

North American
Representatives of the
Tribe Aegialiini (Coleoptera:
Scarabaeidae: Aphodiinae)

ROBERT D. GORDON
and
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SMITHSONIAN INSTITUTION PRESS

Washington, D.C.

1988

ABSTRACT

Gordon, Robert D., and Oscar L. Cartwright. North American Representatives of the Tribe Aegialiini (Coleoptera: Scarabaeidae: Aphodiinae). *Smithsonian Contributions to Zoology*, number 461, 37 pages, 85 figures, 1988.—A classification is presented for North American Aegialiini with available biological data listed. The monotypic genus *Annegialia* is transferred to Eupariini, leaving two North American genera in Aegialiini, *Aegialia* and *Micraegialia*. Four subgenera, *Rhysothorax*, *Leptaegialia*, *Aegialia*, and *Psammoporus*, are recognized in *Aegialia*. Four new species of the subgenus *Aegialia*, *A. amplipunctata*, *A. carri*, *A. kelsoi*, and *A. spinosa*, are described. Pertinent diagnostic characters of all taxa are illustrated by habitus views, line drawings, and photographs.

OFFICIAL PUBLICATION DATE is handstamped in a limited number of initial copies and is recorded in the Institution's annual report, *Smithsonian Year*. SERIES COVER DESIGN: The coral *Montastrea cavernosa* (Linnaeus).

Library of Congress Cataloging-in-Publication Data

Gordon, Robert Donald, 1958—

North American representatives of the Tribe Aegialiini (Coleoptera: Scarabaeidae: Aphodiinae)

(Smithsonian contributions to zoology ; no. 461)

Bibliography: p.

Supt. of Docs. no.: SI 1.27:461

1. Scarabaeidae—Classification. 2. Insects—Classification. 3. Insects—North America—Classification. I. Cartwright, Oscar Ling. II. Series.

QL1.S54 no. 461 591 s 87-600108 [QL596.S3] [595.76'49]

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North American Representatives of the Tribe Aegialiini (Coleoptera: Scarabaeidae: Aphodiinae)

Robert D. Gordon and Oscar L. Cartwright

Introduction

The tribe Aegialiini is composed of 2 subtribes (Stebnicka, 1977), Aegialiina and Eremazina. Aegialiina is the only North American subtribe; 6 of the 9 genera and subgenera recognized for the world are represented. The tribe is composed of cold-adapted species with no truly tropical representatives. Only 2 species are known from the Southern Hemisphere, one from Tasmania and one from Argentina.

Brown (1931) presented the first comprehensive North American treatment of the tribe, in which he described one new genus, 3 new subgenera, and provided keys to all taxa. Eight new North American species have been described since by Fall (1932), Saylor (1934), Gordon and Cartwright (1977), and Stebnicka (1977). Howden (1971) described a new genus and species, which we transfer to another tribe. The treatment by Stebnicka is a world revision of the Aegialiini in which taxonomic history, morphology, zoogeography, and phylogeny of the genera are discussed; for all of which we refer the reader to that publication. Changes made herein are the removal of one genus and species, *Annegialia ataeniformis* Howden, from the Aegialiini, the description of 4 new species, and some modification of Stebnicka's (1977) classification. We recognize 6 genera and subgenera and 30 species as occurring in North America. Stebnicka's 1977 revision is reasonably complete; therefore we have not repeated much of the contents. For example, for the most part Stebnicka has already completed the distribution maps, as well as listed extensive locality records. New locality records, particularly those that extend the known range of a species, are presented; otherwise we give the range in general terms. In addition, where lectotypes have not

previously been designated and are needed, we so designate them herein. This contribution is intended as a supplement to Stebnicka (1977), and therefore should be used in conjunction with that publication.

Species of Aegialiini are detritivores as evidenced by the gut contents of dissected specimens and by the nature of the habitats in which they are found. Members of *Aegialia*, sensu stricto, are psammophiles found on coastal dune systems, inland dunes, or wherever the substrate is essentially sandy. Members of the subgenus *Psammoporus* are apparently not as strongly psammophilous and often prefer the gravelly shores of streams and ponds. Thus they are not usually found associated with dune systems or areas that are heavily sandy in nature. The biology of *Aegialia* species is imperfectly known and the only references on this subject are Jerath (1960) and Cornell (1967), in which the larvae of 3 of the North American species are treated. Further speculation along these lines is derived from knowledge of the geography of the areas from which specimens have been collected and habitat data on labels.

ACKNOWLEDGMENTS.—For the loan of type material and other specimens we are indebted to the following institutions and individuals (acronyms are those used in the text); H. Leech and D. Kavanaugh, California Academy of Sciences, San Francisco (CAS); A. Hardy, California Department of Agriculture, Sacramento (CDA); M. Campbell, Canadian National Collection, Ottawa (CNC); J. Carr, Calgary, Alberta (JC); J. Matthews, Geological Survey of Canada, Ottawa; H. Howden, Carleton University, Ottawa (HH); C. Hogue, Los Angeles County Museum, Los Angeles; A. Newton, Museum of Comparative Zoology, Harvard University, Cambridge (MCZ); G. Ball, University of Alberta, Edmonton; Department of Entomology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM).

The illustrations were prepared by M. Druckenbrod and G. Venable, Department of Entomology, National Museum of

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Natural History, Smithsonian Institution, Washington, D.C., and L. Heath, Systematic Entomology Laboratory, U.S. Department of Agriculture, Washington, D.C.

For reviewing the manuscript we thank B. Ratcliffe, University of Nebraska State Museum, Lincoln; A. Hardy, California Department of Agriculture, Sacramento; and S. Batra, Systematic Entomology Laboratory, Beltsville, Maryland.

Tribe AEGIALIINI

Body oval or elongate, sometimes slightly flattened, length range 1.8 to 8.8 mm. Head flat or slightly convex, surface granulate or punctate; clypeus shortened, exposing labrum, mandible; mandible toothed, strongly sclerotized; antenna 9-segmented; terminal maxillary segment usually cylindrical. Base of pronotum with or without marginal line, lateral margin usually crenate, anterior angle produced, posterior angle rounded or obtuse. Surface of elytron smooth, with 10 striae and intervals, rarely with carinae. Humerus in most species

with at least some trace of denticulation. Wings well developed or reduced. Abdomen with 6 visible sterna. Hind tarsal claws vary from slender, simple, to flattened, foliaceous.

We here transfer *Annegialia* Howden from the Aegialiini to the Eupariini, and place it near *Euparia* and *Euparixia*. *Annegialia* has long, slender legs; tightly joined, heavily sclerotized abdominal sterna; and a cuneiform mesosternum. All of these characteristics are also found in *Euparia* and *Euparixia* but not in the Aegialiini. In fact, the only reason for placing *Annegialia* in the Aegialiini is the presence of a shortened clypeus that exposes the labrum and mandibles, a condition heretofore considered peculiar to the Aegialiini. We regard this condition as independently derived in *Annegialia* and suspect that it may be a result of psammophily, a habit not usually found in Eupariini but common in Aegialiini. Members of both *Euparia* and *Euparixia* are ant guests and several other genera are guests of either ants or termites. Members of *Ataenius* (Eupariini) are mostly detritivores, but usually not psammophilus. Howden (1971) stated that *Annegialia* could well be placed in the Eupariini but elected to put it in Aegialiini pending further investigation.

Key to North American Genera of Aegialiini

- Intervals of elytron without short hairs; abdominal sterna not narrowed medially, 5th sternum not obliterated medially by 6th sternum [Figure 32] . . . *Aegialia* Latreille
 Intervals of elytron with short hairs; abdominal sterna narrowed medially, 5th sternum obliterated medially by 6th sternum [Figure 31] *Micraegialia* Brown

Micraegialia Brown

Micraegialia Brown, 1931:11.—Hatch, 1971:440.—Stebnicka, 1977:414. [Type-species: *Aegialia pusilla* Horn (by monotypy).]

Body small, oblong oval, strongly convex. Terminal segment of maxillary palpus elongate oval; clypeus punctate, lacking granules or rugae, anterior margin fimbriate with flattened hairs. Pronotum with apical angle moderately produced, acute, basal angle rounded; lateral, and basal margins fimbriate with flattened hairs, surface with each punctation bearing one short seta. Elytron with finely dentate humerus, each puncture on interval bearing a seta. Middle coxae widely separated, intercoxal process of mesosternum feebly carinate. Abdomen pruinose except last sternum, sterna 2–4 strongly narrowed at middle, 5th sternum with median area concealed by 6th sternum, 6th sternum medially longer than rest (Figure 31). Anterior tibia slender; apex of hind femur with apical flange on hindmargin; middle, and hindfemora elongate, finely pubescent; middle tibia with small, distinct, transverse ridge externally at apical third; hindtibia with transverse ridges; tibial spurs slender; hindtarsus long.

The habitat of the only species of this genus has not been recorded except for fossil data. Fossil elytra of *M. pusilla* have been found at Norwood, Sibley Co., Minnesota, and Johns

Lake near McCluskey, Sheridan Co., North Dakota by A. Ashworth. The Norwood elytron was found in basal sediments, 12,400 years B.P. The site was the edge of a stagnated ice sheet with melting ice close to the surface forming pools. The vegetation was sparse, probably northern boreal, and the elytron was found in fresh sediment marking the beginning of plant succession in open ground environment before trees had begun to move in (Ashworth et al., 1981; Ashworth, pers. comm., 1985). The Johns Lake site was probably very similar to the Norwood site, i.e., glacial material overlain by peat dated at 10,000 years B.P. The peat layer was full of spruce-inhabiting Scolytidae and the *M. pusilla* elytron probably came from the silt layer below the peat that accumulated at the edge of the retreating ice (Ashworth, pers. comm., 1985).

Micraegialia pusilla (Horn)

FIGURES 1, 33

Aegialia pusilla Horn, 1887:102.

Micraegialia pusilla.—Brown, 1931:11.—Hatch, 1971:440.—Stebnicka, 1977:415.

DESCRIPTION.—Length 1.85 to 2.50 mm, greatest width 0.92 to 1.20 mm. Form elongate, widest at middle of elytron, body

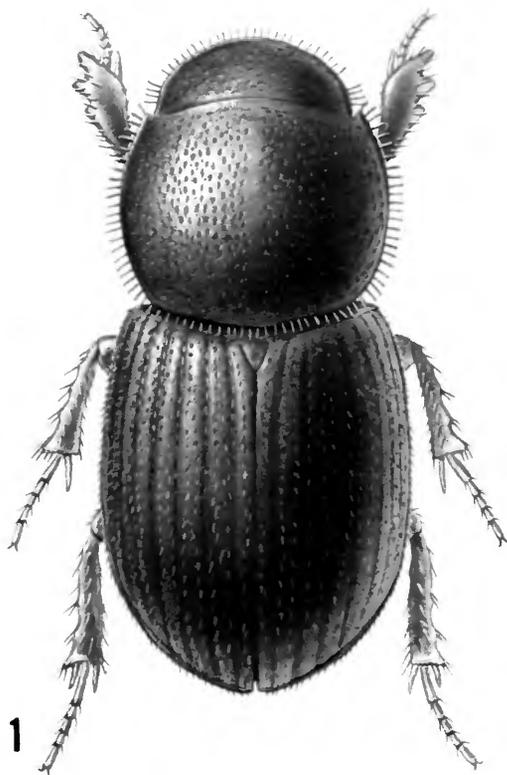


FIGURE 1.—Habitus, *Microaegialia pusilla* (Horn).

convex (Figure 1). Color dark brown to black except clypeal apex and anterolateral angle of pronotum reddish brown, venter light yellowish brown. Head densely punctate, punctations separated by a diameter or less, surface finely alutaceous, lacking granules or rugae; clypeal apex essentially truncate, anterolateral angle broadly rounded, gena not produced. Pronotum shiny, punctations large, separated by a diameter or less except becoming small, sparse on lateral margin, midline narrowly impunctate; feeble lateral fovea present; basal margin sinuate on each side of middle with fine marginal line present. Elytron smooth, shiny, punctations on intervals fine, arranged more or less in a row bordering each stria, stria distinctly impressed, punctations indistinct, separated by 3 times diameter. Metasternum with median area finely, densely punctate in male, sparsely punctate in female. Functional wings present. Female abdomen strongly convex, 6th sternum not alutaceous. Middle tibia with surface denticles sparse, apical spurs slender, outer spur longer than, inner spur shorter than, first tarsal segment; hindfemur with apical flange reduced,

hindmargin of flange straight; hindtibia with numerous surface denticles, apical spurs slender, outer spur slightly longer than first tarsal segment, inner spur subequal in length to first tarsal segment. Male genitalia as in Figure 33; female genital plate as figured by Stebnicka (1977, fig. 7).

TYPE LOCALITY.—Washington Territory.

TYPE DEPOSITORY.—MCZ.

REMARKS.—Brown (1931) had 8 specimens of this species when he erected his new genus, and Horn had a unique holotype from Washington Territory. The only additional records are from Helena, Montana, and the previously discussed fossil sites. It appears that the modern distribution of *M. pusilla* is extremely relictual with populations widely scattered over the area from Minnesota, North Dakota and Manitoba to British Columbia.

DISTRIBUTION.—Manitoba and Minnesota west to British Columbia. Canada, British Columbia: Cawston. Manitoba: Aweme; Birtle. USA, Minnesota: Sibley Co., Norwood. Montana: Helena. North Dakota: Sheridan Co., McCluskey. "Washington Territory": no further data.

Aegialia Latreille

Aegialia Latreille, 1807:96.—Horn, 1871:293; 1887:98.—Brown, 1931:12.—Hatch, 1971:440.—Stebnicka, 1977:416. [Type-species: *Scarabaeus arenaria* Fabricius (by monotypy).]

Body elongate oval or elongate, moderately to strongly convex. Head wide, surface punctate, granulate, or rugose. Pronotum more or less punctate, side margin often crenate, fringed with fine, unflattened setae. Elytron distinctly striate, lacking pubescence. Leg robust or slender, tibial spurs slender or foliaceous; anterior tibia with 2 or 3 lateral teeth; middle coxae narrowly separated; hindfemur robust or slender, with apical flange on hindmargin. Abdomen unmodified (Figure 32).

Stebnicka (1977:402) attached a great deal of importance to the shape of the female genital plate, which she refers to as the "stylus." This structure is actually the divided 10th tergum and is of some use in species separation. We illustrate the genital plate only in those instances where Stebnicka did not, as her illustrations are perfectly adequate in most instances. We also consider the apical flange on the hindfemur to be a diagnostic character in the "*confertia-punctata* group"; this is a character not previously used. Another useful character not utilized by Stebnicka is the armature of the internal sac of the male genitalia, which is nearly always diagnostic for each species. We provide illustrations of this sac for all included species.

Key to North American Subgenera of *Aegialia*

1. Terminal segment of maxillary palpus enlarged, widest at basal third, abruptly narrowed at base; form elongate, parallel sided or nearly so 2
Terminal segment of maxillary palpus cylindrical; form elongate, not parallel sided 3
2. Elytron with humerus not dentate; pronotum with indistinct, poorly defined punctations and feeble rugae; spurs at apex of hindtibia foliaceous
. *Rhysothorax* Bedel
Elytron with humerus dentate; pronotum with distinct punctations, lacking rugae; spurs at apex of hindtibia slender *Leptaegialia* Brown
3. Pronotum approximately $\frac{1}{3}$ as long as elytron, surface near posterior angle impunctate or feebly so (middle and hindtibiae robust or slender, apical spurs slender or foliaceous) *Aegialia* Latreille, sensu stricto
Pronotum approximately $\frac{1}{2}$ as long as elytron, surface near posterior angle coarsely punctate (middle and hindtibiae slender, apical spurs slender)
. *Psammoporus* Thomson

Subgenus *Leptaegialia* Brown

Subgenus *Leptaegialia* Brown, 1931:12.—Hatch, 1971:440.—Stebnicka, 1977:429. [Type-species: *Aegialia (Leptaegialia) humeralis* Brown, by original designation.]

Form elongate, flattened, parallel sided. Head densely punctate, appearing granulate; clypeus granulate, without punctations. Terminal segment of maxillary palpus wider in basal third than at base, somewhat securiform. Pronotum with side, base margined, lateral border crenate, surface with intermixed fine, coarse punctations. Elytron flattened, sides parallel, humerus feebly to strongly dentate. Terminal spurs of middle, hindtibiae slender, not foliaceous. Male anterior tibial spur broad, flattened, hooked inward apically; female anterior tibial spur narrow, not hooked apically.

This strictly North American subgenus is composed of 4 species closely similar in appearance with a quite different facies from other subgenera of North American *Aegialia*. The biology of the group is not well defined; the species are almost

certainly detritivores, but are not psammophilous nor restricted to stream or pond margins as are most members of the other subgenera. Saylor (1934) stated that some type specimens of *A. browni* were collected at dusk flying near a decayed log at 9000 feet (2743 m) in Sequoia National Park. Cornell (1967) described the larva of *A. montana* (incorrectly identified as *A. browni*) and discussed the habitat in which they were collected. This was 3600 feet (1097 m) on Mary's Peak, Benton Co., Oregon; the larvae were found at depths of 4 inches (10 cm) to 2 feet (0.6 m) in soil at the edge of the summit meadow in the ecotone between forest and meadow. *Aegialia montana* was collected by John Carr (pers. comm.) from "washup" at Ghost Dam, Alberta, and he also collected it under stones on leaf mold at Kananaskis Lakes, Alberta. *Aegialia rufescens* was also collected by John Carr (pers. comm.) on "sifting leaf mold, willow-poplar thicket" in Alberta. No other biological data are available for members of this subgenus, but they are found in forested areas and the habitat requirements are probably very similar to those described for *A. montana* and *A. rufescens*.

Key to the Species of the Subgenus *Leptaegialia*

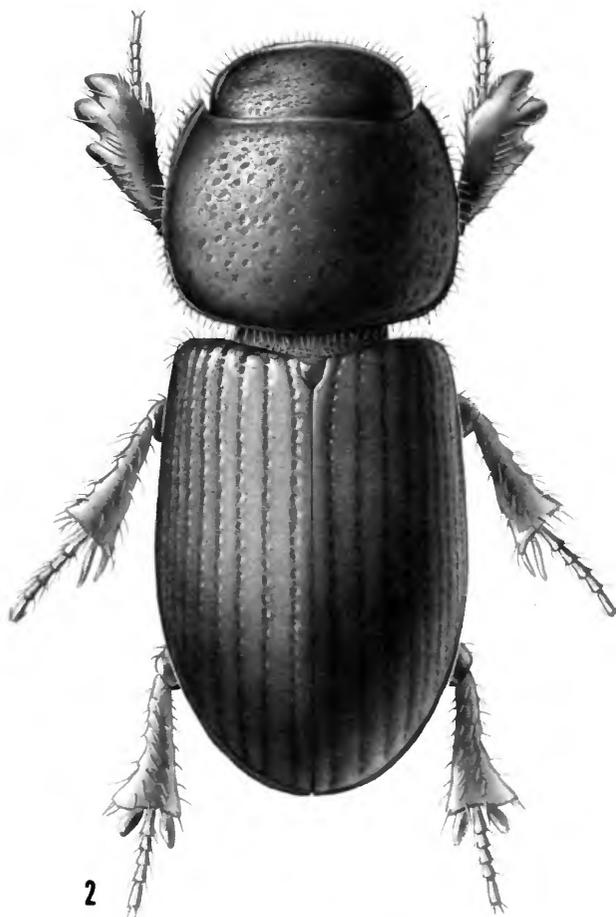
1. Hindtibia short, twice as long as wide; hindtibial spurs slightly flattened
. *rufescens* Horn
Hindtibia elongate, 3 times as long as wide; hindtibial spurs slender 2
2. Humeral angle of elytron sharply dentate; northeastern United States and southeastern Canada *humeralis* Brown
Humeral angle of elytron feebly dentate; not occurring east of the Mississippi River 3
3. Pronotum impunctate or nearly so near posterior angle *montana* Brown
Pronotum with distinct, fine punctations and some scattered coarse punctations near posterior angle *browni* Saylor

Aegialia (Leptaegialia) rufescens Horn

FIGURES 2, 34

Aegialia rufescens Horn, 1887:100.*Aegialia rufa*.—LeConte, 1878:610 [not *Scarabaeus rufa* Fabricius, 1792].*Aegialia (Leptaegialia) rufescens*.—Brown, 1931:14.—Saylor, 1934:75.—Stebnicka, 1977:430.

DESCRIPTION.—Length 4.0 to 5.20 mm, greatest width 1.60 to 2.0 mm (Figure 2). Color yellowish brown to reddish brown. Head granulate; clypeal apex not perceptibly emarginate, gena slightly produced. Pronotum with coarse punctations separated by less than to twice a diameter, absent near anterior and posterior angles, lateral margin crenate near anterior, posterior angles. Elytron with humerus slightly prominent, not dentate; surface slightly alutaceous, interval convex, stria impressed with moderate punctations separated by less than a diameter. Anterior tibia with emargination between external teeth sharp, distinct, apical spur of male truncate, bifurcate at apex, inner angle produced inward, outer angle slightly produced outward; female tibial spur straight, flattened, apex rounded. Hindtibia



2

FIGURE 2.—Habitus, *Aegialia rufescens* Horn.

short, broad, abruptly widened at apex, hindtibial spurs short, slightly spatulate, as long as first 2 tarsal segments. Male genitalia as in Figure 34; female genital plate as figured by Stebnicka (1977, fig. 32).

LECTOTYPE.—Designated herein. LeConte (1878) had 3 type specimens when he described *A. rufa*. One of these, a female labeled “Marquette, Mich. 8.7/50/Ae. rufa Lec./TYPE 3721[red paper]/*Aegialia rufescens* Horn” we designate and label as the lectotype. Another specimen from the same locality as the lectotype is *A. humeralis* Brown; the third specimen is *A. browni* Saylor labeled “Cala.”

TYPE LOCALITY.—Marquette, Michigan (lectotype here designated).

TYPE DEPOSITORY.—MCZ.

REMARKS.—The short, wide hindtibia and somewhat spatulate hindtibial spurs make this the most easily recognized member of *Leptaegialia*.

DISTRIBUTION.—Quebec and Massachusetts west to British Columbia and Oregon. *New Records*: Canada, Alberta: “Ghost Dam, 20 mi. [32 km] W. [of] Calgary; Tp. 21 Rge. 25 W. 4 Mer.”; Waiparous. USA, Idaho: Bear Lake Co., 7 mi (11 km) NW Liberty. Maine: Cumberland Co. Washington: Spirit Lake; Tampico.

Aegialia (Leptaegialia) humeralis Brown

FIGURES 3, 35

Aegialia (Leptaegialia) humeralis Brown, 1931:13.—Saylor, 1934:75.—Stebnicka, 1977:435.

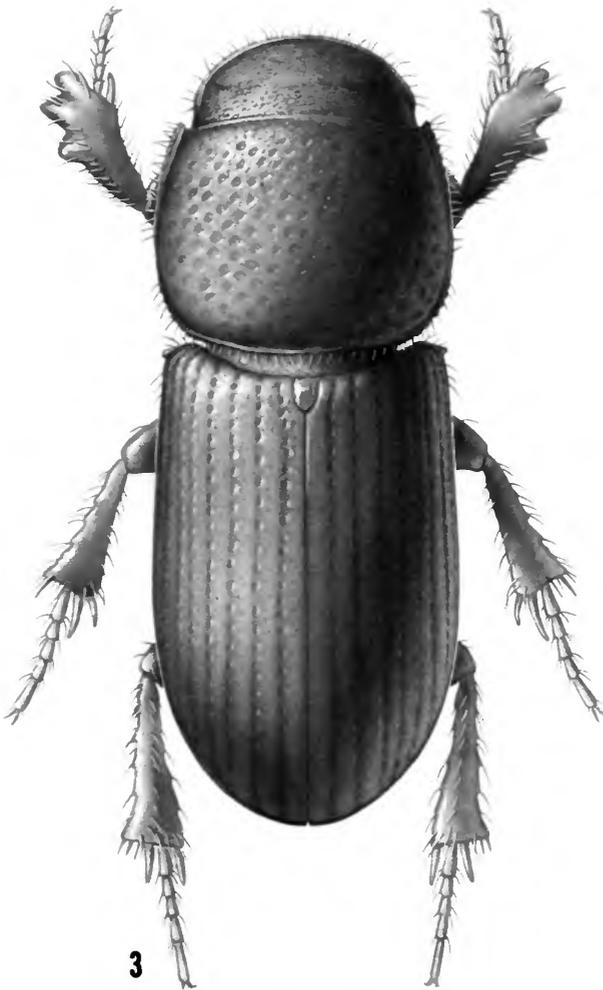
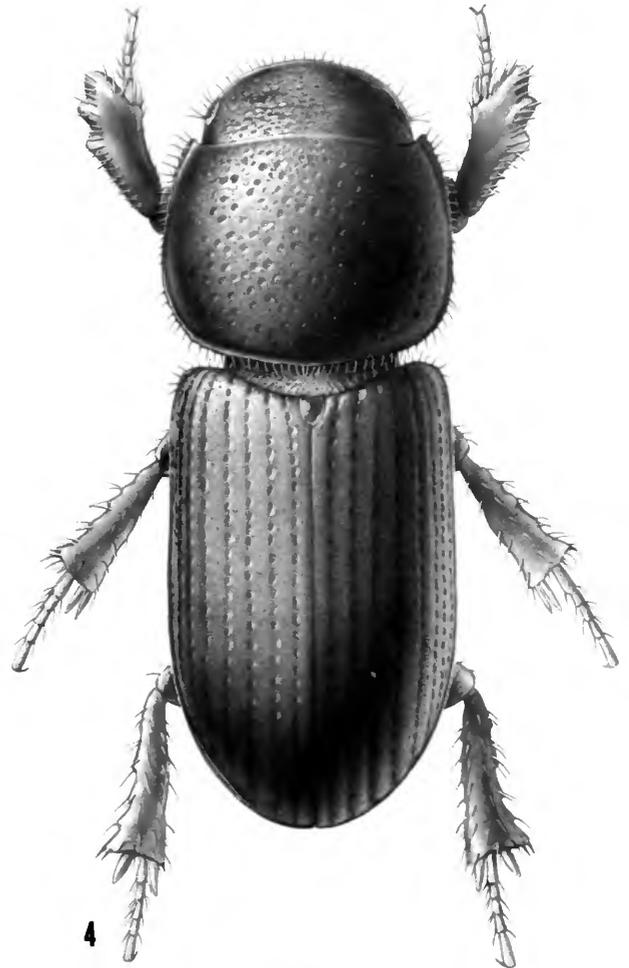
DESCRIPTION.—Length 3.40 to 4.40 mm, greatest width 1.40 to 1.70 mm (Figure 3). Color yellowish brown to dark reddish brown. Head finely, densely punctate; clypeus finely granulate, apex not perceptibly emarginate, gena not or feebly produced. Pronotum with coarse punctations separated by less than to 3 times a diameter, punctations present throughout, sparse on anteromedian third. Elytron with humerus strongly dentate; surface alutaceous, interval convex, stria impressed with moderate punctations separated by less than a diameter. Anterior tibia with emargination between external teeth sharp, distinct, apical spur of male feebly emarginate, bifurcate at apex, inner angle produced inward, outer angle produced outward; female tibial spur straight, slender, apex rounded. Hindtibia elongate, 3 times as long as wide, hindtibial spur slender, about as long as first 2 tarsal segments. Male genitalia as in fig. 35; female genital plate as figured by Stebnicka (1977, fig. 34).

TYPE LOCALITY.—Hastings Co., Ontario.

TYPE DEPOSITORY.—CNC.

REMARKS.—The sharply dentate humerus and elongate hindtibia distinguish *A. humeralis* from *A. rufescens*, which is the only other species of *Leptaegialia* that has an eastern distribution.

DISTRIBUTION.—Quebec to Massachusetts and South Caro-

FIGURE 3.—Habitus, *Aegialia humeralis* Brown.FIGURE 4.—Habitus, *Aegialia montana* Brown.

lina, west to the Great Lakes Region. *New Records*: USA, Michigan: Marquette, Whitefish Point. New Hampshire: Three Mile Island. New York: Johnstown; Warrensburg. South Carolina: Oconee Co., Cashiers Valley Rd.

***Aegialia (Leptaegialia) montana* Brown**

FIGURES 4, 36

Aegialia (Leptaegialia) montana Brown, 1931:14.—Saylor, 1934:75.—Hatch, 1971:441.—Stebnicka, 1977:432.

Aegialia browni.—Cornell, 1967:189 [misidentification; not *Aegialia browni* Saylor].

DESCRIPTION.—Length 3.60 to 4.75 mm, greatest width 1.50 to 2.0 mm (Figure 4). Color reddish brown to dark reddish brown. Head densely, finely punctate; clypeus granulate, apex nearly truncate, gena not or feebly produced. Pronotum with coarse punctations separated by less than to twice a diameter, absent in lateral one-fourth from base to apex, lateral margin

crenate near anterior, posterior angles. Elytron with humerus rounded, not dentate; surface shiny, feebly alutaceous, interval convex, stria impressed with moderate punctations separated by about a diameter. Anterior tibia with emargination between external teeth shallow, indistinct, apical spur of male truncate, inner angle produced, outer angle rounded; female tibial spur straight, slender, apex rounded. Hindtibia elongate, 3 times as long as wide, hindtibial spurs slender, about as long as first 2¹/₂ tarsal segments. Male genitalia as in Figure 36; female genital plate as figured by Stebnicka (1977, fig. 36).

TYPE LOCALITY.—British Columbia, Revefirstoke Mt.

TYPE DEPOSITORY.—CNC.

REMARKS.—In addition to the key characters, *A. montana* has the anterior tibial teeth feebly separated by indistinct emarginations. In the other members of *Leptaegialia* the emarginations are sharp and distincte. The Monte Cristo, Utah, specimens were collected in "Alpine fir duff" by G.F. Knowlton. The Torrance Co., New Mexico, specimens were taken in "oak litter."

DISTRIBUTION.—Wyoming and Colorado west to British Columbia and Oregon. *New Records*: Canada, Alberta: Banff; Elbow Falls; Ghost Dam; Jumpingpound Creek; Kananaskis Lakes; Waiparous. British Columbia: Glacier. USA, Colorado: Ouray. New Mexico: Bernalillo Co., Sandia Crest, 10,600 ft (3230 m); Torrance Co., 10 mi (16 km) NW Manzano, Capillo Pk., 9200 ft (2804 m). Oregon: Benton Co., Mary's Peak; Clackamas Co., Mt. Hood; Klamath Co., Gearhart Mountain, 6500 ft (1981 m) 15 mi (24 km) NE Bly. Utah: Monte Cristo.

Aegialia (Leptaegialia) browni Saylor

FIGURES 5, 37

Aegialia (Leptaegialia) browni Saylor, 1934:74.—Stebnicka, 1977:434.

DESCRIPTION.—Length 4.0 to 5.0 mm, greatest width 1.60 to 2.0 mm (Figure 5). Color yellowish brown to dark reddish brown. Head densely punctate; clypeus granulate, nearly truncate apically, gena slightly produced. Pronotum with

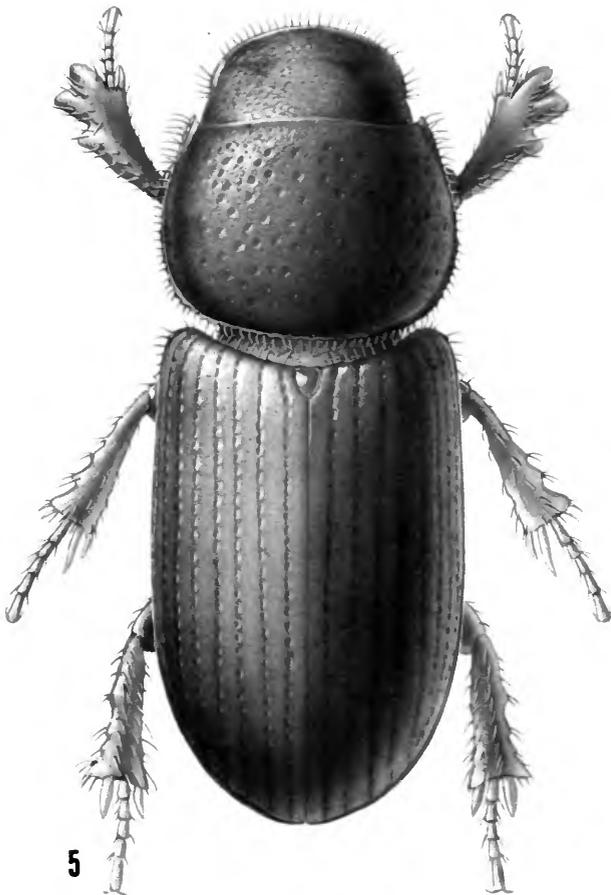


FIGURE 5.—Habitus, *Aegialia browni* Saylor.

coarse punctations separated by less than a diameter except becoming sparse in lateral fourth, lateral margin crenate near anterior, posterior angles. Elytron with humerus feebly dentate; surface shiny, feebly alutaceous, interval convex, stria impressed with moderate punctations separated by slightly more than a diameter. Anterior tibia with emargination between external teeth rounded, distinct, apical spur of male truncate, inner angle produced, outer angle rounded. Hindtibia elongate, 3 times as long as wide, hindtibial spurs slender, about as long as first $2\frac{1}{2}$ tarsal segments. Male genitalia as in Figure 37; female genital plate as figured by Stebnicka (1977, fig. 35).

TYPE LOCALITY.—California, Wolverton, Sequoia National Park, 7000–9000 ft (2134–2743 m).

TYPE DEPOSITORY.—CAS.

REMARKS.—This species resembles *A. montana* except that the average length of *A. browni* is greater, the pronotum has some coarse punctations on the lateral fourth, and the emarginations between the external teeth on the anterior tibia are distinct. The species discussed by Cornell (1967:189) as *A. browni* was incorrectly identified. It is actually *A. montana* and the larval description applies to the latter species.

DISTRIBUTION.—California and Oregon. *New Records*: USA, California: Butte Co., 5 mi (8 km) North Butte Meadows; Lake Tahoe, Carnelia Bay; Tehama Co., Battle Creek Meadow.

Subgenus *Psammoporus* Thomson

Psammoporus Thomson, 1863:72.

Dimalia Mulsant and Rey, 1871:406.

Aegialia (Psammoporus).—Brown, 1931:16.—Stebnicka, 1977:465. [Type-species: *Scarabaeus sabuleti* Panzer (by monotypy).]

Form oblong, moderately convex. Head punctate, punctations more or less discrete; clypeus granulate, lacking punctations. Terminal segment of maxillary palpus cylindrical. Pronotum with side, base margined, lateral border crenate, surface densely, coarsely punctate including posterior angle. Elytron oblong oval, with humerus not or feebly dentate. Middle and hindtibiae slender, without complete transverse carina, apical spurs slender, never foliaceous. Male with anterior pronotal angle produced, lateral margin straight, last abdominal sternum depressed medially; female with anterior pronotal angle not produced, lateral margin curved, last abdominal sternum not depressed medially.

Brown (1931) and Stebnicka (1977) included 6 species in *Psammoporus*. The larva of *A. lacustris*, described by Jerah (1960:48), is the only species of *Psammoporus* for which there is a larval description. Members of this subgenus are usually collected in damp areas, often near the margins of streams and ponds; they are apparently not as strongly psammophilous as are members of *Aegialia*, sensu stricto, but prefer a gravelly or rocky substrate, an observation based on the available locality data and specimen label data.

Key to the Species of the Subgenus *Psammoporus*

1. Elytron completely alutaceous, dull; pronotum alutaceous, feebly shiny *opaca* Brown
Elytron shiny, at least on disc; pronotum shiny 2
2. Head finely, sparsely punctate; male anterior tibia with 2 apical spurs feebly separated, apical spur hooked inward [Figure 10] *terminalis* Brown
Head coarsely, densely punctate; male anterior tibial teeth normal 3
3. Length 3.50 mm or less; Quebec to Massachusetts *nana* Brown
Length 3.60 mm or more, if less, then occurring west of the Mississippi River 4
4. Elytron with lateral and apical margins strongly alutaceous *criddlei* Brown
Elytron with lateral and apical margins shiny or very feebly alutaceous 5
5. Elytron with intervals punctate *cylindrica* (Eschscholz)
Elytron with intervals impunctate *lacustris* LeConte

Aegialia (*Psammoporus*) *lacustris* LeConte

FIGURES 6, 38

Aegialia lacustris LeConte, 1850:225.—Horn, 1871:293; 1887:101.*Aegialia* (*Psammoporus*) *lacustris*.—Brown, 1931:44.—Hatch, 1971:441.—Stebnicka, 1977:471.

DESCRIPTION.—Length 3.70 to 5.30 mm, greatest width 1.90 to 2.70 mm. Form convex, widest in apical half (Figure 6). Color reddish brown to nearly black except prosternum, leg usually paler. Head coarsely punctate, punctations separated by less than to slightly more than a diameter, or almost contiguous; clypeus coarsely granulate, apex broadly, distinctly emarginate, gena produced. Pronotum shiny, coarsely punctate throughout, punctations separated by less than to a diameter on disc, becoming denser at anterior, posterior angles, basal margin usually with lateral sinuation. Elytron shiny or slightly alutaceous with humerus feebly dentate, interval convex or flat, impunctate, stria impressed with moderate punctations separated by less than to a diameter. Metasternum smooth, very finely punctate medially, alutaceous, impunctate laterally. Anterior tibia with external teeth reduced, not sharply separated, or pronounced, distinctly separated; middle tibia with sparse surface denticles and incomplete transverse carina; hindtibia with surface denticles on inner margin, 2 short, incomplete transverse carinae on outer margin, apical spurs slender, slightly spatulate, as long as first 2½ tarsal segments. Male genitalia as in Figure 38; female genital plate as figured by Stebnicka (1977, fig. 109).

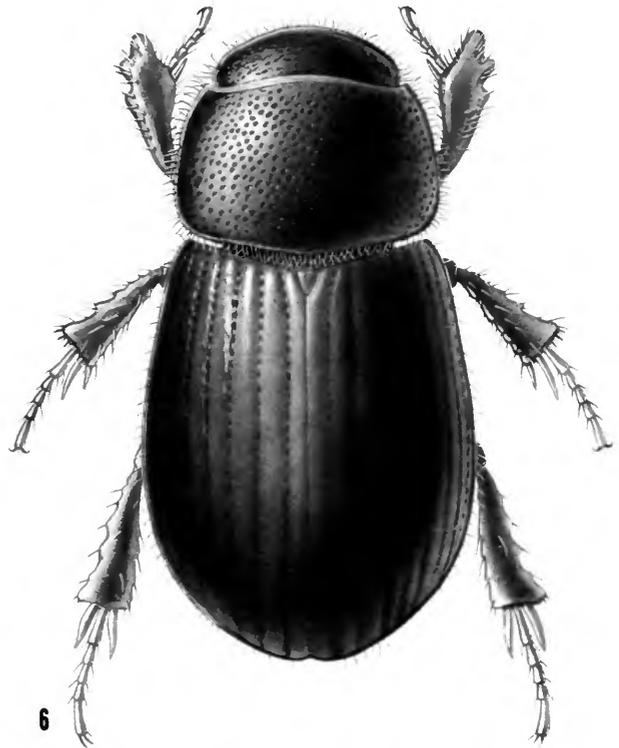
LECTOTYPE.—Designated herein. LeConte (1850) did not state how many type specimens he had. Therefore, we designate a male from his collection labeled "(pale blue disc)/TYPE 3722[red paper]/*Aegialia lacustris* Lec" as the lectotype. There are 2 additional specimens in the series bearing pale blue discs that may also be type material, but we do not so designate them.

TYPE LOCALITY.—"Lake Superior."

TYPE DEPOSITORY.—MCZ.

REMARKS.—The key characters will distinguish *A. lacustris*

from the other species of *Psammoporus*; however, *A. lacustris* can be divided into 2 more or less recognizable forms. Form A (typical *lacustris*) is characterized by the following: head with punctations not contiguous, usually sparse medially, coarser than in form B; pronotal punctations separated by less than to a diameter, slightly coarser than in form B; external teeth on anterior tibia blunt, reduced (not consistent depending on age of specimen); elytron with interval convex; large sclerite in male internal sac apically truncate or somewhat bifurcate; eastern Canada to Alberta and the Colorado Front Range. Form

FIGURE 6.—Habitus, *Aegialia lacustris* LeConte.

B is characterized by the following: head with punctations dense, nearly contiguous throughout, finer than in form A; external teeth on anterior tibia pronounced, distinctly separated; elytron with interval flat; large sclerite in male internal sac produced, somewhat acuminate apically; Colorado Front Range to Washington and British Columbia. These differences would normally indicate the presence of 2 closely similar species, especially since both occur in the Front Range of Colorado; however, a large series of specimens collected at Rampart House, Alaska, is intermediate in all respects between forms A and B. We therefore consider *A. lacustris* to be a widespread, polymorphic species with morphological differences attributable to population disjunctions as figured by Stebnicka (1977, fig. 121).

DISTRIBUTION.—Newfoundland to the Great Lakes region, west to Alaska, northern California, and New Mexico. *New Records:* Canada, Alberta: Ghost Dam. Quebec: Duparquet. Saskatchewan: Davis Creek. Yukon: Dawson. USA, Alaska: Rampart House. California: Lake Co., Twin Lakes; Mt. Lyall; Placer Co.; Siskiyou Co., 16 mi NE McCloud; Tuolumne Co., 34 mi (54.7 km) NE Strawberry. Colorado: Alma; Georgetown; Long's Peak Inn; Ouray. Idaho: Priest Lake. Michigan: Horn Mt. Club. Montana: Bear Paw Mt.; Chief Mt. New Mexico: Cowles, Pecos Baldy; Lincoln Co., Sierra Blanca, 11,500 ft (3505 m); Red River Village, 3 mi (4.8 km) W; Santa Fe, NE of ski area. Nevada: Washoe Co., Summit. Oregon: Blue Mts.; Wallowa Co., Wallowa Mts. Utah: Alta; Park City; Timpanogas, Aspen Grove. Washington: Easton; Sprague; Tampico. Wyoming: Grand Teton Park; Yellowstone National Park.

Aegialia (Psammoporus) cylindrica (Eschscholtz)

FIGURES 7, 39

Psammodyus cylindricus Eschscholtz, 1822:11.

Oxyomus cylindricus.—Mannerheim, 1843:262.

Aegialia cylindrica.—Mannerheim, 1853:220.—Horn, 1871:293.—LeConte, 1878:610.—Horn, 1887:100.

Aegialia (Psammoporus) cylindrica.—Brown, 1931:43.—Hatch, 1971:441.—Stebnicka, 1977:474.

DESCRIPTION.—Length 3.40 to 4.60 mm, greatest width 1.70 to 2.10 mm. Form convex, widest in posterior half (Figure 7). Color dark brown, prosternum, leg slightly paler. Head densely, coarsely punctate, punctations nearly contiguous; clypeus coarsely granulate, apex feebly emarginate, gena feebly produced. Pronotum alutaceous, coarsely punctate throughout, punctations separated by a diameter or less, midline usually impressed in basal third, basal margin often without lateral sinuation. Elytron shiny, humerus not dentate, interval flat, punctate, stria impressed with coarse punctations separated by a diameter. Metasternum smooth, finely punctate medially, alutaceous, impunctate laterally. Anterior tibia with external teeth slender, well separated, apices rounded; middle tibia with sparse surface denticles, 2 incomplete transverse carinae; hindtibia with surface denticles in basal third, inner border; 2



FIGURE 7.—Habitus, *Aegialia cylindrica* (Eschscholtz).

short, incomplete transverse carinae on outer margin; apical spurs slender, slightly shorter than first 2 tarsal segments. Male genitalia as in Figure 39; female genital plate as figured by Stebnicka (1977, fig. 113).

TYPE LOCALITY.—Alaska, Unalaska.

TYPE DEPOSITORY.—Location of type specimen(s) unknown, not examined.

REMARKS.—This species is most often confused with *A. lacustris*, but the key characters will separate them. In addition, the basal pronotal margin is often not sinuate on each side of the middle and the lateral pronotal margins more rounded in *A. cylindrica* than in *A. lacustris*. We have not seen this species from inland localities such as Edmonton, Alberta, Coeur d'Alene, Idaho, and Blue Mountains, Oregon, from which it has been recorded in the literature (Stebnicka, 1977:446). All specimens seen from these localities have proven to be *A. lacustris*.

DISTRIBUTION.—Alaska to California, as far south as Santa Cruz Co. *New Records:* Alaska: Dutch Harbor. California: Humboldt Co.; Los Gatos; Marin Co.; Santa Clara Co.; Santa Cruz Mts.; Siskiyou Co., 8 mi (12.9 km) east of Mt. Shasta

City, Oregon: Lane Co., 20–25 mi (32–40 km) NE Oakridge.
Washington: Kings Co.; Port Angeles.

Aegialia (Psammoporus) criddlei Brown

FIGURES 8, 40

Aegialia (Psammoporus) criddlei Brown, 1931:42.—Hatch, 1971:441.—
Stebnicka 1977:476.

DESCRIPTION.—Length 3.60 to 4.75 mm, greatest width 1.70 to 2.30 mm. Form convex, widest in apical half (Figure 8). Color brown to nearly black, prosternum, leg slightly paler. Head densely, coarsely punctate, punctations nearly contiguous; clypeus coarsely granulate, apex feebly emarginate, gena not or feebly produced. Pronotum shiny, feebly alutaceous, coarsely punctate throughout, punctations separated by a diameter or less, basal margin with lateral sinuation. Elytron shiny, humerus feebly dentate, interval flat, impunctate, stria impressed, coarsely punctate, punctations separated by less than a diameter, external 2 intervals, apex strongly alutaceous. Metasternum polished, impunctate medially, alutaceous, impunctate laterally. Anterior tibia broad with external teeth slender, distinctly, deeply separated, apices acute; middle tibia

with sparse surface denticles and an incomplete transverse carina; hindtibia with surface denticles in basal third, on inner border, without transverse carina, apical spurs slender, slightly longer than first 2 tarsal segments. Male genitalia as in Figure 40; female genital plate as figured by Stebnicka (1977, fig. 117).

TYPE LOCALITY.—Manitoba, Aweme.

TYPE DEPOSITORY.—CNC.

REMARKS.—The alutaceous elytral apex and external intervals are the only significant characters for separating *A. criddlei* from *A. cylindrica* and *A. lacustris*. In addition, the hindtibial spurs of *A. criddlei* are more slender than those of the latter 2 species. *Aegialia cylindrica* often lacks the lateral sinuation of the pronotal base, and the armature of the male genital sac is different in all 3 species.

DISTRIBUTION.—Newfoundland to Ontario, west to Alaska and Washington. *New Records*: Canada, Alberta: Ghost Dam; Sundre; “Tp. 25 Rge. 3 W. 5 Mer.”; Waiparous. USA, Michigan: Alcona Co.; Detroit; Eagle Harbor; Iosco Co; Marquette.

Aegialia (Psammoporus) opaca Brown

FIGURES 9, 41

Aegialia (Psammoporus) opaca Brown, 1931:17.—Hatch, 1971:441.—
Stebnicka, 1977:466.

DESCRIPTION.—Length 3.80 to 5.0 mm, greatest width 1.70 to 2.20 mm. Form convex, widest in apical half (Figure 9). Color reddish brown to nearly black, prosternum, leg reddish brown. Head densely punctate, punctations moderate, nearly contiguous; clypeus coarsely granulate, apex strongly emarginate, gena not or feebly produced. Pronotum alutaceous, feebly shiny, punctations coarse throughout, separated by a diameter or less on disc, nearly contiguous near lateral angles, basal margin with lateral sinuation. Elytron strongly alutaceous, dull, interval flat, finely punctate, stria deeply impressed, broad, punctations coarse, separated by less than a diameter. Metasternum impunctate, slightly alutaceous medially, strongly alutaceous laterally. Anterior tibia with external teeth slender, distinctly, deeply separated, apices rounded; middle tibia with sparse surface denticles in basal third, one incomplete transverse carina present in apical half; hindtibia with scattered surface denticles, lacking transverse carina, apical spurs slender, slightly shorter than first 2 tarsal segments. Male genitalia as in Figure 41; female genital plate as figured by Stebnicka (1977, fig. 95).

TYPE LOCALITY.—British Columbia, Copper Mt.

TYPE DEPOSITORY.—CNC.

REMARKS.—Because of the dull dorsal surface and large stria punctations of the elytron, *A. opaca* is easily distinguished from other species of *Psammoporus* and is the most distinctive in appearance of all of the currently recognized species.

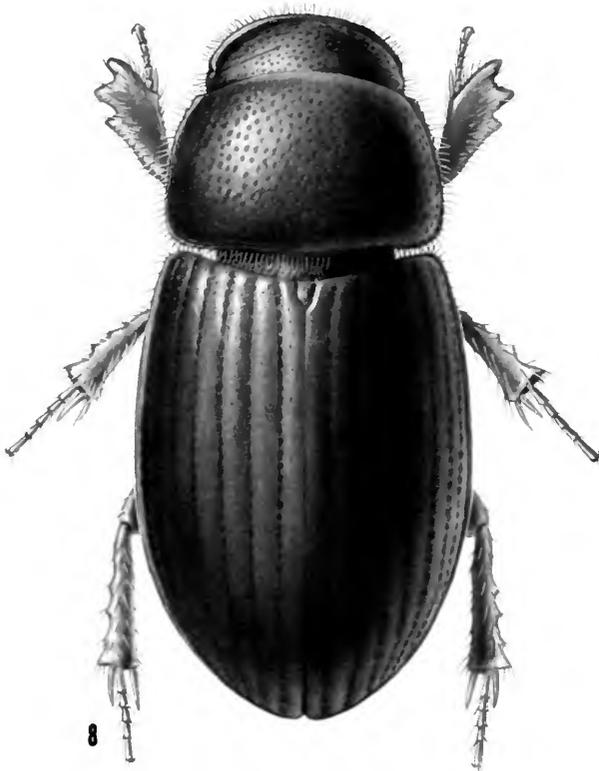
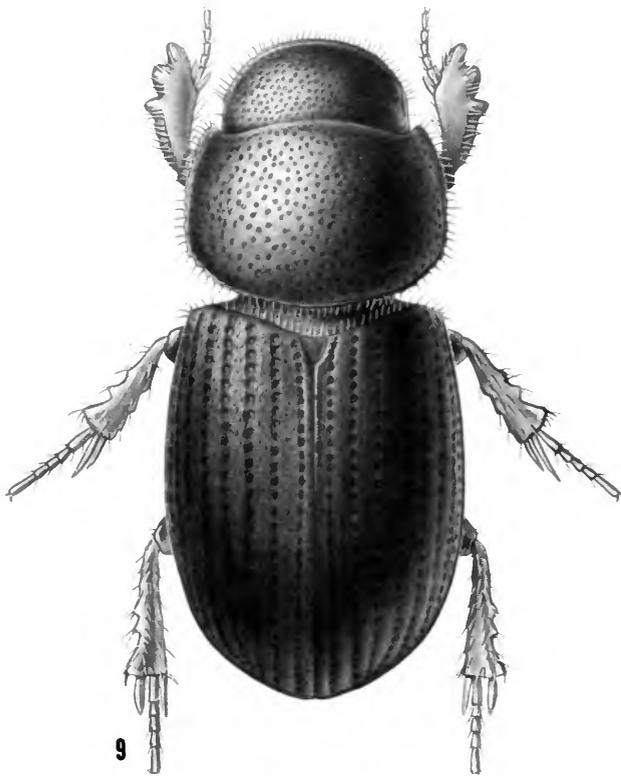


FIGURE 8.—Habitus, *Aegialia criddlei* Brown.

FIGURE 9.—Habitus, *Aegialia opaca* Brown.

DISTRIBUTION.—Alberta and Montana to British Columbia and northern California. *New Records*: Canada, British Columbia: Ainsworth. Alberta: Ghost Dam; "Tp. 24 Rge. 8 W. 5 Mer." USA, California: Lake Tahoe. Idaho: Waha. Montana: Glacier National Park. Oregon: Cornucopia; Sump-ter.

Aegialia (Psammoporus) terminalis Brown

FIGURES 10, 42

Aegialia (Psammoporus) terminalis Brown, 1931:18.—Stebnicka, 1977:468.

DESCRIPTION.—Length 3.80 to 4.50 mm, greatest width 1.70 to 2.0 mm. Form moderately convex, slender, slightly wider in apical half (Figure 10). Color dark reddish brown, prosternum, leg, abdominal apex paler reddish brown. Head finely punctate, punctations separated by one to 2 times a diameter medially, by less than a diameter laterally; clypeus faintly rugose, not granulate, apex rounded, gena not or feebly produced. Pronotum shiny, smooth, coarsely punctate, punctations separated by less than 3 times a diameter on disc, by less than a diameter near lateral angles, basal margin without lateral sinuation. Elytron shiny, humerus prominent, interval convex, finely punctate, stria impressed, with coarse puncta-

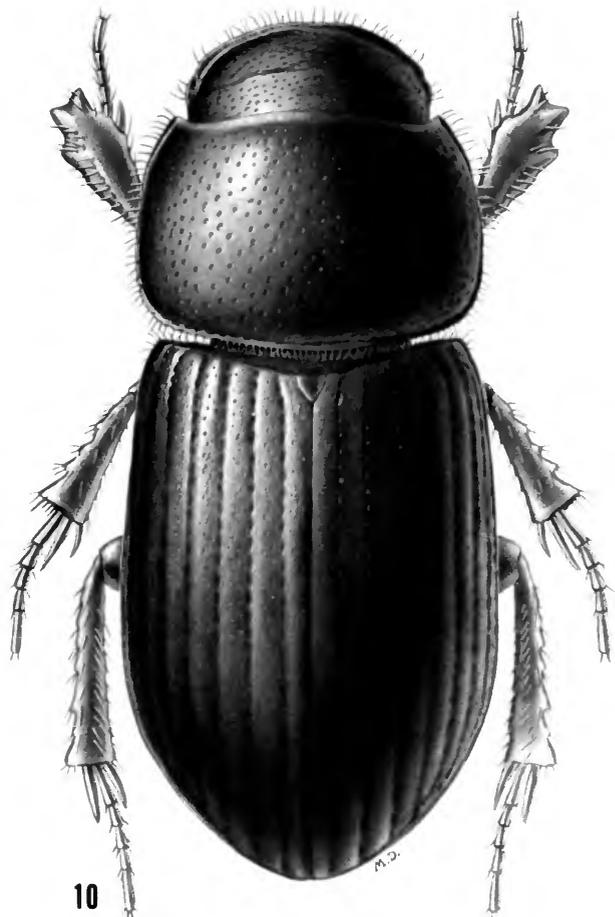
tions separated by a diameter. Metasternum shiny, finely punctate medially, alutaceous, impunctate laterally. Anterior tibia wide, external teeth broad, apices acute, apical 2 teeth shallowly separated, apical tooth of male bent inward (Figure 10); middle tibia with scattered surface denticles, one incomplete transverse carina; hindtibia with surface denticles on inner, outer borders, very short, incomplete transverse carina in apical half, apical spurs slender, outer spur as long as first 2 tarsal segments. Male genitalia as in Figure 42; female genital plate as figured by Stebnicka (1977, fig. 102).

TYPE LOCALITY.—Alberta, Edmonton.

TYPE DEPOSITORY.—CNC.

REMARKS.—This is a very distinctive member of the subgenus *Psammoporus*. The form of the anterior tibia and the finely punctate head are unique characteristics; the rounded clypeal apex, lack of lateral sinuation on the pronotal base, and slender body form are further distinguishing characters.

DISTRIBUTION.—Labrador to New England, west to Alaska and Colorado. *New Records*: Canada, Alberta: Cochrane; Elbow Falls; Seebe; "Tp. 20 Rge. 3 W. 5 Mer."; "Tp. 25 Rge. 3 W. 5 Mer."; "Tp. 33 Rge. 6 W. 5 Mer"; Turner Valley.

FIGURE 10.—Habitus, *Aegialia terminalis* Brown.

Labrador: L'Anse au Loup. Manitoba: Riding Mt. National Park, Whirlpool River. Yukon: Dempster Highway, Mile 45. USA, Alaska: Gulkana River; Tangle Lakes. Colorado: Cameron Pass; Long's Peak; Peak Eight; Silverton; Twin Sisters; Ward Co., Nederland, 8500–9500 ft (2600–2896 m).

Aegialia (Psammoporus) nana Brown

FIGURES 11, 43

Aegialia (Psammoporus) nana Brown, 1931:19.—Stebnicka, 1977:469.

DESCRIPTION.—Length 3.40 to 3.50 mm, greatest width 1.60 to 1.80 mm. Form strongly convex, widest in apical half (Figure 11). Color dark reddish brown, prosternum and leg paler reddish brown. Head densely, coarsely punctate, punctations nearly contiguous; clypeus coarsely granulate, apex distinctly emarginate, gena not produced. Pronotum shiny, feebly alutaceous, coarsely punctate throughout, punctations separated by a diameter or less on disc, becoming nearly contiguous near lateral angles, basal margin with lateral sinuation. Elytron shiny, interval convex, finely punctate, stria deeply impressed, coarsely punctate, punctations nearly

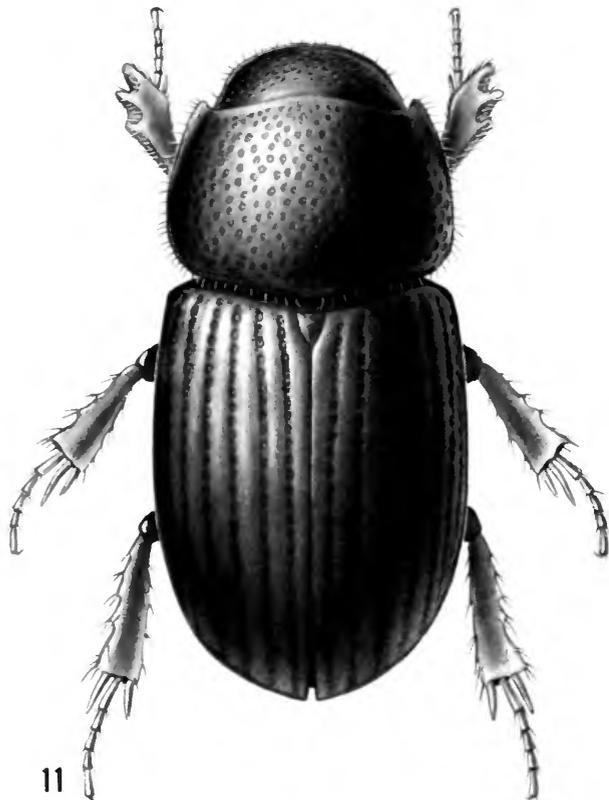


FIGURE 11.—Habitus, *Aegialia nana* Brown.

contiguous. Metasternum smooth, impunctate medially, alutaceous, impunctate laterally. Anterior tibia with external teeth slender, well separated, apices rounded; middle tibia short, broad, with scattered surface denticles and one incomplete transverse carina, apical spurs slender, outer spur nearly as long as first 2 tarsal segments. Male genitalia as in Figure 43; female genital plate as figured by Stebnicka (1977, fig. 103).

TYPE LOCALITY.—Massachusetts, Tyngsboro, Merrimack River.

TYPE DEPOSITORY.—MCZ.

REMARKS.—This is the smallest species of *Psammoporus* and the size along with the very coarse dorsal punctation, especially that of the elytral striae, distinguish it from the other members of the subgenus. It is also the most rarely collected species, presently known from only 3 localities as listed below.

DISTRIBUTION.—Canada, Quebec: Kazabazua. USA, Massachusetts: type locality. New Hampshire: Mt. Washington.

Subgenus *Rhysothorax* Bedel

Rhysothorax Bedel, 1911:93.—Stebnicka, 1977:418 [as subgenus]. [Type-species: *Scarabaeus rufa* Fabricius (by monotypy).]

Anomalaegialia Brown, 1931:15 [synonymized by Stebnicka, 1977:418]. [Type-species: *Aegialia spissipes* LeConte (by monotypy).]

Body elongate, nearly parallel sided. Terminal segment of maxillary palpus wider at basal third than at base. Pronotum approximately $\frac{1}{2}$ as long as elytron, lateral margin indistinctly crenate, base with marginal line fine, often interrupted at middle; surface with indistinct rugae. Elytron with humerus rounded, not denticulate. Middle tibia without transverse carinae; hindtibia short, robust, without transverse carinae, apical spurs foliaceous.

Stebnicka (1977:418) placed *Anomalaegialia* Brown as a junior synonym of *Rhysothorax* Bedel and synonymized *Aegialia spissipes* LeConte with the older European species *Aegialia rufa* (Fabricius). Landin (1960) had previously indicated that *A. spissipes* was the same species as *A. rufa*, but stopped short of formally synonymizing them. Landin (1961:221) stated that *A. rufa* is "stenotopic, restricted to dune areas and other exposed, sandy habitats." Both Landin (1960:133) and Stebnicka (1977:418) regarded *A. rufa* as a native European species that had been introduced into North America; however, the presence of inland populations in Nebraska, Kansas, and Colorado casts some doubt on the supposition. The 3 localities from which specimens have been collected in these states are all well removed from centers of human activity; the Colorado locality, Big Meadows, 8 miles (13 km) north of Wolf Creek Pass, is particularly troublesome in explaining an adventive distribution. It is entirely possible that this is a naturally holarctic species with the northeastern United States and southeastern Canada populations being wholly or in part the result of introductions.

Aegialia (Rhysothorax) rufa (Fabricius)

FIGURES 12, 44

Scarabaeus rufus Fabricius, 1792:39.*Aphodius rufus*.—Fabricius, 1801:82.*Aegialia rufa*.—Erichson, 1848:918.—Landin, 1956:223.*Aegialia spissipes* LeConte, 1878:611.—Horn, 1887:105. [Synonymized by Stebnicka, 1977.]*Rhysothorax rufus*.—Bedel, 1911:93.—Stebnicka, 1976:54.*Aegialia (Anomalaegialia) spissipes*.—Brown, 1931:15.*Aegialia (Rhysothorax) rufa*.—Stebnicka, 1977:419.

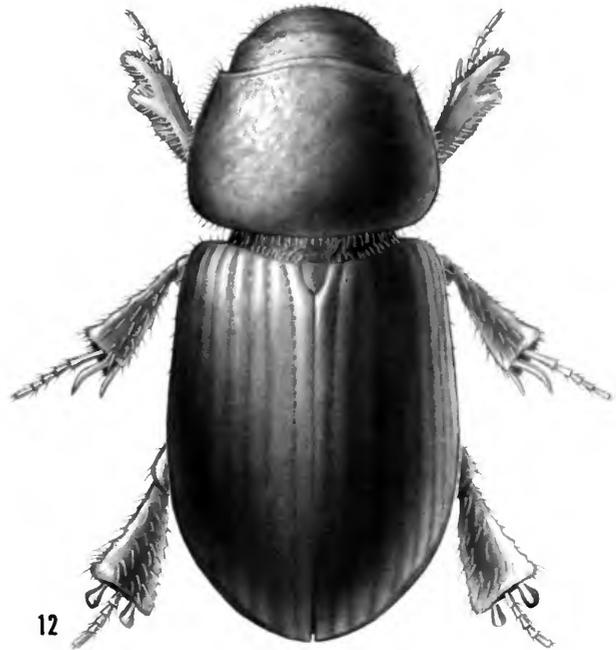
DESCRIPTION.—Length 3.60 to 5.50 mm, greatest width 1.80 to 2.80 mm. Form moderately convex, widest in apical half (Figure 12). Color pale yellowish brown to reddish brown. Head granulate, impunctate; clypeus densely granulate; apex feebly emarginate, gena distinctly produced. Pronotum feebly alutaceous, shiny, surface weakly rugose with fine, nearly imperceptible punctations, base without lateral sinuation. Elytron alutaceous, somewhat dull, interval flat, impunctate, stria impressed, with moderate punctations separated by less than a diameter. Metasternum polished, finely punctate medially, feebly alutaceous, shiny laterally with some coarse punctations. Anterior tibia with external teeth broad, long, widely separated; middle tibia with scattered surface denticles, without transverse carina, apical spurs slender, inner spur as long as first 2½ tarsal segments, outer spur as long as first tarsal segment; hindtibia short, robust, with many surface denticles, without transverse carina, apical spurs short, foliaceous, as long as first 2 tarsal segments. Male genitalia as in Figure 44; female genitalia as figured by Stebnicka (1977, fig. 7).

TYPE LOCALITY.—of *rufa*, "Suecica" (lectotype designated by Landin, 1956); of *spissipes*, Marquette, Lake Superior.

TYPE DEPOSITORY.—Of *rufa*, Zoological Museum, Copenhagen (lectotype not examined); of *spissipes*, MCZ.

REMARKS.—LeConte (1878) stated that he had a single type specimen (holotype) of *A. spissipes*. This specimen is labeled "Marquette, Mich. 8.7/20/TYPE 3725 [red paper]/*A. spissipes* Lec."

NORTH AMERICAN DISTRIBUTION.—East: Newfoundland to Massachusetts west to Michigan and Indiana. Western: Kansas, Nebraska, Colorado. *New Records*: Canada, Quebec: Lanoraie. USA, Kansas: Medora. Michigan: East Lansing. Nebraska: West Point.

Subgenus *Aegialia* Latreille, sensu stricto*Aegialia* Latreille, 1807:96.Subgenus *Aegialia*.—Brown, 1931:12.—Stebnicka, 1977:439.FIGURE 12.—Habitus, *Aegialia rufa* (Fabricius).

Body elongate oval, usually noticeably widest in apical half, moderately to strongly convex. Head, clypeus granulate. Terminal segment of maxillary palpus cylindrical. Pronotum approximately ⅓ as long as elytron, lateral margin not crenate, base with or without marginal line; surface near posterior angle impunctate or feebly so. Elytral humerus rounded, not denticulate. Middle and hindtibiae robust or slender, usually with at least one transverse ridge on each; apical spurs slender or foliaceous. Terminal abdominal sternum in male feebly depressed medially.

Stebnicka's revision of this subgenus appeared in 1977, the same year in which the descriptions of 4 new North American species were published (Gordon and Cartwright, 1977). Thus these species were not included by Stebnicka. We here describe 4 additional species and recognize a total of 18 North American species of *Aegialia*, sensu stricto. Jerath (1960:48) described the larva of *A. blanchardi*, which is the only larval description for this subgenus. Locality data indicate that most members of *Aegialia*, sensu stricto, are psammophilous and are associated with the coastal or inland dune systems or riverine sand deposits.

Key to the Species of the Subgenus *Aegialia*

1. Pronotum with basal marginal line strong, entirely visible [Figure 13] 2
- Pronotum with basal marginal line absent or interrupted [Figure 14] 14

2. Hindtibial spurs short, broad, foliaceous [Figure 78] 3
Hindtibial spurs slender, somewhat spatulate [Figure 69] 9
3. Elytral striae feebly impressed, indistinct; apex of body broad, convex; hindtibia with single, longitudinal row of tubercles on inner margin; southern California *convexa* Fall
Elytral striae distinctly impressed; apex of body not extremely broad or convex; hindtibia with double row of tubercles or with scattered tubercles; most of United States and southern Canada 4
4. Pronotum rugose, impunctate in apical half, remainder of surface indistinctly punctate [Figure 24]; female genital plate absent 5
Pronotum not rugose in apical half, distinctly punctate throughout except punctations sometimes absent near anterior angle; female genital plate present 7
5. Apical flange on hindfemur reduced (inner angle rounded) [Figure 80]; New England to Manitoba and New Mexico *conferta* Horn
Apical flange on hindfemur produced (inner angle abrupt or rounded); Idaho to British Columbia and California 6
6. Apical flange on hindfemur strongly produced, inner angle abrupt [Figure 81]; hindtibia slender, subequal in length to femur [Figure 81]; body elongate oval *nigrella* Brown
Apical flange on hindfemur moderately produced, inner angle rounded [Figure 82]; hindtibia robust, distinctly shorter than femur [Figure 82]; body widened apically *kelsoi*, new species
7. Apical flange on hindfemur strongly produced, inner angle hooked or abruptly angulate [Figures 84, 85] *spinosa*, new species
Apical flange on hindfemur not produced, inner angle obsolete [Figure 83] 8
8. Punctations on pronotum extending nearly to anterior angle; South Carolina *cartwrighti* Stebnicka
Punctations on pronotum mostly confined to discal area; west of Rocky Mountains *punctata* Brown
9. Hindtibia without complete obliquely transverse ridge, a single longitudinal row of small tubercles present on inner margin 10
Hindtibia with at least one complete, obliquely transverse ridge, tubercles entirely lacking or only one or 2 present 11
10. Pronotal surface alutaceous, with punctations separated by less than a diameter on disc; Alberta *carri*, new species
Pronotal surface shiny, polished, with punctations separated by more than a diameter on disc; Atlantic and Pacific coasts *blanchardi* Horn
11. Color pale red; head smooth, lacking tubercles, granules, or coarse punctations [Figure 16] *magnifica* Gordon and Cartwright
Color dark brown to nearly black (except *concinna*); head rough, with coarse granules, punctations, or rugae 12
12. Elytral intervals flat; average length 4.50 mm; Nye Co., Nevada *crenata* Gordon and Cartwright
Elytral intervals convex; length never more than 4.0 mm; California, North Dakota 13
13. Head roughly granulate with some coarse punctations; California *concinna* Gordon and Cartwright
Head rugose, without punctations; North Dakota . . . *amplipunctata*, new species
14. Hindtibial spurs foliaceous (length 3.0 to 3.7 mm) *opifex* Horn
Hindtibial spurs slender, somewhat spatulate [Figure 70] 15
15. Pronotum nearly impunctate (some fine, indistinct punctations on disc) *arenaria* (Fabricius)
Pronotum coarsely punctate 16
16. Hindtibia with complete, strong ridge at apical $\frac{2}{3}$ [Figure 73] *hardyi* Gordon and Cartwright

- Hindtibia without complete ridge 17
 17. Pronotum densely, coarsely punctate throughout *latispina* LeConte
 Pronotum lacking punctations anteriorly and laterally, or punctations, if present, fine
 and indistinct *crassa* LeConte

***Aegialia (Aegialia) blanchardi* Horn**

FIGURES 13, 45, 68, 69

Aegialia blanchardi Horn, 1887:99.

Aegialia (Aegialia) blanchardi.—Brown, 1931:45.—Hatch, 1971:442.—
 Stebnicka, 1977:442.—Gordon and Cartwright, 1977:43.

DESCRIPTION.—Length 3.80 to 5.25 mm, greatest width 1.80 to 2.60 mm. Form elongate, widest behind middle (Figure 13). Color reddish brown to black; ventral surface variable, fully mature specimens piceous to black except prosternum, leg, apex of abdomen reddish piceous. Head without punctations, granulate and/or rugose; clypeal apex strongly emarginate (Pacific Coast) or less so (Atlantic Coast), gena not or slightly produced. Pronotal surface smooth, polished, punctations fine (Pacific Coast) or slightly coarser (Atlantic Coast), separated by a diameter or slightly more on disc; base with distinct marginal line, slight projection medially. Elytron with interval convex, impunctate; striae punctations separated by a diameter. Metasternum polished or somewhat alutaceous medially, lacking punctations. Functional wings present. Middle tibia elongate, with surface denticles in basal third, without complete transverse carina, apical spurs long, slender, inner spur as long as basal 3 tarsal segments, outer spur as long as basal 2 tarsal segments; hindtibia elongate, with scattered surface denticles, single row of denticles present on inner margin from base to apex, without complete transverse carina, apical spurs elongate, length as for middle tibial spurs (Figure 45). Male genitalia as in Figure 45; female genital plate as figured by Stebnicka (1977, fig. 50).

LECTOTYPE.—Designated herein. We designate as the lectotype a female labeled "Mass, Lowell/TYPe No. 3622 *Aegialia blanchardi* G.H. Horn [red paper]."

TYPE LOCALITY.—Lowell, Massachusetts (lectotype here designated).

TYPE DEPOSITORY.—MCZ.

REMARKS.—The distribution of this species could hardly be more disjunct. It was originally described from the Atlantic Coast but it occurs more commonly on the Pacific Coast. In both instances, the bulk of the specimens have been taken from coastal localities, however, in both instances specimens have also been collected at inland localities. It is particularly common on the coastal dune systems from British Columbia to California. A feeble case could be made for splitting *A. blanchardi* into eastern and western species based on the somewhat different pronotal punctation and the equally nebulous differential in the clypeal emargination. This split cannot be supported by any other morphological characters,

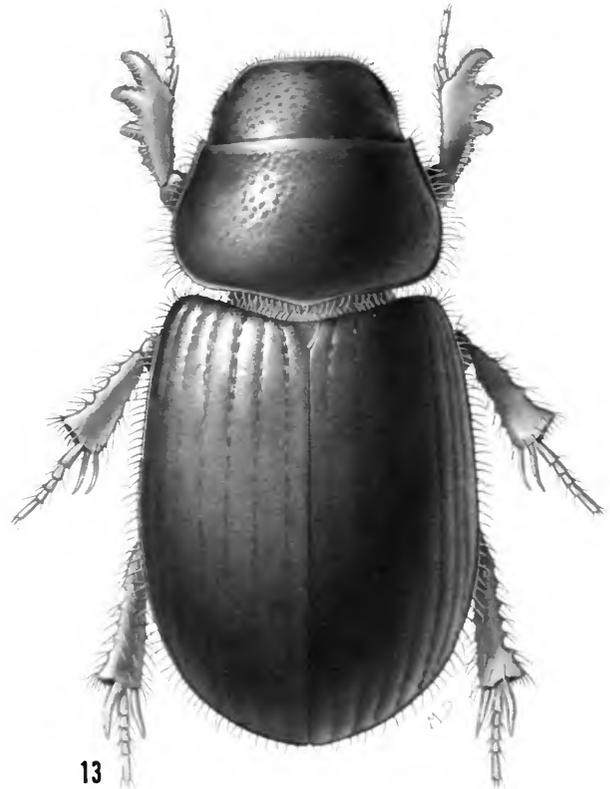


FIGURE 13.—Habitus, *Aegialia blanchardi* Horn.

including the genitalia, therefore we maintain the status quo. The larva of this species was described by Jerath (1960) from specimens collected at Waldport, Oregon, which is coastal dune habitat.

DISTRIBUTION.—Eastern North America: Quebec to Georgia. Western North America: British Columbia to Santa Cruz Co., California. *New Records*: USA, Georgia: Atlanta. Maryland: Silver Spring.

***Aegialia (Aegialia) carri*, new species**

FIGURES 46, 47

DESCRIPTION.—Holotype: Male, length 4.0 mm, greatest width 2.0 mm. Form elongate, widest behind middle. Color black, leg reddish brown. Head granulate, lacking punctations; clypeal apex distinctly emarginate, gena slightly produced.

Pronotal surface alutaceous, punctations moderately coarse, separated by a diameter or less on disc, becoming sparse on lateral third; base with marginal line. Elytron with interval convex, impunctate; stria distinctly impressed, stria punctations separated by a diameter. Metasternum smooth, impunctate medially, alutaceous and impunctate laterally. Functional wings present. Middle tibia short, strongly expanded at apex, without complete transverse carina, apical spurs long, slender, outer spur as long as first 2½ tarsal segments, inner spur as long as first 2½ tarsal segments. Genitalia as in Figure 46.

Allotype: Similar to male except length 4.60 mm, greatest width 2.20 mm; base of pronotum with short, longitudinal furrow medially; genital plate as in Figure 47.

Variation: Length ranges from 3.80 to 4.70 mm, greatest width from 1.90 to 2.25 mm. The short, median basal furrow on the pronotum is present in most specimens but absent or very feeble in some.

TYPE MATERIAL.—Holotype: Alberta, Calgary, 14 May 1965, B.G. and J.L. Carr, Lot 1 (USNM). Allotype: same data as holotype (JC). Paratypes: 31, same data as holotype; 54, Alberta, Calgary, 9 Apr 56, 19 Apr 56, 21 Sep 1958, 10 Apr 1960, 10 May 1960, 9 May 1962, 10 May 1962, 15 May 1963, 4 Apr 1964, 8 Apr 1964, 9 May 1964, 2 May 1965, 8 Jul 1974, B.F. and J.L. Carr; Alberta, Ghost Dam, 11 Jul 1982, 15 May 1985, B.F. and J.L. Carr; Alberta, Pincher 5 May 73, Carr; Alberta, "Tp. 24 Rge. 24, W. 4 Mer.," 3 May 1973, B.F. and J.L. Carr (CNC, HH, JC, USNM).

REMARKS.—*Aegialia carri* is similar to *A. blanchardi* but differs in having the pronotal surface alutaceous and the pronotal punctations separated by a diameter or less; body more slender and average size smaller; elytral intervals more convex; apex of the middle tibia much more abruptly expanded; and the apical spurs of the hindtibia shorter.

ETYMOLOGY.—We name this species for John Carr who collected all of the specimens of the type series described here.

Aegialia (Aegialia) arenaria (Fabricius)

FIGURES 14, 48, 70

Scarabaeus arenarius Fabricius, 1787:11.

Aphodius arenarius.—Fabricius, 1801:82.

Psammodius arenarius.—Gyllenhal, 1808:6.

Aegialia arenaria.—Erichson, 1848:919.—Darlington, 1927:98.

Aegialia (Aegialia) arenaria.—Brown, 1931:49.—Landin, 1956:223.—Stebnicka, 1977:460.—Gordon and Cartwright, 1977:43.

Scarabaeus globosus Kugelann, 1794:514.

Aphodius globosus.—Illiger, 1801:20.

Aegialia globosa.—Latreille, 1807:97.

DESCRIPTION.—Length 4.50 to 6.0 mm, width 2.75 to 3.10 mm. Form oval, robust, strongly convex, widest in apical half of elytra (Figure 14). Color dark brown to black except prosternum, mesosternum, leg reddish brown. Head densely

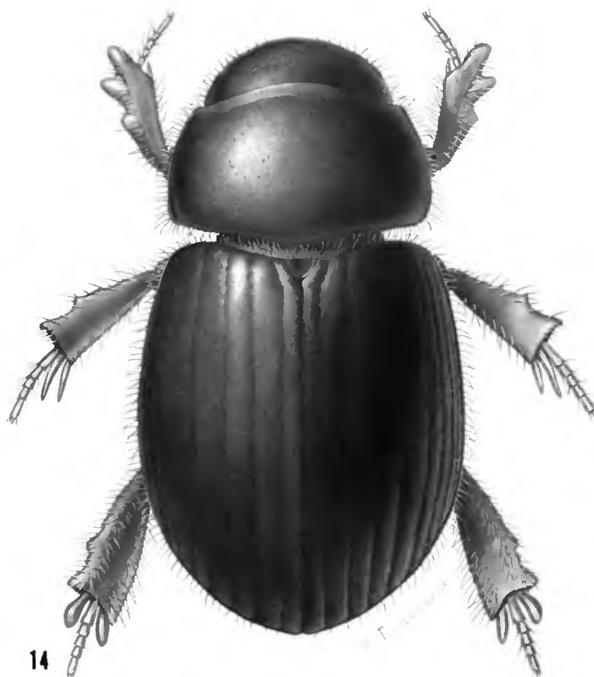


FIGURE 14.—Habitus, *Aegialia arenaria* (Fabricius).

granulate, lacking punctations; clypeal apex broadly emarginate, gena not or slightly produced. Pronotum feebly alutaceous, essentially impunctate, punctations on disc fine, barely perceptible; base lacking marginal line except on each side of middle. Elytron smooth with interval feebly convex, impunctate, stria feebly impressed, impunctate. Metasternum polished, impunctate medially. Functional wings present. Middle tibia short, with surface denticles in basal third, transverse carina nearly complete, apical spurs slender, outer spur as long as basal 3 tarsal segments, inner spur as long as basal 4 tarsal segments; hindfemur with apical flange produced, inner angle obsolete; hindtibia short, robust, surface denticles dense with a row of denticles on inner margin from base to apex, complete transverse carina in apical third, apical spurs short, spatulate (Figure 70), extending slightly beyond 2nd tarsal segment. Male genitalia as in Figure 48; female genital plate as figured by Stebnicka (1977, fig. 89).

TYPE LOCALITY.—"Succica" (lectotype designated by Landin, 1956).

TYPE DEPOSITORY.—Zoological Museum, Kiel (type not examined).

REMARKS.—This is a European species first reported from North America by Darlington (1927) that is established in a few Atlantic Coast localities.

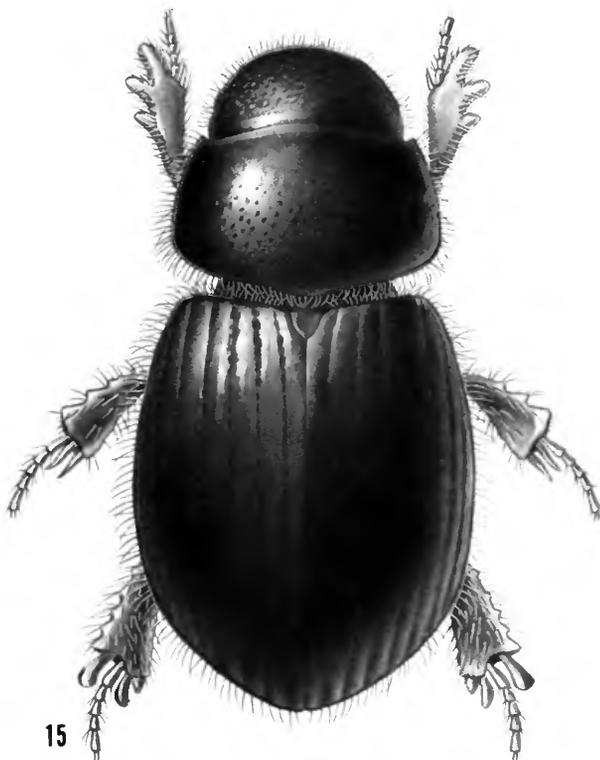
NORTH AMERICAN DISTRIBUTION.—Canada, Nova Scotia: Sable Island. USA, Massachusetts: Ipswich. New Hampshire: Hampton Beach.

Aegialia (Aegialia) crassa LeConte

FIGURES 15, 49

Aegialia crassa LeConte, 1860:42.—Horn, 1871:294.—Brown, 1931:48.—Hatch, 1971:442; Stebnicka, 1977:463.—Gordon and Cartwright, 1977:43.
Aegialia crassa insularis Brown, 1931:49.—Stebnicka, 1977:463.—Gordon and Cartwright, 1977:43.
Aegialia crassa var. *insularis*.—Hatch, 1971:442.

DESCRIPTION.—Length 4.0 to 5.0 mm, greatest width 1.90 to 2.60 mm. Form oval, convex, very broad posteriorly (Figure 15). Color black except anterior leg, each femur reddish black. Head densely granulate, impunctate; clypeal apex feebly emarginate medially, gena distinctly produced. Pronotum slightly alutaceous, punctations coarse basomedially, becoming fine, indistinct anteriorly, laterally, or fine basally with apical, lateral areas impunctate; base without marginal line. Elytron feebly alutaceous, interval weakly convex with barely perceptible, fine punctations, stria weakly impressed, feebly punctate, punctations separated by about a diameter. Metasternum smooth with 2 to 4 coarse punctations medially, heavily alutaceous laterally. Wings reduced, probably not functional. Middle tibia short, robust, surface denticles present in apical $\frac{1}{3}$, 2 incomplete transverse carinae present, apical spurs slender, outer spur as long as first 3 tarsal segments, inner spur

FIGURE 15.—Habitus, *Aegialia crassa* LeConte.

as long as first 4 tarsal segments. Hind femur with apical flange barely evident; hindtibia robust, wide, with numerous surface denticles and 2 rows of denticles on inner margin from base to apex, one incomplete carina in apical $\frac{2}{3}$, apical spurs strongly spatulate, both spurs slightly shorter than first 3 tarsal segments combined. Male genitalia as in Figure 49; female genitalia plates as figured by Stebnicka (1977, fig. 88).

LECTOTYPE.—Designated herein. It is unclear from the original description how many type specimens LeConte had. Therefore we designate a female from the LeConte collection labeled “[gold disc]/TYPE 3724 [red paper]/J. LeConte Collection” as the lectotype. There are 5 other specimens in the series, 2 of which bear gold discs. The latter 2 specimens may also be type material.

TYPE LOCALITY.—San Francisco, California (lectotype here designated).

TYPE DEPOSITORY.—MCZ.

REMARKS.—*Aegialia crassa* is a common species on some of the coastal dune systems of the Pacific Coast and is readily distinguished from those species lacking a basal pronotal line by the reduced pronotal punctation and extremely short, robust, middle and hindtibiae.

DISTRIBUTION.—Southeastern British Columbia to Baja California.

Aegialia (Aegialia) magnifica Gordon and Cartwright

FIGURES 16, 25, 28, 71, 72

Aegialia (Aegialia) magnifica Gordon and Cartwright, 1977:43.

DESCRIPTION.—Length 4.40 to 5.90 mm, greatest width 2.48 to 3.25 mm. Form oval, convex, very broad posteriorly (Figure 16). Color pale red except mouthparts and ventral surface yellowish red. Head smooth, shiny, finely alutaceous, fine punctations separated by a diameter or less, becoming coarser, denser at anterolateral angle; clypeal apex feebly emarginate, gena slightly produced. Pronotum smooth, shiny, fine punctations separated by less than to 3 times a diameter; base with marginal line. Elytron smooth, shiny, interval nearly flat, finely punctate, punctations separated by twice a diameter, stria feebly impressed, finely punctate, punctations separated by twice a diameter. Metasternum polished, impunctate medially, coarsely punctate and alutaceous laterally. Middle tibia with 2 transverse carinae, lacking surface denticles, apical spurs slender, outer spur as long as first 3 tarsal segments, inner spur as long as first 4 tarsal segments; hindfemur densely, coarsely punctate, apical flange produced, inner angle obsolete; hindtibia robust, wide, a row of denticles present on inner margin from base to apex, with incomplete transverse carina in basal third, complete carina in apical $\frac{2}{3}$ (Figure 71), apical spurs somewhat spatulate, inner spur as long as first 2 tarsal segments, outer spur as long as first 3 tarsal segments (Figure 72). Male genitalia as in Figure 25; female genital plate as in Figure 28.

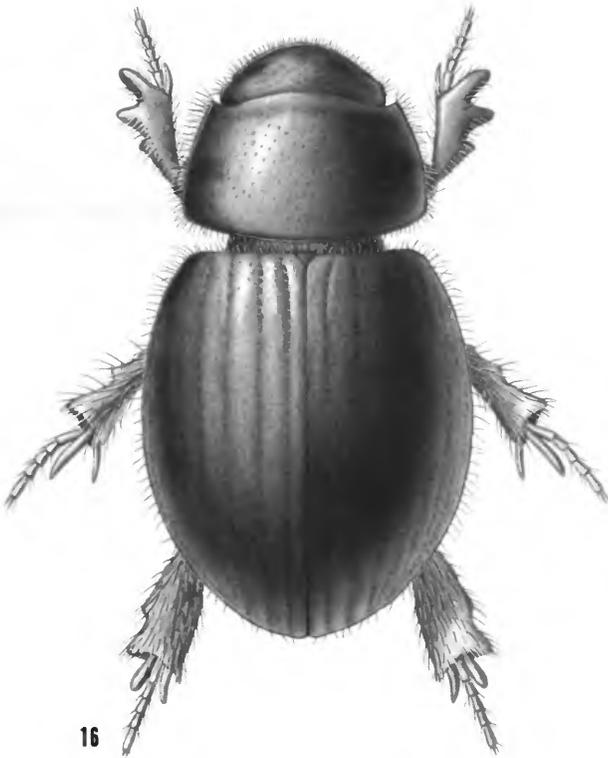


FIGURE 16.—Habitus, *Aegialia magna* Gordon and Cartwright.

TYPE LOCALITY.—Nevada, Nye Co., "Big Dune," Amargosa Desert.

TYPE DEPOSITORY.—USNM.

REMARKS.—This large, red, smooth surfaced species is the most distinctive member of the North American aegialiine fauna and is thus far known only from 2 inland dunes in Nevada.

DISTRIBUTION.—Nevada: type locality and Lava Dune, NW Lathrop Wells.

Aegialia (Aegialia) crescenta Gordon and Cartwright

FIGURES 17, 26, 29, 73, 74

DESCRIPTION.—Length 3.75 to 5.0 mm, greatest width 2.05 to 2.70 mm. Form convex, oval (Figure 17). Color dark reddish brown except ventral surface, legs, and mouthparts pale yellowish brown. Head shiny, sometimes feebly alutaceous, with band of coarse, nearly contiguous punctations from basal portion of clypeus to vertex, apical portion of clypeus less coarsely punctate; clypeal apex feebly emarginate medially. Pronotum smooth, shiny, disc usually with indistinct, feebly impressed furrow extending from base nearly to anterior margin, midline usually narrowly impunctate, rest of pronotum with coarse, sparse punctations separated by less than to 3 times a diameter; base with marginal line. Elytron smooth, shiny,

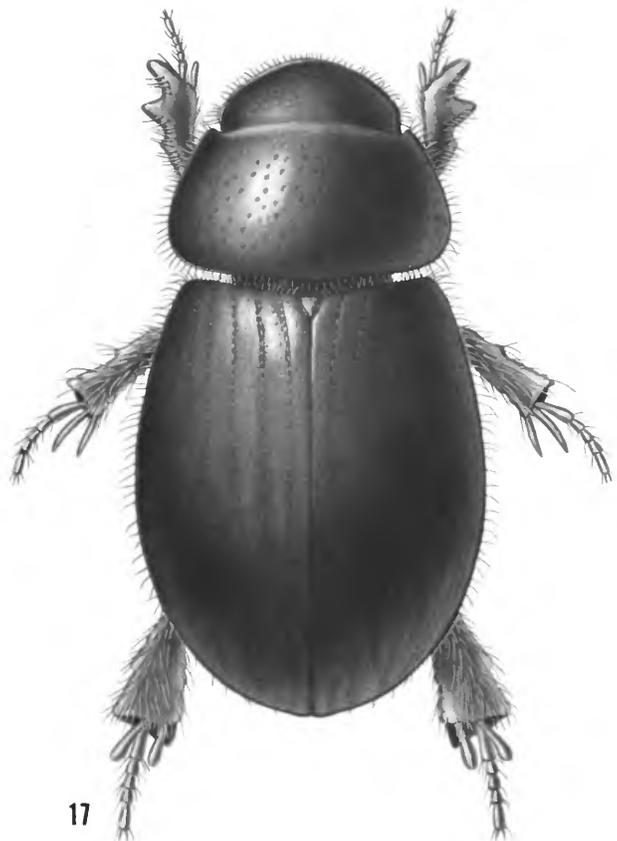


FIGURE 17.—Habitus, *Aegialia crescenta* Gordon and Cartwright.

interval flat, punctations on interval in single, slightly irregular, median row, separated by less than to 3 times a diameter, stria distinctly impressed, coarsely punctate, punctations separated by a diameter. Metasternum densely, finely punctate medially, intermixed fine, coarse punctations laterally. Functional wings absent. Middle tibia with 2 transverse carinae, lacking surface denticles, apical spurs as long as first 3 tarsal segments; hindfemur sparsely, coarsely punctate, apical flange slightly produced, inner angle obsolete; hindtibia robust, wide, surface denticles in basal third, with incomplete transverse carina in basal third, complete carina in apical $\frac{2}{3}$ (Figure 73), apical spurs somewhat spatulate, inner spur as long as first 2 tarsal segments, outer spur as long as first $2\frac{1}{2}$ tarsal segments (Figure 74). Male genitalia as in Figure 26. Female genitalia plate as in Figure 29.

TYPE LOCALITY.—Nevada, Nye Co., Crescent Dune.

TYPE DEPOSITORY.—USNM.

REMARKS.—This is another inland dune species from Nevada, which is closely related to *A. hardyi* but not similar to any other described species. See "Remarks" under *A. hardyi*.

DISTRIBUTION.—Nevada: type locality. *New Record*: Nevada: Clark Co., Game Range Dunes.

Aegialia (Aegialia) hardyi Gordon and Cartwright

FIGURES 18, 27, 30, 75, 76

Aegialia (Aegialia) hardyi Gordon and Cartwright, 1977:47.

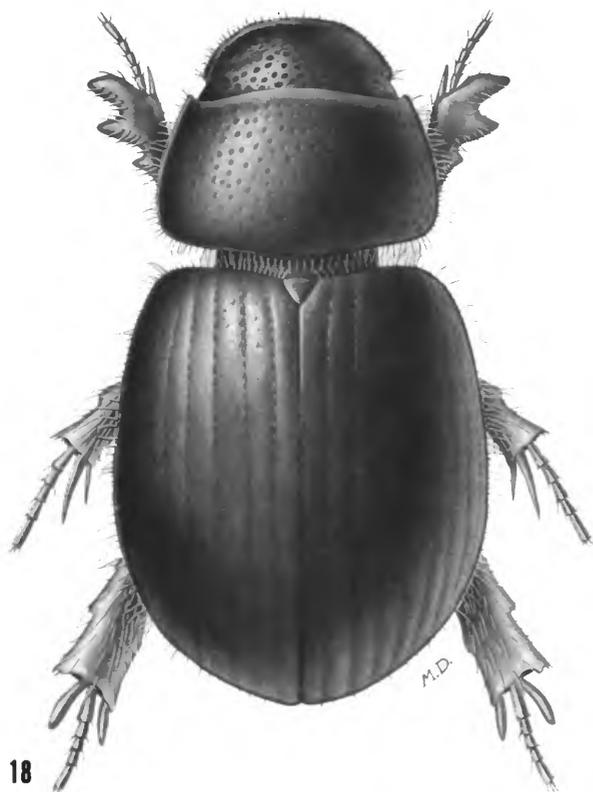
DESCRIPTION.—Length 3.33 to 5.52 mm, greatest width 1.75 to 1.80 mm (Figure 18). Description as for *A. crescenta* except differences noted as follows: head with vertex punctate; pronotal punctations coarse, dense, separated by a diameter or less, punctations present on midline, basal marginal line not visible in dorsal view; hindfemur with scattered, fine punctations; hindtibia relatively slender, hindtibia, spurs as in Figures 75, 76. Male genitalia as in Figure 27; female genital plate as in Figure 30.

TYPE LOCALITY.—Nevada, Churchill Co., Sand Mountain Dunes.

TYPE DEPOSITORY.—USNM.

REMARKS.—The similarity between *A. hardyi* and *A. crescenta* is striking; however, the differences listed above seem to be constant. The slender hindtibia and finely punctate hindfemur of *A. hardyi* are significantly different from the robust, wide hindtibia and coarsely punctate femur of *A. crescenta*.

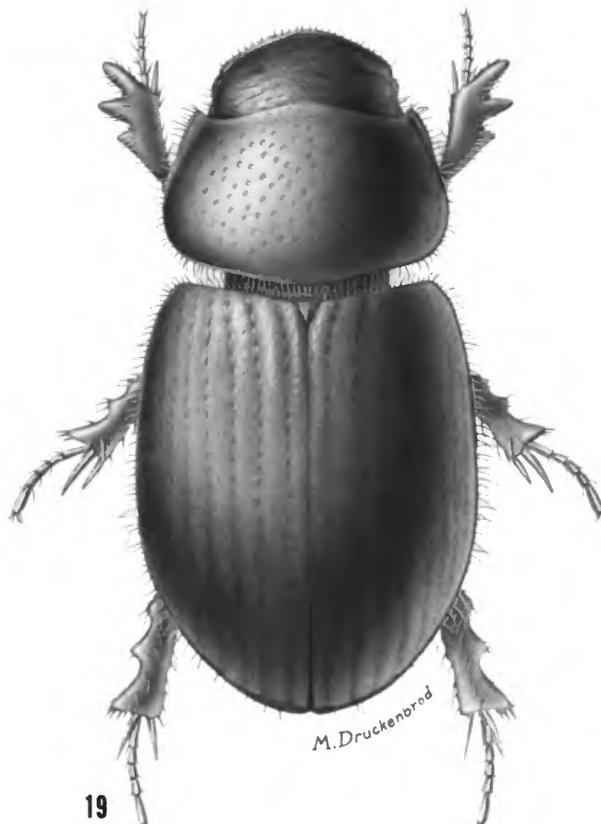
DISTRIBUTION.—Nevada: type locality.

FIGURE 18.—Habitus, *Aegialia hardyi* Gordon and Cartwright.*Aegialia (Aegialia) concinna* Gordon and Cartwright

FIGURES 19, 50, 51

Aegialia (Aegialia) concinna Gordon and Cartwright, 1977:48.

DESCRIPTION.—Length 3.25 to 4.0 mm, greatest width 1.70 to 2.0 mm. Form convex, elongate oval (Figure 19). Color pale brownish yellow to reddish brown except ventral surface always paler than dorsum. Head mostly granulate with some close, coarse punctations, vertex smooth; clypeus barely perceptibly emarginate medially. Pronotum smooth, shiny, coarsely punctate, punctations separated by a diameter or less; base with marginal line. Elytron smooth, shiny, interval convex with fine punctations arranged in single, irregular row, stria deeply impressed, coarsely punctate, punctations separated by twice a diameter. Metasternum smooth, shiny medially, alutaceous with coarse punctations laterally. Functional wings absent. Middle tibia strongly enlarged apically with 2 transverse carinae, lacking surface denticles except in basal third, apical spurs slender, outer spur as long as first 2 tarsal segments, inner spur as long as first 3 tarsal segments;

FIGURE 19.—Habitus, *Aegialia concinna* Gordon and Cartwright.

hindfemur with apical flange slightly produced, inner angle obsolete; hindtibia slender, short, row of surface denticles present in basal third near inner margin, with carina in basal third nearly obsolete, carina in apical $\frac{2}{3}$ complete, lacking surface denticles, apical spurs slender, somewhat spatulate, inner spur as long as first 2 tarsal segments, outer spur as long as first 3 tarsal segments. Male genitalia as in Figure 50; female genital plate as in Figure 51.

TYPE LOCALITY.—California, Fresno Co., 18 mi (29 km) SW Mendota.

TYPE DEPOSITORY.—USNM.

REMARKS.—This small, pale species is quite unlike any of the other inland dune species to which it is most similar, and even more unlike the remainder of the *Aegialia*, sensu stricto, fauna. When it was described by Gordon and Cartwright in 1977, only 4 specimens, all females, were available. Since then, many more specimens have been collected.

DISTRIBUTION.—California: type locality. *New Records*: California: Contra Costa Co., Antioch; Fresno Co., Monocline Ridge; San Benito Co., Panoche Rd.

Aegialia (Aegialia) amplipunctata, new species

FIGURES 20, 52

DESCRIPTION.—Holotype: Male, length 3.60 mm, greatest width 1.80 mm. Form elongate oval, convex, widest at middle of elytron (Figure 20). Color reddish brown. Head densely rugose, lacking punctations, rugae pronounced medially on clypeofrontal suture; clypeal apex barely perceptibly emarginate, gena definitely produced. Pronotal surface shiny, feebly alutaceous, punctations extremely coarse on disc, slightly smaller toward lateral margin, separated by less than to twice a diameter; base with strongly impressed marginal line. Elytron with interval strongly convex with fine, irregularly scattered punctations, stria deeply impressed, coarsely punctate, punctations separated by a diameter or slightly less. Metasternum smooth, impunctate medially, alutaceous, impunctate laterally. Functional wings present. Middle tibia robust, wide, with some surface denticles, single transverse carina in apical $\frac{2}{3}$ nearly complete, apical spurs slender, inner spur as long as first 3 tarsal segments, outer spur as long as first 2 tarsal segments; hindfemur with apical flange slightly produced, inner angle rounded; hindtibia as described for middle tibia except transverse carina complete, apical spurs somewhat spatulate, subequal in length. Male genitalia as in Figure 52.

TYPE MATERIAL.—Holotype: "North Dakota, Ransom Co., 7-V-1962, Robert Gordon." (USNM).

REMARKS.—The holotype is the only specimen we have seen. The overall appearance of *A. amplipunctata* is most like that of *A. latispina* and *A. opifex*, but *A. amplipunctata* has coarser pronotal punctations, a complete transverse carina on the hindtibia, and the clypeus is rugose rather than granulate. The armature of the male internal sac of *A. amplipunctata* is also unlike that of any described species of *Aegialia*, sensu stricto.

ETYMOLOGY.—The specific name is from the Latin and refers to the large pronotal punctations.

Aegialia (Aegialia) latispina LeConte

FIGURES 21, 53

Aegialia latispina LeConte, 1878:611.—Horn, 1887:104.—Brown, 1931:48.—Hatch, 1971:442.—Stebnicka, 1977:457.—Gordon and Cartwright, 1977:43.

DESCRIPTION.—Length 3.50 to 5.0 mm., greatest width 1.75 to 2.50 mm. Form elongate, convex, widest behind middle (Figure 21). Color reddish brown to nearly black except prosternum, leg, apex of abdomen brownish red to yellow. Head densely granulate, lacking punctations; clypeal apex feebly emarginate, gena slightly produced. Pronotum slightly alutaceous, coarsely punctate, punctations separated by $\frac{1}{2}$ times a diameter or less; base lacking marginal line. Elytron with interval feebly convex, impunctate, stria punctations separated by less than a diameter. Metasternum polished, impunctate medially. Functional wings present. Middle tibia short, extremely wide at apex, without complete transverse carina, apical spurs slender, outer spur as long as first 3 tarsal segments; hindfemur with apical flange obsolete; hindtibia relatively slender, strongly widened at apex, without complete

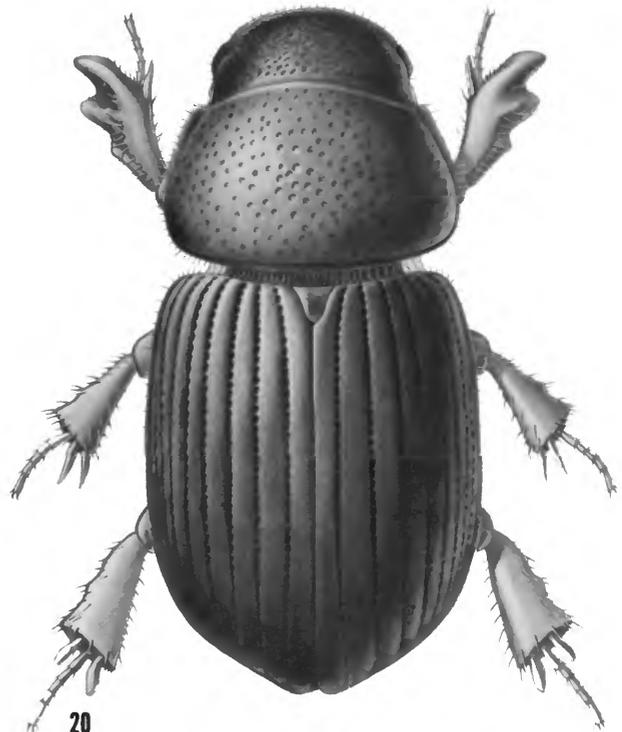


FIGURE 20.—Habitus, *Aegialia amplipunctata*, new species.

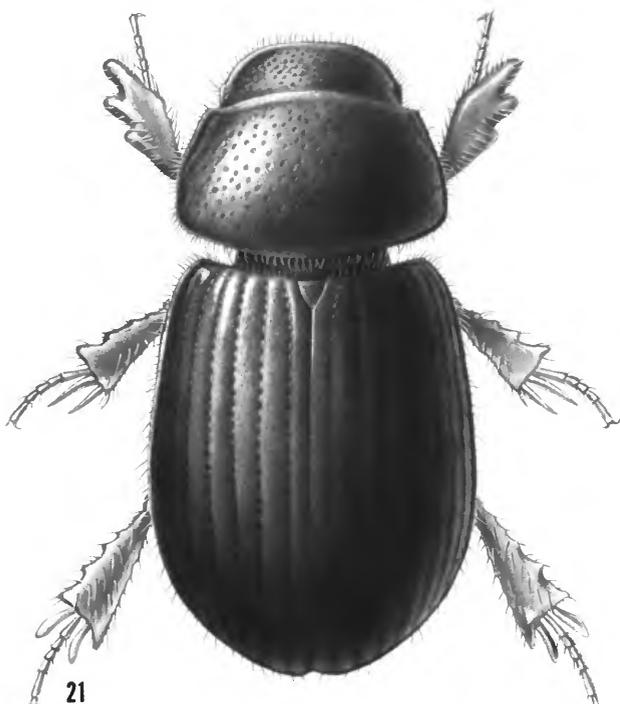


FIGURE 21.—Habitus, *Aegialia latispina* LeConte.

transverse carina, apical spurs slender, somewhat spatulate, spurs subequal in length. Male genitalia as in Figure 53; female genital plate as figured by Stebnicka (1977, fig. 79).

LECTOTYPE.—Designated herein. LeConte (1878:67) stated that he had 2 specimens of *A. latispina*, which he had received from Mr. Crotch. We here designate and label a female in the MCZ collection labeled "Cala. m./ae. latispina *Lect*TYPE 3723 [red paper]/J. LeConte collection" as the lectotype. There are 2 additional specimens in the series, one of these is labeled "Cal. m."; we consider this to be the second type specimen mentioned by LeConte and label it as a paralectotype.

TYPE LOCALITY.—"Mohave Desert" (lectotype here designated).

TYPE DEPOSITORY.—MCZ.

REMARKS.—The slender body form, coarsely punctate pronotum, and lack of a basal marginal line on the pronotum distinguish *A. latispina* (see "Remarks" under *A. amplipunctata*). This species has a rather typical Pacific states distribution except for specimens from Arizona, New Mexico, and Colorado that are undoubtedly *A. latispina*.

DISTRIBUTION.—Washington to southern California. *Disjunct Localities*: Arizona: Prescott. Colorado: El Paso. New Mexico: Jemez Mts. *New Records*: California: Bear Lake; Ben Lomond; Calaveras Co., Big Trees; Calaveras Co., Camp Connell; Carmel; Davis; Eldorado Co., Whitehall; Marin Co., Taylorville; Mohawk; Napa Co.; San Bernardino Co., Miller Canyon; Santa Susanna; Sequoia National Park; Shasta Co.,

Buckhorn Summit; Sonoma Co.; Tulare Co., Barview St. Park. Washington: Grays Harbor Co., Westport.

Aegialia (Aegialia) convexa Fall

FIGURES 22, 54

Aegialia convexa Fall, 1932:183.

Aegialia (Aegialia) convexa.—Stebnicka, 1977:451.—Gordon and Cartwright, 1977:43.

DESCRIPTION.—Length 3.75 to 5.0 mm, greatest width 2.0 to 2.65 mm. Form oval, convex, strongly widened in apical third (Figure 22). Color reddish brown to nearly black except prosternum, leg always paler than remainder of venter. Head granulate, lacking punctations; clypeal apex distinctly emarginate, gena not or feebly produced. Pronotal surface feebly wrinkled medially, becoming smooth laterally, punctation varies from coarse, distinct punctations over entire discal area to punctations visible only near anteromedian margin; base with marginal line. Elytron smooth, feebly alutaceous, interval nearly flat, stria lightly impressed, strial punctations nearly invisible. Metasternum polished, impunctate medially, alutaceous, impunctate laterally. Wings reduced, probably not functional. Middle tibia slender at base, widened apically, surface denticles present at base, incomplete transverse carina in apical $\frac{2}{3}$, spurs slender, inner spur as long as first 4 tarsal segments, outer spur as long as first 2 tarsal segments;

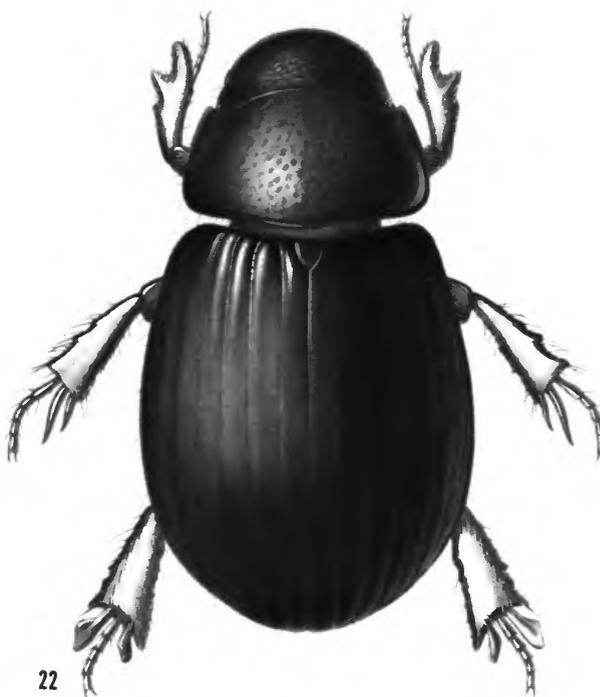


FIGURE 22.—Habitus, *Aegialia convexa* Fall.

hindfemur with apical flange produced, elongate, inner angle rounded; hindtibia robust, broad, surface denticles scattered except inner margin with 2 more or less regular rows of denticles from base to apex, incomplete transverse carina in apical $2/3$, apical spurs short, broad, foliaceous, equal in length to first 2 tarsal segments. Male genitalia as in Figure 54; female genital plate as figured by Stebnicka (1977, fig. 66).

TYPE LOCALITY.—California, Los Angeles Co.

TYPE DEPOSITORY.—MCZ.

REMARKS.—This species is similar to *A. conferta* and other species allied to *conferta* but has the elytral intervals nearly flat, striae feebly impressed, and the elytral apex strongly widened. The distribution of *A. convexa* is limited to the coastal dunes of south-central and southern California. In addition to the holotype, there are 2 paratypes from Redondo and Santa Monica, California, in the MCZ collection.

DISTRIBUTION.—California, San Luis Obispo Co., to Los Angeles Co. *New Records*: California: Los Angeles Co., El Segundo; Playa del Rey; San Clemente Island; San Luis Obispo Co., Oceano, Dune Lakes; Ventura.

Aegialia (Aegialia) opifex Horn

FIGURES 23, 55

Aegialia opifex Horn, 1887:104.

Aegialia (Aegialia) opifex.—Brown, 1931:47.—Stebnicka, 1977:459.—Gordon and Cartwright, 1977:43.

DESCRIPTION.—Length 3.25 to 4.0 mm, greatest width 1.60 to 2.0 mm. Form elongate oval, convex, widest in apical third (Figure 23). Color yellowish brown to dark brown except anterolateral angle of pronotum, prosternum, leg, and apex of abdomen paler yellowish brown or reddish brown. Head granulate but not densely so, lacking punctations; clypeal apex distinctly emarginate medially, gena abruptly produced. Pronotum shiny, not alutaceous, moderately coarsely punctate medially, becoming essentially impunctate laterally, discal punctations separated by less than to twice a diameter; base without marginal line. Elytron with interval moderately convex, finely punctate, punctations barely perceptible, stria distinctly impressed, stria punctations coarse, separated by slightly more than a diameter. Metasternum smooth, impunctate medially, alutaceous, impunctate laterally. Middle tibia slender, sparse surface denticles present, with incomplete transverse carina in apical $2/3$, apical spurs slender, inner spur as long as first $3\frac{1}{2}$ tarsal segments, outer spur as long as basal 2 tarsal segments; hindfemur with apical flange produced, inner angle obsolete; hindtibia slender, sparse surface denticles present, with incomplete apical carina in apical $2/3$, apical spurs foliaceous, outer spur as long as first 3 tarsal segments, inner spur slightly shorter. Male genitalia as in Figure 55; female genital plate as figured by Stebnicka (1977, fig. 84).

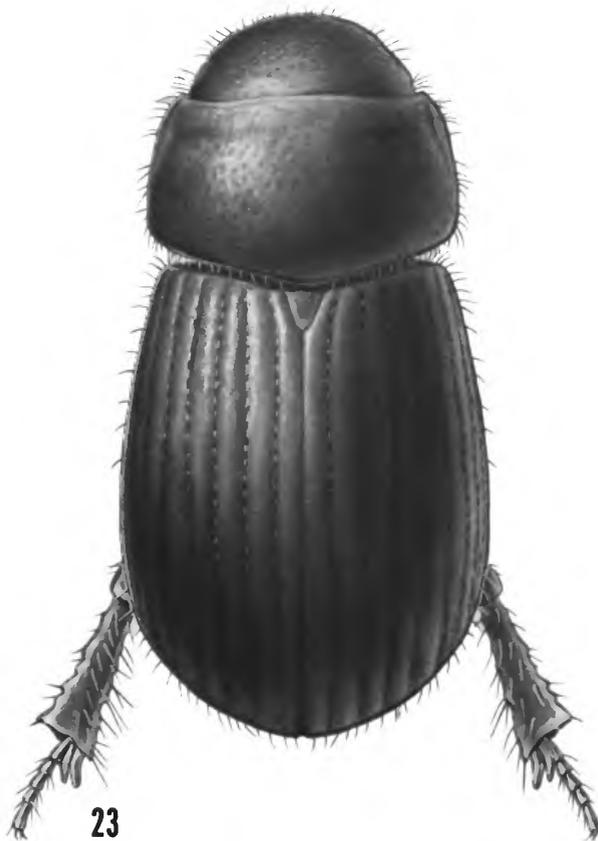


FIGURE 23.—Habitus, *Aegialia opifex* Horn.

LECTOTYPE.—Designated herein. We here designate and label a specimen in the MCZ collection labeled “Lowell/Mass/TYPE 3624 G.H. Horn [red paper]/*A. opifex* Horn” as the lectotype. In addition, there are 18 more specimens labeled “Lowell Mass,” which we designate as paralectotypes.

TYPE LOCALITY.—Massachusetts, Lowell (lectotype here designated).

TYPE DEPOSITORY.—MCZ.

REMARKS.—This species is most similar to *A. latispina* and *A. amplipunctata* in overall appearance. The anterior clypeal margin is distinctly emarginate and the pronotal punctations are small in *A. opifex*; *A. latispina* has the clypeal apex feebly emarginate and has coarse pronotal punctations. Also, the armature of the male genital sac is quite different as is the geographic distribution of these 2 species. (See “Remarks” under *A. amplipunctata*.) A long series of this species was collected at Phillipsburg, New Jersey. Stebnicka (1977:459) listed the state as New York, but the labels clearly indicate New Jersey, although there is also a Phillipsburg in Orange Co., New York.

DISTRIBUTION.—Nova Scotia to northeastern New Jersey, west to Indiana. *New Records*: Canada, Ontario: Carleton Co., Constance Bay; Ottawa. USA, Indiana: Porter Co., Dunes St. Park. New York: Canton; Oneida Lake, Sylvan Bay. Pennsylvania: Alleghany Co.

Aegialia (Aegialia) conferta Horn

FIGURES 24, 56, 57, 77–80

Aegialia conferta Horn, 1871:293; 1887:103.—Blatchley, 1910:921.—Hatch, 1971:442.

Aegialia (Aegialia) conferta conferta.—Brown, 1931:46.

Aegialia (Aegialia) conferta.—Stebnicka, 1977:452.

DESCRIPTION.—Length 3.60 to 4.60 mm, greatest width 2.0 to 2.50 mm. Form elongate oval, somewhat convex, widest in apical third (Figure 24). Color: head, pronotum brown to black, elytron yellowish to dark brown, venter yellowish to dark brown except prosternum, leg, abdomen paler. Head granulate, lacking punctations; clypeal apex feebly emarginate, gena slightly produced. Pronotal surface somewhat wrinkled medially with indistinct, moderately coarse punctations separated by less than to twice a diameter, punctations becoming fine, widely separated laterally; base with marginal line. Elytron with interval convex, nearly impunctate, stria distinctly impressed with fine punctations separated by slightly more than a diameter. Metasternum polished, impunctate medially, alutaceous, impunctate laterally. Functional wings present. Middle tibia slender, with surface denticles in basal third and incomplete transverse carina in apical $2/3$, apical spurs slender, inner spur as long as first 4 tarsal segments, outer spur as long as first 3 tarsal segments; hindfemur with apical flange produced, elongate, inner angle rounded or obsolete (Figure 80), hindtibia robust (Figure 77, 79) with numerous surface denticles, lacking transverse carina or carina short, apical spurs short, foliaceous, outer spur as long as first $3\frac{1}{2}$ tarsal segments, inner spur as long as first 3 tarsal segments (Figure 78). Male genitalia as in Figure 56; female genital plate absent, lateral sclerite as in Figure 57.

LECTOTYPE.—Designated herein. There are presently 4 type specimens in the MCZ collection and we designate and label a female bearing the labels "Ill/TYPe No. 3623 *Aegialia conferta* G.H. Horn [red paper]" as the lectotype. The remaining 3 types bearing the same locality data are designated and labeled as paralectotypes.

TYPE LOCALITY.—Illinois (lectotype here designated).

TYPE DEPOSITORY.—MCZ.

REMARKS.—Stebnicka (1977:452) placed *A. conferta nigrella* Brown as a synonym of *A. conferta conferta*, a decision with which we disagree for the reasons stated in remarks under *A. nigrella*. *Aegialia conferta* and *A. punctata* are externally quite similar, but *A. conferta* females lack genital plates and *A. punctata* females have them. We find that there are 4 other

species closely allied to either *A. punctata* or *A. conferta*, 2 of which lack genital plates and 2 that possess them. Brown (1931:47) described *A. punctata* as a subspecies of *A. conferta*, which is clearly not the case, and Stebnicka (1977:455) treated them, as valid species, but not for quite the right reason. Stebnicka did not realize that the female genital plates were lacking in *A. conferta* and instead figured the lateral sclerite, which is strikingly different from the genital plate, as the genital plate (stylus) (Stebnicka, 1977, fig. 70). However, the resulting change in status was correct. The *conferta* group is composed of 8 species including *conferta* and *punctata*, all externally similar except *A. convexa* and *A. opifex*. The group is characterized by the foliaceous spurs on the hindtibia and all except *A. opifex* possess a basal line on the pronotum. Horn (1871:294) stated that he had type specimens of *A. conferta* from the "Middle and Southern States" and Illinois. Horn (1887:103) recorded specimens from Georgia and stated that they were in the LeConte collection. We have not been able to recognize these specimens and suspect that they were probably *A. cartwrighti* Stebnicka. The 2 New Mexico localities are widely disjunct, but the specimens appear to be rather typical examples of *A. conferta*.

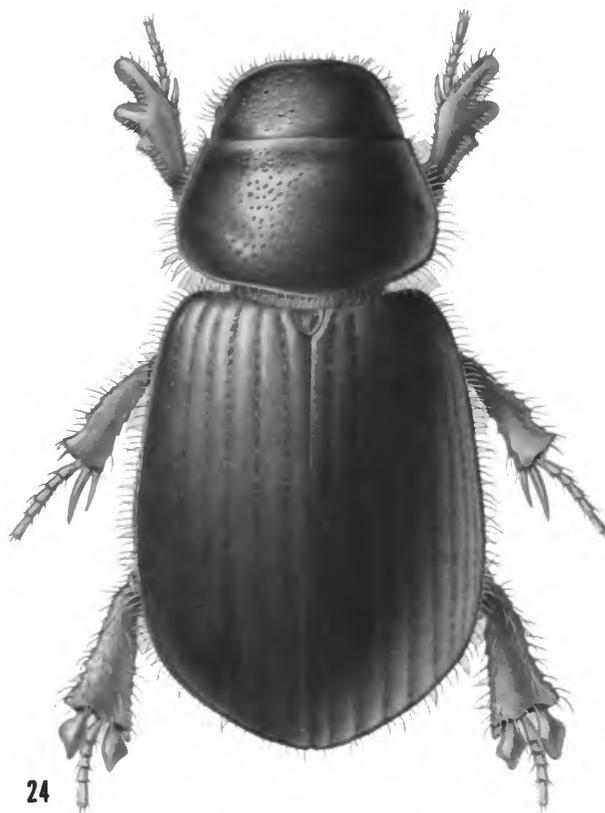


FIGURE 24.—Habitus, *Aegialia conferta* Horn.

Aegialia (Aegialia) nigrella Brown, new status

FIGURES 58, 59, 81

Aegialia (Aegialia) conferta nigrella Brown, 1931:47.—Gordon and Cartwright, 1977:43.—Stebnicka, 1977:452 [as a synonym of *A. conferta*].

Aegialia (Aegialia) conferta var. *nigrella*.—Hatch, 1971:442.

DESCRIPTION.—Length 3.65 to 4.30 mm, greatest width 1.80 to 2.15 mm. Form elongate oval, somewhat convex, widest in apical third. Color: head, pronotum brown to black, elytron yellowish to dark brown, venter yellowish to dark brown except prosternum, leg paler. Head granulate, lacking punctations; clypeal apex feebly emarginate, gena slightly produced. Pronotal surface somewhat wrinkled medially with fine punctations separated by less than a diameter, punctations disappearing laterally; base with marginal line. Elytron with interval convex, nearly impunctate, stria distinctly impressed, with fine punctations separated by slightly more than a diameter. Metasternum polished, impunctate medially, alutaceous, impunctate laterally. Functional wings present. Middle tibia slender, with surface denticles in basal third and incomplete transverse carina in apical $2/3$, apical spurs slender, inner spur as long as first 4 tarsal segments, outer spur as long as first 3 tarsal segments; hindfemur with apical flange produced, elongate, inner angle abrupt (Figure 81); hindtibia slender, with numerous surface denticles, short transverse carina in apical $2/3$, apical spurs short, foliaceous, outer spur as long as first $3\frac{1}{2}$ tarsal segments, inner spur as long as first 3 tarsal segments. Male genitalia as in Figure 58; female genital plate absent, lateral sclerite as in Figure 59.

TYPE LOCALITY.—California, Trinity Co.

TYPE DEPOSITORY.—CNC.

REMARKS.—*Aegialia nigrella* differs from *A. conferta* in having the pronotal punctations finer, more distinct and spread over more of the pronotal surface; hindfemur more slender with apical flange more pronounced, inner angle of flange abruptly angulate; large sclerite in male internal sac short, broad, curved; and female with apex of lateral sclerite differently shaped (Figure 59). Because of these differences we regard *A. nigrella* as a valid species rather than a synonym of *A. conferta*. (For additional comments, see "Remarks" under the latter species.) The distribution listed below is based on specimens we have seen, exclusive of type material, but we believe that all specimens of "*conferta*" from localities west of North Dakota and Alberta are referable to *A. nigrella*.

DISTRIBUTION.—USA, California: Crescent City; Davis; Humboldt Co., Willow Crk.; Lake Co., Cobb; Los Angeles; Monterey Co., Carmel; Napa Co.; Pico; Sacramento, Grand Island Dune; San Bernardino Co., Wrightwood; Sonoma Co.; Ventura Co., San Nicolas Island; Yolo Co., Elkhorn Ferry. Oregon: Benton Co., Corvallis; Dayton; Forest Grove; Kiger Island. Utah: Kane Co., Coral Pink Sand Dunes.

Aegialia (Aegialia) kelsoi, new species

FIGURES 60, 61, 82

DESCRIPTION.—Holotype: Male, length 4.20 mm, greatest width 2.20 mm. Form oval, somewhat convex, very wide in apical third. Color: head, pronotum, and base of elytron reddish black, nearly black, elytron yellowish brown, venter dark brown except prosternum, leg, and apex of abdomen yellowish brown. Head granulate, lacking punctations; clypeal apex feebly emarginate, gena slightly produced. Pronotal surface wrinkled medially, punctations extremely indistinct, lateral third smooth, impunctate; base with marginal line. Elytron with interval convex, nearly impunctate, stria distinctly impressed, with strong punctations separated by slightly more than a diameter. Metasternum smooth, impunctate medially, alutaceous, impunctate laterally. Middle tibia slender, surface denticles present in basal $1/2$, with incomplete transverse carina in apical $2/3$, apical spurs slender, inner spur as long as first $3\frac{1}{2}$ tarsal segments, outer spur as long as first $2\frac{1}{2}$ tarsal segments; hindfemur with apical flange produced, elongate, inner angle rounded (Figure 82); hindtibia extremely robust, wide, with numerous surface denticles, apical spurs equal in length to first 3 tarsal segments. Genitalia as in Figure 60.

Allotype: Similar to male except length 4.25 mm, width 2.40 mm; genital plate lacking, lateral sclerite as in Figure 61.

Variation: Length ranges from 3.60 to 4.50 mm, greatest width from 2.10 to 2.50 mm. Color of elytron varies from pale yellowish brown to entirely dark reddish brown.

TYPE MATERIAL.—Holotype: "California, S. Bern. Co., Kelso Dunes, II-10-1976, Alan R. Hardy, Fred G. Andrews" (USNM).

Allotype: Same data as for holotype (USNM).

Paratypes: 25, same data as for holotype; 4, California, San Bern. Co., Kelso Dunes, 10 air mi (16 air km) SW Kelso, 23 Apr 77, J. Doyen, in sand under *Chilopsis linearis* (CDA; USNM).

Other Specimens: USA, Arizona: Coconino Co., Colorado River, Lee's Ferry, 4 Sept. 1970, R. Turnbow. California: Inyo Co., Panamint Valley Dunes, 7 Feb 1974, John D. Pinto; Inyo Co., Eureka Valley. Nevada: Nye Co., Crescent Dune (CDA; CNC; USNM).

REMARKS.—This species is similar to *A. conferta* except that the armature of the male genital sac is somewhat different and the lateral sclerite of the female genitalia is strikingly different (Figures 59, 61). In addition, the hindtibia is more robust, the pronotal punctation more indistinct, and the apex of the body noticeably wider than in *A. conferta*. All specimens seen have been from inland dune systems in California and Nevada, and the Colorado River in Arizona.

ETYMOLOGY.—This species is named for the sand dune area where the type material was collected.

Aegialia (Aegialia) punctata Brown

FIGURES 62, 63

Aegialia (Aegialia) conferta punctata Brown, 1931:47.—Gordon and Cartwright, 1977:43.

Aegialia (Aegialia) conferta var. *punctata*.—Hatch, 1971:442.

Aegialia (Aegialia) punctata.—Stebnicka, 1977:455.

DESCRIPTION.—Length 3.60 to 4.75 mm, greatest width 1.80 to 2.50 mm. Form elongate, oval, widest in apical third. Color reddish brown to piceous, prosternum, leg always paler than remainder of venter. Head granulate, lacking punctations; clypeal apex distinctly emarginate, gena not or feebly produced. Pronotum smooth, feebly alutaceous, distinctly punctate except in lateral fourth, discal punctations moderately coarse, separated by less than to twice a diameter, becoming fine and sparse laterally; base with marginal line. Elytron with interval convex, nearly impunctate, stria distinctly impressed, with fine punctations separated by a diameter. Metasternum smooth, impunctate medially, alutaceous, impunctate laterally. Functional wings present. Middle tibia slender, with surface denticles in basal half, incomplete transverse carina in apical third, apical spurs slender, inner spur as long as first 4 tarsal segments, outer spur as long as first 3 tarsal segments; hindfemur with apical flange produced, inner angle rounded or obsolete; hindtibia slender to slightly robust with some scattered surface denticles, incomplete transverse carina in apical third, apical spurs foliaceous, outer spur as long as first 3½ tarsal segments, inner spur as long as first 3 tarsal segments. Male genitalia as in Figure 62; female genital plate as in Figure 63.

TYPE LOCALITY.—California, Tulare Co., Kaweah.

TYPE DEPOSITORY.—CNC.

REMARKS.—This species and *A. spinosa*, new species, are very similar in appearance except for the apical flange on the hindfemur which has the inner angle rounded or obsolete in *A. punctata*, hooked or right-angled in *A. spinosa*. The male genital armature also differs. (See "Remarks" under *A. conferta*.) We include populations from the St. Anthony dunes, Idaho, and Churchill and Humboldt counties, Nevada, as being *A. punctata*, but there are subtle differences in size, pronotal punctation, width of hindtibia, and genital armature that cause some doubt as to the accuracy of this decision. It is possible that cross breeding trials would indicate that there are actually 2 or more species represented. The distribution listed below is based on specimens actually examined, exclusive of type material.

DISTRIBUTION.—Mexico, Baja California: Ensenada. USA, California: Carmel; Claremont; Kaweah; Kern Co., Walker Pass; Los Angeles; Pasadena; Pico; Pomona; Poway; Mono Co., dunes at north end of Mono Lake; Orange Co.; Riverside Co., Santa Ana River Park near Pedley; San Diego Co.; San Francisco; Santa Barbara Co.; Santa Clara Co.; Sonoma Co.,

Austin Cr., 3 mi (5 km) south of Cazadero; Tulare Co., Ash Mtn; Ventura Co., San Nicolas Island; Vista. Idaho: Jefferson Co., St. Anthony dunes. Nevada: Churchill Co., Sand Mountain; Humboldt Co., Silver St. Valley, "BFW Farms dunes"; Humboldt Co., sand dunes near Winnemucca; Mineral Co., 5 mi (8 km) west of Marietta, sand dunes 6300 ft (1920 m). North Dakota: Sheldon. Utah: Kane Co., Coral Pink Sand Dunes.

Aegialia (Aegialia) cartwrighti Stebnicka

FIGURES 64, 65, 83

Aegialia (Aegialia) cartwrighti Stebnicka, 1977:454.

DESCRIPTION.—Length 4.0 to 4.60 mm, greatest width 2.0 to 2.50 mm. Form elongate oval, somewhat convex, widest in apical third. Color dark brown to reddish black except prosternum, leg, apex of abdomen paler reddish brown. Head granulate, lacking punctations; clypeal apex distinctly emarginate. Pronotum feebly alutaceous, densely, moderately coarsely punctate medially, punctations separated by a diameter or less, lateral fourth with scattered fine punctations; base with marginal line. Elytron with interval convex, nearly impunctate, stria distinctly impressed, with moderately coarse punctations separated by slightly more than a diameter. Metasternum smooth, impunctate medially, alutaceous, impunctate laterally. Middle tibia slender, with surface denticles in basal third, incomplete transverse carina in apical third, apical spurs slender, inner spur as long as first 4 tarsal segments, outer spur as long as first 3 tarsal segments; hindfemur with apical flange produced, elongate, inner angle rounded or obsolete (Figure 83); hindtibia slender, with numerous surface denticles, incomplete transverse carina in apical third, apical spurs foliaceous, outer spur as long as first 3½ tarsal segments, inner spur as long as first 3 tarsal segments. Male genitalia as in Figure 64; female genital plate as in Figure 65.

TYPE LOCALITY.—South Carolina, Clemson College.

TYPE DEPOSITORY.—Field Museum of Natural History, Chicago.

REMARKS.—*Aegialia cartwrighti* is not strikingly different from *A. punctata*; the form of the large sclerite in the male genital sac differs in these 2 species, and the pronotal punctations are denser and extend almost to the lateral margin in *A. cartwrighti*.

DISTRIBUTION.—South Carolina: type locality. *New Record*: South Carolina: Pickens.

Aegialia (Aegialia) spinosa, new species

FIGURES 66, 67, 84, 85

DESCRIPTION.—Holotype: Male, length 4.40 mm, greatest width 2.30 mm. Form elongate, oval, widest in apical third.

Color dark brown except prosternum and leg reddish brown. Head granulate, lacking punctations; clypeal apex distinctly emarginate, gena feebly produced. Pronotum smooth, discal punctations coarse, separated by a diameter or less, becoming fine, sparse laterally; base with marginal line. Elytron with interval convex, nearly impunctate, stria distinctly impressed with fine punctations separated by slightly more than a diameter. Metasternum smooth, impunctate medially, alutaceous, impunctate laterally. Functional wings present. Middle tibia slender, with surface denticles in basal third, incomplete transverse carina in apical half, apical spurs slender, inner spur as long as first 4 tarsal segments, outer spur as long as first 3 tarsal segments; hindfemur with apical flange strongly produced, inner angle reflexed, spinose (Figure 84); hindtibia moderately robust, with some scattered surface denticles, incomplete transverse carina in apical third, apical spurs foliaceous, outer spur as long as first 3 tarsal segments, inner spur as long as first 2 $\frac{1}{2}$ tarsal segments. Male genitalia as in Figure 66.

Allotype: Similar to male except length 4.25 mm, width 2.28 mm; genital plate as in Figure 67.

Variation: Length ranges from 3.40 to 4.80 mm, greatest width from 1.70 to 2.60 mm. Dorsal color varies from brown to nearly black; inner angle of hindfemoral flange varies from reflexed and spinose to abruptly right-angled (Figures 84, 85).

TYPE MATERIAL.—Holotype: Washington, Wallulah, 27 Mar 1949, G.H. Nelson (USNM).

Allotype: Same data as for holotype (USNM).

Paratypes: 4, same data as for holotype; 1, Ben Lomond, Cal., 15 Mar 1933; 2, Fresno, Cal., 14.3, E.A. Schwarz,

collector, 10, Modesto, Cal., 31 Mar 1951, H.E. Hinton, collector; 2, Lenore, Idaho, Nez Perce Co., 6 May 49, WF Barr; 2, Lenore, Idaho, 6 May 1949, Elev. 1000 ft (305 m) W.F. Barr, collector; 2, Umatilla Id., J.A. Hyslop, collector, 4 Mar 1909; 8, Dalles, Ore., 18.5, 19.5, Coll Hubbard & Schwarz; 12, Fossil Lk, near Lake P.O., Lake Co., Ore., 16 May 1957, P.O. Ritcher Collector; 1, Paterson, Wash., 26 Mar 1955 (USNM).

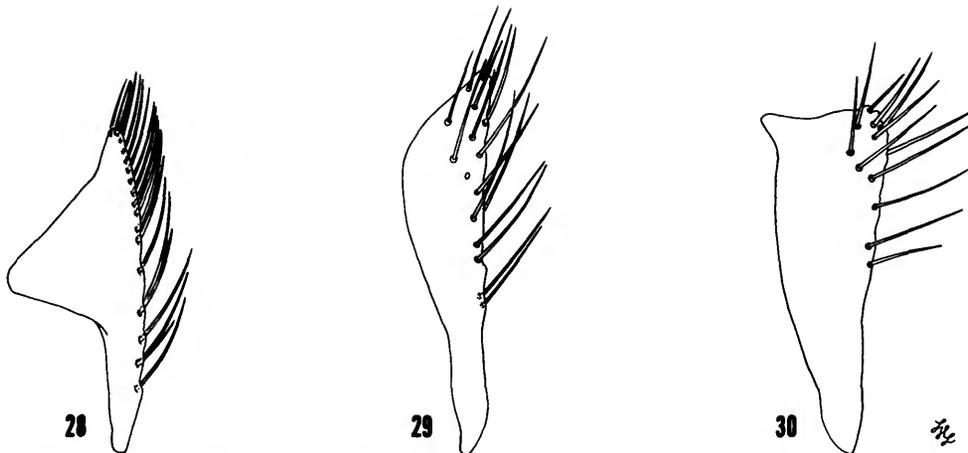
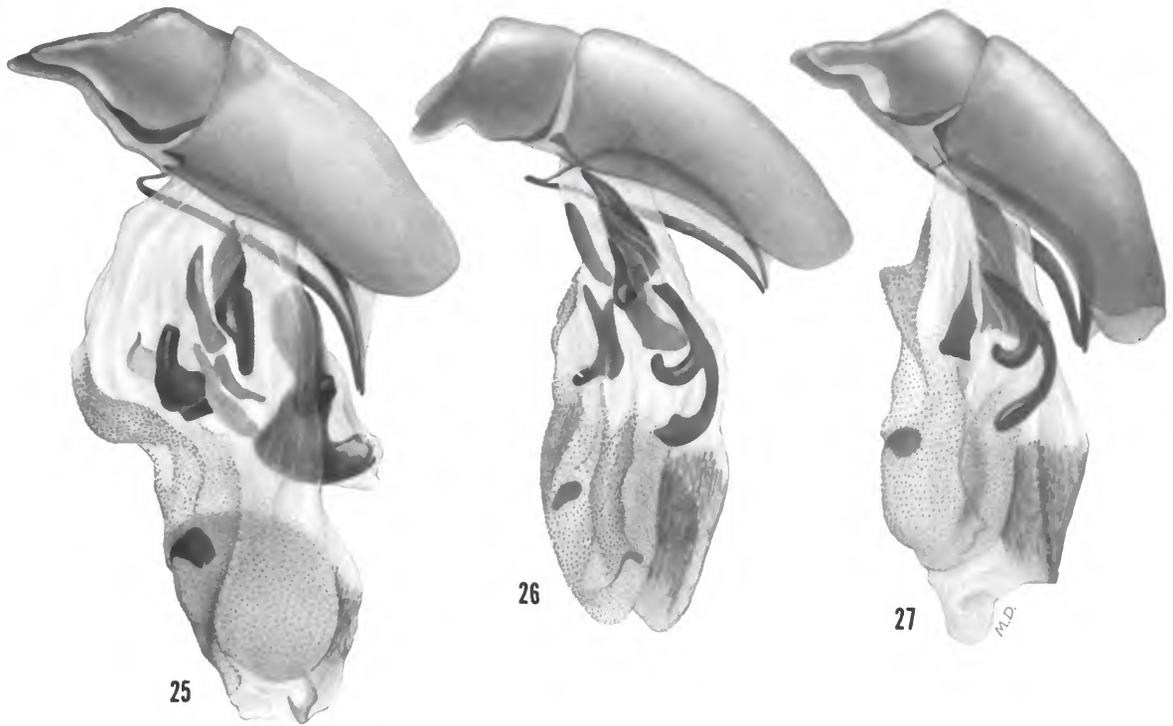
Other Specimens: California: Antioch; Campbell; Fresno Co., Kingsberg; Mariposa Co., Yosemite; Modesto; Monterey Co., Carmel; Monterey Co., King City, 12 Oct 1972, 24 Feb 1975, John Doyen; Monterey Co., Chualar, 1.5 air mi (2.4 air km) W and 3.5 air mi (5.6 air km) S, 8 May 1975, J. Doyen; Pajaro; Sacramento Co., Grand Island Dune; San Diego; San Francisco; Santa Barbara; Sonoma; Yolo Co., Davis; Yolo Co., Elkhorn Ferry. Idaho: Bruneau Dunes, Owyhee Co., 23 Apr 1979, A. Allen. Oregon: Umatilla Co., 4 mi (6.4 km) west of Irrigon, 25 Feb 1972, N.E. Woodley. Washington: Walla Walla Co., 3 mi (4.8 km) south of Wallula, 2 Apr 1972, N.E. Woodley. (CAS, CDA, USNM).

REMARKS.—This species and *A. punctata* are very much alike except that *A. spinosa* has the apical flange on the hindfemur strongly produced, the inner angle usually spinose. We include as this species specimens from Bruneau Dunes, Idaho, and coastal California dunes, which have the hindapical flange produced and abruptly right-angled. These possibly represent still other undescribed species, but we cannot satisfactorily differentiate them from *A. spinosa*.

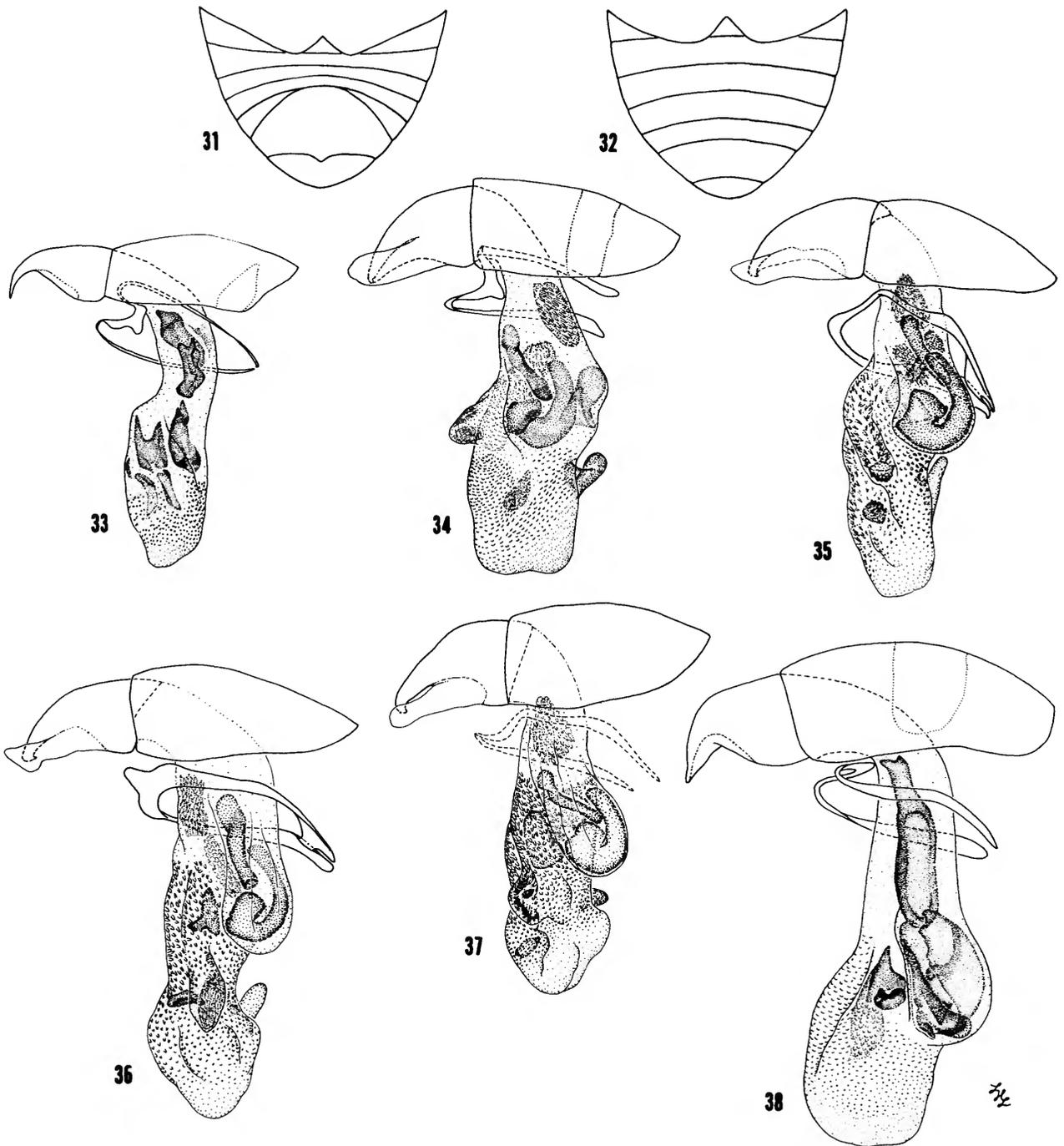
ETYMOLOGY.—The specific name is from the Latin and refers to the form of the hindfemoral flange.

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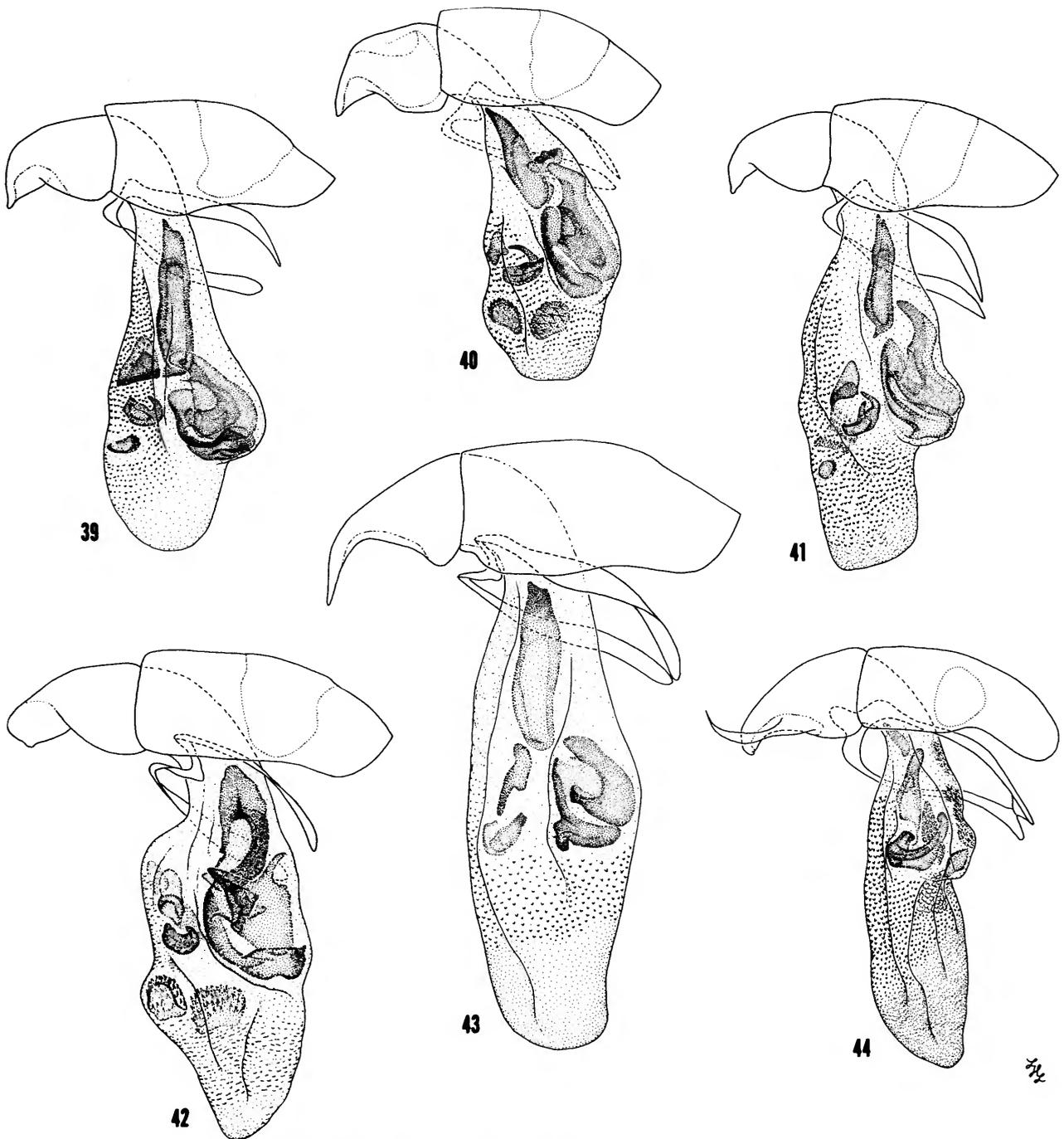
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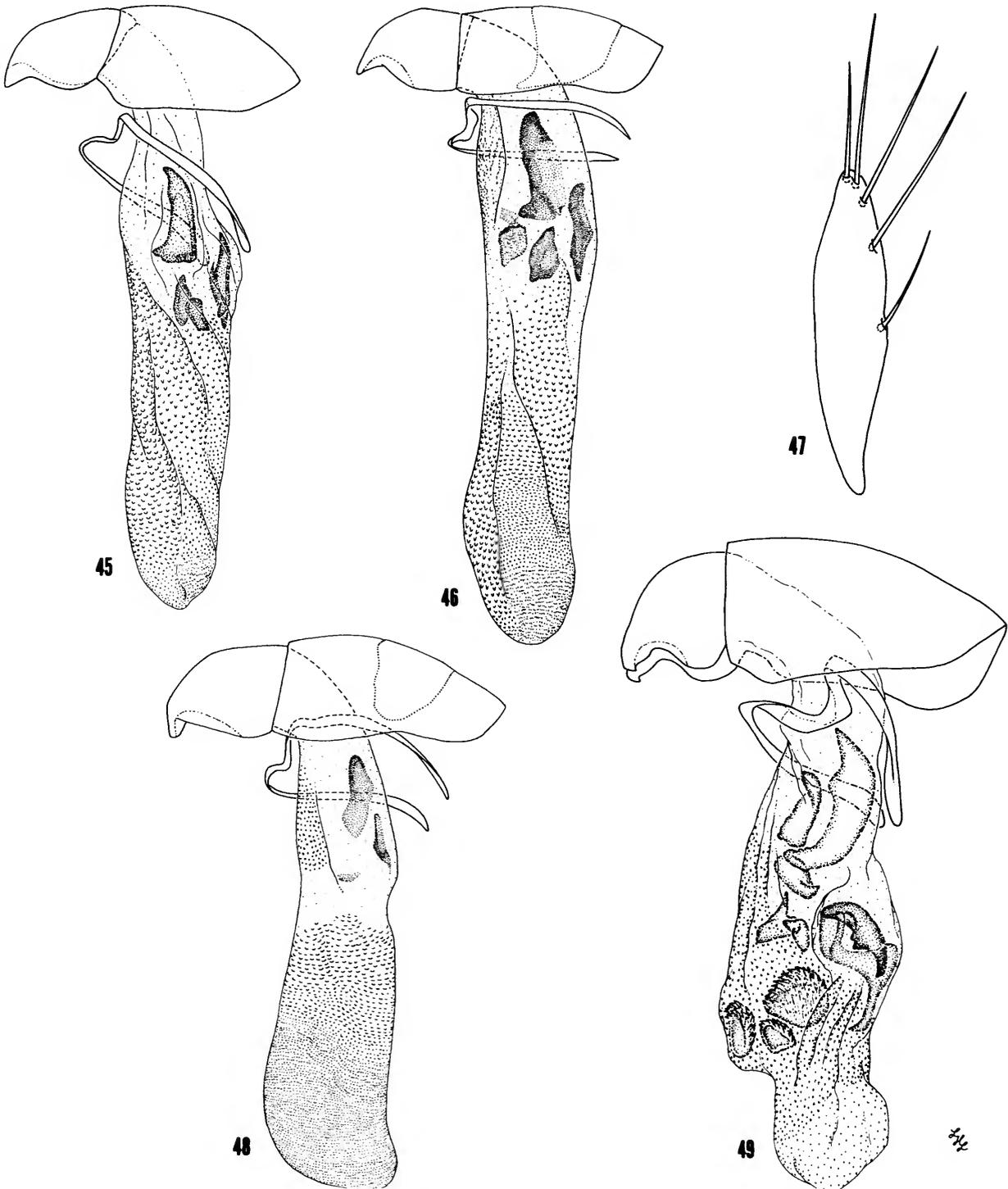
FIGURES 25-30.—Genitalia, male and female, respectively: 25, 28, *Aegialia magnifica* Gordon and Cartwright; 26, 29, *Aegialia crescenta* Gordon and Cartwright; 27, 30, *Aegialia hardyi* Gordon and Cartwright.



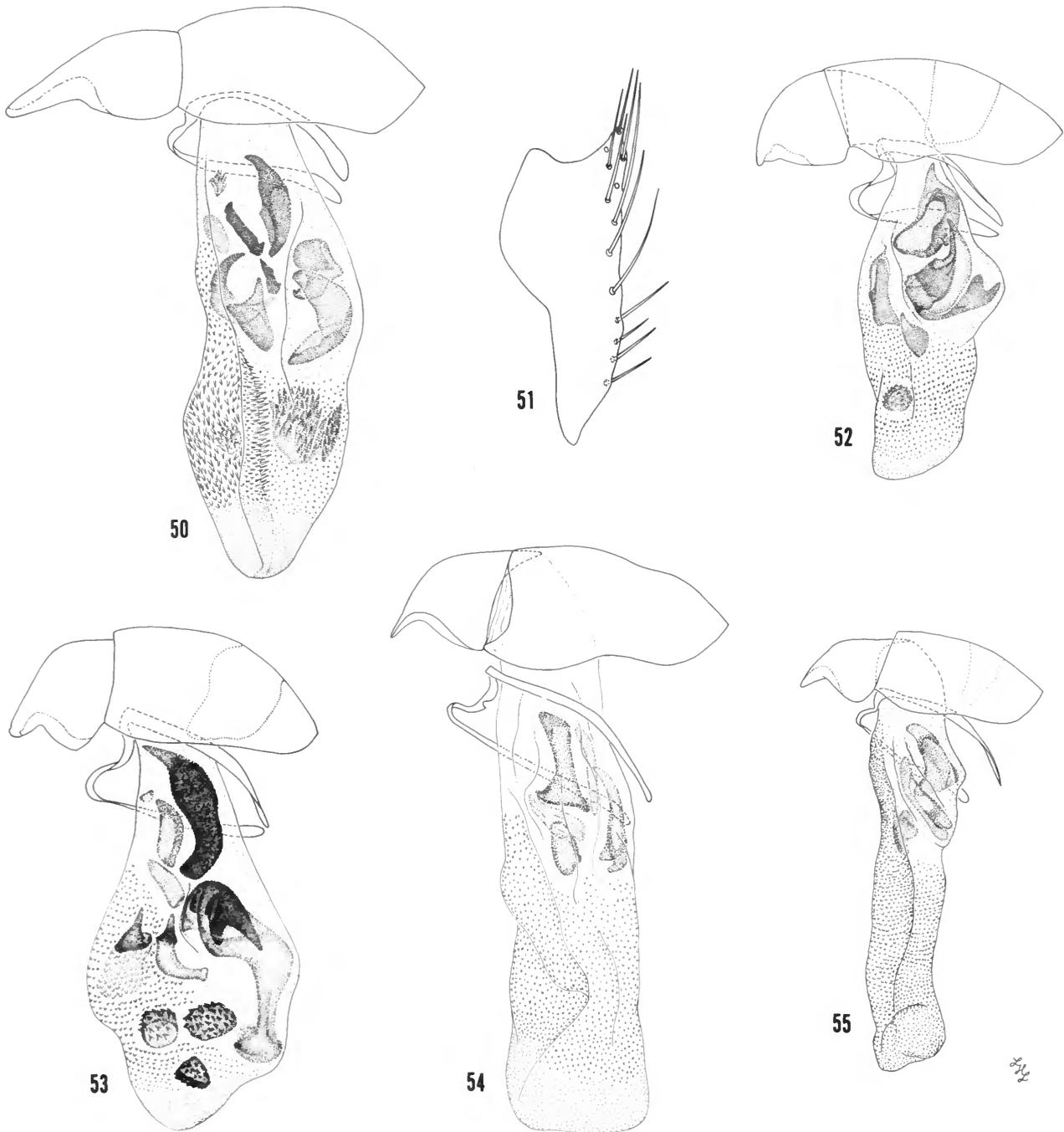
FIGURES 31-38.—Abdomens: 31, *Micraegialia pusilla* (Horn); 32, *Aegialia lacustris* LeConte. Male genitalia: 33, *Micraegialia pusilla* (Horn); 34, *Aegialia rufescens* Horn; 35, *A. humeralis* Brown; 36, *A. montana* Brown; 37, *A. browni* Saylor; 38, *A. lacustris* LeConte.



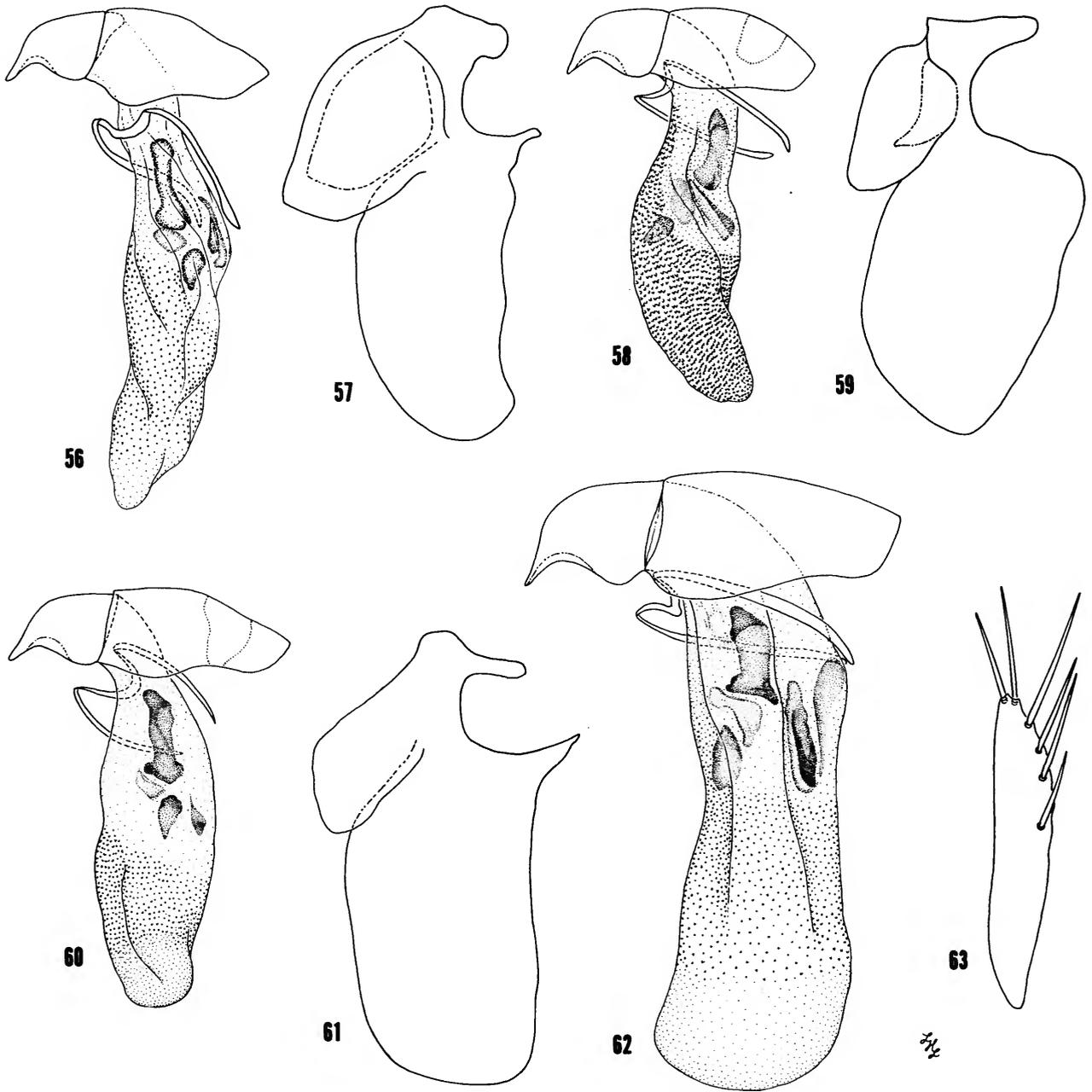
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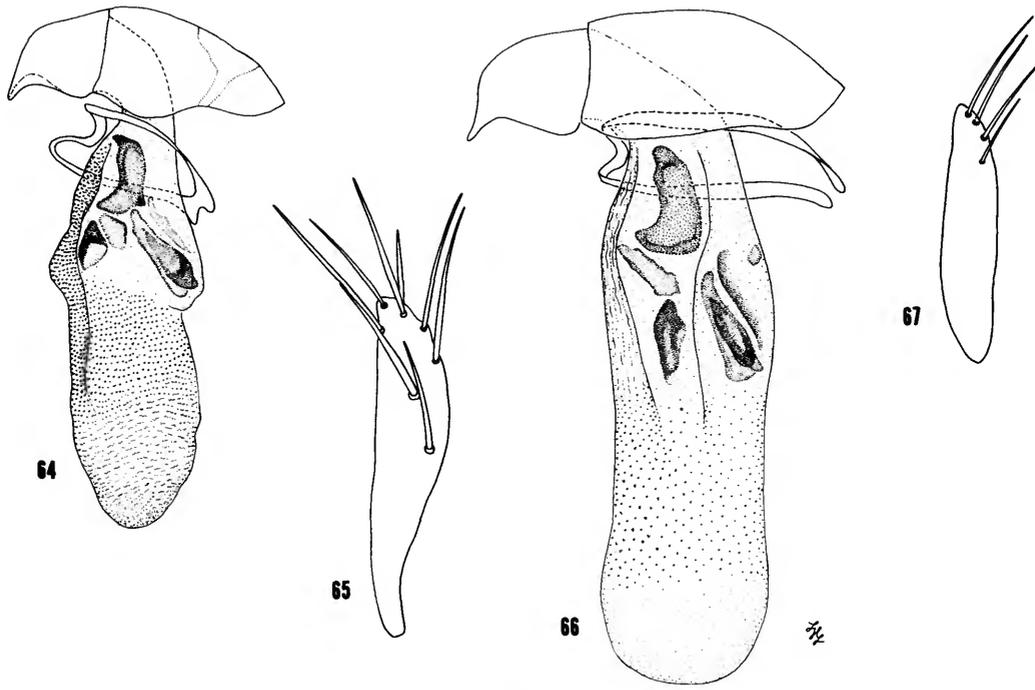
FIGURES 45-49.—Genitalia: 45, *Aegialia blanchardi* Horn; 46, 47, *A. carri*, new species, male and female, respectively; 48, *A. arenaria* (Fabricius); 49, *A. crassa* LeConte.



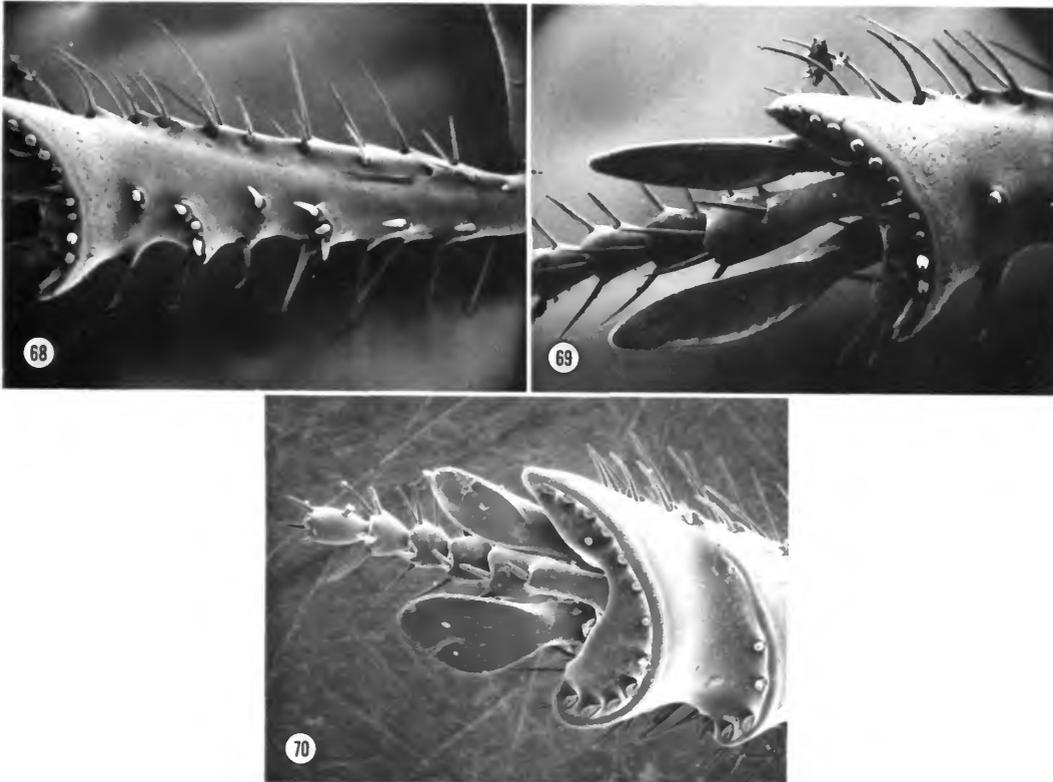
FIGURES 50-55.—Genitalia: 50, 51, *Aegialia concinna* Gordon and Cartwright, male and female, respectively; 52, *A. amplipunctata*, new species; 53, *A. latispina* LeConte; 54, *A. convexa* Fall; 55, *A. opifex* Horn.



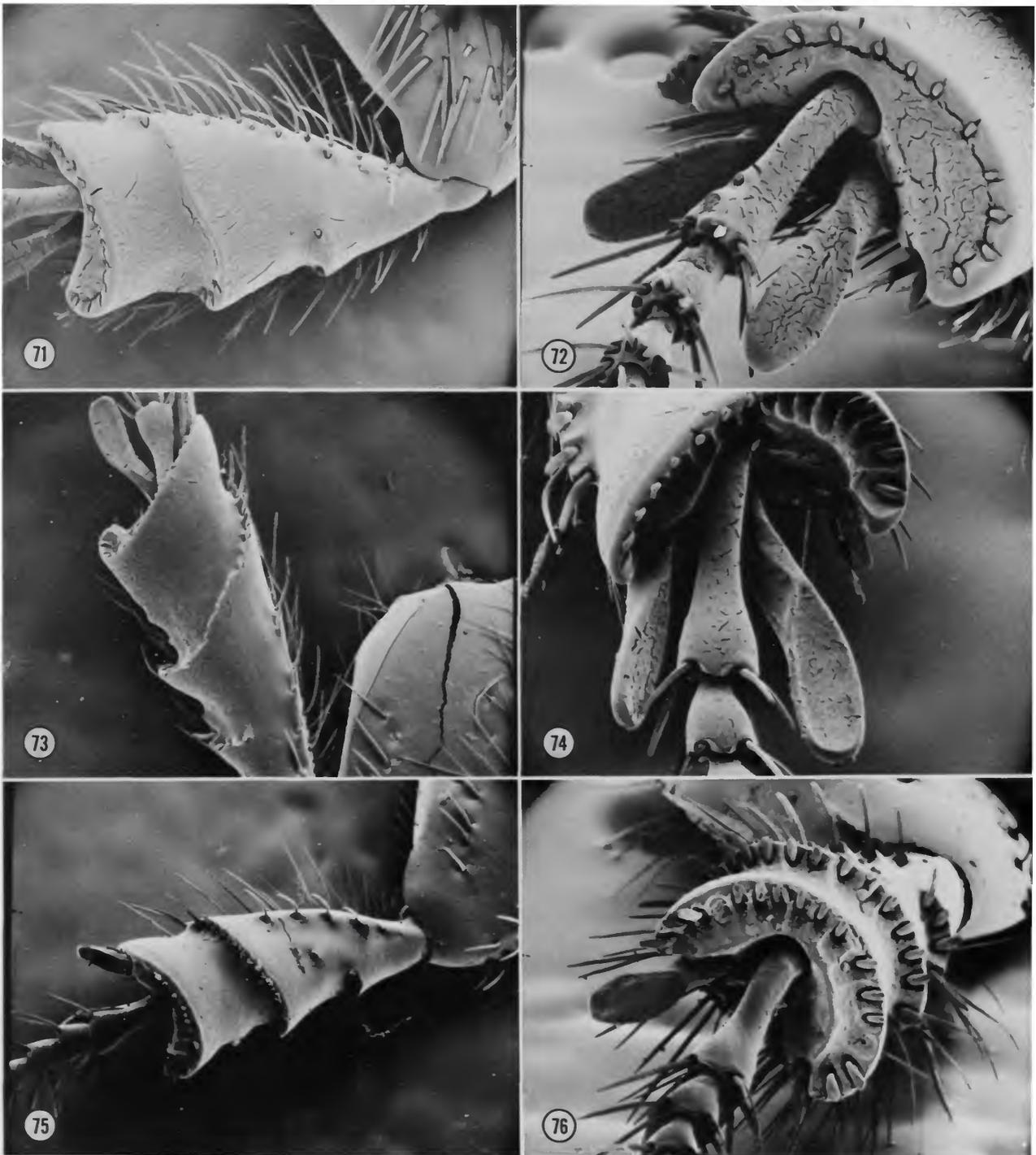
FIGURES 56-63.—Genitalia, male and female, respectively: 56, 57, *Aegialia conferta* Horn; 58, 59, *A. nigrella* Brown; 60, 61, *A. kelsoi*, new species; 62, 63, *A. punctata* Brown.



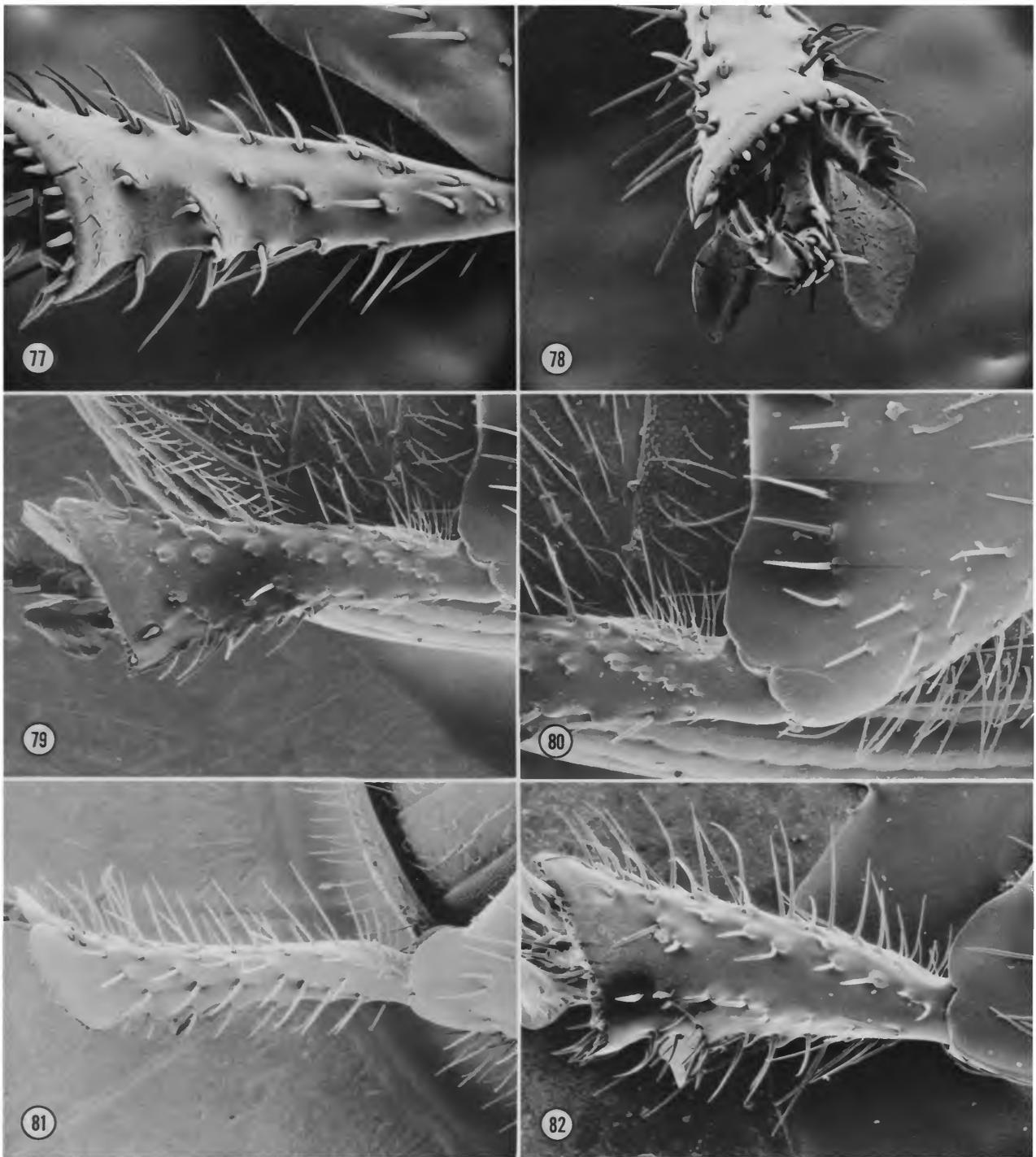
FIGURES 64-67.—Genitalia, male and female, respectively: 64, 65, *Aegialia cartwrighti* Stebnicka; 66, 67, *A. spinosa*, new species.



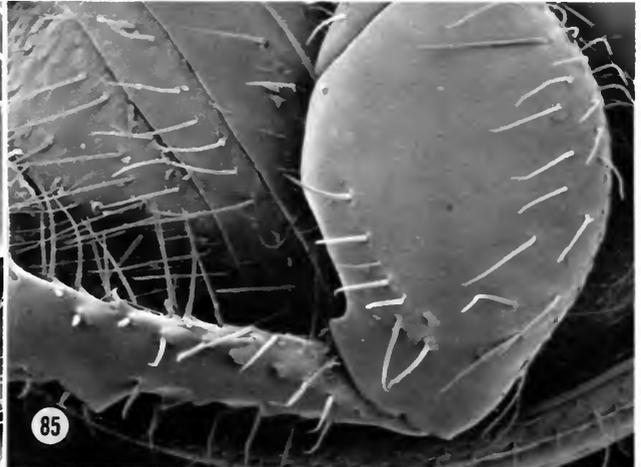
FIGURES 68-70.—Hindtibiae and spurs: 68, 69, *Aegialia blanchardi* Horn; 70, *A. arenaria* (Fabricius).



FIGURES 71-76.—Hindtibiae and spurs: 71, 72, *Aegialia magna* Gordon and Cartwright; 73, 74, *A. crescenta* Gordon and Cartwright; 75, 76, *A. hardyi* Gordon and Cartwright.



FIGURES 77-82.—Hindtibiae and femoral flanges: 77-80, *A. conferta* Horn; 81, *A. nigrella* Brown; 82, *A. kelsoi*, new species.



FIGURES 83-85.—Hindtibiae and femoral flanges: 83, *A. cartwrighti* Stebnicka; 84, 85, *A. spinosa*, new species.

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