



The Cerambycidae or Longicorn beetles of Montana
by C Wilfred Shockley

A THESIS Submitted to the Graduate Committee in partial fulfillment of the requirements for the
Degree of Master of Science in Entomology
Montana State University
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Abstract:
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C. Wilfred Shockley

A THESIS

Submitted to the Graduate Committee in partial fulfillment
of the requirements for the Degree of
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MONTANA

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INTRODUCTION

Although individual Montana records frequently occur in the lists of North American Coleoptera, no previous attempt has been made to record systematically the species of any one family occurring within the state. The reports of Dr. George H. Horn (1871-72 and 1872-73) listed nine and eight species respectively as occurring in Montana. Dr. M. H. Hatch (1933) lists, with distributional data, two hundred forty one species and subspecies in nine families of this order. These three papers constitute the literature of Montana coleopterology.

In the collections of the Montana Experiment Station there are upwards of seventeen hundred species of Coleoptera. Bearing in mind the scarcity of Montana literature and the rather large number of species with which to work, this study of the Cerambycidae of Montana was undertaken. This family is one of the larger families in the order Coleoptera, and is generally considered as one of the more difficult with which to work. The state collections and published lists of Coleoptera record ninety-four species and subspecies in forty one genera as occurring in the state. In all probability many species will be added to the present list, but, if the keys and descriptions here presented are of any service to the collectors of the state, or, if the paper serves as a stimulus to additional work in this large order of Montana insects, then any effort that has been put forth in its preparation will have been well spent.

The writer wishes to express his appreciation to the several persons who have given so generously of their time and knowledge whenever called upon for assistance. Particularly to Dr. Harlow B. Mills who has supervised the work and without whose assistance little would have been

accomplished; and to Mr. Ralph Hopping and Mr. George R. Hopping, of Vernon, British Columbia, who have graciously and quickly determined all specimens sent to them for determination.

BIOLOGY

Not a great deal is known concerning the biology of the group, but the majority of the species are wood borers in the larval stage. Some species may breed in many species of trees, rarely in both coniferous and deciduous. Some (Tetraopes) breed in milkweed (Asclepias sp.), others (Moneilema) in several species of cacti. Certain other species breed in gooseberry, raspberry, mesquite, apple and various other woody plants. The adults of many species are commonly found on flowers while others can be found in lumber or wood yards, on living or dead trees or flying about bright lights at night.

Probably the best account of the biology of this family is given in Craighead's "North American Cerambycid Larvae" (1923).

MORPHOLOGY

A complete discussion of the morphology of such a large and variable group would require much more space and time than is now available. For that reason only the more important characters utilized in the separation of subfamilies, tribes, genera and, in a few cases, species of Montana will be given here.

Head

Antennae. - With the exception of the genus Priomus, the antennae of all cerambycids are composed of eleven segments. Those of the afore-

mentioned genus are composed of from twelve to thirty segments, depending upon the species. Males of many species have serrate antennae. This type of antennae is far less common in the females. The scape or first segment in some genera (Poliaemus) is normal and slender, in some (Pogonocherus) it is clavate, and in other genera variations between these are to be found. The tribe Monochamini is separated from the rest of the Lamiinae by the presence of a closed cicatrice or scar on the outer end of the scape. In this subfamily (Lamiinae) there is often a great elongation of the segments of the antennae, lengthening these organs to about five or six times the length of the body. The outer segments of the antennae of Typocerus and Strangalina have indented poriferous spaces with definite margins on one or two sides. These spaces are usually elongate and are thought to be special sense organs. The chief systematic value of these areas is based on the fact that in the genus Typocerus two groups of species can be easily separated, since in one the poriferous areas begin on the sixth segment and in the other they begin on the seventh segment.

Eyes.- The eyes of the Cerambycidae are usually transverse, frequently emarginate and at times partially surround the antennal sockets. Divided eyes are uncommon but occur in the genera Tetropium and Tetraopes. The varying sizes of the facets of the compound eyes have given rise to the terms finely granulated and coarsely granulated. To those eyes having small, close-set facets, the first term is applied, and to those having larger facets, set farther apart, the latter term is applied.

Mouth parts.- The mandibles may be acute (Lepturini, fig.1), simple (Desmocerus, fig.2), or emarginate (Crossidius, fig.3) at the tip.

However, the mandibles are little used in the classification of the family. The labial palpi are composed of three segments. The third segment may be acute at the tip and subcylindrical (Lamiinae, fig.4), or it may be more flattened and not cylindrical (Cerambycinae, fig.5). The ligula (central sclerite of the labium, borne upon the mentum) may be membranous (Asemini) or chitinous (Callidiini). Most genera of the above tribes are quite dissimilar in appearance, but the genus Xylocrius of the tribe Callidiini is superficially very much like the genus Asemmum of the tribe Asemini and can be separated from the members of the latter tribe by removing the labium and examining the ligula.

Thorax

Many characters exhibited by the thorax are used in the separation of nearly all groups of the family. The various parts will be briefly discussed separately.

Pronotum.-- The pronotum may be margined (Prioninae) or not (Cerambycinae and Lamiinae). The depth, size and number of punctuations on the disc as well as callosities and rugose conditions of the parts of the pronotum are valuable characters in separating genera and species. The hind angles in some species and genera are produced over the humeri (Grammoptera, fig.6). In others such as Anoplodera (fig.7) they are not so produced. In A. nigrella and A. instabilis they are acute and laminate and in A. aspera they are obtuse. The shape of the pronotum is described as being campanulate, trapezoidal, quadrate, narrowed in front, etc. as the case may be. It may be spined, tuberculate, or rounded at the sides, and may be pubescent or glabrous in part or in toto.

Legs.- The coxae may be conical (Lepturini, fig. 8), globose, or not conical and transverse (Asemini, fig. 9). They are inserted into coxal cavities that may be open (fig.10) or closed (fig.11), depending upon the species. The femora of some species are clavate and flattened, those of other species are cylindrical and straight-sided. The grooved front tibiae of the Lamiinae separate that subfamily from the Cerambycinae. The tibial spurs may be terminal (Leptacmaeops, fig.12) or not so (Toxotus, fig.13). The males of Anoplodera crassipes are unique in that they have but one well developed tibial spur on each of the hind tibiae. The tarsal segments are five in number with the fourth being more or less inconspicuous. Segments one to three are generally furnished beneath with brushes of hair, three is more often bilobed and the claws are generally simple. The latter are cleft in the genus Tetraopes.

Wings.- Flight wings are present in all genera except Moneilema. In this family wing venation is a character used at present only in the tribe Lepturini. Several genera (Leptacmaeops, Stenocorus, Centrodera, Xylosteus, Anthophilax, Pachyta and Piodes) are separated from the remaining genera of the tribe by the presence of a closed cell in the anal region (fig. 14). Swaine and Hopping (1928) discuss and figure the venation of this tribe. They have included the genera Xylosteus and Piodes in this group on other characters, not having examined their wing venation.

The elytra present many reliable generic and specific characters. Color markings thereon are too variable to be regarded as positive characters, and their use as such is limited to a very few species. More constant characters are the truncate, rounded, or pointed tips; the costate condition,

if it is present; the hairy or glabrous condition of the disc, and the spines at the apex of the elytra. Generally speaking, the terminology applied to the elytra is quite descriptive and self-explanatory.

The Stridulating Organ.- Many species will, when irritated, make a peculiar squeaking or stridulating noise. This noise is produced by moving the prothorax upon the mesonotum. In those species having the stridulating organ, it is found on the top and sides of the mesonotum. It is composed of a number of fine, elevated lines, extending across the notum. These lines may be divided by a longitudinal line as in Xylocrius (fig.15), or they may be entire as in Phymatodes and Gonocallus.

Abdomen

The abdomen is of six segments, five being visible. It is of little value in classification except in a few instances. Anoplodera proxima and A. minnesotana are separated by the shape and carinations of the last abdominal segment. This character is discussed in the description of the latter species and will not be repeated here. The genera Acanthocinus, Ceratographis, and Nyssodrys are separated from the remaining genera of the tribe Acanthocinini by the elongated ovipositor of the female.

Summarizing, the principal characters of the Cerambycidae are: Labial palpi three-segmented; maxillae with two lobes, clothed at the tip with bristles; mandibles usually curved and acute at tip, at times emarginate; eyes large, transverse, at times deeply emarginate or even entirely divided; antennae inserted either in front of or between the eyes,

often borne on large frontal tubercles, their sensitive surfaces differing in the tribes; thorax not margined except in the Prioninae; elytra usually with distinct epipleurae and covering the abdomen, the latter with five free ventral segments, the sixth visible in many males and at times in both sexes; legs usually slender, hind coxae transverse; tarsi five segmented, segments one to three with brushes of hair beneath, third segment emarginate or bilobed; fourth small, rounded, inconspicuous and united with the fifth; claws simple, rarely cleft.

LITERATURE

The literature dealing with the North American species is voluminous and scattered. A number of papers have been of especial value to the writer in the preparation of this paper and, although each is included in the appended bibliography, a list of the more general works is given here for the convenience of any interested workers. They are:

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- Hopping, Ralph, "A Review of the Genus Monochamus Serv.", Can. Ent. LIII:252-258, 1921.
- Leng, C.W. and Hamilton, John, "Synopsis of Cerambycidae, part III, Lamiinae", Trans. Am. Ent. Soc. XXIII:101-178, 1896.
- Linsley, E. Gorton, "Pogonocherini of North America", Ann. Ent. Soc. Am. XXVIII:73-101, 1935.

CLASSIFICATION OF CERAMBYCIDAE OF NORTH AMERICA

The classification used is, with few exceptions, that of Mr. Leng's "Catalogue of the Coleoptera of America, North of Mexico." The exceptions are in those groups where recent investigations have made changes necessary.

Order Coleoptera

Suborder Polyphaga

Series Phytophaga or Cerambycoidea

Family Cerambycidae

Subfamily Prioninae

Tribe Parandriini

Genus Parandra Latr.

Tribe Macrotomini

Genus Strongylaspis Thoms.

Genus Archodontes Lmr.

Genus Stenodontes Serv.

Tribe Callipogonini

Genus Ergates Serv.*

Tribe Derancistrini

Genus Derancistrus Serv.

Tribe Prionini

Genus Derobrachus Serv.

Genus Prionus Fab.*

Tribe Anacolini

Genus Tragosoma Serv.*

Subfamily Cerambycinae

Tribe Disteniini

Genus Distenia Serv.

Tribe Smodiciini

Genus Smodicum Hald.

Tribe Spondyliini

Genus Scaphinus Lec.

Genus Spondylis Fab.*

Tribe Asemiini

Genus Asemum Esch.*

Genus Tetropium Kby.*

Genus Criocephalus Muls.*

Tribe Saphanini

Genus Opsimus Thoms.

Genus Dicentrus Lec.

Tribe Oemini

Genus Eucrossus Lec.

Genus Oeme Newm.

Genus Haplidus Lec.

Genus Eudistenia Fall.

* - Genera indicated by the asterisk occur in Montana.

Genus Malacopterus Serv.

Genus Dryobius Lec.

Tribe Methiini

Genus Styloxus Lec.

Genus Methia Newm.

Genus Tassaropa Hald.

Tribe Achrysonini

Genus Achryson Serv.

Tribe Cerambycini

Genus Hamaticherus Serv.

Genus Atylostagma White

Tribe Hesperophanini

Genus Osmidus Lec.

Genus Chrotoma Csy.

Genus Zamodes Lec.

Genus Tylonotus Hald.

Genus Stromatium Serv.

Genus Gnaphalodes Thoms.

Genus Chion Newm.

Genus Brothylus Lec.

Genus Pantomallus Lec.

Tribe Eburiini

Genus Eburia Serv.

Tribe Phoracanthini or Elaphidionini

Genus Romaleum White

Genus Eustromula Ckll.

Genus Elaphidion Serv.

Genus Anelaphus Linsley

Genus Anopliomorpha Linsl.

Genus Anoplium Hald.

Genus Elaphidionopsis Linsl.

Tribe Sphaerionini

Genus Anexstinus Lec.

Genus Aneflus Lec.

Genus Anephloromorpha Csy.

Genus Anepsyra Csy.

Genus Stenelaphus Linsl.

Genus Stenosphenus Hald.

Genus Psyrassa Pascoe

Tribe Piezocerini

Genus Piezocera Serv.

Tribe Ibidionini

Genus Compsa Perty.

Genus Heterachthes Newm.

Genus Ibidion Serv.

Genus Malobidion Schffr.

Tribe Callidiopini

Genus Cylindera Newm.

Tribe Curiini

Genus Curius Newm.

Genus Anoplocurius Fisher

Genus Plectromerus Lec.

Tribe Graciliini

Genus Hypexilis Horn

Genus Gracilia Serv.

Genus Lianema Fall

Tribe O브리ini

Genus Oブリum Curt.

Genus Eumichthus Lec.

Tribe Lepturini

Genus Pseudopachyta S. and H.

Genus Pidonia Muls.*

Genus Idiopidonia S and H.

Genus Grammoptera Serv.*

Genus Alosterna Muls.

Genus Pseudostrangalia S and H.

Genus Leptura Linn.*

Genus Typocerus Lec.*

Genus Charisalia Csy.

Genus Anoplodera Muls.*

Genus Stenocorus Geoff.*

Genus Leptalia Lec.*

Genus Centrodera Lec.*

Genus Xylosteus Friv.

Genus Toxotus Dej.*

Genus Pachyta Dej.*

Genus Evodinus Lec.

Genus Leptacmaeops Csy.*

Genus Anthophilax Lec.*

Genus Plodes Lec.

Genus Caurotes Lec.

Genus Acmeaops Lec.*

Genus Ophistomis Thoms.
(Cyphonotida Csy.?)

Genus Bellamira Lec.

Genus Strangalina Auriv.

Genus Pyrotrichus Lec.

Genus Euryptera Serv.

Genus Neobellamira S and H.

Genus Encyclops Newm.

Tribe Dorcasomini

Genus Desmocerus Serv.

Tribe Necydalini

Genus Ulochaetes Lec.

Genus Necydalis Linn.

Tribe Molorchini

Genus Molorchus Fab.

Genus Callimoxys Kr.

Genus Callimus Muls.

Genus Poecilobrium Horn

Genus Hybodera Lec.

Genus Megobrium Lec.

Tribe Rhinotragini

Genus Acyphoderes Serv.

Tribe Callichromini

Genus Callichroma Latr.

Genus Plinthocoelium Schmidt

Tribe Compsocerini

Genus Rosalia Serv.

Tribe Callidiini

Genus Conocallus Leo.*

Genus Physocnema Hald.

Genus Ropalopus Muls.

Genus Hylotrupes Serv.

Genus Elatotrypes Fisher

Genus Semanotus Muls.*

Genus Merium Kby.

Genus Callidium Fab.*

Genus Phymatodes Muls.*

Genus Xylocrius Leo.*

Tribe Clytini

Genus Tylcus Csy.

Genus Megacheuma Mickel

Genus Cyllene Newm.

Genus Megacyllena Csy.

Genus Arhopalus Serv.

Genus Glycobius Leo.

Genus Calloides Leo.

Genus Xylotrechus Chev.*

Genus Neoclytus Thoms.*

Genus Euryscelis Chev.

Genus Rhopalopachys Chev.

Genus Anthoboscus Chev.

Genus Clytoleptus Csy.

Genus Clytus Laich.

Genus Triodoclytus Csy.

Genus Microclytus Csy.

Genus Cyrtophorus Leo.

Tribe Michthysomini

Genus Michthysoma Leo.

Tribe Tillomorphini

Genus Pentanodes Schffr.

Genus Tetranodus Linell.

Genus Euderoes Leo.

Genus Tilloclytus Bates

Tribe Cleomenini

Genus Dihammaphora Chev.

Tribe Rhopalophorini

Genus Rhopalophora Serv.

Tribe Heteropsini

Genus Stenosphenus Hald.

Tribe Agallissini

Genus Agallissus Dalm.

Genus Zagymmus Leo.

Tribe Ancylocerini

Genus Ancylocera Serv.

Tribe Atimiini

Genus Atimia Hald.

Genus Paratimia Fisher

Tribe Pteroplatini

Genus Elytroleptus Duges

Genus Holopleura Lec.

Tribe Stenaspini

Genus Crioprosopus Serv.

Genus Stenaspis Serv.

Genus Tragidion Serv.

Genus Purpuricemus Germ.

Genus Metaleptus Bates

Genus Aethecerinus Ckll.

Genus Oxoplus Lec.

Genus Schizax Lec.

Genus Tylosis Lec.

Genus Crossidius Lec.*

Genus Sphaenothecus Dupont

Genus Perarthrus Lec.

Genus Mannophorus Lec.

Genus Amannus Lec.

Genus Batyle Thoms.*

Genus Batyleoma Csy.*

Tribe Trachyderini

Genus Dendrobias Serv.

Tribe Lissonotini

Genus Lissonotus Dalm.

Tribe Megaderini

Genus Megaderus Germ.

Subfamily Lamiinae

Tribe Dorcadionini

Genus Plectrura Mann.

Genus Ipochnis Lec.

Genus Parmenosoma Schffr.

Genus Moneilema Say.*

Tribe Cyrtini

Genus Cyrtinus Lec.

Tribe Monochamini

Genus Monochamus Serv.*

Genus Ptychodes Serv.

Genus Hammoderus Thoms.

Genus Goes Lec.

Genus Microgoes Csy.

Genus Cacoplia Lec.

Genus Plectrodera Lec.*

Tribe Mesosini

Genus Synaphaeta Thoms.

Tribe Dorcaschematini

Genus Dorcaschema Lec.

Genus Hetoemis Hald.

Tribe Tapeinini

Genus Peritapnia Horn

Tribe Adetini

Genus Parmenonta Thoms.

Genus Sicyobius Horn

Tribe Ataxiini

Genus Aporataria Ham.

Genus Ataxia Hald.

Genus Diaxenes Waterhouse

Tribe Desmiphorini

Genus Desmiphora Serv.

Tribe Apodasyini

Genus Eupogonius Lec.

Genus Hoplosia Muls.
(Oplosia auct.)

Genus Psenocerus Lec.

Tribe Estolini

Genus Estola Fairm.

Genus Pygmaeopsis Schfft.

Tribe Pogonocherini

Genus Zaplous Lec.

Genus Lypsimena Lec.

Genus Callipogonius Linsl.

Genus Poliaemus Bates*

Genus Ecteneolus Bates

Genus Ecyrus Lec.

Genus Sarillus Bates

Genus Lophopogonius Linsl.

Genus Pogonocherus Zett.*

Tribe Onciderini

Genus Oncideres Serv.

Genus Taricamus Thoms.

Tribe Hippopsini

Genus Hippopsis Serv.

Tribe Spalacopsini

Genus Spalacopsis Thoms.

Genus Dorcata Pascoe

Tribe Anisocerini

Genus Thryallis Thoms.

Tribe Acanthoderini

Genus Aethiopoctines Thoms.

Genus Steirastoma Serv.

Genus Acanthoderes Serv.

Tribe Acanthocinini

Genus Coenopoeus Horn

Genus Lagochirus Er.

Genus Glaucotes Csy.

Genus Astylidius Csy.

Genus *Astylopsis* Csy.

Genus *Leptostylus* Lec.

Genus *Leiopus* Serv.*

Genus *Dectes* Lec.*

Genus *Lepturgoides* Schffr.

Genus *Valemus* Csy.

Genus *Lepturges* Bates

Genus *Hyperplatys* Hald.*

Genus *Probatius* Thoms.

Genus *Ceratographis* Cahan

Genus *Nyssodrys* Horn

Genus *Acanthocinus* Steph. or Hoffm.*

Tribe *Cyrtinini*

Genus *Cyrtinus* Lec.

Tribe *Saperdini*

Genus *Saperda* Fab.*

Genus *Eutetrappa* Bates

Tribe *Phytoeciini*

Genus *Oberea* Muls.*

Genus *Mecas* Lec.

Tribe *Tetraopini*

Genus *Tetrops* Steph.

Genus *Tetraopes* Serv.*

Tribe *Hemilophini*

Genus *Hemierana* Auriv.

Genus *Cathopteron* Farn.

Key to the Sub-families of the Cerambycidae

1. Pronotum margined; labrum connate A. Prioninae. Page 15
Pronotum not margined; labrum free 2
2. Front tibiae not grooved; palpi not acute
at tip B. Cerambycinae. Page 20
Front tibiae grooved; last palpal segment
cylindrical and pointed C. Lamiinae. Page 70

A. PRIONINAE

Casey '12; Lameere '13

Key to the Tribes.

1. Antennae short and of simple segments, not extending
beyond the base of the pronotum . 1. Parandrini. Parandra Latr.
Antennae elongate, extending beyond the base of the
pronotum, the segments dissimilar or
complicated 2
2. Each side of the pronotum contracted basally,
and usually with a posterior angle, the
sides crenulate; eyes not or but feebly
emarginate 2. Macratomini.
Sides of the pronotum not contracted basally,
without posterior angles, but usually
with a median angle; eyes more or less
strongly emarginate 3
3. Eyes surrounding the antennal sockets beneath . . . 6. Anacolini. Page 19
Eyes not surrounding the antennal sockets beneath 4
4. Lateral margin of the pronotum entire, crenulate
or multispinose 5
Lateral margin of the pronotum tridentate, or at
least one median tooth 5. Prionini. Page 17
5. Head not excavated above in a depression extended
to the occiput; eyes strongly granulate. 3. Callipogonini. Page 15
Head excavated above in a depression extended
to the occiput; eyes finely granulate . 4. Derancistrini.

Tribe Callipogonini

The tribe is represented in Montana by the single genus, Ergates.

Genus Ergates Serville 32-113

Trichocnemis Lec. 52-110.

Large beetles, with prothorax broad and finely punctured in the males; narrower, more coarsely punctured, and with the small lateral teeth longer and more acute in the females. Antennae eleven segmented and not attaining more than two-thirds of the length of the body.

*14078. Ergates spiculatus Lec. 52-110
californicus White 53-37
spiculiger White 53-39

Of large size, 55-63 mm. long by 14-20 mm. wide. Head small, eyes reniform and coarsely granulated; antennae eleven segmented, slender, two-thirds the length of the body in male, about one-half the length in the female, rough with elevated punctures and the third segment as long as the three following united. Prothorax broader in the male than in the female and finely punctured; in the female the sculpture is very coarse and the small teeth of the lateral margin are longer and more acute, varying in length and number. Elytra shining brown, with three distinct costae extending nearly the full length of each elytron; an acute sutural spine at the apex in most cases.

Montana distribution: Victor, Hamilton, Ravalli, Kalispell, Como, Lake Ronan, and Ravalli County.

14078a. Ergates spiculatus var. neomexicanus Csy. 90-491

Ergates spiculatus var. marmoratus Cockerell 90-161.

Similar to spiculatus but the prothorax is much darker, being almost black in some specimens. The elytra are marmorated with the lighter

* Numbers refer to Leng's "Catalogue of the Coleoptera".

areas much larger in some than in others, the darker areas are deeper brown than in spiculatus, and in the specimens at hand the costae are broader and more distinct than in the former species.

Casey (12-221) gives this variety specific rank and insists that the genus Trichocnemis is distinct from Ergates and that it should be restored.

Montana distribution: Fishtail, Big Horn County.

Tribe Prionini

Key to the Genera

- Elongate, parallel; apex of each antennal segment simple,
the apical segments elongate, not imbricate Derobrachus
Stout species; antennal segments often all overlapping,
and at least the apices of the more apical ones
produced into lobes, the apical segments not
elongate Prionus Fab. Page 17

Genus Prionus Fab. 75-159

Body relatively broad, giving the various species a stout appearance. Mandibles moderate in size, acute, and similar in both sexes. Eyes coarsely granulated. Antennae heavily imbricate in males, more slender and serrate in the females, and from 12 to 30 segments, varying with the species and sex. The prothorax is tri-dentate or less. Elytra are broadly rounded at the apex and ornamented with raised lines. The legs are slender and compressed. All Montana species are of a uniform light or dark brown color.

Key to the Species

1. Antennal segments 12; sples of hind tarsi densely pubescent 2
Antennal segments more than 12; soles of the hind tarsi
with scattered hairs 4

2. Elytra at base not wider than prothorax laticollis (Drury)
Elytra at base wider than prothorax 3
3. First two thoracic teeth prominent, not reflexed . . . pocularis Dalm.
First two thoracic teeth very acute and reflexed . .
. . . californicus Mots. Page 18
4. Antennal segments female 18, male 18-20 . . . imbricornis (Linn). Page 18
Antennal segments female 25, male 27-30 . . . fissicornis Hall. Page 19

Of the five species mentioned in the key, laticollis and pocularis have not been recorded from Montana.

14086. Prionus californicus Mots. 45-89

Prionus crassicornis Lec. 52-108.

Distinguished by the very acute and strongly reflexed teeth of the prothorax. Further distinguished from the other Montana species by having but 12 segments in the antennae. Hind tarsal segments densely pubescent or spongy beneath, with a smooth median channel. The color is dark to light brown, it being generally lighter than the other species before me. Length, 36-47 mm.

Montana distributions: Reed Point, Bridger Canyon, Ravalli County.

14089. Prionus imbricornis (Linn.) Syst. Nat. Ed. xii-622.

Thoracic teeth much less prominent than in californicus, less acute. Antennal segments vary from 18-20 in the males and are generally 18 in number in the females. In the males each segment is conical and hollowed to receive the succeeding segment and has the lower edge prolonged; in the females the segments are more slender and the antennae are simply serrate. The elytra of the females are more convex than those of the males. The covering of hair on the hind tarsi is very thin and the channel very narrow.

Montana distribution: Phillips Co., Big Horn Co., Forsyth.

14090. Prionus fissicornis Hald. 45-125

Thoracic teeth as in imbricornis. Antennal segments female 25, male 27-30. Each segment V-shaped, the posterior branch the longer and with its apex curved; serrate in the female. Segments of the hind tarsi more slender than in other species and the pubescence is as in imbricornis.

Montana distribution: Enid, Phillips Co., Powderville, Telegraph Creek, Musselshell Co.

Tribe Anacolini

Genus Tragosoma Serv. 32-159.

This genus is represented in Montana by a single species and a variety of that species. They are separated as follows:

Sides of the prothorax broadly rounded with the lateral process spiculiform and abruptly projecting from the arcuate limb depsarium (Linn.) Page 19

Sides of the prothorax acutely triangular between the apical and basal angles, with the sides nearly straight and the lateral process anguliform, broadening continuously from its apex var. harrisi Lec. Page 20

14097. Tragosoma depsarium (L.) 67-624

Elytral sculpture uniform throughout, the punctures coarse and subconfluent; antennae glabrous. The anterior tarsi are rather strongly dilated in the male. Prothorax nearly twice as broad as the head and conspicuously hairy, sides of the prothorax broadly rounded with the lateral process spiculiform and abruptly projecting from the arcuate limb (area

surrounding disc.) Elytra about twice as long as broad, the side margins rather widely and very distinctly reflexed.

Length: 22-31 mm.

Montana distribution: Bridger Mountains, Hamilton, Bozeman, Victor, Park Co., Dawson Co., Lincoln Co.

14097a. Tragosoma depsarium var. harrisi Lec. 52-107.

Similar to depsarium except that the sides of the prothorax are acutely triangular between the apical and basal angles with the sides of the triangle nearly straight and the lateral process anguliform, broadening continuously from the apex of the angle.

Length: 22-33 mm.

Montana distribution: Darby, Bozeman, Hamilton, Lake Ronan, Centennial Valley.

B. CERAMBYCINAE.

Key to the Tribes

1. Tibiae compressed and dentate behind Spondyliini. Page 21
Tibiae unarmed behind 2
2. Bases of the antennae not enveloped by the eyes 3
Bases of the antennae partly enveloped by the eyes;
front coxae not conical 11
3. Front coxae conical 8
Front coxae not conical 4
4. Front coxae transverse, not prominent 5
Front coxae globose, prominent Distenini
5. Ligula chitinated; eyes variable 6
Ligula membranous; eyes finely granulated Callidiini. Page 55
6. Epimera of mesothorax acutely pointed within Smodicini
Epimera of mesothorax truncate at inner end, normal 7

7. Base of pronotum emarginate, filled by a thin plate Saphanini
 Base of pronotum normal Asemini. Page 22
8. Elytra abbreviated 9
 Elytra not abbreviated 10
9. First segment of hind tarsus longer than others united . . . Necydalini
 First segment of hind tarsus as long or nearly as long
 as all the others united Methiini
10. Mandibles acute, fringed on the inner margin Lepturini. Page 26
 Mandibles simple, not fringed Dorcasomini Deamocerus
11. Scutellum acutely triangular, pronotum not lobed . . . Stenaspini. Page 66
 Scutellum rounded, middle coxal cavities open behind . . . Clytini. Page 61

Tribe Spondylini
 (Spondylidae of LeConte)

Key to the Genera

- Second antennal segment nearly as long as the third, the
 following segments transverse, each with two very large
 foveae beneath; legs very stout; third tarsal segment
 feebly emarginate Scaphinus. Lec.
- Second antennal segment about half as long as the third,
 the following segments oval, each with two small subapical
 foveae beneath; third tarsal segment bilobed . . . Spondylis Fab. Page 21

Genus Spondylis Fab. 75-159

A single extremely variable species occurs in Montana. It is

Spondylis upiformis Mann.

14100. Spondylis upiformis Mann.

Entirely black, shining, legs piceous black. Head with large
 punctuations, subconfluent in part; a median transverse impression extends
 nearly the full length of the head, the punctuations sparse in this region;
 antennae black, attaining the basal fifth or sixth of the elytra. Prothorax
 coarsely punctate, widest at about the middle, behind this, somewhat sinuate
 and becoming narrowest at the base. Each elytron with three well defined

costae, coarsely, finely, punctate.

Length: 8-16.5 mm.; width: 2.75-6 mm.

Due to the extreme variations in size in this species, Col. Casey has described several new western species, none of which is good, according to Ralph Hopping, of Vernon, B.C.

Montana distribution: Lake Ronan, Lake Co., Gallatin Co., LoLo, Darby, Park Co., Como, Stevensville, Camas Prairie.

Tribe Asemini
(Aseminae Craighead 15-8)

Key to the Genera

1. Eyes divided, rather finely granulated Tetropium Kby. Page 24
Eyes not divided, at times more or less emarginate 2
2. Eyes hairy, finely granulated, moderate size,
transverse; antennae finely pubescent Asemmum Esch. Page 22
Eyes hairy or not, coarsely granulated, large;
more elongate species Criocephalus Muls. Page 24

Genus Asemmum Esch. 30-56

Moderately stout in form, with the antennae short. Head and mandibles are small and inconspicuous. The prothorax is rounded or angulated at the sides and unarmed. The eyes are transverse, finely granulated and hairy. The antennae are finely pubescent. There are two species in Montana.

Key to the Species

- Fore coxae very narrowly separated or contiguous, the process acute; a less shining and variable species atrum Esch. Page 23
- Fore coxae more widely separated, the process not acute; shining species; brown or black mokolumne (Csy.) Page 23

1112. Asemm atrum Esch. 30-56.

Asemm moestum Hald. 47-35
obsoletum Hald. 47-35
brunneum Hald. 47-35
substriatum Hald. 47-36
fuscum Hald. 47-36
striatum Kby. 37-171
gracilicorne Csy. 12-258
ebenum Csy. 12-258
curtipenne Csy. 12-258
amputatum Csy. 12-259
parvicorne Csy. 12-260
fulvipenne Csy. 12-260
costulatum Csy. 12-260
pupetatum Csy. 12-261
brevicorne Csy. 12-261
carolinum Csy. 24-227
stooktonense Csy. 24-227

(Synonymy fide Ralph Hopping 31-235.)

Black, densely and finely pubescent; elytra of the male very dark, often black, of the female, often testaceous; obsolete striae and with three well developed costae. Thorax variously sculptured and rounded or obtusely angulated at the sides, deeply punctured. Antennae in both sexes serrate.

Length: 10-17 mm.

Montana distribution: Bozeman, Corvallis, Joliet, Missoula, Hamilton, East Shore Flathead Lake, Specimen Creek, Lake Ronan, Ravalli Co., Gallatin Co., Huntley, Stevensville, Florence, Hill Co., Billings, Darby, Superior, Sheridan, LoLo, Lake Co.

1119. Asemm (Liasemum) mokelumne (Csy.) 12-262.

Blackish-piceous to brown, rufescent beneath. Head three-fourths as wide as the prothorax; antennae short, rather stout. Prothorax somewhat transverse, scarcely a third wider than long, shining and finely, deeply punctate, the median line faintly impressed for a short distance at the

middle and broadly so at the base. Scutellum subquadrate, broadly rounded behind, shining. Elytra parallel, wider than the prothorax, more than twice as long as wide. Front coxae evidently separated but not widely so. Hind tarsi short but slender.

Montana distribution: Fisher River, Lincoln Co.

Genus Tetropium Kirby 37-174.

Similar in appearance to Asemum but differing in that the palpi are unequal and the eyes are divided.

14128. Tetropium velutinum Lec. 69-382.

A brown or blackish beetle, varying greatly in size and appearance. The prothorax may be shining or more or less opaque and the sides are strongly rounded to broadly angulated. A velvety pubescence covers the thorax and elytra. The elytra are reddish brown to black in color.

This is the only species of this genus that has been recorded from this state.

Length: 9-20 mm.

Hosts: Pinus spp. and Douglas fir.

Montana distributions: Kalispell, Gallatin Co., Big Fork, Lake Ronan.

Genus Criocephalus Muls. 39-63.

Nothorhina Csy. 12-263 (neo Redt) in part.

The genus resembles Asemum but are generally larger and with the prothorax more deeply sculptured. The eyes are large, coarsely granulated, not hairy (except in aspera) and more or less emarginate.

1. Antennae stout, tapering distally rapidly, clothed
basally with long pallid hairs; tarsi shorter . . .
. (Nothorhina) asperaus Lec. Page 25
Antennae less stout, with segments longer; tarsi longer 2
2. Antennae and legs very slender, third segment of hind
tarsi twice as long as wide; prothorax not
wider than long productus Lec. Page 25
Antennae and legs stouter; prothorax wider than long 3
3. Third segment of the hind tarsi two-thirds longer
than wide; prothorax rounded at the sides and
slightly roughened agrestis (Kby.) Page 26
Third segment of the hind tarsi one-half longer
than wide; prothorax angulated at the sides
and strongly roughened asperatus Lec. Page 26

14120. Criocephalus aspersus Lec. 54-18

Aecium aspersum Lec. 54-18.

Nothorhina aspersa Lec. (Csy. 12-263.)

Prothorax slightly wider than long, with large subquadrate median cavity. Antennae about one-half the length of the body, stout basally, finely pubescent and black to brown. Head roughly punctate with the eyes large and deeply emarginate. Prothorax rounded, punctate, the broad excavation not extending much before the middle and with asperities toward the sides.

Length: 15-22.5 mm.

Montana distribution: Hamilton, East Shore Flathead Lake,
Gallatin Co.

14131. Criocephalus productus Lec. 50-36

Antennae and legs very slender, hind tarsi with third segment twice as long as wide. The body is relatively more elongate than in the

other species of the genus; prothorax not wider than long, rounded on the sides and slightly roughened with elevated points. Black to dark brown.

Length: 23-26 mm.

Montana distribution: Missoula, Jefferson Co., Bozeman, Toole Co., Hamilton.

14132. Criocephalus agrestis (Kby.) 37-170

Similar in appearance to the former but with the prothorax wider than long and antennae and legs less slender. The third segment of the hind tarsus is two-thirds longer than wide, the prothorax is rounded at the sides and slightly roughened.

Length: 20-27 mm.

Montana distribution: Missoula, Bozeman, Helena, Hamilton, Lake Co., Kalispell, Yellowstone Co.

14135. Criocephalus asperatus Lec. 59-19

A stouter species than those above. Antennae and legs less slender, body less elongate. Prothorax wider than long, angulated at the sides and strongly roughened.

Length: 19-29 mm.

Montana distribution: Livingston, Bozeman, Custer, Toole Co., Forsyth, Yellowstone Co., Helena, Hamilton, Darby, Kalispell.

Tribe Lepturini

This group is separated from the rest of the Cerambycidae by the following characters: forecoxae conical; base of the antennae not enveloped by the eyes; mandibles acute and fringed on the inner margin; and the elytra are not abbreviated.

Key to the Genera
(Adapted from Swaine and Hopping 28-14)

1. Prosternum excavated across the middle, pronotum
 spinose to subtuberculate on the sides; first
 segment of the hind tarsi with a pubescent sole beneath 2
 Prosternum convex, sulcate only near the anterior margin;
 prothorax not tuberculate on the sides, rarely
 strongly angulate (as in Leptura proxima Say) 18
2. Front of head vertical, front and vertex meeting at
 an angle of nearly 90 degrees 3
 Front of head oblique, meeting vertex at an angle
 greater than 90 degrees 5
3. Tarsi stout, hind tarsi with second segment not longer
 than third; intercoxal piece of prosternum strongly
 elevated, width moderate Pyrothriolus Lec.
 Tarsi slender, hind tarsi with second segment
 longer than third; intercoxal piece of
 prosternum feebly elevated, width narrow 4
4. Hind tarsi with first segment pubescent on the
 sides beneath, middle line glabrous; cheeks
 moderate, length between eye and base of mandible
 about one-half diameter of the eye; palpi long
 and slender Leptalia Lec. Page 46
 Hind tarsi with first segment entirely pubescent
 beneath; cheeks much shorter than half diameter
 of eye; palpi short and stout Encyclops Newm.
5. Tibial spurs not terminal Toxotus Lec. Page 47
 Tibial spurs terminal 6
6. Hind wings with a closed cell in the anal region 7
 Hind wings without a closed cell in the anal region (Fig.16) . . . 13
7. Antennae short, segments 5 to 11 much shorter than
 1 to 4; elytra strongly costate Stenocorus Fab. Page 45
 Antennae usually slender, distal segments but
 little stouter than the others 8
8. Eyes coarsely granulated 9
 Eyes finely granulated 10
9. Eyes large, prominent Centrodera Lec. Page 46
 Eyes of moderate size Xylosteus Friv.
10. Pronotum with sides distinctly tuberculate 11
 Pronotum with sides obtusely rounded
 at the middle Leptacmaeops Csy. Page 50

11. Eyes large, emarginate 12
Eyes small, entire Piodes Lec.
12. Third segment hind tarsi cleft to the base . . . Anthophilax Lec. Page 52
Third segment hind tarsi cleft approximately
to the middle Pachyta Zett. Page 48
13. Pronotum with sides strongly tuberculate:
antennae short and stout Pseudopachyta S and H
Pronotum with sides obtusely rounded or
feebly tuberculate in front of the middle 14
14. Metepisternum broad at the base with sides
converging behind 15
Metepisternum narrow throughout with sides
parallel; eyes deeply emarginate 17
15. Eyes distinctly emarginate Evodinus Lec.
Eyes entire 16
16. Pronotum and elytra polished, feebly punctate,
almost devoid of pubescence Gaurotos Lec.
Pronotum and elytra closely strongly punctate
and distinctly pubescent Acmaeops Lec. Page 53
17. Cheeks before the eyes very short, almost
linear; forecoxal cavities widely open
behind, intercoxal piece very thin, not
widened behind; last ventral segment of
male more or less excavated Pidonia Muls. Page 28
Cheeks nearly as long as width of mandibles
at the base; forecoxal cavities nearly
closed behind, with intercoxal piece
widened behind; last ventral segment of
male normal Idiopidonia S and H.
18. Pronotum with hind angles acutely produced over
the humeri; without a strong basal constriction,
so that the line which forms the side margin of
the pronotum is continued as the side margin of
the elytra 19
Pronotum campanulate to quadrate, with hind angles
not prolonged over the humeri, acute, subacute,
or laminate, or obtusely rounded Anoplodera Muls. Page 35
19. Pronotum campanulate; first segment of hind tarsi
with pubescent sole; forecoxal cavities open
behind; sides of elytra parallel 20
Pronotum trapezoidal; first segment of hind tarsi
usually without a pubescent sole 21

20. Antennae without poriferous impressed areas;
third hind tarsal segment cleft nearly to the
base; transverse dorsal impression behind the
eyes separating head from neck very feeble
Grammoptera Serv. Page 29
- Antennae with poriferous impressed areas;
third hind tarsal segment cleft only to the
middle; transverse dorsal impression,
separating head from neck, abrupt and
distinct Allosterna Muls. Page 30
21. Elytra cuneiform 22
Elytra with sides inflated to subinflated behind 28
22. Antennae with segments 5 to 11 inflated and distinctly
wider than 3 and 4; pronotum polished and nearly
impunctate, with the hind angles subacute 23
Antennae with distal segments 5 to 11 not inflated;
pronotum strongly punctured, with hind angles acute
or laminate 24
23. Elytra dehiscent and rounded at the apex, front of
head very short; pronotum wider than long, and
very narrowly constricted in front . . . Pseudostrangalia S and H.
Elytra hardly dehiscent, broadly subtransversely truncate
at apex; front of head very elongate; pronotum
longer than wide, rather broadly constricted
in front Cyphonotida Csy.
24. Labial palpi with terminal segment short and wide,
length approximately twice the width, usually
truncate at the apex 25
Labial palpi with terminal segment slender, length
much more than twice the width; form of body
very slender, elytra attenuate on caudal half;
male with terminal segment of abdomen excavated . Strangalina Auriv.
25. Form of body only moderately slender, with elytra
not attenuate on caudal half and lateral margins
nearly straight; pronotum narrowly constricted
in front 26
Form of body very slender, elytra attenuate on
caudal half and strongly sinuate on lateral
margins, abdomen extending far behind elytra 27
26. Distal segments of antennae without distinct,
poriferous areas, rarely with definite pits
on distal extremities Leptura L. Page 30
Distal segments of antennae with large,
distinct, poriferous areas Typocerus Lec. Page 33

27. Front of head very short, length from front of eyes to base of mandibles much less than half the width; pronotum very broadly sulcate in front across the dorsum; male with terminal segments of abdomen inflated and strongly excavated beneath Bellamira Lec.
Front of head of moderate length, from front of eyes to base of mandibles not less than half the width; pronotum subcampanulate, not broadly sulcate across the dorsum; male with terminal segments not inflated, sulcate beneath Neobellamira S and H.
28. Eyes small, length much less than distance between front of eyes and tips of mandibles; tempora strongly inflated; antennae normal Charisalia Csy.
Eyes very large, length about equal to distance from front of eyes to tip of mandibles; tempora oblique, hardly inflated; antennae stout Euryptera Serv.

Genus Pidonia Muls. 63-570.

Haplosalia Csy. 13-200

Thesalia Csy. 13-298

The characters given in the key will serve to distinguish the genus.

The single species reported from Montana is represented by a single specimen in the Station collection.

14303. Pidonia scripta Lec. 69-384.

The species is variable in color and maculation, the pronotum being black, reddish or reddish with the disc black. The color of the elytra is generally yellow with an elongate S-shaped black marking on the basal two-thirds of each elytron; the black marking is often incomplete, being variably broken into black spots and lines, and in some specimens is almost obsolete. The femora are testaceous and darkened apically.

Swaine and Hopping (1928) give the blossoms of the wild rose as a common place in which to collect the species.

Length: 7 mm.

Montana distribution: Glacier Park.

Genus Grammoptera Serv. 35-215.

Parallelina Csy. 13-247.

Prothorax campanulate, hind angles acute and moderately produced. Elytra evenly rounded. Metepisternum very slender, Forecoxal cavities widely open behind. First segment of the hind tarsus with a distinct pubescent sole. Prosternum convex. But two species have been taken in Montana. They may be separated as follows:

Pubescence of the elytra short and	
inconspicuous	<u>subargentata</u> (Kby.) Page 29
Pubescence of the elytra rather long,	
cinereous and conspicuous	<u>filicornis</u> (Csy.) Page 30

1459. Grammoptera subargentata (Kby.) 37-184.

Leptura similis Kby. 37-185
rufibasis Leo. 62-40

Elytra scarcely margined at the tip, dull black, hoary with fine white pubescence. Head, legs and scape of the antennae sometimes ferruginous or partly so. Prothorax campanulate, posterior angles acute, shining, subangulate before the middle, almost one-fourth wider than long, punctate throughout with punctuations each separate and not converging. Scutellum subtriangular with posterior lobe narrowly rounded, finely punctate and sparsely clothed with hair. Head narrowly constricted behind the eyes, the tempora arcuate.

Length: 6-8 mm.

Montana distribution: Missoula, Gallatin Co.

11460. Grammoptera filicornis (Csy.) 13-255.

Color generally black. Elytral punctures sparse and feeble. Antennae very slender. Prothorax longer than wide and slightly narrower than the head. Tarsi more slender than in subargentata. Elytral vestiture is longer and more conspicuous than in any allied species. It is often taken on the blossoms of the wild rose.

Length: 5.5-8 mm.

Montana distribution: Bozeman, Florence, Glacier Park, Drummond, Superior.

Genus Alosterna Muls. 63-576.

The genus can be recognized from the characters given in the key. Only a single species has been reported as having been taken in Montana. It is:

11464. Alosterna capitata (Newm.) 41-71.

Alosterna sanguinicollis Dej. 37-383.

Apices of the elytra usually distinctly subtruncate. Prothorax generally reddish, basal angles acute and only moderately produced, fitting over the humeri to form a continuous outline. The pro-episternum is sparsely and feebly punctate.

Length: 7-9 mm.

Montana distribution: Reported in literature (Swaine and Hopping 1928, page 23).

Genus Leptura Linn. 58-397.

Strangalia Serv. 35-220

Stenura Dej. 37-381

Stenura Gangl. 81-18.

Pronotum with hind angles prolonged over the humeri and acute, it being subcampanulate or trapezoidal. Head constricted shortly behind the eyes. Apices of the elytra usually emarginate and bidentiform, elytra cuneiform. Forecoxal cavities usually narrowly open behind. Wings with closed cell in radial sector very elongate. The species are of comparatively large size and elongate form.

Key to the Species

1. Elytral apices strongly dehiscent, subtransversely truncate; pronotum with caudal transverse impression feeble, disc coarsely punctured, median line on disc narrowly impressed; front coxal cavities rather widely open behind plagifera Lec. Page 31
Elytral apices at most only feebly dehiscent 2
2. Antennae black and very slender; prothorax black; body and legs slender; punctuations of the elytra of moderate size and only moderately close, with two lateral spots and apices black propinqua Bland. Page 32
Antennae annulated; body and legs stout; prothorax with sides usually testaceous, with the pubescence on the sides erect and usually long, with rather numerous flying hairs, the median line rather narrowly impressed and sulcate at the base obliterata Hald. Page 32

11486. Leptura plagifera Lec. 73-224.

Disc of the elytra black with a reddish testaceous margin. The elytra may be entirely black or red, costate. The abdominal segments are generally red. The host plant is Pinus ponderosa.

Length: 10-13 mm.

Montana distribution: Reported in literature (Swaine and Hopping, 1928, page 28).

11474. Leptura propinqua Bland. 65-384.

Strangalia regularis Csy. 13-259

miniscula Csy. 13-260

Antennae, legs and prothorax entirely black. Hind legs very slender and longer than normal; hind legs 16 mm., body 13 mm. Elytra testaceous and regularly ornamented with a median, transverse, lateral spot, a post humeral spot, and the elytral tips black. A slender species with slender antennae and legs. The sides of the prothorax are testaceous. The host plant is Picea engelmanni.

Length: 8-14 mm.

Montana distribution: Darby, Beaverhead Co., Madison Co.

11471. Leptura obliterata Hald. 47-62.

Leptura soror Lec. 73-223.

Perductor Walk. 66-333.

vitiosa Lec. 54-18

Strangalia idahoensis Csy. 13-259.

Body of the female black with first and last segments of the abdomen variably reddish. Head and pronotum black, the latter with the sides testaceous or reddish. Elytra testaceous or reddish with a post-basal spot of varying size, a post-humeral lateral spot, a median transverse band and a post-apical band, black; the apices reddish, rarely all black. The male is more slender with the post-basal spot on the elytra evanescent frequently, and the apices in most cases black. The legs are usually yellow or bicolored and the antennae annulated in the females and in many cases entirely black in the males.

Length: 11-18 mm.

Montana distribution: Darby, Athens, Lake Co., Lake Ronan, Hamilton, Florence.

Genus Typocerus Lec. 50-333.

Prosternum convex. Pronotum trapezoidal with hind angles produced over the humeri. Distal segments of the antennae with distinct poriferous areas. Moderately stout species, with elytra cuneiform. Middle tarsi with first segment hardly longer than the second and third united. Forecoxal cavities narrowly open behind. Wing with closed cell in radial sector stout and triangular. Two species have been taken in Montana. They may be separated as follows:

- Antennae black or annulated, with segments 6 to 11 bearing impressed poriferous areas; pronotum clothed with golden pubescence without long erect hairs intermixed; elytra yellow with three transverse, black bands, obliquely truncate at tip balteatus Horn Page 33
- Antennae brown, rarely with distal segments black, with segments 7 to 11 with impressed poriferous areas, slender; elytra with pale color predominating along the suture sinuatus (Newm.) Page 34

14550. Typocerus balteatus Horn 78-55

Head and thorax black. Prothorax coarsely and densely punctured, disc very convex, sparsely pubescent, apex constricted, base deeply impressed, both with fine golden pubescence, sides feebly arcuate except in front. Elytra gradually attenuate to apex which is obliquely truncate, the angles not acute, sparsely punctured and pubescent, surface shining, bright yellow with three narrow black bands interrupted at the suture. Body beneath piceous, sparsely punctured and pubescent. Antennae, male, three-fourths the length of the body, black, externally subserrate, eleventh segment appendiculate, 6 to 11 with elongate, flattened poriferous areas, the last segment with such a space on the appendix also; antennae, female,

one-half the length of the body, external segments stouter, not appendiculate, segments 1 to 5 bright yellow, 6 to 11 black with small poriferous spaces at the base of each segment, the eleventh with two such spaces. Legs of male bright yellow, tarsi piceous, posterior tibiae and tarsi tipped with piceous; legs of female yellow as are the tarsi.

Length: 11 mm.

Montana distribution: Chinook.

14551. Typocerus sinuatus (Newm.) 41-70.

Typocerus octonotata Hald. 47-62
arapahoe Csy. 24-278.

Elytra yellow or reddish yellow with longitudinal row of four, lateral, black spots, the last spot apical and in some specimens more or less united. In some specimens the last two pairs of spots are fused across the suture. Prothorax as in balteatus; legs ferruginous; elytral tip subtruncate, not spinose. Antennae somewhat slender, brown, segments 3 to 5 longer, sixth without impression in either sex.

Length: 10-13 mm.

Montana distribution: Lodge Grass, Musselshell Co.

Genus Anoplodera Muls. 40-285

Trigonarthris Hald. 47-65
Judolia Muls. 63-496
Nivellia Muls. 63-564
Corymbia Des Gozis 1886
Ortholeptura Csy. 13-204
Brachyleptura Csy. 13-251
Strangalepta Csy. 13-257
Xestoleptura Csy. 13-264
Strophiona Csy. 13-264

Metesternum broad in most species; pronotum campanulate to quadrate, the basal angles acute, laminate or obtuse, but not prolonged over the humeri; prosternum convex; forecoxal cavities usually narrowly open or closed behind.

Key to the Species
 (After Swaine and Hopping)

1. Pronotum with basal angles acute or subacute and laminate 2
 Pronotum with basal angles obtuse 8
2. Pronotum feebly and gradually narrowed before the middle
 (carbonata, female, rather strongly narrowed),
 basal transverse impression narrow, sparsely
 punctured, and shining toward the middle and
 continuous across the dorsum; first two segments
 of hind tarsi with stiff setal brush; rather
 elongate species 3
 Pronotum with sides inflated toward the middle, then
 very strongly and abruptly narrowed to the apical
 margin, which is much shorter than the basal margin,
 basal transverse impression broad, densely
 punctured, and opaque; short, stout species 4
3. Disc of pronotum flattened, center of disc with
 punctuation nearly obsolete, smooth and shining;
 elytral apices truncate, feebly, narrowly
 emarginate carbonata (Lec.) Page 38
 Disc of pronotum convex, roughly deeply
 punctured; elytral apices broadly
 emarginate; pronotum abruptly constricted
 at the apical margin, with the punctures small
 and dense throughout, in some cases a little
 sparser midway between the sides and the middle
 line; basal transverse impression strongly,

- abruptly impressed, elytra with the punctures small and close on the basal half, minute and dense behind nigrella (Lec.) Page 38
4. Elytra rounded or subtruncate at the tip 5
 Elytra distinctly truncate at tip, with apices acute on the sutural and external angles; vestiture of the body generally in bright yellow and rather long; vestiture of black areas on the pronotum and elytra brown or black; pronotum distinctly granulate-punctate, the punctures of medium size, deep, granulate and usually very closely placed tribalteata (Lec.) Page 41
5. Pronotum with basal transverse impression moderately deep; scutellum rounded, not emarginate at apex; form very stout; elytra distinctly narrowed behind 6
 Pronotum with basal transverse impression feeble; elytra with scutellar and humeral lobe equally prominent; scutellum emarginate at apex; the form more elongate; the sides of the elytra nearly parallel sexmaculata (L.) Page 40
6. Elytral apices very broadly rounded 7
 Elytral apices narrowly rounded; pronotum usually as long as wide, the pubescence long and distinct instabilis (Hald.) Page 40
7. Pronotum with the transverse basal impression continuous, though feeble, across the median line; elytra subopaque, closely finely punctate quadrata (Lec.) Page 39
 Pronotum with the basal transverse impression not continuous across the median line; elytra shining, rather sparsely, moderately punctate knulii S and H. Page 39
8. Pronotum but little narrowed in front, broadly constricted in front and behind 9
 Pronotum strongly narrowed in front with the disc inflated 13
9. Pronotum with disc distinctly convex, basal transverse impression deep 10
 Pronotum with disc only feebly convex, the basal impression very shallow, subquadrate, the sides subparallel; elytra with base feebly cremlate 11

10. Pronotum subopaque, very densely punctured, the basal transverse impression moderately abrupt, the median line usually strongly impressed; elytra closely punctured tibialis (Lec.) Page 41
Pronotum shining, with the basal transverse impression not abrupt, the sides of the impression oblique, the median line at most only feebly impressed; punctuation of pronotum and elytra only moderately close; base of elytra with scutellar lobe more strongly produced than the humeral; the hind tibiae of the male with only one well developed spine crassipes (Lec.) Page 42
11. Coxal cavities of prosternum widely open behind; head rather feebly constricted behind the eyes; 1st hind tarsal segment with pubescent sole; elytra with sides distinctly sinuate, opaque, finely punctured and acutely granulate aspera (Lec.) Page 42
Coxal cavities of the prosternum closed behind; head strongly constricted behind the eyes; first hind tarsal segment without pubescent sole; elytra with sides nearly straight 12
12. Pronotum with sides subangulate before the middle; elytral punctures very close and coarse toward the base, the surface roughened; color rufous or testaceous with tips black, with two very narrow, evanescent costae sanguinea (Lec.) Page 43
Pronotum with sides evenly arcuate; elytral punctures moderate in size; head with the tempora rapidly narrowed behind, not inflated; elytra shining black or bicolored in the male, opaque red in the female with or without black spots laetifica (Lec.) Page 43
13. Elytra with lateral margins bisinuate, strongly curved on the basal fifth; male with metasternum tuberculate on either side the middle line; pronotum with the lateral inflation rounded; male with the last ventral segment flattened and subsulcate toward the apex; female with pygidium not carinate minnesotana (Csy.) Page 43
Elytra with lateral margins feebly arcuate, not curved dorsally on the basal fifth 14
14. Disc of pronotum subplanate but distinctly inflated; antennae serrate; pronotum very coarsely confluent punctate, densely about the median impression, more sparsely

on each side, with irregular, linear, smooth spaces, pubescence nearly black; elytra very coarsely, deeply, sparsely punctured, pubescence black, very short and indistinct . . .

. canadensis (Oliv.) Page 144
Disc of pronotum strongly convex, antennae not serrate; elytra densely clothed with bright golden pubescence, the pubescence transverse, punctures minute and very dense chrysocoma (Kby.) Page 144

14517. Anoplodera carbonata (Lec.) 60-355.

Black, elytra reddish brown in immature specimens. Antennae stout and short, hardly passing elytral third. Pronotum with strong basal, transverse impression, apical margination somewhat strong, disc flattened with broad impressions on both sides in female, smooth and shining on the middle of the disc with fine, sparse punctures becoming coarser at the sides, sides wider at the middle. Elytra rather closely punctata, moderately at the base, finer behind, base nearly straight. The last ventral segment truncate-emarginate in the female, deeply emarginate in the male. This species breeds in Populus sp.

Length: 19 mm.

Montana distribution: Gallatin Co.

14516. Anoplodera nigrella (Say) 25-335.

Anoplodera (Leptura) lacustris Csy. 91-43
nigrita Say 37
praestans Csy. 13-267
Strangalia serricornis Csy. 24-279.

Black, elytra dark red with an apical, black, lateral margin. In some specimens the black color spreads nebulously nearly to the margin. The last ventral segment of the male emarginate, of the female truncate,

hardly emarginate. Prothorax densely and coarsely punctured. Antennae slender. Elytra rather sharply truncate at tip. Wholly black specimens are not uncommon. The host plants are Pinus, Picea, and Pseudotsuga.

Length: 13-19 mm.

Montana distribution: Bozeman, Darby, Ravalli Co.

11431. Anoplodera quadrata (Leo.) 74-225.

Sides of pronotum parallel on the basal two-thirds, punctures very dense. Scutellum narrowly triangular and the elytra very broadly rounded, almost subtruncate, at the apex. The color is dark brown with median and postmedian lateral spots and the humeral margin yellow. The antennae, legs and the apex of the abdomen are reddish.

Length: 9 mm.

Montana distribution: Missoula, Bozeman.

21284. Anoplodera knullii S. and H. 28-46.

Black, abdomen yellow, orange or black, antennae and legs reddish. Pronotum as long as wide, the sides inflated in front of the middle, hind angles acute, disc convex, punctuation close, interstices narrower than the punctures, pubescence long and erect, basal impression deep on sides and not continued across the dorsum, interrupted by an extension of the disc, the disc with a distinct carina. Elytra subparallel with apical half narrowed behind, apices broadly rounded, sparsely punctate and shining; pubescence short and sub-erect, conforming to color of elytral bands; the basal margin, the scutellum, and three transverse bands black, the intervening bands yellow, the bands sub-equal in width. The antennae are feebly

thickened apically, attaining the middle of the elytra.

Length: 7-9 mm.

Montana distribution: Callatin Co., Madison Co., Beaverhead Co.

11427. Anoplodera instabilis (Fald.) 47-59.

Anoplodera convexa Leo. 50-332

Judolia vivarium Csy. 24-282

pacifica Csy. 13-249

trajecta Csy. 13-250

gaurotoides Csy. 93-592

A species exhibiting great variations in size and coloration.

Black, elytra testaceous and marked with four transverse black bands. The apical band is entire; the median may be reduced to a transverse, rounded, lateral patch; and the postbasal band may be reduced to a discal and lateral patch. In the black form the black color may predominate on the elytra, the yellow being reduced to spots. The last ventral segment is rounded in the male, truncate-emarginate and flattened in the female. First segment of the hind tarsus densely hairy beneath. Pubescence longer on the males than on the females. The host plants are Pinus spp.

Length: 6-12 mm.

Montana distribution: Missoula, Bozeman, Thompson Falls, Florence, Jefferson Co., Sanders Co., Beaverhead Co., Darby.

11424. Anoplodera sexmaculata (Linn.) 58-308.

Judolia seminigra Csy. 24-283.

Similar to instabilis but less robust. Pronotum with basal transverse impression feeble. Elytra with humeral and scutellar lobes equally prominent. Scutellum emarginate at apex. A more elongate beetle than the above. Sides of the elytra nearly parallel, middle portion of the

postbasal black band reduced to a longitudinal spot usually covering the suture. Last ventral and dorsal segments rounded in both sexes. It is an European species found throughout the northern hemisphere.

Length: 8-11 mm.

Montana distribution: Gallatin Co., Big Fork, Glacier Park.

14505. Anoplodera tribalteata (Lec.) 73-224.

Leptura serpentina Csy. 93-41.

A species with considerable variation in the transverse marking on the elytra. Recognized chiefly by the profuse, bright, golden yellow vestiture. Last ventral segment broadly rounded, last dorsal feebly emarginate. Legs ferruginous. In the single specimen in the college collection, the elytral bands are somewhat wavy with the basal ones slightly wider.

Swaine and Hopping (28-49) state that serpentina Csy. is possibly a distinct species, but retain it in tribalteata for the present.

Length: 8-10 mm.

Montana distribution: Gallatin Co.

14504. Anoplodera tibialis (Lec.) 50-339.

Anoplodera hirtella Lec. 73-226
columbica Csy. 13-261
pictipennis Csy. 24-285
miquelonensis Pic. 22-11.

The elytral color pattern is yellow or reddish with four transverse black bands arranged as follows: first, postbasal, directed meso-caudad; second, median; third, postmedian, directed meso-cephalad; fourth, apical. The anterior band may be reduced to spots and may be obsolete in

the males with the last two bands more or less confluent. Femora and tips of tibiae dark; abdomen black. The host plants are Umbelliferae.

Length: 10-14 mm.

Montana distribution: Big Fork, Glacier Co.

11494. Anoplodera crassipes (Lec.) 57-65.

Anoplodera muleibris Csy. 13-263
fasciventris Lec. 61-355
vancouveri Cs. 13-263
xanthoraster Lec. 59-88
var. shastana Csy. 13-263

In this species there is a great difference between the sexes, differences in maculation, punctuation and the subtruncate evenly or acutely rounded elytral apices. Posterior tibiae of the male with only one well developed spur. Elytra testaceous or reddish, typically with four black bands, the first directed caudad, the others transverse. The first two bands may be reduced to spots or, in the male, they may be obsolete with the last two confluent. The males are usually much smaller. The host plants are Pinus spp.

Length: 9-14 mm.

Montana distribution: Lake Co., Como, Hamilton, Lake Ronan.

11533. Anoplodera aspera (Leo.) 73-228.

The species is recognized by its opaque lustre and the peculiar granulate punctuation of the elytra. Black, the elytra sometimes a reddish testaceous, but are seldom so. The host plant is Betula sp.

Length: 10-14 mm.

Montana distribution: Glacier Park, Bridger Mountains,

Ravalli Co.

11450. Anoplodera sanguinea (Lec.) 59-89.

Anoplodera boulderensis Csy. 13-252
apicata Csy. 24-280

Elytra generally testaceous in the males, reddish in the females; elytral punctures coarse and close toward the base, the surface roughened; tips black and with two narrow, longitudinal, evanescent costae. The host plant is Pinus ponderosa.

Length: 8-11 mm.

Montana distribution: Missoula, Big Fork, Glacier Park, Bozeman.

11449. Anoplodera lactifica (Lec.) 59-89.

Anoplodera lugens Lec. 59-89
provencheri Auriv. 12-23

The elytra of the males are typically black, rarely testaceous. The elytra of the females are opaque, finely punctured, bright red with basal spots and discal spots black.

Length: 8-11 mm.

Montana distribution: Missoula, Big Fork, Florence, Lolo, Ronan, Darby.

11526. Anoplodera minnesotana (Csy.) 13-269.

This species can be separated from A. proxima Say as follows:

- a. Females with the last dorsal sclerite strongly carinate along the median line on the apical fourth. Proxima Say.
- b. Females with the median area of the last dorsal broadly convex toward the apex, but at most only feebly carinate. Minnesotana Csy.
- c. Males with last ventral very deeply, triangularly cleft at the apex.
Proxima Say.

d. Males with last ventral flattened and subsulcate toward the apex.

Minnesota Csy.

The pronotum is strongly rounded; the elytral apices black, ascending at the sides; punctuation of the elytra medium and distinctly separated. The host plants are Acer, Hicoria, Castanea, and Tilia.

Length: 11.7-12.5 mm.

Montana distribution: Gallatin Co.

1447. Anoplodera canadensis (Oliv.) 95-8.

Anoplodera coccinea Lec. 73-226
cinnamoptera Hald. 47-64
cribripennis Lec. 59-21
erythroptera Kby. 37-180
var. ebena Leng 90-197
var. divisa Csy. 24-281
temuicornis Hald. 47-64

Elytral punctuation oribrate throughout, with interspaces shining, lustrous; elytra entirely black in female or black with minute, red, basal spots; some have the elytra entirely red or red with apices black but the majority have black elytra with a basal band red and of varying widths.

Caudal margin of red band often arcuate. The hosts are Pinus, Tsuga, Picea.

Length: 10-20 mm.

Montana distribution: Flathead Co., Bozeman, Victor, Darby, Powderville, Missoula, Stillwater Co., Lake Co., Big Horn Co., Dawson Co.

14520. Anoplodera chrysocoma (Kby.) 37-179.

Anoplodera auripiles Lec. 50-339
var. densepilosa Csy. 24-281
aureola Csy. 13-268.

Prothorax coarsely punctured. Elytra densely pubescent with golden hair arranged transversely, transversely truncate; punctures minute and

dense. The host plants are Pinus flexilis and Pinus ponderosa.

Length: 10-18 mm.

Montana distribution: Bozeman, Sheridan, Madison Co., Stevensville, Malta, Gallatin Co., Glacier Co., Helena, Lake Co., Dawson Co., Beaverhead Co.,

Genus Stenocorus Geoff. 62-221.

Rhagium Fab. 75-182.

First segment of hind tarsi with usual brush beneath. Prothorax armed with an acute spine on either side. Prosternum prominent between the coxae. Antennae short, thickened distally. But one species is found in Montana.

14298. Stenocorus lineatus (Oliv.) 95-13.

Stenocorus inquisitor Linn. 58-393

Indigator Fab. 87-145

Investigator Mann. 52-367

Rather large species, black, elytra irregular and mottled with testaceous. Head strongly and closely punctate, eyes separated by about three times their width in male. Prothorax as wide as long, apical and basal transverse depression conspicuous, punctures strong and well separated, smaller and sparser than on head. Elytra with coarse, pronounced ridges separating punctures. Abdomen generally wholly black. Legs rufous and black, with clustered pubescence; tarsi wholly deep black.

Length: 13.5-16 mm.

Montana distribution: Bonner, Stevensville, Flathead Co., Bozeman, Darby, Hamilton, Lake Co.

Genus Leptalia Lec. 73-204

Hind tarsi with first segment pubescent at the sides beneath, middle line glabrous; cheeks moderate, length between the eye and the base of the mandible about one-half the diameter of the eye; palpi long and slender. A single Montana specimen of the genus is known to the writer. It is:

14302. Leptalia macilenta (Mamm.) 53-253

Black, densely punctured; the prothorax is narrower than the head, deeply constricted before and behind, with the sides obtusely but strongly dilated; elytra elongate, parallel, and feebly truncate at the tip. The antennae are long and slender. Sometimes the elytra are yellow, with the suture and a broad sublateral vitta black.

Length: about 8 mm.

Montana distribution: Camp Creek Ranger Station, Ravalli Co. (Jellison).

Genus Centrodera Lec. 50-325

Parapachyta Csy. 13-216

Tibial spurs terminal. Hind wing with a closed cell in the anal region. Antennae slender, distal segments but little shorter than the others. Eyes large, prominent and coarsely granulated. But one species occurs in Montana.

14344. Centrodera spurca Lec. 57-63

Centrodera cervinus Walk. 66-332

Testaceous throughout. Elytra rather coarsely punctured and with

faint traces of costae, each with a small dusky spot near the middle at the margin, slightly pubescent. Antennae as long as the body in the male, a little shorter in the female. Legs relatively slender. Elytra truncate at tip.

One of the two specimens in the college collections was taken on a cherry tree.

Length: 18-23 mm.

Montana distribution: Hamilton, East Shore Flathead Lake.

Genus Toxetus Dejean 21-112

Stenocorus Fab. 75-178

Spurs of the hind tibiae inserted at the base of a deep excavation instead of the usual insertion at the extreme end. Prothorax constricted before and behind; the tubercle varies from a long acute process to an obtusely rounded, scarcely evident form.

But two species occur in Montana. They may be separated by the following key:

Apex of the elytra obliquely truncate; rufo-testaceous, with sutural and discal black lines enclosing broad, golden, pubescent vittae	<u>virgatus</u> (Lec.) Page 47
Apex of elytra obtusely rounded; disc not costate and scarcely pubescent	<u>obtusum</u> (Lec.) Page 48

14327. Toxotus virgatus (Lec.) 74-67

Slender, black, finely densely sericeous pubescent. Lateral tubercles of prothorax large, obtusely rounded, constrictions strongly marked. Elytra with pubescence transverse; testaceous; suture, discoidal

stripe and side margin blackish; tip obliquely truncate. The abdomen of the male is ferruginous.

Length: 13 mm.

Montana distribution: In literature (Leng, Cat. of Coleop., 1920, page 271.)

14341. Toxotus obtusus (Lec.) 73-206

Testaceous to almost black, head fuscous, minutely pubescent.

Prothorax not longer than wide, bisinuate at the sides; the lateral tubercle feeble and obtusely rounded; surface convex; constricted before and behind, vaguely canaliculate. Elytra almost parallel, the apex rounded. The eyes small, convex, finely faceted. Antennae with third and fifth segments equal, the fourth two-thirds as long. Head feebly narrowed behind and not rounded on the sides.

Length: 15 mm.

Montana distribution: Callatin Co., Lake Co., Thompson Falls, Bozeman, Beaverhead Co., Madison Co.

Genus Pachyta Zett. 28-376

Swaine and Hopping, in their "Lepturini of America North of Mexico, credit the description of this genus to Dejean. According to Leng's "Catalog of the Coleoptera of America North of Mexico", Zetterstedt is the author of the book, "Fauna Insectorum Lapponica", which the above authors designate as the publication in which the genus was described. For this reason Zetterstedt is here credited with the description.

The genus is similar in most respects to Anthophilax. It differs in that the third segment of the hind tarsus is cleft approximately to the

middle. Only two species occur in Montana. Judging only from the descriptions, the two species are very similar and may possibly be synonymous. They may be separated as follows:

Elytra strongly narrowed behind, testaceous, or maculate with black, feebly truncate and dehiscent	<u>liturata</u> Kby. Page 49
Elytra strongly narrowed behind, truncate and sub-bidentate at tip, posterior half of side margin black, reaching suture at tip . . .	<u>armata</u> Lec. Page 49

14345. Pachyta armata Lec. 73-207

Black, elytra coarsely and confluent punctured; humeri prominent and disc convex behind the base; testaceous, with black space extending from suture at tip obliquely to the middle of the margin. Antennae nearly as long as the body, male; half as long as the body, female. Length: 16-19 mm.

Montana distribution: The species is reported by Leconte as having been taken in Oregon, Idaho and Western Territory.

14347. Pachyta liturata Kby. 37-178
(Mann. 52-367)

Pachyta nitens Lec. 50-235

Black, elytra coarsely and confluent punctured, glabrous, humeri prominent, testaceous, vaguely or decidedly quadrimaculate with black or entirely black. Antennae short and very stout in the female; about one-half the length of the body and more slender in the male.

Length: 15-18 mm.

Montana distribution: Missoula, Gallatin Co., Helena, Lake Co., Joliet, Park Co., Dawson Co., Foxman, Cooke City, Hamilton, Ravalli Co.

Genus Leptacmaeops Esy. 13-230

A genus of the group having a closed cell in the anal region of the hind wing. The eyes are finely granulated and it differs from Pachyta and Anthophilax in having the pronotum with the sides obtusely rounded at the middle.

Key to the Species

1. Prothorax longer than wide; first and third hind tarsal segments densely pubescent beneath; second wholly or partly bare 2
 Prothorax wider than long; hind tarsi with third segment only densely pubescent 4
2. Sides of head parallel behind the eyes . . . longicornis (Eby.) Page 51
 Sides of head oblique behind the eyes 3
3. Prothorax densely punctured vineta (Lec.) Page 52
 Prothorax less densely punctured, shining . . . ligata (Lec.) Page 51
4. Hind angles of the prothorax not prominent; pubescence sparse; elytra black, varying to testaceous or with red humeral angles militaris (Lec.) (Idaho)
 Hind angles of the prothorax prominent; elytra black, varying to fuscous, clothed with soft, long pubescence subpilosa (Lec.) Page 50

11384. Leptacmaeops subpilosa (Lec.) 50-323

Acmaeops subpilosa Lec. 50-323

Deep black to testaceous in color, with anterior tibiae paler and obscure testaceous to testaceous, at least in the males, the abdomen is black, sometimes pale at the extreme tip. Head and thorax densely punctate and somewhat dull. Elytral punctures coarse and widely separated, becoming finer from base to apex. Head with prominent eyes and obliquely rounding, not prominent, tempora. Prothorax decidedly transverse and with deep constrictions, more narrowed anteriorly. Elytra tapering throughout in

the male, and just visibly so in the female; suture not more densely pubescent, pubescence long, abundant, erect and bristling on head and thorax; sparser, more reclining and less elongate on elytra

Length: 8-10 mm.

Montana distribution: Bozeman, Camas Prairie, Little Rocky Mountains, Ravalli Co., Lake Co., Big Horn Co.

14391. Leptacmaeops longicornis (Kby.) 37-185

Leptura longicornis Kby.

Acmaeops marginalis Lec. 57-28.

Head quadrate, tempora straight and parallel, scarcely less prominent than the eyes, densely punctate. Body slender, black and the anterior legs versicolored, the elytra murky with a pale discal vitta on each. Vestiture throughout short, sparse and inconspicuous. Head as wide as the prothorax and the antennae slender, four-fifths as long as body, testaceous with basal segment dusky. Prothorax slightly elongate, the rounded apex moderately narrowed and broadly constricted, the sides rather prominent but obtuse medially; shining and with strong punctures close throughout, excepting the smooth, narrow median line. Elytra cuneiform, wider than prothorax. Abdomen black throughout, the fifth segment of the male with a small apical concavity.

Length: 10.5 mm.

Montana distribution: Missoula, Bozeman, Florence, Toole Co., Nez Perce Mountain, Hamilton, Como, Ravalli Co.

14392. Leptacmaeops ligata (Lec.) 73-211

Acmaeops ligata Lec.

Closely allied to longicornis and vineta, but less robust than the former and with a different shaped head. Prothorax less strongly punctured, more shining and more constricted than in either of the above.

Length: 9.5-10.3 mm.

Montana distribution: Reported in literature.

Leptacmaeops vineta (Lec.) 61-346

Acmaeops vineta Lec.

Resembles longicornis in form, color, and variations. Differs by head being oblique behind the eyes, hind impression of prothorax being deeper and general form less robust.

Length: 12-13 mm.

Montana distribution: Reported in literature. (Leng's Catalog of Coleoptera, 1920, page 272.)

Genus Anthophilax Lec. 50-236.

Hind wing with closed cell in anal region. Antennae as in Centrodera. Eyes finely granulated, large and prominent, emarginate. Pronotum with sides distinctly tuberculate. Third segment of hind tarsus cleft to base. Again only one species is reported as having been taken in Montana.

11420. Anthophilax mirificus Bland. 65-382.

Anthophilax venustus Bland 65-383. ?

Entirely black, female, head and thorax black; elytra dull velvety red with scutellar area and subapical spot black, male. Head deeply impressed between the antennae, grossly punctured, somewhat shining, broad

transverse impression back of the eyes. Antennae nearly as long as the body in the male, one-half the length of the body in the female; third and fourth segments equal and the fifth as long as three and four combined, basal segments shining. Thorax uneven and coarsely punctured, opaque, a deep transverse line near the anterior and posterior borders, central line, (longitudinal) dilated, a strong obtuse tubercle at the side. Scutellum triangular and coarsely punctured. Legs black.

Length: female, 19 mm., male, 14 mm.

Montana distribution: Reported by Nicolay (17-42) as having been taken at Columbia Falls, June 7. One specimen examined. No data.

Genus Acmaeops Lec. 50-235.

Brachysomida Casey. 13-220 (In part).

Hind wings without a closed cell in the anal region. Pronotum with sides obtusely rounded. Eyes entire. Pronotum and elytra closely, strongly punctate and distinctly pubescent.

Key to the Species

1. Short stout species; antennae stout; elytra blackish blue, scarcely pubescent, elytra coarsely and distinctly punctured atra Lec. Page 53
More slender species; antennae slender 2
2. Front and mouth extremely long; antennae inserted in front of line joining the anterior margins of the eyes pratensis (Laich.) Page 55
Front and mouth broader and shorter proteus (Kby.) Page 54

14351. Acmaeops atra Lec. 50-323.

Brachysomida atra (Lec.) after Casey 13-220.

Stout, oblong, rather convex, shining, deep black; upper surface shining and glabrous, the under surface with a few scattered hairs. The legs and first five antennal segments with short stiff hairs, the rest of the antennae dull, the fifth segment somewhat claviform and with an elongate opaque spot on the tempora converging and arcuate behind the eyes. Antennae extending to apical third of the elytra. Prothorax with sides acutely and abruptly, but not strongly, tuberculate, wider than long, evenly convex and with small scattered punctures, the median line in part finely striate. Scutellum nude and shining, elongate. Elytra parallel, not quite twice as long as wide, rounded at the apex, sutural angle a right angle but blunt, punctures coarse, irregular, somewhat transverse.

Length: 8-9 mm.

Montana distribution: Jefferson Co., Darby.

14403. Acmaeops proteus (Kby.) 37-186.

Acmaeops gibbula Lec. 61-356

sublineata Hald. 47-60

Black, a stout species with the elytra parallel, testaceous and with a narrow, nubilous black sutural vitta and a feeble longitudinal cloud at the summit of the flanks near the base. Legs long, slender, testaceous, the tarsi piceous and femora black apically. Pubescence short but conspicuous. Head small and not very closely punctate, with tempora arcuate to the neck; the antennae nearly three-fifths as long as the body, slender, testaceous, the basal segments black on anterior side. Prothorax as long as wide, wider than head, punctures large, perforate and dense, the pubescence pale. The elytra similarly sculptured throughout, the punctures scarcely

if at all larger basally.

Length: 9 mm.

Montana distribution: Darby, Gallatin Co., Lake Co., Yellowstone Co., Bozeman.

14396. Acmaeops pratensis (Laich.) 84-172.

Acmaeops strigilata Fab. 92-341
semimarginata Rand. 38-20
Leptura longiceps Kby. 37-187
fulvipennis Mann. 53-251.

Black, legs and antennae black; elytra pale tawny-flavate with a black streak from the humeri obsolescent behind the middle, apices and suture black, black areas sometimes wanting, sometimes elytra wholly piceous. Head small and rapidly oblique at the sides behind prominent eyes, closely and prominently punctate; antennae stout and short, three-fourths (male) and three-fifths (female) as long as the body. Prothorax wider than head, shining, apex constricted. Elytra short, one-half wider than prothorax, feebly cuneiform, narrowly truncate at tip. Legs very slender.

Length: 5.2-8 mm.

Montana distribution: Gallatin Co., Big Fork, Crazy Mountains, Victor, Hot Springs, Darby, Bozeman, Beaverhead Co.

Tribe Callidiini

The tribe is separated from the rest of the Cerambycinae by the following characters: tibiae unarmed behind and not grooved, bases of the antennae not enveloped by the eyes, front coxae transverse and not prominent, ligula membranous and the eyes finely granulated.

Key to the Genera
(After Bradley)

1. Mesonotum with a large, undivided, very finely striate stridulating surface, the sides not punctured and pubescent 2
 Mesonotum without a stridulating surface, or if with a median one, then the sides of the mesonotum are punctured and pubescent 6
2. Hind coxae very prominent; femora strongly clavate; metasternum with scent pores 3
 Hind coxae not prominent 4
3. Elytra with ivory lines Physocnemum Hald.
 Elytra without ivory lines Ropalopus Muls.
4. Femora slender Gonocallus Lec. Page 56
 Femora clavate; metasternum without scent pores 5
5. Prosternum broad or moderately so; hind coxae enclosed by side pieces and the first ventral segment 9
 Prosternum very narrow, pointed; hind coxae not enclosed Phymatodes Muls. Page 60
6. Femora strongly clavate 7
 Femora not strongly clavate; mesonotum punctured and pubescent at the sides, with a median smooth space Elatotrypes Fisher.
7. Mesonotum polished, with large scattered punctures and no stridulating surface 8
 Mesonotum punctured and pubescent at the sides, with a median stridulating surface Xylocrius Lec. Page 60
8. Mesosternum broad, emarginate Merium Kby.
 Mesosternum obtusely triangular Callidium Fab. Page 58
9. Pronotum rapidly and strongly constricted at the base, which is briefly subtubulate Hemicallidium Csy.
 Pronotum not so Semanotus Muls. Page 57

Genus Gonocallus Lec. 73-171

This genus is possibly represented in Montana by a single species.

It is:

14606. Gonocallus collaris (Kby.) 37-141

Gonocallus lepidus Lec. 50-34.

A slender black species with the prothorax bright red and the elytra brassy black. The thighs are slender and the eleventh segment of the antennae of the male is divided with the outer portion the shorter.

Length: 13 mm.

Montana distribution: One specimen, no data.

Genus Semanotus Muls. 39-54

Anacomis Csy. 12-271

Prothorax punctured irregularly and with five moderately to well defined, smooth, polished callous spots. Prosternum moderately narrow.

14614. Semanotus lignea (Fab.) 87-153

Narrow, parallel, obtusely rounded behind and feebly convex. Head small with eyes widely separated, small and almost divided; front coarsely, densely punctured; antennae about as long as the body or shorter, segments three to five increasing in length. Prothorax angularly prominent laterally at the middle, the surface very coarsely, densely punctate and with five moderately defined, polished callous spots. Scutellum dark, punctate, and obtusely ogival (like a pointed arch).

Length: 10 mm.

Montana distribution: Bitter Root Mountains (Van Dyke 23-49), Gallatin Co.

Semanotus nicolas White 55-321

Dr. Horn (Trans. Am. Ent. Soc., 1883, p. 289) states that this species is merely the dark form of lignea. The original description is as follows: Of a blackish brown; head punctured and with scattered grayish hairs. Thorax punctured irregularly, with five smooth spaces on the back, two in front, three behind, the central the largest; scutellum black. Elytra of a reddish-brown, with a transverse ochrey band a little behind the middle and a narrow ochre-colored margin from the shoulder to the band. Length four lines.

Montana distribution: Darby.

Genus Callidium Fab. 75-187

Distinguished from Phymatodes by the labial and maxillary palpi being equal. Flattened species with the antennae rather short. The prothorax is rounded to subangulate at the sides. The two species occurring in this state may be separated as follows:

Prothorax and elytra blue or violet, without a	
depression	<u>janthinum</u> Lec. Page 58
Prothorax and elytra brownish or greenish, with an	
amphora-like impression	<u>subopacum</u> Swaine. Page 59

14622. Callidium janthinum Lec. 50-34

Callidium violaceum Linn. 58-395

Violet or blackish blue, nearly black beneath; elytra wider than the prothorax and the antennae slender. Prothorax finely and very densely punctate and subopaque laterally and anteriorly in the male; more constricted and broadly subtubulate at the base and shining in the female.

Elytra shining, scarcely twice as long as wide, parallel to the broadly rounding apices, coarsely, strongly punctured throughout, each puncture with a small hair growing from an acute granule at its anterior margin.

Length: 9-13.3 mm.

Montana distribution: Missoula.

20098. Callidium subopacum Swaine 19-12E

The original description is as follows: Body piceous, above dull greenish; antennae reddish, except first segment, very slender; subopaque above; head rather obscurely punctured and reticulate, punctures coarser and more distinct behind; median line finely impressed, a wide transverse impression between the eyes; the pronotum wider than long, nearly as wide as the elytra, widest at the middle, sides broadly, arcuately, narrowed in front and more strongly narrowed behind the middle, the sides have a spongy appearance from dense, deep, subcircular punctures, with rather numerous long brownish hairs, a median amphora-shaped depression, the margins rather indefinite, nearly smooth, finely reticulated, the punctures coarse but very shallow, the pubescence red, short and erect, longer in front; elytra thin, coarsely, irregularly punctured, margins of punctures indefinite, with minute setose punctures in their depth, these feebly granulate only toward their bases.

Length: 10-13 mm.

Montana distribution: Bozeman, Stevensville, Lake Co., Florence, Missoula, Jefferson Co.

Genus Phymatodes Muls. 39-47

Microcallidium Csy. 12-283

The genus may be recognized from the characters given in the key. The single species occurring in this state is:

14610. Phymatodes dimidiatus (Kby.) 37-173

Phymatodes palliatus Hald. 47-41

Parallel, notably depressed, dark smoky brown, dull in luster, minutely, extremely closely punctulate, more sparsely on the elytra which are less dull, except in an opaque region behind a nubilously pallid area occupying not quite the basal half of each and not involving the base or a gradually narrowing sutural region from the base, the opaque area extending posteriorly to near the apex. Pronotum even, without callous spots but with a narrow, smooth line broadening basally; the sides broadly, obtusely angulate at the middle, base narrower than apex. Elytra wider than prothorax; pubescence throughout very short and not at all erect on the prothorax. Femora strongly clavate apically in both sexes.

Length: 6.8-8 mm.

Montana distribution: Lake Ronan, Darby, Gallatin Co., Big Fork, Florence.

Genus Xylocrius 73-296

One of the two described species of this genus is found in Montana. The genus may be known by the punctured and pubescent mesothorax, having a median stridulating surface.

14657. Xylocrius agassizi (Lec.) 61-357

Callidium agassizi Lec. 61-357.

A black coarsely punctured species; of more convex form than is common to this group; the antennae are short and stout with segments three to five equal; the palpi are unequal; the prosternum is narrow and pointed behind; the mesosternum is subtriangular, obtusely truncated and slightly emarginate at the tip; and the hind coxae are not enclosed by the side pieces of the metasternum. The scutellum is triangular with curved sides, and the mesonotum is punctured and pubescent at the sides, with a median stridulating surface. The hind tarsi are stout and the femora are moderately clubbed.

Length: 10 mm.

Montana distribution: Corvallis.

Tribe Clytini.

This tribe may be separated from the other members of the Cerambycinae by the following characters: Eyes finely granulate, enveloping the antennal base in part; prothorax is never spinose, and the elytra are never sinuate except in the genus *Tylcus*; the metepimera are produced beyond the angles of the first abdominal segment; scutellum is rounded or broadly triangular; the front coxal cavities are open behind; tibiae not carinated and the tibial spurs are long; the tarsal soles are pubescent; and the various species are ornamented with yellow or gray fascia.

Key to North American Genera
(Adapted from Hopping, 1932)

1. Intercoxal process of first abdominal segment broad,
rounded or feebly angulate 2
Intercoxal process of first abdominal segment acute
or subacute 6
2. Tip of prosternal intercoxal process
perpendicular Cyllene Newm. Page 62
Tip of prosternal intercoxal process
declivous or almost flat 3
3. Antennae subserrate, compressed, intercoxal
process declivous Glycobius Lec.
Antennae filiform 4
4. Metepisternum narrow; intercoxal process almost flat . . Arhopalus Serv.
Metepisternum broad; intercoxal process declivous 5
5. Elytral margins sinuate Tylcus Csy.
Elytral margins not sinuate Calloides Lec.
6. Front bicarinate, pronotum without individual
transverse carinae Xylotrechus Chev. Page 63
Front not bicarinate 7
7. Pronotum with individual transverse carinae 8
Pronotum without individual transverse carinae 9
8. Antennae eleven segmented Neoclytus Thom. Page 65
Antennae twelve segmented Euryscelis Chev.
9. Metepisternum narrow 10
Metepisternum broad Clytus Laich.
10. Antennae tapered, basal segment robust Triodoclytus Csy.
Antennae not appreciably tapered, slender Clytoleptus Csy.

Genus Cyllene Newm. 40-7

The genus may be recognized from the characters given in the key. Judging from the literature and the collections that have been seen by the writer, no species of the genus has been taken in Montana. However, one species, decora, is quite common in southern Alberta so it is included here.

14666. Cyllene decora (Oliv.) 95-63

Cyllene infausta Lec. 50-17

The elytra are fasciate with yellow bands arranged in the following manner: Base of elytra narrowly yellow; a sub-basal transverse band, the two very narrowly separated and sometimes confluent; a w-shaped band; a transverse band of irregular outline extending along the suture forward; and behind this a broader transverse band; and at the apex two additional, narrowly separated bands.

Montana distribution: Has been taken in southern Alberta, so is included here.

Genus Xylotrechus Chev. 60-456

Generally of a robust form, the head declivous and bicarinate, the antennae filiform and usually less than one-half the length of the body. The elytra are generally tapered, the apices truncate or rounded. The femora are not distinctly spined.

Key to the Species

1. Frontal carination V- or Y-shaped; spines of elytral apices short, obtuse; stout species nauticus (Mamm.) Page 65
Frontal carination as above, elytral apices not spined 2
2. First elytral marking, at basal sixth, in form of a short dash or dot, midelytral fascia undulatory; pronotum with clear-cut fascia at apex undulatus (Say.) Page 64
Elytral marking at basal sixth an undulatory or sinous band; antennae less than half the length of the body, filiform; metepisternal spot very faint annosus (Say.) Page 65

11691. Xylotrechus undulatus (Say). 24-291

Xylotrechus sayi Castelnau 35-55
interruptus Cast. 35-57
lunulatus Kby. 37-175
undatus Kby. 37-175
integer Hald. 47-41
gemellus Csy. 93-50
longitarsus Csy. 12-362
montanicus Csy. 12-361
inflaticollis Csy. 12-360
columbianus Csy. 12-361
albonotatus Csy. 12-361

A most variable species, the synonymy established by a study of the European and Kirby types by LeConte and Horn. The synonyms thus established appear in a compilation by Horn in "The Canadian Entomologist" VIII:169, 1876. Say's description of the insect follows: Body dark brown, head darker than the elytra, antennae dark ferruginous; front below the antennae bilineate with pale yellow; thorax darker than the elytra, rough with minute spines and hairs, anterior and inferior margins yellow, interrupted above, basal margin with a transverse yellow spot each side, elytra with a transverse spot on each near the base; an undulated narrow band across the middle, rising along the suture nearly to the scutellum (scutellum). An undulated transverse band behind the middle, and a terminal band; postpectus (under-surface of metathorax) with incisures margined with yellow.

Western specimens generally agree with this description except that the undulated bands are often interrupted. The fasciation of the males is generally white, of the females, yellow (Hopping 32-537). Hosts are: Pseudotsuga, Tsuga, Pinus and Picea.

Length: 9.5-16 mm.

Montana distribution: Roseman, Victor, Arlee, Jefferson Co., Dawson Co., Helena, Yellowstone Co., Lake Co., Choteau, Cascade, Darby, Big Horn Co., Ravalli Co., Missoula, Hamilton.

14693. Xylotrechus annosus (Say) 27-277

Pronotum without fascia, patchily, rather sparsely, covered with gray pubescence. Elytra sparsely and uniformly covered with gray pubescence, the margins subparallel, apices feebly truncate; markings in form of three narrow, wavy fasciae. Ventral surface and legs uniformly and sparsely gray pubescent. The host is Populus sp.

Length: 10.5-15 mm.

Montana distribution: Ravalli County.

14694. Xylotrechus nauticus (Mann.) 43-305

Xylotrechus gramineus Fald. 47-40

Ground color dark brown to black. Pronotum carinate, sparsely and patchily gray pubescent. Elytral apices truncate; elytral markings in form of three narrow, wavy fasciae, placed in apical and basal fourths and at the middle, these often indistinct. Ventral surface uniform dark brown, with sparse gray pubescence. Femora rather strongly clavate. The host plant is Quercus.

Length: 9-16 mm.

Montana distribution: In literature.

Genus Neoclytus Thomson 60-67

Rhopalomerus Chev. 60-457

Rhopalopachys Chev. 60-457

Plagithmythsus Lec. and Horn. 83-204

The genus may be recognized from the characters given in the key. Only a single species of the genus has been reported from Montana.

14713. Neoclytus muricatus (Kby.) 37-177

Neoclytus leucozonus Cast. 35-90
muricatus Prov. 77-601

A small species, ground color brown to black, with white markings. Antennae slender, pronotum without distinct fascia, sometimes with two faint spots on the disc. Elytral markings: a parenthesis extending across the base of each and down the suture to the basal fourth, thence curving outward to the margin, sometimes interrupted, leaving a marginal dot; a mid-fascia obliquely backward from the suture, slightly arcuate; apical patch absent. Ventral surface with condensed pubescence posteriorly on the metepisterna and first two or three abdominal segments. The hosts are Picea, Pseudotsuga, Pinus, and Larix.

Length: 7-11.5 mm.

Montana distribution: Birney, Lake Ronan, Telegraph Creek, Livingston, Bozeman, Pompey's Pillar, Billings.

Tribe Stenaspini

The tribe may be separated from the rest of the Cerambycinae by the following characters: Bases of the antennae partly enveloped by the eyes, front coxae not conical, sides of the elytra not sinuate, scutellum acutely triangular and the pronotum not lobed.

Key to the Genera

- | | |
|--|---|
| 1. Mandibles emarginate at tip | 3 |
| Mandibles acute or simple at tip | 2 |

2. Body bicolored; scutellum transverse, obtuse . . . Batyle Thoms. Page 69
 Body uniformly pale in color; scutellum
 narrow, acutely triangular Batyleoma Csy. Page 69
3. Prothorax with an acute lateral spine; eyes not
 divided; pubescence fine Oxolpus Lec.
 Prothorax rounded on the sides or feebly
 spinose, no lateral callosities;
 pubescence long and partly erect Crossidius Lec. Page 67

Genus Crossidius Lec. 52-102.

Front coxal cavities open; mandibles emarginate at tip; elytra
 without ivory vittae; prothorax rounded on the sides or feebly spinose,
 without dorsal callosities; pubescence long and partly erect.

Key to the Species

1. Prothorax rounded at the sides, not angulated;
 elytra coarsely punctured, bright red; antennae,
 head and postpectus black; basal band and
 sutural blotch of elytra black discoideus (Say) Page 68
 Prothorax subtubulate at the sides 2
2. Under-surface and pronotum black or rufous . . . punctatus Lec. Page 67
 Under-surface yellow, trunk frequently so,
 abdomen rarely blackish; pronotum
 more or less black pulchellus Lec. Page 68

14821. Crossidius punctatus Lec. 73-196

Prothorax strongly transverse, densely, confluent punctured
 and pilose. Antennae of male never much longer than the body, that of the
 female very short and stout with segments about two times as long as wide.
 Elytral punctuation coarse, becoming finer toward the apex, the punctures
 distinctly separated. Elytra testaceous with basal margins and humeri
 black, disc black, the coloration extending from about the basal fourth
 to the tips of the elytra, in some specimens this area is somewhat pointed

at both ends, terminating in a point at the sutural angle, in others this coloration is pointed only at the basal end and covers the tips of the elytra, leaving only a narrow testaceous margin.

Length: 10-13.5 mm.

Montana distribution: Gallatin Co., Nigger Hollow, Jefferson Co.

14830. Crossidius pulchellus Lec. 61-356

Body black, abdomen rufous at apex; elytra twenty-yellow, black at basal margin, the black area posteriorly extended at the humeri, with a large, almost parallel-sided, black area, extending from the basal third to the apices and not attaining the sides, abruptly contracted angularly at the basal third and the median portion extending along the suture anteriorly for a short distance in an acute triangle. Thoracic punctures very coarse, not crowded, having moderate cinerous hairs. Antennae a little longer than the body in the male, about three-fourths as long as the body in the female. The female is slightly smaller than the male but is similar in appearance.

The type specimen was taken in the Bitter Root Valley, Montana.

Length: 10 mm.

Montana distribution: Jefferson Co., Meagher Co., Willow Creek Mountains, Ravalli Co.

14837. Crossidius discoideus (Say) 23-411

Crossidius pulchrior Bland. 62-272

Bright red, antennae, postpectus and head black; elytra coarsely punctured, punctures denser and somewhat smaller behind, basal band and sutural blotch black, the latter very broad in both sexes.

Length: 9-12 mm.

Montana distribution: In literature (Leng, Syn. of Ceram., Ent. Amer. II:119, 1886).

Genus Batyle Thomson 64-201

But a single species has been taken in Montana.

14853. Batyle ignicollis (Say) 23-412

Batyle sanguinicollis Germ. 24-515

Deep black, the prothorax red above and below, Elytral punctures dense and fine posteriorly, coarse and separated anteriorly. Antennae of male nearly as long as the body and slender, in the female about the same or shorter. Prothorax more than two-fifths wider than long, apex narrower than base. Prosternum of the male opaque red or black and strongly punctate, of the female red and nearly smooth.

Length: 11-12 mm.

Montana distribution: Hot Springs, Yellowstone Co.

Genus Batyleoma Casey 12-329

As in the above genus, only one species is reported as having been taken in Montana.

14857. Batyleoma suturale (Say) 23-411

Batyleoma miniata Germ. 24-515
rubra Newm. 38-393

Upper surface red throughout or seldom having a black sutural vitta. Western specimens generally have a deep black sutural vitta, beginning at about the basal fourth or fifth and often greatly expanded at the apex to the margin, sometimes in nearly the apical half of the elytra.

Montana distribution: In literature (Leng, Cat. of Coleop.
page 280, 1920.)

C. LAMINAE.

Leng and Hamilton '96; Casey '13

Key to the Tribes

1. Claws simple 2
Claws bifid, toothed and appendiculate 6
2. Apterous; metasternum very short Dorcadionini. Page 70
Alate; metasternum rarely short 3
3. Scape with a cicatrice at its extremity,
closed Monochamini. Page 71
Scape simple 4
4. Middle coxal cavities open; episternum of
metathorax broad, triangular Saperdini. Page 83
Middle coxal cavities closed; claws divaricate 5
5. Middle tibiae with a groove; scape of antennae
clavate Acanthocinini. Page 74
Middle tibiae entire; head retractile Pogonocherini. Page 79
6. The first four sternites equal or decreasing
gradually in size; episterna of
metathorax wide Phytocini. Page 84
The three intermediate sternites shorter
than the others; episterna of metathorax
of moderate width; eyes broadly divided Tetraopini. Page 86

Tribe Dorcadionini.

Genus Moneilema Say 24-403

This is the only genus of the tribe that has been taken in
Montana and may be easily recognized by the apterous condition and the
simple claws. Most specimens are to be found on or near species of cacti.
A single species and a variety of that species have been recorded from this
state. They can be separated as follows:

- Antennal annulation distinct; elytra with few distinct punctures annulatum Say. Page 71
- Antennal annulation indistinct; pronounced elytral corrugations, with deeper punctures between the corrugations Var. montanum Psota. Page 71

14877. Moneilema annulatum Say 24-404

Moneilema nubecula Csy. 13-282
demissum Csy. 13-282

The antennae are shorter than the body and are absolutely annulated with cinereous; the front punctured. Thorax slightly punctured at the base and at each side; a lateral, short tubercle is at each side. The scutellum is rounded at the tip. The elytra has numerous short, indented, irregular, longitudinal, confluent lines; there are a few punctures at the base.

Length: About 18 mm.

Montana distribution: Treasure Co.

14877c. Moneilema annulatum var. montanum Psota 30-121

Psota's description of the variety follows: "This variety differs from the typical form of annulatum by having more pronounced elytral corrugations, deeper punctures between the corrugations, a lateral tubercle, which is situated close to the basal margin of the thorax, and an obscured antennal annulation.

Length: 16 mm.

Montana distribution: Jordan.

Tribe Monochamini

- The tribe may be separated from the rest of the Lamiinae by the

following characters; claws simple; alate; metasternum rarely short;
and the scape with a closed cicatrice at its extremity.

Key to the Genera

- Legs long, the front pair elongated in the male;
antennae much longer than the body; prothorax
with lateral spines Monochamus Serv. Page 72
- Legs equal; antennae little longer than the body;
prothorax spined; large black and white
species Plectrodera Lec. Page 74

Genus Monochamus Serv. 35-91 (Monochamus of authors)

The genus can be recognized from the characters given in the
key. Three species occur in Montana.

Key to the Species (Adapted from Hopping 1921)

1. Apices of the elytra produced into an acute spine
or a blunt process 2
Apices of elytra not produced into a spine
or process 3
2. Process of elytral apex slender, acute or subacute;
body and antennae comparatively slender;
punctuation of elytra sparse and fine, ashy
vestiture in more or less definite areas;
general color reddish titillator (Fab.)
- Process of elytral apex blunt; body comparatively
short and robust; punctuation of elytra dense
and coarse, ashy vestiture more or less
diffused; general color black or rufous . . . maculosus Hald. Page 73
3. Scutellum generally covered with ashy scales,
posterior margin rounded; elytra with vague
bronze lustre, maculation often entirely
absent; general color black . . . scutellatus (Say).Page 74
- Scutellum bilobed or V-shaped with only the
lobes covered with ashy scales and
separated by a minute triangular glabrous
area; maculation of elytra absent or
sparse; general color densely black . . . oregonensis Lec. Page 73

14898. Monochamus maculosus Hald. 45-51

Monochamus clamator Lec. 52-149
oregonensis Lec. 73-231 (Casey)
strenuus Csy. 13-293

Process of elytral apex blunt; body comparatively short and robust; punctuation of elytra dense and coarse, ashy vestiture more or less diffused; general color black or rufous. The antennae vary in length. Rugosities of the elytra irregular in form, the vestiture consisting of dark brown, rust brown or black tomentum separated by cinereous areas of scales arranged in minute, separated groups. According to Hopping (1921) the hosts are Pinus contorta and P. ponderosa.

Length: 16-26 mm.

Montana distribution: Helena, Billings, Lake Co., Roundup, Teton Co., Darby, Yellowstone Co., Nez Perce Mountains, Musselshell Co., Florence.

14899. Monochamus oregonensis Lec. 73-231

Monochamus monticola Csy. 13-293.

A large, stout species of a dense black color. Scutellum bilobed or V-shaped with only the lobes covered with ashy scales and separated by a minute, triangular, glabrous area. The maculation of the elytra is sparse or absent. Hopping (1921) states that the host plants are Abies concolor, Pseudotsuga taxifolia, and Pinus contorta. Specimens from the latter host are generally smaller and the elytra of the males are generally more maculate.

Length: 13-30 mm.

Montana distribution: Gallatin Co., Darby, Dawson Co., Helena, Laurel, Lincoln Co., Stevensville, Beaverhead Co., Yellowstone Co.

14904. Monochamus scutellatus (Say) 24-289

Monochamus resutor Kby. 37-167
mutator Lec. 50-235.

Similar in appearance to M. oregonensis. Scutellum generally covered with ashy scales, posterior margin rounded. Elytra with a vague bronze lustre, maculation often entirely absent; general color densely black. The females are generally smaller than the males. The hosts are Pinus strobus, P. banksiana, P. resinosa, Picea canadensis, and Abies concolor.

Length: 13-24 mm.

Montana distribution: Bozeman, Hamilton, Darby.

Genus Plectrodera Lec. 52-151

But a single species occurs here. The characters given in the key will serve to identify the genus.

14925. Plectrodera scalator (Fab.) 75-279

Plectrodera belli Lec. 44-209

A black, shining species with conspicuous white pubescence arranged in irregular transverse fasciae. Leng and Hamilton (96-112) report that Montana specimens bear much more pubescence than those of other sections. The hosts are Populus spp.

Length: 25-35 mm.

Montana distribution: Reported in literature (Leng and Hamilton, Syn. of Lam., Trans. Am. Ent. Soc. XXIII:112, 1896.

Tribe Acanthocinini

The tribe differs from the rest of the Lamiinae in that the scape

of the antennae is nearly cylindrical, slender; sternal processes of normal width; anterior coxae globose; middle tibiae with a groove; middle coxal cavities closed; claws divaricate; scape simple; alate, and the claws simple.

Key to the Genera
(Modified after Leng '96)

1. Females with elongated ovipositor
 Acanthocinus Steph. or Hoff. Page 76
Females without an elongated ovipositor 2
2. Antennae not ciliate beneath, but sometimes
 the basal segments with spinose setae;
 first hind tarsal segment as long as 2+3 3
Antennae ciliate beneath 5
3. Prosternum narrow but not linear; body without
 erect hairs Leiopus Serv. Page 75
Prosternum linear; form cylindrical; elytra
 with erect hairs 4
4. Elytra with tufts of scale-like hairs Lepturgoides Schffr.
Elytra without such tufts of hairs Dectes Leo. Page 78
5. Elytra without lateral carinae Lepturges Bates
Elytra with lateral carinae Hyperplatys Hald. Page 77

Genus Leiopus Serv. 35-145

Liopus of authors
Amniscus Hald. 45-46

A single species is recorded from this state. It is L. variegatus.

14968. Leiopus variegatus (Hald.) 47-47

A moderately robust species, somewhat elongate, surface reddish or yellowish brown. Elytra variegated with small, yellowish, dark and cinereous points and blotches; on the disc are two costae which unite near the apex, and are crossed behind the middle by a dark blotch which is a patch of gray pubescence. The front is flat, the mouth being in the same

plane as the front; antennal segments 6-10 equal. The prothoracic spine is small and acute. The host plant is Negundo aceroides, according to Hamilton.

Length: 9 mm.

Montana distribution: Callatin Co.

Genus Acanthocinus Steph. or Hoff.

The description of this genus is attributed to Stephens by Leng and Hamilton (96-131) and to Hoffmann by Agassiz (42-46). Included here is the genus Graphisurus of authors.

The genus may be separated from the other members of the tribe since an elongated ovipositor is present in the female; the body, above, is pubescent and with or without erect hairs; mesosternum is moderate to broad; the antennae are exceedingly long in most cases and the prothorax is spined laterally. The two species occurring in Montana may be separated by use of the following key:

Elytra punctured beyond middle, distinctly tricostate	<u>obliquus</u> Lec. Page 76
Elytra scarcely at all punctured behind the middle or at base, surface with three dark, oblique bands	<u>spectabilis</u> (Lec.) Page 77

15028. Acanthocinus obliquus Lec. 62-39

Elytra subparallel and broadly rounded at the apices. Antennae extremely long, last segment in the male eight times as long as wide and with a terminal brush of hairs distinct; segments ashy in basal half, the ashy portion extending more than half way apically in the last three segments. Prothorax one-half wider than long, the spines short, sharp and

slightly recurved at the basal third; surface strongly but sparsely punctate, with four anterior cinereous spots. Elytra tricostate, with rows of black points on the elevations; two dark fasciae, the first one-third behind the base, extending on the sides to the base, and the second with its origin near the margin of the elytron at the middle and extending to the suture at a point about two-thirds behind the base.

Length: 11-22 mm.

Montana distribution: Darby, Big Horn Co., Stevensville.

15031. Acanthocinus spectabilis (Lec.) 54-82

The antennae are about three and one-half times as long as the body in the male and about twice as long in the female. Elytra scarcely punctured behind the middle, surface with three dark, oblique, undulating bands. The prothorax is one-half wider than long, the spines large, very acute and with the apices feebly flexed backward near the basal two-fifths. The body is dark brown in color and the vestiture of the body is dark brown to cinereous. The antennae of the male are nodose. The hosts are Pinus spp.

Length: 14-22 mm.

Montana distribution: Lake Ronan, Darby, Hamilton, Butte.

Genus Hyperplatys Hald. 47-49

This genus is represented in this state by but one species.

15005. Hyperplatys maculata Hald. 47-49

The body is stout with a relatively much narrower head and prothorax. The color is pale grayish with the legs blackish gray. Head with a fine median stria, antennae of the male about twice as long as the body.

Elytral black spots somewhat large and irregularly dispersed. Elytra about twice as long as wide; sutural and apical angles subacute, with the apex more prolonged and nearly spiniform; disc broadly convex to a lateral ridge and then abruptly declivous. The host plants are Populus spp. and apple.

Length: 5.5 mm.

Montana distribution: Glacier Park.

Genus Dectes Lec. 52-114

The genus may be identified from the characters given in the key. A single species and a variety are found in Montana. The variety is very similar to the species but will be retained for the present.

15037. Dectes spinosus (Say) 27-271

Middle coxae almost contiguous in the male, narrowly separated in the female; the elytral humeri never black. Antennae similar in the sexes, a fourth longer than the body, annulate, the scape usually bent at the apex with the external angle acutely prominent. Densely cinero-pubescent throughout; female with a black exerted ovipositor. The host is ragweed (Ambrosia sp.).

Length: 8-10 mm.

Montana distribution: Yellowstone Co.

15039. Dectes spinosus var. alticola Csy. 13-342

Middle coxae narrowly though distinctly separated in both sexes. Body small and slender in the male, stouter in the female. The humeri always have a black spot. Elytral apices truncate with the external angle

more sharply marked than in spinosus. Generally similar to spinosus.

Length: 6.5-8.0 mm.

Montana distribution: In literature (Leng, Cat. of Coleop., p. 283, 1920).

Tribe Pogonocherini
(Lacordaire)

Key to the Genera
(After Linsley 35-73)

- Antennal scape slender; fourth segment of
antennae shorter than third; prothorax
with discal tubercles; body clothed with
long flying hairs Poliaenus Bates. Page 79
- Antennal scape stout and clavate; fourth segment
incurved, longer than the third and the
latter longer than the scape; elytra with-
out large subbasal crest; discal prothoracic
tubercles small or obsolete, lateral
tubercles short and acute Pogonocherus Latr. Page 80

Genus Poliaenus Bates 80-120

But a single species of this genus is to be found in this state.

It is:

15061. Poliaenus oregonus (Lec.) 61-354

Robust, piceous, clothed with gray and black pubescence. Head
rather broad, pubescence not dense, white predominating; antennae annulated,
as long as the body in the female, slightly longer in the male. Prothorax
with obtuse lateral tubercles; discal tubercles scarcely evident. Elytra
gray, with basal region and a broad postmedian band black; basal
punctuation coarse, rather dense, becoming finer and less dense apically;
apices rounded. Body beneath clothed with short, not dense, pale gray hairs.

The host plants are Abies and Pseudotsuga, according to Linsley (35-84).

Length: 6-8.5 mm.

Montana distribution: In literature. Found where the hosts are present.

Genus Pogonocherus Zett. 28-364

Pityphilis Muls. 63-302

Differs from Poliaenus in that the antennal scape is stout; the fourth segment is incurved and longer than the third segment. Several species have been reported as having been taken in this state.

Key to the Subgenera
(After Linsley '35)

Elytral apices rounded or truncate Pogonocherus Zett. Page 80
Elytral apices emarginate or emarginate-
dentate Eupogonocherus Linsley. Page 81

Subgenus Pogonocherus Zett.

A single species of this group occurs in North America.

15049. Pogonocherus (s.str.) penicillatus Lec. 50-234

Grayish brown species with a large spot on each elytron and tufts of erect black setae on the discal costa. The elytra are tricostate. There is also a small shining tubercle on the median line of the prothorax. The host plant is Picea sp.

Length: 4.5-6 mm.

Distribution: Eastern North America to the Rocky Mountains and British Columbia to Alaska. (Linsley '35).

Subgenus Eupogonocherus Linsley 35-97

Key to the Species

1. Prothorax with a small, round, shining, median tubercle;
elytra with four or more tufts of erect black setae
along the inner costae, tricostate; antemedian
elytral fascia acute propinquus Fall. Page 81
Prothorax without median tubercle; elytra
without tufts of setae 2
2. Elytral costae not evident; antennal scape moderate 3
Elytra subcostate; scape stout pictus Fall. Page 81
3. Elytra and entire upper surface with long
suberect hairs; prothorax as broad as long . . mixtus Hald. Page 82
Elytra and upper surface without long suberect
hairs; prothorax distinctly transverse . . . parvulus Lec. Page 82

15050. Pogonocherus (Eupogonocherus) propinquus Fall 10-6

Piceous, clothed with gray and white pubescence. Antennae annulated, about as long as the body in the female, slightly longer in the male. Prothorax transverse with two moderate discal tubercles and a small polished median tubercle. Elytra tricostate, the lateral costae evanescent at base; inner costae with several tufts of black setae; apices emarginate. The host plants are Pinus ponderosa, P. contorta, and P. monticola.

Length: 5.5-9 mm.

Distribution: Middle and higher altitudes of the Pacific coast and Rocky Mountains (Linsley 35-98).

15055. Pogonocherus (Eupogonocherus) pictus Fall 10-6

Pogonocherus emarginatus Csy. 13-347
fastigiatus Csy. 13-348

The original description of the species follows: Closely related to mixtus, and hitherto regarded as a form of that species. It differs from

the latter in the denser, whiter sub-basal area which broadly reaches the suture but fails to attain the side margin; the dark areas are also blacker and contrast more strongly with the side markings. The elytra are more evidently sub-costate than in mirtus, the lateral costa being quite well marked though obtuse, and the antennal scape is as a rule shorter and more thickened apically, being but slightly more than twice as long as wide. The size is a little greater than the average mirtus. According to Linsley the hosts are Pinus ponderosa, P. flexilis and Larix occidentalis.

Length: 5 mm.

Montana distribution: Spanish Creek.

15056. Pogonocherus (Eupogonocherus) mirtus Hald. 47-50

Pogonocherus simplex Lec. 73-237
simplex Csy. 13-348

Elongate, subparallel, piceous, variegated with white and brownish pubescence. Prothorax as broad as long, without a median tubercle. Elytra striately punctured, without costae or fascicular tufts; postmedian pale area broad, attaining the sides but seldom reaching the suture; apices emarginate-dentate. Underside sparsely clothed with pale recumbent hairs. The host plants are Pinus spp. and Picea spp.

Length: 4.5-6 mm.

Distribution: Eastern North America, Rocky Mountains and North Pacific Coast region (Linsley 35-99).

15053. Pogonocherus (Eupogonocherus) parvulus Lec. 52-160

Pogonocherus salicicola Csy. 13-347

Elongate, piceous, variegated with whitish pubescence. Head broad;

antennae annulated, longer than the body in the male, about equal in length to the body in the female. Prothorax transverse. Elytra without costae or fascicular tufts of hairs; antemedian pale area acute, median fascia dark brown, apical area variegated with brownish and white pubescence; apices emarginate-dentate. Body below sparsely clothed with recumbent hairs. The host plant is Salix spp.

Length: 4.5-6 mm.

Distribution: Colder and more northern parts of North America (Linsley 35-100).

Tribe Saperdini

The tribe may be recognized by use of the key. A single genus is found here.

Genus Saperda Fab. 75-184

Key to the Species

1. Antennae more or less plainly annulate;
head rounded in front; upper surface
gray, unicolorous populnea var. moesta Leo. Page 84
Antennae unicolorous 2
2. Elytra rounded, not striped, with sutural spines; grayish
with yellow patches calcarata Say. Page 84
Elytra with sub-sutural white stripes, these
stripes continuing two prothoracic stripes
of the same color; undersurface white,
upper surface brown candida Fab. Page 83

15112. Saperda candida Fab. 87-147

Saperda bivittata Say 23-408

Brown above with two white bands joined at the front and extending to the apex of the elytra, under side and front of head white. Antennae and

legs light gray in color. The host is apple.

Length: 13-19.5 mm.

Montana distribution: Hamilton.

15113. Saperda calcarata Say 23-408

Covered with gray hairs, diversified with patches of yellow hairs on the elytra. The elytra end in a sutural spine. Prothorax with a yellow stripe on top and on each side, extending on to the head which is yellow in front. Scutellum yellow or brownish yellow. Legs and antennae gray. The hosts are Lombardy Poplar, Cottonwood, Populus tremuloides and Salix spp.

Length: 18.2-25 mm.

Montana distribution: Laurel, Malta, Miles City, Hamilton, Sidney.

15122a. Saperda populnea var. moesta Leo. 50-234

Vestiture is uniform gray without light spots and with the lateral line on the thorax only faintly shown. Elytral punctures contiguous in part; punctulations between the punctures numerous. Antennae annulate. The hosts are Populus spp.

Length: 8.5 mm.

Montana distribution: Florence.

Tribe Phytoeciini

Again but one genus belonging to this tribe is found in this region. The characters given in the key will serve to distinguish the tribe.

Genus Oberca Muls. 39-194

Key to the Species

- Elytral apices truncate, the truncatures
bidentate, sinuate; prothorax with two
discal spots and basal margin black basalis Lec. Page 85
- Elytral apices feebly obliquely truncate;
prothorax with four distinct, and one
less distinct, callosities quadricallousa Lec. Page 85

15133. Oberca quadricallousa Lec. 74-68

Elytra black throughout excepting a pale marginal area below the humeri; evenly, moderately, but closely punctate, the raised lines feeble, pruinose, with moderate cinereous hairs, the erect hairs extremely short. Apices of the elytra rounded to obliquely subtruncate. Sterna and the greater part of the abdomen black. Pygidium of the female convex, tumid, and angularly pointed. This is the cottonwood twig borer and is considered by E. C. Van Dyke to be a western phase of O. schaumii Lec.

Length: 11-15 mm.

Montana distribution: Florence, Darby.

15145. Oberca basalis Lec. 52-153

Slender, linear, rather shining, pubescence sparse, fusco-cinereous and scarcely visible. Head shining, convex, fuscous, the punctures distinct and deep but not close or coarse; antennae very slender, almost as long as the body in the female. Prothorax slightly shorter than wide, narrower at the base than at apex; punctures coarse and widely separated. Elytra feebly swollen apically, the serial punctures coarse, confused apically, the truncatures oblique, sinuate and bidentate. Abdomen shining, minutely and feebly sculptured and the punctures strong at the

sides. Pygidium moderately convex. Legs piceous.

Length: 9.2 mm. (female).

Montana distribution: Bozeman, Gallatin Co.

Tribe Tetraopini

The main distinguishing character of the tribe is the broadly divided eyes. Only two genera occur in North America. Of these only one, Tetraopes, is found in Montana.

Genus Tetraopes Serv. 35-68

The genus is known by the cleft tarsal claws. Two species and two varieties have been taken in Montana.

Key to the Species

- | | |
|--|-------------------------------|
| Claws feebly cleft at tip; surface more densely clothed with recumbent pubescence; thoracic umbone gradually convex, lateral tubercle not very prominent | <u>canescens</u> Lec. Page 86 |
| Claws rather deeply bifid; surface rather sparsely clothed with recumbent pubescence and with semi-erect hairs visible on the disc . . . | <u>femoratus</u> Lec. Page 87 |

15168. Tetraopes canescens Lec. 52-157

Tetraopes annulatus Lec. (preoccupied) 47-157

This species is a very pale red in color; the thorax is quadrimaculate, the umbone and two spots on the elytra are black, one or both sometimes wanting; the pubescence is longer and denser than in femoratus; the annulations of the antennae are always distinct. Host, Milkweed (Asclepias sp.)

Length: 9-14 mm.

Montana distribution: Billings, Bozeman, Lewistown, Musselshell Co., Ravalli Co.

15182. Tetraopes femoratus Lec. 47-93

This species is very similar to tetraphthalmus which occurs in the middle west. The surface of the umbone is shining; the abdomen is densely punctulate; the thorax is quadrimaculate; there are usually six black elytral spots, and the claws are deeply cleft. The species is found west of the Mississippi River, and varies in the number and size of the elytral spots and the color of the limbs and antennal scape in every conceivable manner. These varying markings have been the basis on which several varieties have been described. The varieties may be good or not and those occurring in Montana may be separated as follows:

- Scape of antennae black, femora red var. femoratus Lec. 47-93.
Scape reddish, femora red var. basalis Lec. 52-157.
Scape, femora and anterior tibiae red var. oregonensis Lec. 69-81.

Length: 11-14 mm.

Montana distribution: var. femoratus, Laurel.

var. basalis, Columbus, Musselshell Co.

var. oregonensis, Yellowstone Co., Laurel,

McDonald, Lodge Grass, Hamilton, Gallatin Co.

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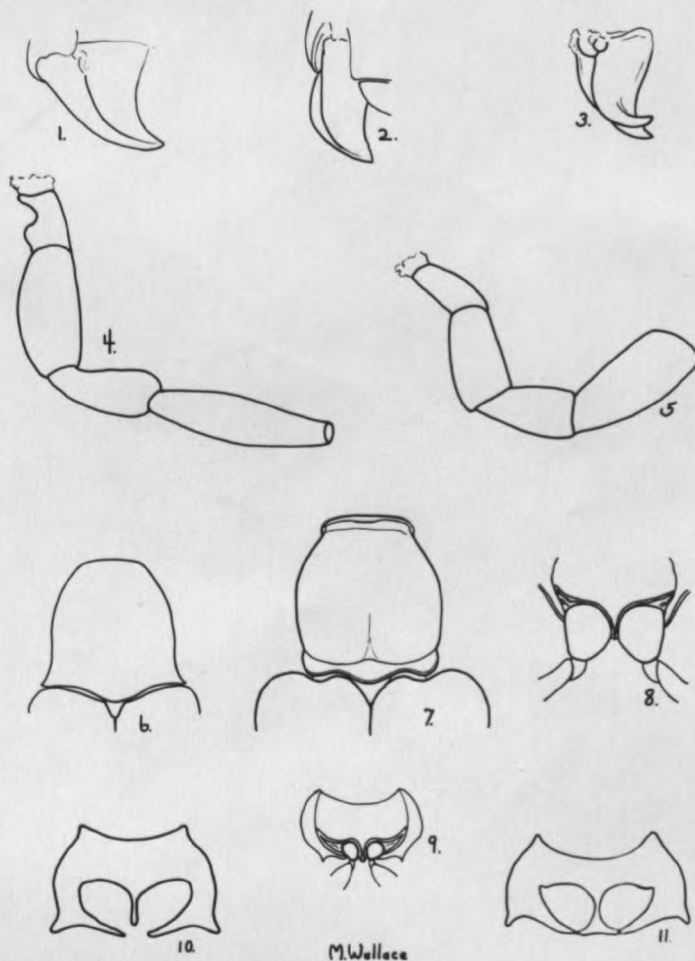
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M. Wallace

- Fig. 1. Anoplodera canadensis (Oliv.), mandible.
 2. Desmocerus palliatus (Forst.), mandible.
 3. Crossidius punctatus Lec., mandible.
 4. Monochamus oregonensis Lec., palpus.
 5. Asemum atrum Esch., palpus.
 6. Grammoptera filicornis Csy., pronotum.
 7. Anoplodera canadensis (Oliv.), pronotum.
 8. Anoplodera canadensis (Oliv.), front coxae
 (front view).
 9. Asemum atrum Esch., front coxae (ventral view)
 10. Anoplodera aspera (Lec.), front coxal cavities.
 11. Anoplodera canadensis (Oliv.) front coxal
 cavities.

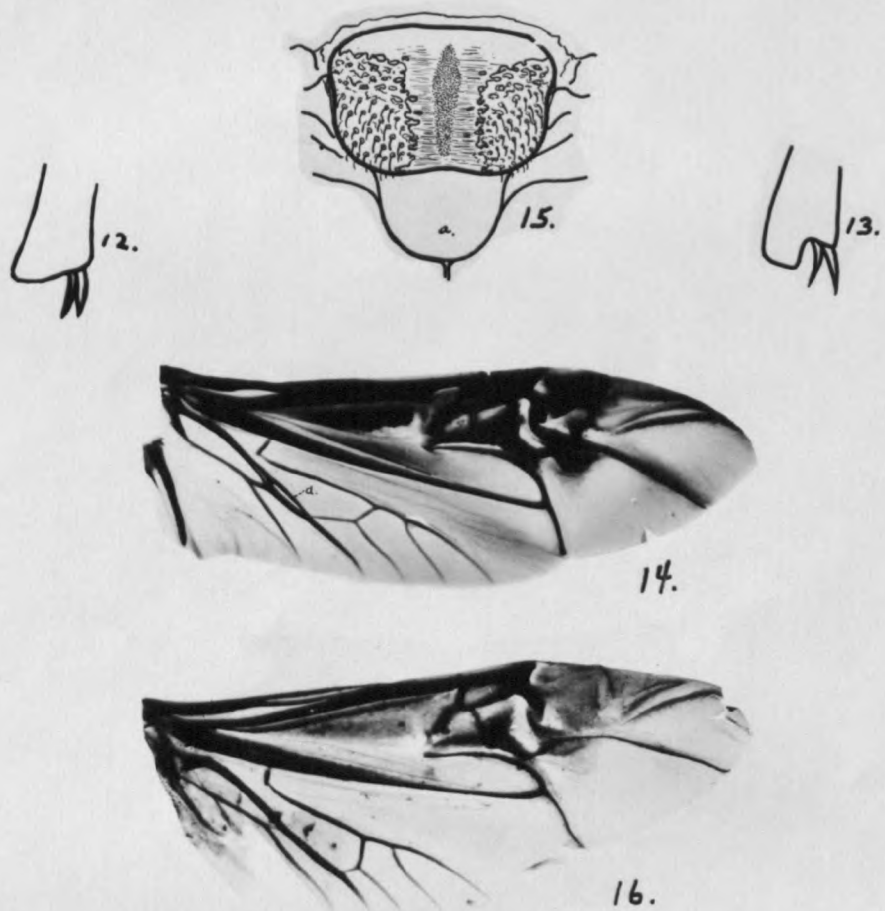



Fig. 12. Leptacmaeops subpilosa (Lec.), hind tibia and spurs.
13. Toxotus obtusus Lec., hind tibia and spurs.
14. Centrodera spurca (Lec.), wing; a, anal cell.
15. Xylocrius agassizi Lec., stridulating organ:
a, scutellum.
16. Acmaeops pratensis (Laich.), wing.

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