Kissinger	David	WDNR	Lisken	A	1987/08/20		Taken from sweep net in native prairie	Sweep net	Arlington farm prairie	Columbia			10N	10E	31NW	Trichapion	minor	Brent
IRC00027220	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027216	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027218	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027210	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027207	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027205	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027193	Kissinger	David	WDNR	Lisken	A	1987/08/20		Taken from sweep net in native prairie	Sweep net	Arlington farm prairie	Columbia			10N	10E	31NW	Trichapion	minor	Brent
IRC00027204	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027190	Kissinger	David	WDNR	Lisken	A	1987/08/20		Taken from sweep net in native prairie	Sweep net	Arlington farm prairie	Columbia			10N	10E	31NW	Trichapion	minor	Brent
IRC00027215	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027202	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027206	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027192	Kissinger	David	WDNR	Lisken	A	1987/08/20		Taken from sweep net in native prairie	Sweep net	Arlington farm prairie	Columbia			10N	10E	31NW	Trichapion	minor	Brent
IRC00027224	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027230	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027194	Kissinger	David	WDNR	Lisken	A	1987/08/20		Taken from sweep net in native prairie	Sweep net	Arlington farm prairie	Columbia			10N	10E	31NW	Trichapion	minor	Brent
IRC00027214	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027221	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027231	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027213	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027225	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027203	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027228	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027211	Kissinger	David	WDNR	Lisken	Antje	1987/08/20		prairie sweep net to 70% EtOH, Brentidae #1	Sweep net	Arlington Farm Prairie	Columbia			10N	9E	26	Trichapion	minor	Brent
IRC00027744	Kissinger	David	WDNR			1995/07/03		DNR study 053		Raymond rd North	Dane						Trichapion	minor	Brent
IRC00027747	Kissinger	David	WDNR			1995/08/18		DNR study 053	sweep net	Rush Creek	Crawford						Trichapion	minor	Brent
IRC00027731	Kissinger	David	WDNR			1995/08/29		bluff prairie, burned 1995, DNR study 053	sweep net	Rush Creek	Crawford						Trichapion	minor	Brent
IRC00027796	Kissinger	David	WDNR			1995/08/29		DNR study 053	sweep net	Rush Creek Prairie	Crawford						Trichapion	minor	Brent
IRC00027733	Kissinger	David	WDNR			1995/08/29		bluff prairie, burned 1995, DNR study 053	sweep net	Rush Creek	Crawford						Trichapion	minor	Brent

IRC00027730	Kissinger	David	WDNR			1995/08/29		bluff prairie, burned 1995, DNR study 053	sweep net	Rush Creek	Crawford						Trichapion	minor	Brent
IRC00027732	Kissinger	David	WDNR			1995/08/29		bluff prairie, burned 1995, DNR study 053	sweep net	Rush Creek	Crawford						Trichapion	minor	Brent
IRC00027729	Kissinger	David	WDNR			1995/08/29		bluff prairie, burned 1995, DNR study 053	sweep net	Rush Creek	Crawford						Trichapion	minor	Brent
IRC00027746	Kissinger	David	WDNR			1995/09/01		DNR study 053	sweep net	Muralt Bluff Prairie	Green						Trichapion	minor	Brent
IRC00027740	Kissinger	David	WDNR			1996/05/31			sweep net	Koch Prairie	Dane						Trichapion	minor	Brent
IRC00027739	Kissinger	David	WDNR			1996/05/31			sweep net	Koch Prairie	Dane						Trichapion	minor	Brent
IRC00027741	Kissinger	David	WDNR			1996/05/31			sweep net	Koch Prairie	Dane						Trichapion	minor	Brent
IRC00027770	Kissinger	David	WDNR			1996/06/05		DNR study 053		Underwood Prairie	Iowa						Trichapion	minor	Brent
IRC00027793	Kissinger	David	WDNR	Henderson	Richard A.	1996/06/05		DNR study 053		Underwood Prairie	Iowa						Trichapion	minor	Brent
IRC00027745	Kissinger	David	WDNR			1996/06/05		DNR study 053	sweep net	Weber Prairie	Green						Trichapion	minor	Brent
IRC00027734	Kissinger	David	WDNR			1996/06/14		DNR study 053	sweep net	Koch Prairie	Dane						Trichapion	minor	Brent
IRC00027795	Kissinger	David	WDNR			1996/06/14		DNR study 053		Westport Drumlin	Dane						Trichapion	minor	Brent
IRC00027736	Kissinger	David	WDNR			1996/06/14		DNR study 053	sweep net	Koch Prairie	Dane						Trichapion	minor	Brent
IRC00027735	Kissinger	David	WDNR			1996/06/14		DNR study 053	sweep net	Koch Prairie	Dane						Trichapion	minor	Brent
IRC00027737	Kissinger	David	WDNR			1996/06/14		DNR study 053	sweep net	Koch Prairie	Dane						Trichapion	minor	Brent
IRC00027738	Kissinger	David	WDNR			1996/06/14		DNR study 053	sweep net	Koch Prairie	Dane						Trichapion	minor	Brent
IRC00027775	Kissinger	David	WDNR			1996/06/18		DNR study 053		Thousands Rock Prairie	Dane						Trichapion	minor	Brent
IRC00027768	Kissinger	David	WDNR			1996/06/20		DNR study 053		Drachenberg Prairie	Iowa						Trichapion	minor	Brent
IRC00027794	Kissinger	David	WDNR			1996/06/25		DNR study 053		Dewey Heights Prairie	Grant						Trichapion	minor	Brent
IRC00027748	Kissinger	David	WDNR			1996/06/26		DNR study 053	sweep net	Meffert Prairie	Dane						Trichapion	minor	Brent
IRC00027749	Kissinger	David	WDNR			1996/06/26		DNR study 053	sweep net	Bolz Prairie	Dane						Trichapion	minor	Brent
IRC00027773	Kissinger	David	WDNR			1996/06/26		DNR study 053		Indian Lake East	Dane						Trichapion	minor	Brent
IRC00027751	Kissinger	David	WDNR	Henderson	Richard A.	1996/06/27		DNR study 053		Weber Prairie	Green						Trichapion	minor	Brent
IRC00027771	Kissinger	David	WDNR	Henderson	Richard A.	1996/06/27		DNR study 053		Weber Prairie	Green						Trichapion	minor	Brent
IRC00027798	Kissinger	David	WDNR			1996/07/02		DNR study 053	sweep net	Rush Creek Prairie	Crawford						Trichapion	minor	Brent
IRC00027799	Kissinger	David	WDNR			1996/07/02		DNR study 053	sweep net	Rush Creek Prairie	Crawford						Trichapion	minor	Brent
IRC00027742	Kissinger	David	WDNR			1996/07/09		Panicum sp, dry mesic prairie, DNR study 053	yellow pan trap	Oliver Prairie	Green						Trichapion	minor	Brent
IRC00027743	Kissinger	David	WDNR			1996/07/09		Panicum sp, dry mesic prairie, DNR study 053	yellow pan trap	Oliver Prairie	Green						Trichapion	minor	Brent
IRC00027774	Kissinger	David	WDNR			1996/07/19		DNR study 053		Arlington Farm Prairie	Columbia			10N	10E	31	Trichapion	minor	Brent
IRC00027800	Kissinger	David	WDNR			1996/07/30		DNR study 053	sweep net	Underwood Prairie	Iowa						Trichapion	minor	Brent
IRC00027801	Kissinger	David	WDNR			1996/08/07		DNR study 053	sweep net	Rush Creek Prairie	Crawford						Trichapion	minor	Brent
IRC00027750	Kissinger	David	WDNR			1996/09/11		DNR study 053		Dewey Heights Prairie	Grant						Trichapion	minor	Brent

IRC00027754	Kissinger	David	WDNR			1997/07/16		dry mesic prairie, DNR study 053	sweep net	Hawkhill Prairie	Dane			9N	8E		Trichapion	minor	Brent
IRC00027752	Kissinger	David	WDNR			1997/07/22		DNR study 053		Swenson Dry Prairie	Iowa						Trichapion	minor	Brent
IRC00027753	Kissinger	David	WDNR			1997/07/22		DNR study 053		Swenson Dry Prairie	Iowa						Trichapion	minor	Brent
IRC00027776	Kissinger	David	WDNR			1997/07/31		DNR study 053		Lulu Lake	Walworth						Trichapion	minor	Brent
IRC00026733	Janicki	Julia	WIRC	Maxwell	J	1997/08/07		Collected in a sweep of Sporobolus heterolepis in goat prairie	Sweep net	Fort McCoy, 1 mi NW of Coles Peak	Monroe						Trichapion	minor	Brent
IRC00027757	Kissinger	David	WDNR			1998/05/20		DNR study 053	sweep net	John Muir County Park	Marquette						Trichapion	minor	Brent
IRC00026729	Janicki	Julia	WIRC	Simonsen	J	1998/07/13		Agroecosystem proj., sweep sample, prairie remnant	Sweep net	Oliver Prairie	Green			3N	9E	16S	Trichapion	minor	Brent
IRC00026728	Janicki	Julia	WIRC	Simonsen	J	1998/07/13		Agroecosystem proj., sweep sample, prairie remnant	Sweep net	Oliver Prairie	Green			3N	9E	16S	Trichapion	minor	Brent
IRC00027797	Kissinger	David	WDNR	Bautz	R	1998/07/22		DNR study 053		Hogback Prairie	Crawford						Trichapion	minor	Brent
IRC00027766	Kissinger	David	WDNR			1998/07/29		DNR study 053		Mud Lake SWA	Columbia						Trichapion	minor	Brent
IRC00027759	Kissinger	David	WDNR			1998/07/30		DNR study 053	sweep net	Zimmerman Prairie	Grant						Trichapion	minor	Brent
IRC00027761	Kissinger	David	WDNR			1998/07/30		DNR study 053		Ellenboldt Prairie	Grant						Trichapion	minor	Brent
IRC00027764	Kissinger	David	WDNR			1998/07/30		DNR study 053		Sime Balds UW	Grant						Trichapion	minor	Brent
IRC00027763	Kissinger	David	WDNR			1998/07/30		DNR study 053		Sime Balds UW	Grant						Trichapion	minor	Brent
IRC00027760	Kissinger	David	WDNR			1998/07/30		DNR study 053		Ellenboldt Prairie	Grant						Trichapion	minor	Brent
IRC00027765	Kissinger	David	WDNR			1998/07/30		DNR study 053		Sime Balds UW	Grant						Trichapion	minor	Brent
IRC00027762	Kissinger	David	WDNR			1998/07/30		DNR study 053		Sime Balds UW	Grant						Trichapion	minor	Brent
IRC00027758	Kissinger	David	WDNR			1998/08/10		DNR study 053	sweep net	UW Arboretum, Greene Prairie	Dane						Trichapion	minor	Brent
IRC00027755	Kissinger	David	WDNR			1998/08/12		DNR study 053		Eagle Valley Pr., Cottonwood Prairie	Grant						Trichapion	minor	Brent
IRC00027756	Kissinger	David	WDNR			1998/08/12		DNR study 053		Eagle Valley Pr., Cottonwood Prairie	Grant						Trichapion	minor	Brent
IRC00027769	Kissinger	David	WDNR			1998/08/13		DNR study 053		Tainter Pasture	Crawford						Trichapion	minor	Brent
IRC00027767	Kissinger	David	WDNR			1998/08/13		DNR study 053	sweep net	Hogback Prairie	Crawford						Trichapion	minor	Brent
IRC00026735	Janicki	Julia	WIRC	Simonsen	J	1998/09/19		Agroecosystem proj., 70% EtOH sweep prairie remnant	Sweep net	Oliver Prairie	Green			3N	9E	36S	Trichapion	minor	Brent
IRC00027790	Kissinger	David	WDNR			1999/06/03		DNR study 053		Steenbock Prairie	Columbia						Trichapion	minor	Brent
IRC00027789	Kissinger	David	WDNR			1999/06/03		DNR study 053		Steenbock Prairie	Columbia						Trichapion	minor	Brent
IRC00027788	Kissinger	David	WDNR			1999/06/03		DNR study 053		Steenbock Prairie	Columbia						Trichapion	minor	Brent
IRC00027782	Kissinger	David	WDNR			1999/06/08		DNR study 053		Sime Balds	Grant						Trichapion	minor	Brent
IRC00027792	Kissinger	David	WDNR			1999/06/08		DNR study 053	sweep net	Ellenberg Prairie	Grant						Trichapion	minor	Brent
IRC00027791	Kissinger	David	WDNR			1999/06/08		DNR study 053	sweep net	Ellenberg Prairie	Grant						Trichapion	minor	Brent
IRC00027780	Kissinger	David	WDNR			1999/06/08		DNR study 053		Sime Balds	Grant						Trichapion	minor	Brent
IRC00027781	Kissinger	David	WDNR			1999/06/08		DNR study 053		Sime Balds	Grant						Trichapion	minor	Brent
IRC00027778	Kissinger	David	WDNR			1999/06/10		DNR study 053		Hamel Property	Marquette								

Literature Cited

Alonso-Zarazaga, M. A. 1990. Revision of the Supraspecific Taxa in the Palearctic Apionidae Schönherr, 1823 (Coleoptera, Curculionoidea). 2. Subfamily Apioninae Schoenherr, 1823: Introduction, Keys and Descriptions. *Grasllsia* 46:19-156.

Alonso-Zarezaga, M. A. and Lyal, C. H. C. 1999. A World Catalogue of Families and Genera of Curculionoidea (Insecta Coleoptera (Excepting Scolytidae and Platypodidae). *Entomopraxis*, SCP Edition, Barcelona, 315 p.

Anderson, R. S. 1992. Curculionoidea of Southern Florida: An Annotated Checklist (Coleoptera: Curculionoidea [excluding Curculionidae, Scolytinae, Platypodinae]). *Insecta Mundi* 6 (3-4): 193-200.

Anderson, R.S. 1995. An Evolutionary Perspective on Diversity in Curculionoidea. *Memoirs of the Entomological Society of Washington* 14: 103-114.

Anderson, R. S. 2002a. 125. Nemonychidae Bedel 1882. p. 692-694. *In* American Beetles, Volume 2: Polyphaga: Scarabaeoidea through Curculionoidea. Arnett, R. H. Jr., M. C. Thomas, P.E. Skelley and J.H. Frank eds., CRC Press, Boca Raton, Florida.

Anderson, R. S. 2002b. 130. Ithyceridae Schönherr 1823. p. 720-721. *In* American Beetles, Volume 2: Polyphaga: Scarabaeoidea through Curculionoidea. Arnett, R. H. Jr., M. C. Thomas, P.E. Skelley and J.H. Frank eds., CRC Press, Boca Raton, Florida.

Anderson, R. S. and Kissinger, D. G. 2002. 129. Brentidae Billberg 1820. p. 711-719. *In* American Beetles, Volume 2: Polyphaga: Scarabaeoidea through Curculionoidea. Arnett, R. H. Jr., M. C. Thomas, P.E. Skelley and J.H. Frank eds., CRC Press, Boca Raton, Florida.

Andres, L. A., Hawkes, R. B., and Rizza, A. 1967. *Apion* Seed Weevil Introduced for Biological Control of Scotch Broom. *California Agriculture* 21: 13.

Arnett, R.H., Jr., Thomas, M.C., Skelley, P. E. and Frank, J. H. (editors). 2002. American Beetles, Volume II: Polyphaga: Scarabaeoidea through Curculionoidea. Boca Raton, USA: CRC Press.

Bedel, L. 1906. Synonymies de Coleopteres Palearctiques. *Bulletin de la Societe Entomologique de France* [1906]: 91-92.

Billberg, G. J. 1820. Novae insectorum species descriptae. *Memoires de L'Academie Imperiale des Sciences de St.-Petersbourg* (5)7 (1815-1816): 381-395.

Blatchley, W. S. and Leng, C. W. 1916. Rhynchophora or weevils of northeastern America. The Nature Publishing Company, Indianapolis, Indiana, 682 p.

Bright, D.E. 1993. The Insects and Arachnids of Canada, 21. The Weevils of Canada and Alaska, Volume 1. Coleoptera: Curculionoidea, excluding Scolytidae and Curculionidae. Publication 1882, Research Branch Agriculture Canada, Ottawa, 217 p.

Calder, A. A. 1989. The Alimentary Canal and Nervous System of Curculionoidea (Coleoptera): Gross Morphology and Systematic Significance. *Journal of Natural History* 23: 1205-1265.

Cotton, E. C. 1905. Life History Notes on *Apion nigrum*. *The Ohio Naturalist* 5(7): 346-348.

Crowson, R. A. 1955. The Natural Classification of the Families of Coleoptera. N. Lloyd, London. (seen as 1967 reprint, E. W. Classey, Hampton, 187 p.)

Crowson, R. A. 1984. On the Systematic Position of *Bruchela* Dejean (*Urodon* Auctt.) (Coleoptera). *The Coleopterists Bulletin* 38: 91-93.

Curtis, J. T. 1959. The Vegetation of Wisconsin: An Ordination of Plant Communities. University of Wisconsin Press, Madison, 657p.

Danks, H. V. 1996. How to Assess Insect Biodiversity without Wasting Your Time. *Biological Survey of Canada*, Document Series 5: 20p.

Dieckman, L. 1974. Coleoptera- Curculionidae (Rhinomacerinae, Rhynchitinae, Attelabinae, Apoderinae). *Beitrage zur Insektenfauna der DDR* 24: 5-54.

Downie, N. M., and Arnett, R. H. Jr. 1996. The Beetles of Northeastern North America. 11. Polyphaga: Series Bostrichiformia through Curculionoidea. The Sandhill Crane Press, Gainesville, Florida, 871-1721pp.

Girault, A. A. 1904. *Attelabus bipustulatus* Fab. (Coleoptera). Theory of Oviposition and Construction of Nidus; Miscellaneous Notes. *Entomological News* 15: 189-193.

Gønget, H. 2003. The Nemonychidae, Anthribidae, and Attelabidae (Coleoptera) of Northern Europe. *Fauna Entomologica Scadinavica* 38: 132.

Hall, L. W., and Buss, L. J. 2007. Leaf-Rolling Weevil, *Homeolabus analis* (Illiger) (Coleoptera: Attelabidae: Attelabinae) and Thief Weevil, *Pterocolus ovatus* Fabricius (Coleoptera: Rhynchitidae: Pterocolinae). University of Florida IFAS Extension, EENY-420: http://entomology.ifas.ufl.edu/creatures/misc/beetles/H_analis_P_ovatus.htm.

Hamilton, R. W. 1969. Studies of the Rhynchophorous families Nemonychidae, Attelabidae and Rhynchitidae, with a revision of North American species of *Attelabus* Linnaeus, *Rhynchites* Schneider, and *Eugnamptus* Schoenherr (Coleoptera:

Curculionidae). Unpublished P.h.D thesis, Ohio State Univeristy, Columbus, Ohio, 492 p.

Hamilton, R. W. 1971. The genus *Pselaphorhynchites* (Coleoptera: Rhynchitidae) in America North of Mexico. *Annals of the Entomological Society of America* 64: 982-996.

Hamilton, R. W. 1973. Observations on the biology of *Haplorhynchites aeneus* (Boheman) (Coleoptera: Rhynchitidae). *The Coleopterists Bulletin* 27: 83-86.

Hamilton, R. W. 1980. Notes on the Biology of *Eugnamptus collaris* (Fabr.) (Coleoptera: Rhynchitidae), with Descriptions of the Larva and Pupa. *The Coleopterists Bulletin* 34: 227-236.

Hamilton, R. W. 1983a. Biological Data on the Two North American Rhynchitids (Coleoptera: Curculionoidea) Associated with the Sweet Fern, *Comptonia peregrine* L., with Descriptions, Illustrations, and Comparisons of their Immature Stages. *The Journal of Kansas Entomological Society* 56 (4): 511-522.

Hamilton, R. W. 1983b. A New Subgenus of *Auletobius* Desbrochers. *The Southwestern Entomologist* 8 (1): 67-72.

Hamilton, R. W. 1985. The genus *Merhynchites* Sharp in America, North of Mexico. *The Southwestern Entomologist* 10: 49-64.

Hamilton, R. W. 1990. A Revision of the Weevil genus *Eugnamptus* Schoenherr (Coleoptera: Rhynchitidae) in America north of Mexico. *Transactions of the American Entomological Society* 114: 475-502.

Hamilton, R. W. 1992. Revision of the New World Genus *Himatolabus* Jekel (Coleoptera: Attelabidae). *Transactions of the American Entomological Society* 118: 197-226.

Hamilton, R. W. 1994. A Catalog of the Coleoptera of America North of Mexico: Family Nemonychidae. Agricultural Research Service. Agriculture Handbook 529-134, 8p.

Hamilton, R. W. 2002. 128. Attelabidae Billberg 1829. p. 703-710. *In* American Beetles, Volume 2: Polyphaga: Scarabaeoidea through Curculionoidea. Arnett, R. H. Jr., M. C. Thomas, P.E. Skelley and J.H. Frank eds., CRC Press, Boca Raton, Florida.

Hamilton, R. W. 2010. Central American *Temnocerus* Thunberg, 1815 (Coleoptera: Rhynchitidae). *Insecta Mundi* 128: 1-42.

Harris, P. 2002. Established Biocontrol Agent: *Nanophyes marmoratus* (Goeze). Flower-feeding Weevil. [Online]. In: Biological control of weeds--Biology of target weeds. Lethbridge, AB: Agriculture and Agri-Food Canada, Research Branch,

Lethbridge Research Centre (producer). Available: http://res2.agr.ca/lethbridge/weedbio/hosts/blosstrf.htm [2002, January 25]. [39822]

Hilsenhoff, W.L. 1995. Aquatic Hydrophilidae and Hydraenidae of Wisconsin (Coleoptera). 1. Introduction, Key to Genera of Adults, and Distribution, Habitat, Life-cycle, and Identification of Species of *Helophorus* Fabricius, *Hydrochus* Leach, and *Berosus* Leach (Hydrophilidae), and Hydraenidae. *The Great Lakes Entomologist* 28: 25-53.

Hoebeke, E. R, Wheeler, A. G. Jr. 1991. *Anthribus nebulosus*, a Eurasian Scale Predator in the Eastern United States (Coleoptera: Anthribidae): Notes on Biology, Recognition, and Establishment. *Proceedings of the Entomological Society of Washington* 93: 45-50.

Hoebeke, E. R., Byers, R. A., Alonso-Zarazaga, M. A., and Stimmel, J. F. 2000. *Ischnopterapion virens* (Herbst) (Coleoptera: Curculionoidea: Brentidae: Apioninae), a Palearctic Clover Weevil New to North America: Recognition Features, Distribution, and Bionomics. *Proceedings of the Entomological Society of Washington* 102: 151-161.

Hopkins, M. J. G. and Whittaker, J. B. 1980. Interactions Between *Apion* Species (Coleoptera: Curculionidae) and Polygonaceae l. *Apionc curtirostre* Germ, and *Rumex acetosa* L. *Ecological Entomology* 5: 227-239.

Howden, A. T. 1992. Oviposition Behavior and Associated Morphology of the Neotropical Anthribid *Ptychoderes rugicollis* Jordan (Coleoptera: Anthribidae). *The Coleopterists Bulletin* 46: 20-27.

Howden, A. T. 1995. Structures Related to Oviposition in Curculionoidea. *Memoirs of the Entomological Society of Washington* 14: 53-100.

ICZN. [International Commission for Zoological Nomenclature]. 1994a. Opinion 1754. *Histoire abregee des insects qui se trouvent aux environs de Paris* (Geoffroy, 1762): some generic names conserved (Crustacea, Insecta). *Bulletin of Zoological Nomenclature* 51: 58-70.

Kissinger, D. G. 1959. A Revision of the *Apion* Subgenus *Trichapion* Wagner in the New World (Coleoptera: Curculionidae). *The Proceedings of the United States National Museum* 110: 247-389.

Kissinger, D. G. 1963. Studies on North American *Apion*: The *Apion parallelum* group (Coleoptera: Curculionidae). *Proceedings of the Entomological Society of Washington* 65: 34-46.

Kissinger, D. G. 1964. Curculionidae of America North of Mexico: a Key to the Genera. Taxonomic Publications, South Lancaster, Massachusetts, v + 143 p.

Kissinger, D. G. 1968. Curculionidae Subfamily Apioninae of North and Central America with Reviews of the World Genera of Apioninae and World Subgenera of *Apion* Herbst (Coleoptera). Taxonomic Publications, South Lancaster, Massachusetts, vii + 599 p.

Kissinger, D. G. 1989. Apionidae from North and Central America. Part 1. Notes on the Classification of the *Apion* Subgenus *Trichapion* Wagner with Description of New Species from the United States of America (Coleoptera). *Insecta Mundi* 3: 271-286.

Kissinger, D. G. 1990. Apionidae from North and Central America. Part 2. Description of a New Subgenus and Two New Species of *Apion* from Mexico (Coleoptera). *Insecta Mundi* 4: 33-40.

Kissinger, D. G. 1992. Apionidae from North and Central America. Part 4. Generic Classification and Introduction to the Genus *Coelocephalapion* Wagner, with New Species from Mexico and Venezuela (Coleoptera). *Insecta Mundi* 6: 65-77.

Kissinger, D. G. 1999. Description of a New Genus, *Sayapion*, from North and Central America (Coleoptera: Apionidae). *Insecta Mundi* 13: 72.

Kuschel, G. 1983. Past and Present of the Relict Family Nemonychidae (Coleoptera: Curculionidae). *Geojournal* 7: 499-504.

Kuschel, G. 1989. The Nearctic Nemonychidae (Coleoptera: Curculionoidea). *Entomologica Scandinavica* 20: 121-171.

Kuschel, G. 1994. Nemonychidae of Australia, New Guinea and New Caledonia. Appendix, pp. 563–637. In: Zimmerman, E.C., Australian Weevils (Coleoptera: Curculionoidea). Volume I – Orthoceri, Anthribidae to Attelabidae. The Primitive Weevils. CSIRO, Australia, 741 p.

Kuschel, G. 1995. A Phylogenetic Classification of Curculionoidea to Families and Subfamilies. *Memoirs of the Entomological Society of Washington* 14: 5-33.

Kuschel, G. 2003. Fauna of New Zealand: Nemonychidae, Belidae, Brentidae (Insecta: Coleoptera: Curculionoidea). Manaaki Whenua Press, Canterbury, 100 p.

Lawrence, J. F. and Newton, A. F. Jr. 1995. Families and Subfamilies of Coleoptera (with selected genera, notes, references and data on family-group names). Pp. 779-1006. In: J. Pakaluk and S. A. Slipinski, eds., Biology, Phylogeny and classification of Coleoptera: Papers celebrating the 80th birthday of Roy A. Crowson. Muzeum I Instytut Zoologii PAN, Warsaw.

LeConte , J. L. 1876. The Rhynchophora of America, North of Mexico. *Proceedings of the American Philosophical Society* 15: 1-455.

Legalov, A. A. 2003. Taxanomy, Classification and Phylogeny of the Leaf-rolling Weevils (Coleoptera: Rhynchitidae, Attelabidae) of the World Fauna. Novosibirsk. CD-ROM. No. 0320301200. 733p.

Linneaus, C. 1758. Systema Naturae per Regna Tria Naturae, secundum Classes, Ordines, Genera, Species, cum Characteribus, Differentiis, Synonymis, Locis, Editio Decima, Reformata Vol. 1. L. Salvii, Holmiae, 824 + iii p.

Majka, C.G., Anderson, R.S., McAlpine, D. F.,Webster, R.P. 2007. The Weevils (Coleoptera: Curculionoidea) of Maritime Provinces of Canada, I: New Records from New Brunswick. *The Canadian Entomologist* 139: 378-396.

Majka, C. G., Anderson, R.S., McCorquodale, D. B. 2007. The Weevils (Coleoptera: Curculionoidea) of Maritime Provinces of Canada, II: New Records From Nova Scotia and Prince Edward Island and Regional Zoogeography. *The Canadian Entomologist* 139: 397-442.

Majka, C.G., Robertson, R. S., and Georgeson, E. 2007. Introduced Apionidae and Brentidae (Coleoptera: Curculionoidea) in the Maritime provinces of Canada. *Proceedings of the Entomological Society of Washington* 109: 66-74.

Majka, C. G., Neil, K., and Webster, R.P. 2008. *Arrenodes minutus* Discovered in the Maritime Provinces of Canada. *Acadian Entomological Society* 4: 32-35.

Marske, K. A., and Ivie, M. A. 2003. Beetle Fauna of the United States and Canada. *The Coleopterists Bulletin* 57: 495-503.

Marvaldi, A. E. 1997. Higher Level Phylogeny of Curculionoidae (Coleoptera: Curculionoidea) based mainly on Larval Characters, with Special Reference to Broad-Nosed Weevils. *Cladistics* 13: 285-312.

Marvaldi, A.E., and Morrone, J. J. 2000. Phylogenetic Systematics of Weevils (Coleoptera: Curculionoidea): a Reappraisal based on Larval and Adult Morphology. *Insect Systematics and Evolution* 31: 43-58.

Marvaldi, A.E., Sequeira A.S., O'Brien, C.W., and Farrell, B. D. 2002. Molecular and Morphological Phylogenetics of Weevils (Coleoptera: Curculionidae): Do Niche Shifts Accompany Diversification? *Systematic Biology* 51: 761-785.

Mattson, W. J. 1969. Do Pine Gall Weevils Affect Cone Production in Red Pine? North Central Forest Experiment Station, U.S. Department of Agriculture, Forest Service. Research Note NC-71. St. Paul, MN, 2 p.

May, B. M. 1993. Larvae of Curculionoidea (Insecta: Coleoptera): A Systematic Overview. *Fauna New Zealand* 28: 1-221.

McKenna, D. D., Sequeira, A. S., Marvaldi, A. E., and Farrell, B. D. 2009. Temporal Lags and Overlap in the Diversification of Weevils and Flowering Plants. *Proceedings of the National Academy of Science* 106: 7083-7088.

Morimoto, K. 1962. Comparative Morphology and Phylogeny of the Superfamily Cuculionoidea of Japan. III. Key to Families, Subfamilies, Tribes and Genera of the Superfamily Curculionoidea of Japan excluding Scolytidae, Platypodidae and Cossoninae. *Journal of the Faculty of Agriculture, Kyushu University* 12: 21-66.

Murtfeldt, M. E. 1872. Notes on *Attelabus bipustulatus*, Fabr. *The Canadian Entomologist* 4: 143-145.

Oberprieler, R. G., Marvaldi, A. E. and Anderson, R. S. 2007. Weevils, weevils, weevils everywhere. *Zootaxa* 1668: 491-520.

O'Brien, C. W. and Wibmer, G. J. 1982. Weevils of North America. *Memoirs of the American Entomological Institute* 34: i-ix, 1-382.

Pierce, W. D. 1930. Studies of the North American Weevils belonging to the Superfamily Platystomoidea. *Proceedings of the United States National Museum* 77: 1-34.

Salsbury, G. A. 1984. The Weevil Genus *Apion* in Kansas. *Transactions of the Kansas Academy of Science* 87: 41-52.

Salsbury, G.A. 1987. *Apion* (*Trichapion*) *leporinum*, a new species from Kansas (Coleoptera: Apionidae). *The Coleopterist Bulletin* 41: 237-239.

Salsbury, G. A. 2000. The Weevils of Kansas: A Manual for Identification. Published by G. A. Salsbury, Kansas, 655 p.

Sanbourne, M. 1983. Some observations on the behaviour of *Arrhenodes minutus* (Drury). (Coleoptera: Brentidae). *The Coleopterists Bulletin* 37: 106-113.

Sauer, S. B. 2005. Prairie Apioninae (Coleoptera:Brentidae) of Wisconsin: Collections and distributions. *Insecta Mundi* 19: 129-134.

Schönherr, C. J. 1823. Curculionides. Tabula synoptica familiae curculionidum. Isis von Oken, heft X, [1823]: 1132-1146.

Silfverberg, H. 1977. Nomenlatoric notes on Curculionidae (Coleoptera). *Notulae Entomologicae* 57: 13-14.

Stavney, E.A., Raffa, K.F. 1988. Collection methods for New York weevil, *Ithycerus noveboracensis*, adult (Coleoptera: Ithyceridae). *Entomological News* 99:164-166.

Thomas, J. B. and Herdy, H. 1961. A note on the Life History of *Cimberis elongatus* (LeConte) (Coleoptera: Anthribidae). *The Canadian Entomologist* 93: 406-408.

Thomas, M. C. 2007. Primitive Weevils of Florida (Insecta: Coleoptera: Brentidae: Brentinae). University of Florida-IFAS Extension, EENY-400, 1-3.

Thompson, R. T. 1992. Observations on the Morphology and Classification of Weevils (Coleoptera: Curculionoidea) witha Key to the Major Groups. *Journal of Natural History* 26: 835-891.

Tucker, E. S. 1909. New Breeding Records of the Coffee-bean Weevil (*Araecerus fasciculatus*). U.S. Department of Agriculture, *Bur. Ent. Bull.* 64: 61-64.

Tuttle, D. M. 1954. Notes on the Bionomics of Six Species of *Apion* (Curculionidae, Coleoptera). *Annals of the Entomological Society of America* 47: 301-307.

Valentine, B. D. 1957. Anthribid Weevils from Yucatan Collected on the Explorers Club American Museum of Natural History Expedition, with Notes on Others of the *Brachytarsus* Complex (Coleoptera, Anthribidae). *American Museum Novitates* 1948: 1-11.

Valentine, B. D. 1960. The Genera of the Weevil Family Anthribidae North of Mexico (Coleoptera). *Transactions of the American Entomological Society* 86: 41-85.

Valentine, B. D. 1998 (1999). A Review of Neactic and Some Related Anthribidae (Coleoptera). *Insecta Mundi* 12: 251-296.

Valentine, B. D. 2002. 126. Anthribidae Billberg 1820. p. 695-700. *In* American Beetles, Volume 2: Polyphaga: Scarabaeoidea through Curculionoidea. Arnett, R. H. Jr., M. C. Thomas, P.E. Skelley and J.H. Frank eds., CRC Press, Boca Raton, Florida.

Vogt, G. B. 1992. Leaf-rolling weevils (Coleoptera: Attelabidae), their host plants, and associated Rhynchitid weevils in North America (Canada through the Republic of Panama): summary of a long-term field study. p. 392-420. *In*: D. Quainter and A. Aiello, eds. Insects of Panama and Mesoamerica: Selected Studies. Oxford University Press. Oxford, Great Britain, vxii + 692 p.

WDNR [Wisconsin Department of Natural Resources]. 2006. Wisconsin Ecological Landscapes Handbook. Available online at: http://dnr.wi.gov/landscapes/

WDNR [Wisconsin Department of Natural Resources]. 2008. Wisconsin's Wildlife Action Plan (2005-2015). Available online at: http://dnr.wi.gov/org/land/er/wwap/implementation/pdfs/WAP_Implementation_Report_2008.pdf

Whiles, M. R. and Charleton, R. E. 2005. The Ecological Significance of Tallgrass Prairie Arthropods. *Annual Review of Entomology* 51: 387-412.

Whitehead, D. A. 1977. New *Apion* (*Coelocephalapion*) Species (Curculionidae: Apioninae) from Fruit of *Pterocarpus* (Leguminosae: Faboideae) in Central America. *The Coleopterists Bulletin* 31(2): 165-172.

Whitehead, D. A. 1980. The Weevil *Apion* (*Perapion*) *curtirostre* Germar in North America, and the Systematic Position of *Perapion* Wagner with a Review of the North American Species (Coleoptera: Curculionoidea: Apionidae). *The Coleopterists Bulletin,* 34 (4): 397-400.

Wilhelm, G., Handschuh, S., Plant, J. and Nemeschkal, H. L. 2011. Sexual Dimorphism in Head Structures of the Weevil *Rhopalapion longirostre* (Olivier 1807) (Coleoptera: Curculionoidea): a Response to Ecological Demands of Egg Deposition. *Biological Journal of the Linnaean Society* 104: 640-660.

Wilson, L. F. 1965. Life History and Some Habits of the Pine Gall Weevil, *Podapion gallicola* Riley, in Michigan. *The Canadian Entomologist* 97(9): 962-969.

Wink, M., Mikes, Z., Rheinheimer, J. 1997. Phylogenetic relationships in weevils (Coleoptera: Curculionoidea) inferred from nucleotide sequences of mitochondrial 16S rDNA. *Naturwissenschaften* 84: 318-321.

Wollaston, T. V. 1861. On Certain Coleopteran from the Island of St. Vincent. *Annals and Magazine of Natural History* (3)7: 90-103.

Zherikhin, V. V. and Gratshev, V. G. 1995. A comparative study of the hind wing venation of the superfamily Curculionoidea with phylogenetic implications. p. 634-777. *In:* Pakaluk, J., and S. A. Slipinski (eds). Biology, Phylogeny and Classification of Coleoptera. Papers celebrating 80th Birthday of Roy A. Crowson. Vol. 2. Muzeum i Instytut Zoologii PAN, Warszawa.

Zimmerman, E. C. 1994. Australian Weevils (Coleoptera: Curculionoidea). Volume I - Orthoceri, Anthribidae to Attelabidae. The Primitive Weevils. CSIRO, Canberra, Australia, 741 p.