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

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ABSTRACT—Reported are 105 species of Scolytidae (Coleoptera) from Idaho. About one-third of these are rarely collected, of which 22 species are known from a single locality each. Twelve species reported from Idaho for the first time are: Carphoborus carri Swaine, C. saxsoni Swaine, Phloeosinus hoferi Blackman, Conophthorus monophyllae Hopkins, Dryocoetes betulae Hopkins, Ips confusus (LeConte), Pityophthorus absonus Blackman, P. aquilus Blackman, Xyleborus 中 Blackman, P. delaeus Le Conte, P. sculpior Blackman, and Xyleborus saxeseni (Ratzburg). Significant extensions of the known distributions in Idaho are reported for seven other scolytids: Aliphanus aspericollii (LeConte), Dendroctonus murrayanae Hopkins, Phloeotribus lecontei Schell, Procryptalus mucronatus (LeConte), Trypophloeus populi Hopkins, Xyleborus dispar (Fabricius), and X. intrusus Blandford. Xyleborus dispar especially needs study in anticipation that it may become increasingly important in Idaho fruit trees and other woody plants including ornamentals and shade trees.

Idaho has an abundance of trees and shrubs that can serve as scolytid hosts, but the scolytids of Idaho have not been surveyed systematically to determine the total number of species, their specific hosts, and their distributions within the state. Such information is fundamental to the orderly development of the natural history of this region and will facilitate scolytid research. For example, the genus Dendroctonus contains several of our most abundant and destructive species (e.g., D. ponderosae Hopkins) and one of the least abundant and least destructive (D. murrayanae Hopkins). By knowing where D. murrayanae occurs, it can be studied and the circumstances that keep it from becoming abundant may prove important in managing species that are sometimes damaging.

Since 1984 we have compiled a comprehensive list of Idaho scolytids from literature, museum specimens, and our own field collections. This task was stimulated by the recent availability of the works of R. L. Furriss and V. M. Carolin (1977), D. E. Bright, Jr. (1981), and, especially, S. L. Wood’s monograph on North American bark and ambrosia beetles (1982).

Twenty-two Idaho species are represented by only single specimens or localities. Additional species doubtless occur in Idaho but have not yet been found or reported, and some exotic species may find their way here in the future, either to settle quietly into their new niches or to attain importance in ornamentals, fruit trees, or forests. So, the list will likely change as our work continues.

Besides the list of 105 species and their abundance, we present notes on 12 species reported from Idaho for the first time and major range extensions within Idaho for 7 other species. All measurements of host material are in metric units, including 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. Known repositories of others are abbreviated as follows: SLW = S. L. Wood Collection, Brigham Young University, Provo, Utah; WSU = Washington State University, Pullman, Washington; CNC = Canadian National Collection, Ottawa, Ontario, Canada. In other cases, we cite the literature from which we acquired the record.

Species New to Idaho

Subfamily Hylesininae

Carphoborus carri Swaine

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**Carphoborus sansoni** Swaine

**Type locality:** Banff, Alta., Canada. Biology: Unstudied. Polygynous; breeds in relatively dry, dead bark of boles of small, suppressed spruces and unthrifty, lower branches of living trees. Galleries deeply score the wood (Wood 1982). **Distribution and notes:** CANADA: Alta., Man., New Brun., NWT, Yuk.: USA: Ala., Mont., S. Dak., Wyo., IDAHO: North shore of Henrys Lake, Fremont Co., 21-VII-1985, *Picea glauca*, M. M. Furniss and J. B. Johnson (19 ? 17 \( \emptyset \) UI-WFBM). A southernmost population of white spruce, *Picea glauca* (Moench) Voss, grows on bogggy ground along the north shore of Henrys Lake. The trees may be hybrids of white and Engelmann spruce. Five *C. carrii* new adults were taken from a lower branch of a recently dead, standing tree that was 50 cm diameter and 37 m tall.

**Phloeosinus hoferi** Blackman

**Type locality:** Ute Pass, Colo. Biology: Unstudied. Monogynous. Infests bark of small branches and twigs of dying trees (Wood 1982). **Distribution and notes:** CANADA: B.C.: USA: Ariz., Calif., Colo., Nev., N.M., N.Dak., S.Dak., Tex., Ut., Wyo., IDAHO: Two km N of Almo, Cassia Co., 25-VII-1984, *Juniperus osteosperma*, M. M. Furniss and J. B. Johnson (1 UI-WFBM). Reared from a 23-cm-diameter felled, limbed tree; probably emerged from branches 2–10 cm diameter. At time of collection (25-VII-1984), mature larvae and pupae were present, but these may have been exclusively *P. serratus* LeConte, a larger species that was abundant, especially in the trunk.

**Subfamily Scolytinae**

**Conophthorus monophyllae** Hopkins

**Type locality:** Ventura Co., Calif. Biology: Unstudied. In other studied species, the female bores into the cone base in spring at the beginning of the second year of cone growth. The egg gallery extends the length of the cone center. Progeny mature during that summer within the cone and generally overwinter there, although in the case of *C. ponderosae* Hopkins (= *C. lambertiana* Hopkins), some adults emerge in the fall and overwinter in the tips of live twigs (R. L. Furniss and V. M. Carolin 1977). **Distribution and notes:** Calif., Nev., Ut., IDAHO: City of Rocks, Cassia Co., 25-VII-1984, *Pinus monophylla* cones, M. M. Furniss and J. B. Johnson (12 UI-WBFM, 5 SLW). Attacked cones common, most contained a single beetle, mired and dead in profuse resin exuded from entrance located at base of cone (i.e., often unsuccessful).

**Dryocoetes betulae** Hopkins


**Ips confusus** (LeConte)

**Type locality:** Southern Calif. Biology: Polygynous. Three to four generations per year reported in southwestern states (fewer likely in Idaho). Adults may overwinter en masse under bark of main stem, thoroughly scoring the wood surface (Chansler 1964). **Distribution and notes:** MEXICO: Baja Calif., Chih.; USA: Ariz., Calif., Colo., Nev., N.M., Ut., Tex., (Wyo.), IDAHO: City of Rocks, Cassia Co., *Pinus monophylla*, 14-VI-

**Pityophthorus absous** Blackman


**Pityophthorus aquilus** Blackman


**Pityophthorus blandus** Blackman


**Pityophthorus delectus** LeConte


**Pityophthorus scalptor** Blackman


**Xyleborinus saxesini** (Ratzeburg)

**Type Locality:** Europe. Biology: The following is based on Schedl (1962) and Batra (1963). The dwarfed males are flightless and apparently mate with their brood sisters, although outcrossing may occur rarely when tunnels intersect (or more commonly when males wander from one tunnel entrance to another [S. L. Wood, personal communication]). Male/female ratios range from 1:7 to 1:39. Females construct a 1-mm-diameter,
3–5-cm-long tunnel radially into stems and large branches of dying or fallen trees. An enlarged cavity (brood chamber) is constructed upward and downward at the end of the tunnel, in which eggs are laid one per niche. Up to 100 eggs are laid per female in groups of 5–12. Larvae feed communally, evidently on the yellowish fungus Ambrosiella sulfurea Batra (Batra 1967) which covers the wall of the brood chamber. DISTRIBUTION AND NOTES: EUROPE, ASIA, AUSTRALIA, ARGENTINA, BRAZIL, CHILE; CANADA: B.C., Ont.; USA: Ala., Ariz., Ark., Calif., Conn., Del., Fla., Ga., Ill., Ind., Ia., Kan., Ky., La., Me., Md., Mich., Miss., Mont., N.H., N.J., N.Y., N.C., Ohio, Ore., Penn., S.C., Tenn., Tex., Ut., Va., Wash., IDAHO: Smith Creek, Boundary Co., 8-VI-1986, Populus tremuloides. M. M. Furniss and J. B. Johnson (1 ♀ UI-WFBM). Collected from a larval gallery of a Trypodendron retusum (LeConte) gallery in a 20-cm-diameter, fire-scorched, recently fallen aspen.

EXTENSIONS OF KNOWN GEOGRAPHIC OCCURRENCE IN IDAHO

Subfamily Hylesininae

Alniaphagus aspericollis (LeConte)


Dendroctonus murrayanae Hopkins

TYPE LOCALITY: Keystone, Wyo. BIOLOGY: Monogynous. Not comprehensively studied. Attacks are restricted to the lower bole near ground; galleries extend 12–20 cm downward to below ground. In Utah, first attacks occurred in the second week of July; eggs were present from 12 July to 9 Sept., laid in groups of 20 to 50 or more. Larvae mine in congress. One and perhaps a partial second generation per year occur in Utah (Wood 1982). DISTRIBUTION AND NOTES. CANADA: Alta., B.C., Man., Ont.; USA: Colo., Mich., Minn., Mont., Ut., Wyo., IDAHO: (The only published record is "Targhee N. F." [Wood 1982], but we have been unable to locate any so-labeled specimens.) Five km SW of Bamock Pass, Lemhi Co., 18–19–VII-1984, Pinus contorta. M. M. Furniss and J. B. Johnson (9 ♀, 12 ♂ UI-WFBM). Five D. murrayanae galleries, containing 1 dead and 5 live parents, were in the base of a 30-cm-diameter, lightning-struck tree. Two examined galleries.
had 7 and 23 larvae, probably in their 3rd instar, aligned en masse, side by side in a rather resinous chamber. Associated insects were: *Hylurgops sibaceolatus* (Mannerheim) in root crown; and *Ips mexicanus* (Hopkins), *Ips latidens* (LeConte), and *Orthotomicus caelatus* (Eichhoff) in the bole. *Ips mexicanus* was the predominant species throughout the bole above 0.2 m height. Only one *Dendroctonus ponderosae* Hopkins gallery occurred in the tree. A second tree, 10-cm basal diameter, girdled 0.2 m above ground by a porcupine, contained 17 *D. murrayanae* galleries spaced around its circumference. Over 100 live pupae and teneral adults were densely packed in cells in a zone extending from ground level to 5 cm below ground. Three km W of Pass Cr. Summit, Custer Co., 19-VII-1985, *Pinus contorta*, M. M. Furniss and J. B. Johnson (1 ♀, 1 ♂ UI-WFBM). A pair of live beetles was taken from a new gallery in the base of a 23-cm-diameter, 9-m-tall, straw-colored tree. The entrance was 2.5 cm above ground and had external frass similar to that produced by *ips* beetles; i.e., not resinous (although most *D. murrayanae* entrances have a "pitch tube"). The irregular gallery was not of any characteristic shape, but had two arms, 3 cm and 4 cm long, one running outward, then downward, to the left; and the other outward and upward to the right, with a short side branch. No eggs were present. Wind Lake, Clearwater Co., 17-VII-1986, *Pinus contorta*, M. M. Furniss and E. Christiansen (2 ♂ UI-WFBM). Collected from two current-year galleries 15 cm above ground in a 45-cm-diameter, 22-m-tall, dying tree. Tree crown very sparse, top green, foliage red on lower branches. Bole sparsely infested by *D. ponderosae* in previous year; few brood survived, but blue stain present. Other scolytids present in base were *I. mexicanus* and *Hylurgops* sp.

**COMMENTS:** We believe that *D. murrayanae* is kept from abundance in its extensively occurring host (in contrast to *D. ponderosae*) by the relative scarcity of trees attractive to it and perhaps by some mechanism, such as a pheromone, that largely excludes *D. murrayanae* from *P. contorta* that are infested with *D. ponderosae*. We collected *D. murrayanae* from 4 trees in Idaho, approximately 10 trees in Montana, and 1 in British Columbia, only 2 of which (mentioned above) had a *D. ponderosae* gallery in them. We know of no proven instance of *D. murrayanae* occurring in a *P. contorta* that was killed by *D. ponderosae*, although millions of that tree species have been killed in the northern Rocky Mountains in the past decade, and *D. ponderosae* has been studied intensively.

**Philocotribus lecontei** Schedl

**TYPE LOCALITY:** La Veta Pass, Colo. **BIOLOGY:** Monogamous. The male constructs an entrance tunnel and the bases of two egg galleries that are then completed by the female. The egg galleries run obliquely across the grain of shaded-out branches in merchantable-sized living trees. Adults and larvae may be present throughout the year; overwintering adults may occur in brood galleries, special hibernation or maturation tunnels, or newly formed parental galleries (Wood 1982). **DISTRIBUTION AND NOTES:** CANADA: Alta., B.C.; USA: Ariz., Calif., Colo., Mont., N.M., Ore., Ut., IDAHO: Franklin Co. (Wood 1982). Priest River Experimental Forest, Bonner Co., 28-VI-1967, *Pinus monticola*, M. M. Furniss (1 UI-WFBM), Herd Lake, Custer Co., 3-IX-1978, *Pseudotsuga menziesii*, M. M. Furniss (7 UI-WFBM). Eight km S of Red Ives Ranger Station, Shoshone Co., 16-V-1983, *Picea engelmannii*, M. M. Furniss (1 ♀, 2 ♂ UI-WFBM). All Idaho specimens were collected or reared from shaded-out, 1–2-cm-diameter lower branches of live or freshly killed trees.

**Subfamily Scolytinae**

**Procryphalus mucronatus** (LeConte)

**TYPE LOCALITY:** La Veta Pass, Colo. **BIOLOGY:** Monogynous. Prefers soft, fermenting, dead aspen bark; usually follows primary invasion by *Trypophloenus populii* Hopkins. The gallery is narrower and the bark overlying the gallery is thicker than that of *T. populii* and does not split as it does in the case of *T. populii*. One and one-half to two annual generations (Utah), overwintering as larvae and adults. Eggs appear in late May (Petty 1977). **DISTRIBUTION AND NOTES:** CANADA: Alta., B.C.; USA: Alas., Colo., Nev., N.M., Ut., IDAHO: Beaver Canyon, Franklin Basin, Franklin Co. (Wood 1982). Sixteen km E of Wayan, Caribou Co., 22-VII-1984, *Populus tremuloides*, M. M. Furniss and J. B. Johnson
Great Orofino,

*Trypophloeo populi* Hopkins

**Type locality:** Williams, Ariz. **Biology:** The monogamous female excavates an irregular, 2-cm-long gallery just beneath the bark surface of stems or branches of standing, unhealthy, or dying trees. The galleries and larval mines do not show on the inner surface of the bark. One to one and one-half generations per year occur in Utah, overwintering as larvae; eggs are present in July (Petty 1977).


*Xyleborus dispar* (Fabricius)

**Type locality:** Germany. **Biology:** Infests unthrifty or injured limbs and stems 5-cm diameter and larger. The female tunnels radially into the xylem for 1–3 cm, then constructs two transverse galleries (that may spiral in small branches). The longitudinal galleries may branch in a fashion similar to the original pair (Wood 1952). The female parent carries an ambrosia fungus, *Monilia candida* Hartig, which grows on the wall of her gallery and which is probably a major source of food for her brood (Batra 1963). In British Columbia the beetle has one generation per year, attacking in mid-April. Adults require exposure to cold (overwinter) before emerging in March and April. The sex ratio is 2.2 females per male. The male is dwarfed and incapable of flight. Related species have the capability of reproducing females sexually or males parthenogenetically (Mathers 1940).

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Comments. Xyleborus dispar is native to Europe. It was reported in the West (Clarke Co., Wash.) in 1901. The earliest Idaho collection known to us is 1942 (Coeur d'Alene). It infests a wide range of unrelated angiosperms, including fruit trees and ornamentals. It may not yet have reached its eventual distribution in Idaho and may become increasingly important. It merits intensive study.

Xyleborus intrusus Blandford


IDAHO SCOLYTIDAE

Hylesiniinae

Hylistini

Scirius annectens LeConte
Scirius pubescens Swaine
Hyurgops porosus (LeConte)
Hyurgops reticulatus Wood
Hyurgops rugosinus pillifer (Fitch)
Hyurgops s. subcostatus (Mannerheim)
Hylastes gracilis LeConte
Hylastes longicollis Swaine
Hylastes macr LeConte
Hylastes nigrior (Mannerheim)
Hylastes ruber Swaine
Hylastes tenus Eichhoff

Hylesini

Hylistes obscurus (Marsham)
Alaiphas regisecollis (LeConte)

Tomocini

Xylechmus montanus Blackman
Pseudohylesinus dispar pullatus Blackman
Pseudohylesinus granulatus (LeConte)
Pseudohylesinus n. nebulosus (LeConte)
Pseudohylesinus sicererus (Mannerheim)
Dendroctonus brevicomis LeConte
Dendroctonus murrayanae Hopkins
Dendroctonus ponderosae Hopkins
Dendroctonus pseudosagae Hopkins
Dendroctonus rufipennis (Kirby)
Dendroctonus rufipennis (LeConte)

Phloeotribini

Phloeotribus lecontei Schedl

Phloeosini

Phloeosinus heferi Blackman
Phloeosinus kentri Blackman
Phloeosinus punctatus LeConte
Phloeosinus scopulorum neomexicanus Blackman
Phloeosinus serratus (LeConte)

Hypoborini

Chaetophloeus heterodoxus (Casey)

Polygraphini

Carphoborus carri Swaine
Carphoborus pinoeleus Wood
Carphoborus ponderosae Swaine
Carphoborus saxisoni Swaine

Scolytinae

Scolytini

Scolytus larietis Blackman
Scolytus monticola Swaine
Scolytus multistriatus (Marsham)
Scolytus opacus Blackman
Scolytus piecer (Swaine)
Scolytus praecox LeConte
Scolytus rugulosus (Miller)
Scolytus subsclaber LeConte
Scolytus tsaugae Swaine
Scolytus unispinosus LeConte
Scolytus centralis LeConte

Crypturini

Crypturus borealis Swaine

Abundance

R — rare (5 or fewer collections); U — uncommon (6-14 collections); C — common (15 or more collections).
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Literature Cited


