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Revision of the Hawaiian Genus Labrocerus (Coleoptera: Dermestidae)

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ABSTRACT

The Hawaiian endemic genus *Labrocerus* Sharp is redefined. The genera *Argocerus* Sharp and *Eocerus* Sharp are placed in synonymy with *Labrocerus*. *L. vestitus* Sharp is assigned as the type of the genus. Three species are described as new: *L. auratus, L. producens, and L. argyroxiphii*. *L. simplex* Sharp is placed in synonymy with *L. concolor* Sharp; *L. affinis* Sharp and *L. pallipes* Sharp are placed in synonymy with *L. setosus* Sharp; *L. flavicornis* Sharp is placed in synonymy with *L. vestitus* Sharp; and *Argocerus subguttatus* Sharp is placed in synonymy with *L. similaris* (Sharp). Lectotypes are assigned for *L. moerens* Sharp, and *L. dasytoides* Sharp. Comments are offered on 4 described species for which inadequate information is available for redescription. Keys are provided to the species by island.

INTRODUCTION

The genus *Labrocerus* was erected by David Sharp in 1885 for three endemic Hawaiian species of Dermestidae. A number of additional species was collected by R. C. L. Perkins between the years 1892 and 1901. On the basis of Perkins' specimens, Sharp (1908) described 2 additional genera for 3 species found on Kauai and added 14 additional species to *Labrocerus*. No taxonomic studies of the group have been made since that time.

A study of the systematics of the genus is difficult because of the small number of specimens that have been collected for each species, in many instances too few to dissect for adequate comparison of characters found in the genitalia and mouthparts. A few species are represented by 30 or so specimens, but most are represented by fewer than 10, and of those that have been collected a number are in the Natural History Museum (London) and currently unavailable for study. Many defining external characters are found in the males. Sharp described four of his species from females only, making the application of his names problematic.

Biological data on the species is extremely limited. Of the few larvae that have been collected, only one is definitely associated with the species to which it belongs. This is the larva that Rees (1943) used in his description of the larva of *Labrocerus*.

Obviously, the information in the following analysis is far from complete. My hope is the study will provide a foundation for further investigations of the genus.

ABBREVIATIONS USED

BMNH —The Natural History Museum, London
BPBM —Collection of the Bernice P. Bishop Museum, Honolulu, HI
CASC —California Academy of Sciences, San Francisco, CA
CSUC —C. P. Gillette Museum of Arthropod Diversity, Colorado State University, Fort Collins
CUIC —Cornell University Insect Collection, Ithaca, NY
HDOA —Collection of the Hawaiian Department of Agriculture, Honolulu
CTAM —Collection of the University of Hawaii, Manoa
NMNH —U. S. National Museum of Natural History, Washington, D.C.

SYSTEMATIC POSITION OF THE GENUS

According to Zhantiev's (2000) cladistic-based analysis of higher categories within the family Dermestidae, only 3 subfamilies should be recognized: Dermestinae, Orphilinae, and Anthreninae. The Anthreninae include 4 tribes: Attagenini, Trinodini, Thylodriini, and Anthrenini. *Labrocerus* falls within the Anthrenini, a tribe which includes all the genera that Mroczkowski (1968) placed within the Megatominae and the Anthreninae. This includes such common genera as *Megatoma, Trogoderma, Cryptorhopalum,* and *Anthrenus*. The relationships of *Labrocerus* to other genera within the Anthrenini remains problematic and may not be clarified apart from a cladistic analysis that includes larvae and adults.

Labrocerus vestitus Sharp is herewith designated as the type of the genus. The species is represented by a reasonably large number of specimens.

DESCRIPTION AND DISCUSSION OF THE GENUS

LABROCERUS Sharp

Labrocerus Sharp, 1885:148. Rees, 1943:12.
Argocerus Sharp, 1908:411 NEW SYNONYMY.
Eocerus Sharp, 1908:412 NEW SYNONYMY

Type species: *Labrocerus vestitus* here designated.

Adult male.—Dorsal pubescence consisting of ordinary hairs, not scales. Median ocellus present. Scutellum visible. Antenna with 2 to 8 segmented club. Hypomeron transversely concave and without carina along posterior margin; medial margin not extended mediad to meet coxa, leaving trochantin of front leg exposed. Mesosternum grooved for reception of prosternal process. Metacoxa visibly meeting metasternal

epimeron; margins subparallel without posterior tooth. Anterior tibia without spines along shaft. Sternum of abdominal segment 8 with 2 well-sclerotized rods at middle of proximal margin; rods may be joined at proximal ends or not; posterior margin without median ornamentation; lateral margins without apophysis. Phallus with lateral lobes connected by sclerotized bridge; bridge placed at or beyond basal 2/3 of phallus.

Adult female.—External characters as male except that segments of antenna gradually enlarged to form club of 2 to 3 segments.

Members of the genus are readily recognized as dermestid beetles by the presence of a median ocellus, a small, deflected head that is retracted within the pronotum almost to the eyes, a clubbed antenna, and a hind coxa that is grooved for the reception of the femur. Species of *Labrocerus* are all elongate-oval, the length being roughly two times the width. The longest is under 4 mm and the smallest barely 2 mm. Among dermestid beetles of similar size and shape found in the Hawaiian Islands, it is likely to be confused only with a *Trogoderma*. Species of *Trogoderma* have the antenna at rest in a cavity on the underside of the pronotum (the hypomeron), which is bounded posteriorly by a thread-like carina. In *Labrocerus* the cavity is not bounded behind by a carina. Species of *Orphinus* are about 2 mm in length, but they are broadly oval and the antenna at rest is enclosed in a cavity in which the posterior side has a flat surface on the same plane as the anterior side.

It is probable that all the species considered here constitute a monophyletic group. As suggested by Mroczkowski (1968), Sharp's Hawaiian genera *Eocerus* and *Argocerus*, occurring on Kauai, should be synonymized with *Labrocerus*. This seems within reason, since (1) the range of differences separating species of *Eocerus* and *Argocerus* from *Labrocerus* is relatively small, and (2) characters that separate other genera within the Megatomini are quite constant in the Hawaiian species. Sharp based his divisions on differences in the structure of the male antennae, on the prominence of the prosternal process, and on the presence or absence of a groove in the mesosternum for reception of the process. Antennal structures vary greatly among species within genera of Dermestidae related to *Labrocerus*, so it is reasonable to suppose that such is also true of these species. The prosternal process of Sharp's *Eocerus depressus* is more arched than among species Sharp placed in *Labrocerus*, but as stated by Sharp it is not "obsolete." Sharp seems to have been in error in stating that in *Eocerus* "the slight groove on the mesosternum is not for the reception of the process but merely a guide to it during motion." The groove is definitely a sulcus similar to that of other species in the group.

Labrocerus depressus, for which Sharp erected the genus *Eocerus*, is somewhat unique among the species, particularly in the shape of the male phallus (Fig. 13). The aedeagus is more or less flat rather than strongly arched. By itself this does not argue for a separate origin for the species, since in the closely related genus *Trogoderma* an arched aedeagus and a relatively flat aedeagus are present in 2 otherwise nearly identical species (Beal, 1964). The lateral lobes of the phallus of *L. depressus* are broadly rounding rather than subparallel as in other species of *Labrocerus*, but again this seems to be a variable character among the Anthrenini.

BIOLOGY OF THE SPECIES

Published information on the biology of the genus is scanty at best. Perkins (1906) noted that the specimens he collected on Tantalus, Oahu, were "usually found in company with the anobiid *Xyletobius*." O. H. Swezey found a larva among the adhering dead leaves of a dying silversword plant. The larva was sent alive to H. S. Barber of the NMNH, who reared it to maturity. It is a specimen of the species described below as *L. argyroxiphii* n. sp. I collected a larva under bark of a *Prosopis* at Kailua, Hawaii, in what appeared to be the nest of a salticid spider. I took 2 larvae about 6 feet above the ground under bark of an *Acacia koa* tree growing near the summit of the cinder cone Kipuka Puaulu near Pohakuloa, Hawaii. There were spider nests under the bark, but I was unable to determine if the larvae were associated with the nests. Wayne Gagne and I found an adult and some larvae of *L. laticornis* Sharp in a salticid spider nest beneath the bark of a *Metrosideros* tree about 7 m above the ground in the Kau Forest Reserve, Hawaii. Unfortunately, the larvae were lost trying to recover them while keeping a secure grip high up on the trunk. I collected a larva in a *Sceliphron* mud dauber wasp nest at Kalihiwai, Kauai. The cell contained a dead adult wasp on which the larva was feeding. These findings suggest that at least some of the species are scavengers on dead insect remains in sheltered habitats. A number of other species among the Anthrenini exploit similar habitats. On the other hand, I placed a number of traps baited with dried milk, bone meal, fish meal, whole wheat flour, and yeast, a mixture in which *Trogoderma* and other dermestid beetles will oviposit, in a number of locations on Kauai and Hawaii including such places as tree holes, sheltered habitats near bird nests, and the like, but no *Labrocerus* were attracted to them.

Probably adults of all the species are able to fly, since the hind wings are well-developed on those species I have been able to dissect, and adults of some species are found on flowers. Flowering plants on which adults have been taken are listed with the description of each species below.

DISCUSSION OF TAXONOMIC CHARACTERS

Some species have a flat pronotal lobe in which the surface is on the same plane as the surface of the adjacent base of the pronotum. Among species with this character, most have a small, impunctate area or short, shallow depressed area between the lobe and the base of the pronotum. Most also have a very slight, shallow, transverse depression between the lobe and the disc of the pronotum. Other species have a pronotal lobe that is slightly raised above the basal surface of the pronotum (a "prominent" lobe), and the lobe itself is more or less convex. Most of these species have a shallow groove separating the base of the pronotum from the lobe, a depression that extends onto the disc of the pronotum. Observing the differences between the two characters is important for using keys to the species. *Labrocerus argyroxiphii*, a new species from Maui, has a very slightly raised pronotum, and in some specimens the lobe is so nearly on the same plane as the surface of the pronotum that it is easily confused

with a "flat" lobe. Fortunately, the species can be distinguished from similar species on Maui using other characters. Punctation of the disc of the pronotum has some value in discriminating among a few species and has been included in the descriptions of the species. Some species also differ in the punctation of the frons, but this is difficult to observe and has not been included in the descriptions.

One species, *L. vestitus*, Sharp clearly has duplex dorsal setae, some setae being erect or nearly so and other setae being recumbent or nearly so. Most other species have dorsal setae that are all clearly suberect or subrecumbent, but a few seem to have a mixture of partially suberect and subrecumbent setae. A species is described as having duplex setae only if the setae are obviously strongly differentiated.

Some characters distinguishing species are found in the male antennae. The relative length of the antenna is sometimes of importance, but because the antenna is usually curved in preserved specimens it is difficult to measure. (The only exceptions are card-mounted specimens with the antennae extended!) As a standard I have used the distance the antenna attains when in repose, but unfortunately in many preserved specimens the antennae are not in a normal reposed position. The length of the terminal segment relative to segment 10 varies considerably in some species but may be of value in others. The width of segment 4 relative to segment 3 is of some value but is difficult to observe. Sharp used the width of the segments in defining some of his species. Measurement of width relative to length of segment 11 in *L. setosus* Sharp shows a fairly strong correlation, but the correlation is such that the width decreases in proportion to the length. Whether this is true in other species is not known, but it leads to doubt concerning its practical usefulness.

Some differences are found between the male genital tubes of species that have been dissected. The genital tube consists of abdominal segments 8 and 9, the phallobase, and the phallus with its lateral lobes and aedeagus. When not extended these are telescoped within morphological segment 7 (the visible terminal segment of the abdomen). In many Dermestidae, particularly in the Anthreninae, abdominal sternum 8 is variously ornamented and the differences are of value in distinguishing species. In *Labrocerus* the only differences in the sternum I have observed are in the 2 basal apodemes, which may be separated or united proximally. The lateral lobes and the aedeagus exhibit some small differences among species of *Labrocerus*, particularly in the shape of the aedeagus, which may be strongly arched or nearly flat and which may be wide or narrow with some differences in the apex. How consistent these differences are within each species is problematic, since I have not had series available for dissection. Attached to the ventral side of the aedeagus near the apex is a slender apodemal process. In some species this is sclerotized in part and is shown in some of the drawings (e.g., Figs. #22, 23). In others it is unsclerotized.

Females of a few dissected species showed differences in the paired sclerites of the bursa copulatrix. Insufficient numbers of females have been available for dissection to evaluate the significance of the character across the genus.

The length of a specimen is the total length of the pronotum and elytra. Measurement of width is made across the humeri of the elytra. Within each species females tend to be slightly wider than males, but the ratio of width to length of males and females is in broadly overlapping ranges. A few species can be distinguished by differences in the ratios of width to length, but it is not a particularly useful character.

KEY TO SPECIES BY ISLAND

A NIHOA AND NECKER ..... *L. auratus*

B KAUAI

1 Pronotal lobe transversely convex and slightly higher than basal surface of pronotum; basal of pronotum gently rounding without slight depression before apex of lobe **2**

— Pronotal lobe with surface more or less flat and on same plane as basal surface of pronotum; pronotum along middorsal line becoming flat on basal 1/3, sometimes with slight concavity near basal lobe **3**

2 Dorsal setae golden brown. Pronotal lobe on same plane as disc and base of pronotum. Punctures of disc of pronotum easily visible under 20x magnification. Male antenna with long terminal segment, segment 10 about 1/16 as long as segment 11 (Fig. 10); female antenna with 2-segmented club; segment 10 about 1/4 as long as segment 11 ..... ***L. depressus***

— Dorsal setae consisting of dark brownish black and white hairs. Pronotum with lobe somewhat laterally convex; punctures of disc of pronotum minute and difficult to observe with 60x magnification. Male antennal club 8-segmented; segment 10 1/3 times as long as segment 11. Female antennal club 3-segmented ..... ***L. moerens***

3 Male antenna with 2-segmented club; segment 9 very short and not quite as wide as segment 10 (Fig. 12). Midline of basal of pronotum very slightly and evenly convex without transverse depression. Specimens not known to be over 2.6 mm in length ..... ***L. similaris***

— Male antennal club of 8 segments; segment 11.4 times as long as segment 10. Pronotum with slight transverse depression in front of lobe. Known specimens 2.7 mm in length or longer... ..... ***L. dasytoides***

C OAHU

1 Dorsal surface brown or dark brown with conspicuous yellowish maculae on elytra **2**

— Dorsal surface entirely black. (Species probably extinct) ..... ***L. curticornis***

2. Pronotal lobe with surface more or less flat and on same plane as basal surface of pronotum; pronotum along middorsal line becoming flat on basal 1/3, usually with slight concavity near basal lobe ..... ***L. setosus***

— Pronotal lobe transversely convex and slightly higher than basal surface of pronotum; midline of pronotum on basal of pronotum gently rounding without slight depression before base ..... ***L. producens***

D MOLOKAI

1 Integument of dorsal surface entirely black; pronotal lobe with surface more or less flat and on same plane as basal surface of pronotum; pronotum along middorsal line becoming flat on basal 1/3, usually with slight concavity near basal lobe ..... ***L. laticornis***

— Integument of dorsal surface brown to dark brown with conspicuous yellowish maculae on elytra. Pronotal lobe transversely convex and slightly higher than basal surface of pronotum; midline of pronotum gently rounding without slight depression before base ..... ***L. setosus***

E LANAI ..... ***L. producens?*** (See discussion of species)

F MAUI

1 Pronotal lobe transversely convex and slightly higher than basal surface of pronotum; midline of pronotum on basal gently rounding without slight depression before apex of lobe; if some question, then elytra immaculate. Elytra with or without light maculae in integument **2**

— Pronotal lobe with surface more or less flat and on same plane as basal surface of pronotum; pronotum along middorsal line becoming flat on basal 1/3, usually with slight transverse concavity near basal lobe. Dorsal surface black or brown with yellowish or reddish maculae ..... *L. quadrisignatus*

2 Elytra brown to black with yellowish or reddish maculae ..... ***L. jaynei***

— Elytra unicolorous brown to black ..... ***L. argyroxiphii***

Species described from Maui but not keyed are *L. obsoletus* and *L. suffusus*. See "Species with inadequate information for redescription."

H. HAWAII

1 Dorsal integument brownish black with reddish yellow maculae ..... ***L. obscurus***

— Dorsal integument unicolorous dark brown or black **2**

2 Pronotal lobe transversely convex and slightly higher than basal surface of pronotum; midline of pronotum on basal gently rounding without slight depression before apex of lobe **3**

— Pronotal lobe with surface more or less flat and on same place as basal surface of pronotum; pronotum along middorsal line becoming flat on basal 1/3, usually with slight depression before base ..... ***L. vestitus***

3 Integument of elytra brown to dark brown. Golden brown setae forming pronounced subbasal and subapical fasciae ..... ***L. laticornis***

— Integument of elytra black. Golden brown setae usually forming barely discernable subbasal and subapical fasciae ..... ***L. concolor***

DESCRIPTIONS AND DISCUSSIONS OF SPECIES

Labrocerus auratus n. sp.
Figure 24

Holotype male.—Integument of head and pronotum piceous; elytra dark brown with reddish yellow fasciae; venter dark brown; antennae and legs yellowish brown. Dorsal pubescence simplex, subrecumbent, golden on head, pronotum, sides of elytra, and on elytral fasciae; pubescience brown on areas of dark maculation. Antenna configured as illustrated (Fig. 7), extending in repose about as far as basal 1/6 of metasternal episternum; setae of club dark golden brown. Pronotum with punctures of disc craterform; craters equal to 1.25 times diameter of facet of eye and separated by 0.5 to 1.5 times diameter of single crater. Pronotal lobe more or less prominent, convex, and slightly raised above level of basal margin of pronotum on either side of lobe. Elytron with subbasal fascia in O-shape; subapical fascia oblong. Abdominal sternum with basal apodemes not joined at base (as in Fig. 3). Phallus with aedeagus strongly arched; apex of aedeagus bent proximad with short apical spine; phallotreme slightly proximad of apex as illustrated (Fig. 24).

Length 2.6 mm.; width 1.4 mm.

Allotype female.—External characters as male except as follows: Antennal club 2-segmented with segment 9 about 0.75 as wide as segment 10. Length 3.0 mm; width 1.6 mm.

Range of observed variations.—Dorsal integument light brown to black. Elytron with subbasal ochreous macula somewhat U-shaped or with ochreous area extending across basal margin to form O-shaped macula; subapical macula extending from basal 3/5 to basal 4/5 or elongated and extending from middle to apical margin. Ratio of width to length varying from 1:1.76 to 1:1.89. Length of males varying from 2.4 mm to 2.9 mm.

Holotype male, allotype female, and 2 paratypes: Nihoa: Miller Peak, 850 feet elev., 24-IX-76, on *Euphorbia celastroides* (J. W. Beardsley). Additional paratypes: NIHOA: 23-IX-1964, on *Chenopodium oahuensis* (4, J. W. Beardsley); Ibid., 14-VI-23, on *Sida* sp. (2, E. H. Bryan, Jr.); Ibid., 15-VI-23, on *Euphorbia* (1, E. H. Bryan, Jr.); Ibid., 13-VI-23 (2, E. H. Bryan, Jr.); Ibid., 16-VI-23 (1, E. H. Bryan, Jr.). NECKER: 20-VI-23 (3, E. H. Bryan, Jr.). Holotype, allotype and 4 paratypes in BPBM; additional paratypes in CTAM, CASC, CSUC, CUIC, NMNH.

Etymology.—*Auratus* is a Latin adjective meaning "golden." It refers to the overall golden appearance of the species.

Diagnosis.—This is the only known species of the genus on Nihoa and Necker Islands. It is quite similar to *L. obscurus* on Hawaii, from which it differs in having the subbasal elytral fascia extending basad along the suture. Based on a few dissections, the phalli of the 2 species differ in the shape of the apex of the aedeagus (Figs. 20, 24).

Discussion.—The species is closely allied to *L. obscurus* in having a relatively broad body, similar male antennal configuration, craterform punctation of head and pronotum, and convex pronotal lobe. It differs

from *L. obscurus* in having the subbasal elytral fascia strongly produced along the suture. In *L. obscurus* there is a diagonal band from the humerus to the basal 2/5, but the fascia is not reflexed forward along the suture.

The 3 females collected by Bryan on Necker I. appear identical and are assigned to this species.

Labrocerus obscurus Blackburn
Figures 3, 20

Labrocerus obscurus Blackburn, 1885:1949; Sharp, 1908:408.

Adult males.—Dorsal integument mahogany brown to piceous, rarely with pronotum reddish and rarely with elytra reddish at base next to scutellum; elytra with reddish subbasal and subapical fasciae. Pubescence of dorsal surfaces simple, subrecumbent; hairs dark golden brown and light golden. Head with antenna extending in repose to about basal 1/6 of metasternal episternum; antennal club 7-segmented (configuration essentially identical to that of *L. auratus*, Fig. 7). Pronotum with punctures of disc craterform, craters about 1 1/3 times diameter of facet of eye and separated by 0.5 to 1.5 times diameter of single crater. Pronotum with golden hairs on lateral margins and base. Pronotal lobe more or less prominent, convex, and raised above level of basal margin on either side of lobe. Elytron with subbasal and subapical fasciae; subbasal fascia extending obliquely posteriad from humerus and turning mediad at about basal 1/3, not attaining suture and not extending anteriad along suture; fasciae covered with golden hairs. Morphological sternum 8 with basal apodemes not joined at base (Fig. 3). Phallus as illustrated (Fig. 20); apex of aedeagus spatulate.

Length varying from 2.0 to 2.6 mm. Ratio of width to length varying from 1:1.70 to 1:1.81.

Adult females.—External characters as males except as follows: Antennal club 3-segmented with segment 11 about 0.9 times as wide as long. Length varying from 2.3 mm to 3.0 mm.

Distribution: The holotype in the BMNH is from Hawaii, Mauna Loa at about 6,000 ft. elev. New records: Hawaii: Humuula, Pohakuloa, 31-VII-36 (2, E. H. Bryan, Jr.); 31-VII-35 (1, E. H. Bryan, Jr.); 31-VII-35 (9, R. L. Usinger); 7-VIII-46 (5, E. C. Zimmerman); Pohakuloa, 6,000 ft, 2-VI-66 (1, J. W. Beardsley); 15-VII-61 (6, F. A. Bianchi); 15-VIII-54 (1, J. W. Beardsley).

Diagnosis.—This is most similar to *L. auratus* on Nihoa and Necker Islands. The most obvious difference is that in *L. obscurus* the diagonal subbasal elytral fascia is not recurved along the suture to the base.

Discussion.—The type is in poor condition. There seems to be little problem identifying the specimens listed above with this species, since there is no other known species on the Island of Hawaii with light-colored fasciae in the integument of the elytra.

Biological data: Adults have been collected on *Euphorbia* sp. (Euphorbiaceae), *Myoporum* sp. (Myoporaceae), and *Sophora* sp. (Fabaceae).

Labrocerus jaynei Sharp
Figures 2, 4, 19

Labrocerus jaynei Sharp, 1885:148; Sharp, 1908:408.

Adult males.—Dorsal integument dark reddish brown to black with yellowish to reddish maculae on elytra; ventral integument reddish brown to black and legs light brown to reddish brown. Dorsal pubescence simplex, suberect; hairs golden and dark brown to piceous; golden hairs covering head, pronotum, elytral areas of light maculation, and at times lateral margins of elytra; dark hairs covering darkly pigmented areas of elytra. Antenna in repose attaining middle of metasternal epimeron or beyond; club of 8 segments; segment 4 1.5 to 2x as wide as segment 3; ratio of length of segment 10 to segment 11 approximately 1:5 (Fig. 4). Pronotum with lobe convex and elevated above level of basal margin of pronotum; punctation of disc simple to feebly crateriform with individual punctures about equal in diameter to facet of eye and separated by 3 to 5 times diameter of single puncture. Elytron with subbasal fascia narrow, extending obliquely from humeral angle nearly to median suture; band of more or less even length throughout; band not produced anteriad along suture; small spot of light maculation sometimes present adjacent to scutellum. Pronotum with lobe convex and raised above level of basal margin of pronotum on either side of lobe. Sternum of abdominal segment 8 with proximal apodemes joined at base (Fig. 2). Phallus with aedeagus strongly arched; apex of aedeagus lanceolate (Fig. 19)

Length ranging from 2.5 mm to 3.3 mm. Ratio of width to length varying from 1:1.93 to 1:2.15.

Adult females.—As males except that antennal club 3-segmented with segments 7 and 8 progressively expanded. Length ranging from 3.1 to 3.5 mm.

Recorded distribution.—MAUI: Haleakala, 5,000 ft. elev.; Olinda, 3,000-4,000 ft. elev. New records are the following: MAUI: Auwahi, 18-IV-67 (3, N. L. H. Krauss); Haleakala, Waikamoi N.C.P., Maile Rd., 1470 m elev. (14, J. K. Liebherr). Specimens deposited in the collections of BPBM, CSUC, and CUIC.

Diagnosis.—The species is distinguished from all other members of the genus on Maui except *L. obsoletus* by having a prominent basal pronotal lobe and light-colored subbasal and subapical maculae in the integument of the elytra. The elytra of *L. obsoletus*, described from Maui, are said to be almost entirely ochreous with the median suture and basal margin piceous.

Biological data.—Specimens have been collected on *Osmanthus* sp. (Oleaceae) and by pyrethrum fog of an *Acacia koa* (Fabaceae) tree trunk.

Labrocerus producens n. sp.
Figure 16

Holotype male.—Dorsal integument dark reddish brown with yellowish maculae on elytra; ventral surface and legs medium reddish brown.

Dorsal pubescence simple, suberect; hairs light golden and piceous; light golden hairs covering head, pronotum, and areas of light maculation on elytra. Antenna in repose attaining basal 2/3 of metasternal epimeron. Club of 8 segments; segment 4 about 1.5x as wide as segment 3; segment 11 being 6 times as long as segment 10. Pronotum covered with mostly light golden pubescence; lobe convex and elevated above level of basal margin of pronotum; punctation of disc simple with individual punctures about equal in diameter to facet of eye and separated by 3 to 5 times diameter of single puncture. Elytron with subbasal fascia broad, extending diagonally from humeral angle nearly to median suture at middle of elytron and reflexed anteriad in narrow line along median suture to base; subapical fascia large, subcircular, extending from near suture to lateral 1/5 of elytron. Sternum of segment 8 with proximal apodemes joined at base. Phallus with aedeagus strongly arched; apex of aedeagus acute (Fig. 16).

Length: 2.8 mm; width 1.4 mm.

Allotype female.— As males with following differences: antennal club 3-segmented; segment 11 3x as long as segment 10. Subapical fascia of elytron somewhat smaller, extending to lateral 1/4.

Length: 3.4 mm; width 1.6 mm.

Range of observed variations.—Length of males ranging from 2.5 mm to 3.0 mm. Length of females ranging from 2.9 mm. to 3.4 mm. Ratio of width to length varying from 1:1.98 to 1:22.

Holotype male.—OAHU: Waianae Mts. VI-53 (E. J. Ford, Jr.) plus 1 paratype deposited in BPBM and 1 paratype in HDOA. Allotype female: Haleauau, Oahu, 28-IV-35 (O. H. Swezey) deposited in HDAC. Paratypes as follows: Oahu: Haleauau, 28-IV-98 (1, O. H. Swezey); Makaha Valley, east side, 800 m., 19-VI-72 (1, W. C. Gagne); Mt. Palikea, 30-III-58 (1, Weldon Wong); Puu Kalena, 19-IV-31 (2, O. H. Swezey); Puu Kaua, 22-VI-24 (1, O. H. Swezey); Puu Kaua, 22-VI-24 (1, O. H. Swezey); Tantalus, 1,300 feet elevation, ?-XI-05. Paratypes deposited in BPBM, CASC, CSUC, HDAC, NMNH.

Etymology.—producens is a Latin participle used in apposition meaning "extended," referring to the extension of the subbasal elytral fascia along the suture to the base.

Discussion.—Except for sexual differences and expected size variations, the specimens listed above are remarkably uniform among themselves. They differ consistently from *L. jaynei* in the character of punctation on the frons, which is simple rather than craterform, and in having the subbasal elytral fascia broader and produced anteriorly along the suture to the base.

Sharp recorded *L. jaynei* from Lanai. Two specimens from Lanai that I have examined appear similar to *L. producens*, but are not included in the type series with the species. A longer series is needed for some degree of confidence. Specimens have the following data: Awehi Gulch, 850 m. elev., 6-VI-71 (W. C. Gagne). Sharp listed *L. jaynei* as occurring on Lanai as well as Maui.

Biological data.—The species has been taken on *Antidesma* sp. (Euphorbiaceae), on *Morinda trimera (Rubiaceae)*, and on *Pelea* (= *Melicope*) (Rutaceae).

Labrocerus moerens Sharp
Figures 5, 26

Labrocerus moerens Sharp, 1908:406

Adult males.—Dorsal integument immaculate, dark reddish brown to black; ventral surfaces and legs dark reddish brown to black. Dorsal pubescence simplex, subrecumbent; hairs white with slight golden cast and dark golden brown to piceous. Antenna in repose extending as far as basal of metasternal episternum; club 8-segmented (Fig. 5). Pronotum with lobe convex and elevated above level of basal margin of pronotum; disc shining with punctures simple, minute, about size of facet of eye and separated by 3 to 5x diameter of single puncture; pronotal lobe more or less prominent, convex, and raised above level of basal margin of pronotum on either side of lobe. Elytra with pale hairs forming indistinct basal band, diagonal subbasal band, and subapical band. Sternum of abdominal segment 8 with proximal apodemes joined at base. Phallus with aedeagus narrow, strongly arched; apex of aedeagus flat dorsoventrally (Fig. 26).

Length ranging from 2.5 mm to 3.5 mm. Ratio of width to length varying from 1:1.96 to 1:2.10.

Adult females.—As male except as follows: antennal club gradually expanding beginning with slightly expanded segment 7. Length varying from 2.6 mm to 3.3 mm.

Lectotype of *L. moerens* herewith designated as male specimen on same card with female specimen in BMNH, the card having in writing, "Types D.S. Kauai Perkins. 528" The pin bears a circular, red type label and a printed label, "Koholuamano, Kauai, 4,000 ft. Perkins iv.1895," and a label indicating BMNH No. "Sandwich Is. 1912-215." The female specimen is designated as the allolectotype.

Recorded distribution.—KAUAI: in addition to type locality, Halemanu, 4,000 ft.; Mts. Waimea, 4,000 ft.; "high plateau." *New records*: Trail, Kalalau, 23-VI-32 (1, O. H. Swezey); near Kokee, 11-VII-37 (1, E. C. Zimmerman); Kumuwela, 15-VI-52 (1, O. H. Swezey); Ibid., 29-VI-32 (2, O. H. Swezey).

Diagnosis.— This species is quite similar to *L. concolor* Sharp and *L. laticornis* Sharp on Hawaii. *L. moerens* has simple punctures on the frons rather than minutely craterform punctures and has a longer male antennal club than does *L. concolor* and *L. laticornis.* Whether the length of the antennal club is a consistent character is difficult to say without longer series of each.

Discussion.—Labrocerus moerens and *L. concolor* are obviously very close. Whether the observed differences between the male phalli of each are consistent cannot be determined without longer series. The card in the BMNH with 2 specimens and the writing, "Types D. S. Hawaii. Perkins 532," and with a circular red type label and printed label, "Koholuamano. Kauai. Perkins iv. 1985," is this species and is not *L. gravidus.* Apparently the type designation is an error made by a curator. See discussion of *L. gravidus.*

Biological data.—The species has been taken on a *Metrosideros* tree

(Myrtaceae), on *Straussia* sp. (Rubiaceae), and on *Sideroxylon* sp. (Sapotaceae). No other information on its biology is available.

Labrocerus laticornis Sharp
Figures 6, 17, 25

Labrocerus laticornis Sharp, 1908:408.

Adult males.—Dorsal integument immaculate dark reddish brown to black; ventral surfaces and legs medium reddish to dark reddish brown. Dorsal pubescence entirely subrecumbent; hairs dark golden-brown to piceous and white with slight golden cast. Antenna in repose extending as far as basal 1/3 of metasternal episternum; antennal configuration as illustrated (Fig 6). Pronotum with pale setae distributed along anterior margin, on baso-lateral angles, and on lobe; disc with punctation minutely and shallowly craterform, punctures about as large as facet of eye and separated by 3 to 4x diameter of single puncture, although craters separated by 1 to 2x diameters of crater; lobe convex and elevated above level of basal margin of pronotum; pronotal lobe more or less prominent, convex, and raised above level of basal margin on either side of lobe. Elytron with pale setae along basal margin; setae forming diagonal band from humerus to suture, and large diagonal patch at apical quarter. Sternum of abdominal segment 8 with proximal apodemes joined at base. Aedeagus strongly arched, slender, with simple apex (Figs. 17, 26).

Length (of single male observed): 3.0 mm; width: 1.5 mm.

Adult females.—As male except as follows: Antennal club gradually expanding beginning with slightly expanded segment 6. Lengths ranging from 3.0 mm. to 3.7 mm. Ratio of width to length varying from 1:1.88 to 1:2.03.

Distribution.—The only record is that of the holotype male in the BMNH from the Molokai Mts., Molokai. New records are the following: HAWAII: Hilea Gulch, Kau Forest Reserve, 2,000 ft. elev., 8-I-71 (1, R. S. Beal and W. C. Gagne); Kilauea, 27-VI-17 (1, O. H. Swezey); *Ibid.*, 5-VIII-19 (1, O. H. Swezey); same but dry forest, 1-VIII-11 (6, W. M. Giffard); same but Koa forest, 3-V-05 (1, F. W. Terry); same but edge Koa forest, "May 24" (1, F. W. Terry); S. Kona, 11-VIII-19 (1, O. H. Swezey); Pohakuloa, 30-V-47 (1, N. L. H. Krauss).

Diagnosis.—Of those species with a prominent pronotal lobe and immaculate integument, this is closely similar to *L. moerens* on Kauai and *L. concolor* on Hawaii. *L. moerens* is quite similar to *L. laticornis*. The two can be distinguished by the shining integument of the pronotum of *L. moerens* and the less shining pronotal integument of *L. laticornis*, the latter being the consequence of each puncture being in a shallow crater. Evidence for considering *L. laticornis* and *L. concolor* distinct is found in the slender aedeagus of *L. laticornis* (Fig.17) and the distinctly broader aedeagus in *L. concolor* (Fig. 21).

Discussion.—I am unable to find any consistent external differences between the type specimen of *L. laticornis* taken on Molokai and specimens taken on Hawaii. Pending further evidence, the specimens must be considered conspecific.

Biology.—The specimen taken by Wayne Gagne and myself was found along with several larvae in a salticid spider nest under bark of a *Metrosideros* tree about 7 m above ground. Although we looked under bark of a large number of *Metrosideros* trees at ground level, this was the only collection made. No other information on the biology is available.

Labrocerus concolor Sharp
Figures 21, 27

Labrocerus concolor Sharp, 1885:149.—Sharp: 1908:407.
Labrocerus simplex Sharp, 1908:407 (NEW SYNONYMY)

Adult males.—Dorsal integument uniformly black; ventral integument and legs dark reddish brown to black. Dorsal pubescence simple, subrecumbent; hairs piceous to black and golden-white hairs; rarely without golden white hairs. Antenna in repose barely reaching basal 1/5 of metepisternum; segments 3 and 4 not expanded; segment 4 about 1.2x wider than segment 3; (club appearing to begin with segment 5); segment 11 5x to 6x longer than segment 10. Pronotum with or without golden-white hairs; pale hairs when present limited to few along lateral margins or covering all of pronotum except for small part of disc; punctation of disc minute and consisting of punctures about equal in size to facet of eye and separated by 2 to 3 times diameter of single puncture; basal lobe more or less prominent, convex, and raised above level of basal margin of pronotum on either side of lobe. Elytron with pale hairs, when present, consisting of few along elytral margin laterad of humerus, sparse band at base of elytron, semicircular subbasal band, and subapical patch. Abdominal sternum 8 not observed. Phallus with aedeagus strongly arched; aedeagus broad at base and gradually narrowing, at middle about 3x as wide as at base of phallotreme (Figs. 21, 27).

Length ranging from 2.9 to 3.1 mm. Ratio of length to width varying from 1:1.82 to 1:1.95.

Adult females.—As males except that shortest female 2.7 mm in length.

Recorded distribution.—The type in the BMNH is from Mauna Loa, Hawaii. A locality listed by Sharp in 1908 is Kilauea, Hawaii, August, 1895. *L. simplex* Sharp was described from Kilauea and Kona. *Additional records*: HAWAII: Ahumoa Crater, 6,500 feet elev., 21-VI-66 (3, J. W. Beardsley); 18-V-66 (2, J. W. Beardsley); Pohakuloa, 17-VI-66 (1, J. W. Beardsley); Humuula Saddle, 4-V-73 (1, R. S. Beal). An exceptionally long and narrow female specimen from Hawaii in the NMNH is probably this species. The data are as follows: Humuula, 5-VIII-35 (R. L. Usinger), on *Myoporum*; length: 4.4 mm; ratio of width to length 1:2.72.

Diagnosis.— See diagnoses of *L. laticornis* and *L. moerens* above.

Discussion.— Whether *L. simplex* Sharp is correctly synonymized with this species can be questioned, but my present information is that it should be. A specimen from Sharp's type series in the BPBM appears identical to *L. concolor*. The specimen has an antenna with segments identical to *L. concolor* without a "considerably shorter terminal joint." Perkin's series could, of course, have included more than one species, so the holotype of *L. simplex* could be *L. concolor*, *L. laticornis*, or a distinct

species. Examination of the male phallus of a specimen of *L. simplex* from Kona in the series collected by Perkins might determine its relationships. I am unwilling to dissect the specimen in the BPBM for fear of damaging it. It is entirely possible that specimens with and without pale setae actually belong to 2 separate species. Longer series are needed to determine if this is true.

Biology.—Adults have been taken in flowers of *Sophora* (Leguminosae) and *Myoporum* (Myoporaceae). Other information is unknown.

Labrocerus argyroxiphii n. sp.
Figures 14, 15, 28

Labrocerus simplex: Rees, 1943:12.

Holotype male.—Dorsal integument black, immaculate; ventral integument and legs black; antennae and tarsi reddish brown. Setae simple, subrecumbent, uniformly golden. Antenna attaining basal 1/4 of metasternal epimeron; segment 11 5x as long as segment 10; segment 4 1.5 x as wide as segment 3; segments 4 and 5 subequal so that club appears to be 6-segmented. Pronotum with punctures of disc simple, minute, small as or smaller than facet of eye and separated by 3 to 5 times diameter of single puncture; basal half of pronotum longitudinally slightly convex without depression before basal lobe; basal lobe slightly convex laterally, slightly raised above level of pronotum on either side of lobe. Abdominal sternum 8 with proximal apodemes united at base. Phallus with aedeagus strongly arched; aedeagus slender, widened near apex then narrowed (Figs. 14, 15).

Length: 3.2 mm; width: 1.7 mm.

Allotype female.—As male except as follows: Integument of head and pronotum black, elytra and ventral surfaces dark reddish brown. Pronotum with punctures of disc minutely craterform. Antennal club 3-segmented.

Length: 3.0 mm; width: 1.5 mm.

Range of observed variations.—Dorsal and ventral integument immaculate, black, or integument of head and pronotum dark reddish brown and elytra and legs medium reddish brown; antennae dark brown to yellowish brown. Terminal segment of antenna varying from 7x as long as segment 10 to 4 1/3x as long as segment 10.

Length of males ranging from 2.5 mm to 3.2 mm. Length of females ranging from 2.7 mm to 3.4 mm. Ratio of width to length varying from 1:1.86 to 1:2.14.

Holotype male and 8 paratypes: Ridge above Kapalaoa, Haleakala N. P., Maui, 8400 ft. elev., 19-VI-76 (R. C. A. Rice). Allotype female and 3 paratypes: Kapalaoa, Haleakala N. P., Maui, 7280 ft. elev., 18-VI-76 (J. W. Beardsley). Additional paratypes as follows: MAUI: Kapalaoa, Haleakala N. P., 18-19-VI-76 (1, R. C. A. Rice); Kaupo Gap, Haleakala N. P., 1650 m (1, R. C. A. Rice); Puu Mamane, Haleakala, 4500 ft. elev., 19-VI-76 (1, J. W. Beardsley); Haleakala summit, IX-30 (1, Christianson); Haleakala (1, O. H. Swezey). Holotype and allotype deposited in BPBM; paratypes in BPBM, CASC, CSUC, CTAM, CUIC, NMNH.

Diagnosis.—Of the specimens from Maui that are keyed out here, this is the only one with the integument of the elytra immaculate and the setae unicolorous. The species is most similar to *L. concolor* from Hawaii. Some specimens of *L. concolor* can be distinguished by the presence of at least a few contrasting pale hairs on the dorsum. The only certain difference appears to be in the width of the aedeagus, which in *L. concolor* is much wider toward the base. *Labrocerus dasytoides* on Kauai, which has only a few pale hairs among the dark hairs, could be confused with it, but *L. dasytoides* has a "flat" pronotal lobe with a slight transverse depression in front of it. The pronotal lobe in *L. argyroxiphii* is barely raised above the level of the pronotal base, but it lacks a depression between the lobe and the disc of the pronotum. The other species with immaculate dorsal integument and uniform setae is *L. depressus* from Kauai, but this is easily distinguished by the 3-segmented antennal club of the male.

Etymology.— The name is a Latin genitive of the genus of the Haleakala silversword, *Argyroxiphium sandwicense*, one of the 2 plants on which the species has been collected.

Discussion.— This is possibly the form which Sharp placed under the name of *L. simplex* with the notation, "? Var. from Maui, Haleakala, 3000-4000 ft. iv. 1894 (Perkins)." The holotype of *L. simplex*, as noted above, is considered a synonym of *L. concolor.* The larva was described by Rees (1943) under the name *L. simplex*.

The large variation in the relative length of the terminal segment to preceding segments of the antennal club casts considerable doubt on the utility of this character to discriminate among species. For the most part, however, sufficiently long series are unavailable to determine whether this is true of all species.

Biology.— A larva was associated with the Silversword *Argyroxiphium* (Asteraceae). Adults have been collected on *Styphelia* sp. (Epacridaceae). Other specimens have been collected on *Metrosideros collina* trees (Myrtaceae).

Labrocerus setosus Sharp
Figures 7, 22, 23

Labrocerus setosus Sharp, 1908:410.
Labrocerus affinis Sharp, 1908:410. (NEW SYNONYMY)
Labrocerus pallipes Sharp, 1908:410. (NEW SYNONYMY)

Adult male.—Dorsal integument black to dark reddish brown with yellowish maculae on the elytra; ventral integument and legs dark reddish brown. Dorsal pubescence simple, of subrecumbent hairs; hairs dark golden-brown and ashy-white or light golden; light-colored hairs covering almost entire dorsum and dark hairs few and scattered or with dark hairs numerous with light-colored hairs limited to oblique subbasal band and subapical patch on elytron. Pronotum with punctures of disc about 2x as wide as diameter of facet of eye and separated by 0.25 to 1.5 x diameter of single puncture. Pronotal lobe not prominent, more or less flat, not raised above level of basal margin of pronotum on either side of lobe; area between disc and lobe slightly concave or flat. Antenna

extending in repose to basal 1/5 to as far as basal 4/5 of metepisternum; segment 3 varying from 9/11 to 2/3 width of segment 4; segment 3 with sculpture of surface contrasting with segment 2 and similar to segment 4 or somewhat contrasting with segment 4 so that club appears 8- or 9-segmented. Elytron with oblique yellowish fascia extending from humerus to suture and with subcircular subapical macula. Abdominal segment 8 with proximal apodemes united at base. Phallus with aedeagus strongly arched, slender; apex of aedeagus with lobe as in Figs. 22 and 23.

Length ranging from 2.6 mm to 2.8 mm. Ratio of width to length varying from 1:2.12 to 1:2.26.

Adult female.—As male except for antenna as illustrated (Fig. 8). Length 3.0 mm. Ratio of width to length varying from 1:2.00 to 1:2.36.

Types.—The holotype of *L. setosus*, listed only as Oahu, is in the BMNH. The holotype of *L. affinis* is in the BMNH with the following written on the card: *Labrocerus affinis* Type D.S., Oahu, Perkins 751. On the pin below this is a red-margined, round label with the printed word: Type. Below this is a label appearing to read, "Mokuleiia." In his description Sharp indicated the locality as "Mokuleua," but the label has two distinct dots over the next-to-last letter. Probably the locality is Mokuleia on the north side of Oahu near Waialua. The holotype of *L. pallipes* is in the BMNH. The four known specimens were taken on Molokai at 3,000 feet elevation.

New Distributional Records.—OAHU: Haleauau, 13-III-31 (2, O. H. Swezey); Ibid., 1-XII-29 (1, O. H. Swezey); [Mt.] Tantalus, 1300 ft. elev., 26-XI-05 (1, W. M. Giffard); Pupuken, 4-VII-27 (1, O, H. Swezey); Puu Kalena, 19-IV-31 (1, O. H. Swezey); Waianae Mts., vii-33 (1, Ford).

Diagnosis.—Among all the species of *Labrocerus* having bands or maculae in the integument of the elytra, this species is distinguished by having a weakly projecting, more or less flat pronotal lobe with the surface on the same plane as the base of the pronotum. *Labrocerus obsoletus* is the only described species from Maui with bands of light and dark setae on the elytra. The pronotal lobe of *L. obsoletus*, although not flat, is not as convex as the pronotal lobe in most of the preceding species. *Labrocerus obsoletus* has smaller punctures on the pronotal disc than does *L. setosus*, a character that should serve to separate the species. *L. dasytoides* and *L. flavicornis* on Hawaii and *L. vestitus* on Kauai also have pronotal lobes that are more or less flat, but in these species the elytral bands and spots are formed entirely by the pattern of light-colored hairs and not by markings in the integument.

Discussion.—A moderate number of specimens have been collected on Oahu. These show considerable variation in the length and width of the male antenna, the length of the dorsal setae, and the proportion of light to dark hairs on the dorsum. There is every possible intergrade between the forms described from Oahu as *L. setosus* and *L. affinis* and the form on Molokai described as *L. pallipes*. The forms on Oahu must be considered no more than variants within a single population. The form on Molokai should be considered a synonym unless future collections should make males available for further comparisons.

Biology.—The species has been taken on *Bidens* (Asteraceae), *Pelea* (= *Melicope*) (Rutaceae), *Sideroxylon* (Sapotaceae), and *Suttonia* (Myrsinaceae).

Labrocerus quadrisignatus Sharp
Figs. 9, 18, 29

Labrocerus quadrisignatus Sharp, 1908:411.

Adult male.—Dorsal and ventral integument and legs black with reddish maculae on elytra. Dorsal pubescence simple with suberect to subrecumbent hairs; hairs black and golden-white. Antenna in repose attaining basal 1/3 of metasternal epimeron; terminal segment 5x as long as segment 10; segment 4 1 1/3 times as wide as segment 3. Pronotum with punctures of disc about 2x diameter of facet of eye and separated by 2 to 3 times diameter of single puncture. Pronotal lobe more or less flat and not elevated above basal margin of pronotum on either side of lobe although lobe separated from basal margin by short, shallow depression; basal 1/4 of pronotum with slight transverse depression. Elytron with small fascia at basal 1/3 and small subcircular macula at basal 2/3. Pale hairs of elytra mostly originating on light-colored areas. Abdominal sternum 8 with proximal apodemes connected at base by thin, somewhat sclerotized filament. Phallus with aedeagus narrow, strongly arched; aedeagus and apex of aedeagus as in Figs. 18 and 29.

Length: 3.2 mm; width: 1.4 mm.

Adult female.—As male except that female antennal club as illustrated (Fig. 9).

Length ranging from 3.0 mm to 3.4 mm. Ratio of width to length varying from 1:1.61 to 1:1.80.

Distribution.—The male holotype in the BMNH is from Haleakala, Maui, at 5000 ft. elevation. *New Records.*—MAUI: Mt. Haleakala, 7000 ft. elev., 27-VIII-1929 (1, R. R. Whitten); Haleakala N. P., Kaupo Gap, 1650 m, 24-VI-76 (4, R. C. A. Rice).

Diagnosis.—The differences between this species and *L. setosus* are small, but seemingly consistent for the few known specimens. *Labrocerus quadrisignatus* is larger in size than *L. setosus*. The light colored areas on the elytra are reddish rather than yellowish and much smaller. The terminal segment of the female antennal club is longer than in *L. setosus*. The apex of the aedeagus in *L. quadrisignatus* has the phallotreme opening to the tip, whereas it opens somewhat subapically in *L. setosus* (Figs. 29, 22).

Labrocerus dasytoides Sharp

Labrocerus dasytoides Sharp, 1908:409.

Adult male.—Integument of dorsal surfaces immaculate; dorsal and ventral surfaces black with legs dark reddish brown. Dorsal pubescence simple of suberect hairs; hairs black with few golden white hairs. Antenna in repose attaining middle of metasternal epimeron; terminal segment 5x as long as segment 10; segment 4 1 1/3 times as wide as segment 2. Pronotum with punctures of disc about 2x diameter of facet of eye and separated by 2 to 3x diameter of single puncture; lobe more or less flat and not elevated above basal margin of pronotum on either side of lobe; basal 1/4 of pronotum with slight transverse depression. Elytron

with pale hairs in small patch at basal 1/3 and basal 3/4, although small, almost unnoticeable number may be present. Abdominal sternum 8 with proximal apodemes curving mediad at base but connected by unsclerotized tissue only. Phallus with aedeagus strongly arched; apex of aedeagus not observed.

Length ranging from 2.7 mm to 2.9 mm. Ratio of length to width varying from 1:2.08 to 1:2.31.

Adult female.—Not observed.

Lectotype.—A male and a female are on a card in the BMNH with the following data: *Labrocerus dasytoides*, Types D.S., Kauai, Perkins 528. Below this is a round, red-bordered label with the printed word "Type." Below this a label reads, Koholuamano, Kauai, Perkins, iv. 1895. Below this is an inverted label reading, Sandwich Is. 1912-215. The male on the left is herewith designated as the lectotype and the female on the right is designated as the allolectotype.

Locality records.—In addition to the type locality of Koholuamano, Kauai, 4,000 feet elevation, Sharp listed Makaweli, 2,000 feet elevation, mts. Waimea, 3,000 feet elevation, and "high plateau." New records are the following. KAUAI: Kaholuamano, 3,500 feet elevation, 14-IX-20 (3, A. Kusche); Kokee, 24-II-66 (2, C. J. Davis).

Diagnosis.—The only other species on Kauai with a "flat" pronotal lobe and an immaculate dorsal integument is *L. similaris*. The male of *L. dasytoides* has an 8-segmented antennal club, whereas the male of *L. similaris* has a 2-segmented club with the segments so closely appressed they appear as one.

Biology.—No information is available other than that C. J. Davis took two specimens on *Acacia koa* (Fabaceae).

Labrocerus vestitus Sharp

Labrocerus vestitus Sharp, 1908: 409; Beal, 1992.
Labrocerus flavicornis Sharp, 1908: 410 (NEW SYNONYMY).

Adult male.—Integument of dorsal surfaces immaculate, dark reddish brown to black; ventral integument and legs reddish brown to dark reddish brown. Dorsal setae duplex, suberect (about 45° angle) and recumbent; hairs dark golden brown to black and silvery white. Antenna in repose extending to middle of metasternal epimeron; segment 11 4x as long as segment 10; segment 4 1.4 times as long as segment 3. Pronotum with punctures of disc about 2x as large in diameter as facet of eye and separated by one to 2 times diameter of single puncture; pronotal lobe not elevated, surface on same plane as basal margin of pronotum; pronotum with slight depression in front of lobe. Elytron with white hairs covering almost entire surface and black hairs sparse or more commonly white hairs forming large or small U-shaped fascia at basal 1/3 and large or small patch at basal 2/3; black hairs rarely over entire surface with sparse white hairs at basal 1/3 and at basal 2/3. Abdominal sternum 8 with proximal apodemes curving mediad at base but connected by unsclerotized tissue only. Phallus with aedeagus strongly arched; aedeagus slender with apex similar to *L. quadrisignatus* (Fig. 29).

Length ranging from 2.5 mm to 2.7 mm. Ratio of width to length varying from 1:1.96 to 1:2.08.

Adult female.—As male except for antennal club. Length ranging from 2.7 mm to 3.5 mm. Ratio of width to length varying from 1:1.96 to 1:2.21.

Distribution.—The holotype female of *L. vestitus* in the BMNH is from Kona, Hawaii. The holotype female of *L. flavicornis* in the BMNH is from Kilauea, Hawaii. New records are the following: HAWAII: Hawaiian National Park, Kilauea Sec. (1, C. J. Davis); Hoa Koma, 4-VIII-35 (1, R. L. Usinger); Humuula, 4-VIII-36 (2, R. S. Usinger); Kilauea, 18-IV-44 (1, N. L. H. Krauss); Kipuka Puaulu, 6-VI-47 (1, O. H. Swezey); Koaia Forest Reserve, 3-IV-71 (1, J. W. Beardsley); S. Kona, 16-VIII-19 (1, O. H. Swezey).

Discussion.— Sharp considered *L. flavicornis* "clearly a distinct species" because of its pale, smaller, and less compact female antennal club. The color of the antennae seems not to be a stable character among species of *Labrocerus*. The "compactness" of an antennal club is usually dependent on preservation of a specimen. The type specimen of *L. flavicornis* is badly abraded, but what remains of the pubescence is consistent with the character of the pubescence in *L. vestitus*.

A single male specimen from Maui in CTAM appears identical to *L. vestitus*, but I have not examined the genitalia. Data are as follows: Haleakala National Park, Kaupo Gap, 1650 m, 24-VI-76 (R. C. A. Rice), on *Metrosideros collina*.

Labrocerus similaris (Sharp) NEW COMBINATION
Figures 11, 12

Argocerus similaris Sharp, 1908:411-12.
Argocerus subguttatus Sharp, 1908:412. (NEW SYNONYMY).

Adult male.—Integument of dorsal surfaces immaculate, dark reddish brown; integument of ventral surfaces and legs reddish brown to dark reddish brown. Dorsal setae simple with subrecumbent hairs; hairs dark golden brown and silvery white. Antenna with 2-segmented club; segment 9 slightly wider than segment 8 (Fig. 12). Pronotum with punctures of disc about equal to 2x diameter of facet of eye and separated by one to 2 diameters of single puncture. Pronotal lobe slightly convex and slightly raised above surface of pronotum at base; midline of basal half of pronotum slightly and evenly convex. Elytra with white hairs along basal margin and forming fascia from humerus to suture at about basal 1/3 and somewhat parallel fascia at about basal 2/3. Abdominal sternum 8 with proximal apodemes not united basally. Phallus with aedeagus moderately arched.

Length ranging from 2.1 mm to 2.6 mm. Ratio of width to length varying from 1:2.01 to 1:2.17. The holotype male of *A. similaris* is 1.9 mm.

Adult female.—As male with antenna as illustrated (Fig. 11).

Length ranging from 2.5 to 2.8 mm. The holotype female of *A. subguttatus* is 3.0 mm, well within an expected range for the species.

Distribution.—The holotype of *Argocerus similaris* in the BMNH is from "Mts. Waimea, Kauai, 4,000 feet, V-1894." The holotype of *Argocerus subguttatus* in the BMNH has the same data. New localities are the

following: KAUAI: Kokee, 19-24-VIII-59 (1, J. W. Beardsley); Ibid., 3,600 feet elevation, VII-52 (1, D. E. Hardy); Milolii, 2-VII-32 (1, O. H. Swezey); Milolii Trail, 30-VIII-59 (2, J. W. Beardsley); Mohihi Ridge, 15-VII-37 (1, E. C. Zimmerman); S. Mohihi Ridge, 15-VII-37 (1, E. C. Zimmerman).

Diagnosis.—The 2-segmented club of the male antenna should easily separate the species from all others in the genus. Females might be confused with *L. moerens* on Kauai, which also has immaculate dorsal integument and dark and silvery- or golden-white dorsal setae. The two can easily be distinguished by the punctation of the pronotum, which on *L. moerens* is very difficult to distinguish with 20x magnification but which on *L. similaris* is quite obvious with 20x magnification.

Discussion.—The characters listed by Sharp to separate his *Argocerus subguttatus* from *A. similaris* are not definitive and there is no reason not to synonymize the two.

Biology.—The species has been taken on *Osmanthus sandwicensis* (Oleaceae) and by beating *Clayoxylon* (Euphorbiaceae).

Labrocerus depressus (Sharp), NEW COMBINATION
Figures 1, 10, 13

Argocerus depressus Sharp, 1908:412-413.

Adult males.—Dorsal integument immaculate, dark brown to black; ventral integument and legs reddish-brown to dark reddish-brown. Dorsal pubescence simple, subrecumbent, uniformly golden. Pronotum with lobe projecting little, gently rounding at base, with surface on same plane with pronotum on either side; punctures of disc minutely craterform; craters about as 2x as wide as facet of eye and separated by 1 to 2 times diameter of single crater. Antenna with large terminal segment and segment 10 about 1/16 times as long (Fig. 10). Abdominal sternum 8 with proximal apodemes joined basally (Fig. 1). Phallus with aedeagus slightly arched; aedeagus with proximally directed hook-like process at apex (Fig. 13).

Length of male specimens not observed.

Adult females.—As males except that antennal club 2-segmented with segment 11 4x as long as segment 10 and segments 8 and 9 somewhat expanded.

Length ranging from 2.6 mm to 2.7 mm. Ratio of width to length varying from 1:1.97 to 1:2.10. Length of the holotype female 2.7 mm.

Diagnosis.—The large terminal segment of the male and very short penultimate segment immediately distinguishes the species from all others of the genus. The female is best distinguished by its immaculate dorsal integument with uniformly golden setae together with the shape of the basal lobe of the pronotum of which the surface is part of the same evenly rounded surface as the disc and base of the pronotum.

Distribution.—The type locality, "high plateau, Kauai," is the only published distribution.

Additional localities are the following: KAUAI: Kamuwela, 3-VIII-25 (1, O. H. Swezey); Kokee, VII-22 (1, D. T. Fullaway); near Kokee, 14-VII-57 (2, E. C. Zimmerman).

Discussion.—Without question this species shares fewer similarities with other species of *Labrocerus*. The differences in the antennal club, the different configuration of the pronotum and pronotal lobe, the lack of a strongly arched aedeagus, and the relatively larger size of sclerites of the male genital tube are obvious. Nevertheless, without associated larvae, final placement of the species is not definitive.

SPECIES WITH INADEQUATE INFORMATION FOR REDESCRIPTION

Labrocerus curticornis Sharp

Labrocerus curticornis Sharp, 1908:407-8.

Discussion.—Species known only from the unique male holotype in the BMNH collected in 1901 on the Waianae coast of Oahu. It appears nearly identical to specimens of *L. concolor* except for its slightly broader form, its length being 3.17 mm and its ratio of width to length being 1:1.76. The antennal club consists of 6 distinct segments with segment 5 somewhat expanded, similar to that of *L. concolor*.

Is this species now extinct? I failed to locate any additional specimens in spite of some effort collecting in the vicinity of Waianae, and many others have collected extensively on Oahu. It is entirely possible that *Trogoderma anthrenoides* (Sharp), which had not yet been introduced when Perkins collected on the islands (Beal, 1991), may have "out competed" this species. *T. anthrenoides* is presently abundant at lower elevations on all the islands and seems to be capable of exploiting a wide variety of habitats.

Type locality.—Waianae coast, which is on the west side of Oahu.

Labrocerus gravidus Sharp

This may be a synonym of the seemingly identical *L. concolor* or may be a distinct species. There are 11 specimens in the BMNH. The dissection of the male genitalia of one of Sharp's specimens from Hawaii might clarify the relationship.

Standing under this name in the BMNH are male and female specimens on a card with the writing: "Types D.S. Hawaii. Perkins 532," a circular red type label, and a printed label reading "Koholuamano. Kauai. Perkins iv. 1895." The specimens are not this species but are *L. moerens*. It is highly probable that a curator placed the type labels on the wrong pin. In this instance it seems better to trust Sharp's printed word rather than the type label.

The localities of the species, according to Sharp (1908), are Kilauea and Kona, Hawaii. A male specimen of Sharp's series with dissected genitalia needs to be assigned as the lectotype.

Labrocerus obsoletus Sharp

Labrocerus obsoletus Sharp, 1908: 409.

Discussion.—The species is known only from 3 females collected by Perkins in May, 1896, at 4,000 feet elevation on Mt. Haleakala, Maui. Without associated males and longer series it is difficult to relate to other species or even be certain that it is a distinct species. Sharp's Latin description states that the species is black with testaceous elytra, a color in his English description defined as "pallid." Since he grouped it with species having "an indefinite basal lobe" it must not be the species described above as *L. argyroxiphii*, which can sometimes be a medium brown. The holotype and 2 paratypes (syntypes) are in the BMNH.

A female specimen, which I am unable to place to any other species, answers roughly to the color description of *L. obsoletus*, but the pronotal lobe is transversely convex and slightly raised above the level of the base of the pronotum. The data of the specimen in CTAM are: Kaupo Gap, Haleakala, Maui, 7-VI-77, on *Metrosideros* (Arnold Hara).

Labrocerus suffusus Sharp

Labrocerus suffusus Sharp, 1908:411.

Sharp described this form from 2 female specimens collected on Haleakala, Maui. No information on the form is available other than the information given in Sharp's paper, which lists the elytra as entirely yellow and is keyed to species having an "indefinite basal lobe." The holotype and a paratype (labeled "syntype") are in the BMNH.

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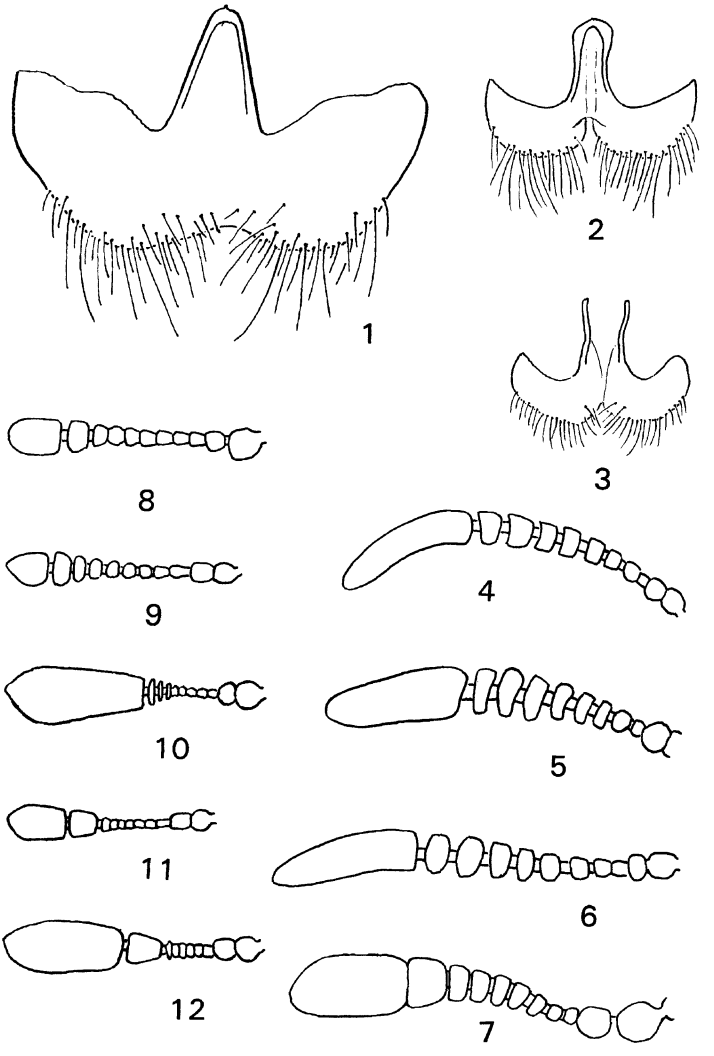
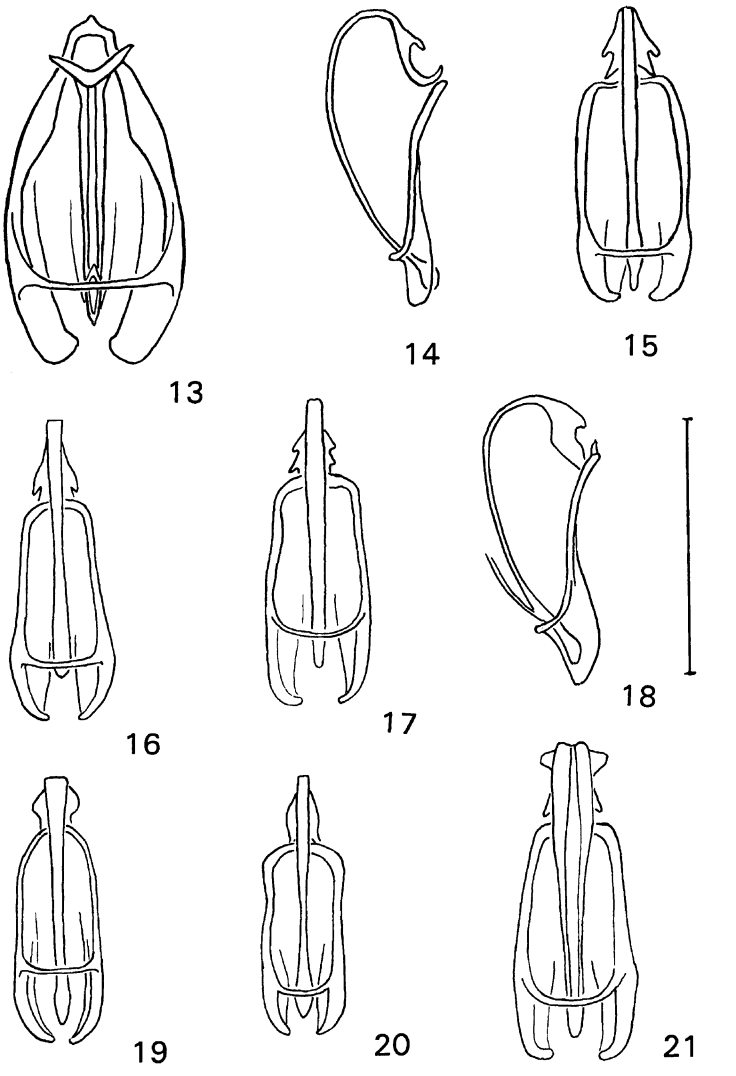
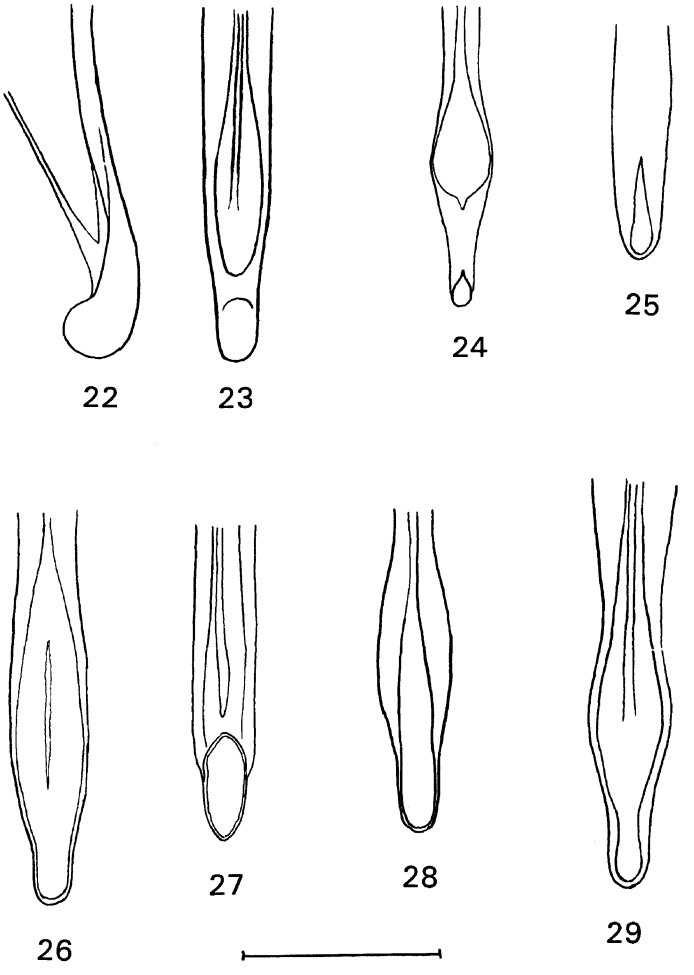


Figs. 1-12. Figs. 1-3: Abdominal sternum 8 of *Labrocerus*. 1, *L. depressus*; 2, *L. jaynei*; 3, *L. obscurus*. Figs. 4-12: Antennae of *Labrocerus*. 4, male of *L. jaynei*; 5, male of *L. moerens*; 6, male of *L. laticornis*; 7, female of *L. setosus*; 9, female of *L. quadrisignatus*; 10, male of *L. depressus*; 11, female of *L. similaris*; 12, male of *L. similaris*.



Figs. 13-21. Phalli of *Labrocerus*, all ventral views unless otherwise indicated. 13, *L. depressus*; 14, *L. argyroxiphii* lateral view; 15, *L. argyroxiphii*; 16, *L. producens*; 17, *L. laticornis*; 18, *L. quadrisignatus*, lateral view; 19, *L. jaynei*; 20, *L. obscurus*; 21, *L. concolor*. Line = 0.5 mm.



Figs. 22-29. Apices of aedeagi of *Labrocerus*, all ventral view except Fig. 22. 22, *L. setosus*; 23, *L. setosus*; 24, *L. auratus*; 25, *L. laticornis*; 26, *L. moerens*; 27, *L. concolor*; 28, *L. argyroxiphii*; 29, *L. quadrisignatus*. Line = 0.1 mm.