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LIST OF MONTANA SCOLYTIDAE (COLEOPTERA) AND NOTES ON NEW RECORDS

Sandra J. Gast¹, Malcolm M. Furniss², James B. Johnson², and Michael A. Ivie³

ABSTRACT—Listed are 96 species of Scolytidae (Coleoptera) from Montana. Eighteen species reported from Montana for the first time are: Sciersus pubescens Swaine, Hylastinus obscurus (Marsham), Hylesinus aculeatus Say, Hylesinus californicus (Swaine), Hylesinus criddei (Swaine), Pseudohylesinus granulatus (LeConte), Dendroctonus punctatus LeConte, Phloeosinus hoferi Blackman, Phloeosinus pini Swaine, Carphoborus pinicolens Wood, Scolytus subsclaber LeConte, Ips granicollis (Eichhoff), Trypodendron betulae Swaine, Trypodendron retusum (LeConte), Trypodendron populii Hopkins, Procaryalus macronatus (LeConte), Pityophthorus alpinensis G. Hopping, and Gnathotrichus denticulatus Blackman.

Montana, third largest of the contiguous 48 states, with elevations ranging from 555 to 3,901 m, is diverse ecologically and has flora representative of vaster areas around it. This circumstance has resulted in the occurrence of numerous scolytid species there. Ninety-six species are listed herein, including 18 species new to the state. Judging from published data, the diversity of scolytids in Montana is remarkable. However, the distribution of scolytids and vegetation that grows in surrounding states and Canadian provinces, we believe additional species will doubtless be found in Montana.

The new records, only one species, Hylastinus obscurus (Marsham), is known not to be native to Montana. Another of the new Montana species, Hylesinus aculeatus Say, appears to be distributed throughout the range of green ash in the eastern half of Montana. This tree commonly exhibits progressive branch killing, which suggests to us that a fungus may be associated with the beetle. We recommend that this possibility be studied because of the importance of green ash as an ornamental tree.

Our source of published records of Montana scolytids is Wood (1982). Other records were obtained from the collections at Montana State University, USDA Forest Service Region One, Montana Division of Forestry, and by our own collections.

Measurements of host trees are in metric units, as are distances from landmarks, although the latter are invariably in miles on labels of pinned museum specimens. Names of collectors are given as per labels or as stated in the literature. The numbers of known pinned adult specimens follow the collection data. Specimens deposited in the University of Idaho, William F. Barr Entomological Museum, are designated UI-WFBM. Other depositories are USDA Forest Service, Region One, Missoula (FS-R1); Montana State University, Bozeman (MSU); Montana Division of Forestry, Missoula (MDF); and State University of New York (SUNY).

SPECIES NEW TO MONTANA

Subfamily Hylesininae

Sciersus pubescens Swaine

BIOLOGY.—Monogynous, unstudied. Infests Abies lasiocarpa and Picea engelmannii (Wood 1982).


Hylastinus obscurus (Marsham)

BIOLOGY.—Monogynous. Infests the root crown of red clover in the spring. It is less common in other clovers. Overwinters as larvae or adults in the roots. There is one generation each year (Wood 1982).

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Hylesinus aculeatus Say

BIOLGy.—Monogynous. Infests the bole and limbs of Fraxinus spp. Egg galleries are transverse and deeply etch the wood. Overwintering beetles evidently form feeding tunnels on green bark (Wood 1982).


Hylesinus californicus (Swaine)

BIOLGy.—Monogynous. Evidently indistinguishable from H. aculeatus (Wood 1982).


Hylesinus criddlei (Swaine)

BIOLGy.—Monogynous, unstudied.


Pseudohylesinus granulatus (LeConte)

BIOLGy.—Monogynous. Infests the base and roots of weakened true firs, Douglas-fir, and western hemlock. Egg galleries are short and transverse. A two-year life cycle is reported in northern Washington (Furniss and Carolin 1980).


Dendroctonus punctatus LeConte

BIOLGy.—Monogynous. Infests basal stem and roots of boreal spruces.


Phloeosinus hoferi Blackman

BIOLGy.—Monogynous. Unstudied. Infests bark of small branches and twigs of dying trees (Wood 1982).


*Phloesinus pini* Swaine

**Biology.**—Monogynous. Specimens have been reared from spruce branches and from a broken top of Jack pine (Wood 1982).

**Distribution and notes.**—**Canada:** Man., N.W.T., Que.; **USA:** Alas., Ida. Mich. **Montana:** Upper Red Rock Lake, Beaverhead Co., 29-V-1988, *Picea glauca* x *P. engelmannii*, M. M. Furniss and S. J. Gast (13 ♀, 12 ♂ UI-WFBM; 1 ♀, 1 ♂ FS-R1). Infesting 4-cm-diameter suppressed sapling. Much of the bark had been removed by woodpeckers.

*Carphoborus piniicolen* Wood

**Biology.**—Polygynous. Infests unthrifty or injured seedlings and broken branches of pines. Healthy seedlings on poor sites have also been killed by this beetle (Wood 1982).

**Distribution and notes.**—**USA:** Ariz., Calif., Colo., Ida., Nev., N.M., Ore., Ut., Wyo. **Montana:** Cardwell, Jefferson Co., 3-VI-1988, *Pinus flexilis*, M. M. Furniss and S. J. Gast (3 ♀, 2 ♂ UI-WFBM). Infesting 5-cm-diameter branches with red foliage; also present were *Pityophthus* spp.

**Subfamily Scolytinae**

*Scolytus subscaber* LeConte

**Biology.**—Monogynous. Breeds in shaded-out branches and tops of suppressed or overmature trees. Egg galleries form a rounded E-shape and are typically impregnated with resin. Larval mines are hidden in phloem at first, then appear on the phloem inner face, extending in any direction (Wood 1982).

**Distribution and notes.**—**Canada:** B.C.; **USA:** Calif., Ida., Ore., Wash. **Montana:** Roaring Lion Creek, 9 km S of Hamilton, Ravalli Co., 19-VII-1988, *Abies grandis*, M. M. Furniss and J. B. Johnson (1 ♀ UI-WFBM). Infesting a 3–4-cm-diameter bayonet-top of a 30-cm-diameter suppressed tree. Typical galleries also noted in 2½–4-cm-diameter broken branches on ground at this locality.

*Ips grandicollis* (Eichhoff)

**Biology.**—Breeds in slash, small branches, and vacant spaces among galleries of more aggressive bark beetles. Hosts include virtually all pines within its range. In the South, six or more generations occur per year; fewer probably occur in Montana.

**Distribution and notes.**—**Canada:** Man., Ont., Que.; **Bahamas; Dominican Republic; Guatamala; Honduras; Jamaica; Nicaragua; USA:** Great Lake states and New England to southern states, and isolated locations in Nebr. and S.D. **Montana:** North of Tripoint Lookout, Sioux Division, Custer NF, Carter Co., 2-VI-1988, *Pinus ponderosa*, M. M. Furniss and S. J. Gast (8 UI-WFBM, 2 SUNY). Infesting branches 2.5 cm diameter and smaller.

*Trypodendron betulae* Swaine

**Biology.**—Monogynous. Tunnels are constructed by females radially through bark into sapwood. The main tunnel branches at close intervals, left or right, in the same plane. Eggs are laid in niches oriented above and below the gallery. Larvae excavate short cradles in which they develop and feed on ambrosia fungus. Males are active in keeping the tunnels clean and aerated.

Infesting 6-cm-diameter stem of a dying tree; a larva was present in one cradle.

Trypodendron retusum (LeConte)

Biology.—Monogynous. Infests stems of dying *Populus* spp. galleries are constructed radially at first, then follow growth rings transversely. Larvae develop in cradles aligned in single series above and below the transverse galleries. They feed on ambrosia fungus introduced by the parents (Wood 1982).


Pityophthus alpinensis G. Hopping

Biology.—Polygynous. Infests broken branches and twigs, apparently one generation annually.


Gnathotrichus denticulatus Blackman

Biology.—Monogynous. Galleries are initiated by males and extend radially into xylem from which transverse tunnels follow the growth rings. Larvae develop in cradles excavated by them and feed primarily on ambrosia fungus introduced by the parents (Wood 1982).

red foliage. *Dendroctonus valens* LeConte larvae and *Ips calligraphus* (Germar) adults also present.

**MONTANA SCOLYTIDAE**

**Hylesininae**

**Hylastini**
- *Scierus annaecetus* LeConte
- *Scierus pubescens* Swaine
- *Hyurgops porosus* (LeConte)
- *Hyurgops reticulatus* Wood
- *Hyurgops rugipennis* pinex (Fitch)
- *Hyurgops s. subcostulatus* (Mannerheim)
- *Hylastes gracilis* LeConte
- *Hylastes longicornis* Swaine
- *Hyastes macer* LeConte
- *Hyastes nigrinus* (Mannerheim)
- *Hyastes ruber* Swaine

**Hyastinini**
- *Alniphagus aspericollis* (LeConte)
- *Hylastinus obscurus* (Marsham)
- *Hylesinus aculeatus* Say
- *Hylesinus californicus* (Swaine)
- *Hylesinus criddelii* (Swaine)

**Tomcini**
- *Xylechinus montanus* Blackman
- *Pseudohylesinus granulatus* (LeConte)
- *Pseudohylesinus n. nebulosus* (LeConte)
- *Dendroctonus brevicomis* LeConte
- *Dendroctonus murrayanae* Hopkins
- *Dendroctonus ponderosae* Hopkins
- *Dendroctonus pseudothumae* Hopkins
- *Dendroctonus punctatus* LeConte
- *Dendroctonus rufipennis* (Kirby)
- *Dendroctonus valens* LeConte

**Phloeotribini**
- *Phloeotribus lecontei* Schell

**Phloeosinini**
- *Phloeosinus hoferi* Blackman
- *Phloeosinus pinii* Swaine
- *Phloeosinus punctatus* LeConte

**Hypoborini**
- *Caetophloeus heterodoxus* (Casey)

**Polygraphini**
- *Carphoborus carri* Swaine
- *Carphoborus pinicolenus* Wood
- *Carphoborus ponderosae* Swaine
- *Polygraphus rufipennis* (Kirby)

**Scolytinae**

**Scolyini**
- *Scolytus laricis* Blackman
- *Scolytus monticola* Swaine
- *Scolytus multistriatus* (Marsham)
- *Scolytus opacus* Blackman
- *Scolytus piceae* (Swaine)
- *Scolytus rufogalus* (Müller)
- *Scolytus subsector* LeConte
- *Scolytus tsuga* Swaine
- *Scolytus unispinosus* LeConte
- *Scolytus ventralis* LeConte

**Crypturgini**
- *Crypturgus borealis* Swaine

**Dryocoetini**
- *Dryocoetes affaber* (Mannerheim)

**Dryocoetes autographus** (Batzeburg)
- *Dryocoetes betulae* Hopkins
- *Dryocoetes confusus* Swaine
- *Dryocoetes sechelti* Swaine

**Ipini**
- *Pityogenes carinulatus* (LeConte)
- *Pityogenes fossifrons* (LeConte)
- *Pityogenes kuehnielli* Swaine
- *Pityokeytes lasiocarpus* (Swaine)
- *Pityokeytes minutus* (Swaine)
- *Pityokeytes ornatus* (Swaine)
- *Orthotomicus caeleatus* (Eichhoff)
- *Ips b. borealis* Swaine
- *Ips calligraphus* (Germar)
- *Ips emarginatus* (LeConte)
- *Ips grandicollis* (Eichhoff)
- *Ips integer* (Eichhoff)
- *Ips latidens* (LeConte)
- *Ips mexicanus* (Hopkins)
- *Ips montanus* (Eichhoff)
- *Ips perterbatus* (Eichhoff)
- *Ips pilifrons utahensis* Wood
- *Ips pini* (Say)
- *Ips p. plastographus* (LeConte)
- *Ips tridentis engelmanii* Swaine
- *Ips woodii* Thatcher

**Xyloterini**
- *Trypofelium betulae* Swaine
- *Trypofelium lineatum* (Oliver)
- *Trypofelium retusum* (LeConte)
- *Trypofelium rufiterbus* (Kirby)

**Xyleborini**
- *Xyleborus intrinsus* Blandford

**Cryptophali**
- *Cryptophalus r. ruficollis* Hopkins
- *Trypophlebus populi* Hopkins
- *Procryptophalus maconnatus* (LeConte)

**Coryphini**
- *Conophthorus ponderosae* Hopkins
- *Pityophthorus absonus* Blackman
- *Pityophthorus alpinus* G. Hopping
- *Pityophthorus auritus* Blackman
- *Pityophthorus bortesi* Swaine
- *Pityophthorus confertus* Swaine
- *Pityophthorus confinis* (LeConte)
- *Pityophthorus digitatus* (LeConte)
- *Pityophthorus fuscus* Blackman
- *Pityophthorus murrayanae* Blackman
- *Pityophthorus psudotsugae* Swaine
- *Pityophthorus pseudotsugae* Swaine
- *Pityophthorus turberculatus* Eichhoff
- *Pityophthorus scapifer* Bright
- *Gnathotrichus denticulatus* Blackman
- *Gnathotrichus retusus* (LeConte)

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LITERATURE CITED


