Review of *Rhyncogonus* of the Hawaiian Islands

DEDICATED TO ELWOOD CURTIS ZIMMERMAN
IN HONOR OF HIS 90TH YEAR

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Review of *Rhyncogonus* of the Hawaiian Islands (Coleoptera: Curculionidae)

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Cover: *Rhyncogonus fuscus* Perkins, drawn by Paul M. Schroud.

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ABSTRACT

The Hawaiian components of *Rhyncogonus* are revised. Treated are 47 species of which 14 are proposed as new: *R. femoratus,* n. sp., *R. gagneorum,* n. sp., *R. haupu,* n. sp., *R. howarthi,* n. sp., *R. kahili,* n. sp., *R. kapapa,* n. sp., *R. montygorum,* n. sp., *R. olokui,* n. sp., *R. pi,* n. sp., *R. ricei,* n. sp., *R. stellaris,* n. sp., *R. tristis,* n. sp., *R. wiliwilinui,* n. sp., *R. zeta,* n. sp.; 1 is elevated to full species: *R. fordi* Zimmerman; and 2 are synonymized: *R. dubius* Perkins and *R. lanaiensis* Perkins. Lectotypes are designated for 18 species. The Hawaiian species, divided here into provisional species groups, are contrasted and keyed with a separate group of 3 species from the adjacent Line Islands and Wake Island. Information is included when possible on the ecology and the threatened status of each species. All species are keyed and illustrated.

INTRODUCTION

Rhyncogonus is restricted to the Pacific (Polynesia) and no longer flourishes on adjacent continental areas. These species, along with *Microgonus* Van Dyke, have retained archaic characters that help define their primitive tribe, Rhyncogonini (Sharp, 1919: 77). All species are flightless with apparently no vestige of metathoracic wings, yet they are distributed around the Pacific on some of the most isolated islands on Earth. Their probable but inadvertent association with migratory birds may provide the answer to their broad insular distribution.

Rhyncogonus Distribution

Rhyncogonus ranges from the Northwestern to Windward Hawaiian Islands, Line Islands, Wake Island, and southern Polynesia from the Kermadec Islands to Rapa and Henderson. Clusters of southern endemics are found in the Societies, Marquesas, Australs, and Tuamotus (Fig.1).

The Hawaiian species are most numerous on the islands of Kaua‘i and O‘ahu and become progressively less numerous on the younger islands to the southeast. The oldest Hawaiian islands with extant *Rhyncogonus* are two high-island remnants, Necker and Nihoa of the Northwestern Hawaiian Islands, each with a single endemic. Nearly all of the Hawaiian species are endemic to a single island but 2 are treated here as bi-insular: *R. simplex* Perkins from Moloka‘i and O‘ahu; *R. vestitus* Sharp from Maui and Lāna‘i.

Rhyncogonus is possibly monophyletic through the Hawaiian part of its range but it appears to contain a number of clades that are suggested in the provisional species group assignments. The entire genus is ripe for cladistic analysis, and that will come eventually.

In my preliminary search for an outgroup to the Hawaiian species, a statement by Van Dyke (1937: 90) seemed worth considering: “The small, more or less convex and rather uniformly pilose species, *R. vagus*, from Fanning Island, *R. fosbergi* from Christmas Island and *R. hendersoni* from Henderson Island resemble the smaller Hawaiian species.” Since 2 of these species are from the Line Islands to the south of Hawai‘i, they were thought to be good outgroup candidates. Another species, *R. fallax* Perkins, from Wake Island was not discussed by Van Dyke. Along with the original description of *R. fallax*, Perkins (1926: 62) wrote: “Without dissecting it, I am uncertain of the sex of this very abnormal species [a male], which has a facies quite different from any of the Hawaiian forms and at first sight appeared to be another genus. On critical examination, however, no important differences from *Rhyncogonus* could be found, all of its peculiarities being approached by one or other of this genus.” Isolated Wake Island at the same latitude as Hawai‘i Island but 3200 km west, seems to have no close affinities with any island group, however, as it turns out, *R. fallax* and the two Line Islands species, *R. fosbergi* Van Dyke and *R. vagus* Van Dyke, are all very closely related, and they are hereby assigned to the *fallax* group, differing from all Hawaiian species by a peculiar “beak-like” conformation at the elytral preapex. *R. hendersoni* Van Dyke from distant Henderson Island in the Pitcairn Island Group, lacks the “beak-like” character and is not included in this group.

Summary of *Rhyncogonus* Distributional Patterns in Hawai‘i

Hawaiian *Rhyncogonus* tend to group into 2 elevational zones that can be simply classed as coastal/lowland and montane. The boundaries between these zones can occur at various elevations depending on the island: **Coastal/lowland** distributions may range from 0–300 m on up to 1000+ m; **Montane** distributions may begin anywhere from 300–1000 m.

These elevational differences are dependent on the age, size, moisture regime, and landform of the island concerned. Older, high islands with greatly dissected and often wetter landforms (Kaua‘i and O‘ahu) tend to have the lowland belt limited to 0–300 m, with higher terrain occupied by typi-

cally montane *Rhyncogonus*. The intermediate-aged high islands (Maui Nui) include various landforms and probably have broader lowland belts than the preceding. The newest and highest island (Hawai'i), with very gradual, minimally eroded landforms on the drier leeward slopes, may have typically lowland species up to 1000 m or so.

Pattern 1a: Broad coastal/lowland distributions involving larger main islands and associated islets of any age: Kaua'i to Hawai'i. These *Rhyncogonus* can fill suitable, undisturbed subcoastal habitats, with some species even being multi-insular. Originally, these species probably ringed their islands entirely. Today, they are entirely absent from some islands (e.g. Kaua'i) or are reduced to individual remnant populations, which remain quite susceptible to human interference. Examples are from O'ahu and Maui Nui (*R. simplex, R. vestitus*); another may fit this pattern, being from the supposed upper limit for the lowland zone on Hawai'i (*R. stellaris*).

Pattern 1b: Broad coastal/lowland distributions involving isolated atolls or high island remnants of old age (NW Hawaiian Islands): Laysan, Necker, Nihoa have or had associated *Rhyncogonus*. These species are or were endemic to their small single island, occurring at any appropriate site on that island. The Necker and Nihoa endemics (*R. biformis, R. exsul*) are extant sister species from adjacent high island remnants and together are isolated from all other congeners morphologically, temporally, and geographically. The Laysan species (*R. bryani*), however, is related to one of the Pattern 1a species (*R. vestitus*) and is the only Hawaiian member that is certainly extinct.

Pattern 2: Restricted coastal/lowland distributions involving larger main islands or associated islets of any age. A presently rare species (*R. extraneus*) from O'ahu possibly fits here; it may have had a broader range but is now restricted. A close relative is confined to Kapapa Islet, O'ahu (*R. kapapa*).

Pattern 3: Broad montane distributions involving older main islands: Kaua'i, O'ahu. No obvious examples for Kaua'i but some Pattern 4 species may turn out to fit here. O'ahu has 1 species (*R. blackburni*) that ranges over several valleys on the east end of the Ko'olau Range without evidence of partitioning. A Pattern 4 sister species from the Wai'anae Range (*R. funereus*) is known only from the type specimen.

Pattern 4: Restricted montane distributions involving older islands: Kaua'i, O'ahu. These include all the species reported for Kaua'i and most of those reported for O'ahu. Many of these species represent clades with a series of species restricted to a single island (e.g. *R. haupu-kahili-sylvicola-tuberculatus* or *R. depressus-ricei-squamiger-vittatus* from Kaua'i; and *R. femoratus-koebelei-mutatus-obsoletus* from O'ahu). Another clade is apparently bi-insular with a single species on each island *(R. alternatus* on Kaua'i and *R. fuscus* on O'ahu). Other clades occurring on more than one island include Pattern 5 or 6 species because younger islands are mixed in (e.g. *R. sharpi* from Moloka'i with *R. welchii* from O'ahu; or *R. zeta* from Maui with *R. fordi* and *R. howarthi* from O'ahu). These latter clades appear less speciose than the first grouping, probably because they involve relatively recent colonizations to younger islands. Also, the clades with species mixed on older and younger islands (Pattern 4 with 5 or 6) support the premise that the younger islands have provided insufficient time for *Rhyncogonus* to speciate to its potential.

Pattern 5: Broad montane distributions involving younger islands: Maui Nui, Hawai'i. These distributions tend to be wider and potentially less fragmented than Pattern 6 distributions. Certain assignments include a species from W Maui (*R. lahainae*) taken over different parts of the Pu'u Kukui massif and another from Lāna'i (*R. sordidus*) collected on many occasions throughout the mesic forest at higher elevations.

Pattern 6: Restricted montane distributions involving younger islands: Maui Nui, Hawai'i. Relatively few collections are known for these species, so they may prove to have broader distributions later. These include a species from W Maui (*R. zeta*) from Honokohau Valley and another from Hawai'i (*R. giffardi*) possibly restricted to the Pu'uwa'awa'a Crater area, slightly above 1000 m. A second Hawai'i species (*R. stellaris*) from just below 1000 m in the same area is included with the lowland group: Pattern 1a. Other species are tentatively assigned here (*R. molokaiensis, R. montygorum, R. olokui, R. sharpi*).

***Rhyncogonus* and the island environment**

Dispersal. Seabirds have undoubtedly had a role in *Rhyncogonus* dispersal, even if incidental. This bird-insect association is evident through the parallel distributions of *Rhyncogonus* and certain migratory birds, particularly the ground nesting and burrowing species (e.g. petrels, shearwaters) over the Pacific. This would involve a bird as a means of transport for some stage of *Rhyncogonus* (e.g. a gravid female or cluster of eggs stuck to feathers). Such events resulting in a successful colonization of weevils to a new distant island, say once in 20,000 years (cf. Zimmerman, 1948: 53–62) could explain the presence of very closely related weevils over great distances, viz. between Laysan and Maui Nui (*R. bryani* with *R. vestitus*) or between Wake and the Line Islands (*R. fallax* with *R. fosbergi* or *R. vagus*). These weevils are flightless, tend to be massive, and are less likely to be blown into the air stream than lighter flighted insects, thus such longer unassisted aerial journeys seem unlikely.

Any mode of dispersal, however, might operate for shorter distances, say between Kaua‘i and O‘ahu or other main islands. Differences in sea level might explain the Maui Nui distribution of *R. vestitus* populations. Longer time expanses and subsequent landform changes might shed light on the history of 2 closely related NW Hawaiian Islands species: *R. biformis* (Necker) and *R. exsul* (Nihoa).

Ecology. *Rhyncogonus* make up a significant part of the leaf-chewing guild among the larger Hawaiian beetles. Their leaf-chewing role is enhanced by the complete absence of competing Chrysomelidae or leaf beetles in the endemic fauna. The Aglycyderidae or primitive weevils by comparison is represented by a greater number of species (>150) but these species are small in size and their feeding habits are diverse, not all being leaf-surface feeders. When excluding lepidopterous larvae and certain orthopteroids, *Rhyncogonus* may be one of the more conspicuous adult leaf-chewers in the islands. Adults are robust, heavy-bodied insects commonly over 10 mm in length with some of the largest species measuring upwards to 18 mm. They tend to associate with a narrow range of plants, usually confined to a specific plant community or within adjacent plant communities.

Larvae are associated with roots or various plant parts in the soil but their habits are unknown except for limited observations on *R. extraneus* (see below). While information is generally lacking on larval feeding sites and host range, it is possible that larvae and adults would favor the same host species.

Symbiotic relations. Perkins (1910: 635) described *Eupelmus rhyncogoni*, an egg parasite of *R. blackburni*. Genitalic dissections in this study included examination of abdominal contents of most of the Hawaiian species but no nematodes were noted. Unidentified, early-instar Diptera larvae were noted in a *R. welchii* dissection. Another specimen of *R. welchii* has a circular hole in the abdominal venter, possibly made by an emerging parasite; it is the only such case seen in all the Hawaiian *Rhyncogonus* studied. We have no data on the predation of *Rhyncogonus* by rodents or birds, and only one record of ants attacking an adult *R. simplex*. These all have potential in creating a significant impact on *Rhyncogonus* populations, as would disturbances to the ground by pigs.

Life cycle. *Rhyncogonus* ovipostion sites and partial life-histories are known for only 2 species. *R. blackburni* selected the leaf-like phyllodes of *koa*, sometimes gluing two phyllodes together to shelter the eggs laid in a cluster (Giffard, 1907: 127–129, figures). Upon hatching in 8–15 days the larvae drop to the ground where they complete their development in the soil. In *R. extraneus* (Swezey, 1927: 408–409) clusters of 2–12 eggs were placed side by side in a leaf crease or on the leaf surface under a folded over margin, glued in place; these eggs hatched in 8 days. Swezey didn't specify the host but adults were noted on sugar cane, *Portulaca,* and *Amaranth*. Larvae of *R. extraneus* were abundant in the soil in a weedy area near the edge of a sugar cane field, and some of them were noted feeding on decaying cane seed cuttings in the ground; in captivity, larvae were noted to eat into pieces of cane at cut surfaces and to eat fresh cane roots. The larval stages overall took 3–4 months in both *R. blackburni* and *R. extraneus* but the latter larval instars were not stud-

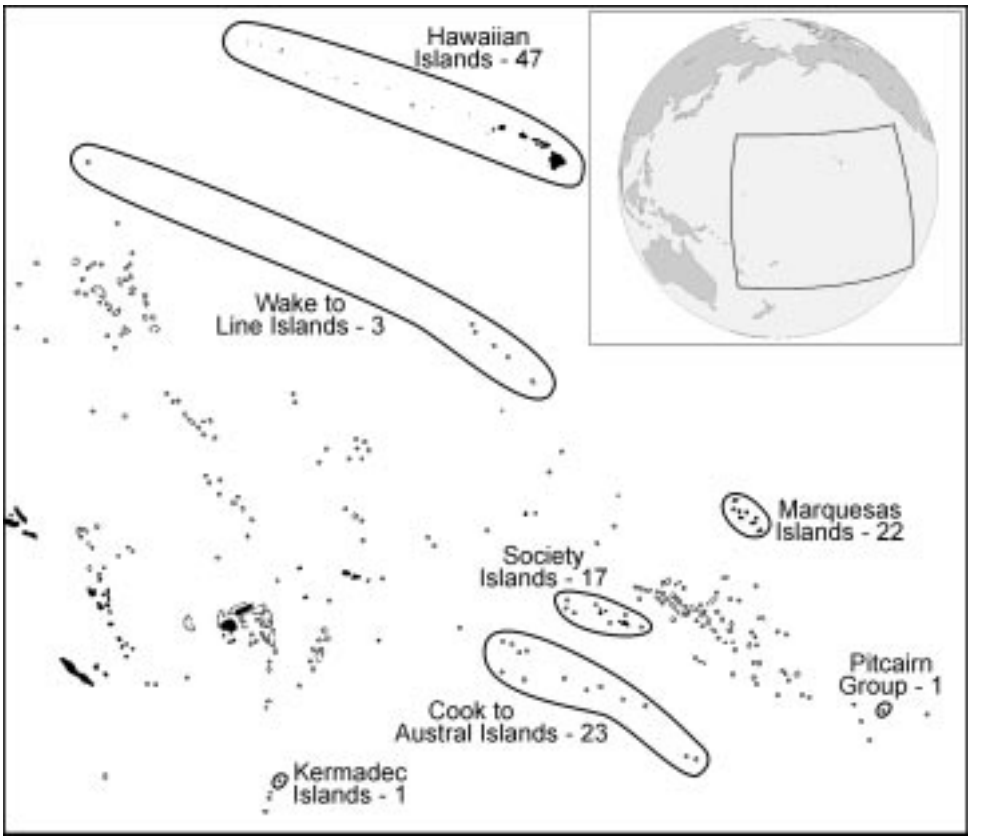


Figure 1. The distribution of *Rhyncogonus* in the Pacific. Major areas are encircled with the number of known species.

ied. Pupation within an earthen chamber was noted for one of these species by Williams (1931: 208).

Feeding habits. Adults begin their feeding at the leaf margin, sometimes making shallow semicircular bites [e.g. *R. blackburni* on *Acacia koa* (Giffard, 1907: 129, fig. 3)] or somewhat more distinctive L-shaped incisions, something like a short-footed stocking (e.g. *R. lahainae* on *Broussaisia arguta*, Samuelson sketches). Such telltale feeding marks on leaves of likely plants could indicate the presence of *Rhyncogonus* in an area. Unfortunately, the adventive and common *Asynonychus godmanni* Crotch makes similar bites, not to mention possible similar feeding by other insects.

Finding Rhyncogonus. These weevils are nocturnal, so they are almost always missed by anyone searching during the day when they are usually well hidden. Finding feeding marks on likely plant hosts is one clue to their presence. Fragments of dead individuals are sometimes found in the litter at bases of host plants, providing actual proof of their presence in an area. Perkins (1900: 127) reported on fragments of a *Rhyncogonus* on Moloka‘i that he thought was *R. sordidus*, here described as *R. montygorum*, n. sp.; Gressitt and Montgomery found parts of *R. sordidus* on Lāna‘i; Ford, Howarth, Preston, Rice, and Samuelson found parts of *R. welchii* on O‘ahu; LeGrande and Wood found parts of *R. alternatus, R. tuberculatus* on Kaua‘i. Ground surveillance at such locations might be a way to ± monitor *Rhyncogonus* populations, as old fragments could be collected from a

site and then the site revisited periodically for further sampling. The longevity of body parts could also be monitored at other sites. Freshly dead individuals tend to be more complete, then as time progresses, their appendages are lost, followed by other body parts until only the fused elytra remain in various stages of deterioration.

Threats. The outcome of any *Rhyncogonus* population will have a direct bearing on the outcome of the plant community with which it is associated.

Any of the following are regarded as threats 1) natural causes: fire, flooding, or landslides; 2) biotic exotics: naturalized plants competing with or displacing native *Rhyncogonus* hosts, or introduced animals operating as predators, parasites, or competitors on or with *Rhyncogonus*; and 3) intentional human-induced pressures, namely changing the landscape: clearing for agriculture, commerce, housing, parks and recreation, or roads that could extirpate native hosts and attached *Rhyncogonus* populations.

Conservation. The Hawaiian species of *Rhyncogonus* may have largely survived into the 21st Century but their populations remain poorly defined and need further study. Only 1 species is definitely extinct and perhaps a couple others are on the verge of extinction if not already so (cf. Hawaii Biological Survey webpage) but further field studies are necessary to confirm the status of the possibly extinct ones. Unfortunately, certain once common lowland species are now rarely encountered (*R. simplex, R. vestitus*). The judicious taking of specimens, however, would be justified in surveys that adhere to state and federal guidelines. Such future fieldwork is essential to clarify the status of many species and is also expected to turn up further undescribed species.

Rhyncogonus is a particularly worthy candidate for conservation activity because: 1) it exemplifies a group of beetles that has radiated in Hawai‘i, an area recognized as one of the world’s “hot spots” containing habitats with many endemic species in greatest danger of extinction (Wilson 1992: 262, map); 2) it ranges throughout the Hawaiian Chain, all species being flightless with most endemic to a single island; 3) it includes at least 1 recently extinct species and many apparently rare species; 4) it includes many provincial species, those that are limited to a small area within an island; 5) it includes lowland and montane species; 6) it is the dominant leaf-chewing beetle group in Hawai‘i; 7) it is a resource subject for dispersal and evolutionary history topics; 8) it has aesthetic value in being among the larger robust Hawaiian beetles, comparable to the similar-sized achatinellid land snails of O‘ahu, thus also a prime example of insular speciation.

All previously described Hawaiian species of *Rhyncogonus* are classed as “Species of Concern” (Hawaii Biological Survey database; U.S. Fish & Wildlife Service); the new species added to the fauna should be automatically included.

MATERIALS AND METHODS

Characters

Special terms used in descriptions and key include:

Antennal funicular segments: the intermediate region of 8 segments between the antennal scape and antennal club.

Elytral infolded surface (= pseudepipleuron of authors): the inflexed and ± flattened surface between the costal margin (fitting along the pterothorax and abdomen) and humeral margin; this surface is out of sight from above.

Elytral preapical closure: the narrowing of the elytra from preapex to the extremity in dorsal view.

Elytral puncture rows and interstices: discal puncture rows and interstices are counted from innermost to outermost; thus puncture row 1 is the one nearest the elytral suture and interstice 1 is the space between puncture rows 1 and 2. The space between the suture and puncture row 1 is treated as the sutural margin, and not counted as an interstice. The ground-plan pattern is with puncture rows 1–4 grouped between sutural margin and interstice 4; rows 5–8 between interstices 4 and 8;

rows 9–12 between interstice 8 and humeral margin, this last group almost always irregular to confused.

Genitalic characters: both sexes were dissected (when available) with drawings made of the aedeagal apex (dorsal and lateral views) and the spermatheca (lateral view). In males, the apical narrowing or "closure" of the aedeagus in dorsal view ranges from long to short with the sides from convex to straight to concave with the extreme apex moderately rounded down to very briefly rounded to angulate; the apical declivity in lateral view ranges from gradual to abrupt. Drawings were not made of the endophallus. The earlier aedeagal dissections by Sharp (1919: 78–80) covered six species with only *R. blackburni* figured. These dissections were carried out with precision and some included the eversion of the endophallus in balsam mounts. In females, the overall appearance of the spermathecal body resembles an ancient Hawaiian fish hook but this form actually covers a considerable range; the base of the spermathecal gland valve ranges from low to high. Present dissections are kept in microvials with glycerin, these to be attached to the pin with the specimen.

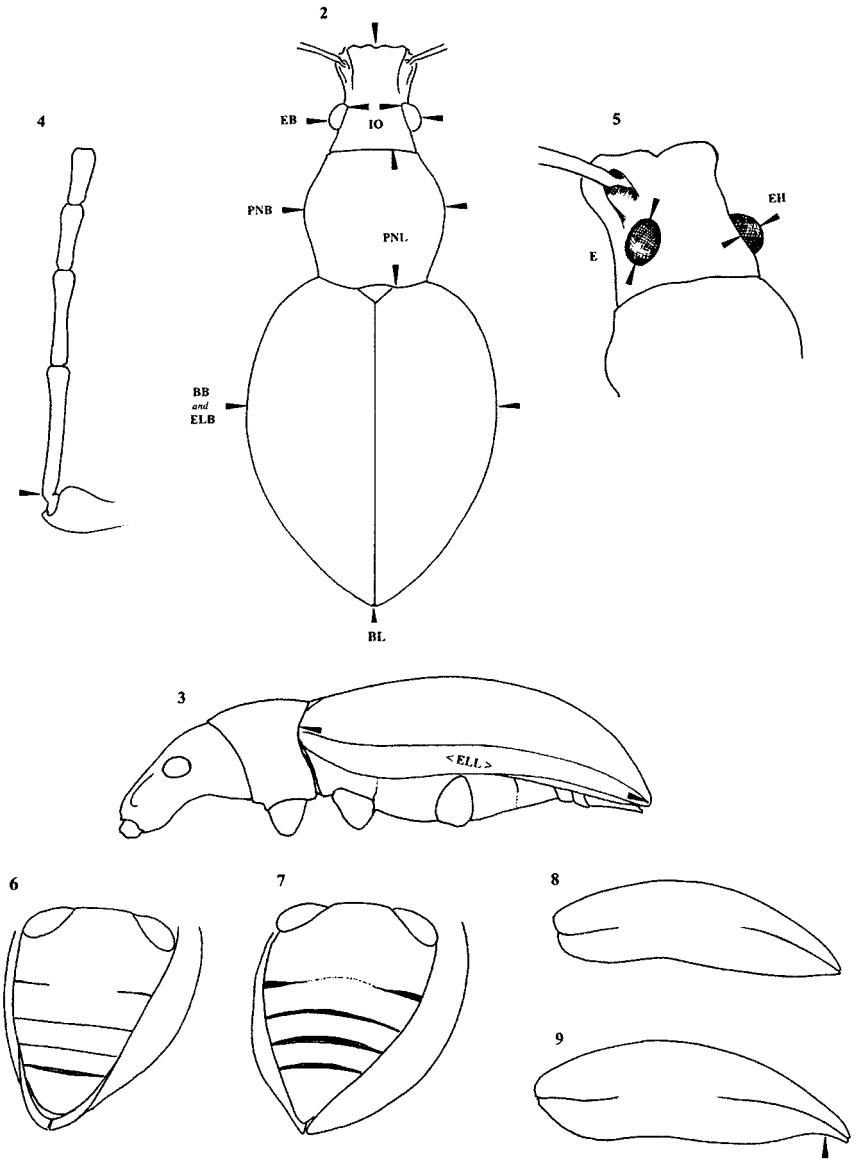
Humeral margin: the outer elytral edge in dorsal view, this runs from humerus to preapex and sometimes to apex; ± corresponds to interstice 12 at least as far as the preapex where it often joins interstice 8 and continues to the apex.

Strigose condition (as applied to the rostrum): rather finely ridged: the ridges subparallel to the long axis of the rostrum.

Trochanteral bristles: the longest bristles arising from each trochanter, these far longer than other setae as might be present. The number ranges from commonly single to occasionally double to rarely triple in Hawaiian *Rhyncogonus*. In the Fallax Group (Line Islands, Wake Island) these bristles are multiple from about 3 to 5 or so.

Measurements

Measurements were taken via a Wild M-5 stereoscope with a linear ocular scale of 120 divisions at magnifications of 6 ×, 12 ×, and 25 × and reported in mm (millimeters) or cmm (centimillimeters = 1/100ths mm). *Body Length* (BL) at 6 × is a coarse measurement from apex of rostrum to apex of elytra. Some variation is expected due to the attitude of the specimen. Rounding the BL measurement to the nearest 0.1 mm may give a close approximation (Fig. 2). *Body Breadth* (BB) at 6 × is a coarse measurement taken across the elytra, the broadest part of the insect. This measurement and the preceding are used for the BL/BB ratio (Fig. 2). *Pronotal Length* (PNL) at 12 × is the maximum length of the pronotum from anterior margin to basal margin. It is taken just off the centerline to compensate for any emarginations as may be present centrally on the anterior and basal margins (Fig. 2). *Pronotal Breadth* (PNB) at 12 × is the maximum breadth across the prothorax (Fig. 2). *Elytral Length* (ELL) at 12 × is taken with the specimen tilted so that the elytral base and apex are in sharp focus. This gives the maximum linear measurement (Fig. 3). *Elytral Breadth* (ELB) at 12 × is taken across both elytra at the point of maximum breadth. This measurement is slightly more accurate than the coarser one used for BB (Fig. 2). *Interocular Space* (IO) at 25 × is the minimum distance between the inner eye-margins (Fig. 2). *Eye Breadth* (EB) at 25 × is the maximum distance at the eyes taken across the outer eye-margins (Fig. 2). *Eye Height* (EH) at 25 × is the approximate elevation of the eye curvature. This is taken with the insect tilted obliquely to give maximum height to the eye: the "eye dome" being exactly perpendicular to the viewer. This is a sensitive measurement and can vary with one's inference of "perpendicular" (Fig. 5). *Eye* (E) at 25 × is the maximum diameter of the eye (Fig. 5). *Antennal Segments* (AS) at 25 × give the linear measurement for each segment, the last 3 segments comprise the antennal club and these are reported as a single measurement, followed in parentheses by the individual lengths. The latter are approximate because of the oblique divisions of the club segments, and accordingly can be interpreted with some variation. The AS measurement is usually given only once for each sex. *Antennal Funicular Segment* 1–4 (AFS1–4) at 25 × is the linear measurement for each of these segments. The "funicle" is the region of antennal segments between the antennal scape (1st segment) and the antennal club (segments 9–11). These four funicular segments are routinely measured in each series (Fig. 4).



Figures 2-9. *Rhyncogonus*, morphological elements used in descriptions. **2**. *R. simplex*, stylized dorsal view; darts indicate measurements for BL, IO, EB, PNL, PNB, and BB and ELB (see text); **3**. *R. simplex*, stylized lateral view; darts indicate measurement for ELL; **4**. *R. welchii*, stylized view of first 4 funicular segments: AFS1, AFS2, AFS3, AFS4, these arising from apex of antennal scape; dart indicates where basal part of the measurement for AFS1 is taken; **5**. *Rhyncogonus*, stylized view of head at oblique angle; darts indicate maximum diameter of left eye for E measurement and maximum elevation of right eye for EH measurement; **6**. *Rhyncogonus*, stylized male, ventral view of abdomen; **7**. *Rhyncogonus*, stylized female, ventral view of abdomen; **8**. *Rhyncogonus*, stylized lateral view of elytron of Hawaiian species groups; **9**. *Rhyncogonus*, stylized lateral view of elytron of *fallax* group; dart shows emargination with "beak-like" apex.

Abbreviations

Technical (see also section above):

afs, AFS	antennal funicular segment/s (in descriptions, measurements)
ex	example/s (in material examined lists)
o.d.	original description
pr	pair
vs	versus (in diagnoses)

Collections consulted/cited:

BMNH	The Natural History Museum, London
BPBM	Bishop Museum, Honolulu
CAS	California Academy of Sciences, San Francisco
CUIC	Cornell University, Ithaca
HDOA	Hawaii Department of Agriculture, Honolulu
MNHN	Muséum National d'Histoire Naturelle, Paris
UHM	University of Hawaii, Honolulu
USNM	National Museum of Natural History, Washington

References consulted/cited:

AMNH	Annals and Magazine of Natural History
ARB	Atoll Research Bulletin
BMADR	Bishop Museum Anthropology Department Reports
BMB	Bishop Museum Bulletins
BMOP	Bishop Museum Occasional Papers
BMSP	Bishop Museum Special Publications
BMTR	Bishop Museum Technical Reports
CNPRS	Cooperative National Park Research Studies Technical Reports
EA	Entomologia Americana
EMM	Entomologist's Monthly Magazine
ESU	Endangered Species Update
FH	Fauna Hawaiiensis
FR	Federal Register
HIK	Hawaiian insects and their kin
HSCI	Hawaiian sugar cane insects: Handbook of the insects and other invertebrates of Hawaiian sugar cane
MFPH	Manual of the flowering plants of Hawai'i
OCC	The otiorrhyncine Curculionidae of the tribe Celeuthetini
PHES	Proceedings of the Hawaiian Entomological Society
RDST	Royal Dublin Society Transactions
ST	Science Teacher

SYSTEMATICS

Rhyncogonus Sharp

Rhyncogonus Sharp, 1885, RDST (2)3: 176–177 (original description of genus: *R. blackburni*, *vestitus*, n.spp.).—Perkins, 1900, FH 2: 117,118,119,122–130 (comments; *R. nitidus*, *funereus*, *squamiger*, *stygius*, *minor*, *molokaiensis*, *dubius*, *freycinetiae*, *koebelei*, *kauaiensis*, *sordidus*, *lanaiensis*, *lahainae*, *depressus*, *vittatus*, *tuberculatus*, *sylvicola*, n.spp.; *blackburni*, *vestitus*, comments); Perkins, 1910, FH 3: 651–653 (*R. sharpi, simplex*, *extraneus*, *oleae*, *fuscus*, n.spp.; *koebelei*, comments); Perkins, 1919, EMM 55: 4 (*R. bryani* n. sp.).—Sharp, 1919: 77–82 (Rhyncogonides, n. tribe; notes on male genitalia; *R. giffardi* n. sp.).—Van Dyke, 1922: PHES 5: 49–50 (*R. alternatus* n. sp.).—Perkins, 1924, PHES 5: 379–380 (*R. saltus* n. sp.); Perkins, 1926, BMB 31: 59–62 (*R. exsul*, *biformis*, *fallax*, n.spp.); Perkins, 1927, PHES 6: 465–471 (Rhyncogonini, comments; *R. segnis*, *obsoletus*, *mutatus*, n.spp.; *sordidus*, *freycinetiae*, *koebelei*, *oleae*, *saltus*, *fuscus*, comments); Perkins, 1928, AMNH (10)1: 123–129 (Marquesas).—Van Dyke, 1932, BMB 98: 23–52 (*Rhyncogonus* including *Microgonus*, Marquesas).— Perkins, 1933, PHES 8: 269–270 (*R. welchii* n. sp.).—Swezey,1934, PHES 8: 527–528 (O'ahu *Rhyncogonus* spp. mapped).—Van Dyke, 1937, BMOP 13: 89–129 (*Rhyncogonus*, Mangarevan Expedition, including *R. fosbergi, vagus*, n.spp.).—Zimmerman, 1956, PHES 16: 165–169 (*R. segnis, fordi* n.ssp.).—Marshall, 1956, OCC, 7 (Rhyncogonini, relationships).

Type species: *Rhyncogonus blackburni* Sharp, by present designation.

Rhyncogonus was established by Sharp (1885) for 2 new Hawaiian species (*R. blackburni* and *R. vestitus*). While *R. blackburni* received the stronger emphasis in Sharp's rationale for proposing this genus, its designation was alluded to but not actually fixed at that time. This point was never raised in subsequent publications by Sharp, Perkins, or Van Dyke, but Swezey (1934) wrote, "The genus *Rhyncogonus* was erected by Dr. David Sharp in 1885 for *R. blackburni*, the largest black species on Oahu." Again, the type species was alluded to but not fixed in the strictest sense. Accordingly, the type species for *Rhyncogonus* is hereby fixed as *R. blackburni* Sharp, thus carrying out Sharp's original intention and the logical interpretation of subsequent authors.

The Rhyncogonini, Rhyncogonides of Sharp (1919), was established for *Rhyncogonus*, which now contains many species distributed through the N and S Pacific (Fig. 1). This tribe includes *Microgonus* Van Dyke, 1932 with its single species, *M. oodemaformis* Van Dyke, from Nukuhiva and possibly also *Psomeles* Guérin-Méneville, 1838 with its single species, *P. luctuosus* Guérin-Méneville, from Tahiti [but it is now presumed lost (Marshall, 1956)].

Psomeles predates *Rhyncogonus* by almost 50 years, and without a specimen of *P. luctuosus* at hand, it is unlikely that anyone would combine these genera. Sharp never saw this specimen and wrote (1885), "... and only imperfectly characterized [*Psomeles*]." Marshall (1956) wrote, "... seven species of this genus [*Rhyncogonus*] are now known from Tahiti and six more from other islands of the Society Group, and not one of these agrees with Guérin-Méneville's description [of *Psomeles*]." Still, the exact position of *Psomeles* remains a problem and can only be resolved after we gain an accurate concept of *P. luctuosus*. Two of several additional species attached to *Psomeles* have since been removed and placed in the Celeuthetini by Marshall (1956).

Sharp compared this tribe to the related Celeuthetini with a discussion on mouthparts and leg structure. Van Dyke (1932) and Marshall (1956) agreed to the validity of the tribe, the latter emphasizing the leg structure. Marshall also added notes on the Elytrurini, which was proposed as new at that time.

The Rhyncogonini may be separated from the celeuthetines and elytrurines by the condition of the metatibial corbel, which is simply flattened and without a distinct beveled area. The latter 2

tribes have the corbel beveled on the outer part: the internal edge of the bevel is glabrous in celeuthetines and set with stout setae in elytrurines. Rhyncogonines and celeuthetines have the metepisternal suture incomplete (well-impressed basally but obsolete apically) while the elytrurines have the suture complete. Rhyncogonines and elytrurines tend to have the procoxae approximate while the celeuthetines tend to have them slightly separated.

The Rhyncogonini represent the first wave of broad-nosed weevils into the mid-Pacific, and today these weevils remain only on remote oceanic islands, mostly in N and E Polynesia. Much of the original range of rhyncogonines may have been erased, now replaced by celeuthetines and elytrurines farther W in the Pacific. Such relict distributions as noted for the rhyncogonines are paralleled by other groups, including the primitive weevils, Aglycyderidae.

KEY TO SPECIES GROUPS AND SPECIES OF HAWAIIAN *RHYNCOGONUS*

The key is mostly dichotomous but couplets 2, 9, 42 are trichotomous. Also, certain other couplets are reached from separate earlier points in the key: for example, couplets 11, 12, and 16 all can run to couplet 40 for the *sordidus* group. The *fordi* and *vittatus* groups are also reached from multiple points.

♀ Abdominal sternum 5 triangular, rather evenly narrowed to a briefly rounded extremity; sterna 3–4 tilted apically exposing membrane along apex (Fig. 7); connate sterna 1+2 with surface weakly concave at most, usually flattened to convex; EL humeral margin usually sharper, at least basally; EL disc sometimes more convex across middle, thus less flattened.

♂. Abdominal sternum 5 subtriangular, the apex bluntly rounded; sternum 3 often not tilted but 4 tilted apically exposing membrane along apex (Fig. 6); connate sterna 1+2 with surface flattened to broadly concave; EL disc sometimes more flattened.

1. EL lateral margin at preapex-apex straight or gently curved: no preapical emargination and no "beaked" extremity (Fig. 8); BF various but commonly robust ... Hawaiian Islands 2

—. EL lateral margin at preapex-apex strongly sinuate: apical 1/5 or so suddenly narrowing, becoming concavely emarginate at preapex and then briefly "beaked" slightly downward at extremity (best seen in lateral view) (Fig. 9); BF slender in both sexes ... Line Islands, Wake Island ... *fallax* group..... 52

2. PN disc centrally glabrous or subglabrous: very finely setose at most and ± visible at 25 ×; antennal scape with setae ± adpressed 3

PN disc centrally subglabrous AND antennal scape with erect setae ….*vittatus* group, in part 23

PN disc centrally sparsely and finely setose OR moderately to strongly clothed with setae and/or squamae: when thinly clothed pubescence readily visible at 12 ×; antennal scape with setae various 5

3. PN disc glabrous 4

—. PN disc subglabrous: very finely setose; prothorax without a distinct stripe at side but with a fine diffused pubescence, this denser as a heavier patch near extreme base ... EL disc glabrous to finely setose or glabrous, no squamae; EL disc with conspicuous small granules especially abundant on lateral interstices … *stygius* group 21

4. Larger insects: commonly > 12 mm and trochanteral bristles usually double; prothorax essentially glabrous at side but sometimes a white patch of squamae present at extreme base of side; EL disc usually glabrous (rarely squamose); derm usually pitch black, sometimes piceous ... *blackburni* group 17

—. Smaller insects: commonly < 12 mm and trochanteral bristles usually single; prothorax with either a complete stripe on each side or only a basal tuft; derm medium red-fuscous to pitch black ...*freycinetiae* group 19

5. EL disc pustulate or tuberculate, with either low pustules or small to moderate sized tubercules generally distributed on disc; EL outline either ± smooth or interrupted by protuberant tubercles along apical half ... *tuberculatus* group 27
—. EL disc subevenly convex or flattened or becoming subcostate or irregular or "bumpy" but never pustulate-tuberculate; EL outline smooth or minimally interrupted by small teeth or low crenulations along apical half 6

6. Antennal scape clothed with mostly adpressed setae: the longest setae about as long as thickness of scape and lying flat, sometimes a few setae raised to about 20 degrees but the majority adpressed 7
—. Antennal scape subdensely clothed with raised setae: setae commonly as long as thickness of scape and raised about 30–45 degrees ... *vittatus* group, in part 23

7. Prothorax strongly globose AND eye small but subhemispherical; PN disc ± rough or uneven in elevation; discal punctures either close and deep or coarse and large, sometimes in channels; raised intervals between punctures smooth shining (though punctures themselves may be dull), and derm pitch black (rarely reddish) ... Northwestern Hawaiian Islands ... *exsul* group 30
—. A different combination of characters: if prothorax strongly globose with eye subhemispherical, then disc ± regularly convex, surface granulate, and derm dark fuscous; derm otherwise ranging from fulvous to subpiceous, rarely ever pitch black ... windward Hawaiian Islands (plus the Laysan record for *R. bryani*) 8

8. Rostrum not strigose, surface ± flattened: rostral punctures either relatively large and distinct on a moderately flat surface OR if punctures shallow to obliterated, then surface extremely flat; rostrum lacking a strong median carina but sometimes with a hint of one 9
—. Rostrum ± strigose: rostral punctures relatively small or indistinct when occupying deeper grooves; rostrum sometimes with median carina strongly developed 13

9. Sensory setae inconspicuous or absent on EL disc: when present, setae short and decurved or extremely fine and sparse and are usually distinguished from ground pubescence with difficulty; sometimes longer more conspicuous setae may be present on EL preapex and along humeral and sutural margins 10
—. Sensory setae, if ± conspicuous and decurved, then rostrum extremely flat and smooth-shagreened ... *sordidus* group, in part 40
—. Sensory setae conspicuous on EL disc: setae fairly stout, curved, and carried higher than adpressed ground pubescence ... *alternatus* group 39

10. PN intervals smooth shining, at most with only a hint of granulosity; rostral pubescence slightly heavier: of whitish to buff setiform squamae 12
—. PN intervals granulate 11

11. Rostral pubescence finer: of fine clear silverish setae ... *sordidus* group, in part 40
—. Rostral pubescence slightly heavier: of setiform squamae ... *fordi* group, in part 50

12. PN median impunctate line narrow and weakly elevated; PN discal surface rather evenly convex ...*sordidus* group, in part 40
—. PN median impunctate line well-developed: relatively broad and strongly elevated along middle; PN discal surface irregular ... *fordi* group, in part 50
13. Sensory setae inconspicuous or absent on EL disc: when present, setae short and decurved or extremely fine and sparse and are usually distinguished from ground pubescence with difficulty; sometimes longer more conspicuous setae may be present on EL preapex and along humeral and sutural margins 14

—. Sensory setae conspicuous on EL disc: setae either abundant on disc or isolated as single heavy bristles sometimes borne on an irregular surface, these slightly to moderately curved and raised to about 30 degrees or more and directed posteriorad, and always carried higher than adpressed ground pubescence ... *vestitus* group 34

14. Dorsal pubescence mostly of short broad squamae ... *sharpi* group 33
—. Dorsal pubescence mostly of setae to setiform or lanceolate squamae 15

15. Rostrum coarsely strigose, the surface generally smooth; EL infolded area more uniformly pubescent, lacking extensive, bold white squamose markings 16
—. Rostrum finely strigose, the surface usually with some granulation; EL infolded surface boldly marked with spots or stripes of white squamae ... *kauaiensis* group 26

16. Rostral surface and PN disc finely setose; PN pubescence much finer than EL pubescence, the latter heavier: of lanceolate squamae; EL pubescence ± uniform though coarse ... *sordidus* group, part 40
—. Rostral surface and PN disc with heavier squamae, these setiform to lanceolate; PN and EL squamae similar; EL pubescence either uniform or denser over interstices 4 and 8 forming weak but neat stripes ... *simplex* group 31

17. PN disc with central punctures closer: commonly 1.5–3.0 × as large as interspaces; interspaces mostly swollen, shining to slightly granulate 18
PN disc with central punctures more distant: commonly 0.5–1.0 × as large as interspaces; interspaces mostly flat and strongly shining ... dorsum: rostrum and PN smooth and shining, EL duller alutaceous; EL puncture rows ± substriate at most; BL 12.0–17.5 mm ... Kaua‘i ..... ***nitidus***

18. EL punctures in regular fine striate rows with interstices uniform and regular; EL punctures tending smaller: punctures commonly 1–2 × as large as interstices ... dorsum: PN intervals smooth shining; EL interstices duller alutaceous; BL 11.7–17.3 mm ... O‘ahu ..... ***blackburni***
—. EL punctures not in fine striate rows: punctures in any single row with swollen intervals similar to swollen interstices between rows producing a “bumpy” appearance overall; EL punctures tending larger: punctures commonly 1–4 × as large as interstices ... derm smooth, strongly shining, even though intervals between punctures are swollen; BL 12.0 mm ..... O‘ahu ..... ***funereus***

19. EL disc with fine pubescence, this conspicuous at 12 × and a little more pronounced in females; ♀ humeral margin sharp and usually explanate basally, its immediate surface always finely squamose; EL puncturation with inner rows tending regular and ± striate in both sexes ... dorsum: dark reddish fuscous to subpiceous; prothorax with PNL/PNB <90 (i.e. PN less than 0.90 × as long as broad) and lateral stripe commonly thinly diffused, sometimes heavy; BL 8.5–10.6 mm ... O‘ahu ..... ***oleae***
—. EL disc glabrous or subglabrous, sometimes sparsely microsetose: ± visible at 12 ×; EL puncturation with inner rows not quite striate or regular in females and rather irregular in males 20

20. Prothorax with lateral stripe reduced to a basal tuft; prothorax longer: PNL/PNB 88–95, commonly >90 (i.e. PN 0.88–0.95 × as long as broad); ♀ humeral margin sharp and slightly explanate basally ... dorsum: shining blackish but rarely reddish fuscous (1 ♂); PN intervals smooth to slightly granulate; EL interstices smooth to alutaceous, usually more strongly alutaceous in individuals with more irregular puncturation; BL 9.2–12.3 mm ... Moloka‘i ... (= *R. dubius* Perkins, n. syn.) ..... ***molokaiensis***
—. Prothorax with lateral stripe strongly developed; prothorax shorter: PNL/PNB about 75–85; ♀ humeral margin heavily beaded basally, not briefly explanate ... dorsum: reddish fuscous (male) or piceous (female); PN intervals smooth with a hint of granulosity; EL interstices smooth shining; BL 7.2–10.8 mm ... O‘ahu ..... ***freycinetiae***

21. Rostrum deeply strigose; PN disc rather evenly convex, including basal area; dorsum blackish 22
—. Rostrum substrigose at most; PN disc unevenly convex, basal area flattened to depressed; dorsum orange-fulvous to red-fuscous ... BL 13.7–14.5 mm ... O'ahu ..... ***segnis***

22. PN discal punctures rather fine, their intervals more flattened and less reticulate; PN surface very finely granulate with a fairly bright shine ... dorsum: derm subpiceous to nearly black; BL 13.1–15.3 mm ... Kaua'i ..... ***stygius***
—. PN punctures relatively coarse and deep, smaller laterally; intervals strongly swollen to reticulate; PN surface finely granulate with a dull shine ... dorsum: derm subpiceous; BL 10.6 mm ... O'ahu ..... ***pi*** n. sp.

23. EL pubescence of mainly setae or narrow lanceolate squamae 24
—. EL pubescence of mainly broad squamae 25

24. Dorsal pubescence of mainly fine setae in ♂ or slender lanceolate squamae in ♀, this pubescence sparser with much derm showing in both sexes, making the insect appear generally blackish at a distance; ♀: EL nearly parallel-sided along middle, then more suddenly narrowed at preapical closure ... dorsum: derm piceous, clothed with fine clear silvery setae and/or whitish to buff lanceolate squamae; BL 9.4–14.2 mm ... Kaua'i ..... ***ricei*** n .sp.
—. Dorsal pubescence of mainly narrow lanceolate squamae in both sexes, this pubescence closer with less derm showing, making the insect appear generally grayish at a distance; ♀: ± gradually narrowing from about middle, with preapical closure nearly straight to barely sinuate ... dorsum: derm piceous, clothed with whitish buff squamae; BL 9.2–13.1 mm ... Kaua'i ..... ***depressus***

25. PN with pubescence of central disc predominantly of broad squamae, these similar to squamae of EL disc; EL pubescence similar in both sexes: squamae somewhat organized into broad longitudinal rows of multiple squamae; EL with alternate interstices glabrous and ± subcostate ... dorsum: derm dark red-fuscous to piceous, pubescence yellowish buff; BL 9.0–11.0 mm ... Kaua'i ..... ***vittatus***
—. PN with pubescence of central disc predominantly of narrow lanceolate or setiform squamae, these much narrower and slightly longer than squamae of elytral disc; EL pubescence: m with single series of squamae coordinating with punctures and leaving much of derm exposed; ♀ more generally squamose near sides and apex; EL interstices rather equally swollen ... dorsum: derm piceous to pitch black, pubescence uniformly whitish or yellowish buff; BL 9.4–15.8 mm … Kaua'i ..... ***squamiger***

26. Eye moderately produced: EH/E 35–41 (e.g. 0.35–0.41 × as high as greatest eye diameter); prothorax with side usually weakly convex along middle ... dorsum with derm red-fuscous to subpiceous; PN disc submoderately clothed with whitish setiform squamae; EL disc with a generally patchy pubescence of white to pale buff slender squamae; BL 8.9–13.8 mm .... Kaua'i ..... ***kauaiensis***
—. Eye rather strongly produced: EH/E 43; prothorax with side moderately convex along middle ... dorsum with derm subpiceous; PN pubescence very sparse distal of whitish buff setiform squamae; EL pubescence sparse, mainly of silvery setae, also with some whitish lanceolate squamae behind humerus and a few preapically; BL 10.1 mm ... Kaua'i ..... ***minor***

27. Rostral surface largely strigose; interocular space narrowly squamose along inner eye margins, elsewhere more sparsely clothed with thinner squamae or setae 28
—. Rostral surface largely flattened and smooth-shagreened, the surface becoming strigose only near interocular space; interocular space rather broadly squamose along inner eye margins, these squamae sometimes extending into the median area 29

28. EL disc tuberculate, the tubercles moderately large, each bearing a single stout suberect bristle; EL humeral margin rather broadly beaded and interrupted by tubercles over most of length ... BL 7.3–9.3 … Kaua'i ..... ***tuberculatus***

—. EL disc pustulate, the pustules small and bearing an inconspicuous decumbent bristle; EL humeral margin sharply beaded for entire length, the outline rather even but finely serrate ... BL 7.5–9.5 mm … Kaua‘i ..... ***sylvicola***

29. PN surface rather evenly convex prebasally; PN median line extremely narrow to obsolescent along middle; EL tubercles relatively low distally and barely exceeding humeral margin in lateral outline as viewed from above ... BL 8.4–9.1 mm ... Kaua‘i ..... ***haupu*** n. sp.

—. PN surface shallowly concave prebasally; PN median line usually well-developed along middle; EL tubercles relatively strong distally and distinctly exceeding humeral margin in lateral outline as viewed from above ... BL 8.2–11.0 mm ... Kaua‘i ..... ***kahili*** n. sp.

30. Tibiae with suberect bristles not longer than tibial diameter; EL disc with numerous low sensory setae present throughout but these barely discernible, inconspicuous in both sexes; PN discal punctures coarse, sometimes in rugose channels; PN discal surface often quite irregular, sometimes with circular depression near side; ♀: EL humeral carina produced and sharp on basal 1/4 then abruptly diminished ... BL 8.4–13.1 mm ... Nihoa ..... ***exsul***

—. Tibiae with erect bristles exceeding tibial diameter: m with these bristles very long on both femora and tibiae; EL disc with longer hairs conspicuous in both sexes but more so in ♂; PN discal punctures deep, close, not in channels, interspaces ± reticulate; PN discal surface slightly undulating; ♀: EL humeral carina sharp for most of length, diminished at preapex but ± continued to apex ... EL pubescence with tendency to form stripes; BL 8.0–13.3 mm ... Necker ..... ***biformis***

31. EL with preapical closure nearly evenly narrowed to apex; eye height averaging higher: EH/E 38–56 (i.e. 0.38–0.56 × as high as greatest diameter); dorsum: derm fulvous to black; dorsal pubescence white or whitish buff; EL squamae sometimes forming weak discal stripes 32

—. EL with preapical closure sinuate to slightly acuminate apex (as seen from above); eye relatively low: EH/E 30–38; dorsum: derm dark red fuscous to blackish; dorsal pubescence white; EL squamae rather uniformly distributed ... BL 7.3–10.1 mm ... Hawai‘i ..... ***stellaris*** n. sp.

32. Eye relatively large: IO/EB 42–55 (i.e. interocular distance/breadth across eyes 0.42–0.55) ... BL 7.9–10.6 mm ... Moloka‘i ..... ***simplex***

—. Eye relatively small: IO/EB 56–61 ... BL 7.0–10.3 mm ... O‘ahu ..... ***simplex***

33. Eye weakly produced: only about 1/3 as high as greatest eye diameter: EH/E 23–36 (i.e. eye 0.23–0.36 × as high as greatest eye diameter); EL with 1 or more stripes of densely arranged scales contrasting with intervening fields of shorter + slenderer hairs ... dorsum: PN derm piceous; EL derm pitch black with pubescence whitish; EL always with a strong mid-discal stripe + spots or broken stripes ... BL 14.2–18.2 mm ... O‘ahu ..... ***welchii***

—. Eye prominent: EH/E 40 or more ... dorsum: derm subpiceous to blackish with pubescence whitish; EL with more uniform pubescence, somewhat diffused into vague stripes ... BL 9.4–13.5 mm ... Moloka‘i ..... ***sharpi***

34. PN discal ground pubescence of short obovate squamae together with setiform squamae; EL squamae also tending to be short obovate; dorsal pubescence predominantly whitish with some mixing of yellow-buff 35

—. PN discal ground pubescence of setiform squamae; dorsal pubescence various 36

35. EL disc rather evenly convex or with broad indistinct costae on disc further accentuated by heavier pubescence, not with distinctly higher costae basally; antennal funicular segment 1 subequal to or shorter than afs2 ... BL 6.0–9.5 mm ... Maui, Lāna‘i ..... ***vestitus***

—. EL disc with a low basal costa on interstice 8 and a hint of another basal costa on 4; antennal funicular segment 1 slightly longer than afs2 ... known only from unique f; BL 8.4 mm ... Laysan ..... ***bryani***

36. Femoral pubescence forming preapical whitish band of narrow lanceolate scales delimited by adjacent areas of finer setae exposing darker underlying derm, thus making extreme apex darker than preapex 37

—. Femoral pubescence becoming uniformly thick from middle to extreme apex 38

37. EL ground pubescence of disc subdensely squamose; EL sensory setae rather straight; prothorax with side gently convex ... dorsum: derm dark red-fuscous to piceous; EL pubescence subuniform tending only toward slight patchiness or stripe formation; BL 5.8–7.8 mm ... O‘ahu ..... ***saltus***
—. EL ground pubescence of disc sparsely setose; EL sensory setae curved; prothorax with side ± flattened along middle ... dorsum: derm blackish; EL setae fine, silvery; BL 7.9–10.5 mm ... O‘ahu ..... ***gagneorum*** n. sp.

38. Prothorax relatively stout: PNL/PNB 78–88 (i.e. 0.78–0.88 × as long as broad); derm darker: dark reddish fuscous to blackish fuscous; dorsal pubescence slightly coarser: EL disc usually with groups of stouter squamae interspersed with finer setae ... BL 7.1–9.9 mm ... O‘ahu ..... ***kapapa*** n. sp.
—. Prothorax relatively slender: PNL/PNB 87–96; derm paler: orange–fulvous; dorsal pubescence slightly finer: EL disc with squamae almost uniformly fine ... BL 7.7–10.3 mm ... O‘ahu ..... ***extraneus***

39. Femora setose basally and becoming uniformly squamose from middle to extreme apex: squamae pale lanceolate; PN intervals ± broadly flattened and granulate, discal punctures relatively large and shallow ... dorsum: derm dark fuscous; PN pubescence of orangish squamae tending to be thicker and more broadly lanceolate at sides, EL tending to have pubescence patchy overall, sometimes giving a “bumpy” appearance; ground pubescence generally buff-white to ochraceous, sensory setae, ochraceous; BL 7.5–12.0 mm ... O‘ahu ..... ***fuscus***
—. Femora essentially setose: ± uniformly set with mostly slender setiform squamae; PN intervals granulate and somewhat flattened, discal punctures relatively small and deep ... dorsum: derm reddish fuscous to subpiceous; PN with setiform squamae pale buff; EL disc and apex with low broad irregular “bumpy” costae: these usually more densely pubescent, pubescence patchy in close patterns but sometimes forming denser broken longitudinal stripes over discal costae, color whitish or buff, sensory setae buff; BL 8.9–11.8 mm … Kaua‘i ..... ***alternatus***

40. Rostrum not strigose, surface flattened 41
—. Rostrum strigose ... prothorax ± cylindrical, the sides weakly convex along middle; PN discal punctures moderate to large in size; dorsum: derm red-fuscous; BL 8.2–10.6 mm ... Moloka‘i ... *giffardi-olokui* subgroup, in part ..... ***olokui*** n. sp.

41. Rostral pubescence of setiform squamae, these slightly heavier than ordinary setae; PN disc with intervals smooth shining, sometimes with only a hint of granulosity … *sordidus* subgroup, in part (except *R. giffardi*)..... 42
—. Rostral pubescence finely setose at most, often subglabrous; PN disc shagreened to granulate 45

42. PN disc with surface rather evenly convex 43
—. PN disc with a deep circular depression on each side of middle in ♂; dorsum dark red-fuscous; BL 10.6 mm ... W Maui ..... ***lahainae***
—. PN disc with a broad shallow depression prebasally ... prothorax broadest at middle or before middle; PN disc with profile in lateral view weakly convex to ± flattened ... dorsum: derm dark reddish fuscous; BL 9.4–13.7 mm ... Moloka‘i ..... ***montygorum*** n. sp.

43. Prothorax globose: the sides rather strongly convex but broadest behind middle; PN disc with profile in lateral view quite convex ... dorsum: derm dark reddish fuscous; BL 10.5–12.1 mm ... W Maui .... ***lahainae***
—. Prothorax subglobose: the sides weakly convex and more narrowed apically; PN disc with profile flatter, less convex 44

44. PN median impunctate line barely raised, surface with a hint of granulosity; derm of dorsum piceous to blackish ... BL 11.7–15.3 mm ... Kaua‘i ..... ***tristis*** n. sp.

—. PN median impunctate line irregularly raised, somewhat swollen; derm of dorsum red-fulvous ... BL 8.5–11.1 mm ... Hawai'i … *giffardi-olokui* subgroup, in part ..... ***giffardi***

45. PN discal punctures either deep but separated by flattened finely granulate intervals OR punctures very shallow to obliterated on a shagreened to coarsely granulate surface ... *koebelei* subgroup 46
—. PN discal punctures fine but deep and close, their intervals raised and often reticulate, the surface finely granulate ... *sordidus* subgroup, in part 49

46. Eye barely raised above convexity of head: EH/E 25–32 (i.e. 0.25–0.32 × as high as greatest eye diameter ... 47
—. Eye somewhat raised above convexity of head: EH/E (rarely 31) commonly 35–43 48

47. PN punctures distinct: punctures moderately deep and close, their intervals ± flattened and finely granulate; EL preapex rather strongly acuminate; rostrum extremely flattened and smooth-shagreened, the punctures small to obliterated ... dorsum medium orange- to red-fuscous to piceous; BL 9.4–13.1 mm ... O'ahu ..... ***koebelei***
—. PN punctures barely evident: punctures very shallow and sparse, their intervals shagreened; EL preapex not strongly acuminate; rostrum flattened-granulate, the punctures ±large and shallow to obsolescent ... dorsum with derm red-fuscous to subpiceous; BL 8.2–9.8 mm ... O'ahu ..... ***obsoletus***

48. Femora setose and squamose, the latter forming at least a partial white preapical band; rostral punctures nearly obliterated ... derm red-fuscous to subpiceous; BL 9.2–10.5 mm ..... O'ahu ..... ***mutatus***
—. Femora sparsely setose, no hint of a squamose preapical band; rostral punctures moderately deep ... derm orange-fulvous to red-fuscous; BL 8.7–11.0 mm ... O'ahu ..... ***femoratus*** n. sp.

49. Prothorax usually strongly globose: the sides moderately strongly convex; PN disc with median impunctate line usually thin, sometimes obsolete; rostrum often flat smooth-finely granulate and punctate; PN disc sometimes strongly impressed on basal 1/3 ... dorsum: derm commonly red-fuscous, sometimes blackish; BL 8.7–13.7 mm ... Lāna'i ..... ***sordidus***
—. Prothorax usually subglobose: the sides gently convex; PN disc with median impunctate line often complete but narrow; rostrum sometimes more irregularly flattened and coarsely punctate; PN disc sometimes flattened prebasally ... dorsum: derm orangish to reddish fuscous or subpiceous; BL 9.0–12.0 mm ... O'ahu ..... ***wiliwilinui*** n. sp.

50. Rostral surface smooth shining, substrigose or not; PN median line strongly raised at least in part, strongly shining; PN discal intervals smooth shining 51
—. Rostral surface granulate, dull, flattened: ± smooth to faintly strigose; PN median line distinct for entire length but barely raised, surface granulate; PN discal intervals granulate ... dorsum: derm subpiceous in ♀; reddish fuscous in ♂; PN discal surface in lateral profile gently convex in ♀, sinuate in ♂; BL 11.0–13.5 mm ... O'ahu ..... ***howarthi*** n. sp.

51. PN with discal surface flat and straight in lateral profile (i.e. as viewed from side); PN median line fairly strong though diminished prebasally; EL microgranules occasional on infolded surface and ± absent on disc ... dorsum with derm piceous, smooth; EL pubescence ± uniform and sparse, silvery to whitish and becoming slightly patchy laterally on apical 1/3; BL 12.3 mm ... W Maui ..... ***zeta*** n. sp.
—. PN with discal surface flat on basal half and distinctly declivitous on anterior half in lateral profile; PN median line well-elevated and strongly shining, this line usually complete from near middle to anterior margin; EL discal microgranules present ... dorsum with derm subpiceous to piceous; EL pubescence sparse and uniform, silvery to whitish; BL 12.4–15.8 mm ..... O'ahu ..... ***fordi***

52. Upper vertex moderately punctate; EL humeral margin finely carinate along apical 1/3 in both sexes, also along basal 1/10 in ♀ 53

—. Upper vertex finely punctate; EL humeral margin with barely a hint of a carina on along apical 1/3 [male known only] ... dorsum: derm red-fulvous, with slender whitish pubescence; some setae raised at PN side and EL disc; BL 8.2 mm ... Wake ..... ***fallax***

53. Female: posterior margin of abdominal sternum 4 with a fine carina merely interrupted at middle ... dorsum: derm red-fuscous, with moderate varied pubescence of whitish slender scales, together with suberect fine setae on EL; BL 7.6–9.9 mm ... Fanning ..... ***vagus***

—. Female: posterior margin of abdominal sternum 4 with an elevated margin concavely emarginate at middle ... dorsum: derm dark red-fuscous, with rather dense white pubescence of slender scales over both PN and EL, the latter with some fine suberect setae; BL 6.1–10.1 mm ... Christmas ..... ***fosbergi***

Rhyncogonus alternatus Van Dyke Figs. 10, 11, 107, 148

Rhyncogonus alternatus Van Dyke, 1922, PHES 5(1): 49–50 (original description).—Perkins, 1927, PHES 6(3): 469.—Van Dyke, 1932, BMB 98: 14.

Diagnosis. Species group: *alternatus* group. With *R. fuscus* Perkins. This species group is characterized by having a ± smooth and flattened rostrum in combination with conspicuously raised sensory setae on elytral disc. This species differs from *fuscus* by having femora uniformly clothed with setiform squamae (vs having femora setose basally but then uniformly and densely squamose from middle to extremity); differs from species in the *vestitus* group by having rostrum ± smooth (vs strigose).

Male (Holotype). Derm, pubescence, and major features as noted in redescription. BL 9.90 mm; BB 4.70mm; PNL 230 cmm (= 100ths mm); PNB 265 cmm; ELL 790 cmm; ELB 450 cmm; IO 95 cmm; EB 165 cmm; EH 30 cmm; E 50 cmm; AS (cmm): 280 : 70 : 60 : 36 : 30 : 28 : 28 : 28 : 110 (= club: 50+30+30). Ratios (× 100): BL/BB 211; PNL/PNB 87; ELL/ELB 176; IO/EB 58; EH/E 60; IO/E 190; AFS1/AFS2 117; AFS3/AFS4 120. Measurements for only this specimen were interpolated from an ocular grid and were coarser than usual: error = ± 3%. All other specimens were measured directly with a linear ocular scale.

Female (Paratype). See below. Additionally, AS (cmm): 276 : 64 : 48 : 32 : 30 : 30 : 30 : 30 : 112 (= club: 50+26+36).

Redescription (pooled). Gross body length 8.9–11.8 mm (o.d. 10–12 mm). Derm medium to dark red-fuscous. Dorsal pubescence essentially setose, ranging from clear silvery or golden, buff, or whitish, these becoming only slightly heavier as lanceolate squamae in places. Rostrum and front sparsely setose: setae becoming a little denser around inner eye margins. Antennal scape very finely setose, the setae adpressed. Pronotal disc ± moderately clothed with elongate setiform squamae, these evenly continued to side but no lateral stripe; lateral area with slightly thicker whitish lanceolate squamae basally on each side. Scutellum very finely setose, setae golden and not exceeding scutellar apex. Elytral disc ± densely clothed with narrow whitish to buff squamae, sometimes forming denser longitudinal broken stripes on ± subcostate intervals. Suberect sensory setae present from elytral mid disc to preapex, hairs raised about 30 degrees, each gently curved but not too conspicuous. Femora with adpressed setae rather evenly distributed over apical half. Tibiae set with bristles and setae of submoderate length.

Rostrum and front dorsally flattened, punctures fairly close and circular to ± elliptical, surface smooth-granulate. Eye circular, small, and moderately to strongly produced. Antennal funicular segment 1 subequal or slightly longer than afs2; afs3 slightly longer than afs4. Prothorax subglobose, sides convex; disc evenly convex but with slight median impunctate line (strongest along middle 1/3 in holotype); discal punctures of several sizes, some large, mostly 3–4 × as large as flattened to somewhat swollen intervals; intervals and median line smooth-granulate to smooth, with fairly strong shine. Elytron robust, the preapical closure less abrupt in ♂ (BB/BL 204–217) and more abrupt in female (BB/BL 182–192) with outline sinuate before briefly produced apex; disc somewhat flattened, some interstices irregularly subcostate but "bumpy" in appearance, this further accentuated by patchy ground pubescence; puncture rows either distinct to irregular to interstice 8 or 9, or generally irregular altogether; interstices with derm dull alutaceous, opaque, and with irregular "bumpy" surface; punctures

often fairly small and not conspicuous but sometimes moderately large and deep as in holotype; humeral margin extended to preapex, then obliterated; margin in female sharp along basal 1/5, then rounded for remainder, margin in ♂ essentially rounded for entire distance, edge somewhat "bumpy" along preapex; infolded surface opaque and smoother than disc, surface with a wrinkle perpendicular to margin in line with metacoxa. Ventral surfaces smooth-granulate with a satiny liquid shine. Femora smooth-alutaceus-punctulate. Tibiae smooth-granulate with rather smooth asperites. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 9, including holotype ♂): BL 8.90–11.76 mm, BB 4.23–5.98 mm, PNL 199–274 cmm (= 100ths mm), PNB 241–307 cmm, ELL 598–789 cmm, ELB 423–598 cmm, IO 80–108 cmm, EB 152–200 cmm, EH 22–32 cmm, E 52–60 cmm, AFS1 60–70 cmm, AFS2 48–66 cmm, AFS3 26–54 cmm, AFS4 24–32 cmm. Ratios (× 100): BL/BB 182–217, PNL/PNB 83–91, ELL/ELB 130–176, IO/EB 52–58, EH/E 40–60, IO/E 154–193, AFS1/AFS2 100–125; AFS3/AFS4 106–120.

Types. Holotype label data: Kauai Hawaii Alt 4000 ft. IV.13.1919 [ink handwritten]/ Van Dyke Collection [typeset]/ Type m *Rhyncogonus alternatus* Van Dyke [ink handwritten]/ California Academy of Sciences type No. 3317.

Material examined. **KAUA'I**: no specific locality, 1220 m (4000 ft), 29.iii.1919, W.M. Giffard Collection, J.A. Kusche collector (1 paratype); same as preceding, 1220 m, 13.iv.1919, Kusche (holotype, 2 paratypes); same as preceding, 1220 m, 14.iv.1919, Kusche (1 paratype); same as preceding, various elevations: 1170–1220 m 3500–4000 ft), various dates: 21.iii, 26.iii, 30.iii, 31.iii, 1.iv, 7.iv, 13.iv, 14.iv, 27.iv.1919, all by Kusche (175 ex); Koke'e, 6.vii.1937, E.C. Zimmerman collector (1 ex, elytra only); Makaha Road, Koke'e, 975 m (3200 ft), 6.x.2001, in leaf litter at base of *Melicope barbigera*, M. LeGrande & K.R. Wood collectors, # 1114 (1 ex, plus fragments of >20 ex); Kuia Val., 790 m (2600 ft), 8.x.2001, in litter at base of *Melicope barbigera*, LeGrande & Wood, # 1114 (2 ex, plus fragments of >10 ex). Examples (pairs) from original series distributed to BMNH, MNHN, USNM.

Collection and taxonomic history. Described by Van Dyke 1922: 49 ("I have examined twenty-eight mounted specimens from my collection, and had seen several times that number, all collected near a swamp, at an altitude of about four thousand feet, on the island of Kaua'i, during June [not June but March and April], 1919, by Mr. J. August Kusche."; holotype in CAS, Type no. 3317). The label month "IV" was transposed to "VI" and then cited as "June" in the original description; there are no June 1919 records in either BPBM or CAS. The 175 BPBM specimens reported below were indirectly cited in the original description. The specimens retained by Van Dyke included the holotype and 5 paratypes (dated IV-13-1919), allotype and 1 paratype (IV-14-1919), and 1 paratype (III-29-1919); these were later deposited in the CAS. The preceding information was kindly supplied by Vincent Lee, San Francisco. I later visited the CAS and measured the holotype there.

Distribution. Kaua'i. Higher elevations: 975–1200 m. The type locality is not fixed. It was loosely indicated as a "swamp" in the original description and specimen labels lack specific locality data other than island and elevation. Alakai Swamp is a likely site, a site not too far from Koke'e where further specimens were collected more recently. Specimens collected with the original series are numerous in BPBM, suggesting that this species was common when collected by Kusche over 80 years ago. A recent collection of a live specimen plus fragments of others at Koke'e indicate its continued presence. Restricted montane distribution: Pattern 4.

Habitat and life history notes. Montane Mesic Forest and Montane Wet Mixed communities (Gagné & Cuddihy, 1990: 97–98,102–103) possibly cover the range of *R. alternatus*. LeGrande & Wood collected a live specimen and fragments of others in leaf litter beneath *Melicope barbigera*, the probable host whose leaves showed signs of chewing.

Status. Extant. Various collections to 2001. Range includes Koke'e State Park and Alaka'i Wilderness Preserve. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus biformis Perkins Figs. 16, 74, 117

Rhyncogonus biformis Perkins, 1926, BMB 31: 60–61 (original description).—Bryan, 1926, BMSP 31: 11; Bryan, 1926, PHES 6: 235.—Beardsley, 1967, PHES 19: 170.—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.

Diagnosis. Species group: *exsul* group. With *R. exsul* Perkins. This is the only species with a copious erect pubescence of elongate fine setae in the male: these setae are prominent on pronotum, elytron, femora, and tibiae. The female has shorter stouter erect sensory hairs. Both sexes have a dense ground pubescence of buff-white squamae that is sparser on the pronotal disc allowing the dark derm to show through centrally. Resembles *R. exsul* Perkins from Nihoa in body form but *R. exsul* lacks extremely long erect sensory setae.

Male (Holotype). Derm, pubescence, and major features as noted in redescription. BL 10.58 mm; BB 5.06 mm; PNL 232 cmm (= 100ths mm); PNB 282 cmm; ELL 764 cmm; ELB 506 cmm; IO 124 cmm; EB 206 cmm; EH 30 cmm; E 56 cmm; AS (cmm): 268 : 54 : 48 : 40 : 36 : 32 : 32 : 32 : 106 (= club: 48+28+31). Ratios (× 100) BL/BB 209; PNL/PNB 82; ELL/ELB 151; IO/EB 60; EH/E 54; IO/E 221; AFS1/AFS2 113; AFS3/AFS4 111.

Female (Allotype). Derm, pubescence, and major features as noted in redescription. BL 10.92 mm; BB 5.54 mm; PNL 241 cmm (= 100ths mm); PNB 303 cmm; ELL 747 cmm; ELB 540 cmm; IO 124 cmm; EB 212 cmm; EH 30 cmm; E 60 cmm; AS (cmm): 268 : 54 : 48 : 40 : 36 : 32 : 32 : 32 : 106 (= club: 48+28+31). Ratios (× 100) BL/BB 197; PNL/PNB 79; ELL/ELB 138; IO/EB 58; EH/E 50; IO/E 207; AFS1/AFS2 136; AFS3/AFS4 113.

Redescription (pooled). Gross body length 8.0–13.3 mm (o.d. 9–12 mm). Derm dark red-fuscous to black-fuscous. Dorsal pubescence generally dense buff-white. Antennal scape finely setose, setae slightly raised. Pronotal pubescence thinner on disc where dark derm shows more, this pubescence of narrow white squamae distally becoming broader and closer laterally into a fused lateral stripe. Elytral squamae short obovate-lanceolate and shorter than pronotal squamae; sometimes this pubescence less uniform and forming vague stripes. Erect sensory setae in ♂ very conspicuous on pronotum and elytron with a copious clothing of extremely long clear silvery setae; ♀ with shorter but conspicuous pale erect sensory bristles on sides and base of prothorax and throughout elytron. Elytral infolded surface densely squamose, with raised sensory setae: in ♂ extremely long and fine and in female shorter and heavier. Ventral surfaces ± moderately clothed with fine white setiform squamae, these generally denser at sides of thorax; abdominal sterna more finely setose on apical 3 sterna, the last subpilose in both sexes. Femora with ± adpressed lanceolate squamae in female and with finer raised longer setae in ♂; subevenly clothed from middle to apex in both sexes. Tibiae: male bearing extremely long erect setae in all perpendicular directions; female with short squamae and bristles, and with rather few submoderately long setae internally.

Rostrum and front dorsally flattened becoming gently concave anteriorly, closely reticulate-punctate, punctures circular to ovate, intervals raised, smooth with hint of granulation, shining. Eye circular, small, and strongly produced. Antennal funicular segment 1 longer than afs2; afs3 ± subequal to afs4. Prothorax globose, sides convex; disc subevenly convex, sometimes slightly flattened laterally and shallowly depressed basally at middle; median line obsolescent, sometimes a remnant at center; discal punctures closely reticulate, fairly large, commonly 4–5 × as large as intervals; intervals smooth, shining. Elytron robust, preapical closure fairly abrupt and slightly concave to slightly acuminate apex; disc flatter in ♂, more convex in female; discal punctures ± in regular rows internally and confused laterally; interstices swollen to subcostate, especially on 4 and 8; detail ± hidden by close ground pubescence but surface alutaceous with a dull shine; humeral margin continued to apex in male and to preapex in female; margin in ♂ sharp for entire distance; in female strongly produced basally, sharp along middle, and beaded apically, edge without adornments. Ventral surfaces generally smooth-granulate-punctate with a fairly strong shine but apical 3 abdominal sterna duller finely punctulate. Femora smooth-alutaceous-punctate. Tibiae smooth-alutaceous with asperate punctures. Aedeagus: apex as figured. Spermatheca as figured: gland valve distinctively low.

Range (n = 8, including holotype, allotype): BL 8.06–13.27 mm, BB 4.03–6.38 mm, PNL 174–291 cmm

(= 100ths mm), PNB 232–348 cmm, ELL 564–913 cmm, ELB 407–623 cmm, IO 88–140 cmm, EB 156–240 cmm, EH 24–36 cmm, E 48–64 cmm, AFS1 40–64 cmm, AFS2 32–58 cmm; AFS3 24–40 cmm; AFS4 26–36 cmm. Ratios (× 100): BL/BB 189–226; PNL/PNB 75–85, ELL/ELB 138–151, IO/EB 56–60, EH/E 50–57, IO/E 183–233, AFS1/AFS2 107–136; AFS3/AFS4 92–113.

Types. Holotype label data: Necker I. June 29 23 [typeset + ink]/ E.H. Bryan Jr Collector [typeset]/ Holotype 243 [typeset + ink]/ *Rhyncogonus biformis* ♂ Type. R.C.L.P. [handwritten in ink].

Material examined. **NECKER**: 29.vi.1923, E.H. Bryan collector (holotype and 20 paratypes); same loc. but 15.vi.1923, C.S. Judd collector (2 paratypes); same loc. but 17.vi.1923, Bryan, C.M. Cooke, D.D. Thaanum collectors (13 paratypes); same loc. but 18.vi.1923, Bryan (4 paratypes, including allotype); same data as preceding but 19.vi.1923 (4 paratypes); same data as preceding but 20.vi.1923 (2 paratypes); same loc., no date or collector but with Perkins' red tag and "*biformis* var." label (1 paratype); same loc., 26.ix.1964, under *Chenopodium oahuense*, J.W. Beardsley collector (32 ex); same loc., 22.vi.1982, ex *Chenopodium oahuense*, P. Conant collector (9 ex); Summit Hill, 22.ix.2000, on *Chenopodium* at night, G.M. Nishida collector (4 ex). Paratypes (pairs) distributed to BMNH, CAS, MNHN, USNM.

Collection and taxonomic history. Described by Perkins, 1926: 60–61 ("Necker Island in June, 1923, Bryan, Cooke, Thaanum, and Judd"; holotype in BPBM). Although *R. biformis* is based on an aggregate series, the holotype is positively linked to a specific individual in the original description, "Type: Cat. No. 243, in the Bernice P. Bishop Museum."

Two females were included with the holotype in the type collection: 1 labeled with the species name and " ♀ R.C.L.P." and 1 with the species name and " ♀ Cotype. R.C.L.P."; the first female bore an allotype label [not necessarily applied by Perkins] and the second female bore a note "allotype? marked cotype?" [by unknown person but I would guess A. Suehiro]. Both specimens were collected on 18.vi.1923 by E.H. Bryan. The allotype, here interpreted, is the specimen with the cotype label; the ?Suehiro note was retained on the pin and an allotype label was added by me. The allotype label from the first female was turned upside down on the pin and a paratype label added by me, and the specimen rejoined with the paratypes. The remaining 44 paratypes will have paratype labels added by me.

Distribution. Necker. Most elevations on this small high island, particularly where *Chenopodium* (the likely plant host) grows. Broad coastal/lowlands distribution: Pattern 1b.

Habitat and life history notes. Immature stages unknown. The Coastal Dry *Chenopodium* Shrubland community (Gagné & Cuddihy, 1990: 59–61) applies to the sites where *R. biformis* was collected. *Chenopodium oahuense* appears to be the plant host. Judging by the number of specimens collected, *R. biformis* was quite common when collected in 1923, 1964, and 1982. Gordon M. Nishida, while on the Northwestern Hawaiian Islands Rapid Assessment Expedition, observed during his visit to Necker on 22–23 September 2000 (unpubl. notes) that *Chenopodium* was not as numerous there as on Nihoa, and that the incidence of plants with weevils was much lower. Although there was a fair number of plants with feeding marks, many plants showed no signs at all. All told, he thought that the population density of *R. biformis* was low. (See also *R. exsul*.)

Status. Extant. Various collections to 2001. Location is an uninhabited island, now a part of the Northwestern Hawaiian Islands National Wildlife Refuge, administered by the U.S. Fish & Wildlife Service. Imminent threats not noted.

Rhyncogonus blackburni Sharp — Figs. 13, 80, 123

Rhyncogonus blackburni Sharp, 1885, RDST (2)3: 177 (original description).—Blackburn & Sharp, 1885, TRDS (2)3: 253,287.—Perkins, 1900, FH 2: 126; Perkins, 1907, PHES 1: 51,53,130–134,145.—Giffard, 1907, PHES 1: 127–129.—Perkins, 1910: 635; Perkins, 1913, FH 1: 210 roman—Butler (as editor), 1913, PHES 2: 302.—Sharp, 1919, PHES 4: 78–79.—Williams, 1921, PHES 4: 488.—Swezey, 1925, PHES 6: 198.—Perkins, 1927, PHES 6: 467.—Swezey, 1929, PHES 7: 285.—Van Dyke, 1932, BMB 98: 14.—Swezey, 1934, PHES 8: 527–528; Swezey, 1954, BMSP 44: 11 (adults feeding on *Acacia koa*), 190 (adults feeding on *Scaevola*).—Gagné, 1974, CNPRS 6: 36.—Stein, 1983, PHES 24: 312.—Beattie,1994, FR 59: 59018.

Diagnosis. Species group: *blackburni* group. With *R. funereus* Perkins, *R. nitidus* Perkins. This species group has the derm pitch black with a virtual lack of dorsal pubescence but small patches of contrasting white squamae sometimes present near posterior angles of prothorax (rarely sparsely along side in *R. blackburni*), scutellum glabrous, elytron glabrous (rarely sparsely squamose in *R. blackburni*), and trochanteral bristles commonly double. Differs from *R. funereus* by having antennal funicular segment 1 longer than afs2 (vs shorter).

Female (Lectotype). Rostrum flattened and smooth on mesal part with punctures small to moderate, deep, and elliptical; intervals smooth-shining. Derm, pubescence, and major features otherwise as in redescription. BL 16.80 mm; BB 7.90 mm; PNL 357 cmm (= 100ths mm); PNB 374 cmm; ELL 1170 cmm; ELB 780 cmm; IO 152 cmm; EB 256 cmm; EH 36 cmm; E 76 cmm; AS (cmm): 428 : 110 : 80 : 46 : 44 : 40: 40 : 40 : 160 (= club: 64+40+56). Ratios (× 100): BL/BB 213; PNL/PNB 96; ELL/ELB 150; IO/EB 59; EH/E 47; IO/E 200; AFS1/AFS2 138; AFS3/AFS4 105.

Male (Allolectotype). Rostrum moderately strigose, intervals smooth-shining. Derm, pubescence, and major features otherwise as noted below. BL 12.10 mm; BB 5.21 mm; PNL 266 cmm (= 100ths mm); PNB 286 cmm; ELL 805 cmm; ELB 519 cmm; IO 116 cmm; EB 208 cmm; EH 26 cmm; E 60 cmm; AS (cmm): 308 : 80 : 64 : 40: 38 : 32: 32 : 36 : 150 (= club: 50+36+64). Ratios (× 100): BL/BB 232; PNL/PNB 93; ELL/ELB 155; IO/EB 56; EH/E 43; IO/E 193; AFS1/AFS2 125; AFS3/AFS4 105.

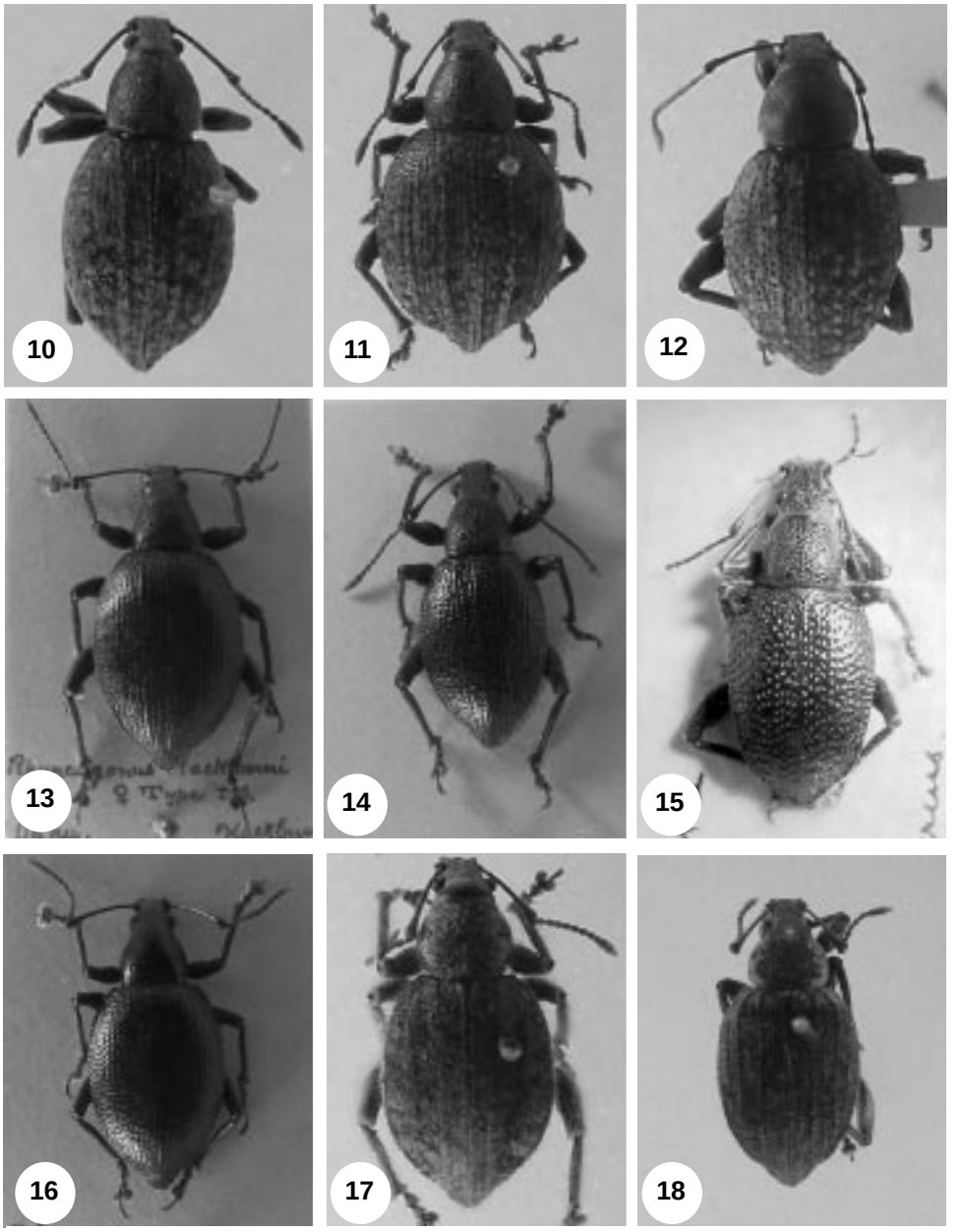
Redescription (pooled). Gross body length 11.7–17.3 mm (o.d. 12.5–17 mm). Derm pitch black. Dorsal pubescence inconspicuous, essentially glabrous, however, very fine short adpressed setae may be present on most surfaces (2 exceptional specimens noted under Variation, below). A few white lanceolate squamae below eyes. Antennal scape finely setose, setae adpressed. Pronotum sometimes with a few fine white squamae located on each side at base. Scutellum glabrous. Elytron glabrous to finely setose, the setae adpressed and inconspicuous; elytral infolded surface finely setose. No raised sensory setae dorsally. Ventral surfaces finely setose, the setae silvery and elongate over most of thorax and abdominal sterna 1+2; abdominal sterna 3–5 more finely setose, the apical 2 sterna pilose in both sexes; small patches of stouter white squamae present near outside parts of coxae. Femora ± evenly setose but some females with an additional small patch of white lanceolate squamae on the underside of preapex. Tibiae set with raised bristles and setae of fairly short length.

Rostrum smooth to subrugose, punctate, the intervals and ridges smooth and shining. Eye circular, large, and strongly raised. Antennal funicular segment 1 subequal to or much longer than afs2; af3 slightly longer than afs4, sometimes subequal. Prothorax subcylindrical, elongate; sides weakly convex; base rather weakly emarginate across middle; disc subevenly convex but with slight flattened areas basally and apically; punctures moderately close and small; intervals slightly swollen, surfaces smooth shining. Elytron robust, preapical closure moderately sinuate to slightly acuminate apex (female more abruptly narrowed); disc slightly flattened in both sexes; puncture rows distinct to interstice 8 then confused laterally; interstices slightly swollen; punctures small; surface alutaceous with dull shine; humeral margin sharp, hard, and continued to apex, the edge smooth to finely dentate, denticles small, irregular; infolded surface duller than disc and adorned with small grains. Ventral surfaces largely granulate-punctate with a fairly bright shine. Femora granulate-alutaceous-punctate with dull shine. Tibiae rugosely punctate-asperate, distinctly rougher than femora. Aedeagus: apex as figured. Spermatheca as figured.

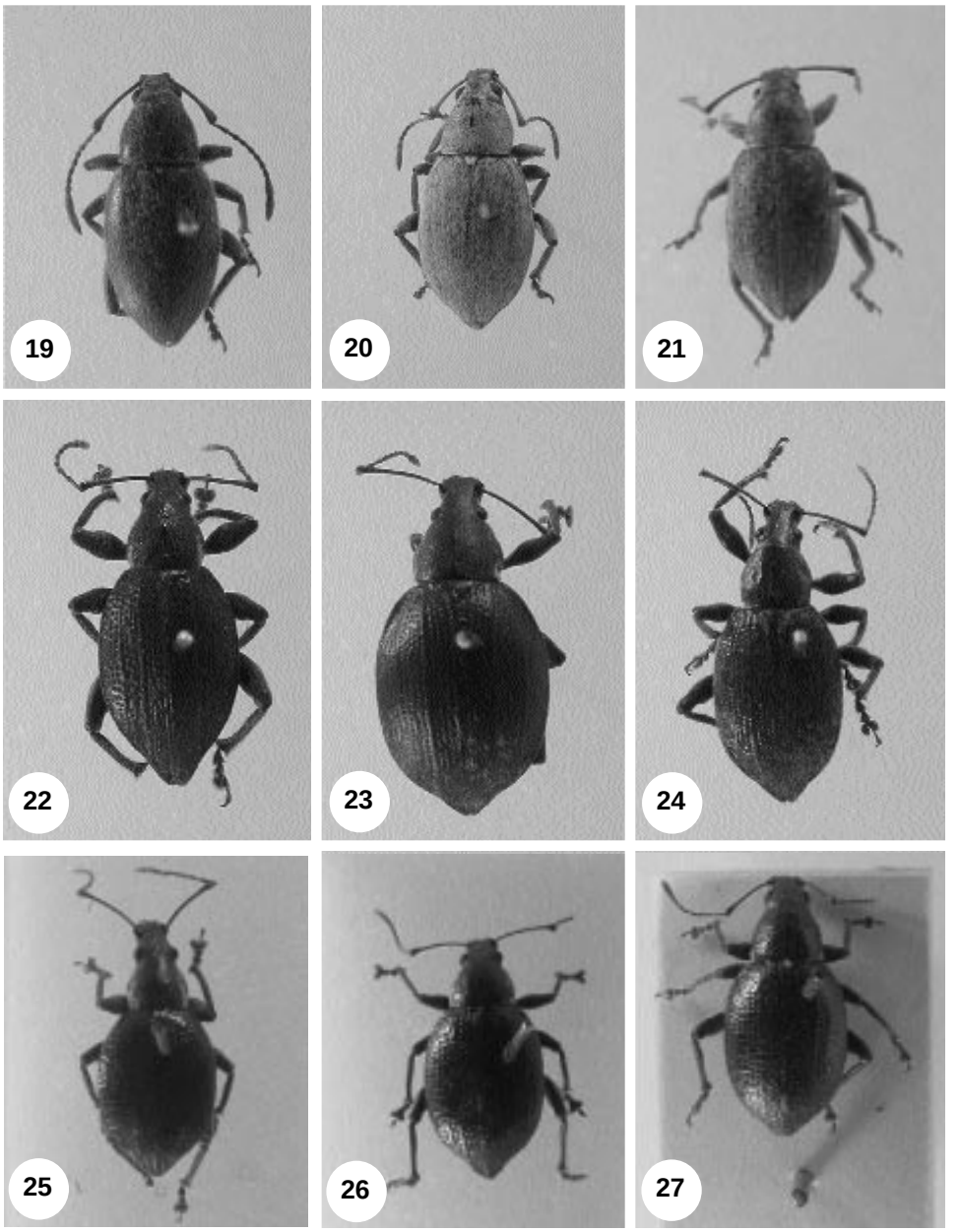
Range (n = 8, including types): BL 11.76–17.30 mm; BB 5.04–7.90 mm; PNL 257–357 cmm (= 100ths mm); PNB 282–390 cmm; ELL 764–1170 cmm; ELB 490–780 cmm; IO 108–152 cmm; EB 184–276 cmm; EH 24–44 cmm; E 60–84 cmm; AFS1 80–110 cmm; AFS2 64–96 cmm; AFS3 40–48 cmm; AFS4 38–46 cmm. Ratios (× 100): BL/BB 197–241; PNL/PNB 87–96; ELL/ELB 127–158; IO/EB 52–65; EH/E 38–52; IO/E 137–200; AFS1/AFS2 100–138; AFS3/AFS4 100–109.

Types. Lectotype label data: *Rhyncogonus blackburni* ♀ Type D.S. Oahu. Blackburn [handwritten in ink on surface of cardmount with specimen]/ Sandwich Is. [typeset]/ Sharp Coll. 1905-313 [typeset]/ + new lectotype label.

Material examined. **O'AHU**: "mountains near Honolulu" without date, T. Blackburn collector (lectotype ♀, allolectotype ♂, both BMNH); Perkins last expedition, Perkins no. 903 [given as ?Halemano, 2000 ft in field no. list = possibly wrong site], R.C.L. Perkins collector (3 ex); Fauna Hawaiiensis [only label] (1 ex); O'ahu, no



Figures 10–18. *Rhyncogonus* habitus photos, dorsal. **10**. *R. alternatus*, male; **11**. *R. alternatus*, female; **12**. R. fuscus; **13**. *R. blackburni*, female; **14**. *R. blackburni*, male; **15**. *R. funereus*; **16**. *R. nitidus*; **17**. *R. biformis*; **18**. *R. exsul*.



Figures 19–27. *Rhyncogonus* habitus photos, dorsal. **19**. *R. fallax* **20**. *R. fosbergi*; **21**. *R. vagus*; **22**. *R. fordi*; **23**. *R. howarthi*; **24**. *R. zeta*; **25**. *R. freycinetiae*, male; **26**. *R. freycinetiae*, female; **27**. *R. molokaiensis*, female.

date, Koebele collector (1 ex). Mt Tantalus, 400–550 m (1300–1800 ft), 11.x.1904, 11.iii, 26.xi, 19.xii, 24.xii.1905, 7.i, 31.i,29.iv.1906, 8.ii, 18.ii.1907, ii.1910, W.M. Giffard collector (13 ex — all seen by Sharp; most dissected by Sharp); Mt Tantalus, 400–460 m (1300–1500 ft), xii.1906, ex *Acacia koa*, Giffard (10 ex — all used in Giffard's breeding experiments); Mt Tantalus, 400–550 m, vii–x.1904, 12.viii.1906, 10.v.1908, Giffard (3 ex); Mt Tantalus, iii.1906, on *koa*, Giffard (3 ex); Mt Tantalus 550 m, x.1906, on *Elaeocarpus bifidus*, Giffard (4 ex); Mt Tantalus, 1–29.viii, 24.viii on *koa*, 26.viii at 2000 ft, 27.viii, 1.ix on *koa*, 4.ix.1929, 1.i, 1.ii, 11.ii, 16.ii.1930, collector ? (43 ex); Mt Tantalus, 9.iii, 1.iv.1930, 2.i.1933 at 1500 ft, F.C. Hadden collector (7 ex); Mt Tantalus, 21.vii.1935, *Acacia koa*, R.L. Usinger (3 ex); Mt Tantalus, 30.vi.1937, *koa*, E.C. Zimmerman (1 ex); Mt Tantalus, 23.xi.1947, on branches, T. Hata (1 ex, UHM); Mt Tantalus, 23.x.1968, J.A. Tenorio (1 ex, UHM); Mt Tantalus, 550 m, 15.viii on ti leaf; 22.viii, 25.x in leaf litter, 29.ix.1985, 18.x.1992 to florescent light, W.D. Perreira collector (6 ex); Mt Tantalus, 460 m, 7.ix.1985, on *koa*, Perreira (1 ex, UHM); Mt Tantalus, 550 m, 25.x.1989, at night, Perreira and J. Wallace collectors (1 ex); Honolulu, T.H. [probably vicinity of Mt Tantalus], 1.vi, 16.vi, 9.vii, 16.vii, 17.vii. 19.vii.1929, collector? (35 ex); Honolulu, no date, J.F. Illingworth collector (1 ex, UHM); O'ahu, vii.1914, Illingworth (1 ex); above Pauoa Valley, 610 m (2000 ft), vii.1903, on *koa*, Giffard (3 ex); Palolo Valley, 460 m (1500 ft), x.1906, Giffard (4 ex); Palolo Ridge 460 m (1500 ft), 14.ix.1906, collector? (1 ex, UHM); Mānoa Valley, 23.v.1926, F.X. Williams (3 ex); Mānoa, no date, *Scaevola*, F.X. Williams collector (23 ex); Mānoa, 30.x.1932, 22.x on *Acacia koa*, 24.ix, 5.xi.1933 on *Acacia koa*, N.L.H. Krauss collector (6 ex); Mānoa, 6.1.1957, C.P. Rea (1 ex, UHM); Mānoa-Palolo Ridge, 15.ix.1935, Usinger (7 ex); Mānoa Cliffs Trail, Mānoa side, 550 m, 29.viii.1984, 3 ♂ up *koa* tree, Perreira (1 ex); Mānoa Cliffs Trail, Pauoa side, 430–460 m, 4.viii.[1984?], dead branch of *kalia* tree, 3 ♂ up, Perreira (1 ex); Pacific Heights, 17.xi.1918, on *Scaevola* [not *chamissoniana*] *gaudichaudiana*, O.H.Swezey collector (3 ex including 1 without host); Pacific Heights Ridge-Nu'uanu, 28.i.1923, W.H. Meinecke collector (1 ex); Pauoa-Nu'uanu Ridge, 3.iii.1928, Meinecke (1 ex); Mt Olympus, no date, Swezey, Chamberlain Collection (1 ex, CUIC); Wai'alae Iki, 17.xii.1922, *Scaevola*, Meinecke (1 ex); Wilhelmina Rise, ix.1935, Usinger (2 ex); Wilhelmina Rise, 22.ii.1949, *Scaevola gaudichaudiana*, C. Yasuda (1 ex, UHM); Woodlawn Trail, 26.ii.1949, *Scaevola gaudichaudiana*, C. Yasuda (1 ex,UHM); Kahana Ridge, 8.v.1932, on leaves, Meinecke (2 ex); Papali-Ma'akua Ridge, 25.vii.1939, on *alani* leaves, Meinecke (2 ex); Wailupe-Ma'akua Ridge, 20.viii.1939,on *waiawī* leaf, Meinecke (1 ex); Palolo Valley, 17.vii.1940, *naupaka*, Y. Kondo (1 ex); Mt Konahuanui, 8-1-1953, G. Pearsall collector, ex Ford Coll. (1 ex); Mau'umae Ridge, Ko'olau Mts, 22.xi.1975, 28.ii.1976, R.C.A. Rice collector (18 ex); Wa'ahila Ridge, Ko'olau Mts, 1.v.1976, Rice (1 ex); Wai'alae Nui Ridge, Ko'olau Mts, 11.xi.1975, 24.iv.1976, Rice (8 ex); no data except det. label (1 ex, CUIC). Examples (♂) deposited in MNHN, USNM.

Variation. While this is essentially a glabrous/subglabrous species, a few individuals show increased pubescence on the prothoracic sides and elytral disc. Two of these in particular (Wai'alae Nui Ridge, 11.xi.1975, 24.iv.1976, R.C.A. Rice collector) have slender white lanceolate squamae instead of setae on these areas.

Collection and taxonomic history. Described by Sharp, 1885: 176–177 ("... found very rarely, by beating trees on the mountains near Honolulu." — a male and female treated in the original description; syntypes in BMNH). This was the first of two species to be treated with the description of the new genus *Rhyncogonus* (Sharp, 1885: 176–177). This is a fairly distinctive species and has not been confused with others in subsequent treatments. BMNH syntypes seen through the kindness of Ms Sharon Shute, London. The two syntypes were both treated in the original description. The female is presently designated the lectotype (to stablize the taxonomy of the species) and the male designated allolectotype (even though it bears a Type H.T. label). The rationale for making this selection is: 1) the female is typical of the larger and more glabrous examples of that sex; 2) the female is very nicely figured in the original description; 3) both sexes receive rather equal treatment in the original description.

This is one the more numerous *Rhyncogonus* in the BPBM collection; additional specimens are in the HDOA and UHM collections. Many of the early specimens, collected through 1904–1907 by various individuals (Koebele, Perkins, and others), were amassed in the W.M. Giffard collection. These and subsequent collections were frequently made in the Mt Tantalus area: Pauoa, Mānoa, and Palolo Valleys, commonly at elevations of 400–610 m (1300–2000 ft) by many collectors. W.H.

Meinecke made some of the earliest collections from outlying areas: Papali-Ma‘akua Ridge, Wai‘alae Iki, Wailupe-Niu Ridge, and Kahana Ridge.

Distribution. O‘ahu. Ko‘olau Range. Vicinity of Mt Tantalus and points farther east to Wailupe-Niu Ridge. The most recent specimens were taken from 1984–1992 from Mt Tantalus by W.D. Perreira and farther east on Mau‘umae Ridge and Wai‘alae-Nui Ridge in 1976 by R.C.A. Rice. Broad montane distribution: Pattern 3.

Habitat and life history notes. Eggs were found on *Acacia koa* phyllodes that were glued together to form a protective envelope (Giffard 1907: 127–129); further illustrated (Swezey, 1954: 10). The parasitic wasp, *Euplemus rhyncogoni* Perkins, was reared from these eggs and subsequently described (Perkins 1907: 130–134). No data exist for later instar larvae or pupae and we consequently have no idea on the length of the life cycle. The range of *R. blackburni* lies within the Lowland Mesic *Koa* Forest community (Gagné & Cuddihy, 1990: 80–81), leeward Ko‘olau Range. *Acacia koa*, *Elaeocarpus bifidus*, and *Scaevola gaudichaudiana* are components of this community and are hosts for the leaf-feeding adults of *R. blackburni*.

Status. Extant. Various collections to 1989. This species is more wide-ranging than most of the other montane species on O‘ahu. Its occurrence over several ridges and valleys would insure its survival from any limited catastrophic event, e.g. major flooding or landslides. Most of the range occurs within the Honolulu Watershed Forest Reserve. Threats would include disturbance to soil by pigs and possibly predation by ants or rodents.

Rhyncogonus bryani Perkins Fig. 48

Rhyncogonus bryani Perkins, 1919, EMM 55: 4 (original description).—Bryan, 1926, BMB 31: 11; Bryan, 1926, PHES 6: 236.—Butler, 1961, PHES 17: 385.—Butler & Usinger, 1963, ARB 98: 15.—Gagné, 1974, CNPRS 6: 36.—Opler, 1976, ST 43: 33.—Beattie, 1994, FR 59: 59018.—Asquith, 1995, ESU 12: 7.

Diagnosis. Species group: *vestitus* group. With *R. extraneus* Perkins, *R. gagneorum* n. sp., *R. kapapa* n. sp., *R. saltus* Perkins, *R. vestitus* Sharp. This species is fairly close to *vestitus*; both are the only ones of the group with stout obovate squamae on the pronotal disc. Yet, *R. bryani* represents an extremely disjunct extinct population from Laysan (vs Maui Nui) and the proportions of the unique female differ from *R. vestitus* in various ways. This is a relatively slender species with weak basal costae on each elytron, the BL/BB and ELL/ELB ratios fall beyond those of *R. vestitus*, and the eyes are much smaller in proportion to the interocular space and its IO/E ratio falls far outside of the range for *R. vestitus* (235 vs 168–215).

Redescription. Female (Holotype). Gross body length 8.4 mm (o.d. 9 mm). Derm medium fuscous. Dorsal pubescence whitish, mixed with setae and short small obovate squamae (adpressed) and setae (adpressed to raised). Rostrum and front submoderately setose and mixed with squamae above; squamae becoming more densely packed along inner eye margins. Antennal scape finely setose, hairs adpressed to slightly raised. Pronotum with setae and squamae sparser centrally on disc, these blending with more densely clothed sides of prothorax. Scutellum densely clothed with short white slender adpressed squamae. Elytron subdensely squamose overall but in vaguely thicker patches on preapex, these squamae stout but smaller than those of pronotum; squamae on infolded surface rather dense and evenly distributed. Sensory setae bristle-like and raised about 30 degrees on elytral disc and preapex, these slightly curved and not longer than scutellum. Femora with mixed adpressed setae and short squamae, these rather uniformly distributed. Tibiae clothed with small adpressed squamae mixed with raised bristles of rather short length.

Rostrum and front anteriorly subreticulate-punctate becoming rugulose, ridges smooth, depressions slightly granulate. Eye circular, small, and ± strongly raised. Antennal funicular segment 1 just longer than afs2; afs3 just longer than afs4. Prothorax subglobose, sides moderately convex; anterior margin straight across middle; base slightly emarginate before scutellum; disc subevenly convex, the surface feebly and gradually impressed anterolaterally and briefly depressed behind disc at sides of base; median impunctate line reduced but present, surface smooth granulate with dull shine as are puncture intervals; punctures moderately close, their intervals swollen, reticulate. Elytron rather slender, preapical closure gradual and slightly concave before slightly pro-

duced apex; disc convex with low costae basally; puncture rows distinct to interstice 8, then irregular; interstices ± swollen but 4 and 8 submoderately costate along basal 1/5 and continued more slightly to behind middle; surface smooth granulate with dull shine; humeral margin strongly produced basally, then obliterated and rounded just before middle, then becoming a little sharper along apical part but not quite distinct to very apex, edge with a few small grains apically; infolded surface largely concealed by pubescence. Femora smooth-granulate with small shining asperites. Tibiae granulate-asperate-punctate.

BL 8.40 mm; BL 3.86 mm; PNL 183 cmm (= 100ths mm); PNB 216 cmm; ELL 564 cmm; ELB 382 cmm; IO 94 cmm; EB 152 cmm; EH 16 cmm; E 40 cmm; AS (cmm): 172 : 34 : 32 : 26 : 24 : 22 : 22 : 22 : 88 (= club: 36+24+28). Ratios (× 100): BL/BB 217; PNL/PNB 85; ELL/ELB 148; IO/EB 62; EH/E 40; IO/E 235; AFS1/AFS2 106; AFS3/AFS4 108.

Holotype label data: *Rhyncogonus bryani*. ♀. Type. R.C.L.P. [handwritten in ink on surface of cardmount to which specimen is glued]/ Laysan Is. (Bryan). Sent to me in a glass tube & described in Ent. Mo. Mag. 1919, p. 4. R.C.L.P. [handwritten in ink]/ Holotype 205 [typeset + ink]. Present (BPBM) type number is 1191.

Material examined. **LAYSAN**: without further data but probably iv–v.1911, W.A. Bryan collector (holotype ♀).

Collection and taxonomic history. Described by Perkins, 1919: 4 ("The insect here described was captured some years ago by Mr. A. Bryan on Laysan Island, where he was chiefly engaged in a study of the Avifauna."; holotype in BPBM). Known only by its unique type specimen, this species became extinct as an aftermath of the complete denudation Laysan's flora following the introduction the European rabbit, *Oryctolagus cuniculus*, in 1909 (Gagné & Cuddihy, 1990: 53).

Perkins (1919: 4) thought that the Laysan insect appeared more distinct than are most of the Hawaiian representatives one from another. He noted some similarities in antennal structure and head structure (eyes?) between it, *R. extraneus*, and *R. vestitus*. In all 3 species the antennal funicular segments 1 and 2 are ± subequal in length and the eyes tend to be circular, small, and moderately to strongly raised. Actually, *R. bryani* turns out to be very closely related to *R. vestitus*.

Distribution. Laysan. The species was restricted to Laysan, seemingly without close relatives elsewhere on the leeward part of the chain Now extinct, this species was previously of broad coastal/lowland distribution: Pattern 1b.

Habitat and life history notes. Virtually nothing was known of *R. bryani* before it became extinct, along with the general flora of Laysan earlier this century. Laysan is presently revegetated, with Coastal Dry Herblands, -Grasslands, and -Shrublands communities now making up the reconstituted flora there (Gagné & Cuddihy, 1990: 55, 57, 59).

Status. Extinct. Original collection of unique specimen probably 1911.

Rhyncogonus depressus Perkins Figs. 54, 76, 119

Rhyncogonus depressus Perkins, 1900, FH 2: 128–129 (original description).—Van Dyke, 1922, PHES 5: 50.—Perkins, 1927, PHES 6: 469.

Diagnosis. Species group: *vittatus* group. With *R. ricei* n. sp., *R. squamiger* Perkins, *R. vittatus* Perkins. Differs from *R. vittatus* by having slender lanceolate squamae instead of short broad squamae on the pronotal disc.

Male (Lectotype). Derm, vestiture, and major features as noted in redescription. BL 11.59 mm; BB 5.04 mm; PNL 232 cmm (= 100ths mm); PNB 253 cmm; ELL 764 cmm; ELB 490; IO 124 cmm; EB 184 cmm; EH 24 cmm; E 72 cmm; AS (cmm): 320 : 78 : 64 : 44 : 40 : 40 : 32 : 42 : 136 (= club: 48+40+48). Ratios (× 100): BL/BB 230; PNL/PNB 92; ELL/ELB 156; IO/EB 67; EH/E 33; IO/E 172; AFS1/AFS2 122; AFS3/AFS4 110.

Female (Allolectotype). Similar to male in coloration and vestiture but dorsal surfaces a little more uniformly clothed. BL 10.92 mm; BB 4.79 mm; PNL 216 cmm (= 100ths mm); PNB 249 cmm; ELL 764 cmm; ELB 473; IO 104 cmm; EB 180 cmm; EH 24 cmm; E 60 cmm; AS (cmm): 248 : 56 : 46 : 34 : 28 : 30 : 30 : 32 : 100 (= club: 40+28+32). Ratios (× 100): BL/BB 228; PNL/PNB

87; ELL/ELB 161; IO/EB 58; EH/E 40; IO/E 173; AFS1/AFS2 122; AFS3/AFS4 121.

Redescription (pooled). Gross body length 9.2–13.1 mm (o.d. 10.5–13.5 mm). Derm subpiceous. Dorsal pubescence of whitish buff lanceolate squamae, these mostly adpressed. Squamae moderate on rostrum and front, becoming stouter and closer along inner eye margins. Antennal scape with fine clear silvery setae, these slender and raised about 30 degrees. Pronotal disc moderately clothed with elongate squamae, these becoming denser laterally and merging with a denser stripe on each side. Scutellum with dense squamose patch. Elytral disc subuniformly clothed with squamae, loosely organized into 3 broad diffuse stripes; infolded surface subuniformly clothed; sensory setae not differentiated from ground pubescence but occasional slightly raised scales present. Ventral surfaces (male) moderately clothed centrally with elongate setiform squamae, these becoming heavier and denser at sides; sternum 5 slightly more densely clothed than preceding 2; (female) median part submoderately clothed with slender setae, more densely clothed laterally with heavier setiform squamae; following sterna also more setose laterally; sternum 5 with setae fairly dense and slender. Femora with slender squamae rather evenly distributed from basal area to apex. Tibiae set with moderately short suberect bristles and squamae; Rostrum and front strigose; ridges smooth; punctures small. Eye subovate and moderately large and somewhat raised. Antennal funicular segment 1 distinctly longer than afs2; afs3 slightly longer than asf4. Prothorax subglobose-cylindrical, sides convex; base moderately emarginate before scutellum; disc somewhat irregular and flattened laterally and depressed medially near base; median impunctate line produced, smooth, shining; discal punctures of mixed mid sizes, moderately close and shallow; intervals smooth shining. Elytron robust, preapical closure slightly sinuate before weakly acuminate preapex; disc somewhat flattened and irregular with shallow broad postbasal depression; puncture rows irregular to confused; punctures small, shallow; intervals raised, swollen, surface smooth-alutaceous; humeral margin complete to apex, rather sharply beaded, the edge dentate with teeth fairly large and rounded over; infolded surface similar to disc. Ventral surfaces: abdominal sterna 1+2 concave, becoming more flattened apically in ♂ and sterna 1+2 generally flattened in female. Femora smooth-granulate-alutaceous. Tibiae granulate-punctate with rounded asperites. Aedeagus: apex as figured. Spermatheca as figured.

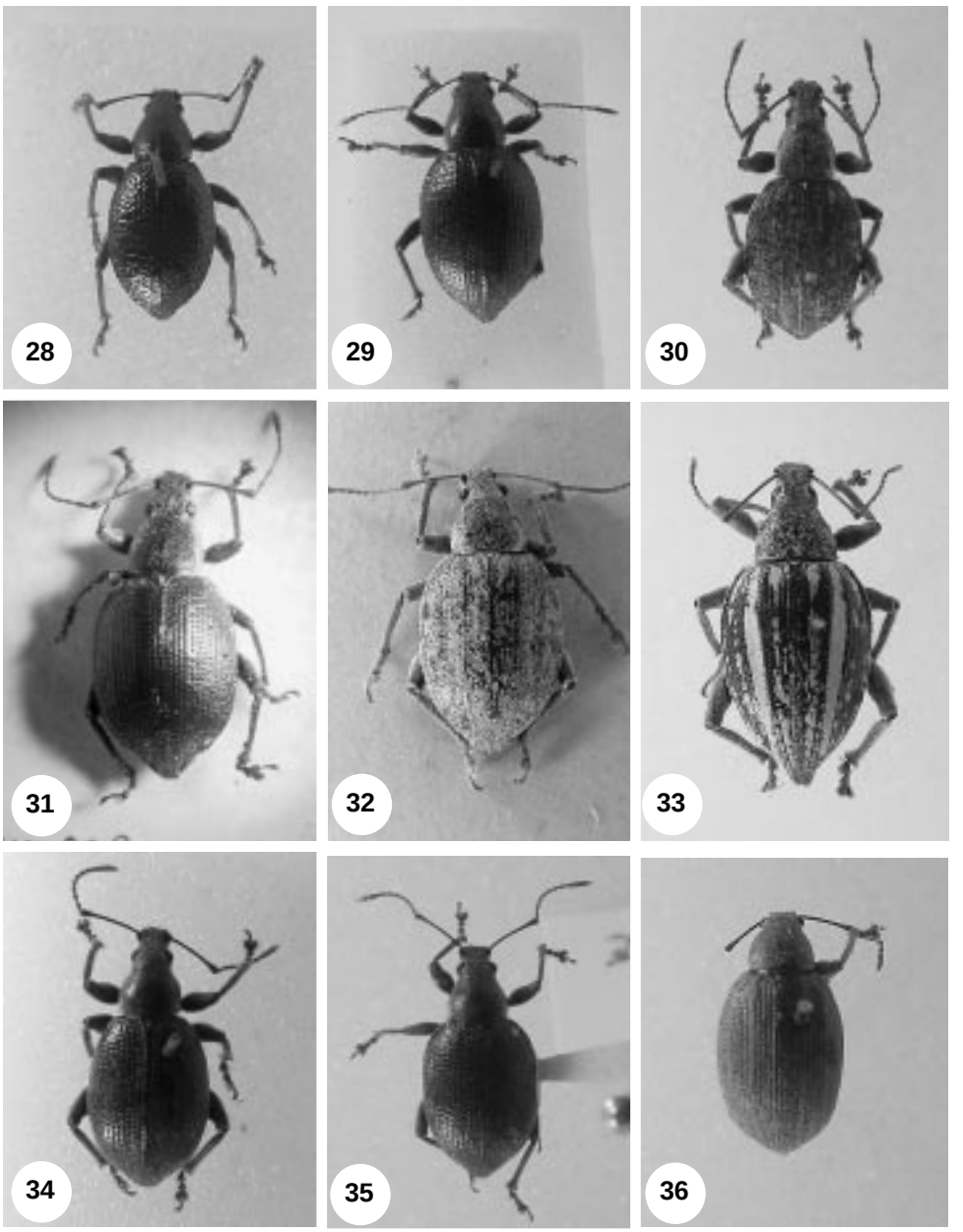
Range (n = 9, including types): BL 9.24–13.10 mm; BB 3.86–5.96 mm; PNL 178–274 cmm (= 100ths mm); PNB 208–299 cmm; ELL 614–896 cmm; ELB 382–581 cmm; IO 96–124 cmm; EB 158–208 cmm; EH 20–28 cmm; E 52–72 cmm; AFS1 56–88 cmm; AFS2 46–72 cmm; AFS3 32–52 cmm; AFS4; 28–44 cmm. Ratios (× 100): BL/BB 214–253; PNL/PNB 82–92; ELL/ELB 149–161; IO/EB 57–67; EH/E 32–43; IO/E 161–193; AFS1/AFS2 113–146; AFS3/AFS4 106–122.

Types. Lectotype label data: *Rhyncogonus depressus*. ♂. Type. Halemanu 4000 ft Kauai. v.1895. [handwritten ink on cardmount with specimen]/ 514 [underside of cardmount]/ Type [typeset circular label with red border]/ Hawaiian Is. 1900-99./ + new lectotype label.

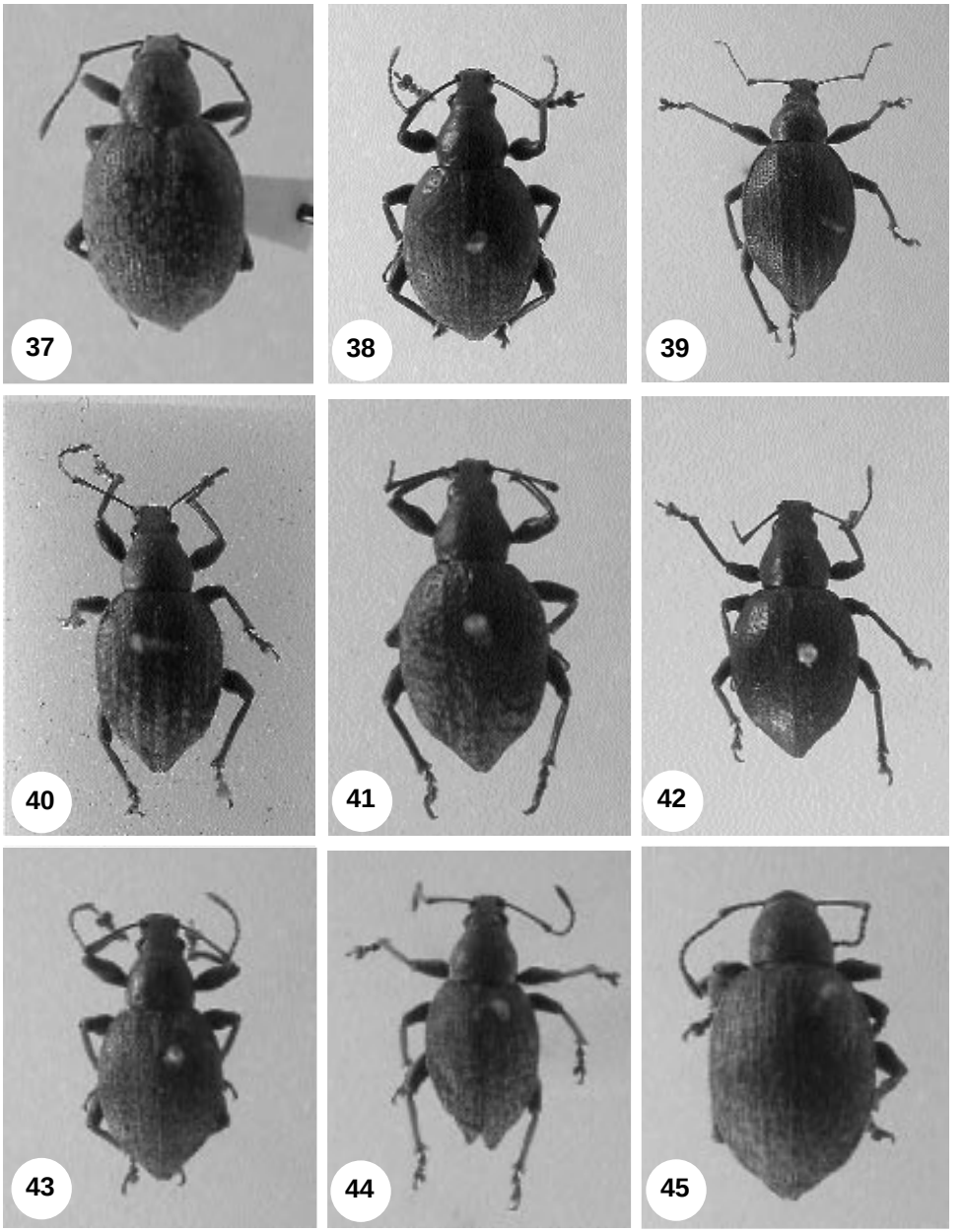
Material examined. **KAUA'I**: Halemanu, 1200 m (4000 ft), v.1895, R.C.L. Perkins collector (lectotype ♂, allolectotype ♀, BMNH); same data (paralectotype ♂); Halemanu Lookout Trail, Koke'e, 1070 m (3500 ft), 14.iv.1976, R.C.A. Rice collector (10 ♂, 3 ♀ ex); Upper Halemanu Road, Koke'e, 1040 m (3400 ft), 17.iv.1976, Rice (1 ♂ ex); Miloli'i Road, Koke'e, 975 m (3200 ft), 7.x.2001, in litter under *Melicope knudsenii*, M. LeGrande & K.R. Wood collectors, #1115 (fragment of 1 ex) . Examples distributed to CAS (♂), MNHN (♂), USNM (pair).

Collection and taxonomic history. Described by Perkins, 1900: 128–129 ("... Kauai, Halemanu (4000 ft.)[1]; 3 ♂ and 1 ♀."; syntypes in BMNH, BPBM). Van Dyke (1922: 50) suggested some degree of relationship of *R. alternatus* with *R. depressus* and *R. vittatus* in his comparisons when he described *R. alternatus*. From his observations, however, one may correctly surmise that *R. depressus* and *R. vittatus* are more closely related together than they are to *R. alternatus*. In the present scheme, *R. alternatus* is treated in a distant clade: the *R. vestitus* group. BMNH syntypes seen through the kindness of Ms Sharon Shute, London. Lectotype presently designated to stabilize the taxonomy of the species.

1. According to Perkins' unpublished field notes, he collected insects in the Halemanu area of Kaua'i from 7–16 May 1895 (N.L. Evenhuis, pers. comm.).



Figures 28–36. *Rhyncogonus* habitus photos, dorsal. **28**. *R. molokaiensis*, male; **29**. *R. oleae*; **30**. *R. kauaiensis*; **31**. *R. minor*; **32**. *R. sharpi*; **33**. *R. welchii*; **34**. *R. simplex*, male; **35**. *R. simplex*, female; **36**. *R. simplex*, female with stripes.



Figures 37–45. *Rhyncogonus* habitus photos, dorsal. **37**. *R. stellaris*; **38**. *R. femoratus*; **39**. *R. koebelei*; **40**. *R. mutatus*; **41**. *R. obsoletus*, male; **42**. *R. obsoletus*, female; **43**. *R. olokui*; **44**. *R. giffardi*, male; **45**. *R. giffardi*, female.

Distribution. Kaua'i. Halemanu area, 1000–1200 m. The latest series was taken by R.C.A. Rice in 1976. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The Halemanu area of Kaua'i includes Montane Mesic Forest communities (Gagné & Cuddihy, 1990: 97–98). *Melicope knudsenii* is the only plant associate indicated to date.

Status. Extant. Various collections to 1976. Threats would include disturbance to soil by pigs and possible predation by ants, rodents, and birds.

Rhyncogonus exsul Perkins Figs. 17, 73, 116

Rhyncogonus exsul Perkins, 1926, BMB 31: 59–60 (original description).—Bryan, 1926, BMB 31: 11.—Bryan, 1926, PHES 6: 235.—Beardsley, 1967, PHES 19: 165.—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.

Diagnosis. Species group: *exsul* group. With *R. biformis* Perkins. This species group is characterized by a strongly globose prothorax with rough irregular or heavily punctate sculpture on the pronotal disc in combination with small subhemispherical eyes. Both species of this group are isolated and restricted to the Leeward Hawaiian Islands: *R. exsul* on Nihoa and *R. biformis* on Necker. The dorsum lacks the conspicuous erect sensory setae so prominent in *R. biformis* but otherwise has a moderate ground pubescence of white adpressed squamae, this much thinner on the pronotal disc.

Female (Holotype) Derm, pubescence, and major features as noted in redescription. BL 11.42 mm; BB 5.38; PNL 232 cmm (= 100ths mm); PNB 291 cmm; ELL 797 cmm; ELB 527 cmm; IO 120 cmm; EB 196 cmm; EH 26 cmm; E 56 cmm; AS (cmm): 240 : 48 : 44 : 36 : 34 : 34 : 34 : 34 : 108 (= club: 48+32+28). Ratios (× 100) BL/BB 213; PNL/PNB 80; ELL/ELB 151; IO/EB 61; EH/E 46; IO/E 214; AFS1/AFS2 109; AFS3/AFS4 106.

Male (Allotype). Derm, pubescence, and major features as noted below. BL 10.08 mm; BB 4.87; PNL 224 cmm (= 100ths mm); PNB 274 cmm; ELL 730 cmm; ELB 490 cmm; IO 116 cmm; EB 190 cmm; EH 26 cmm; E 52 cmm; AS (cmm): 248 : 48 : 48 : 38 : 32 : 32 : 32 : 32 : 116 (= club: 44+32+40). Ratios (× 100) BL/BB 207; PNL/PNB 82; ELL/ELB 149; IO/EB 61; EH/E 50; IO/E 223; AFS1/AFS2 100; AFS3/AFS4 119.

Redescription (pooled). Gross body length 8.4–13.1 mm (o.d. 9–13 mm). Derm pitch black (sometimes piceous). Dorsal pubescence white, mixed with setae and squamae, both mostly adpressed or decumbent. Rostrum and front with fine setae mixed with scattered squamae on rostrum, the squamae shorter and denser along inner eye margins. Antennal scape setose, setae fairly stout, slightly curved and raised. Pronotal disc mainly setose with scattered squamae, these blending with strong concentration of short obovate squamae forming a dense stripe on each side of prothorax. Scutellum with a dense patch of white slender squamae directed posteriorad. Elytron clothed with very small robust squamae uniformly covering surface; sensory setae inconspicuous on elytral disc and preapex, these short, curved, and slightly raised. Ventral surfaces largely finely setose but some patches of squamae present near coxae and on posterolateral edges of abdominal sterna 1+2; sterna 4 and 5 in ♂ densely and finely pilose, the setae very fine; sterna 3–5 in female fine and less dense. Femora with adpressed setae and short white squamae, ± evenly clothed from middle to apex, sometimes slightly denser preapically but not forming a band. Tibiae smooth but closely asperate-punctate. Tibiae set with adpressed short whitish squamae and raised bristles and setae of short length.

Rostrum and front rugulosely punctate or heavily strigose, the ridges longitudinal, smooth; punctures more isolated and larger anteriorly. Eye circular, small, and strongly raised. Antennal funicular segment 1 longer than afs2; afs3 subequal to longer than afs4. Prothorax globose, sides convex; base with weak emargination across middle; disc irregular often with depressions and rugosities; median impunctate surface smooth and usually narrow, sometimes lost in general rugose sculpture; punctures large and fairly close, their sockets dull granulate contrasting with smooth raised intervals. Elytron robust, preapical narrowing fairly abrupt and somewhat concave before slightly acuminate apex; disc flattened, generally rough and irregular but feeble costae present on at least on interstices 4 and 8 (sometimes also on 2, 6, 10); puncture rows sometimes discernible to 8 or more but sometimes all internal rows irregular and often confused beyond 8; punctures shallow and moderate, some

obscured by vestiture; surface often bumpy and either smooth and somewhat shining or subopaque and dull, sometimes with series of shining grains on costae; humeral margin basally strongly produced in female and beaded in ♂, mid section obliterated and rounded in both sexes, apical part beaded in both sexes, edge dentate with rounded teeth or with small rounded granules except mid part; infolded surface strongly constricted at level of hind coxa; surface as in disc but with a short carina perpendicular to margin at the constriction. Ventral surfaces generally coarsely and shallowly punctate with surfaces generally dull on thorax and generally smooth and shining on abdominal sterna. Femora smooth-alutaceous-punctate. Tibiae granulate-punctate but with predominant low smooth shining asperites. Aedeagus (paratype): apex as figured. Spermatheca as figured.

Range (n = 8, including holotype, allotype): BL 8.40–13.10 mm; BB 4.03–6.22 mm; PNL 191–274 cmm (= 100ths mm); PNB 232–332 cmm; ELL 598–971 cmm; ELB 398–614 cmm; IO 96–140 cmm; EB 158–220 cmm; EH 22–30 cmm; E 46–56 cmm; AFS1 38–60 cmm; AFS2 32–60 cmm; AFS3 28–48 cmm; AFS4 28–42 cmm. Ratios (× 100): BL/BB 197–217; PNL/PNB 80–85; ELL/ELB 144–158; IO/EB 60–64; EH/E 44–54; IO/E 209–250; AFS1/AFS2 100–130; AFS3/AFS4 100–122.

Types. Holotype label data: Nihoa I. 6-12-23 [typeset + ink]/ E.H. Bryan Jr. Collector [typeset]/ bunch grass [typeset]/ Holotype #242 [typeset + ink]/ *Rhyncogonus exsul* ♀ Type. R.C.L.P. [handwritten in ink].

Material examined. **NIHOA**: 11.vi.1923, under stones, E.H. Bryan Jr collector (9 paratypes); 12.vi.1923, bunch grass, Bryan (holotype, allotype, and 24 paratypes); following paratypes from bunch grass: 13.vi.1923, Bryan (9); 14.vi.1923, C.M. Cooke collector (10); 14.vi.1923, D.D. Thaanum collector (12); 15.vi.1923, Bryan (2); 15.vi.1923, Cooke (4); 15.vi.1923, Thaanum (5); additional material: 14.viii.1940, Vanderbilt Expedition (3 ex, CUIC); 10.vi.1962, ex *Chenopodium oahuense*, J.W. Beardsley collector (18 ex); "K7.1030" 4.vii.1980, sweeping *Chenopodium*, M. Collins & S. Conant (1 ex); Miller Valley, 100 m, 22.vi.1990, pitfall trap in shrubs, J. Strazanac collector (1 pr elytra); Miller Valley near Miller Peak, 28.vi.1990, ex *Eragrostis variabilis*, Strazanac (1 ex); Miller Valley, 17.ix.2000, on *Sesbania* in A.M., G.M. Nishida collector (1 ex); Miller Valley, 18.xi.2000, at night on *Chenopodium*, Nishida (10 ex). Paratypes (pairs) distributed to BMNH, CAS, MNHN, USNM.

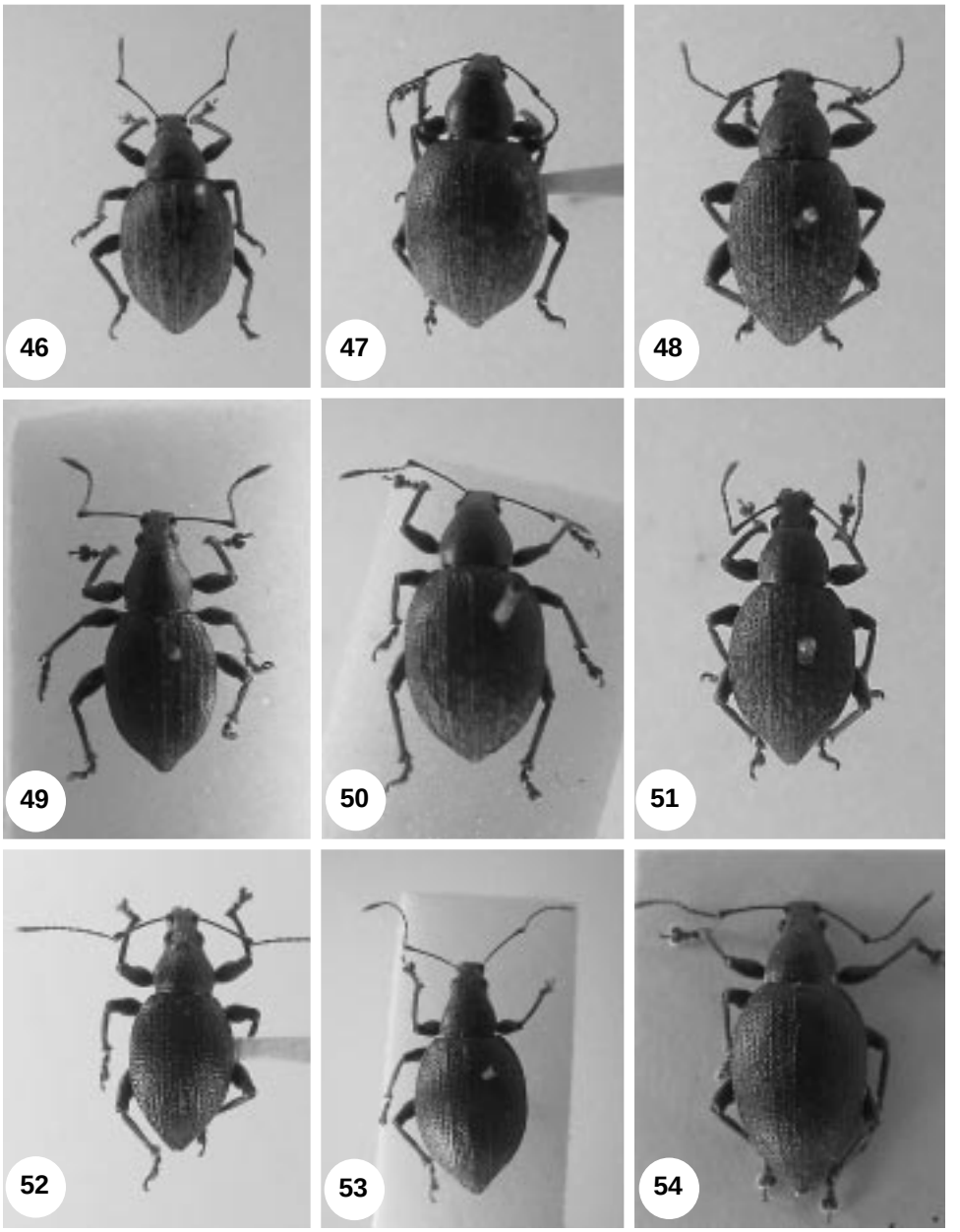
Collection and taxonomic history. Described by Perkins, 1926: 59–60 ("Nihoa Island, June, 1923, Bryan, Cooke, and Thaanum; most specimens taken in bunch grass"; holotype in BPBM). The holotype is identified in the original publication with reference its status and type number, "Type: Cat. No. 242, Bernice P. Bishop Museum." The series was not enumerated in the original description but it may be assumed that all the specimens taken in June 1923 were noted by Perkins, as he was obviously working with a series collected by several people, and that most specimens were taken in bunch grass. Perkins (1926: 60) thought that *R. exsul* was very closely allied to *R. bryani* from Laysan but these species are not close, and they are presently assigned to different species groups.

Distribution. Nihoa. Most elevations on this small high island, particularly where *Chenopodium* and *Eragrostis* grow. Broad coastal/lowland distribution: Pattern 1b.

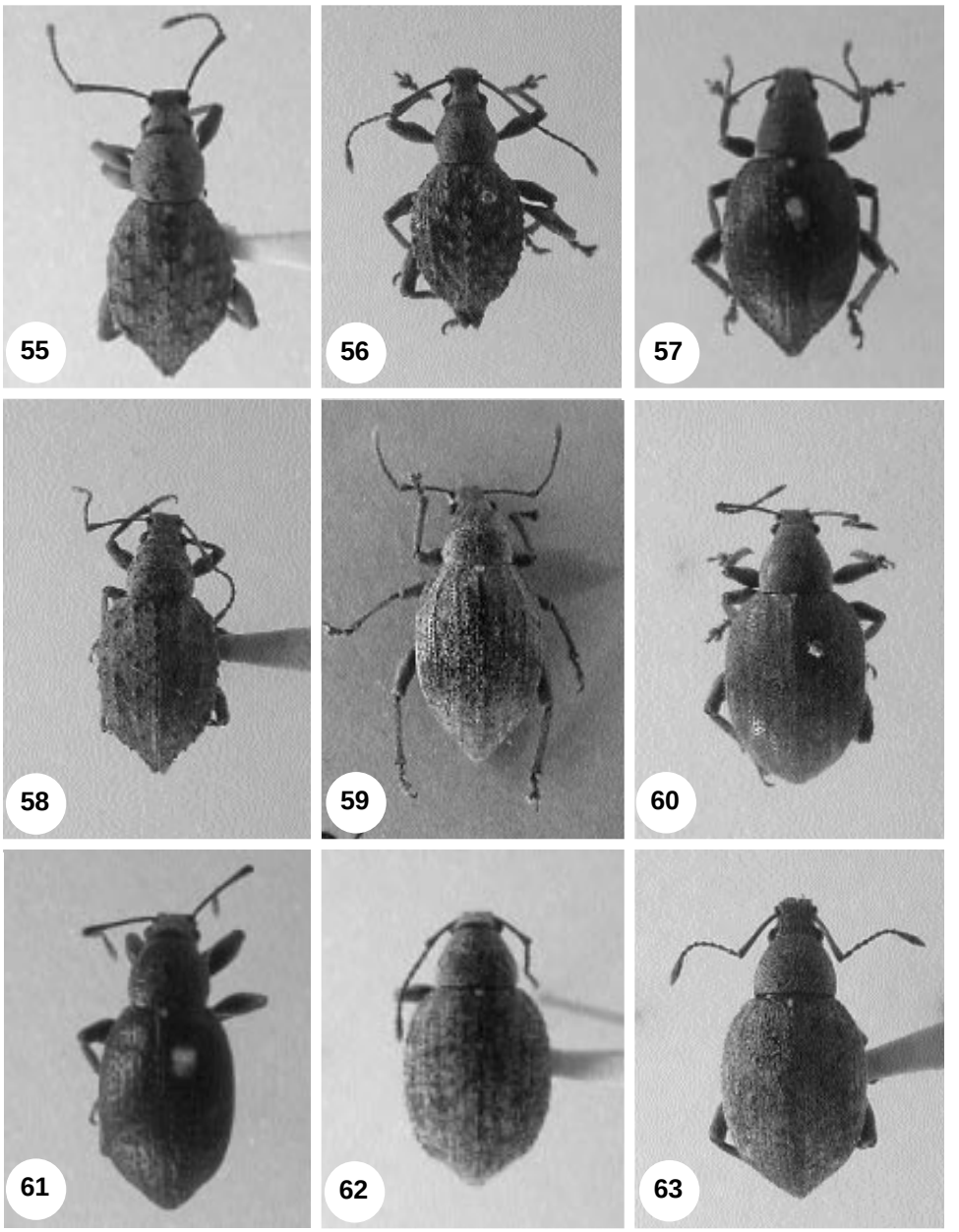
Habitat and life history notes. Coastal Dry Chenopodium Shrubland and Coastal Dry Eragrostis Grassland communities (Gagné & Cuddihy, 1990: 57, 59–61) apply to the sites where *R. exsul* was collected. *Chenopodium oahuense* and *Eragrostis variabilis* are components of these communities. Gordon M. Nishida, while on the Northwestern Hawaiian Islands Rapid Assessment Expedition, observed the following during his stay on Nihoa from 9–21 September 2000:

> *Chenopodium* was widely distributed over the island though in localized small stands. Most of these plants showed *Rhyncogonus* feeding marks on leaves, suggesting that *R. exsul* is doing well, as its host is thriving. He did note, however, that the *Chenopodium* in the Devil's Slide area was being fed upon at night by a native noctuid caterpillar (?*Agrotis*) and no *Rhyncogonus* were seen on those plants, and in other places where *exsul* was present no caterpillars were seen. In almost every case, only a single weevil was found on any plant with a weevil; the sole exception was one large plant with 3 weevils (G. Nishida, unpubl. notes).

Weevils were not seen on *Eragrostis* during this visit. Nishida searched for larvae in the soil around half a dozen *Chenopodium* plants and several *Eragrostis* clumps but no larvae were seen; the soil was extremely dry. While squalls were noted during the visit, soil conditions still appeared



Figures 46–54. *Rhyncogonus* habitus photos, dorsal. **46**. *R. lahainae*; **47**. *R. montygorum*; **48**. *R. tristis*; **49**. *R. sordidus*, male; **50**. *R. sordidus*, female; **51**. *R. wiliwilinui*; **52**. *R. pi*; **53**. *R. segnis*; **54**. *R. stygius*.



Figures 55–63. *Rhyncogonus* habitus photos, dorsal. **55**. *R. haupu*; **56**. *R. kahili*; **57**. *R. sylvicola*; **58**. *R. tuberculatus*; **59**. *R. bryani*; **60**. *R. extraneus*; **61**. *R. gagneorum*; **62**. *R. kapapa*; **63**. *R. saltus*.

to have been dry for some time suggesting that *exsul* in the larval stage may be somewhat seasonal

Status. Extant. Various collections to 2001. The location is an uninhabited island and part of the Northwestern Hawaiian Islands National Wildlife Refuge, administered by the US Fish and Wildlife Service. Imminent threats not noted.

Rhyncogonus extraneus Perkins Figs. 49, 110, 151

Rhyncogonus extraneus Perkins, 1910, FH 3: 651–652 (original description); Perkins, 1913, FH 1: 119 roman; Perkins, 1924, PHES 5: 379.—Swezey, 1927, PHES 6: 407–409.—Williams, 1931, HSCI, 208.—Van Dyke, 1932, BMB 98: 14.—Keifer, 1933, EA 13: 55.—Swezey, 1934, PHES 8: 528.—Van Dyke, 1937, BMOP 13: 126 (noted).

Diagnosis. Species group: *vestitus* group. With *R. bryani* Perkins, *R. gagneorum* n. sp., *R. kapapa* n. sp., *R. saltus* Perkins, *R. vestitus* Sharp. Differs from *R. kapapa* by having prothorax averaging longer: PNL/PNB index 87–96 (vs 78–88), paler derm: orange fulvous (vs dark fuscous to blackish) and finer dorsal pubescence.

Female (Lectotype). Derm, pubescence, and major features as noted in redescription. BL 9.07 mm; BB 4.70 mm; PNL 208 cmm (= 100ths mm); PNB 224 cmm; ELL 656 cmm; ELB 465 cmm; IO 102 cmm; EB 170 cmm; EH 20 cmm; E 44 cmm; AS (cmm): 220 : 38 : 44 : 30 : 28 : 24 : 26 : 24 : 96 (= club: 40+28+28). Ratios (× 100): BL/BB 193; PNL/PNB 93; ELL/ELB 141; IO/EB 60; EH/E 45; IO/E 232; AFS1/AFS2 86; AFS3/AFS4 107.

Male (Allolectotype). Derm, pubescence, and major features as noted below. BL 7.90 mm; BB 4.12 mm; PNL 183 cmm (= 100ths mm); PNB 216 cmm; ELL 581 cmm; ELB 390 cmm; IO 92 cmm; EB 152 cmm; EH 18 cmm; E 44 cmm; AS (cmm): 192 : 40 : 40 : 28 : 28 : 24 : 24 : 24 : 96 (= club: 44+28+24). Ratios (× 100): BL/BB 192; PNL/PNB 85; ELL/ELB 149; IO/EB 61; EH/E 41; IO/E 209; AFS1/AFS2 100; AFS3/AFS4 100.

Redescription (pooled). Gross body length 7.7–10.3 mm (o.d. 8 mm). Derm medium to dark orange fulvous. Dorsal pubescence white but parts stained with yellow ochre, mostly as adpressed lanceolate squamae; also clear silvery setae present. Rostrum and front moderately squamose on central to upper disc, these slender lanceolate mixed with occasional fine clear setae; the squamae becoming shorter and stouter along inner eye margins. Antennal scape setose, the setae partly adpressed with others curved and raised about 15 degrees. Pronotal disc moderately clothed with setiform and slightly heavier squamae, these appearing thin enough on central disc to allow derm to show through, these then meeting a dense stripe on each side of stouter white squamae. Scutellum with a conspicuous dense patch of white slender squamae. Elytral disc subdensely clothed with fine squamae, sometimes tending to form weak stripes, these fine enough to allow much derm to show through; lateral part of disc and infolded surface (also rather densely clothed) tending to have spotted concentrations of white squamae. Raised sensory setae pale, prominent on pronotal and elytral discs, the former less strongly raised, the later suberect and longer. Ventral surfaces rather finely clothed with setae but mesosternal intercoxal piece with a tuft of white squamae and sides of thorax and abdominal sterna 1+2 becoming densely clothed laterally with white squamae; abdominal sterna 4–5 in ♂ very finely setose and pilose; sterna 3–5 in ♀ finely setose. Femora densely clothed with setae and white lanceolate squamae, the latter rather evenly distributed over apical half but this apical area also with a number of small dark openings showing derm. Tibiae unevenly clothed with small squamae and set with bristles and setae of moderate length.

Rostrum and front strigose, ridges and depressions smooth, shining; punctures small. Eye circular, small, and strongly raised. Prothorax subcylindrical, sides moderately convex; both anterior margin and base straight to weakly emarginate across middle; median impunctate line sometimes obsolete or narrow, smooth when present; discal punctures deep and moderately close; intervals smooth but appearing dull from vestiture. Elytron subrobust in male, robust in female, preapical closure rather evenly and gradually narrowed to apex; disc quite evenly convex; puncture rows distinct to interstice 8, then irregular to confused, sometimes obscured by vestiture; interstices flat to slightly convex; punctures deep and moderately large; intervals smooth but appearing ± dull because of vestiture; humeral margin basally rounded in ♂ and beaded in ♀, middle part rounded in both sexes, and apical part ± beaded in both sexes but more so in female, margin without prominent features, the preapical

part ± reaching apex; infolded surface similar to disc. Ventral surfaces generally smooth to smooth-granulate; abdominal sterna flattened to very shallowly depressed on the basal part of 1+2. Femora smooth-alutaceous-punctulate. Tibiae ± smooth-asperate-punctate. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 8, including types): BL 7.73–10.25 mm; BB 3.70–5.04 mm; PNL 178–241 cmm (= 100ths mm); PNB 199–266 cmm; ELL 523–730 cmm; ELB 365–490 cmm; IO 80–112 cmm; EB 152–188 cmm; EH 18–28 cmm; E 40–50 cmm; AFS1 34–48 cmm; AFS2 38–48 cmm; AFS3 24–32 cmm; AFS4 28–32 cmm. Ratios (× 100): BL/BB 192–217; PNL/PNB 85–96; ELL/ELB 143–153; IO/EB 56–62; EH/E 41–58; IO/E 200–233; AFS1/AFS2 82–110; AFS3/AFS4 86–114.

Types. Lectotype label data: Co-type [circular typeset label with yellow border]/ Sandwich Is. [typeset]/ 1914.82 [handwritten in ink on underside of preceding]/ *Rhyncogonus extraneus*. P. Oahu, 700 ft /06. Cotype. [handwritten in ink]/ + new lectotype label.

Material examined. **O'AHU**: 1902 or 1903, R.C.L. Perkins collector (lectotype ♀, BMNH; allolectotype ♂, 2 ♀ paralectotypes); Waipahu, 31.xii.04, Oahu Sugar Co., Field.No.20, including one found on cane by FWT and other spms with date only (5 ex, UHM); same date, Chamberlain Collection (1 ex, CUIC); Oahu Sugar Co., Field 20, 29.xi.1922, O.H. Swezey collector (28 ex); same data but 29.xii.1922 (9 ex); Oahu Sugar Co. without other data (7 ex); Honolulu, T.H., 16 mi. N.W., Field 20, 23.x.1925, sugar cane, collector possibly Swezey (14 ex); Honolulu, T.H., Oahu Sugar Co., Field 20, some ex on sugar cane, collector possibly Swezey [3 ex with O.H.S.Co. instead of O.S.Co. indicating Swezey] (17 ex); Oahu Sugar Co., 14.ix.1926, Swezey (1 ex); Oahu Sugar Co., Field 20, 16.i.1941, F.A. Bianchi (1 ex). The notation, "16 mi. N.W." may mean NW of Oahu Railway mile 16. Examples (pairs) distributed to BMNH, CAS, MNHN, USNM.

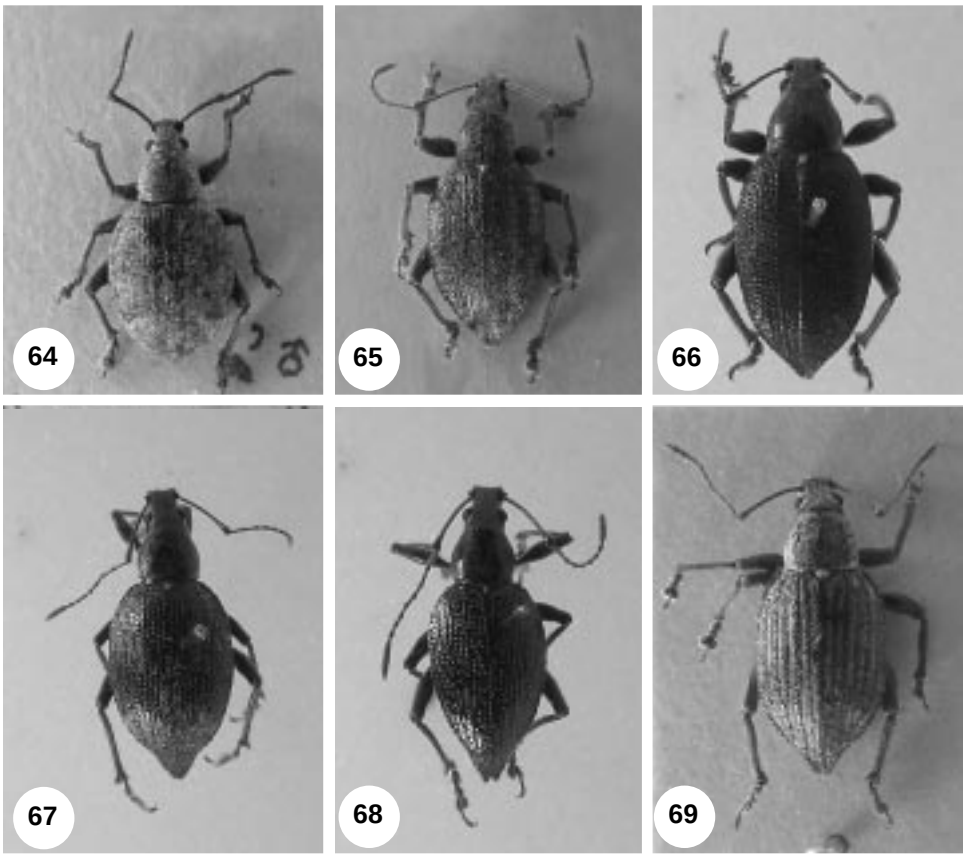
Collection and taxonomic history. Described by Perkins, 1910: 651–652 ("Oahu; lower slopes of the mountains, below the forest."; syntypes in BMNH and BPBM). The location is on the slopes of the Wai'anae Range near Waipahu. The size of the type series was not indicated in the original description but 1 specimen labeled as cotype in the BMNH and 3 specimens labeled as paratypes in BPBM were studied. The BMNH syntype was seen through the kindness of Ms Sharon Shute, London. Lectotype is here designated to stabilize the taxonomy of the species. Perkins originally thought this species to be an introduction: a handwritten note with the 3 syntypes, "... I visited Mr Ahrens to look at the cane fields on Oahu plantation. They were on weeds & considered by me to be an importation. R.C.L.P."

This species is known only from collections of the type population and was a subject of interest in the entomological community, who regarded the population as an "isolated colony" (Williams, 1931: 209). In recent years this species was sought without success. Also the location of the now defunct Oahu Sugar Company's fields has become obscure. Specimen data show that the later collections were scanty, with the last specimen taken in 1941. Since then, many changes in land use have taken place and now it may not even be possible to locate the exact site of the former Field 20 (J.W. Beardsley and W.D. Perreira, pers. comm.). Steven L. Montgomery, who lives in the Village Park subdivision that is not far from the type locality, has searched for but has not turned up any specimens so far.

Distribution. O'ahu. Lowlands below the Wai'anae Range near Waipahu. Now possibly extinct. Restricted coastal/lowland distribution: Pattern 2.

Habitat and life history notes. The original community was possibly Lowland Mesic Shrubland (Gagné & Cuddihy, 1990: 75–80). Egg stage occupied about 8–11 days and the grub stage 3 or 4 months (Swezey, 1927: 407–409). The Field 20 colony had been under observation since December 1904 (Williams, 1931: 208) and larvae were collected from the soil (specimens lost?) where they fed on roots of decaying cane seed cuttings in the ground. The adults were observed feeding on leaves of various weeds but not sugarcane leaves (Williams, 1931: 208–209). The habitat was already disturbed with the culture of sugar cane when this insect was first discovered.

Status. Rare if extant, possibly extinct. Last collected in 1941. It is popularly thought that *R. extraneus* is now extinct. I think this needs to be confirmed through renewed surveys in or near Waikele Gulch and Kipapa Gulch. This species must have occurred over a broader area before sugar



Figures 64–69. *Rhyncogonus* habitus photos, dorsal. **64**. *R. vestitus*; **65**. *R. depressus*; **66**. *R. ricei*; **67**. *R. squamiger*, female; **68**. *R. squamiger*, male; **69**. *R. vittatus*.

cane cultivation, and when it was first noticed, its habitat was already seriously altered around sugar cane field No. 20 of Oahu Sugar Company. The "weedy" surrounds of the field seemed to be the main place where the species was found. Later efforts have failed to find it. In recent decades, sugar cultivation declined and urbanization has grown to the extent that it may take some work to just find the site. Rats, ants, herbicides, and insecticides may all have also contributed to reducing or eliminating the remnant population.

Rhyncogonus femoratus Samuelson, **n. sp.** Figs. 30, 99, 143

Diagnosis. Species group: *sordidus* group, *koebelei* subgroup. With *R. koebelei* Perkins, *R. mutatus* Perkins, *R. obsoletus* Perkins in the subgroup. This species is unique in its group by having all femora essentially subglabrous, the femora being sparsely and finely setose with no vestige of a denser squamose covering preapically. It further differs from *R. mutatus* by having the eyes more protuberant and rostral and pronotal punctures closer and deeper.

Male (Holotype). Gross body length 10.9 mm. Derm dark reddish to blackish fuscous on head, antenna, prothorax, and ventral surfaces; elytron paler but still rather dark red-fuscous; legs medium red-fuscous. Dorsal

pubescence of clear silvery setae and whitish to whitish buff slender squamae. Rostrum and front sparsely and evenly setose, lacking a denser concentration of heavier setae along inner eye margins. Antennal scape finely setose, the setae adpressed. Pronotum with disc evenly, finely, and rather sparsely setose but a few whitish buff setiform squamae mixed in toward side of disc but actual side essentially glabrous. Scutellum glabrous. Elytron ± moderately squamose on disc, and tending to be patchy apically; infolded surface with inconspicuous setae and a few vague patches of squamae along humeral margin and preapex. Ventral surfaces finely and rather sparsely setose; only the apical 2 abdominal sterna with denser, longer setae, these pilose on the apical sternum. Trochanteral bristles single. Femora with an inconspicuous and sparse clothing of fine adpressed setae, giving them a nearly glabrous appearance. Tibiae bearing setae and bristles of short to submoderate length.

Rostrum and front rather flat and smooth, surface obsoletely shagreened with a bright satiny shine, the punctures fairly close and shallow but deeper than those in *R. koebelei* or *R. mutatus*. Eye subcircular, moderate in size and prominent in elevation. Antennal scape not quite reaching the middle of the PN disc; antennal funicular segment 1 very slightly shorter than afs2; afs3 much longer than afs4. Prothorax globose, sides convex; disc subevenly convex, slightly depressed basally; median impunctate line weak and narrow except a moderate swelling at middle, the surface finely granulate; discal punctures rather close and moderate in size and depth; intervals finely granulate. Elytron rather slender, preapical closure normally converging to slightly extended apex; disc convex; puncture rows evenly striate to 8, then slightly confused to humeral margin; punctures moderately small and deep; surface dull alutaceous overall; humeral margin extended to preapex, the edge with a few fine denticles along preapex, otherwise smooth; the margin more obscurely beaded along middle than a base and preapex; infolded surface flatter than disc, otherwise similar to disc. Ventral surfaces generally ± shagreened and finely punctate on most surfaces. Femora rather smooth and ± shagreened. Tibiae smooth and ± shagreened with low asperations and fine punctures.

BL 10.92 mm; BB 5.21 mm; PNL 257 cmm (= 100ths mm); PNB 299 cmm; ELL 755 cmm; ELB 510 cmm; IO 116 cmm; EB 198 cmm; EH 28 cmm; E 58 cmm; AS (cmm): 288 : 60 : 64 : 48 : 40 : 40 : 36 : 40 : 136 (= club: 48+34+54). Ratios (× 100): BL/BB 210; PNL/PNB 86; ELL/ELB 148; IO/EB 59; EH/E 48; IO/E 200; AFS1/AFS2 94; AFS3/AFS4 120.

Female (Allotype). Derm, vestiture and major features as in ♂. BL 10.75 mm; BB 5.12 mm; PNL 249 cmm (= 100ths mm); PNB 295 cmm; ELL 764 cmm; ELB 498 cmm; IO 128 cmm; EB 208 cmm; EH 28 cmm; E 60 cmm; AS (cmm): 280 : 54 : 56 : 44 : 40 : 40 : 40 : 40 : 132 (= club: 52+32+48). Ratios (× 100): BL/BB 210; PNL/PNB 85; ELL/ELB 153; IO/EB 62; EH/E 47; IO/E 213; AFS1/AFS2 96; AFS3/AFS4 110.

Paratypes. Derm, vestiture and major features close to the above. Several specimens appear to be more teneral and reddish fulvous and several seem to be older, blacker, and somewhat eroded dorsally. The antennal flagellar segment ratios commonly have afs1 shorter to equal to afs2 and occasionally only slightly longer than afs2. Aedeagus: apex as figured. Spermatheca as figured.

Range (entire type series, n = 11): BL 8.73–10.92 mm; BB 4.20–5.38 mm; PNL 208–257 cmm (= 100ths mm); PNB 241–299 cmm; ELL 598–764 cmm; ELB 415–523 cmm; IO 96–128 cmm; EB 166–208 cmm; EH 20–28 cmm; E 50–62 cmm; AFS1 54–62 cmm; AFS2 52–64 cmm; AFS3 40–48 cmm; AFS4 34–40 cmm. Ratios (× 100): BL/BB 193–210; PNL/PNB 81–97; ELL/ELB 135–153; IO/EB 57–63; EH/E 37–48; IO/E 178–231; AFS1/AFS2 94–108; AFS3/AFS4 105–121.

Types. Holotype (BPBM 16,386), allotype and 7♂, 1♀ paratypes O'AHU: Ko'olau Range, Tripler Ridge, 3.vii.1976, R.C.A. Rice collector; same loc., 8.v.1976, Rice (1♀ paratype). Paratypes (♂) distributed to BMNH, USNM.

Collection and taxonomic history. This species is presently described from a small series taken by R.C.A. Rice on Tripler Ridge, O'ahu. This and related species tend to be highly precinctive along the Ko'olau Range. The species is named for the nearly glabrous condition of its femora.

Distribution. O'ahu. Ko'olau Range, Tripler Ridge at an undisclosed elevation. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The habitat is possibly embraced by Lowland Mesic Forest or Lowland Wet Forest (Gagné & Cuddihy, 1990: 80–93).

Status. Extant. Two collections only, both in 1976. Range is within Honolulu Watershed Forest Reserve. Threats would include disturbance to soil by pigs and possible predation by ants or rats.

Rhyncogonus fordi Zimmerman, **new status** Figs. 18, 96, 136

Rhyncogonus segnis fordi Zimmerman, 1956, PHES 16: 165–169 (original description). —Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.

Diagnosis. Species group: *fordi* group. With *R. howarthi* n. sp., *R. zeta* n. sp. This species group is characterized by having squamiform setae on the rostral surface, inconspicuous elytral sensory setae, and elytral infolded surface with small grains. *Rhyncogonus fordi* had been united with *R. segnis* Perkins (in *stygius* group) as a subspecies but it is here elevated as a full species, as each is now assigned to a different species group. It is restricted to the northern Wai'anae Range and is more closely related to *R. zeta* from W Maui than it is to *R. segnis* from the Ko'olau Range, O'ahu. It differs from *R. segnis* and *R. zeta* by having the foretibia strongly bent preapically and by the presence of squamae on the scutellum. Differs from its sister species, *R. howarthi*, from the southern part of the Wai'anae Range, by having the rostrum strigose with ridges smooth shining (vs a ± flattened rostrum with a granulate surface and duller shine).

The original description of *R. fordi* is exceptionally detailed. Parts of the present treatment, particularly the measurements, may be regarded as supplemental.

Male (Holotype). Derm, pubescence, and major features as noted below. BL 13.94 mm; BB 6.22 mm; PNL 290 cmm (= 100ths mm); PNB 332 cmm; ELL 979 cmm; ELB 598 cmm; IO 116 cmm; EB 206 cmm; EH 26 cmm; E 76 cmm; AS (cmm): 392 : 92 : 80 : 52 : 48 : 48 : 44 : 48 : 156 (= club: 68+40+48). Ratios (× 100): BL/BB 224; PNL/PNB 88; ELL/ELB 164; IO/EB 56; EH/E 34; IO/E 153; AFS1/AFS2 115; AFS3/AFS4 108.

Female (Allotype). Derm, pubescence, and major features as noted below. BL 13.44 mm; BB 6.38 mm; PNL 290 cmm (= 100ths mm); PNB 340 cmm; ELL 963 cmm; ELB 614 cmm; IO 136 cmm; EB 218 cmm; EH 24 cmm; E 72 cmm; AS (cmm): 256 : 96 : 72 : 48 : 44 : 40 : 40 : 40 : 136 (= club: 52+38+46). Ratios (× 100): BL/BB 211; PNL/PNB 85; ELL/ELB 162; IO/EB 62; EH/E 33; IO/E 189; AFS1/AFS2 133; AFS3/AFS4 109.

Descriptive data (pooled). Gross body length 12.4–15.8 mm (o.d. 13–14 mm). Derm subpiceous. Dorsal pubescence of clear silvery setae to whitish lanceolate squamae; all adpressed. Rostrum and front sparsely setose, with some squamae grouped along inner eye margins. Antennal scape finely setose, the setae adpressed. Pronotal disc finely setose centrally, these merging at each side with a moderately strong lateral stripe of elongate squamae. Scutellum finely setose. Elytral disc sparsely to submoderately setose to narrowly squamose; elytral infolded surface finely setose with limited patches of whitish lanceolate squamae basally and preapically. Raised sensory setae essentially absent but elytral preapex with longer decumbent setae along suture, these not very conspicuous. Ventral surfaces mostly moderately clothed with fine setae centrally, these becoming heavier laterally, and with also patches of white lanceolate squamae at sides of thorax before metacoxa and at posterolateral edge of abdominal sternum 1. Femora clothed with setae and squamae, the latter fairly even on fore and mid femora but more strongly squamose preapically on hind femur. Tibiae set with setae and bristles of moderate length.

Rostrum and front subreticulate to finely strigose, intervals and ridges smooth shining. Eye subovate, moderately large and moderately low. Antennal funicular segment 1 much longer than afs2; afs 3 slightly longer than afs4. Prothorax subglobose, sides convex, briefly constricted laterally near base; base moderately strongly emarginate before scutellum; disc somewhat irregularly flattened to shallowly depressed; median line narrow but expanded at center, surface smooth shining; punctures of different smaller sizes and rather closely grouped; intervals smooth shining. Elytron somewhat more slender than average in both sexes, preapical closure concave and moderately acuminate to slightly produced apex; disc slightly flattened; puncture rows distinct to beyond 8, sometimes to humeral margin, or sometimes irregular to confused laterally, and rarely so preapically; interstices mostly slightly convex but 4 and 8 weakly raised; punctures close and moderately small and shallow; surface dull alutaceous with numerous small grains associated with setae; humeral margin extended to apex, the margin beaded for entire length, the apical part with small blunt teeth. Ventral surfaces smooth–finely granulate, with a satiny luster; abdominal sterna 1+2 shallowly concave in ♂, and slightly convex in ♀. Femora smooth-alutaceous, bearing minute grains. Tibiae strongly bent preapically (especially foretibia), surface smooth-granulate with asperate punctures. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 8, including types): BL 12.43–15.79 mm; BB 5.63–7.39 mm; PNL 274–340 cmm (= 100ths mm); PNB 311–398 cmm; ELL 855–1162 cmm; ELB 548–706 cmm; IO 108–136 cmm; EB 204–244 cmm; EH 20–34 cmm; E 72–80 cmm; AFS1 88–100 cmm; AFS2 68–80 cmm; AFS3 44–52 Zcmm; AFS4 40–48 cmm. Ratios (× 100): BL/BB 210–226; PNL/PNB 80–88; ELL/ELB 156–165; IO/EB 51–62; EH/E 28–39; IO/E 142–189; AFS1/AFS2 115–144; AFS3/AFS4 105–115.

Types. Holotype label data: Kawiwi Oahu 8/54 [typeset]/ Pelea [typeset]/ E.J. Ford [typeset]/ Holotype No. [typeset] 2546 *Rhyncogonus segnis fordi* m Zimmerman [handwritten in ink].

Material examined. **O'AHU**: Kawiwi, viii.1954, *Pelea*, E.J. Ford, Jr collector (holotype, allotype, 1 ♂ paratype); Wai'anae Range, ix.1957, Ford (1 ♂ ex); Kawiwi Ridge, 730 m (2400 ft), 18.x.1975, R.C.A. Rice collector (8 ♂, 5 ♀ ex); Kou Trail, 730 m (2400 ft), 30.v.2002, in litter under *Melicope* cf. *peduncularis*, M. LeGrande collector, #1225 (elytral fragments of 2 ex). Examples (pair) distributed to USNM.

Collection and taxonomic history. Described by Zimmerman (1956: 165–169) ("Holotype ♂, allotype ♀ ... two male paratypes, and one female paratype collected from *Pelea* in August, 1954, and one male taken in October, 1954, by E.J. Ford, Jr in the saddle of the ridge joining Mount Kaala and Puu Kawiwi, Wai'anae Mountains ... at about 2,800 feet elevation."; holotype and allotype in BPBM).

Rhyncogonus segnis fordi Zimmerman is elevated to full species on the following points: presence of heavier pronotal setation, presence of a distinct squamose stripe on sides of the prothorax, presence of heavy squamae along inner eye margins, and presence of narrow squamae on scutellum. These characters, as superficial as they may appear, readily separate *R. fordi* from *R. segnis*. These differences partly reinforce further points mentioned by Zimmerman (1956: 169), whose observations on *segnis* were based only on a single female, a specimen that is at the extreme for having the broadest prothorax and the highest eye protuberence for that species. *R. segnis* does have, as Zimmerman observed, a generally redder derm and antennal funicular segment 3 distinctly longer than afs4. *Rhyncogonus fordi* has the derm darker and the length of afs3 slightly longer than afs4. The populations are disjunct: *R. fordi* on the Wai'anae Range and *R. segnis* on the Ko'olau Range, and the presence of yet another close relative, *R. zeta* n. sp. from W Maui, which resembles *R. fordi* more closely than *R. segnis*. For these reasons, the separation of the former subspecies seems warranted.

Distribution. O'ahu. Wai'anae Range, Mt Ka'ala area. Most recently (1975) taken in a good series by R.C.A. Rice. Restricted montane distribution: Pattern 4.

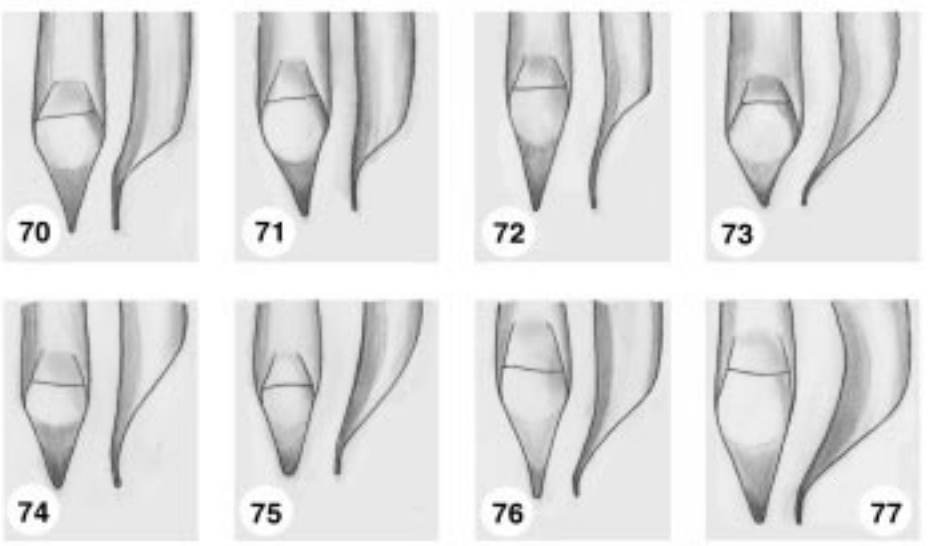
Habitat and life history notes. Possibly associated with *Melicope* (= *Pelea)*. The type locality is on the saddle of the ridge joining Pu'u Kawiwi with Mt Ka'ala and it may include limited exposed shrubland with adjacent forest, classified as Lowland Mesic Shrubland/Forest (Gagné & Cuddihy, 1990: 77–80, 80–85). This area also includes the type locality of *R. gagneorum* n. sp., taken from *Bidens*.

Status. Extant. Three collections to 1975. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus freycinetiae Perkins Figs. 21, 90

Rhyncogonus freycinetiae Perkins, 1900, FH 2: 126 (original description).—Perkins, 1927, PHES 6: 469–470.—Swezey, 1934, PHES 8: 528; Swezey, 1936, PHES 9: 194.—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.

Diagnosis. Species group: *freycinetiae* group. With *R. molokaiensis* Perkins, *R. oleae* Perkins. This species group is characterized by having the dorsum glabrous to finely setose, sometimes with a white squamose stripe on each side of prothorax (obsolete or weak to strong) and scutellum with a white squamose tuft (sometimes rubbed off). *R. freycinetiae* appears to have been collected only twice, provided it is distinct from *R. oleae*, a later-described close relative also from the northern part of the Ko'olau Range, O'ahu. Differs from *R. oleae* by having prothorax heavily squamose on each side (vs obsolete to weak), elytron essentially glabrous (vs finely squamose in females and dis-



Figures 70–77. *Rhyncogonus*, male aedeagi, dorsal (left) and lateral (right) views. **70**. *R. fallax*; **71**. *R. fosbergi*; **72**. *R. vagus*; **73**. *R. exsul*; **74**. *R. biformis*; **75**. *R. vittatus*; **76**. *R. depressus*; **77**. *R. ricei*.

tinctly setose in ♂), elytral puncturation mostly irregular on inner rows (vs regular inner rows), elytral interstices weak and smooth shining (vs subcostate and alutaceous), and elytral disc in ♂ flatter and shinier. These characters, as superficial as they may be, seem to separate these species, whereas the various ratios derived from measurements offer little help. See *R. oleae* for further comments.

Redescription. Female (Holotype). Gross body length 10.75 mm (o.d. 11 mm). Derm piceous over most body surfaces, antenna, and legs (abdominal sternum 5 fuscous). Dorsal pubescence where present of extremely fine silvery clear setae and in limited places of white lanceolate squamae. Rostrum and front sparsely setose on disc, the setae a little thicker but still sparse along inner eye margins. Antennal scape very finely setose; setae adpressed to very slightly raised. Pronotum finely setose on disc, setae merging at side with lanceolate squamae forming a fairly strong stripe. Scutellum finely squamose. Elytron very finely setose (nearly glabrous), the setae sparse on disc, more abundant along apical part of humeral margin and apical part of infolded surface and lateral margin. Ventral surfaces submoderately setose over median parts, the setae becoming denser and longer on apical 3 abdominal sterna; thorax with small patches of narrow squamae outward of pro- and mesocoxae, metasternum and abdominal sterna 1+2 with narrow whitish squamae generally occupying lateral parts. Femora clothed with setae and slender squamae, the latter heavier and paler beyond middle and forming an indistinct band before apex. Tibiae set with mostly short bristles and some fairly long setae on retrofemoral side.

Rostrum and front rather strongly strigose; surface of ridges quite smooth medially or with a hint of granulosity at sides; punctures elliptical on rostrum and mostly smaller and circular on vertex. Eye subcircular, moderately large and raised. Antennal funicular segment 1 much longer than afs2; afs3 slightly longer than afs4. Prothorax subglobose, sides moderately and evenly convex; anterior margin straight across middle; base feebly emarginate across middle; disc somewhat shallowly depressed on basal half, otherwise evenly convex; median impunctate line a narrow shining wrinkle from near middle to anterior margin; discal punctures moderately close, of small to medium sizes; intervals smooth with a hint of granulosity. Elytron moderately robust, preapical closure rather abrupt before slightly extended apex; disc evenly convex; puncture rows somewhat irregular overall but rows can still be counted; interstices rather evenly but not strongly swollen, 4 and 8 hardly outstand-

ing; surface smooth shining; humeral margin continued to preapex with a slight break before apex, the edge subcrenulate-smooth until about apical 2/5 where eroded denticules emerge; margin entirely sharp broadly beaded basally, then beaded to preapex and not particularly sharp in any place; infolded surface similar to disc but slightly duller alutaceous. Ventral surfaces smooth-subshagreened with a satiny lustre; abdominal sterna 1+2 with surface gradually and shallowly concave. Femora smooth-granulate-punctulate. Tibiae granulate-asperate.

BL 10.75 mm; BB 5.38 mm; PNL 228 cmm (= 100ths mm); PNB 299 cmm; ELL 776 cmm; ELB 515 cmm; IO 110 cmm; EB 196 cmm; EH 24 cmm; E 64 cmm; AS (cmm) 284 : 72 : 52 : 34 : 30 : 28 : 28 : 30 : 120 (= club: 48+32+40). Ratios (× 100): BL/BB 200; PNL/PNB 76; ELL/ELB 151; IO/EB 56; EH/E 38; IO/E 172; AFS1/AFS2 138; AFS3/AFS4 113.

Male (nov.). Body length 9.07 mm. Derm red-fuscous, almost castaneous. Dorsal pubescence of inconspicuous fine silvery setae and white lanceolate squamae. Front and rostrum with fine inconspicuous setae, these a little heavier along inner eye margins. Antenna finely setose, setae adpressed to slightly raised. Prothorax very finely setose distally but heavily squamose on sides, the lateral stripe strongly developed. Scutellum with group of fine setiform squamae. Elytron very finely and sparsely setose but the infolded surface with setae more conspicuous. Ventral surfaces as in female except apical 2 abdominal sterna more densely clothed. Femora and tibiae with vestiture similar to female.

Rostrum and front strigose, the ridges smoother than the granulate-punctate depressions; punctures larger, more distinct on vertex. Eye circular and moderately elevated. Antennal funicular segment 1 slightly longer than afs2; afs3 slightly longer than afs4. Prothorax subglobose, sides convex; base feebly emarginate across middle; disc subevenly convex (very slightly flattened basally); median impunctate line obsolescent, a little broader at middle, then a fine crease to anterior margin, surface smooth shining; discal punctures moderate sized and deep, commonly about 2–4 × as large as intervals; intervals briefly swollen but the larger ones somewhat flatter, surface smooth with a hint of granulation. Elytron fairly broad and flattened; preapical closure rather straight; discal surface quite smooth shining; discal punctures fairly large and in irregular overall, much larger and more distinct that pronotal ones; humeral margin somewhat beaded basally, definitely creased along middle and becoming sharp apically, the edge with small dentations along apical 2/5. Ventral surfaces: abdominal sterna 1+2 shallowly concave. Femora granulate-punctulate. Tibiae granulate, the surface with rather small asperations. Aedeagus (2nd male): apex as figured.

BL 9.07 mm; BB 4.20 mm; PNL 183 cmm (= 100ths mm); PNB 216 cmm; ELL 573 cmm; IO 88 cmm; EB 160 cmm; EH 20 cmm; E 52 cmm; AS (cmm): 236 : 56 : 52 : 32 : 28 : 26 : 26 : 28 : 120 (= club: 44+32+44). Ratios (× 100): BL/BB 216; PNL/PNB 85; ELL/ELB 141; IO/EB 55; EH/E 38; IO/E 169; AFS1/AFS2 108; AFS3/AFS4 114.

Range (entire series, n = 3): BL 7.22–10.75 mm; BB 3.36–5.38 mm; PNL 149–228 cmm (= 100ths mm); PNB 183–299 cmm; ELL 490–776 cmm; ELB 340–515 cmm; IO 76–110 cmm; EB 144–196 cmm; EH 20–24 cmm; E 50–64 cmm; AFS1 52–76 cmm; AFS2 44–52 cmm; AFS3 30–34 cmm; AFS4 26–30 cmm. Ratios (× 100): BL/BB 200–216; PNL/PNB 76–85; ELL/ELB 141–151; IO/EB 53–56; EH/E 38–40; IO/E 152–172; AFS1/AFS2 108–138; AFS3/AFS4 113–115.

Types. Holotype label data: *R. freycinetiae* Type. [handwritten in ink on surface of card to which specimen is micropinned]/ Type [circular typeset label with red border]/ Hawaiian Is. 1900–99. [typeset]/ Haleomano about.2000 ft 1.93 [handwritten in ink].

Material examined. **O'AHU**: "Haleomano" [= Helemano], about 610 m (2000 ft), i.1893, R.C.L. Perkins collector (holotype ♀, BMNH); "Haleamano" [= Helemano], 25.vii.1908, in dead leaves, W.M. Giffard Collection, Kuhns collector (2 ♂ ex, including one dissected by Sharp = R.18). Note variant spellings for Helemano.

Collection and taxonomic history. Described by Perkins, 1900: 126 ("Oahu, Halemano (2000 ft.); 1♀ taken at the bases of the leaves of *Freycinetia*."; holotype in BMNH).

Distribution. O'ahu. Ko'olau Range, Helemano area at around 600 m. Restricted montane distribution: Pattern 4.

Habitat and life history notes. Adults were collected on *Freycinetia* at leaf bases. The habitat is possibly Lowland Mesic Forest (Gagné & Cuddihy, 1990: 80–82); the exact locality is not known.

Status. Extant? Last of the only 2 collections in 1908. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus funereus Perkins Fig. 14

Rhyncogonus funereus Perkins, 1900, FH 2: 123 (original description).—Swezey, 1934, PHES 8: 528.

Diagnosis. Species group: *blackburni* group. With *R. blackburni* Sharp, *R. nitidus* Perkins. Remarkably, this species is unique in its group by having antennal funicular segment 1 much shorter than afs2. Body form is also notable in this species as the elytra together are wedge-shaped: broadest postbasally, then gradually narrowed to a fairly abrupt preapical closure; the elytral disc is rather flattened and accentuates the sharp humeral margin.

Redescription. Male (Holotype). Gross body length 12.0 mm (o.d. 12.5 mm). Derm pitch black, strongly shining. Dorsal pubescence inconspicuous, essentially glabrous. Rostrum and front sparsely set with very fine silvery microsetae. Antennal scape finely setose, hairs adpressed. Femora setose with additional slender white squamae forming a partial band beyond middle. Tibiae set with setae and bristles of short length.

Rostrum and front smooth to strigose over middle section, intervals and ridges smooth and shining; punctures small and elongate; punctures more circular and distinct at apex and closer and deeper above on vertex. Eye circular, small, and strongly raised. Antennal funicular segment 1 short: about 0.80 × as long as afs2; afs3 and afs4 subequal in length. Prothorax subcylindrical, elongate; sides weakly convex; anterior margin and base feebly emarginate across middle; disc subevenly convex but with slight flattened areas basally and somewhat so in anterolateral region; median impunctate area narrow, weakly raised but distinct for entire length, surface smooth, shining; discal punctures close and deep: 2–5 × as large as intervals; intervals swollen, reticulate, surfaces smooth shining; a small area on each posterolateral sector less closely punctate, the intervals larger and strongly shining. Scutellum punctate-granulate. Elytron subrobust, preapical closure almost straight: barely sinuate before apex; disc slightly flattened; puncture rows 1–7 irregular, then confused laterally; intervals swollen transversally and longitudinally forming a "bumpy" surface; punctures large; surface rather smooth with a strong shine; humeral margin continued to apex, the edge sharply beaded and smooth; elytral infolded surface similar to disc, with large punctures. Ventral surfaces not examined. Femora smooth-alutaceous and punctulate, with a fairly bright shine. Tibiae each rugosely punctate, dentate along ventral surface.

BL 11.93 mm; BB 5.12 mm; PNL 266 cmm (= 100ths mm); PNB 274 cmm; ELL 797 cmm; ELB 506 cmm; IO 124 cmm; EB 222 cmm; EH 28 cmm; E 64 cmm; AS (cmm) 304 : 52 : 64 : 44 : 44 : 40 : 40 : 42 (apical 3 segments missing) Ratios (× 100): BL/BB 233; PNL/PNB 97; ELL/ELB 157; IO/EB 56; EH/E 44; IO/E 194; AFS1/AFS2 81; AFS3/AFS4 100.

Types. Holotype label data: *R. funereus*. Type. [handwritten in ink on cardmount with specimen]/ Type [typeset circular label with red border]/ Hawaiian Is. 1900-99 [typeset]/ Waianae Mts., Oahu, 3,000 ft. Perkins. 4.1892.

Material examined. **O'AHU**: Wai'anae Mts, 915 m (3000 ft), iv.1892, R.C.L. Perkins collector (holotype, BMNH).

Collection and taxonomic history. Described by Perkins, 1900: 123 ("Oahu, Waianae mountains. a single ♂, found dead and somewhat mutilated, beneath bark."; holotype in BMNH). Holotype seen through the kindness of Ms Sharon Shute, London.

This species is quite distinctive in its body form, at least on the basis of the male (female not yet known). It is not likely to be confused with other species, though it is the probable sister-species of *R. blackburni* (Ko'olau Range); each restricted to a different mountain range on O'ahu. Both are large pitch black species but *R. funereus* has antennal funicular segment 1 much shorter than afs2, which differs from the opposite to subequal condition in *R. blackburni*.

Distribution. O'ahu. Wai'anae Range. The type is unique, collected from an unspecified site at 915 m elevation[2]. This probably limits the species to the higher parts of the range. Restricted montane distribution: Pattern 4.

Habitat and life history notes.The unique specimen was taken under bark of an undisclosed woody shrub or tree. This is the only record of *Rhyncogonus* being taken under bark. The individual may possibly have been hiding under loose bark during the day. The habitat at the 915 m elevation in the Wai'anae Range could be Lowland Mesic Forest (Gagné & Cuddihy, 1990: 80–85) but the exact site is not known.

Status. Unknown. Unique, original specimen taken in 1892.

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2. During April 1892, Perkins collected on the leeward side of the Wai'anae range while staying at an abandoned dairy house belonging to the Wai'anae Plantation. If the collection was at the 3000 foot level, there are few spots on that side of the mountains where the specimen could have been collected. It is thus most likely that the type locality is on or near the Wai'anae Kai trail leading to Mt. Ka'ala (N.L. Evenhuis, pers. comm.).

Rhyncogonus fuscus Perkins Figs. 12, 108, 149

Rhyncogonus fuscus Perkins, 1910, FH 3: 652 (original description).—Perkins, 1927, PHES 6: 471.—Swezey, 1934, PHES 8: 528.—Howarth, 1977, PHES 22: 411.

Diagnosis. Species group: *alternatus* group. With *R. alternatus* Van Dyke. Differs from *R. alternatus* by having discal punctures commonly 0.5–1.0 × as large as intervals (vs 3–4 ×) and the femora with a thick even squamose covering from middle to apex (vs setose). This species somewhat resembles *R. mutatus* Perkins of the *koebelei* subgroup in *sordidus* group, except that the latter lacks prominent sensory setae.

Male (Holotype). Derm dark fuscous but the immediate anterior and basal margins of the prothorax briefly reddish, as are the antenna and each tibia. Elytra dark reddish fuscous. Pubescence, and major features as noted in redescription. BL 7.56 mm; BB 3.53 mm; PNL 183 cmm (= 100ths mm); PNB 216 cmm; ELL 502 cmm; ELB 349 cmm; IO 84 cmm; EB 148 cmm; EH 18 cmm; E 44 cmm; AS (cmm): 192 : 52 : 44 : 32 : 32 : 32 : 32: 32 : 112 (club: 48+28+36). Ratios (× 100) BL/BB 214; PNL/PNB 85; ELL/ELB 144; IO/EB 57; EH/E 41; IO/E 191; AFS1/AFS2 118; AFS3/AFS4 100.

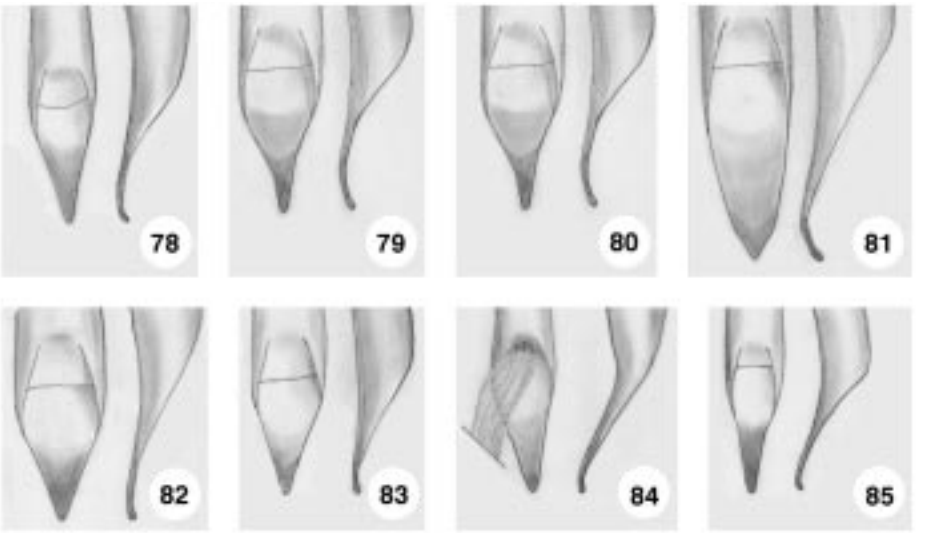
Female (nov.). Derm, pubescence, and major features as noted below. BL 11.59 mm; BB 6.05 mm; PNL 274 cmm (= 100ths mm); PNB 311 cmm; ELL 830 cmm; ELB 589 cmm; IO 144 cmm; EB 234 cmm; EH 24 cmm; E 64 cmm; AS (cmm): 288 : 66 : 70 : 52 : 44 : 44 : 40: 40 : 132 (club: 56+32+44). Ratios (× 100) BL/BB 192; PNL/PNB 88; ELL/ELB 141; IO/EB 62; EH/E 38; IO/E 225; AFS1/AFS2 94; AFS3/AFS4 118.

Redescription (pooled). Gross body length 7.5–12.0 mm (o.d. 7.5 mm). Derm generally dark fuscous but head often blackish and distinctly darker than pronotum; antenna and tibiae sometimes paler reddish. Dorsal pubescence finely setose to more generally with slender lanceolate ochraceous squamae. Rostrum appearing nearly nude but sparsely and very finely setose. Antennal scape finely setose. Prothorax sparsely to submoderately set with setiform squamae centrally, these merging with thicker squamae on each side of prothorax. Scutellum finely microsetose, the setae extremely fine. Elytron moderately clothed with whitish to ochraceous squamae, these forming loose patches; elytral infolded surface also similarly squamose. Sensory setae conspicuous, these suberect on elytral disc, each fairly stout and slightly curved. Ventral surfaces sparsely and finely setose but apical abdominal sternum more densely clothed in each sex (the male more densely so with surface finely subpilose.) Femora rather densely clothed with whitish or ochraceous squamae over apical half. Tibiae set with bristles and setae of short length.

Rostrum and front nearly smooth, surface shining granulate; punctures obscure centrally becoming larger and more circular at vertex. Eye subcircular, fairly small, and strongly raised. Antennal funicular segment 1 slightly longer than afs2; afs3 and afs4 subequal in length. Prothorax strongly globose; disc evenly convex, the surface strongly granulate with shallow large punctures, these commonly 0.5–1.5 × as large as interspaces; median impunctate line finely raised ± like a crease, surface granulate. Elytron subrobust, the preapical closure feebly sinuate; disc evenly convex; puncture rows 1–9 regular to irregular, the outer rows confused; interstices flattened with some undulations, 4 and 8 swollen and higher than the other discal ones; surface opaque with a dull shine; punctures small and deep; humeral margin weakly margined basally, then rounded to preapex, edge smooth, not adorned; lateral infolded surface opaque, the punctures small and deep. Ventral surfaces not examined. Femora smooth-granulate. Tibiae smooth-granulate, with some low asperations. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 8, including holotype, ♀ nov.): BL 7.56–11.59 mm; BB 3.53–6.05 mm; PNL 183–274 cmm (= 100ths mm); PNB 212–324 cmm; ELL 515–830 cmm; ELB 349–589 cmm; IO 84–144 cmm; EB 148–234 cmm; EH 18–26 cmm; E 44–64 cmm; AFS1 48–70 cmm; AFS2 44–70 cmm; AFS3 34–52 cmm; AFS4 32–52 cmm. Ratios (× 100): BL/BB 188–223; PNL/PNB 84–88; ELL/ELB 140–151; IO/EB 57–63; EH/E 34–46; IO/E 188–225; AFS1/AFS2 94–113; AFS3/AFS4 100–118.

Types. Holotype label data: 752 [on card mount with specimen] "Mokuleiia" [= Mokuleia] V.01 752 [underside of same card]/ Type H.T.[circular typeset label with red border]/ Sandwich Is. 1912-215 [typeset]/ *Rhyncogonus fuscus* Type. The field number (752) confirms the Mokuleia locality and the date (May 1901). Note variant spelling for locality.



Figures 78–85. *Rhyncogonus,* male aedeagi, dorsal (left) and lateral (right) views. **78**. *R. squamiger*; **79**. *R. kauaiensis*; **80**. *R. blackburni*; **81**. *R. nitidus*; **82**. *R. stygius*; **83**. *R. pi*; **84**. *R. segnis*; **85**. *R. tuberculatus*.

Material examined. **O'AHU**: Mokuleia, v.1901, No. 752, R.C.L. Perkins collector (holotype, BMNH); Mt Ka'ala, 2–3.x.1975, G.M. Nishida (3 ex); ditto, 800 m, 4.viii.1977, Nishida (1 ex); Mt Ka'ala, FAA road to summit, 700 m, 2.x.1975, night collecting, F.G. Howarth collector (17 ex); ditto, FAA Road, 700 m, 19.ii.1978, Howarth (1 ex); ditto, FAA Road, Culvert 32, 670 m (2200 ft), 2.x.1975, R.C.A. Rice collector (40 ex); Dupont Trail, Mt Ka'ala, 15.x.1975, Rice (1 ex); ditto, but Upper Dupont Trail, Rice (3 ex); Kawiwi Ridge, Wai'anae Mts, 730 m (2400 ft), 18.x.1975, Rice (37 ex); Kamaileunu Ridge, N of Pu'u Kawiwi, 760 m, 19.x.1975, sweeping *Bidens*, Howarth, (1 ex); ditto, night collecting, Nishida collector (2 ex); Mokuleia, 19.iv.1972, *Acacia koa*, J.L. Gressitt collector (2 ex); Mokuleia Trail, Wai'anae Mts, 8.xi.1975, Rice (88 ex); end of Nike Road, Mokuleia, Wai'anae Mts, Rice (13 ex); Mokuleia, 640 m (2100 ft), 11.ix.1976, S.L. Montgomery collector (2 ex); Mokuleia, i.1989, collector? (2 ex); Mokuleia [date unclear], collector? (1 ex); Mokuleia forest, 550 m (1800 ft), 1.x.2001, *Psychotria*, Montgomery (1 ex); 1st gully W of Makaleha, 10–1–1972, D. Sprenger collector (1 ex); Pahole Gulch, 2.xi.1975, L. Stemmerman (1 ex); SE Makua Valley, 550 m (1800 ft), 27.xi.2000, at base of *Psychotria*, Montgomery & V. Costello collectors (2 ex); Wai'anae Kai Trail, 730 m (2400 ft), 30.v.2002, in litter under *Melicope* with leaf chews, M. LeGrande, #1225 (1 ex). Examples (pairs) distributed to BMNH, CAS, MNHN, USNM.

Collection and taxonomic history. Described by Perkins (1910: 652–653) ("Oahu; Waianae mountains."; type in BMNH). Holotype examined through the kindness of Ms Sharon Shute, London.

Distribution. O'ahu. Wai'anae Range. Mt Ka'ala Summit Road at 670–800 m elevations. Also localities apparently within the Mokuleia watershed: Pahole Gulch and 1st gully W of Makaleha. This species was abundant in the Mt Ka'ala-Mokuleia area in 1975, noting the long series taken by R.C.A. Rice. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The habitat is the Mt Ka'ala area at the N end of the Wai'anae Range mostly at elevations of 670–800 m (the Makua Valley elevation is low, at 550 m); these elevations would indicate a Lowland Mesic Forest community (Gagné & Cuddihy, 1990: 80–85). *Acacia koa*, *Bidens*, and *Psychotria* have been associated.

Status. Extant. Various collections to 2000. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus gagneorum Samuelson, **n. sp.** Figs. 50, 111, 152

Diagnosis. Species group: *vestitus* group. With *R. bryani* Perkins, *R. extraneus* Perkins, *R. kapapa* n. sp., *R. saltus* Perkins, *R. vestitus* Sharp. This is a sister species of *saltus* which is also associated with *Bidens* from the Wai‘anae Range, O‘ahu. Differs from *R. saltus* by having punctures of pronotal disc larger and subequal to those on propleuron (vs finer and generally smaller than those of propleuron); elytral puncture rows 1–4 somewhat irregular and loose (vs regular tight rows); elytral humeral margin with at least apical part sharply beaded (vs generally weakly beaded); elytral disc always setose without a close ground pubescence of squamae, thus derm mostly visible (vs besides setae, a ground pubescence of squamae usually present and partly concealing derm). With *R. saltus* this species differs from others in group by having stronger preapical markings of white squamae on femora.

Male (Holotype). Gross body length 8.2 mm. Derm blackish fuscous throughout head and thorax, elytra and abdomen subpiceous; antenna dark reddish fuscous; legs subpiceous on femora and tibiae, orange-fuscous on tarsi (under strong lights). Vestiture of clear silvery setae and slender lanceolate whitish squamae. Rostrum and front submoderately setose and thinly squamose along inner eye margins. Antennal scape very finely setose, setae mostly adpressed. Pronotum sparsely and finely setose on disc, these blending with whitish squamae at side forming a very weak lateral stripe, the stripe densest basally and more diffused anteriorly. Scutellum with a dense patch of narrow whitish squamose. Elytron ± submoderately setose on disc and infolded surface, these including fairly conspicuous raised sensory setae on disc; overall, the setae not concealing derm. Ventral surfaces rather sparsely setose, the setae becoming densely pilose only on the apical abdominal sternum; apical corners of metasternum and sides of abdominal sternum 1+2 briefly squamose. Femora clothed with setae and squamae with the latter aggregated preapically and tending to form a whitish buff band. Tibiae set with erect setae and bristles of short length.

Rostrum and front strigose, ridges smooth shining, grooves with slight granulation. Eye circular, small, and strongly raised. Antennal funicular segment 1 longer than afs2; afs3 slightly longer than afs4. Prothorax subcylindrical, sides slightly convex; base with weak emargination before scutellum; disc subevenly convex but roughly punctate with reticulate intervals and a brief remnant of median impunctate line at middle, surface of latter smoother than intervals which show some granulation. Elytron moderately slender with preapical closure sinuate preapically; disc only slightly flattened; discal puncture rows ± loose and irregular internally to 4 or 5, then more confused to humeral margin; interstices and intervals ± subequal and flattened to slightly swollen; punctures moderate in size and depth; surface opaque-smooth with numerous micrograins, generally with a much softer shine than pronotum; humeral margin extending not quite to apex where it is briefly broken before continuing, the edge with low rounded serrations along length, these most conspicuous preapically; margin rounded to vaguely beaded from base through middle, only becoming a hard bead along preapex; infolded surface similar to disc. Ventral surfaces finely granulate-punctate with a fairly bright shine; punctures moderately large on sides of thorax and abdominal sterna 1+2, 3–4 with smaller punctures, 5 punctulate; surface of 1+2 broadly and moderately concave basally and flattened apically, the dividing suture obsolete across middle but grooved at sides. Femora smooth-alutaceous with some granulation and low asperites. Tibiae smooth-granulate-asperate.

BL 8.23 mm; BB 3.70 mm; PNL 199 cmm(= 100ths mm); PNB 224 cmm; ELL 573 cmm; ELB 365 cmm; IO 100 cmm; EB 156 cmm; EH 20 cmm; E 48 cmm; AS (cmm): 212 : 52 : 40 : 32 : 32 : 32 : 32 : 32 : 108 (= club: 48+26+34). Ratios (× 100): BL/BB 223; PNL/PNB 89; ELL/ELB 157; IO/EB 64; EH/E 42; IO/E 208; AFS1/AFS2 130; AFS3/AFS4 100.

Female (Allotype). Similar to ♂ in most respects but derm generally paler reddish fuscous on body and appendages; elytral vestiture more closely setose; elytral puncture rows 1–8 slightly more regular but the punctures still loose in their rows with their intervals often subequal to adjacent interstices; elytral humeral margin beaded from base through preapex.

BL 9.41 mm; BB 4.54 mm; PNL 232 cmm(= 100ths mm); PNB 257 cmm; ELL 656 cmm; ELB 448 cmm; IO 120 cmm; EB 190 cmm; EH 22 cmm; E 56 cmm; AS (cmm): 240 : 56 : 44 : 36 : 28 : 28 : 28 : 28 : 112 (= club: 44+32+36). Ratios (× 100): BL/BB 207; PNL/PNB 90; ELL/ELB 146; IO/EB 63; EH/E 39; IO/E 214; AFS1/AFS2 127; AFS3/AFS4 129.

Paratypes. Several specimens are reddish overall. The median impunctate line of the pronotal disc is usually restricted to the middle area, sometimes only as a remnant; in most specimens this is obsolete basally. Measurements and ratios overlap fairly well for both sexes. The low value for the EH/E ratio is extreme, thus the average is calculated (shown below). Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 11 ♂, 11 ♀, including types): BL 7.90–10.42 mm; BB 3.36–4.70 mm; PNL 174–241 cmm (= 100ths mm); PNB 199–286 cmm; ELL 523–722 cmm; ELB 324–457 cmm; IO 88–120 cmm; EB 148–192 cmm; EH 16–26 cmm; E 42–52 cmm; AFS1 42–56 cmm; AFS2 40–52 cmm; AFS3 30–40 cmm; AFS4 28–36 cmm. Ratios (× 100): BL/BB 200–235; PNL/PNB 84–95; ELL/ELB 146–162; IO/EB 59–66; EH/E 36–52 (ave. = 46); IO/E 192–245; AFS1/AFS2 100–130; AFS3/AFS4 100–125.

Types. Holotype ♂, allotype ♀ (BPBM 16,387), 5 ♂, 2 ♀ paratypes, O'AHU: Wai'anae Mts, Kamaileunu Ridge, N Pu'u Kawiwi, 760 m, 19.x.1975, night, on ridge in leaf litter under *Bidens*, F.G. Howarth & W.C. Gagné collectors; Kawiwi Ridge, 730 m (2400 ft), 18.x.1975, R.C.A. Rice collector (17 ♂, 10 ♀ paratypes). Paratypes (pairs) distributed to BMNH, CAS, MNHN, USNM.

Collection and taxonomic history. This new species commemorates Betsy Harrison Gagné, Hawaii State Department of Land and Natural Resources, and her late husband Wayne C. Gagné of Bishop Museum. Their numerous accomplishments have contributed mightily toward the conservation and protection of Hawaiian ecosystems.

Distribution. O'ahu. Kamaileunu Ridge N of Pu'u Kawiwi. Restricted montane distribution: Pattern 4.

Habitat and life history notes. Possibly associated with *Bidens*. The habitat is on the ridge N of Puu Kawiwi, which may include limited exposed shrubland with adjacent forest, classified as Lowland Mesic Shrubland/Forest (Gagné & Cuddihy, 1990: 77–80, 80–85). This general area also includes the type locality of *R. fordi* Zimmerman, taken from *Pelea*.

Status. Extant. Two collections in 1975. Threats would include disturbance to soil and possible predation by ants or rodents.

Rhyncogonus giffardi Sharp Figs. 35, 146

Rhyncogonus giffardi Sharp, 1919, PHES 4: 80–82 (original description).—Giffard, 1919, PHES 4: 232.—Gagné, 1974, CNPRS 6: 36.—Suehiro, 1986, BMADR 86–2: 52.—Beattie, 1994, FR 59: 59018.

Diagnosis. Species group: *sordidus* group, *giffardi-olokui* subgroup. With *R. olokui* n. sp. in the subgroup. Differs from *R. olokui* by having the prothorax subglobose (vs ± cylindrical); both species appear to be close due to the similar slender and open spermatheca. Resembles *R. tristis* n. sp. in the *sordidus* subgroup with the subglobose prothorax but separated from it by the heavier impunctate pronotal line and the paler dorsum: reddish fulvous (vs blackish).

Redescription. Male (Holotype). Gross body length 8.6 mm (o.d. 8 mm). Derm medium red-fulvous. Dorsal pubescence of clear or whitish setae and white lanceolate squamae. Rostrum and front sparsely setose but squamae slightly heavier and grouped more densely along inner eye margins. Antennal scape finely setose, setae ± adpressed to feebly raised. Pronotal disc sparsely setose centrally, these a little heavier anteriorly and generally meeting heavier and paler squamae forming a moderate stripe on each side. Scutellum finely squamose. Elytral disc subuniformly squamose with a tendency of patchiness apically; infolded surface mostly finely setose but with a few patches of white squamae. Elytral sensory setae not conspicuously developed. Ventral surfaces with abdominal sterna finely setose; the apical 2 sterna most densely clothed. Femora bearing setiform squamae, these larger and paler beyond middle and forming a preapical band. Tibiae set with bristles of fairly short length and longer setae.

Rostrum and front rather flattened-punctate and not strigose, punctures large and elliptical; intervals slightly raised, surface smooth shining. Eye subcircular, large and moderately low. Antennal funicular segment 1 longer than afs2; afs3 longer than afs4. Prothorax subcylindrical, ± elongate; sides weakly convex; anterior margin weakly emarginate; base emarginate feebly across middle; disc evenly convex; median impunctate line moderate along middle, obsolete along basal 1/3, surface smooth shining as are intervals between punctures. Elytron subrobust, preapical closure ± gradual and sinuate to slightly extended apex (elytral apices slightly to severely

distorted); puncture rows distinct to 5 or 6, then irregular to humeral margin; interstices flat, surface dull alutaceous; punctures small or submoderate and deep; humeral margin extended only to preapex, the edge smooth; margin beaded along length. Ventral surfaces smooth subshagreened but abdominal sterna closely punctate; sterna 1+2 moderately concave. Femora granulate-punctate-asperate. Tibiae granulate-asperate.

BL 8.56 mm; BB 3.95 mm; PNL 199 cmm (= 100ths mm); PNB 232 cmm; ELL 585 cmm; ELB 390 cmm; IO 88 cmm; EB 156 cmm; EH 22 cmm; E 60 cmm; AS (cmm): 220 : 54 : 40 : 28 : 24 : 24 : 26 : 26 : 104 (= club: 48+28+28). Ratios (× 100): BL/BB 217; PNL/PNB 86; ELL/ELB 149; IO/EB 56; EH/E 37; IO/E 147; AFS1/AFS2 135; AFS3/AFS4 117.

Female (nov.). Larger, more robust version of male, except dorsal pubescence buff instead of whitish including patches along inner eye margins and ventral surfaces thinly setose throughout; eye rather larger and flatter; and elytron more robust with surface a little rougher alutaceous. Elytral humeral margin also beaded throughout and ending preapically as in ♂. Derm medium red-fulvous as in ♂. Other major features similar to ♂. Spermatheca as figured.

BL 11.09 mm; BB 5.74 mm; PNL 266 cmm (= 100ths mm); PNB 291 cmm; ELL 822 cmm; ELB 556 cmm; IO 112 cmm; EB 198 cmm; EH 24 cmm; E 72 cmm; AS (cmm): 268 : 64 : 48 : 36 : 32 : 30 : 30 : 30: 120 (= club: 44+32+44). Ratios (× 100): BL/BB 194; PNL/PNB 91; ELL/ELB 148; IO/EB 57; EH/E 33; IO/E 156; AFS1/AFS2 133; AFS3/AFS4 113.

Types. Holotype label data. *Rhyncogonus giffardi* Type. D.S. [handwritten in ink on surface of mount to which specimen is micro-pinned/ W.M. Giffard 25 viii.17 [typeset except for date in graphite]/ Puuwaawaa N.Kona Haw. 3700 ft. 19 [typset except for the 19]/ ex *Acacia koa* [graphite]/ The first specimen of *Rhyncogonus* ever taken on Island of Hawai'i W.M. Giffard Noted Pro. Haw Ent Soc. Oct. 1917. [handwritten in pencil]. Present BPBM type number is 317.

Material examined. **HAWAI'I**: N Kona: Pu'uwa'awa'a, 1130 m (3700 ft), 25.viii.1917 [not 8.viii], *Acacia koa*, W.M. Giffard collector (holotype ♂); Pu'uwa'a Crater, 1130 m (3700 ft), 26.xii.1937, on *Osmanthus* or *Pteris*, D. Anderson collector (♀ nov.).

Collection and taxonomic history. Described by Sharp (1919: 80–82) ("It was taken on *Acacia koa* at Puuwaawaa, North Kona, Hawaii, at an elevation of 3700 feet, August 8th, 1917."; holotype in BPBM). To date, only 2 specimens are known: the holotype ♂ and a female collected 20 years later at or very close to the original site.

Distribution. Hawai'i. Pu'u Wa'awa'a at 1130 m elevation. Last collected in 1937. Restricted montane distribution: Pattern 6.

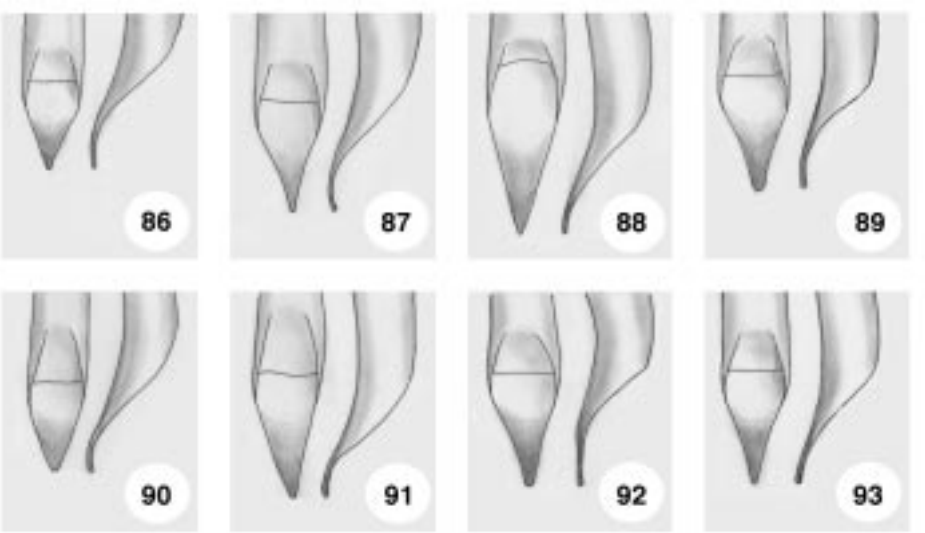
Habitat and life history notes. The holotype was possibly feeding on *Acacia koa* when collected but that is not known for sure. The *Osmanthus* [= *Nestegis*] or *Pteris* record recorded with the female would mean that *Nestegis sandwicensis* is found in the same area, a tree locally common in dry or mesic forest to 1300 m on most islands (Wagner *et al*., 1990: 992). The habitat is possibly within the Lowland Mesic Forest zone (Gagné & Cuddihy, 1990: 80–85).

Status. Extant. Last of 2 collections in 1937. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus haupu Samuelson, **n. sp.** Figs. 44, 86, 127

Diagnosis. Species group: *tuberculatus* group. With *R. kahili* n. sp., *R. sylvicola* Perkins, *R. tuberculatus* Perkins. This species is closest to *R. kahili* n. sp. in occurrence geographically as well as morphology. Differs from the latter by having the pronotal impunctate median line very narrow to obsolescent (vs fairly strong along middle), elytral tubercles generally smaller, and elytral outline as viewed from above with preapical closure more gradual and weakly sinuate without strong prominences interrupting margin (vs deeply sinuate with projecting tubercles interrupting margin).

Male (Holotype). Gross body length 9.1 mm. Derm piceous above, piceous to subpiceous below; antenna with scape dark red-fuscous and funicle slightly paler reddish to orangish; legs red-subpiceous to paler orange-fulvous. Dorsal pubescence predominantly of obovate squamae of buff-ochraceous. Rostrum and front nearly glabrous from anterior through mid sections: a few sparse erect clear silvery setae anteriorly, then interocular



Figures 86–93. *Rhyncogonus*, male aedeagi, dorsal (left) and lateral (right) views. **86**. *R. haupu*; **87**. *R. kahili*; **88**. *R. sylvicola*; **89**. *R. molokaiensis*; **90**. *R. freycinetiae*; **91**. *R. oleae*; **92**. *R. simplex*; **93**. *R. stellaris*.

space to lower vertex densely masked with buff squamae; vertex briefly glabrous. Antennal scape densely clothed with adpressed buff squamae, plus sparser heavier curved pale buff setae elevated about 30 degrees. Pronotal disc subdensely clothed with obovate squamae with some setiform squamae mixed in, this pubescence carried evenly around to side. Scutellum with fine straight ochraceous microsquamae slightly exceeding scutellar apex. Elytron densely buff squamose, except for brief bare areas before tubercles; tubercles themselves with squamae very dense plus a single sensory bristle; infolded surface densely clothed as on disc (except for femur friction zone). Sensory bristles single and associated with most tubercles including ones along humeral margin, these bristles stout and slightly curved. Ventral surfaces moderately clothed with setiform squamae; the apical 2 abdominal sterna more copiously clothed. Trochanteral bristles single. Femora evenly and densely clothed with buff obovate adpressed squamae plus emergent stout curved bristles. Tibiae similarly clothed with buff obovate adpressed squamae with emergent bristles of short to submoderate length.

Rostrum and front strongly flattened overall, the surface smooth-shagreened but finely strigose above middle with ridges mostly hidden by dense mask of squamae; central disc impunctate but a few elongate punctures above and a few sparse circular ones anteriorly; vertex smooth-shagreened and bearing small deep circular punctures. Eye subcircular, moderate in size and fairly strongly raised. Antennal scape just attaining middle of pronotum; funicular segment 1 subequal to afs2; afs3 subequal to afs4. Pronotum subcylindrical, sides moderately convex; anterior margin straight across middle; base with feeble emargination before scutellum; disc subevenly convex, weakly raised from about middle to anterior 1/5, the line narrow with surface smooth-shining with a hint of granulation; discal punctures visible on basal half very large and 1–5 × as large as intervals; intervals mostly flat and finely granulate-shining. Elytron subrobust, preapical closure rather gradual and sinuate to acuminate apex; apex briefly bilobed; disc tuberculate, tubercles in part possibly aligned with interstices 4 and 8 with 5 or 6 tubercles in each series, plus a low series on humeral margin; puncture rows largely obscured, the inner rows apparently regular, these ± visible or indicated by shallow furrows in vestiture; interstices swollen in part, surface smooth-opaque with a dull shine; the preapical subsutural area similarly swollen without distinct tubercles; humeral margin extending to preapex before stopping abruptly, the margin interrupted with low crenulate tubercules instead of an even bead but margin still sharply angled between discal and infolded surfaces; infolded sur-

face flatter than disc. Ventral surfaces granulate-punctate, subshagreened on smoothest areas with a lustrous satiny shine; punctures partly obscured by vestiture, these rather large on metathorax and somewhat smaller and shallower on abdominal sterna 1+2 and finer to obscure on 3–5; abdominal sterna 1+2 shallowly concave to irregular anteriorly and flattened posteriorly, the dividing suture distinct across the connate median part and deeply grooved at each side. Femora smooth-granulate but the surface largely obscured. Tibiae smooth-granulate with surface largely obscured but with outstanding asperites low and briefly shining.

BL 9.07 mm; BB 4.03 mm; PNL 208 cmm (= 100ths mm); PNB 232 cmm; ELL 573 cmm; ELB 390 cmm; IO 96 cmm; EB 168 cmm; EH 26 cmm; E 52 cmm; AS (in cmm): 272 : 48 : 48 : 32 : 32 : 28 : 28 : 30 : 116 (= club: 46+30+40). Ratios (× 100) BL/BB 225; PNL/PNB 89; ELL/ELB 147; IO/EB 57; EH/E 50; IO/E 185; AFS1/AFS2 100; AFS3/AFS4 100.

Female (Allotype). Similar to male, except: ventral body surfaces more reddish and appendages similarly brighter reddish to orangish fulvous; vestiture generally more whitish; eyes less hemispherical; prothorax less elongate; pronotal disc more irregular and with a noticeable oblique depression on each side of median area; elytra actually slightly more slender with preapical closure also gradual; elytral disc slightly more convex; elytral humeral margin slightly more regular; abdominal sterna 1+2 generally flatter; 1+2 punctate as in ♂ but 3–5 rather smooth; sternum 5 more elongate-triangular. Spermatheca as figured.

BL 8.48 mm; BB 3.70 mm; PNL 199 cmm (= 100ths mm); PNB 232 cmm; ELL 589 cmm; ELB 374 cmm; IO 102 cmm; EB 168; EH 22 cmm; E 52 cmm; AS (cmm): 224 : 50 : 50 : 34 : 28 : 30 : 30 : 30 : 108 (= club: 44+28+36). Ratios (× 100): BB/BL 230; PNL/PNB 86; ELL/ELB 158; IO/EB 61; EH/E 42; IO/E 196; AFS1/AFS2 100; AFS3/AFS4 121.

Paratypes (males). Dorsum ranging from dark red-fuscous to piceous; dorsal vestiture either essentially whitish or buff. Otherwise, major features similar to male above. Aedeagus: apex as figured.

Range (entire type series, n = 4): BL 8.40–9.07 mm; BB 3.70–4.03 mm; PNL 191–216 cmm (= 100ths mm); PNB 208–232 cmm; ELL 548–589 cmm; ELB 357–390 cmm; IO 90–106 cmm; EB 158–168 cmm; EH 20–26 cmm; E 48–52 cmm; AFS1 48–52 cmm; AFS2 48–50 cmm; AFS3 32–34 cmm; AFS4 28–36 cmm. Ratios (× 100): BL/BB 225–230; PNL/PNB 86–93; ELL/ELB 147–158; IO/EB 57–63; EH/E 42–50; IO/E 185–221; AF1/AF2 100–108; AFS3/AFS4 94–121.

Types. Holotype ♂ (BPBM 16,388), allotype ♀, and 1 ♂ paratype, KAUA'I: Hā'upu Mt, 700 m (2300 ft), 30.iv.2000, A. Asquith collector; Hā'upu Mt, 490 m (1600 ft), 24.xi.1978, S.L. Montgomery (1 ♂ paratype). Paratype (♂) to BMNH.

Collection and taxonomic history. This new species was collected recently from Hā'upu Mt, one of the peaks on the isolated range above Kipu. It is named for its provenance.

Distribution. Kaua'i. Hā'upu Mt at 490–700 m elevations. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The habitat is possibly Lowland Mesic Shrubland or Forest (Gagné & Cuddihy, 1990: 77–82).

Status. Extant. Original series only, in 1976. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus howarthi Samuelson, **n. sp.** Figs. 19, 137

Diagnosis. Species group: *fordi* group. With *R. fordi* Zimmerman, *R. segnis* Perkins, *R. zeta* n. sp. Sister species of *R. fordi* with which it is closest morphologically and geographically. Both are restricted to the Wai'anae Range, O'ahu but *R. howarthi* has been sufficiently isolated from its northern kin to warrant separate status; *R. howarthi* differs from *R. fordi* in having the rostrum flatter and feebly strigose to non-strigose with shallow punctures and dull granulate intervals (vs strongly strigose with ridges smooth and shining) and eyes more protuberant (vs rather low).

Female (Holotype). Gross body length 13.4 mm. Derm mostly subpiceous but abdomen and tibiae slightly more reddish and tarsi orangish. Dorsal pubescence of clear silvery setae and whitish to whitish buff lanceolate squamae, all adpressed. Rostrum and front largely subglabrous: finely and sparsely setose but with some squamae grouped along inner eye margins. Antennal scape very finely setose, the setae adpressed. Pronotal disc sub-

glabrous: finely and sparsely setose centrally (at 25 ×), these merging at each side with a moderately weak lateral stripe of elongate squamae, the stripe more concentrated and whiter at base, more broadly diffused and buff colored anteriorly. Scutellum squamose (but completely rubbed off in this specimen). Elytral disc inconspicuously setose but with conspicuous squamae: a basal patch above humerus and generally patchy apically with whitish buff; elytral infolded surface finely setose with limited patches of whitish squamae basally and preapically. Raised sensory setae essentially absent. Ventral surfaces mostly submoderately clothed with fine setae centrally, these becoming heavier laterally and showing as patches of white squamae at sides of meso- and metathorax and abdominal sterna 1+2; apical abdominal sternum with longer setae at sides. Trochanteral bristles mostly single (2 are double). Femora clothed with setae and narrow squamae, the latter denser on the apical halves with a tendency for more concentrated preapical partial banding (better seen in paratype ♀). Tibiae set with generally short bristles and setae but a few of the latter rather long.

Rostrum and front flattened, the rostral surface with a hint of a median ridge and generally punctate, the punctures large and shallow, circular to elongate, these becoming closer on interocular area above. Antennal funicular segment 1 greatly exceeding afs2; afs3 slightly longer than afs4. Prothorax subglobose, sides convex, briefly constricted laterally near base; base moderately emarginate before scutellum and anterior margin more briefly emarginate at middle; disc somewhat irregularly flattened to shallowly depressed anterolaterally; median raised line uniformly narrow and complete, the surface dull granulate; discal punctures small to moderate in size, the larger ones with flattened intervals, the smaller ones generally closer with intervals ± reticulate; intervals dull granulate. Elytron robust with preapical closure abrupt, the outline angulate before slightly extended apex; disc convex; puncture rows regular to beyond 8, then more irregular; interstices mostly slightly convex but 4 and 8 slightly higher; punctures moderately small and deep; surface opaque-alutaceous and dull, not granulate as on pronotum; humeral margin extended to preapex where it meets interstice 4 and continues to apex; margin beaded for entire length, the basal part more sharply so and the apical closure part with very small blunt teeth. Ventral surfaces smooth-granulate, with a satiny luster; abdominal sterna 1+2 weakly and evenly convex; the intervening suture straight and visible across middle; punctures of metathorax shallower and smaller than those of sterna 1+2, largest on 1+2, slightly smaller on 3–4, and finely punctulate on 5. Femora smooth-granulate; metafemur with vague wrinkles on apical surface. Tibiae smooth-granulate with low eroded asperations; foretibia moderately bent at preapex.

BL 13.44 mm; BB 6.80 mm; PNL 299 cmm (= 100ths mm); PNB 357 cmm; ELL 955 cmm; ELB 664 cmm; IO 132 cmm; EB 144 cmm; EH 32 cmm; E 72 cmm; AS (cmm): 352 : 94 : 60 : 46 : 42 : 40 : 38 : 42 : 128 (56+32+40). Ratios (× 100): BL/BB 198; PNL/PNB 84; ELL/ELB 144; IO/EB 59; EH/E 44; IO/E 183; AFS1/AFS2 157; AFS3/AFS4 105.

Male (Allotype). Derm of most surfaces generally paler and more reddish than in female; legs largely medium orange-fuscous. Rostrum vaguely substrigose distally, the surface with elongate punctures with granulate intervals. Pronotum less evenly convex than in female, with basal depression besides the anterolateral ones; median impunctate line more irregular but ± complete, the surface smoother with only slight granulation; punctures of small and medium sizes, all close; intervals more generally reticulate, surfaces finely granulate. Elytron similarly narrowed with humeral margin about the same as in female except extreme base not sharp and apical denticles even smaller (barely discernible at 25 ×); puncture rows slightly more irregular but fairly distinct to 9; interstices with occasional grains. Ventral surfaces with abdomen more densely setose on sterna 3–4, and pilose on 5; sterna 1+2 shallow concave basally and flattened apically. Trochanteral bristles single. Femora with preapical squamose whitish buff banding more outstanding than in female.

BL 11.93 mm; BB 5.38 mm; PNL 249 cmm (= 100ths mm); PNB 274 cmm; ELL 813 cmm; ELB 523 cmm; IO 120 cmm; EB 212 cmm; EH 26 cmm; E 68 cmm; AS (cmm): 340 : 86 : 68 : 52 : 44 : 44 : 40 : 44 : 140 (56+36+48). Ratios (× 100): BL/BB 222; PNL/PNB 91; ELL/ELB 156; IO/EB 57; EH/E 40; IO/E 187; AFS1/AFS2 126; AFS3/AFS4 100.

Paratypes (1 ♀, 2 ♂). The female is close to the holotype ♀ in general respects; the males together are very close to the allotype ♂, thus the females appear as generally darker blackish insects and the males lighter reddish. Trochanteral bristles almost exclusively single (1 ♂ has 1 double). Males with occasional grains on interstices; grains barely evident in female. Spermatheca as figured.

Range (entire type series, n = 5): BL 11.09–13.44; BB 5.38–6.80 mm, PNL 249–299 cmm (= 100ths mm);

PNB 274–357 cmm; ELL 789–955 cmm; ELB 523–664 cmm; IO 112–132 cmm; EB 192–212 cmm; EH 24–32 cmm; E 60–72 cmm; AFS1 84–96 cmm; AFS2 60–68 cmm; AFS3 40–52 cmm; AFS4 34–46 cmm. Ratios (× 100): BL/BB 198–222; PNL/PNB 84–91; ELL/ELB 144–156; IO/EB 57–60; EH/E 38–44; IO/E 176–188; AFS1/AFS2 126–157; AFS3/AFS4 100–118.

Types. Holotype ♀ (BPBM 16,389) O'AHU: Palikea Trail, 900 m, 12.x.1975, night, sweeping shrubs, F.G. Howarth collector; 1.5 km NE of Palikea Peak, ridgetop, 750 m, 12.x.1975, night, sweeping *Bidens*, Howarth (1 ♀ paratype); Mauna Kapu-Palikea Trail, 12.x.1975, R.C.A. Rice collector (allotype ♂, 2 ♂ paratypes).

Collection and taxonomic history. This new species is named in honor of Francis G. Howarth of Bishop Museum. His investigations of island microhabitats have led to many fascinating discoveries.

Distribution. O'ahu. Southern part of Wai'anae Range: Mauna Kapu-Palikea Peak. The specimens were collected in 1975. Restricted montane distribution: Pattern 4.

Habitat and life history notes. Possibly associated with *Bidens* and other shrubs. The habitat is mixed shrubland and forest, embracing Lowland Mesic Shrubland/Forest (Gagné & Cuddihy, 1990: 77–80, 80–85).

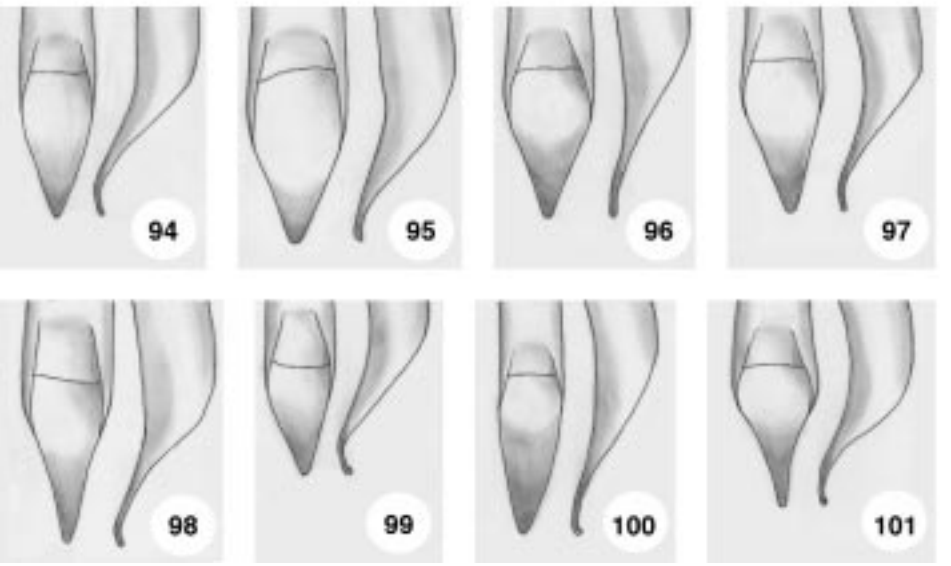
Status. Extant. Original series at various (3) elevations, in 1975. Threats would include disturbance to soil by pigs and possible predation by ants or rodents. The range could be very small, and thus be vulnerable to landslides or flooding.

Rhyncogonus kahili Samuelson, **n. sp.** Figs. 45, 87, 128

Diagnosis. Species group: *tuberculatus* group. With *R. haupu* n. sp., *R. sylvicola* Perkins, *R. tuberculatus* Perkins. Differs from *R. tuberculatus* Perkins by having the rostrum and front partly mirror smooth and shagreened instead of strigose.

Male (Holotype). Gross body length 9.4 mm. Derm piceous to subpiceous above, paler red-fulvous to darker red-fuscous below; antenna dark red-fuscous; legs red-fulvous. Dorsal pubescence of obovate of various shades of buff from nearly white to ochraceous. Rostrum and front nearly glabrous from anterior through mid sections: a few sparse erect setae anteriorly, then a few more on interocular space, generally mesad of dense squamose patches along inner eye margin, these patches extending anteriorly for a short distance and extending posterior to lower part of vertex; upper part of vertex nearly glabrous. Antennal scape coarsely setose, the finer setae generally adpressed but sparser heavier curved setae elevated about 30 degrees. Pronotal disc subevenly clothed with elongate lanceolate squamae, these much longer and more slender than those on head or elytra, these also merging with closer and broader squamae laterally on prothorax forming a dense but diffused stripe on each side. Scutellum with fine straight thin microsquamae. Elytron subevenly and subdensely squamose, squamae in slightly denser patches behind tubercles; infolded surface subevenly squamose (except for femur friction zone). Sensory setae present on elytron, these usually single stout curved bristles associated with discal tubercles and along humeral margin (rather short) and along apical half of suture. Ventral surfaces moderately clothed with mainly setiform squamae; the apical 2 abdominal sterna copiously clothed. Trochanteral bristles single. Femora unevenly clothed with setiform squamae blending with a postmedian zone of heavier white lanceolate squamae forming a preapical band. Tibiae fitted with adpressed small setae, longer somewhat elevated curved bristles, and a few slender elongate setae mostly along retrofemoral margin.

Rostrum and front strongly flattened overall, the surface smooth-shagreened but finely stigose at sides above middle with a few elongate punctures; punctures otherwise circular and sparse anteriorly; vertex smooth-shagreened and bearing deep circular punctures. Eye subcircular, moderately large and moderately raised. Antennal scape just attaining middle of pronotum; funicular segment 1 subequal to afs2; afs3 just longer than afs4. Pronotum quite globose, sides strongly convex; anterior margin convex across middle; base feebly and gradually emarginate across middle; disc subevenly convex, slightly flattened prebasally; median impunctate line raised only along middle 1/3, surface smooth-subgranulate shining as are intervals between punctures; discal punctures large and about 1.5–2 × as large as intervals subcentrally. Elytron subrobust, preapical closure strongly concave to acuminate apex; apex bilobed; disc tuberculate, tubercles in part aligned with interstices 4



Figures 94–101. *Rhyncogonus*, male aedeagi, dorsal (left) and lateral (right) views. **94**. *R. sharpi*; **95**. *R. welchii*; **96**. *R. fordi*; **97**. *R. zeta*; **98**. *R. sordidus*; **99**. *R. femoratus*; **100**. *R. koebelei*; **101**. *R. montygorum*.

and 8 but puncture rows largely obscured and apparently irregular to confused; low tubercles also along suture along apical half and along humeral margin; humeral margin extending to preapex before stopping abruptly, the edge rather sharply angled between discal and subhumeral surfaces and tuberculate instead of evenly beaded; infolded surface flatter than disc. Ventral surfaces subshagreened to granulate with lustrous satiny shine; prothorax rather smooth; mesothorax smooth-punctulate on lower part; metasternum rugosely punctate; abdominal sterna 1+2 very shallowly and gradually depressed, almost flat, the dividing suture distinct across the connate median part and deeply grooved at each side, surfaces closely punctate, punctures large; 3 and 4 with smaller punctures, 5 smooth-alutaceous, finely punctulate. Femora smooth-granulate-punctate. Tibiae smooth-granulate with asperites low and briefly shining.

BL 9.38 mm; BB 4.07 mm; PNL 199 cmm (= 100ths mm) 199; PNB 232 cmm; ELL 589 cmm; ELB 407 cmm; IO 88 cmm; EB 168 cmm; EH 20 cmm; E 54 cmm; AS (cmm): 256 : 48 : 48 : 38 : 36 : 32 : 32 : 34 : 120 (= club: 48+32+40). Ratios (× 100) BL/BB 230; PNL/PNB 86; ELL/ELB 145; IO/EB 52; EH/E 37; EO/E 174; AFS1/AFS2 100; AFS3/AFS4 106.

Female (Allotype). Similar to male, except: body surfaces and appendages largely red-fulvous; eyes smaller; rostrum and front even more sparsely punctate with strigose area limited to upper interocular area; vertex smoother and less punctate; prothorax less strongly globose; pronotal median impunctate line larger; elytra stouter with preapical closure more abrupt; elytral humeral margin more heavily beaded basally; and abdominal sterna 1+2 generally flatter, 3 strongly tilted, and 5 more elongate-triangular.

BL 10.62 mm; BB 4.48 mm; PNL 216 cmm (= 100ths mm); PNB 249 cmm; ELL 697 cmm; ELB 448 cmm; IO 108 cmm; EB 184; EH 26 cmm; E 52 cmm; AS (in cmm): 284 : 60 : 48 : 36 : 34 : 34 : 34 : 34 : 112 (= club: 52+28+32). Ratios (× 100): BL/BB 237; PNL/PNB 87; ELL/ELB 156; IO/EB 59; EH/E 50; IO/E 208; AFS1/AFS2 125; AFS3/AFS4 111.

Paratypes. Ranging in color from red-fulvous to nearly piceous; squamose pubescence of inner eye margins sometimes rather extensive over upper region of rostrum; eyes small to moderately large; prothorax commonly strongly globose, sometimes with sides more flattened; elytral puncture rows 1–4 and 5–8 generally irregular,

sometimes with interstices 4 and 8 more elevated for short distances; elytral humeral margin ranging from smooth-crenulate to ragged. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 10, including holotype, allotype): BL 8.22–10.96 mm; BB 3.49–4.98 mm; PNL 183–216 cmm (= 100ths mm); PNB 216–291 cmm; ELL 523–755 cmm; ELB 349–498 cmm; IO 88–116 cmm; EB 152–190 cmm; EH 18–26 cmm; E 44–58 cmm; AFS1 44–60 cmm; AFS2 48–56 cmm; AFS3 36–40 cmm; AFS4 32–38 cmm. Ratios (× 100): BL/BB 220–238; PNL/PNB 85–93; ELL/ELB 145–156; IO/EB 51–64; EH/E 34–50; IO/E 150–215; AF1/AF2 92–125; AFS3/AFS4 105–113.

Types. Holotype ♂ and 18 paratypes, including 2 pair *in copula* (BPBM 16,390), KAUA'I: Mt Kahili ridge, 700 m, 15.viii.1975, R.C.A. Rice collector; same data but 6.viii.1975 (2 paratypes, including allotype ♀); Mt Kahili, 750 m, 15.iii.1974, beating *Dicranopteris* at night, F.G. Howarth and S.L. Montgomery collectors (1 paratype); Wahiawa Bog Road, 29.viii.1976, Rice (2 paratypes); Mt Kahili, 895 m, 21.v.1995, beating *'ōhi'a* at night, J.K. Liebherr collector (1 paratype, CUIC); Mt Kahili, 730 m, 31.viii.1997, A. Asquith & M. Heddle collectors (1 paratype). Paratypes (pairs) distributed to BMNH, CAS, MNHN, USNM.

Collection and taxonomic history. This new species was missed in the Fauna Hawaiiensis survey. Although a single specimen was collected in 1974, the species was not really noticed until a large series was taken a year later by R.C.A. Rice. The name commemorates the mountain from which most of the specimens were collected.

Distribution. Kaua'i. Mt Kahili and Wahiawa Bog area at 700–750 m elevations. Restricted montane distribution: Pattern 4.

Habitat and life history notes. Plant associate: *Dicranopteris linearis*, a fern. The habitat is possibly Lowland Mesic Shrubland or Forest (Gagné & Cuddihy, 1990: 77–82).

Status. Extant. Various collections to 1997. Threats would include disturbance to soil by pigs and possibly predation by ants or rodents.

Rhyncogonus kapapa Samuelson, **n. sp.** Figs. 51, 112, 153

Diagnosis. Species group: *vestitus* group. With *R. bryani* Perkins, *R. extraneus* Perkins, *R. gagneorum* n. sp., *R. saltus* Perkins, *R. vestitus* Sharp. This species is close to *R. extraneus* and differs from same by having blackish derm (vs fulvous) and elytron with preapical closure more abrupt and sinuate. See *R. extraneus* for further comments.

Male (Holotype). Gross body length 8.6 mm. Derm blackish: dark red-fuscous on all surfaces and appendages; briefly redder on antennal club and on elytral basal subhumeral area. Dorsal pubescence dense of silvery setiform squamae and white heavier squamae. Rostrum and front subdensely clothed with adpressed setae, these becoming whiter and broader in a small patch along inner eye margin. Antennal scape finely setose, these mostly adpressed but occasionally raised to about 20 degrees. Pronotum rather subdensely covered with setiform squamae, these partly becoming thicker and whiter anterolaterally and blending with heavier squamae along sides of prothorax producing lateral stripe only slightly contrasting with disc; suberect discal sensory present but shorter and not as conspicuous as elytral ones. Scutellum with setiform squamae, these similar to pronotal ones. Elytron subdensely clothed on disc of smaller squamae than on pronotum, these short and slender and more infrequently short and broader and whiter, forming broken whitish longitudinal stripes standing out from silvery ground pubescence; suberect sensory setae silvery and conspicuous, these fairly stout and very slightly curved; infolded surface with subdense pubescence forming some whiter isolated spots. Ventral surfaces largely of fine setae becoming heavier toward sides; apical 2 abdominal sterna densely setose. Trochanteral bristles single. Femora setose and squamose, with heavier whiter squamae ± evenly distributed over apical part (more densely whitish on preapical retrotibial surface in this specimen). Tibiae clothed with rather short bristles and squamae and a line of finer elongate setae on retrofemoral surface.

Rostrum and front substrigose, surface deeply punctate, the punctures elliptical and deep; the intervals raised and shining; surface above on vertex closely and shallowly punctate, the punctures small and circular, the intervals granulate. Eye small, subcircular, and ± strongly raised. Antennal scape almost attaining middle of pronotum; antennal funicular segment 1 slightly shorter than afs2; afs3 longer than afs4. Prothorax subglobose, side moderately convex; anterior margin straight; basal margin nearly straight across middle; disc subevenly

convex with vaguely flattened areas prebasally and submedially; median impressed line obsolescent, reduced to a short elevation near middle, surface smooth with a hint of granulosity; discal punctures mixed of medium and fairly large sizes, deep, and commonly 4 × as large as intervals; intervals raised, reticulate, surface smooth with hint of granulosity. Elytron subrobust, preapical closure weakly concave before barely extended apex; disc convex; puncture rows difficult to see through vestiture but 1–4 distinct, 5–12 irregular (to humeral margin); interstices vaguely swollen with 4 and 8 slightly more strongly so; punctures moderate, deep; surface smooth-opaque with a dull shine (where visible under strong lights); humeral margin extending to preapex; edge smooth along basal 2/3 and finely serrate along apical 1/3; margin beaded for entire length though slightly weaker along basal part; infolded surface similar to disc. Ventral surfaces closely punctate on thorax and abdominal sterna 1+2 and 3; ± alutaceous-punctulate on 4 and 5; surface largely smooth-subshagreened with a bright satiny shine. Femora ± smooth-granulate-punctulate and bearing small smooth grains. Tibiae rough-granulate with low shining asperites.

BL 8.63 mm; BB 4.23 mm; PNL 199 cmm (= 100ths mm); PNB 241 cmm; ELL 606 cmm; ELB 423 cmm; IO 88 cmm; EB 156; EH 22 cmm; E 48 cmm; AS (cmm): 220 : 40 : 44 : 36 : 28 : 26 : 28 : 24 : 108 (= club: 40+28+40). Ratios (× 100): BL/BB 204; PNL/PNB 83; ELL/ELB 143; IO/EB 56; EH/E 46; IO/E 183; AFS1/AFS2 91; AFS3/AFS4 129.

Female (Allotype). Body form differs from male in being stouter: prothorax subglobose, less narrowed basally; elytra more robust but preapical closure still concave with feebly extended apex. Derm more evenly blackish fuscous than in ♂ but antennal club and bases of femora reddish. Pubescence above similar to male but femora each more evenly clothed with white squamae on apical half.

BL 9.13 mm; BB 4.73 mm; PNL 216 cmm (= 100ths mm); PNB 253 cmm; ELL 672 cmm; ELB 473 cmm; IO 104 cmm; EB 172; EH 24 cmm; E 52 cmm; AS (cmm): 224 : 38 : 42 : 30 : 28 : 28 : 28 : 28 : 104 (= club: 40+28+36). Ratios (× 100): BL/BB 193; PNL/PNB 85; ELL/ELB 142; IO/EB 60; EH/E 46; IO/E 200; AFS1/AFS2 90; AFS3/AFS4 107.

Paratypes. Dorsal coloration varying slightly: elytral whitish spots in broken stripes more developed in some individuals and barely expressed in others. Antennal funicular segment 1 usually shorter than afs 2 but these sometimes subequal; afs3 subequal to or slightly longer than afs4. Aedeagus: apex as figured. Spermatheca as figured.

Range (entire type series, n = 14): BL 7.14–9.88; BB 3.32–4.98 mm; PNL 166–228 cmm (= 100ths mm); PNB 199–274 cmm; ELL 523–739 cmm; ELB 332–473 cmm; IO 80–120 cmm; EB 140–188 cmm; EH 20–24 cmm; E 40–52 cmm; AFS1 34–44 cmm; AFS2 36–48 cmm; AFS3 28–36 cmm; AFS4 24–32 cmm. Ratios (× 100): BL/BB 193–217; PNL/PNB 78–88; ELL/ELB 142–156; IO/EB 56–64; EH/E 38–57; IO/E 182–233; AFS1/AFS2 82–100; AFS3/AFS4 100–129.

Types. Holotype ♂, allotype ♀, 5 ♂ and 7 ♀ paratypes (BPBM 16,391), O'AHU: Kapapa Islet, Kane'ohe Bay, 0–1 m, 30.i.1968, R. Spadoni collector. Paratypes (pairs) distributed to BMNH, USNM.

Collection and taxonomic history. This new species was collected on Kapapa Islet in Kane'ohe Bay in 1968 by R. Spadoni, as part of a survey of offshore isles for insects of medical importance. The collection was possibly made at night because of the abundance of moth scales on the weevils. *Rhyncogonus* and moths, as well as the sought for mosquitoes, would be generally active during the night. Since these weevils do not fly, they couldn't have flown into a light trap, so it may be that they were tossed into a killing jar along with other insects or possibly into the light trap itself. These weevils were turned over to Bishop Museum and remained unmounted until this study. It is named for the islet from which it was collected.

Distribution. O'ahu. Kane'ohe Bay, Kapapa Islet. This species was first collected in 1968 but it remained unknown until this study. Restricted coastal/lowland distribution: Pattern 2.

Habitat and life history notes. Possibly associated with *Scaevola*, the dominant native plant on the islet.. The islet is small, low, and *Casuarina* presently forms the predominant cover centrally, with other plants mainly occurring outside of the *Casuarina* area, including *Cocoloba*, *Scaevola*, *Thespesia*, *Tournefortia*, and various strand plants. I visited the islet on 21 November 1999 for about 30 minutes in the early afternoon, just long enough to note the extent of the *Casuarina* patch and to

make a quick survey of *Scaevola* along the N part of the island; ground-nesting wedge-tailed shearwaters were seen but no *Rhyncogonus*. The habitat is Coastal Dry Mixed community that may have been originally of the *Naupaka-Kahakai* subtype on raised coral (Gagné & Cuddihy, 1990: 58–59).

Status. Extant? Known from only the original collection in 1968. The islet is subject to frequent casual visits by boaters and fishermen. Much of the original vegetation was probably *Scaevola* but the central part is now a dense patch of low-growing *Casuarina*, which is presently the dominant plant, yet the shearwaters still nest there. Ants were noted on my November 1999 visit.

Rhyncogonus kauaiensis Perkins Figs. 24, 79, 122

Rhyncogonus kauaiensis Perkins, 1900, Fauna Hawaiiensis 2: 127 (original description).—Perkins, 1920, PHES 4: 276; Perkins, 1927, PHES 6: 471.

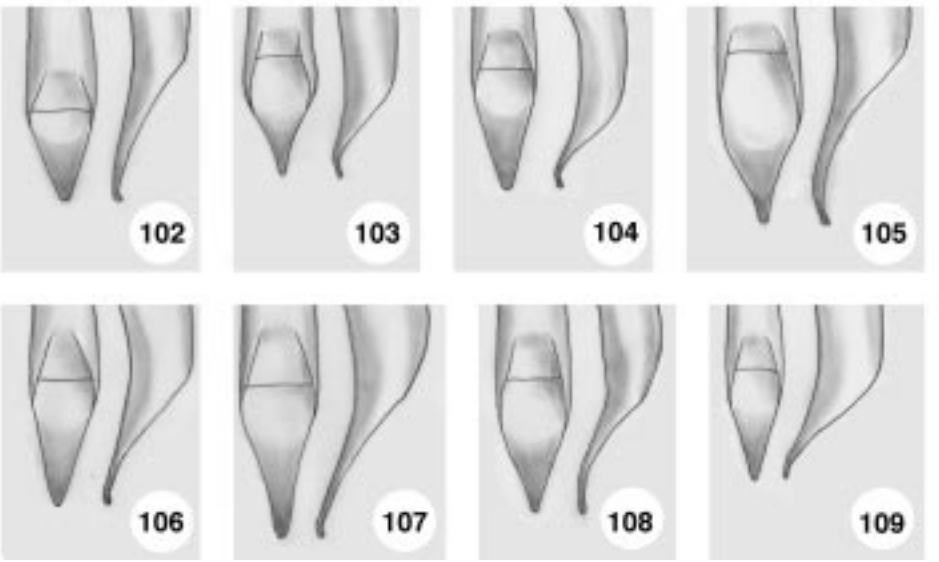
Diagnosis. Species group: *kauaiensis* group. With *R. minor* Perkins. *R. minor* is known only from its unique type, which could possibly represent a small-eyed and high-eyed extreme of *R. kauaiensis*. Both species have affinities to the *tuberculatus* group, where they would readily fit if they had elytral tubercles. Differs further from *R. minor* in having the sides of the prothorax less convex.

Male (Lectotype). Derm, pubescence, and major features as noted in the redescription. BL 9.91 mm; BB 4.54 mm; PNL 208 cmm (= 100ths mm); PNB 228 cmm; ELL 656 cmm; ELB 440 cmm; IO 92 cmm; EB 162 cmm; EH 24 cmm; E 56 cmm; AS (cmm): 260 : 64 : 56 : 38 : 36 : 32 : 36 : 34 : 128 (= club: 60+36+32). Ratios (× 100) BL/BB 219; PNL/PNB 91; ELL/ELB 149; IO/EB 57; EH/E 43; IO/E 164; AFS1/AFS2 114; AFS3/AFS4 106.

Female (Allolectotype). Derm, pubescence, and major features as noted below. BL 11.42 mm; BB 5.54 mm; PNL 232 cmm (= 100ths mm); PNB 274 cmm; ELL 805 cmm; ELB 540 cmm; IO 104 cmm; EB 184 cmm; EH 20 cmm; E 58 cmm; AS (cmm): 268 : 70: 52 : 38 : 34 : 34 : 34 : 34 : 108 (= club: 52+28+30). Ratios (× 100) BL/BB 206; PNL/PNB 85; ELL/ELB 149; IO/EB 57; EH/E 34; IO/E 179; AFS1/AFS2 135; AFS3/AFS4 112.

Redescription (pooled). Gross body length 8.9–13.8 mm (o.d. 10–13 mm). Derm dark red-fuscous to piceous. Dorsal pubescence of white setiform and lanceolate squamae. Rostrum and front moderately set with setiform squamae and with a few broader squamae at inner eye margins. Antennal scape finely setose, the setae mostly adpressed. Pronotum submoderately setiform on central disc, meeting a densely squamose stripe at side of prothorax. Scutellum densely squamose; elytron clothed with a patchy pubescence of slender squamae but squamae densest just beneath humeral margin on the infolded surface. Sensory setae low and curved and not conspicuous on elytron, these located preapically and along the suture (otherwise barely evident on disc). Ventral surfaces: abdominal pubescence moderate and setose; last 2 abdominal sterna most heavily clothed. Femora with lanceolate squamae tending to be subeven over apical half but still denser preapically and forming weak to moderate band. Tibiae set with short bristles and some elongate fine setae.

Rostrum and front finely substrigose to strigose, surface (ridges) smooth shining, punctures elliptical; the anterior part smooth-granulate with small circular punctures, the vertex with close fine circular punctures, intervals ± smooth to subgranulate. Eye subcircular, moderately large and elevated. Antennal funicular segment 1 much longer than afs2; afs3 slightly longer than afs4. Prothorax subcylindrical, sides weakly convex; anterior margin and base slightly emarginate across middle; disc flattened basally, otherwise convex; median impunctate line weak and often incomplete, surface smooth shining; discal punctures generally small and close, these deep; intervals slightly raised and smooth. Elytron robust; preapical closure concave to acuminate apex; disc subgibbous postbasally in ♀ and flatter in ♂; puncture rows fairly distinct to interstice 8, then irregular to confused; punctures small; interstices feebly swollen, surface smooth-alutaceous with a slightly dulled shine; humeral margin continued to apex, edge ± smooth along basal 2/3, then with rounded teeth on apical 1/3; margin in ♀ slightly more strongly beaded basally than the simply beaded remainder; margin in ♂ rounded along basal 2/3, then briefly but sharply beaded preapically; infolded surface similar to outer part of disc. Ventral surfaces smooth-subshagreened with a satiny lustre; abdominal sterna 1+2 broadly and shallowly concave (slightly more so in ♂). Femora smooth-granulate-punctulate with low asperations. Tibiae granulate-asperate. Aedeagus: apex as figured. Spermatheca as figured.



Figures 102–109. *Rhyncogonus,* male aedeagi, dorsal (left) and lateral (right) views. **102**. *R. mutatus*; **103**. *R. obsoletus*; **104**. *R. olokui*; **105**. *R. tristis*; **106**. *R. wiliwilinui*; **107**. *R. alternatus*; **108**. *R. fuscus*; **109**. *R. vestitus*.

Range (n = 8, including lectotype, allolectotype): BL 8.90–12.26 (13.8) mm; BB 3.95–6.22 mm; PNL 191–257 cmm (= 100ths mm); PNB 216–291 cmm; ELL 581–847 cmm; ELB 390–598 cmm; IO 80–108 cmm; EB 144–184 cmm; EH 20–28 cmm; E 52–68 cmm; AFS1 52–70 cmm; AFS2 40–64 cmm; AFS3 32–40 cmm; AFS4 28–36 cmm. Ratios (× 100): BL/BB 194–226; PNL/PNB 85–93; ELL/ELB 142–158; IO/EB 50–60; EH/E 34–43; IO/E 121–179; AFS1/AFS2 106–135; AFS3/AFS4 100–125.

Types. Lectotype label data: *Rhyncogonus kauaiensis* ♂ Type. ♂ Kauai 4000 ft. iv.1895 [handwritten in ink on surface of cardmount with specimen]; 505 [underside of same mount]/ Type [circular typset label with red border/ Hawaiian Is. 1900-99./ Koholuamano, Kauai, 4000 ft. Perkins.iv.1895 [typeset]/ + new lectotype label.

Material examined. **KAUA'I.** Koholuamano, 1200 m (4000 ft), iv.1895, Fauna Hawaiiensis, no. 505, Perkins (lectotype, allolectotype, 1 paralectotype); Koholuamano, iv.1895, no. 521, R.C.L. Perkins collector (2 paralectotypes); Koholuamano, 1200 m, iv.1895, Fauna Hawaiiensis, no. 527, Perkins (3 paralectotypes); above Waimea K., 1200 m, iv.1895, Perkins (1 paralectotype); Waimea K., 1200 m, v.1895, Perkins (1 paralectotype); Kahaluamano, 1200 m, viii.1909, W.M. Giffard collector (1 ex); Kaholuamano, iv.1920, J.A. Kusche (5 ex); same loc., 1370 m (4500 ft), 8.v.1920, Kusche (5 ex); same loc., 1070 m (3500 ft), 9.iv.1920, Kusche (8 ex); near Wai'alae Falls, 1200 m, 14.i.1920, Kusche (1 ex); 0.3 km N of Wai'alae Cabin, 1180 m, 18.v. 1995, beating ferns at night, J.K. Liebherr collector (1 ex, CUIC); 0.2–0.6 km SSW of Wai'alae Cabin, beating ferns at night, Liebherr (1 ex, CUIC). Note variant spellings for Kaholuamano, the spelling in current usage; data for Perkins specimens assumed to be identical for stated field number but other data elements sometimes missing. Examples (pair) distributed to USNM.

Collection and taxonomic history. Described by Perkins, 1900: 127 ("Kauai (4000 ft.); 15 examples taken. Apparently a very variable species."; syntypes in BMNH, BPBM). The 2 BMNH "principal syntypes" represent each sex. These were seen through the kindness of Ms Sharon Shute, London. They are hereby selected as the lectotype (male) and allolectotype (female) to stabilize the taxonomy of the species.

Distribution. Kaua'i. Mountains. The original series did not have specific data published with the description, yet syntypes are labeled or at least numbered with Perkins field number. The main locality is Kaholuamano at around 1200 m elevation in the Waimea Plateau area at 1000–1400 m elevations. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The habitat is Montane Mesic Forest, probably within the *Acacia-Metrosideros* belt (Gagné & Cuddihy, 1990: 97–98).

Status. Extant. Various collections to 1920. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus koebelei Perkins Figs. 31, 100, 145

Rhyncogonus koebelei Perkins, 1900, FH 2: 126 (original description); Perkins, 1907, PHES 1: 45; Perkins, 1907, PHES 1: 130; Perkins, 1910, FH 653; Perkins, 1913, FH 1: 120 roman.—Bridwell, 1917, PHES 3: 283; Bridwell, 1917, PHES 3: 389.—Sharp, 1919, PHES 4: 79.—Perkins, 1927, PHES 6: 470.—Swezey, 1934, PHES 8: 528.—Williams, 1936, PHES 9: 127.—Swezey, 1936, PHES 9: 194; Swezey, 1936, PHES 9: 204; Swezey, 1954, BMSP 44: 41, 190.—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018; Howarth & Mull, 1992, HIK, 114–115 (photo 104, *in situ*).

Diagnosis. Species group: *sordidus* group, *koebelei* subgroup. With *R. femoratus* n. sp., *R. mutatus* Perkins, *R. obsoletus* Perkins in the subgroup. An O'ahu-based subgroup restricted to the Ko'olau Range, with all species having the rostrum rather smooth and shagreened and prothorax globose. This species has the eyes strongly flattened as in *R. mutatus* (vs moderately developed eyes in others of group) but it is unique in having the elytral preapex gradually acuminate and strongly produced; differs from *R. mutatus* and *R. obsoletus* by having the pronotal disc ± smooth and shining (vs shagreened).

Male (Holotype). Derm, pubescence, and major features as noted in redescription. BL 10.92 mm; BB 4.79 mm; PNL 241 cmm (= 100ths mm); PNB 295 cmm; ELL 706 cmm; ELB 465 cmm; IO 104 cmm; EB 184 cmm; EH 14 cmm; E 56 cmm; AS (cmm): 288 : 84 : 60 : 40 : 40 : 36 : 38 : 34 : 120 (= club: 54+32+36). Ratios (× 100): BL/BB 228; PNL/PNB 82; ELL/ELB 152; IO/EB 57; EH/E 25; IO/E 186; AFS1/AFS2 140; AFS3/AFS4 100.

Female (nov.). Derm, pubescence, and major features as noted below. BL 13.10 mm; BB 6.05 mm; PNL 266 cmm (= 100ths mm); PNB 324 cmm; ELL 913 cmm; ELB 598 cmm; IO 120 cmm; EB 202 cmm; EH 20 cmm; E 80 cmm; AS (cmm): 340 : 100 : 76 : 52 : 44 : 40 : 42 : 44 : 144 (= club: 64+36+44). Ratios (× 100): BL/BB 217; PNL/PNB 82; ELL/ELB 153; IO/EB 59; EH/E 25; IO/E 150; AFS1/AFS2 132; AFS3/AFS4 118.

Redescription (pooled) Gross body length 9.4–13.1 mm (o.d. 11 mm). Derm sometimes dark blackish fuscous on head, the darkest of any body region, body otherwise medium to dark red-fuscous; elytral sutural area sometimes narrowly paler red-fuscous. Dorsal pubescence whitish to golden setose barely grading to very narrow lanceolate squamae, mostly adpressed and sparse. Rostrum and front subglabrous anteriorly becoming sparsely to submoderate setose above; inner eye margins rather sparsely set with setae. Antennal scape finely setose. Pronotum with setae submoderate on disc and continued around to side, no lateral stripe but sometimes a denser patch narrow pale squamae at base. Scutellum microsetose. Elytron submoderately to moderately clothed on disc and tending to form stripes. Elytral sensory setae not strongly differentiated and barely conspicuous over general ground pubescence on posterior half of elytron, these slightly raised setae fairly short and curved. Femora subevenly setose from middle to apex. Tibiae set with setae and bristles of submoderate length.

Rostrum and front rather flattened to finely rugulose; surface shagreened but nearly smooth with a fairly strong satiny shine. Eye circular, fairly large, and extremely low. Antennal funicular segments slender: afs1 much longer than afs2; afs3 subequal to or slightly longer than asf4. Prothorax quite globose, sides convex, briefly constricted at side near base; base weakly convex across middle; disc evenly convex; median impunctate line narrow, surface smooth-granulate; discal punctures rather close and fine. Elytron fairly slender in both sexes, acuminately narrowed preapically and strongly extended apically; disc convex; puncture rows not always regular but at least irregular to 8, then more confused laterally; interstices slightly swollen, 4 and 8 feebly raised,

sometimes also others; punctures submoderate in size; intervals dull alutaceous; humeral margin usually complete to apex, the edge with some low rounded serrations preapically, otherwise ± smooth; basal part of margin produced, then sharp through middle and apex, where the latter slightly more strongly swollen at extremity; subhumeral-epipleural surface flat, microsculpture similar to disc, surface with confused puncturation and 2 or 3 longitudinal rows at and adjacent to epipleuron. Ventral surfaces smooth-shagreened on thorax but abdomen more granulate; abdominal sterna 1+2 in ♂ broadly and evenly concave and in female weakly convex excepting slight depression across basal area. Femora smooth-granulate-punctulate. Tibiae granulate and punctulate-asperate. Aedeagus: apex as figured. Spermatheca (female nov.) as figured.

Range (n = 7, including above m, f): BL 9.41–13.10 mm; BB 4.54–6.05 mm; PNL 216–266 cmm (= 100ths mm); PNB 253–324 cmm; ELL 631–913 cmm; ELB 440–598 cmm; IO 92–120 cmm; EB 156–202 cmm; EH 18–20 cmm; E 56–80 cmm; AFS1 80–100 cmm; AFS2 58–76 cmm; AFS3 38–52 cmm; AFS4 36–44 cmm. Ratios (× 100): BL/BB 203–232; PNL/PNB 81–91; ELL/ELB 139–158; IO/EB 55–59; EH/E 25–29; IO/E 133–186; AFS1/AFS2 129–140; AFS3/AFS4 100–118.

Types. Holotype label data: *Rhyncogonus koebelei*. Type ♂. Honolulu, 2000 ft. 1897. [handwritten in ink on surface of cardmount to which specimen is glued]/ Type [circular typeset label with red border]/ Hawaiian Is. 1900–99. [typeset].

Material examined. **O'AHU**: Honolulu, 610 m (2000 ft), 1897, A. Koebele & R.C.L. Perkins collectors (holotype ♂, BMNH); Palolo, 19.viii.1906, F.W. Terry collector to Perkins Collection (1 ex); Palolo, 19.viii.1906, W.M. Giffard collector, includes Sharp dissections R.9 and R.12 (2♂, 2♀ ex); ridge between Palolo and Mānoa, x.1906, R.C.L. Perkins collector (2♀ ex); Palolo, about 1200 ft, v.1912, on *Broussaisia*, Perkins (1♂, 1♀ ex); Palolo, 2000 ft, on *koa*, v.1912, [Perkins] (3 ♂ ex); Palolo, 1800 ft, 8.xii.1907, Giffard (Sharp dissection R.3 and R.7) (2♂ ex); Palolo, 24.vi.1917, J.C. Bridwell collector (1♂, 2♀ ex, including 1 pair in copula); Mt Olympus, 19.i.1919, O.H. Swezey collector (1 ♀ ex); Mt Olympus, no date, *Broussaisia*, Swezey (2♂, 1♀ ex); Wiliwilinui Ridge, 17.ix.1976, R.C.A. Rice collector (7♂, ♀ nov., 4♀ ex). Examples (pairs) distributed to MNHN, USNM.

Collection and taxonomic history. Described by Perkins, 1900: 126 ("Oahu, mountains near Honolulu (2000 ft.): 1♂ taken by Mr A Koebele, whilst collecting with me."; holotype in BMNH). This is a rather distinctive species not easily confused with others.

Distribution. O'ahu. Ko'olau Range: Wa'ahila Ridge, upper Palolo Valley to Mt Olympus and Wiliwilinui Ridge. Records commonly at elevations of 350–600 m, possibly to 750 m. Restricted montane distribution: Pattern 4.

Habitat and life history notes. Adults have been collected off *Acacia koa*, *Broussaisia arguta*, and *Scaevola gaudichaudiana*. The habitat includes Lowland Mesic Forest (Gagné & Cuddihy, 1990: 80–85) through most of the range of *R. koebelei* in the Palolo-Mt Olympus section of the Ko'olau Range.

Status. Extant. Various collections to 1976. Range is within Honolulu Watershed Forest Reserve. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus lahainae Perkins Figs. 36, 141

Rhyncogonus lahainae Perkins, 1900, FH 2: 128 (original description).—Bridwell, 1919, PHES 4: 76.—Perkins, 1927, PHES 6: 469.—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.—Liittschwager & Middleton, 2001, Remains of a rainbow, 129 (♀ nov., photograph *in situ*).

Diagnosis. Species group: *sordidus* group, *sordidus* subgroup. With *R. montygorum* n. sp., *R. sordidus* Perkins, *R. tristis* n. sp., *R. wiliwilinui* n. sp. in the subgroup. This species and *R. montygorum* each have unusually large spermathecae (ca. 1.0 mm across and the largest in Hawaiian species) but females differ in the pronotal prebasal disc: globose and swollen in *R. lahainae* and weakly depressed in *R. montygorum*; males have this area depressed in both species. The preceding differ from *R. tristis* by having finer punctures on the pronotal disc.

Redescription. Male (Holotype). Gross body length 11.0 mm (o.d. 10.5 mm). Derm dark red-fuscous. dorsal pubescence of fine clear grayish setae and narrow whitish buff squamae, all adpressed. Rostrum and front

sparsely setose with a small patch of slender squamae along inner eye margins. Antennal scape finely setose. Pronotum with disc very finely setose centrally, the pubescence continued laterally to moderately weak lateral stripe of squamae. Scutellum finely setose to squamose. Elytron moderately clothed with setae and slender squamae on disc, these tending to form patchy stripes on intervals 2, 4, and 8. Erect elytral sensory setae essentially absent. Femora setose and squamose, the latter denser preapically. Femora with asperate punctures bearing raised setae and bristles of fairly short length. Ventral surfaces submoderately setose but apical abdominal sternite densely clothed with elongate setae.

Rostrum and front somewhat irregular, smooth but becoming granulate apically and with punctures moderately large on rostrum and smaller above on vertex; surface strongly shining. Eye subcircular, moderately large-sized but rather weakly raised. Antennal funicular segment 1 distinctly longer than afs2; afs3 slightly longer than afs4. Prothorax globose, sides strongly convex; base slightly emarginate before scutellum; disc somewhat evenly convex but with deep circular depression sublaterally just basad of middle (1+1); median impunctate line restricted to middle 1/5, surface smooth shining; discal punctures small and close; intervals smooth shining. Elytron rather slender, preapical closure fairly straight to apex; disc convex; puncture rows distinct to 8 and then irregular or confused to humeral margin; punctures moderate in size; intervals dull alutaceous, subopaque and bearing minute raised grains; humeral margin reaching apex, the margin fairly sharp for entire distance, being smooth to behind middle and set with small sharp denticles along apical 2/5. Ventral surfaces dark, surface smooth-finely granulate with a satiny shine. Femora smooth, dull alutaceous. Tibiae asperate, subgranulate-smooth.

BL 10.58 mm; BB 4.70 mm; PNL 232 cmm (= 100th mm); PNB 257 cmm; ELL 714 cmm; ELB 465 cmm; IO 78 cmm; EB 162 cmm; EH 22 cmm; E 64 cmm; AS (cmm): 260 : 74 : 52 : 36 : 32 : 30 : 30 : 30 : 128 (= club: 52+36+40). Ratios (× 100): BL/BB 225; PNL/PNB 90; ELL/ELB 154; IO/EB 48; EH/E 34; IO/E 122; AFS1/AFS2 142; AFS3/AFS4 113.

Female (nov.). Derm and pubescence similar to male but dorsal lanceolate squamae sometimes predominantly ochraceous. Additionally, pronotum less evenly globose, being more gradually narrowed anteriorly, disc more evenly convex and lacking a deep circular depression on each side of middle but median impunctate line longer, and discal punctures finer; elytron stouter with preapical closure fairly abrupt before slightly produced apex. Spermatheca (2nd ♀) as figured.

BL 12.09 mm; BB 6.22 mm; PNL 286 cmm (= 100th mm); PNB 340 cmm; ELL 872 cmm; ELB 598 cmm; IO 120 cmm; EB 214 cmm; EH 32 cmm; E 72 cmm; AS (cmm): 304 : 62 : 52 : 36 : 32 : 32 : 32 : 32 : 126 (= club: 44+32+50). Ratios (× 100): BL/BB 195; PNL/PNB 84; ELL/ELB 146; IO/EB 56; EH/E 44; IO/E 167: AFS1/AFS2 119; AFS3/AFS4 113.

Range (n = 4): BL 10.58–12.10 mm; BB 4.70–6.22 mm; PNL 232–286 cmm (= 100ths mm); PNB 257–340 cmm; ELL 714–872 cmm; ELB 465–598 cmm; IO 78–124 cmm; EB 162–214 cmm; EH 22–34 cmm; E 64–72 cmm; AFS1 50–74 cmm; AFS2 48–62 cmm; AFS3 32–36 cmm; AFS4 30–32 cmm. Ratios (× 100): BL/BB 191–225; PNL/PNB 84–90; ELL/ELB 144–154; IO/EB 48–59; EH/E 34–47; IO/E 122–182; AFS1/AFS2 103–142; AFS3/AFS4 107–113.

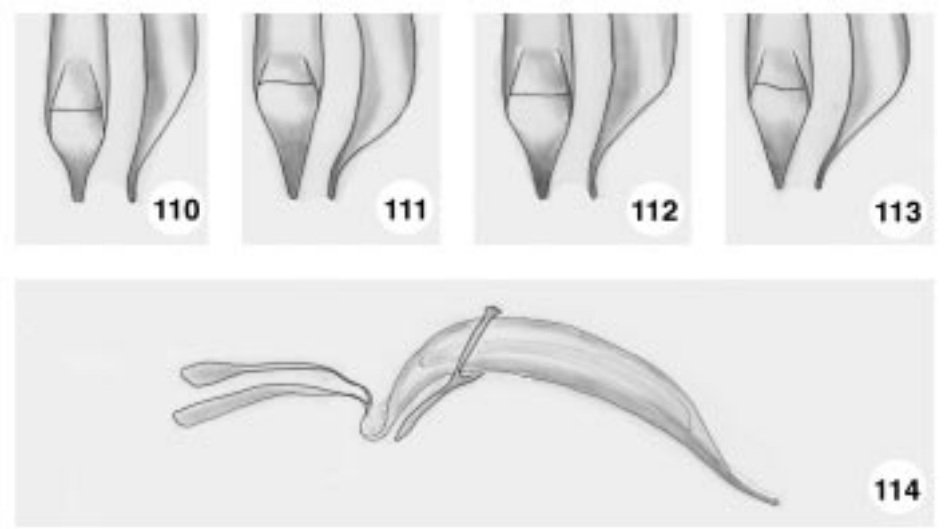
Types. Holotype label data. *Rhyncogonus lahainae*. Type Lahaina Maui. [handwritten ink on cardmount to which type is glued]/ Type [typeset circular label with red border]/ Hawaiian Is. 1900-99. [typeset]/ Lahaina Maui 2000 ft I.97. [handwritten ink].

Material examined. **MAUI** (W): Lahaina, 610 m (2000 ft), I. [18]97, [R.C.L. Perkins collector] (holotype ♂, BMNH); ridges ʻĪao Valley, no elevation, ix.1918, J.C. Bridwell collector (1 ♀ ex); Puʻu Kukui Trail, 940 m (3080 ft), 19.viii.1999, ex *Broussaisia*, H. Oppenheimer collector (♀ nov., BPBM); same data but 1.ix.1999, (1 ♀). The last distributed to BMNH.

Collection and taxonomic history. Described by Perkins, 1900: 128 ("Maui, mountains behind Lahaina (3000 ft.); 1 ♂ taken."; type in BMNH).

Distribution. Maui (W). Mountains above Lahaina at 900+ m on high ridges above ʻĪao Valley and Puʻu Kukui Trail at 940 m. Broad montane distribution: Pattern 5.

Habitat and life history notes. One of the recently-collected specimens from *Broussaisia* was caged (at BPBM) for 19 days with leaves from the *Broussaisia* plant, from which it was collected. This individual gradually ate parts of 2 leaves until the leaf remnants spoiled. The habitat approach-



Figures 110–113. *Rhyncogonus*, male aedeagi, dorsal (left) and lateral (right) views. **110**. *R. extraneus*; **111**. *R. gagneorum*; **112**. *R. kapapa*; **113**. *R. saltus*; **Figure 114** *Rhyncogonus squamiger*, male aedeagus, median lobe, entire, lateral view.

es Montane Mesic Forest (Gagné & Cuddihy, 1990: 97–98) but the actual site is wetter with over 2500 mm annual rainfall (Oppenheimer, pers. comm.) and may better fit Montane Wet Forest (Gagné & Cuddihy, 1990: 105–107). According to H. Oppenheimer (pers. comm.), the habitat is on a narrow, wet ridgetop dominated by an 8-meter closed canopy of *Metrosideros polymorpha* of several varieties (*'ōhi'a*); *Cheirodendron trigynum* (*olapa*) is a co-dominant; understory species include *Ilex anomala*, *Psychotria mariniana*, *Melicope clusiifolia*, *Freycinetia*, along with *Broussaisia*; the groundcover includes *Dicranopteris* and scattered *Cibotium menziesii* and *C. glaucum*. Other species in the immediate vicinity include *Dianella sandwicensis*, *Pittosporum glabrum*, *Dodonaea viscosa* (at the wet extreme of its range), *Alyxia oliviformis*, *Dryopteris glabra*, *Hedyotis terminalis*, and *Myrsine lessertiana*. Because the site is on a narrow ridge, sunlight may penetrate the understory more readily in the early morning and late afternoon.

Status. Extant. Three collections to 1999. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus minor Perkins Fig. 25

Rhyncogonus minor Perkins, 1900, FH 2: 124–125 (original description).

Diagnosis. Species group: *kauaiensis* group. With *R. kauaiensis* Perkins. Differs from *R. kauaiensis* in having the eyes more strongly produced (EH/E 43) together with the eyes small in proportion to their interocular distance (IO/E 179) and the prothorax more strongly convex at sides. Some setae of antennal scape are raised but not to the extent of species of the *vittatus* group.

Redescription. Female (Holotype). Gross body length 10.1 mm (o.d.10.5 mm). Derm subpiceous with head and prothorax darkest to dark red-fuscous on elytra. Dorsal pubescence whitish buff setiform squamae and heavier lanceolate squamae. The rostrum and front submoderately clothed with whitish setae. Antennal scape finely setose, hairs partly adpressed and partly raised. Prothorax sparsely setose on central disc and heavily whitish squamose on each side. Scutellum with flattened buff-white squamae directed posteriorly. Elytron sparsely

setose distally but with a distinct whitish patch on humerus briefly continuing the lateral line of prothorax, and some vague patches on preapex; lateral infolded surface with small patches basally and a more dilute patch apically. Sensory setae not evident. Femora setose of narrow whitish squamae, rather evenly distributed over apical half. Tibiae set with bristles and setae of short length.

Rostrum moderately strigose; ridges smooth-granulate, shining. Eye subcircular, moderately small, and fairly strongly raised. Antennal funicular segment 1 longer than afs2; afs3 longer than afs4. Prothorax fairly elongate but appearing subrobust with rather strongly convex sides but not constricted prebasally; anterior margin straight across middle; base weakly emarginate across middle; median impunctate line obsolescent, narrow but raised and restricted to mid discal part, surface smooth and strongly shining; punctures moderately close and small; intervals smooth with a hint of granulosity. Elytron robust, preapical closure weakly concave before slightly produced apex; disc convex, somewhat humped postbasally, surface smooth-alutaceous with a hint of opacity; puncture rows 1–9 distinct, quite regular, then confused laterally; punctures small; humeral margin reaching apex and rather evenly and almost sharply beaded for entire length, margin with low serrations along basal 2/3s, then sharply dentate along apical 1/3, the denticles small; lateral infolded surface smooth shining and set with small punctures mostly 1/4 to 1/2 has large as intervals. Ventral surfaces smooth-finely granulate on prothorax and apical 3 abdominal sterna; metasternum and abdominal sterna 1+2 smooth-granulate-punctate; surface of sterna 1+2 flattened, the suture dividing 1+2 connate but visible across; abdominal sterna 3–4 each strongly tilted apically; apex of 5 damaged with extremity missing. Femora smooth-granulate with incipient asperations associated with fine punctures. Tibiae smooth-granulate with low asperations and teeth along ventral surface.

BL 10.08 mm; BB 4.79 mm; PNL 216 cmm (= 100ths mm); PNB 249 cmm; ELL 689 cmm; ELB 473 cmm; IO 100 cmm; EB 176 cmm; EH 24 cmm; E 56 cmm; AS (cmm): 232 : 56 : 44 : 32 : 30 : 28 : 28 : 28 : 112 (= club: 52+28+32). Ratios (× 100): BL/BB 211; PNL/PNB 87; ELL/ELB 146; IO/EB 57; EH/E 43; IO/E 179; AFS1/AFS2 127; AFS3/AFS4 107.

Types. Holotype label data: *Rhyncogonus minor* Perkins. Type. Kauai 4000 ft. ♀? [on cardmount with specimen]/ 564 [on underside of card]/ Type/ Hawaiian Is. 1900-99. The field number 564 fixes the date of collection as x.1895 and the place as Kaua'i at 4000 ft (1220 m).

Material examined. **KAUA'I**: mountains, 1220 m (4000 ft), x.1895, R.C.L. Perkins collector (holotype, BMNH).

Collection and taxonomic history. Described by Perkins, 1900: 124–125 ("Kauai Mountains (4000 ft.); 1♀ taken"; type in BMNH). Type examined through the kindness of Ms Sharon Shute, London.

Distribution. Kaua'i. Mountains, 1220 m elevation at unknown site[3]. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The habitat is likely to be within one of the Montane Mesic Forest communities (Gagné & Cuddihy, 1990: 97–98). No plant associates were reported.

Status. Unknown. Unique specimen, taken in 1894.

Rhyncogonus molokaiensis Perkins Figs. 22, 89, 130

Rhyncogonus molokaiensis Perkins, 1900, FH 2: 125 (original description).—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, Federal Register 59: 59018; Howarth & Mull, 1992, HIK, 112 (photo 100, *in situ*).
Rhyncogonus dubius Perkins, 1900, FH 2: 125 (original description), **n. syn**.

Diagnosis. Species group: *freycinetiae* group. With *R. freycinetiae* Perkins, *R. oleae* Perkins. Derm dark red-fuscous to black. Dorsum finely setose, essentially subglabrous over pronotal- and elytral disc. Prothorax, however, may have a strong whitish squamose lateral stripe, this sometimes reduced to a basal tuft. Males tending to have elytral puncturation more irregular than females. Differs from *R. freycinetiae* in having the side of the prothorax more sparsely pubescent (vs usually a well-developed lateral stripe).

Male (Lectotype). Side of prothorax near anterior angle with a few white squamae (these tend

3. According to his unpublished field notes, Perkins visited Kaua'i from 7 October to 10 November in 1895. During October he spent two weeks at Francis Gay's Kaholuamano mountain home (elevation ~4000 ft.), which is the most probable locality for the collection of this specimen (N.L. Evenhuis, pers. comm.).

to be absent in other specimens) in addition to those forming a basal tuft. Elytral puncturation irregular on rows 1–4, then confused to humeral margin. Derm, pubescence, and major features otherwise as noted in redescription. BL 10.42 mm; BB 4.87 mm; PNL 249 cmm (= 100ths mm); PNB 274 cmm; ELL 697 cmm; ELB 473 cmm; IO 94 cmm; EB 178 cmm; EH 22 cmm; E 60 cmm; AS (cmm): 276 : 62 : 48 : 32 : 32 : 28 : 30 : 32 : 124 (= club: 48+32+44). Ratios (× 100): BL/BB 214; PNL/PNB 91; ELL/ELB 147; IO/EB 53; EH/E 37; IO/E 157; AFS1/AFS2 129; AFS3/AFS4 100.

Female (Allolectotype). Elytral puncturation regular to row 8 or 9, then confused. Derm, pubescence, and major features as noted below. BL 12.26 mm; BB 5.71 mm; PNL 282 cmm (= 100ths mm); PNB 315 cmm; ELL 838 cmm; ELB 556 cmm; IO 116 cmm; EB 214 cmm; EH 28 cmm; E 70 cmm; AS (cmm): 292 : 60 : 58 : 38 : 38 : 32 : 32 : 34 : 112 (= club: 48+28+36). Ratios (× 100): BL/BB 215; PNL/PNB 89; ELL/ELB 151; IO/EB 54; EH/E 40; IO/E 166; AFS1/AFS2 103; AFS3/AFS4 100.

Redescription (pooled). Gross body length 9.2–12.3 mm (o.d. 9.5–12 mm). Derm red-fuscous, subpiceous, piceous (commonly) to almost pitch black. Rostrum and front finely setose, the setae clear silvery, plus some slender white squamae along inner eye margins. Antennal scape finely setose, the setae mostly adpressed. Prothorax essentially glabrous or microsetose (setae usually visible at 25 ×), otherwise with a small but conspicuous basal patch of white slender squamae near posterior angle on each side (lectotype has in addition a few squamae anteriorly). Scutellum with a small patch of short fine white squamae (if not rubbed off). Elytral disc and infolded surface essentially glabrous or microsetose as on prothorax (one specimen with a few trailing white squamae basally on infolded surface just below humeral margin). Ventral surfaces finely and sparsely to submoderately clothed with fine slender setae; in ♀ these becoming slightly longer on sterna 3+4 and longest on 5; in male these slightly denser on 3+4 and densely pilose on 5. Femora bearing setae and white lanceolate squamae, the squamae strongest preapically and tending to form an incomplete band. Tibiae set with raised setae and bristles of short to moderate length.

Rostrum and front flattened and substrigose below, then becoming strigose above; punctures small to moderate and shallow; intervals or ridges smooth shining, sometimes surfaces with slight granulosity. Eye subcircular, moderately large and elevated. Antennal funicular segment 1 barely to distinctly longer than afs2; afs3 subequal to or slightly longer than afs4. Prothorax subglobose-elongate, sides moderately convex; base slightly emarginate across middle; disc evenly convex except sometimes medially; median line fairly distinct, usually raised and often complete, surface smooth shining; discal punctures fine to small and mostly close; intervals flat to commonly reticulate when punctures are closer, surface smooth shining with a hint of granulosity. Elytron robust, preapical closure slightly sinuate before slightly produced apex; disc convex; puncture rows largely irregular to confused in male and distinct to 8, then irregular in ♀; interstices flat to irregular; punctures moderately large; surface smooth alutaceous with a softer shine than pronotum; humeral margin ± reaching apex, the edge smooth until apical 2/5 where low serrate teeth are either obsoletely or distinctly produced; margin in male rounded from base through middle, sharp apically; margin in ♀ beaded basally, weakly beaded or rounded through middle, sharp apically. Ventral surfaces generally finely granulate, dark and glossy with a bright satiny shine. Femora granulate-punctulate. Tibiae granulate- asperate. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 7, including lectotype, allolectotype) BL 9.24–12.26 mm; BB 4.37–5.71 mm; PNL 216–282 cmm (= 100ths mm); PNB (237)241–315 cmm; ELL (623)639–838 cmm; ELB 415–556 cmm; IO (80)88–116 cmm; EB 162–214 cmm; EH 20–28 cmm; E 56–70 cmm; AFS1 56–64 cmm; AFS2 40–58 cmm; AFS3 28–38 cmm; AFS4 24–38 cmm. Ratios (× 100): BL/BB 206–215(224); PNL/PNB 88–94(95); ELL/ELB 142–154; IO/EB (48)53–56; EH/E (33)36–45; IO/E (133)155–171; AFS1/AFS2 103–140; AFS3/AFS4 100–117. Values in parentheses indicate new extremes in ranges with the synonymized *R. dubius*.

Types. Lectotype label data: *Rhyncogonus molokaiensis* Type. [handwritten in ink on cardmount to which specimen is micropinned/ Type [typeset circular label with red border]/ Hawaiian Is. 1900-99./ Molokai Mts., 3000 ft.+ Perkins. vi.1893./ + new lectotype label.

Material examined. **MOLOKA'I**: Mts., 915+ m (3000+ ft), vi.1893, R.C.L. Perkins collector (lectotype ♂ and allolectotype ♀, BMNH); Mts., 3000 ft (915 m), 5.vi.1893, Perkins (1 paralectotype ♀); Mts., 3500 ft (1070

m), 5.viii.1893, Fauna Hawaiiensis Collection, Perkins (1 paralectotype ♂); Kala'e, 7.viii.1893, Perkins (holotype ♂ of *R. dubius* Perkins, BMNH); 1.6 km (1 mi) W of Pu'u Kolekole, 1160 m (3800 ft), no date, *R.* Warschauer collector (1 ♀ ex); no locality, 1097 m, 1.viii.1973, on *ohelo*, W.P. Mull collector (1 ♀ ex).

Collection and taxonomic history. Described by Perkins, 1900: 125 ("Molokai, mountains (3000 ft.); rare."; syntypes in BMNH, BPBM). Both sexes treated in the original description but number of specimens not given; 4 syntypes studied. This species now includes *R. dubius* Perkins (1900: 125), whose ♂ holotype (BMNH) is close to that of *R. molokaiensis*. The morphological range extensions in the measurements created by including *R. dubius* with *R. molokaiensis*, however, may indicate disjunct populations and that could weaken the present argument for proposing the synonymy. BMNH syntypes seen through the kindness of Ms Sharon Shute, London. Lectotype presently designated to stablize the taxonomy of the species.

Distribution. Moloka'i, mountains, 520 m and 900–1070 m. The lowest elevation is for the holotype of *R. dubius*, this elevation published in the original description but not present on the specimen label. One record from the Pu'u Kolekole area. Restricted montane distribution: Pattern 6.

Habitat and life history notes. Only 1 plant associate record on *Vaccinium* (*ohelo*), without any indication of whether or not the plant was the true host. The elevation and the occurrence of 1 specimen on *Vaccinium* would indicate that this insect is associated with a Subalpine Dry/Mesic Shrubland community (Gagné & Cuddihy, 1990: 111–113).

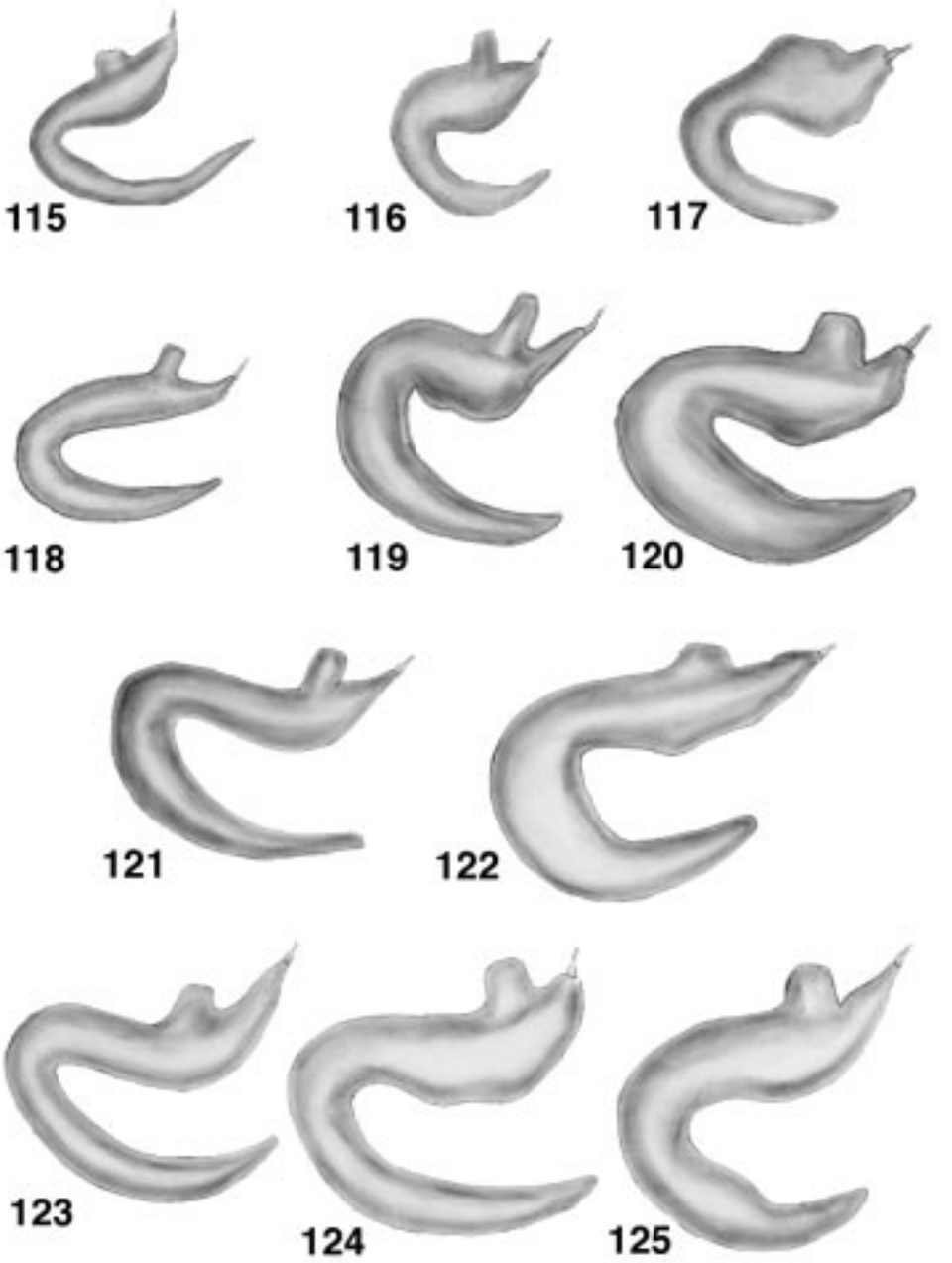
Status. Extant. Three collections to 1975. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus montygorum Samuelson, **n. sp.** Figs. 38, 101, 142

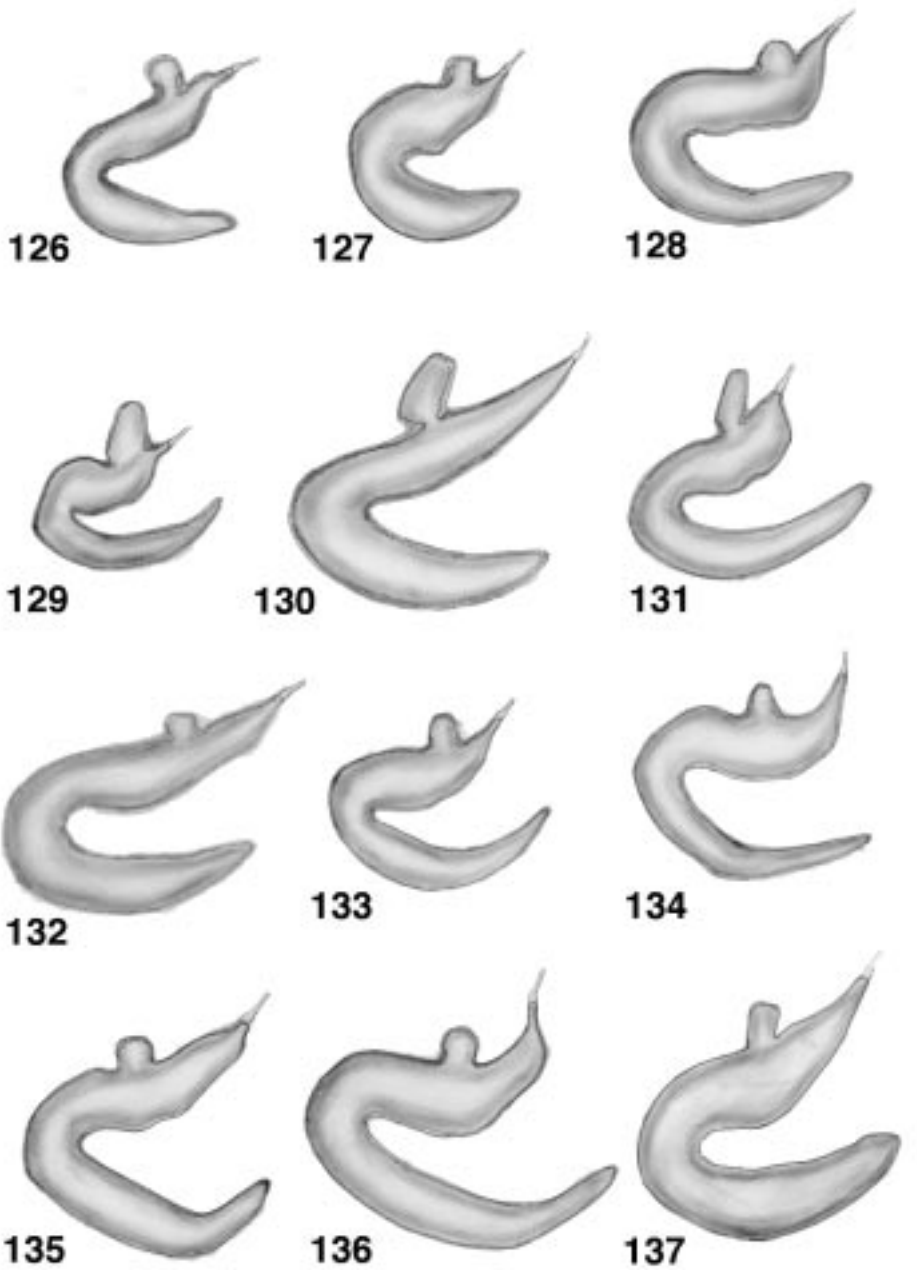
Diagnosis. Species group: *sordidus* group, *sordidu*s subgroup. With *R. lahainae* Perkins, *R. sordidus* Perkins,*R. tristis* n. sp., *R. wiliwilinui* n. sp. in the subgroup. Resembles *R. lahainae* because of the smoother and shinier sculpture of the pronotal disc, plus the very large spermatheca, but females otherwise have the prebasal area of the pronotum depressed (vs convex in *R. lahainae*). Differs from *R. sordidus* (besides key) by having the rostrum closely punctulate as on vertex (vs more sparsely punctate with discal punctures larger than those of vertex), elytron with discal and apical pile of short raised conspicuous setae (vs shorter sparser hairs when present), elytral infolded area more evenly and finely setose with squamose patches less developed when present).

Female (Holotype). Gross body length 11.8 mm. Derm of dorsum dark subpiceous on head and prothorax, elytron slightly paler dull red-fuscous; venter subpiceous; antenna and legs ± dark red-fuscous, tibiae and tarsi slightly paler orange-fuscous. Dorsal pubescence of silvery clear setae and whitish buff lanceolate squamae. Rostrum and front sparsely setose, inner eye margins with a few narrow squamae. Antennal scape setose, the setae short but some slightly raised, mostly <10 degrees. Pronotal disc sparsely microsetose to glabrous, setae inconspicuous, and blending with weak lateral stripe of narrow squamae, the stripe slightly more concentrated basally and more diffused apically. Scutellum with fine narrow buff squamae. Elytral disc submoderately clothed with lanceolate buff squamae, these tending to be patchy; infolded surface clothed with fine setae and sometimes with setiform squamae on subhumeral area and preapex, the latter slightly thicker. Elytral erect sensory setae short silvery gray but conspicuous, these rather straight and more concentrated on apical part of disc (the inner basal part of disc somewhat rubbed). Ventral surfaces submoderately setose, the setae fine and elongate; the apical 3 abdominal sterna with longer setae; 5 most densely clothed. Trochanteral bristles single. Femora clothed with setae and lanceolate squamae, the latter forming a preapical denser patch. Tibiae set with setae and bristles of short to submoderate length.

Rostrum and front unevenly flattened and smooth and bearing close small circular to slightly elongated punctures, intervals smooth shining; vertex closely punctulate. Eye subcircular, rather large and moderately elevated. Antennal funicular segment 1 slightly longer than afs2; afs3 longer than afs4. Prothorax subglobose, sides convex; base emarginate before scutellum; disc subevenly convex with prebasal area feebly depressed medially; median impunctate line narrow but obsolete basally, surface smooth shining; discal punctures close, moderately small of mixed smaller sizes; intervals smooth shining and much brighter than the duller elytra. Elytron



Figures 115–125. *Rhyncogonus*, spermathecae, lateral view. **115**. *R. fosbergi*; **116**. *R. exsul*; **117**. *R. biformis*; **118**. *R. vittatus*; **119** *R. depressus* **120**. *R. ricei*; **121**. *R. squamiger*; **122**. *R. kauaiensis*; **123**. *R. blackburni*; **124**. *R. nitidus*; **125**. *R. stygius*.



Figures 126–137. *Rhyncogonus*, spermathecae, lateral view. **126**. *R. tuberculatus*; **127**. *R. haupu*; **128**. *R. kahili*; **129**. *R. sylvicola*; **130** *R. molokaiensis* **131**. *R. oleae*; **132**. *R. simplex*; **133**. *R. stellaris*; **134**. *R. sharpi*; **135**. *R. welchii*; **136**. *R. fordi*; **137**. *R. howarthi*.

robust, the preapical closure fairly abrupt and sinuate to apex; disc convex; puncture rows distinct to interstice 5, then becoming more irregular to humeral margin; interstices generally flattened to slightly convex; punctures moderate in size and depth; surface dull alutaceous, opaque; humeral margin extending to apex, the edge fairly smooth; margin sharply beaded near base, weakly beaded along middle and then more strongly beaded along preapex. Ventral surfaces finely granulate-punctate, with a bright satiny lustre; punctures of thorax generally shallow but rough; punctures of abdominal sterna 1+2 with larger punctures basally than apically, the suture dividing the connate parts distinct across middle; surfaces of 3–4 closely punctate but 5 finely so. Femora finely granulate-punctulate and fairly smooth overall. Tibiae granulate-asperate.

BL 11.76 mm; BB 6.05; PNL 266 cmm (= 100ths mm); PNB 299 cmm; ELL 805 cmm; ELB 585 cmm; IO 112 cmm; EB 196 cmm; EH 24 cmm; E 64 cmm; AS (cmm): 268 : 56 : 52 : 38 : 32 : 30 : 28 : 28 : 108 (club = 44+28+36). Ratios (× 100) BL/BB 194; PNL/PNB 89; ELL/ELB 138; IO/EB 57; EH/E 38; IO/E 175; AFS1/AFS2 108; AFS3/AFS4 119.

Male (Allotype). Similar to ♀, except derm of most body surfaces subpiceous; appendages slightly more reddish; elytra narrower and discal puncture rows ± regular to 9.

BL 10.75 mm; BB 4.87 mm; PNL 249 cmm (= 100ths m); PNB 270 cmm; ELL 739 cmm; ELB 486 cmm; IO 96 cmm; EB 178 cmm; EH 22 cmm; E 62 cmm; AS (cmm): 264 : 60 : 54 : 38 : 36 : 30 : 30 : 30 [club missing]. Ratios (× 100) BL/BB 221; PNL/PNB 92; ELL/ELB 153; IO/EB 55; EH/E 35; IO/E 155; AFS1/AFS2 111; AFS3/AFS4 106.

Paratypes. These are similar to above but all are in rather poor condition due to pin corrosion. A complete antennal measurement is given here for an alternate male: AS (cmm): 276 : 62 : 64 : 40 : 40 : 34 : 34 : 34 : 136 (club = 50+42+44) — note that this individual has afs1 shorter than afs2. Aedeagus: apex as figured. Spermatheca as figured.

Range (entire type series, n = 6): BL 9.41–13.61 mm; BB 4.79–7.06 mm; PNL 220–315 cmm (= 100ths mm); PNB 261–344 cmm; ELL 681–988 cmm; ELB 473–681 cmm; IO 86–128 cmm; EB 160–224 cmm; EH 22–30 cmm; E 56–76 cmm; AFS1 44–72 cmm; AFS2 44–64 cmm; AFS3 28–44 cmm; AFS4 28–42 cmm. Ratios (× 100): BL/BB 193–221; PNL/PNB 84–92; ELL/ELB 138–153; IO/EB 50–57; EH/E 35–42; IO/E 144–175; AFS1/AFS2 97–120; AFS3/AFS4 100–119.

Types. Holotype ♀ (BPBM 16,392), paratype ♂, MOLOKA'I: Pu'u Kolekole, 12.v.1975, *Dubautia* at night, R.C.A. Rice & S.L. Montgomery collectors; Pu'u Kolekole, Makalelau, 12–26.v.1974, ex *Dubautia*, Rice & Montgomery (allotype ♂, paratype ♂); same loc. but 26.v.1974, no host, Rice & Montgomery (paratype ♀); same loc. but 12.v.1975, ex *Dubautia*, Rice & Montgomery (paratype ♀). Also referable to this species but treated under *R. sordidus* are fragments of beetles, mainly elytra: Moloka'i Mts, 1370 m (4500 ft), 28.viii.1893, R.C.L. Perkins collector (fused elytra). Paratype (♂) distributed to BMNH.

Collection and taxonomic history. Perkins found only fragments of these beetles (mainly elytra) on the highest summits at or above 1370 m (4500 ft). Perkins returned to the same location at least one more time without finding living specimens. Perkins stated (1900: 127), "Fragments of a *Rhyncogonus* found on Molokai are probably referable to this species [*R. sordidus*]. In one spot these were very abundant, but the species had no doubt been extinct (so far as that particular locality is concerned) for years, the vegetation consisting only of small stunted bushes."

This new species is dedicated to Steven L. and Anita Manning Montgomery, a husband-and-wife team in the forefront of Hawaiian conservation and education. Anita, former registrar at Bishop Museum, conducted extensive research on R.C.L. Perkins, forming a valuable resource to subsequent workers. As for finding *Rhyncogonus*, Steve has consistently "been there" at the right place at the right time.

Distribution. Moloka'i. Mountains. Pu'u Kolekole. Restricted montane distribution: Pattern 6.

Habitat and life history notes. The host appears to be *Dubautia* which in turn may indicate a shrubland community. The habitat appears to be restricted to the higher elevations of Moloka'i where there is included a *Styphelia-Dodonaea* subtype of the Lowland Mesic Shrubland community (Gagné & Cuddihy, 1990: 77–80).

Status. Extant. Original series taken in 1975; fragments found in 1893. Threats would include disturbance to soil by pigs and predation by ants or rodents.

Rhyncogonus mutatus Perkins Figs. 32, 102

Rhyncogonus mutatus Perkins, 1927, PHES 6: 468 (original description).—Swezey, 1934, PHES 8: 528.—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.

Diagnosis. Species group: *sordidus* group, *koebelei* subgroup. With *R. femoratus* n. sp., *R. koebelei* Perkins, *R. obsoletus* Perkins in the subgroup. This species is fairly close to *R. obsoletus* because of the similar shagreening of the head, prothorax, and abdomen but it has the eyes more protuberant and puncturation of the pronotum more pronounced.

Female (Lectotype). Derm, pubescence, and major features as noted in redescription. BL 10.08 mm; BB 4.70 mm; PNL 232 cmm (= 100ths mm); PNB 274 cmm; ELL 697 cmm; ELB 465 cmm; IO 108 cmm; EB 184 cmm; EH 22 cmm; E 56 cmm; AS (cmm): 264 : 64 : 52 : 40 : 38 : 36 : 32 : 36 : 112 (= club: 44+28+40). Ratios (× 100): BL/BB 214; PNL/PNB 85; ELL/ELB 150; IO/EB 59; EH/E 39; IO/E 193; AFS1/AFS2 123; AFS3/AFS4 105.

Male (Allolectotype). Derm in color and sculpture similar to female. Elytral discal pubescence much sparser and patchy than in female. Interocular surface slightly depressed. Elytron with a very few grains over dull alutaceous surface. BL 9.24 mm; BB 4.37 mm; PNL 216 cmm (= 100ths mm); PNB 274 cmm; ELL 697 cmm; ELB 465 cmm; IO 108 cmm; EB 184 cmm; EH 22 cmm; E 56 cmm; AS (cmm): 248 : 64 : 56 : 38 36 : 34 : 34 : 32 : 126 (club= 44+36+46). Ratios (× 100): BL/BB 212; PNL/PNB 81; ELL/ELB 144; IO/EB 55; EH/E 43; IO/E 171; AFS1/AFS2 114; AFS3/AFS4 106.

Male (Paralectotype). Derm darker, piceous. Interocular surface depressed. Elytral surface moderately granose over dull alutaceous surface. Aedeagus: apex as figured.

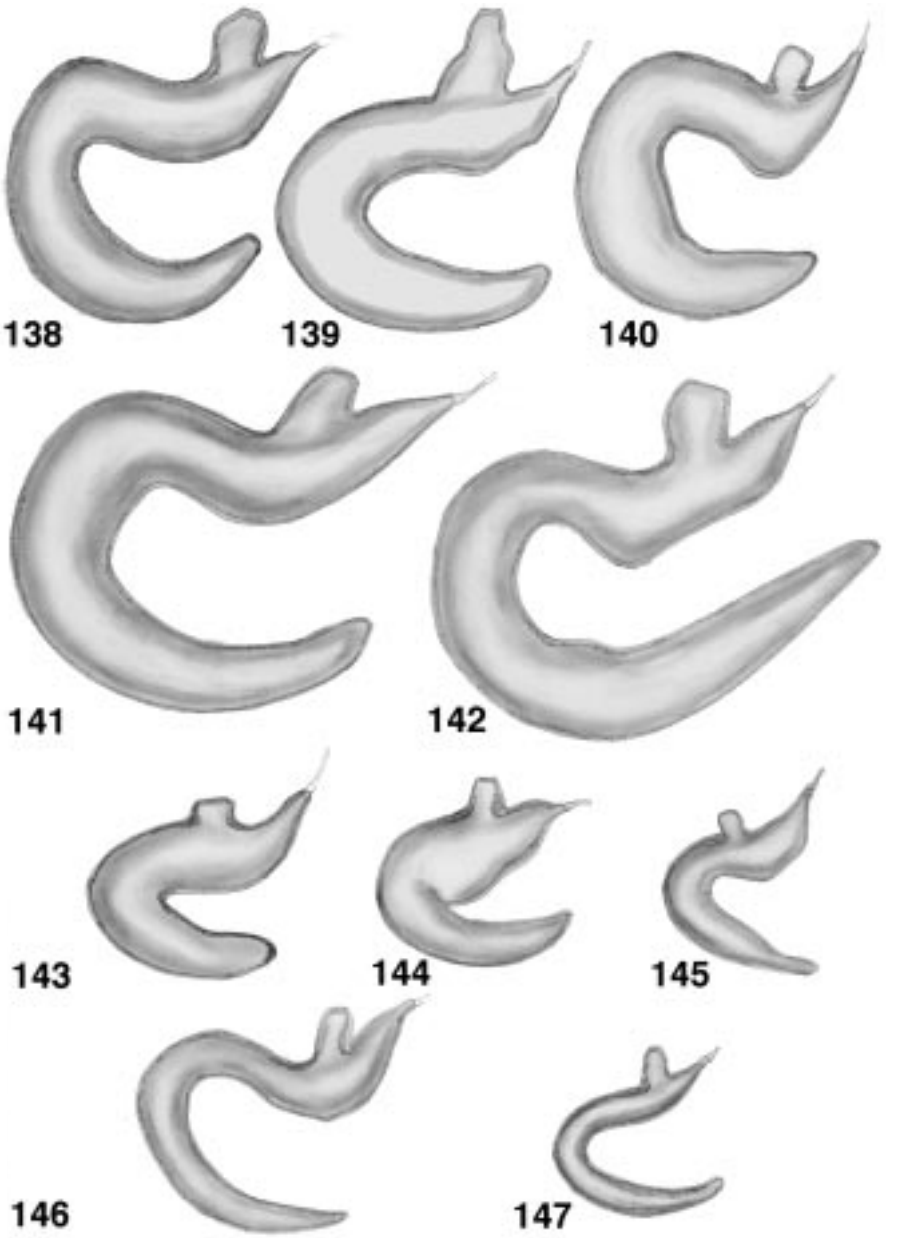
Redescription (pooled). Gross body length 9.2–10.5 mm (not given in o.d.). Derm medium red-fuscous to dark castaneus-fuscous. Dorsal pubescence of clear gray setae and whitish to whitish buff slender lanceolate squamae, all except sensory setae adpressed. Rostrum and front glabrous to sparsely setose and finely setose along inner eye margin. Antennal scape finely setose. Pronotum with disc sparsely setose mixed with slightly heavier whitish buff setose squamae, these merging with slightly heavier squamae forming a vague lateral stripe. Scutellum glabrous. Elytron ± sparsely squamose on disc and tending to form broken longitudinal stripes. Erect sensory setae inconspicuous but present on apical part of elytral suture, these short but distinctly raised. Femora setose and squamose, with narrow squamae densest from middle to preapex. Tibiae with asperate punctures bearing setae and bristles of submoderate length.

Rostrum and front rather flat and smooth, surface shagreened with a dull satiny shine and nearly obliterating moderately large and shallow ovate punctures. Eye circular, moderately large and fairly low in elevation. Antennal funicular segment 1 much longer than afs2; afs3 slightly longer than afs4. Prothorax globose, sides convex and briefly constricted below near base; disc evenly convex; median impunctate line a feeble crease, surface granulate with moderate shine; discal punctures moderately close and moderately large; intervals granulate. Elytron robust, preapical closure fairly abrupt before moderately acuminate apex; disc convex; puncture rows ± distinct to 4, irregular to 8, and confused to humeral margin; punctures moderately small and deep; surface dull alutaceous overall; humeral margin extended to apex, the edge with fine small denticles along preapex, otherwise smooth; the margin quite beaded for the whole length. Ventral surfaces generally shagreened on most surfaces. Femora rather smooth-finely granulate and punctulate. Tibiae smooth-granulate with asperate punctures.

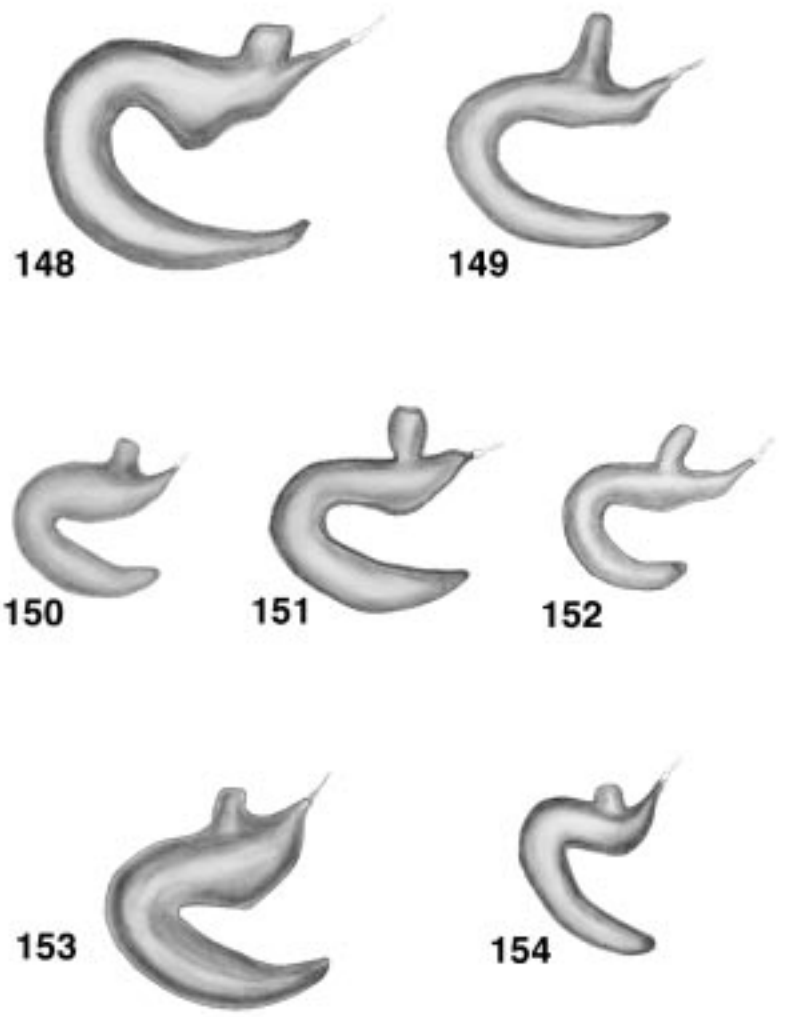
Range (lectotype, allolectotype, paralectotype, n = 3): BL 9.24–10.42 mm; BB 4.37–4.87 mm; PNL 216–241 cmm (= 100ths mm); PNB 274–282 cmm; ELL 697–706 cmm; ELB 465–481 cmm; IO 104–108 cmm; EB 184 (all) cmm; EH 22–24 cmm; E 56–60 cmm; AFS1 64–72 cmm; AFS2 52–60 cmm; AFS3 38–44 cmm; AFS4 36–40 cmm. Ratios (× 100): BL/BB 212–214; PNL/PNB 81–85; ELL/ELB 144–150; IO/EB 55–59; EH/E 39–43; IO/E 171–193; AFS1/AFS2 114–123; AFS3/AFS4 105–110.

Types. Lectotype label data: O'AHU: Holotype 320 [typeset label glued to top of card to which specimen is micropinned]/ Maunaloa 2000 ft. O'ahu/ W.M. Giffard 31.xii.05/ W.M. Giffard Collection/ Holotype/ *Rhyncogonus mutatus*. Type. ♀. R.C.L. Perkins. [handwritten by Perkins]/ + new lectotype label.

Material examined. **O'AHU**: Ko'olau Range, Moanalua Valley, 610 m (2000 ft), 31.xii.1905, W.M.Giffard collector (lectotype, allolectotype, paralectotype; all in BPBM).



Figures 138–147. *Rhyncogonus*, spermathecae, lateral view. **138**. *R. sordidus*; **139**. *R. tristis*; **140**. *R. wiliwilinui*; **141**. *R. lahainae*; **142** *R. montygorum* **143**. *R. femoratus*; **144**. *R. obsoletus*; **145**. *R. koebelei*; **146**. *R. giffardi*; **147**. *R. olokui*.



Figures 148–154. *Rhyncogonus*, spermathecae, lateral view. **148**. *R. alternatus*; **149**. *R. fuscus*; **150**. *R. vestitus*; **151**. *R. extraneus*; **152** *R. gagneorum* **153**. *R. kapapa*; **154**. *R. saltus*.

Collection and taxonomic history. Described by Perkins, 1927: 468 ("Oahu: Moanalua, 2,000 feet, December, 1905 (Giffard). Two males and one female."). This is a syntype series of 3 specimens; all specimens are in BPBM but the dissection of one of the males (Sharp dissection "R.29") is possibly lost (aedeagus and abdominal parts on a separate cardmount, not with the specimen). Perkins indicated that the types were in the collection of W.M. Giffard without further specifying which were which in the original publication. Two of these specimens have type labels: the female is labeled holotype and a male (Sharp dissection "R.29") is labeled allotype. Both of these types are "fresher" than the second male (Sharp dissection "R.17"). The unique female is hereby designated lectotype to stablize the taxonomy of the species. It is selected as lectotype because: 1) a part of the original description is about that individual, 2) it is one of the fresher specimens, 3) it is not dissected, and 4) it has a handwritten label specifying "Type ♀" written by Perkins.

Distribution (historical). O'ahu. Ko'olau Range, Moanalua Valley at 600 m. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The habitat is possibly embraced by Lowland Mesic Forest or Lowland Wet Forest (Gagné & Cuddihy, 1990: 80–93).

Status. Extant. Known from only original series, taken in 1905. Range within Honolulu Watershed Forest Reserve. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus nitidus Perkins Figs. 15, 81, 124

Rhyncogonus nitidus Perkins, 1900, FH 2: 122–123 (original description); Perkins, 1927, PHES 6: 469.—Van Dyke, 1932, BMB 98: 24.

Rhyncogonus species C: Howarth & Mull, 1992, HIK, 118–119 (photo, *in situ*).

Diagnosis. Species group: *blackburni* group. With *R. blackburni* Sharp, *R. funereus* Perkins. This species has the dorsal markings restricted to a small basal patch of white squamae on each side of the prothorax (these sometimes rubbed off). It is unique in the group by tending to have subvertical smooth-punctate rugosities on the sides of the prothorax. Abdominal sternum 4 in female is produced apically as in *R. squamiger* Perkins of the *vittatus* group.

Female (Lectotype). Prothorax with lateral vertical rugosities less pronounced than average. Derm, pubescence, and major features otherwise as noted in redescription. BL 14.28 mm; BB 6.55 mm; PNL 307 cmm (= 100ths mm); PNB 332 cmm; ELL 1021 cmm; ELB 647 cmm; IO 124 cmm; EB 238 cmm; EH 34 cmm; E 80 cmm; AS (cmm): 384 : 106 : 80 : 48 : 44 : 40 : 40 : 40 : 172 (= club: 64+48+60). Ratios (× 100): BL/BB 218; PNL/PNB 93; ELL/ELB 158; IO/EB 52; EH/E 43; IO/E 155; AFS1/AFS2 133; AFS3/AFS4 109.

Male (Allolectotype). Derm, pubescence, and major features as noted below. BL 12.01 mm; BB 5.21 mm; PNL 249 cmm (= 100ths mm); PNB 291 cmm; ELL 813 cmm; ELB 515 cmm; IO 108 cmm; EB 208 cmm; EH 36 cmm; E 72 cmm; AS (cmm): 320 : 92 : 76 : 44 : 40 : 40 : 32 : 38 : 152 (= club: 52+40+60). Ratios (× 100): BL/BB 231; PNL/PNB 86; ELL/ELB 158; IO/EB 52; EH/E 50; IO/E 150; AFS1/AFS2 121; AFS3/AFS4 110.

Redescription (pooled). Gross body length 12.0–17.5 mm (o.d. 12–17 mm). Derm pitch black, surfaces smooth and strongly shining. Dorsal pubescence almost nil. Rostrum and front with clear silvery setae sparse and a few closer and whiter setae along inner eye margins. Antennal scape finely setose, some setae slightly raised. Prothorax sometimes with a small basal patch of white squamae on each side. Pronotal and elytral discs glabrous at 25 × except for short clear setae on apical part of elytron, especially on humeral margin. Raised elytral sensory setae absent. Trochanteral bristles often paired. Femora bearing slender setae rather evenly from middle to apex. Tibiae set with raised setae and bristles of submoderate length.

Rostrum and front flat, smooth with punctures moderate in size, elongate and deep. Eye circular to irregular with inner part ± obtusely angled, moderately large and raised. Antennal funicular segment 1 much longer than afs2; afs3 distinctly longer than afs4. Prothorax subcylindrical-elongate, sides weakly convex; base moderately emarginate across middle; disc very evenly convex; median line ± obsolete; discal punctures of mixed

small sizes and deep, often 1–2 × as large as their intervals; discal intervals usually flat between punctures; intervals on side of prothorax usually subvertically rugose. Elytron moderately slender, preapical closure rather gradual before weakly produced apex; disc convex; puncture rows close, slightly raised and distinct to 8, then irregular; punctures moderately small and deep; surface alutaceous with a fairly strong shine; humeral margin continued to apex, the edge smooth to apical 1/3 where it is variously dentate to serrate with teeth somewhat eroded, rounded; margin in male beaded basally and apically, rounded along middle; margin in ♀ strongly produced at base, beaded along middle, sharp apically. Ventral surfaces smooth shining-punctate; punctures moderately small, interspaces with a hint of granulosity; sternum 4 in ♀ strongly produced apically, extended closely over basal part of apical sternum. Femora smooth, punctate-alutaceous. Tibiae granulate with asperate grains. Aedeagus (Haupu specimen): apex as figured. Spermatheca (paralectotype) as figured.

Range (n = 8, including lectotype, allolectotype): BL 12.01–17.47 mm; BB 5.21–7.56 mm; PNL 249–332 cmm (= 100ths mm); PNB 291–398 cmm; ELL 813–1228 cmm; ELB 515–739 cmm; IO 108–148 cmm; EB 208–272 cmm; EH 32–40 cmm; E 72–92 cmm; AFS1 92–120 cmm; AFS2 76–96 cmm; AFS3 44–58 cmm; AFS4 40–48 cmm. Ratios (× 100): BL/BB 218–248; PNL/PNB 83–93; ELL/ELB 158–174; IO/EB 49–56; EH/E 40–50; IO/E 129–168; AFS1/AFS2 121–140; AFS3/AFS4 108–130.

Types. Lectotype label data. *Rhyncogonus nitidus* Type Kauai 3000 ft. 1897 [handwritten in ink on cardmount with specimen]/ 668. [ink on underside of same card = Perkins field number = Makaweli, 2500 ft., ii.1897, R.C.L. Perkins]/ Type [typeset] circular label with red border]/ Hawaiian Is. 1900-99. [typeset]/ + new lectotype label.

Material examined. **KAUA'I**: Makaweli, 760 m, (2500 ft), ii.1897, 668, R.C.L. Perkins collector (lectotype ♀, allolectotype ♂, paralectotype, all BMNH); same data, all with Perkins number 668 written on underside of cardmount, 1 specimen with data written out + R.C.L. Perkins Collection; 3 specimens with data written out only, 11 with Fauna Hawaiiensis label only (15 paralectotypes); Hā'upu Mts, 25.viii.1976, R.C.A. Rice collector (3♂, 3♀ ex).

Variation. The Hā'upu Mts specimens were not included in the above measurements. In these specimens the pronotal disc has closer puncturation than the Makaweli specimens. Even though the Makaweli site is not yet fixed, the Haupu locality probably indicates a range extension.

Collection and taxonomic history. Described by Perkins, 1900: 122–123 ("Kauai Mountains (3000 ft.)."; syntypes in BMNH, BPBM). Number of specimens in type series not indicated, though both sexes were treated indicating multiple specimens. From available material of this series, the number is 18. The BMNH syntypes were seen through the kindness of Ms Sharon Shute, London. Lectotype presently designated to stablize the taxonomy of the species.

Distribution. Kaua'i. Makaweli. Hā'upu Mts. Elevations of about 600–760 m with the latest collection made in 1976 by R.C.A. Rice from Hā'upu Mts near Kipu in the south. Restricted montane distribution: Pattern 4.

Habitat and life history notes. From the reported elevations from the description and labels, the habitat is Lowland Mesic Forest (Gagné & Cuddihy, 1990: 80–85). No records of plant associates.

Status. Extant. Two collections to 1976. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus obsoletus Perkins Figs. 33, 103, 144

Rhyncogonus obsoletus Perkins, 1927, PHES 6: 467–469 (original description).—Swezey, 1934, PHES 8: 528.—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.

Diagnosis. Species group: *sordidus* group, *koebele* subgroup. With *R. femoratus* n. sp., *R. koebelei* Perkins, *R. mutatus* Perkins in the subgroup. This species appears closest to *mutatus* because of the similar shagreening of the head, prothorax, and abdomen but it has the eyes much less protuberant and puncturation of the pronotum less pronounced. Further differs from *R. femoratus* and *R. mutatus* by having the aedeagal apical closure with sides concave (vs straight) and the aedeagal apical declivity abrupt (vs ± long).

Male (Lectotype). Derm, pubescence, and major features as noted in redescription. BL 9.16 mm; BB 4.12 mm; PNL 216 cmm (= 100ths mm); PNB 241 cmm; ELL 598 cmm; ELB 407 cmm; IO 88 cmm; EB 160 cmm; EH 16 cmm; E 56 cmm; AS (cmm): 236 : 60 : 52 : 36 : 32 : 32 : 28 : 30 : 116 (= club: 44+28+44). Ratios (× 100): BL/BB 222; PNL/PNB 90; ELL/ELB 147; IO/EB 55; EH/E 29; IO/E 157; AFS1/AFS2 115; AFS3/AFS4 113.

Female (nov.) Similar to male but body form more robust. Derm dull piceous-black, slightly more reddish ventrally. Surfaces generally granulate-shagreened with dull satiny lustre, a little smoother and with brighter shine ventrally. Dorsal pubescence of setiform squamae whitish buff and present on sides prothorax and on apical part of elytral disc, the latter mixed with distinct raised curved sensory setae. Finer setae not evident on rostrum and neither these nor squamae present along inner eye margins. This specimen and others of same series in poor condition due to earlier mildewing.

BL 9.41 mm; BB 4.62 mm; PNL 216 cmm (= 100ths mm); PNB 266 cmm; ELL 631 cmm; ELB 457 cmm; IO 96 cmm; EB 168 cmm; EH 16 cmm; E 60 cmm; AS (cmm): 236 : 64 : 56 : 38 : 34 : 28 : 30 : 30 : 112 (= club: 44+28+40). Ratios (× 100): BL/BB 204; PNL/PNB 81; ELL/ELB 138; IO/EB 57; EH/E 27; IO/E 160; AFS1/AFS2 117; AFS3/AFS4 100. These measurements are also included with those of redescription, below.

Redescription (pooled). Gross body length 8.2–9.8 mm (not given in o.d.). Derm subpiceous. Dorsal pubescence of clear gray setae and whitish or whitish buff slender squamae, all mostly adpressed. Rostrum and front subglabrous but with very fine setae sparsely arranged over entire front and inner eye margins without groupings. Antennal scape finely setose. Pronotum sparsely setose centrally on disc with gradually denser setae and/or squamae laterally merging with weak lateral stripe on side. Scutellum glabrous. Elytron submoderately clothed with squamae on disc and tending to form patches. Sensory elytral setae sparse on disc, these ± noticeable, short, curved and raised. Femora appearing rather evenly setose and narrowly squamose on apical 1/3. Tibiae with setae and bristles rather short.

Rostrum and front very smooth and shagreened with a dull satiny shine; surface with moderately distant shallow obsolescent punctures. Eye subovate, moderate in size, and very low, almost reduced to curvature of head. Antennal funicular segment 1 much longer than afs2; afs3 slightly longer than afs4. Prothorax ± subglobose, sides rather evenly and submoderately convex; base nearly straight across middle; disc somewhat evenly convex; median impunctate line narrow obsolescent (± a crease), surface shagreened; discal punctures moderately distant, moderately large but obsolescent; intervals shagreened, dull and weakly shinining. Elytron rather slender, moderately acuminately narrowed preapically and slightly produced apically; disc ± convex; puncture rows mostly irregular with possibly reduced rows to "interstice 8" and ± irregular to confused laterally; punctures shallow but moderately large; surface dull alutaceous; humeral margin reaching preapex, then obliterated, the edge rather smooth; margin evenly beaded for entire length. Ventral surfaces: abdomen generally shagreened. Femora smooth and shagreened overall. Tibiae smooth and shagreened overall. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 11, including lectotype, ♀ nov.): BL 8.23–9.74 mm; BB 3.90–4.70 mm; PNL 183–216 cmm (= 100ths mm); PNB 232–266 cmm; ELL 540–644 cmm; ELB 390–457 cmm; IO 80–96 cmm; EB 152–168 cmm; EH 16–20 cmm; E 56–64 cmm; AFS1 52–64 cmm; AFS2 44–56 cmm; AFS3 32–38 cmm; AFS4 30–34 cmm. Ratios (× 100): BL/BB 204–222; PNL/PNB 77–90; ELL/ELB 133–154; IO/EB 53–60; EH/E 27–32; IO/E 125–166; AFS1/AFS2 108–126; AFS3/AFS4 100–113.

Types. Lectotype label data. OAHU: ♂ R.6 [on card mount with specimen]/ Waimanu mts ft. Oahu/ W.M. Giffard 1908/ W.M. Giffard Collection/ Holotype 319/ *Rhyncogonus obsoletus* Type. R.C.L.P./ + new lectotype label. Note: "Waimanu" is a variant spelling for Waimano; the presence or absence of periods follow the original.

Material examined. **O'AHU**: Ko'olau Range, Waimano area, 1908, W.M. Giffard collector (lectotype ♂, paralectotype ♂); Ko'olau Range, Manana Trail, 13.iii.1976, R.C.A. Rice collector (1♂, 1♀ ex); data except 4.vii.1976 (4♂, 2♀ ex). Example (♂) distributed to USNM.

Collection and taxonomic history. Described by Perkins, 1927: 467–468 ("Oahu: Waimano in the mountains, 1908, without special date, but I presume collected on the same trip that produced

segnis and *freycinetiae* at other rather more distant points in the Koolau range."; 2 male syntypes in BPBM). Both syntypes were dissected by Sharp. Lectotype male here designated to stablize the taxonomy of the species.

Distribution. O'ahu. Ko'olau Range, Waimano, and Manana Trail. These areas are proximal, if not identical. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The elevation is not reported on any of the labels but the habitat is probably one of the Lowland Mesic Forest communities (Gagné & Cuddihy, 1990: 80–85). Plant associates not noted.

Status. Extant. Three collections to 1976. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus oleae Perkins Figs. 23, 91, 131

Rhyncogonus oleae Perkins, 1910, FH 3: 652 (original description); Perkins, 1927, PHES 6: 470.—Swezey, 1934 PHES 8: 528.—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.

Diagnosis. Species group: *freycinetiae* group. With *R. freycinetiae* Perkins, *R. molokaiensis* Perkins. This species is extremely close to *R. freycinetiae*, if distinct. Both species occur in the northern part of the Ko'olau Range, O'ahu. Only a few specimens exist of either species, and some of them are poorly labeled, adding to the confusion. It appears that *R. oleae* represents the northernmost Ko'olau population, with the *R. freycinetiae* population immediately adjacent or possibly sympatric just to the south in the Helemano area. It may be that each is attached to different plant hosts. *R. oleae* appears to differ from *R. freycinetiae* by having heavier dorsal pubescence (vs nearly glabrous), female with base of humeral margin briefly squamose (vs nearly glabrous), female basal part of humeral margin sharper (vs beaded), elytral puncturation more regular. See *R. freycinetiae* for more discussion and differences.

Female (Lectotype). Derm, pubescence, and major features as noted in redescription. BL 9.74 mm; BB 4.70 mm; PNL 232 cmm (= 100ths mm); PNB 266 cmm; ELL 697 cmm; ELB 465 cmm; IO 94 cmm; EB 170 cmm; EH 24 cmm; E 56 cmm; AS (cmm) 264 : 64 : 54 : 36 : 32 : 30 : 30 : 36 : 116 (44+32+40). Ratios (× 100): BL/BB 207; PNL/PNB 88; ELL/ELB 150; IO/EB 55; EH/E 43; IO/E 168; AFS1/AFS2 119 AFS3/AFS4 113.

Male (Allolectotype). Derm, pubescence, and major features as noted below. BL 8.57 mm; BB 3.86 mm; PNL 174 cmm (= 100ths mm); PNB 208 cmm; ELL 573 cmm; ELB 382 cmm; IO 80 cmm; EB 144 cmm; EH 18 cmm; E 52 cmm; AS (cmm) 232 : 64 : 52 : 32 : 32 : 24 : 28 : 30 : 108 (44+32+32). Ratios (× 100): BL/BB 222; PNL/PNB 84; ELL/ELB 150; IO/EB 56; EH/E 35; IO/E 154; AFS1/AFS2 123 AFS3/AFS4 100.

Redescription (pooled). Gross body length 8.5–10.6 mm (not given in o.d.). Derm dark red-fuscous. Dorsal pubescence of mostly whitish adpressed setae with areas of narrow pale buff squamae. Rostrum and front sparsely setose and only a little denser but still sparse along inner eye margins. Antennal scape very finely setose, setae adpressed. Pronotal disc with fine and sparse pubescence blending with a weak to moderate lateral stripe at side, the stripe densest at base. Scutellum squamose. Elytron sparsely setose on disc where setae tend to be short evenly distributed (one specimen with setae a little heavier and closer on apical half). Ventral surfaces submoderately pubescent, of fine setae, densest on apical 2 abdominal sterna in male. Femora with setae and setiform squamae, the latter thicker and white and forming a preapical pale band, sometimes the latter concentrated preapically and ventrally. Tibiae set with raised setae and bristles of rather short length, plus some elongate slender setae.

Rostrum and front flattened and rather smooth, substrigose to moderately strigose with elliptical punctures on each side of median impunctate area on rostrum, punctures at anterior extremity and vertex often smaller and circular; intervals smooth shining, sometimes with a hint of granulosity. Eye circular, moderately large and not strongly raised. Antennal funicular segment 1 slightly to distinctly longer than afs2; afs3 subequal to or slightly longer than afs4. Prothorax subglobose, sides moderately convex; anterior margin nearly straight or feebly concave across middle; base nearly straight to feebly concave across middle; disc rather evenly convex but obscurely flattened prebasally; median impunctate line barely raised, sometimes obsolete, the surface smooth shining;

discal punctures moderately close, of medium to large sizes; intervals smooth shining. Elytron just robust, preapical closure subevenly narrowed, very weakly sinuate before apex; disc rather evenly convex; puncture rows regular to 8, then irregular to confused to humeral margin; interstices either flattened or slightly convex; interstices 4 and 8 sometimes a little broader but not or barely higher than others; punctures moderately small; surface smooth-alutaceous, with small grains occasional on lateral part of disc; humeral margin reaching apex, the edge smooth to about basal 3/5, then set with small sharp denticules along remainder; margin entirely beaded to ± sharp in both sexes. Ventral surfaces smooth-finely granulate with a satiny sheen; ; abdominal sterna 1+2 gently convex in ♀, weakly and gradually concave in male. Femora smooth-granulate and finely asperate. Tibiae smooth-granulate-asperate. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 8, including lectotype, allolectotype): BL 8.57–10.58 mm; BB 3.86–4.87 mm; PNL 174–232 cmm (= 100ths mm); PNB 208–266 cmm; ELL 573–706 cmm; ELB 382–465 cmm; IO 80–96 cmm; EB 144–176 cmm; EH 18–24 cmm; E 52–60 cmm; AFS1 64–116 cmm; AFS2 52–104 cmm; AFS3 32–42 cmm; AFS4 30–38 cmm. Ratios (× 100): BL/BB 203–222; PNL/PNB 73–89; ELL/ELB 141–150; IO/EB 48–58; EH/E 35–43; IO/E 140–171; AFS1/AFS2 104–130; AFS3/AFS4 100–113.

Types. Lectotype label data: Waialua Mts Oahu 1902 R.CL.P. [handwritten in ink on small label]/ + new lectotype label.

Material examined. **O'AHU**: Waialua Mts., 1902, R.C.L. Perkins collector (lectotype ♀); Waialua, iv.1902, Perkins no. 851, Perkins (paralectotype ♀, BMNH); Waimea, 550 m (1800 ft), Perkins (paralectotype ♀); Kawailoa, iv.1901, Perkins (paralectotype ♂, dissected, BMNH); Halemano, 610 m (2000 ft), Perkins no. 903, R.C.L. Perkins Collection, Perkins (allolectotype ♂); Halemano, 610 m (2000 ft), Fauna Hawaiiensis Collection, Perkins Last Expedition, Perkins no. 903, Perkins (paralectotype ♂ and ♀); no locality except 2058 [Giffard number], *Rhyncogonus* sp. Perkins [in Perkins handwriting], W.M. Giffard Collection, Perkins (paralectotype ♂); no data at all but probably collected by Perkins [cardmount and pin as used by Perkins] (1 ♂ ex).

Collection and taxonomic history. Described by Perkins, 1910: 652 ("Oahu, Waialua 1200 ft.; on *Olea*, *Euphorbia*, etc."; syntypes in BMNH, BPBM). Eight specimens are thought to be syntypes, though not all labels give Waialua. Helemano, Kawailoa, and Waimea are the other localities given on labels and all are from Waialua District (Waimea adjacent to preceding); all specimens were collected by Perkins and would have been available to him by the time he described *R. oleae*. Perkins apparently did not regard any of these as *R. freycinetiae* or else he could have mentioned it at the time he described *R. oleae*. Unfortunately, none of these specimens include plant host information, so we don't know which were collected from *Olea* or *Euphorbia* or whatever. The number of syntypes was not reported in the original description but both sexes were treated and at least two plant hosts were mentioned. Two BMNH syntypes (♂ and ♀) were seen through the kindness of Ms Sharon Shute, London. Criteria for selection of lectotype: 1) a ♀, thus a better comparison to the ♀ holotype of *freycinetiae*, 2) specimen in good condition, and 3) bearing a Waialua label, to dispel any doubt over the unpublished localities. Only one specimen fits this, a BPBM ♀, which is presently designated as the lectotype to stablize the taxonomy of the species.

Distribution. O'ahu. N end of the Ko'olau Range at around 500–600 m elevation. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The habitat is likely Lowland Mesic Forest (Gagné & Cuddihy, 1990: 80–82) but the exact collection sites are not known. Plant associates not noted.

Status. Extant. Three collections to 1902. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus olokui Samuelson, **n. sp.** Figs. 34, 104, 147

Diagnosis. Species group: *sordidus* group, *giffardi-olokui* subgroup. With *R. giffardi* Sharp. Isolated in its subgroup (as keyed) because of the strigose rostrum and ± cylindrical prothorax. United with *R. giffardi* because of the similar slender and open spermatheca. Differs from *R. sordidus* Perkins by having prothorax only weakly swollen laterally and appearing ± elongate (vs quite convex laterally and appearing globose), pronotum more evenly convex basally (vs flattened to depressed) and pronotal discal vestiture evident: sparsely setose (vs microsetose: essentially glabrous) and elytral

form tending to be more robust.

Male (Holotype). Gross body length 9.1 mm. Derm generally dark red-fulvous on most surfaces but the elytra slightly paler reddish; antenna as preceding; legs paler orangish fulvous. Dorsal pubescence of silvery clear setae and whitish to whitish buff lanceolate squamae. Rostrum and front sparsely, inner eye margins with a line of white narrow squamae. Antennal scape finely setose, setae largely adpressed, a few slightly raised. Pronotal disc appearing nearly glabrous, sparsely microsetose with setae adpressed, inconspicuous except for a few anteriorly which blend with indistinct lateral stripe of narrow squamae, the stripe heaviest and mostly conspicuous near base and more diffused anteriorly. Scutellum with fine narrow squamae. Elytral disc rather evenly clothed with whitish setiform squamae; apical part of disc with slightly raised sensory setae present but these not conspicuous; infolded surface subevenly clothed with setiform squamae. Ventral surfaces finely setose but the posterior corners of the metasternum with a patch of whitish squamae and the apical abdominal sternum densely clothed with fine suberect setae. Trochanteral bristles single. Femora clothed with setae and slender white squamae, the latter forming a preapical denser patch. Tibiae set with fine setae and bristles of submoderate length.

Rostrum and front flattened but rostral disc with median raised impunctate area, surface otherwise closely punctate and substrigose, punctures ± shallow and not well defined though mostly elliptical, intervals smooth shining but with a hint of granulosity; vertex with punctures like those of rostrum. Eye subcircular, submoderate in size and fairly strongly elevated. Antennal scape attaining middle of prothorax; antennal funicular segment 1 barely longer than afs2; afs3 slightly longer than afs4. Prothorax subelongate, sides weakly convex, nearly subparallel; base slightly emarginate across middle; disc subevenly convex with basal median area slightly flattened; median impunctate line elevated and smooth shining but obsolete either end; discal punctures close, fairly large and shallow; intervals finely roughened alutaceous-granulate and subshining but with a harder appearance than the duller elytra. Elytron submoderately robust, preapical closure rather gradual and weakly sinuate; disc moderately convex; puncture rows slightly irregular to 5, then more confused to humeral margin; interstices and intervals slightly swollen around punctures rather equally so; punctures moderate in size and depth; surface dull alutaceous, subopaque; humeral margin extending to apex, the edge nearly smooth but with a few small grains along apical 1/3; margin rather evenly beaded from base through middle and more sharply beaded preapically; infolded surface similar to disc. Ventral surfaces shallowly punctate-granulose on thorax with lustrous shine; abdominal sterna 1+2 with large shallow punctures, intervals smooth-alutaceous, shinier than metathorax; sterna 3–4 punctate; 5 punctulate; the division between 1+2 connate medially and finely sutured laterally, the surface of 1+2 ± flattened. Femora smooth-alutaceous with low smooth asperations. Tibiae granulate-asperate.

BL 9.07 mm; BB 4.28; PNL 208 cmm (= 100ths mm); PNB 241 cmm; ELL 606 cmm; ELB 423 cmm; IO 102 cmm; EB 174 cmm; EH 20 cmm; E 54 cmm; AS (cmm): 252 : 52 : 50 : 40 : 36 : 30 : 34 : 36 : 128 (= club: 52+32+44). Ratios (× 100) BL/BB 212; PNL/PNB 86; ELL/ELB 142; IO/EB 59 EH/E 37; IO/E 189; AFS1/AFS2 104; AFS3/AFS4 111.

Female (Allotype). Derm and vestiture similar to male. Differs from male in having pronotal punctures more distinct, the intervals flatter and shinier; elytron stouter with preapical closure more abrupt and sinuate and elytral humeral margin rather sharply beaded throughout.

BL 10.58 mm; BB 5.38; PNL 253 cmm (= 100ths mm); PNB 278 cmm; ELL 722 cmm; ELB 523 cmm; IO 116 cmm; EB 192 cmm; EH 24 cmm; E 60 cmm; AS (cmm): 288 : 68 : 60 : 40 : 36 : 32 : 34 : 36 : 136 (= club: 56+36+44). Ratios (× 100) BL/BB 197; PNL/PNB 91; ELL/ELB 138; IO/EB 60 EH/E 40; IO/E 193; AFS1/AFS2 113; AFS3/AFS4 111.

Paratypes. Similar to above in major features. Aedeagus: apex as figured. Spermatheca as figured.

Range (entire type series, n = 6): BL 8.23–10.58 mm; BB 3.70–5.38 mm; PNL 199–253 cmm (= 100ths mm); PNB 224–278 cmm; ELL 556–722 cmm; ELB 361–548 cmm; IO 92–116 cmm; EB 156–192 cmm; EH 18–26 cmm; E 46–60 cmm; AFS1 52–68 cmm; AFS2 50–60 cmm; AFS3 34–40 cmm; AFS4 32–40 cmm. Ratios (× 100): BL/BB 191–227; PNL/PNB 84–93; ELL/ELB 132–154; IO/EB 58–63; EH/E 36–46; IO/E 177–223; AFS1/AFS2 100–113; AFS3/AFS4 100–120.

Types. Holotype ♂, allotype ♀, (BPBM 16,393), 3 paratype ♂, 5 paratype ♀, MOLOKA'I: Olokui Trail, 670 m (2200 ft), 5.ix.1976, S.L. Montgomery and R.C.A. Rice collectors. Paratypes (pairs) distributed to BMNH, USNM.

Collection and taxonomic history. This new species is named for its provenance on Moloka'i.

Distribution. Moloka'i. Mountains. Olokui Trail at about 670 m. Restricted montane distribution: Pattern 6.

Habitat and life history notes. The habitat is possibly Lowland Mesic Forest (Gagné & Cuddihy, 1990: 80–85). No information on plant associates.

Status. Extant. Original series only, taken in 1976. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus pi Samuelson, **n. sp.** Figs. 41, 83

Diagnosis. Species group: *stygius* group. With *R. segnis* Perkins, *R. stygius* Perkins. Differs from *R. segnis* in having the rostrum relatively smooth (vs strigose); differs from *R. stygius* by having the pronotal punctures coarser with swollen to reticulate intervals (vs finer punctures with flatter interspaces).

Male (Holotype). Gross body length 10.6 mm. Derm: body surfaces dull blackish orange-fuscous; pronotal basal margin narrowly brighter orange; appendages dark red-fuscous. Dorsum appearing subglabrous with limited weak patches of white squamae on sides of prothorax, the only conspicuous markings; pubescence otherwise of fine silvery setae and slightly heavier whitish setae. Rostrum and front sparsely setose on disc, slightly more densely at sides and along inner eye margins. Antennal scape finely setose, the setae mostly adpressed. Pronotal disc appearing glabrous (microsetose at 25 ×); prothorax submoderately squamose along each side, squamae small along most of area but becoming larger and denser preapically and near extreme base. Scutellum glabrous. Elytron appearing glabrous (microsetose at 25 ×). Ventral surfaces: thorax submoderately clothed with slender white squamae at sides, with denser patches near coxae; abdominal sterna 1+2 rather sparsely clothed but sterna 3–5 subequally and densely setose. Trochanteral bristles possibly single (some damage). Femora finely and ± evenly setose with only a limited patch of preapical heavier whitish squamae on retrotibial surface. Tibiae fitted with short bristles and only sparsely set with long slender setae on retrofemoral surface.

Rostrum and front largely stigose and shagreened. Eye large, subovate, and submoderately raised. Antennal scape barely exceeding middle of pronotum; antennal funicular segment 1 much longer than afs2; afs3 slightly longer than afs4. Prothorax globose, sides convex; pronotal disc evenly convex; median impuncate line obsolescent: faint along anterior half, surface granulate with dull shine as are intervals between punctures; punctures moderate, close, and deep: commonly 3 × as large as intervals; intervals raised, convex. Elytron subrobust; preapical closure nearly straight to apex; disc convex; puncture rows with all 12 rows distinct to humeral margin but rows becoming slightly irregular preapically; punctures moderately small and deep; interstices feebly convex, uniform: 4 and 8 not higher or broader than adjacent ones; surface smooth but dull, opaque, and bearing a few grains sublaterally; humeral margin continued to apex, the edge with occasional grains along basal 2/3 and small blunt teeth along apical 1/3; margin beaded for entire length but basal part more weakly developed; infolded surface dull opaque as above. Ventral surfaces smooth-subshagreened-punctate with a dull satiny shine; abdominal sterna 1+2 with a deep arched impression across middle on 1 and flatter on 2, the suture dividing them quite connate across middle. Femora smooth to finely granulate, shining. Tibiae ± smooth-granulate with low asperites, surface duller than femur. Aedeagus: apex as figured.

BL 10.58 mm; BB 4.45 mm; PNL 232 cmm (= 100ths mm); PNB 274 cmm; ELL 697 cmm; ELB 440 cmm; IO 88 cmm; EB 180 cmm; EH 24 cmm; E 68 cmm; AS (cmm): 292 : 84 : 64 : 44 : 40: 38 : 36 : 40 : 142 (= club: 56+38+48) Ratios (× 100): BL/BB 238; PNL/PNB 85; ELL/ELB 158; IO/EB 49; EH/E 35; IO/E 129; AFS1/AFS2 131; AFS3/AFS4 110.

Types. Holotype ♂ (BPBM 16,394), O'AHU: NW Ko'olau Range, 610 m (2000 ft), no date, 858 [Perkins field number], R.C.L. Perkins collector.

Collection and taxonomic history. This new species was collected during the Fauna Hawaiiensis survey but remained unidentified until the present study. It is a fairly distinct species and has not turned up since the original collection. The exact collecting site remains a mystery even though Perkins' field number broadly indicates somewhere within the NW part of the Ko'olau Range. If and when this species is again collected, we should expect to be very close to the type locality, for the range of this species may be quite restricted. The name takes the Greek letter *pi,* and

is treated as a noun in apposition. The "p" is meant to remind readers of R.C.L. Perkins, whose name was previously used for the Marquesas species: *R. perkinsi* Van Dyke (1932: 46).

Distribution. O'ahu. NW part of Ko'olau Range. Restricted montane distribution: Pattern 4.

Life history, habitat and associated species. Life history information unknown. The habitat is probably Lowland Mesic Forest (Gagné & Cuddihy, 1990: 80–83).

Status. Unknown. Unique, original specimen taken around. 1900.

Rhyncogonus ricei Samuelson, **n. sp.** Figs. 55, 77, 120

Diagnosis. Species group: *vittatus* group. With *R. depressus* Perkins, *R. squamiger* Perkins, *R. vittatus* Perkins. Similar to *R. depressus* in having elytral vestiture setose or narrowly squamose (vs broadly squamose); differs from *R. depressus* in having elytral form more parallel-sided with preapex more abruptly narrowed.

Male (Holotype). Gross body length 12.6 mm. Derm dark red-fuscous through head, pronotum, and antenna; elytron, thoracic and abdominal sterna, and legs slightly paler red-fuscous. Dorsal pubescence of fine clear silvery setae and narrow but broader squamae, these latter either whitish or orange-ochraceous. Rostrum and front submoderately and evenly setose and with slender white squamae lining inner margins. Antennal scape setose, the setae raised 30 or 40 degrees and not extremely long. Pronotal disc finely setose, these merging with heavier setiform squamae on each side; lateral stripe of prothorax rather weak and whitish through middle but strongly tufted with ochraceous at base and again more weakly apically. Scutellum tufted with whitish squamae. Elytron very thinly but evenly setose on disc; discal sensory setae not evident; lateral infolded surface with some linear patches of ochraceous including along middle of humeral margin. Ventral surfaces moderately clothed with setiform squamae, these closer on apical abdominal sterna with sternum 5 pilose. Trochanteral bristles single. Femora thinly clothed with fine slender setae, metafemur additionally with a zone of ochraceous squamae mostly along fore-margin from base to apical 1/3. Tibiae with very fine slender erect setae, these especially strongly developed on protibia; meso- and metatibiae with a sparse mixture of shorter setae.

Rostrum and front finely strigose, the raised intervals smooth shining; discal punctures small. Eye circular and moderately large and raised. Antennal funicular segment 1 slightly longer than afs2; afs3 distinctly longer than afs4. Prothorax subcylindrical with sides moderately convex; anterior distinctly concave across middle but posterior margin barely so; disc ± evenly convex with basal part somewhat flattened; median impunctate line incomplete but moderately developed along mid portion, the surface smooth shining; discal punctures mostly small to submoderate in size with intervals raised and subreticulate, the surface smooth shining. Elytron elongate but not very narrow, gently convex along middle to more abruptly narrowed preapical closure with margin feebly sinuate before slightly extended apex; disc submoderately convex, not quite flattened; puncture rows distinct to 4, somewhat distinct to irregular to 8 and mostly irregular beyond; interstices swollen, 4 slightly raised; surface subshining; intervals laterally especially subasperate and bearing smooth grains; humeral margin continued to apex, weakly beaded from base to middle part, then more sharply beaded apically, the edge in outline somewhat irregular with rounded dentations, these becoming coarser and serrate apically; lateral infolded surface similar to disc. Ventral surfaces: prosternum smooth shining, surfaces otherwise closely punctate with weak granulation producing a moderately bright shine; abdominal sterna 1+2 well-impressed centrally. Femora quite smooth to finely alutaceous apical part. Tibiae rather smooth-granulate-punctate with low shining asperations.

BL 12.60 mm; BB 5.38 mm; PNL 257 cmm (= 100ths mm); PNB 299 cmm; ELL 872 cmm; ELB 523; IO 116 cmm; EB 206 cmm; EH 28 cmm; E 68 cmm; AS (cmm): 328 : 68 : 60 : 44 : 36 : 38 : 36 : 38 : 124 (= club: 52+32+40). Ratios (× 100): BL/BB 234; PNL/PNB 86; ELL/ELB 167; IO/EB 56; EH/E 41; IO/E 171; AFS1/AFS2 113; AFS3/AFS4 122.

Female (Allotype). Coloration as in holotype but vestiture denser, conspicuously ochraceous but thinner on central pronotal and elytral discs. Antennal scape with suberect setae rather short but distinctly raised. Prothorax with lateral stripe on each side thicker and more evenly ochraceous. Elytral infolded region more heavily marked. Ventral surfaces moderately clothed with apical abdominal sterna more densely so. Femora all with a zone of ochraceous squamae.

BL 13.10 mm; BB 5.88 mm; PNL 249 cmm (= 100ths mm); PNB 307 cmm; ELL 971 cmm; ELB 573; IO

112 cmm; EB 204 cmm; EH 28 cmm; E 64 cmm; AS (cmm): 296 : 68 : 56 : 42 : 33 : 38 : 32 : 32 : 116 (= club: 52+32+32). Ratios (× 100): BL/BB 223; PNL/PNB 81; ELL/ELB 170; IO/EB 55; EH/E 44; IO/E 175; AFS1/AFS2 121; AFS3/AFS4 111.

Paratypes. Males in every case have a very inconspicuous finely setose pubescence on the pronotal disc and elytron. Females have slender squamae (vs setae) over these areas: sparsely so on the pronotal disc but subuniformly and much more densely on the elytron. One male has an unusually elongated prothorax: the PNL/PNB ratio "(97)" noted below. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 21, including holotype, allotype): BL 9.41–14.11 mm; BB 3.95–6.55 mm; PNL 195–274 cmm (= 100ths mm); PNB 237–328 cmm; ELL 639–996 cmm; ELB 382–623 cmm; IO 84–126 cmm; EB 160–224 cmm; EH 18–36 cmm; E 52–76 cmm; AFS1 54–76 cmm; AFS2 44–64 cmm; AFS3 32–48 cmm; AFS4 28–40 cmm. Ratios (× 100): BL/BB 210–238; PNL/PNB 78–87 (97); ELL/ELB 140–170; IO/EB 50–60; EH/E 34–47; IO/E 147–200; AFS1/AFS2 113–136; AFS3/AFS4 100–122.

Types. Holotype, allotype, 2♂, 1♀ paratypes (BPBM 16,395), KAUA'I: Koke'e Road, Hunter Checking Station, 17.iv.1976, R.C.A. Rice collector; Koke'e Road, Power Substation, 865 m (2840 ft), 27.iii.1976, Rice (2♂ paratypes); Koke'e Road, Power Substation, 870 m (2850 ft), 17.iv.1976, Rice (3♀ paratypes); Koke'e Road, 9 mile, 975 m (3200 ft), 31.v.1976, Rice (6♂, 4♀ paratypes); Koke'e Road, Waimea Canyon Lookout, 1000 m (3300 ft), 17.iv.1976, Rice (3♂, 1♀ paratypes); Upper Miloli'i Ridge Road, 28.viii.1975, Rice (1♂, 1♀ paratype); Koke'e, near Pu'u Ka Pele, 1050 m (3450 ft), 14.viii.1990, at night on ground near *Acacia koa*, W.D. Perreria collector (Perreria Collection); Hā'ele'ele Ridge, 17.v.1997, M.J. & C.A. Tauber collectors (1♀ paratype, CUIC). Paratypes distributed to BMNH (♂), CAS (♂), MNHN (♂), USNM (pair).

Collection and taxonomic history. This species was missed in the Fauna Hawaiiensis survey and did not come to light until collected by R.C.A. Rice. These specimens were taken at several locations along the upper part of Koke'e Road and Upper Miloli'i Ridge Road, a region that other collectors passed through without collecting it. Robin C. A. Rice of Kipu Ranch, Kaua'i, an extraordinary collector, who had made fine collections of *Rhyncogonus* in the 1970s, had labeled this species as a "n. sp." in his preliminary studies. It is with pleasure that I dedicate this insect in his honor.

Distribution. Kaua'i. Koke'e region. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The Koke'e area of Kaua'i includes Montane Mesic Forest communities (Gagné & Cuddihy, 1990: 97–98). *Acacia koa* is the only plant remotely associated from the labels but no definite records have been noted; the W.D. Perreria specimen was collected on the ground at night near *Acacia koa*.

Status. Extant. Various collections to 1990. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus saltus Perkins Figs. 52, 113, 154

Rhyncogonus saltus Perkins, 1924, PHES 5: 379 (original description).—Swezey, 1925, PHES 6: 9.—Perkins, 1927, PHES 6: 471.—Swezey, 1934, PHES 8: 367; Swezey, 1934, PHES 8: 528.—Zimmerman, 1936, PHES 9: 130.—Van Dyke, 1937, BMOP 13: 126.—Swezey, 1940, PHES 10: 372; Swezey, 1954, BMSP 44: 35.

Diagnosis. Species group: *vestitus* group. With *R. bryani* Perkins, *R. extraneus* Perkins, *R. gagneorum* n. sp., *R. kapapa* n. sp., *R. vestitus* Sharp. This species and *R. gagneorum* differ from others in group by having stronger preapical markings of white squamae on femora. Differs from the latter by having a denser covering of squamae on elytral disc (vs more thinly setose).

Female (Holotype). Derm, pubescence, and major features as noted in redescription. BL 7.56 mm; BB 3.70 mm; PNL 191 cmm (= 100ths mm); PNB 220 cmm; ELL 540 cmm; ELB 365 cmm; IO 96 cmm; EB 156 cmm; EH 20 cmm; E 48 cmm; AS (cmm): 180 : 40 : 32 : 28 : 26 : 24 : 24 : 24 : 88 (= club: 38+24+26). Ratios (× 100): BL/BB 205; PNL/PNB 87; ELL/ELB 148; IO/EB 62; EH/E 42; IO/E 200; AFS1/AFS2 125; AFS3/AFS4 108.

Male (nov.). Derm, pubescence, and major features as noted below. BL 6.30 mm; BB 3.02 mm;

PNL 166 cmm (= 100ths mm); PNB 191 cmm; ELL 440 cmm; ELB 299 cmm; IO 80 cmm; EB 134 cmm; EH 18 cmm; E 44 cmm; AS (cmm): 164 : 40 : 34 : 26 : 24 : 20 : 22 : 20 : 92 (club = 36+24+32). Ratios (× 100): BL/BB 208; PNL/PNB 87; ELL/ELB 147; IO/EB 60; EH/E 41; IO/E 182; AFS1/AFS2 118; AFS3/AFS4 108.

Redescription (pooled). Gross body length 5.8–7.8 mm (o.d. 8 mm). Derm occasionally red-fuscous to commonly subpiceous. Dorsal pubescence whitish with a tinge of buff of setae and squamae. Rostrum and front sparsely setose but squamose along inner eye margins. Antennal scape setose, setae mostly adpressed. Pronotum submoderately squamose on disc, these blending with heavier squamae at side forming a moderately strong lateral stripe. Scutellum with a densely squamose patch. Elytron subdensely clothed with squamae on disc, these tending to form stripes in some individuals. Raised sensory setae fairly conspicuous on elytral disc, these slightly curved, suberect and of submoderate length. Ventral surfaces thinly setose in ♀ to submoderately setose, the setae becoming densely pilose on abdominal sternum in male. Femora clothed with setae and squamae with the latter more aggregated preapically and tending to form a band, this usually denser ventrally. Tibiae set with erect setae and bristles of submoderate length.

Rostrum and front strigose, ridges smooth shining, grooves with slight granulation. Eye circular, small, and strongly raised. Antennal funicular segment 1 slightly longer than afs2; afs3 subequal to slightly longer than afs4. Prothorax subcylindrical, sides slightly convex; base with weak emargination before scutellum; disc evenly convex; with median impunctate line sometimes obsolete, usually narrow smooth shining; discal punctures fairly large and close; intervals smooth but with a hint of granulation. Elytron moderately robust with preapical closure rather feebly sinuate before apex; disc slightly flattened in male, convex in ♀; puncture rows ± distinct to irregular internally to 4 or 5, then irregular to confused to humeral margin; interstices flattened; punctures moderate in size and depth; surface dull alutaceous with numerous micrograins; humeral margin extending not quite to apex, margin in male rounded from base to middle, then somewhat beaded apically, margin in ♀ obsoletely beaded along entire length; edge lacking teeth or rugosities. Ventral surfaces granulate-punctate with a dull shine on thorax and abdominal sterna 1+2, the latter more finely granulate but bearing fairly large punctures, the remainder more finely granulate-punctulate; abdominal surface broadly and moderately concave on 1+2 in male and flat to weakly concave in ♀. Femora smooth-alutaceous with some granulation. Tibiae smooth-granulate-asperate. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 7, including holotype, ♂ nov.): BL 5.71–7.73 mm; BB 2.94–3.86 mm; PNL 149–191 cmm (= 100ths mm); PNB 166–224 cmm; ELL 407–540 cmm; ELB 291–382 cmm; IO 72–96 cmm; EB 120–156 cmm; EH 18–24 cmm; E 36–48 cmm; AFS1 36–42 cmm; AFS2 30–36 cmm; AFS3 24–26 cmm; AFS4 22–24 cmm. Ratios (× 100): BL/BB 188–223; PNL/PNB 85–98; ELL/ELB 140–154; IO/EB 59–62; EH/E 41–56; IO/E 179–211; AFS1/AFS2 106–125; AFS3/AFS4 100–109.

Holotype label data: Kolekole Pass 5–9–20 Oahu [handwritten in ink]/ *Campylotheca* [typeset]/ O.H. Swezey Collector [typeset]/ Holotype [typeset]/ *Rhyncogonus saltus* Type. R.C.L.P. [handwritten in ink]. BPBM type number is 3962.

Material examined. **O'AHU**. Wai'anae Mts, Kolekole Pass, 9.v.1920, *Campylotheca*, O.H. Swezey collector (holotype); same loc., 10.ii.1924, Swezey (21 ex, including 1 whole and 1 partial specimen via Perkins Collection); same loc., 13.xi.1934, *Bidens*, E.C. Zimmerman collector (29 ex); same data, except 13.xi.1935 (18 ex); same loc., i.1954, *Bidens*, E.J. Ford collector (4 ex); Kolekole Pass-Puu Hapapa Trail, Wai'anae Mts, 16.v.1976, R.C.A. Rice collector (42 ex); same as loc. as preceding, 610 m (2000 ft), 1.xii.2000, mating pair on *Hedyotis*, V. Costello collector (2 ex in 95% EtOH). Notes: *Campylotheca* = junior synonym of *Bidens*; not all specimens cited for Ford, Swezey, or Zimmerman with host label. Examples (pairs) distributed to BMNH, CAS, MNHN, USNM.

Collection and taxonomic history. Described by Perkins, 1924: 379–380 ("Oahu, Wai'anae Mts., where a single specimen was collected May 9, 1920, by Mr. O.H. Swezey, near the Kolekole Pass, on the native Composite, *Campylotheca menziesii*."; type in BPBM).

Distribution. O'ahu. Kolekole Pass, Wai'anae Range. Restricted montane distribution: Pattern 4.

Habitat and life history notes. *Rhyncogonus saltus* appears to be associated with *Bidens menziesii* in a rather limited area on Kolekole Pass. The habitat is rather disturbed from clearing, roadcuts, and introduced plants. The plant formation is essentially a Lowland Dry Mixed community (Gagné & Cuddihy, 1990: 77–80).

Status. Extant. Various collections to 2000. Reasonably common in the 1920–1930s and 1970s. Not collected during field work in the area in 1995–1996 but these surveys were general and conducted during the day when *R. saltus* would be less likely to be seen. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus segnis Perkins Figs. 42, 84

Rhyncogonus segnis Perkins, 1927, PHES 6: 466–467 (original description).—Swezey, 1934, PHES 8: 528; Swezey, 1936, PHES 9: 194.

Rhyncogonus segnis segnis: Zimmerman, 1956: 168.—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.

Diagnosis. Species group: *stygius* group. With *R. pi* n. sp., *R. stygius* Perkins. Differs from *R. stygius* in paler red-fuscous coloration and absence of squamose patches on elytral infolded part.

Female (Lectotype). Derm, pubescence, and major features as noted in redescription. BL 14.45 mm; BB 6.89 mm; PNL 307 cmm (= 100ths mm); PNB 349 cmm; ELL 1029 cmm; ELB 672 cmm; IO 140 cmm; EB 236 cmm; EH 28 cmm; E 84 cmm; AS (cmm): 360 : 90 : 84 : 56 : 44 : 42 : 42 : 40 : 140 (= club: 52+36+52). Ratios (× 100): BL/BB 210; PNL/PNB 88; ELL/ELB 153; IO/EB 59; EH/E 33; IO/E 167; AFS1/AFS2 107; AFS3/AFS4 127.

Male (Allolectotype). Derm, pubescence, and major features as noted below. BL 13.78 mm; BB 5.88 mm; PNL 291 cmm (= 100ths mm); PNB 324 cmm; ELL 929 cmm; ELB 581 cmm; IO 112 cmm; EB 208 cmm; EH 26 cmm; E 80 cmm; AS (cmm): 388 : 92 : 84 : 64 : 48 : 46 : 44 : 44 : 152 (= club: 60+40+52). Ratios (× 100): BL/BB 234; PNL/PNB 90; ELL/ELB 160; IO/EB 54; EH/E 33; IO/E 148; AFS1/AFS2 114; AFS3/AFS4 133.

Redescription (pooled). Body length 13.7–14.5 mm. (o.d. "A large species, about the size of *blackburni* and *stygius* ..."). Derm red-fuscous. Dorsal pubescence of fine silvery clear setae and whitish lanceolate squamae. Rostrum and front sparsely setose and with a line of slightly heavier setae or narrow squamae along inner eye margins. Antennal scape finely setose, setae adpressed to feebly raised. Pronotum very sparsely setose on disc, these becoming thicker at side but lacking a lateral stripe, squamae located only as a basal patch on each side. Scutellum microsetose which otherwise appears glabrous. Elytron sparsely clothed with fine adpressed setae on disc, these becoming denser and stouter along humeral margin. Ventral surfaces finely setose, the setae silvery, submoderately covering surfaces but apical 3 abdominal sterna with setae a little closer and longer in ♀ and apical sternum in male more densely clothed. Femora mostly setose but with additional squamae ventrally on preapex, these not forming a distinct preapical band. Tibiae set with setae and bristles of submoderate length.

Rostrum and front irregularly flattened, smooth but reticulately punctate to weakly rugulose especially along interocular area, intervals smooth shining though with a hint of granulation. Eye circular, moderately large and only slightly raised. Antennal funicular segment 1 longer than afs2; afs 3 much longer than afs4. Prothorax subglobose, sides convex, briefly constricted at lower side near base; base slightly to moderately emarginate across middle (before scutellum); disc somewhat convex and slightly flattened or depressed basally; median impunctate line narrow, smooth shining; discal punctures moderately small and becoming much smaller at side of prothorax; intervals smooth shining. Elytron slightly narrower than average, preapical closure gradual to slightly produced apex; puncture rows distinct to 8, then irregular to confused laterally; interstices slightly swollen, 4 and 8 barely more convex; punctures moderately small but fairly deep; intervals alutaceous with soft shine, surface also bearing small grains; humeral margin reaching elytral apex in both sexes, the edge obsoletely serrate along preapex: margin in ♀ basally strongly produced, then sharp to apex, margin in male rather sharp throughout. Ventral surfaces smooth-subgranulate, shining; abdominal sterna 1+2 ± flattened in ♀ and broadly and shallowly concave in male. Femora finely granulate, obscurely punctulate. Tibiae tending to be nearly straight and only slightly bent preapically, surface granulate-asperate. Aedeagus (paralectotype): apex as figured.

Range (entire type series, n = 3): BL 13.78–14.45 mm; BB 5.88–6.89 mm; PNL 274–307 cmm (= 100ths mm); PNB 324–349 cmm; ELL 929–1029 cmm; ELB 581–672 cmm; IO 112–140 cmm; EB 208–236 cmm; EH 24–28 cmm; E 72–84 cmm; AFS1 90–96 cmm; AF2 76–84 cmm; AFS3 56–64 cmm; AFS4 44–48 cmm. Ratios

(× 100): BL/BB 210–234; PNL/PNB 79–90; ELL/ELB 153–160; IO/EB 54–59; EH/E 33 (all); IO/E 148–183; AFS1/AFS2 107–121; AFS3/AFS4 127–133.

Types. Lectotype label data. Type. R.C.L.P. [handwritten on card to which specimen is micropinned] Holotype 318 [added to top of card]/ Wahiawa ft. Oahu ex *Freycinetia*/ Kuhns Coll Tunnel 33/ W.M. Giffard 24.vii.08/ W.M. Giffard Collection/ Holotype/ *Rhyncogonus segnis* Type. R.C.L.P./ + new lectotype label.

Material examined. **O'AHU**: Wahiawa, Tunnel 33, 24.vii.1908, ex *Freycinetia*, Kuhns collector, with W.M. Giffard co-collector? (lectotype, allolectotype, paralectotype, all in BPBM).

Collection and taxonomic history. Described by Perkins, 1927: 466–467 ("Oahu: Wahiawa, "from *Freycinetia*, Kuhns coll. Tunnel 33."; types in BPBM). The description is based on 3 syntypes. The female labeled "holotype" is hereby designated as the lectotype to stabilize the taxonomy of the species; the male, the allolectotype; the remaining female, the paralectotype.

Distribution. O'ahu. Ko'olau Range, E of Wahiawa. Restricted montane distribution: Pattern 4.

Habitat and life history notes. Specimens were collected from *Freycinetia*. The leeward slopes of the Ko'olau Range embrace Lowland Mesic Forest (Gagné & Cuddihy, 1990: 80–85) in the vicinity where the type series was collected.

Status. Extant. Known only from original series, taken in 1908. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus sharpi Perkins Figs. 26, 94, 134

Rhyncogonus sharpi Perkins, 1910, FH 3: 650–651 (original description).—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.

Diagnosis. Species group: *sharpi* group. With *R. welchii* Perkins. These species might appear distant from outward appearances but both have dorsal surfaces convex, smooth, clothed with squamae; trochanteral bristles commonly double, sometimes triple. Differs from *R. welchii* in having eye strongly produced (vs flattened) and elytral stripes quite diffused (vs discrete stripes). This species resembles *R. simplex* Perkins (*simplex* group) from Moloka'i and O'ahu; differs from *R. simplex* by having elytron more sinuately narrowed at preapex (vs a nearly straight closure) and the dorsal elytral surface clothed with heavier squamae (vs setae or fine squamae) .

Male (Lectotype). Derm, pubescence, and major features as noted in redescription. BL 10.25 mm; BB 4.37 mm; PNL 228 cmm (= 100ths mm); PNB 257 cmm; ELL 697 cmm; ELB 432 cmm; IO 94 cmm; EB 178 cmm; EH 22 cmm; E 58 cmm; AS (cmm): 260 : 84 : 52 : 40 : 38 : 32 : 32 : 36 : 136 (= club: 60+36+40). Ratios (× 100): BL/BB 235; PNL/PNB 89; ELL/ELB 162; IO/EB 53; EH/E 40; IO/E 162; AFS1/AFS2 161; AFS3/AFS4 105.

Female (Allolectotype). Derm, pubescence, and major features as noted below. BL 10.42 mm; BB 4.79 mm; PNL 232 cmm (= 100ths mm); PNB 257 cmm; ELL 739 cmm; ELB 481 cmm; IO 90 cmm; EB 174 cmm; EH 26 cmm; E 58 cmm; AS (cmm): 256 : 64 : 48 : 32 : 30 : 28 : 28 : 28 : 120 (= club: 48+32+40). Ratios (× 100): BL/BB 218; PNL/PNB 90; ELL/ELB 153; IO/EB 52; EH/E 45; IO/E 155; AFS1/AFS2 133; AFS3/AFS4 107.

Redescription (pooled). Gross body length 9.4–13.5 mm (o.d. 9–14 mm). Derm piceous. Dorsal pubescence mainly whitish with opalescent lustre. Rostrum and front with narrow squamae moderate on rostrum and front, thicker along inner eye margins. Antennal scape setose, setae mostly adpressed, some slightly raised. Pronotal disc submoderately squamose on central part, these merging with heavier obovate squamae forming a moderately strong lateral stripe. Scutellum with very fine narrow short squamae. Elytron subdensely squamose. Specialized elytral sensory setae essentially absent, sometimes with a few inconspicuous decumbent scales along sutural margin. Ventral surfaces densely clothed with whitish buff lanceolate squamae laterally and on abdominal apex, otherwise more sparsely clothed with slender setae medially; in m: sternum 3 fairly densely clothed of whitish buff but 4+5 densely pilose with golden buff; in ♀: the 3 apical sterna densely clothed with whitish buff. Femora subevenly clothed with lanceolate squamae, these only slightly denser at middle than at preapex. Tibiae set with setae and bristles mostly of submoderate length.

Rostrum and front weakly to moderately strigose, ridges smooth and shining through pubescence. Eye subcircular, moderately large, and strongly elevated. Antennal funicular segment 1 much longer than afs2; afs3 slightly longer than afs4. Prothorax subglobose, sides moderately convex; base nearly straight across middle; disc subevenly convex, sometimes flattened basally medially in some individuals; median impunctate line narrow to obsolescent, surface smooth shining; discal punctures moderately large deep and close, especially on lateral part of disc; intervals smooth. Elytron robust in ♀, more slender in ♂, preapical closure moderately abrupt in ♀ extending to slightly acuminate apex, narrowing in male more evenly to slightly extended apex; disc convex; puncture rows distinct to 8 but somewhat obscured by pubescence, punctures more irregular to confused laterally; interstices slightly irregular but 4 and sometimes 8 subcostate; punctures moderately large and deep; surface smooth-alutaceous; humeral margin obliterated near extreme apex, margin in male rounded from base through middle, then more abruptly folded and in ♀ somewhat beaded basally and apically, rounded along middle, edge lacking irregularities or teeth. Ventral surfaces rather smooth, with slight granulation in places; sterna 1+2 broadly concave in ♂, more irregular but flatter in ♀. Femora smooth-alutaceous-punctulate. Tibiae smooth-alutaceous-asperate. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 10, including lectotype, allolectotype): BL 9.41–13.44 mm; BB 4.37–6.30 mm; PNL 216–291 cmm (= 100ths mm); PNB 249–332 cmm; ELL 639–946 cmm; ELB 432–606 cmm; IO 88–108 cmm; EB 166–208 cmm; EH 24–36 cmm; E 52–68 cmm; AFS1 62–84 cmm; AFS2 44–60 cmm; AFS3 36–40 cmm; AFS4 30–38 cmm. Ratios (× 100): BL/BB 209–235; PNL/PNB 85–90; ELL/ELB 148–162; IO/EB 43–54; EH/E 40–54; IO/E 152–185; AFS1/AFS2 119–164; AFS3/AFS4 105–118.

Types. Lectotype label data. *Rhyncogonus sharpi* Molokai 900 ft. On *Gardenia* Perkins [handwritten in ink on cardmount with 2 specimens, each a different sex: male on right = lectotype; female on left = allolectotype]/ Sandwich Is. [typeset]/ Sharp Coll. 1905–313. [typeset]/ + new lectotype, + allolectotype label.

Material examined. **MOLOKA'I**: 275 m (900 ft), no date, on *Gardenia*, ex Sharp Collection, R.C.L. Perkins collector (lectotype ♂ and allolectotype ♀ mounted on same card, BMNH); Moloka'i, 305 m (1000 ft), Perkins (paralectotype ♀, BMNH); Moloka'i, 245 m (800 ft), ii.1902, Perkins (with co-type label) (paralectotype ♂, BMNH); Moloka'i, 245 m (800 ft), ii.1902, Perkins (3♂ and 3♀ paralectotypes).

Collection and taxonomic history. Described by Perkins, 1910: 650–651 ("Molokai, mountains."; syntypes in BMNH, BPBM). Syntype series of apparently 10 specimens (seen), the number not given in the original description. BMNH syntypes seen through the kindness of Ms Sharon Shute, London. Lectotype presently designated to stablize the taxonomy of the species.

Distribution. Moloka'i. Mountains, without specific locality. Knowing that a pair was taken on *Gardenia* at 275 m elevation may help to narrow the search for the original site. Restricted montane distribution: Pattern 6.

Habitat and life history notes. No data on exact site but a pair was collected on *Gardenia* at 275 m elevation. Two species of *Gardenia* are reported for Moloka'i: *Gardenia brighamii* is a dryland species still known from a few individuals on slopes of a gulch near Mahana and *G. remyi* is occasional in mesic to wet forests (Wagner *et al*., 1990: 1132–1133). It would be worth investigating the dryland forest near Mahana for *R. sharpi*, as it has not turned up in collections from the eastern end of the island. The generally wetter eastern part of Moloka'i has been visited more by collectors who have produced a few records of other species of *Rhyncogonus*. The habitat is possibly Lowland Dry Forest (Gagné & Cuddihy, 1990: 72–75).

Status. Extant. Original series only at various elevations (3), taken in 1902. Threats would at include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus simplex Perkins Figs. 28, 92, 132

Rhyncogonus simplex Perkins, 1910, FH 3: 651 (original description); Perkins, 1924, PHES 5: 379.—Swezey, 1931, PHES 7: 382, 393; Swezey, 1934, PHES 8: 368; Swezey, 1934, PHES 8: 527–528; Swezey, 1935, PHES 9: 96–97; Swezey, 1936, PHES 9: 110.—Beattie, 1994, Federal Register 59: 59018.

Diagnosis. Species group: *simplex* group. With *R. stellaris* n. sp. This species group is characterized by having the dorsal surfaces convex-smooth, specialized sensory setae essentially absent (barely conspicuous, if present), and femora slightly more densely clothed near middle than beyond. Differs from *R.stellaris* by have the eye rather strongly raised (vs weakly so). Differs from *R.sharpi* Perkins of the *sharpi* group by having elytra rather evenly narrowed to feebly sinuate apically (vs distinctly sinuate).

Male (Lectotype). Derm, pubescence, and major features as noted in redescription. BL 7.90 mm; BB 3.70 mm; PNL 173 cmm (= 100ths mm); PNB 212 cmm; ELL 523 cmm; ELB 357 cmm; IO 72 cmm; EB 138 cmm; EH 20 cmm; E 48 cmm; AS (cmm): 172 : 42 : 34 : 28 : 28 : 24 : 24 : 24 : 100 (= club: 42+26+32). Ratios (× 100): BL/BB 214; PNL/PNB 82; ELL/ELB 147; IO/EB 52; EH/E 42; IO/E 150; AFS1/AFS2 124; AFS3/AFS4 100.

Female (Allolectotype). Derm, pubescence, and major features as noted below. BL 9.24 mm; BB 4.62 mm; PNL 212 cmm (= 100ths mm); PNB 249 cmm; ELL 631 cmm; ELB 448 cmm; IO 88 cmm; EB 162 cmm; EH 22 cmm; E 52 cmm; AS (cmm): 212 : 44 : 36 : 28 : 28 : 26 : 28 28 : 108 (= club: 44+28+36). Ratios (× 100): BL/BB 200; PNL/PNB 85; ELL/ELB 141; IO/EB 42; EH/E 42; IO/E 169; AFS1/AFS2 122; AFS3/AFS4 100.

Redescription (pooled). Gross body length 7.0–10.6 mm (o.d. 7–11 mm). Derm dark red-fuscous to subpiceous. Pronotum often with basal margin narrowly reddish, otherwise generally darker. Dorsal pubescence of clear silvery setae to whitish narrow squamae, all adpressed. Rostrum and front moderately setose of mixed fine and stouter setae, with narrow squamae along inner eye margins. Antennal scape finely setose. Pronotum sparsely setose on disc, the setae blending with slender squamae at side forming a weak to moderate strong lateral stripe but in many individuals the stripe much stronger basally. Scutellum finely squamose. Elytron sparsely to submoderately finely setose or narrowly squamose on disc, the pattern more evenly diffused in the Moloka‘i populations but often more clearly developed into longitudinal stripes in the O‘ahu populations; the lateral infolded surface with pubescence closely matching discal pubescence. Specialized sensory setae essentially absent, sometimes with a few short decumbent hairs along elytral suture. Ventral surfaces sparsely to moderately setose, the setae more aggregated and squamose at sides of thorax; abdominal sterna 1+2 ± sparsely clothed except at sides, 3–5 with generally denser pubescence in both sexes but stronger in male with 4+5 pilose. Femora set with setae and lanceolate squamae, these sometimes subevenly clothed but often with somewhat denser band just beyond middle, especially in male. Tibiae set with bristles and setae of moderate length.

Rostrum and front smooth-punctate to moderately rugulose; intervals or ridges smooth shining. Eye subcircular, moderately small and strongly raised. Antennal funicular segment 1 slightly longer than afs2; afs3 subequal to or barely longer than afs4. Prothorax subcylindrical, sides moderately convex; base weakly emarginate across middle; disc evenly convex; median impunctate line narrow or obsolescent, surface smooth; discal punctures close, fine to small, and deep; intervals smooth. Elytron ± robust in ♀, the preapical closure more abrupt and feebly sinuate before apex; elytron relatively slender and subevenly narrowed to apex in male; disc convex; puncture rows distinct to 12; interstices rather flat but 4 and 8 slightly swollen; punctures moderately large and deep; intervals smooth-alutaceous, duller than pronotal surface; humeral margin reaching apex in both sexes, the edge usually smooth but some individuals with small denticles apically; margin in male rounded from base to middle, then beaded apically and in ♀ sometimes sharp basally, then beaded for rest of length but becoming slightly sharper apically. Ventral surfaces fairly smooth with a hint of fine granulation to subshagreened, the shine satiny and strong; abdominal sterna rather smooth but the last 3 sterna increasingly obscured by pubescence; abdominal sternum 1+2 broadly concave but flattening on the apical part in male, 1+2 generally flat in ♀; abdominal punctures larger and deeper than those of the thorax. Femora smooth-alutaceous and punctulate-microasperate. Tibiae smooth-alutaceous-asperate. Aedeagus (paralectotype): apex as figured. Spermatheca (paralectotype) as figured.

Range, Moloka‘i population (n = 8, including lectotype, allolectotype): BL 7.90–10.58 mm; BB 3.53–5.54 mm; PNL 173–241 cmm (= 100ths mm); PNB 199–291 cmm; ELL 523–739 cmm; ELB 353–554 cmm; IO 68–100 cmm; EB 138–192 cmm; EH 20–28 cmm; E 48–60 cmm; AFS1 40–52 cmm; AFS2 34–48 cmm; AFS3 28–36 cmm; AFS4 28–32 cmm. Ratios (× 100): BL/BB 190–224; PNL/PNB 75–88; ELL/ELB 136–152; IO/EB 42–55; EH/E 42–53; IO/E 150–171; AFS1/AFS2 108–124; AFS3/AFS4 100–113.

Range, O‘ahu population (n = 6): BL 7.06–10.25 mm; BB 3.53–5.04 mm; PNL 149–241 cmm (= 100ths mm); PNB 191–274 cmm; ELL 481–730 cmm; ELB 340–498 cmm; IO 72–108 cmm; EB 128–180 cmm; EH 16–28 cmm; E 36–56 cmm; AFS1 40–52 cmm; AFS2 108–125 cmm; AFS3 24–36 cmm; AFS4 24–34 cmm. Ratios (× 100): BL/BB 193–209; PNL/PNB 78–88; ELL/ELB 135–149; IO/EB 56–61; EH/E 38–56; IO/E 162–208; AF1/AF2 108–125; AFS3/AFS4 100–108.

Types. Lectotype label data. Molokai about 800 ft. Jan.1902 *R. simplex* ♂ [handwritten in ink]/ Sharp Coll. B.M. 1948-336./ + new lectotype label.

Material examined. **MOLOKA‘I**: 245 m (800 ft), i.1902, R.C.L. Perkins collector (lectotype ♂, allolectotype ♀, and paralectotypes: 2♂, 1♀, all BMNH); Moloka‘i, ex Sharp Collection, Perkins (dissected paralectotype ♂, BMNH); Moloka‘i, 305 m, ex Perkins Collection, Perkins (2♀ paralectotypes, one lacking elevation, both BMNH); Moloka‘i, about 245 m (800 ft), i.1902, Perkins (paralectotypes: 11♂, 5♀); Moloka‘i, about 245 m, Perkins (paralectotypes: 8♂, 5♀); same data, Perkins Collection (1 paralectotype ♂); no data [pin and cardstock identical to others] (1 paralectotype ♂); Mo‘omomi Sand Dunes, 6 m, 1.ii.1998, on sand, S.L. Montgomery and J. Alden collectors (1♀ ex). **O‘AHU**: Koko Head, 11.i.1928, on *Bidens*, F.C. Hadden collector (3 ex); Koko Head, 27.xi.1930, O.H. Swezey collector (9 ex); Koko Head, 1–5–1949, sweeping, Nakasato collector (1 ex); Koko Head region, no date, *Gossypium tomentosum*, N.L.H. Krauss collector (9 ex); Koko Head, 23.i.1952, ex *Sida*, E.J. Ford collector (16 ex but only 1 with host data); near Koko Crater, 27.i.1935, *Gossypium*, E.C. Zimmerman collector (21 ex); Makapu‘u, 15.ii.1934, *Gossypium tomentosum*, Krauss (5 ex); same data but 21.ii.1934 (17 ex); flats W of Makapu‘u Head, 30.xii.1934, *Gossypium tomentosum*, Swezey (6 ex); Makapu‘u Flats, 18.i.1976, *Gossypium*, R.C.A. Rice collector (3 ex); same data but 25.i.1976 (18 ex); Wai‘anae Plantation, 31.xii.1934, *Sida*, Swezey (8 ex); Aiea Ridge Trail, 3.vi.1978, *Acacia koa*, no collector (1 ex); Pauoa? (Pawa‘a?), 15.x.1947, under stones, T. Oda collector (1 ex); UHM fields, no date, on weeds, Neal collector (1 ex). Also, 2 specimens without any data except that 1 has the characteristic Perkins red scrap; both are pinned, each with a unique short japanned pin.

Variation. The Moloka‘i and O‘ahu populations are reasonably close in measurements, with mainly the interocular space × 100/eye diameter (IO/E) measurement tending to differ in averages: the eye size is larger in proportion to the interocular space in the Moloka‘i group (ave. = 153) versus the O‘ahu group (ave. = 193) in the small sample measured (n = 14). In >10 genitalic dissections, the male in the Moloka‘i population seems to have a more robust aedeagus but the apical closure is similar in samples from both islands; the spermatheca is extremely close in samples seen from both islands. E.C. Zimmerman had given some thought to ranking the O‘ahu population as a separate subspecies. The idea has merit because 1) there are morphological differences between the two island populations, and 2) there is no question that the two island groups are disjunct. At present, the O‘ahu population is not treated as a subspecies but this will be an intriguing problem for the future, with fresh material fixed for DNA analysis, a survey for further characters, and a larger sample size to analyze statistically.

Collection and taxonomic history. Described by Perkins, 1910: 651 (“Molokai, mountains, below the forest, 700–1000 ft.”: syntypes in BMNH, BPBM). Size of syntype series not given in original description but both sexes, body length range and elevation range were given along with comments on 2 forms with different elytral pubescence: one being finely setose, the other with denser pubescence of slightly heavier setae. Some 38 syntypes are treated here, including 8 from the BMNH seen through the kindness of Ms Sharon Shute, London. Lectotype presently designated to stablize the taxonomy of the species.

Distribution. Moloka‘i. Type locality unknown, possibly the western or leeward parts of the island because of presumed drier habitat likely for *R. simplex*. One recent record from Mo‘omomi Sand Dunes. O‘ahu. Subcoastal areas with many records from Koko Head around to Makapu‘u Point. The eastern O‘ahu populations were regularly collected into the 1950s (Koko Head). Broad coastal/lowland distribution: Pattern 1a.

This species and *R. vestitus* Sharp are the only ones that have populations on more than a single island that are represented by fairly large series of live-collected specimens.

Habitat and life history notes. The O‘ahu populations are attached to *Gossypium tomentosum* and possibly *Bidens*, and one record on *Acacia koa*. On Moloka‘i, we lack data on plant hosts for the original series and we lack precise data on the type locality, except that it was around 250 m and below the forest, thus possibly indicating a Lowland Dry Shrubland community (Gagné & Cuddihy, 1990: 71). The Mo‘omomi specimen, when collected, was being attacked by ants, probably *Pheidole megacephala* (S.L. Montgomery, pers. comm.). On O‘ahu, the habitat can be determined because the associated host plants are known: described as arid, rocky, or clay coastal plains (Wagner *et al*., 1990: 876, under *Gossypium*), within the Coastal Dry Shrubland community (Gagné & Cuddihy, 1990: 60). The single record from *Acacia koa* on Aiea Ridge Trail is a higher and wetter locality — Lowland Mesic Forest (Gagné & Cuddihy, 1990: 80–85).

Status. Extant. Moloka‘i: various collections to 1998. O‘ahu: various collections to 1978. Once common on O‘ahu but now less frequently encountered. The lowland environment where this species occurs is especially vulnerable to man-induced changes, including reduction of native plant hosts and the increase of adventive predators such as ants.

Rhyncogonus sordidus Perkins Figs. 39, 98, 138

Rhyncogonus sordidus Perkins, 1900, FH 2: 127 (original description).—Giffard, 1908, PHES 1: 183.—Sharp, 1919, PHES 4: 80.—Perkins, 1927, PHES 6: 468–470.

Rhyncogonus lanaiensis Perkins, 1900, FH 2: 128 (original description).—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018. **n. syn**.

Diagnosis. Species group: *sordidus* group, *sordidus* subgroup. With *R. lahainae* Perkins*, R. montygorum* n. sp., *R. tristis* n. sp., *R. wiliwilinui* n. sp. in the subgroup. The overall group is more easily characterized through its subgroups (see key), which range from having the rostrum nearly mirror-smooth to strigose. The species in this subgroup have a flattened punctate rostrum and barely conspicuous elytral sensory setae. *R. lanaiensis* Perkins is hereby synonymized with *R. sordidus*; when *lanaiensis* was described it was thought to be close to *R. sordidus*, differing mainly by more protuberant eyes but this character varies. *R. sordidus* and *R. montygorum* are close, differing mainly in the later having a denser pile of elytral sensory setae; besides their disjunct distributions (Lāna‘i and Moloka‘i), they are separated ecologically with *R. sordidus* from mesic forest and *R. montygorum* from upland shrubland. Also close to *R. lahainae* (W Maui) from which it differs by a softer subshagreened pronotal sculpture (vs smooth and shining).

Female (Lectotype). Derm dark red-fuscous with parts paler red dish: antenna except for darker club, tibiae, and anterior and posterior margins of pronotum. Pronotum somewhat flattened prebasally on each side of middle and again in anterolateral area; pronotal impunctate line narrow and visible from base to about apical 1/5, surface smooth-granulate. Vestiture of elytral disc forming a fairly distinct stripe on interstice 4, then with patchy stripes outwards. Elytral punctures regular to row 9, then irregular to humeral margin.

BL 10.42 mm; BB 4.96 mm; PNL 232 cmm (= 100ths mm); PNB 253 cmm; ELL 697 cmm; ELB 481 cmm; IO 100 cmm; EB 168 cmm; EH 20 cmm; E 54 cmm; AS (cmm): 240 : 48 : 42 : 32 : 30 : 28 : 28 : 28 : 104 (club= 36+28+40). Ratios (× 100) BL/BB 210; PNL/PNB 92; ELL/ELB 145; IO/EB 60; EH/E 37; IO/E 179; AFS1/AFS2 114; AFS3/AFS4 107.

Male (Allolectotype). Derm blackish fuscous with parts paler reddish: pronotum narrowly across base, antennal scape and funicular segments, apices of femora, and tarsi. Rostrum flat, granulate with elliptical punctures. Elytron dull opaque, inner puncture rows (1–4) regular but 5 and outwards irregular to confused; humeral margin rounded from base to about middle, then becoming ± sharply beaded to preapex. Ventral surface smooth-granulate-punctate, with dull satiny shine; abdominal sterna 1+2 broadly and shallow concave; sterna 1–3 submoderately setose, 4 a little denser with setae longer, 5 most densely setose, the setae long and slender.

BL 10.08 mm; BB 4.37; PNL 228 cmm (= 100ths mm); PNB 266 cmm; ELL 672 cmm; ELB 432 cmm; IO 96 cmm; EB 168 cmm; EH 22 cmm; E 60 cmm; AS (cmm): 252 : 76 : 56 : 40 : 36 :

32 : 32 : 32 : 132 (= club: 52+32+48). Ratios (× 100) BL/BB 231; PNL/PNB 86; ELL/ELB 156; IO/EB 57; EH/E 37; IO/E 160; AFS1/AFS2 136; AFS3/AFS4 111.

Redescription (pooled). Gross body length 8.7–13.7 mm (o.d. 10–12 mm). Derm red-fuscous to subpiceous. Dorsal pubescence of silvery clear setae and whitish to whitish buff lanceolate squamae. Rostrum and front sparsely setose, inner eye margins with a few narrow squamae barely heavier than discal ones. Antennal scape finely setose, setae mostly adpressed. Pronotal disc sparsely setose, setae adpressed, inconspicuous, and blending with indistinct lateral stripe of narrow squamae, the stripe heaviest and mostly conspicuous near base. Scutellum with fine narrow squamae. Elytral disc sparsely to submoderately setose and squamose, the latter tending to be patchy overall but occasionally forming broken stripes; elytral raised sensory setae short and not conspicuous, these curved and slightly raised, and most visible along suture but also occasional on disc; infolded surface sparsely clothed with very fine setae, setae only becoming thicker and patchy at preapex. Ventral surfaces finely setose, the apical abdominal sternum clothed with heavier adpressed setae in ♀ and more densely clothed with fine suberect setae in male. Femora clothed with setae and lanceolate squamae, the latter forming a preapical denser patch. Tibiae set with setae and bristles of submoderate length.

Rostrum and front flattened and smooth to finely substrigose, punctures small circular to elongate, intervals commonly smooth granulate shining. Eye subcircular, moderately large and moderately elevated. Antennal funicular segment 1 longer than afs2; afs3 slightly longer than afs4. Prothorax subglobose, sides convex; base emarginate before scutellum; disc varying from evenly convex to commonly irregularly convex, flattened to depressed medially, especially basally; median impunctate line smooth-granulose to granulose, shining to subshining; discal punctures close, moderately small of mixed smaller sizes; intervals smooth-granulose to granulose, shining to subshining with a harder appearance than the duller more opaque elytra. Elytron moderately robust (more so in ♀), preapical closure gradual to moderate (more abrupt in ♀), sinuate before slightly extended apex; disc convex: more fully so in ♀; puncture rows distinct to interstice 4 or 5 or sometimes 8, then commonly irregular to 8 and confused to humeral margin; interstices generally convex to subrugose but 4 and sometimes 8 ± subcostate; punctures moderately deep; surface dull alutaceous, subopaque; humeral margin extending to preapex, then obliterated, the edge commonly smooth but with a few small denticles in some individuals; margin in ♂ rather evenly rounded from base to middle, then a little more abruptly angled under; margin in ♀ basally beaded, then less strongly beaded from middle to preapex. Ventral surfaces smooth-granulate-punctate, with a bright satiny lustre; punctures shallow and small on metathorax, largest and deepest on abdominal sterna 1+2; 3–4 punctate and 5 rather finely punctulate; surface of 1+2 usually with slight transverse swelling postbasally in ♀ and more generally impressed in ♂, the remainder ± flattened in both sexes. Femora smooth-granulate-punctulate. Tibiae granulate-asperate. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 17, including lectotype, allolectotype): BL 8.74–13.61 mm; BB 3.70–6.55 mm; PNL 191–307 cmm (= 100ths mm); PNB 232–357 cmm; ELL 581–963 cmm; ELB 374–639 cmm; IO 80–136 cmm; EB 148–224 cmm; EH 18–32 cmm; E 52–80 cmm; AFS1 48–80 cmm; AFS2 42–64 cmm; AFS3 32–44 cmm; AFS4 28–40 cmm. Ratios (× 100): BL/BB 197–236; PNL/PNB 81–94; ELL/ELB 144–156; IO/EB 51–60; EH/E 31–43; IO/E 147–193; AFS1/AFS2 100–143; AFS3/AFS4 100–125.

Types. Lectotype label data. *Rhyncogonus sordidus* Type. [handwritten in ink on card to which specimen is micropinned]/ Type [circular typeset label with red border]/ Hawaiian Is. 1900. 99.[typeset]/ Lanaihale Lanai, [blank] ft. Perkins vii 1894 [mostly typeset]/ + new lectotype label.

Material examined. **LĀNA'I**: Lāna'ihale, probably near or above 1000 m, vii.1894, R.C.L. Perkins collector (lectotype ♀, BMNH); Halepa'akai, viii.1894, Perkins (allolectotype ♂, paralectotype ♀); same locality, 3000 ft, vii.1894, Perkins (paralectotype ♀); Lāna'i,610 m (2000 ft), i.1894, Perkins (holotype ♂ + non-syntype ♀ of *lanaiensis*); Halepa'akai, 1035 m (3400 ft), 18.x.[19]07, W.M. Giffard collector (5 ex); Keomuku, no elevation, no date, W.M. Giffard Collection (1 ex = Sharp dissection R.25); forest NE side, 22.xi.[19]16, ex "Pua", G.C. Munro collector, W.M. Giffard Collection (2 ex, includes Sharp dissection R.19); Lāna'ihale (mountain), 4th gully NW of Awehi Gulch, 760 m, 6.vi.1971, fragments beneath *Charpentiera*, J.L.Gressitt & W.C. Gagné collectors (mainly elytra from 24 specimens); Lāna'ihale area, E Hauola Trail at Monroe Road, 14.vi.1976, R.C.A. Rice collector (9 ex); same data except North Monroe Road, Rice (1 ex); Awehi Gulch, 14.vi.1971, Rice (8 ex); N ridge off E Hauola Trail, 700–1000 m, 11.i.1986, under *Osmanthus* and *Myrsine*, G. Paulay & S.L. Montgomery collectors (elytra from 4 specimens); W of Pu'u Ali'i, 610 m (2000 ft), 20.viii.1988, on *Xylosoma*

[for *Xylosma*], G.K. Uchida (1 ex, W.D. Perreria Collection). Note the variant spelling: Halepa'akai for Halepa'akai. Examples (pair) distributed to USNM.

Variation. Even though this species appears to be restricted within a small higher region of Lāna'i, individuals exhibit remarkable plasticity in body size, color, vestiture, sculpture, and eye prominence. The here-synonymized *R. lanaiensis* appears to represent the larger individuals of *R. sordidus*.

Collection and taxonomic history. Described by Perkins, 1910: 127 ("Lanai, mountains (3000 ft.). A short and rather variable series taken."; syntypes in BMNH, BPBM). Both sexes treated in the type series but the number of specimens not given but 4 syntypes are here recognized. The BMNH "principal syntype" was examined through the kindness of Ms Sharon Shute, London. It is this syntype that is now designated as the lectotype to stabilize the taxonomy of the species.

Rhyncogonus lanaiensis Perkins, 1900: 128 ("Lanai (2000–3000 ft.); 1 ♂ and 1 ♀."; type ♂, in BMNH) is here relegated as a junior synonym of *R. sordidus*. Although 2 specimens were treated in the original description, the male was clearly intended as the type because of the questionable assignment of the female to this species (*R. lanaiensis*). The BMNH type was examined through the kindness of Ms Sharon Shute, London.

The distribution of *R. sordidus* was thought to include Moloka'i but only fragments were known from the Moloka'i site during Perkins' time. These are essentially fused elytra, which were found in good numbers by Perkins who had thought they might represent an extinct population of *R. sordidus* (Perkins, 1900: 127). According to Perkins field number 141, the collection site is from the highest summits of Moloka'i, near or above 1370 m (4500 ft). Whole specimens from Moloka'i were recently collected and are indeed close to *R. sordidus* but differ enough to warrant separate status: see *R. montygorum* n. sp.

Distribution. Lāna'i. Mountains: Lāna'ihale (mountain) area, 760–1035 m. Broad montane distribution: Pattern 5.

Habitat and life history notes. The *Xylosma* record must stand for *Xylosma hawaiiense*, a tree that occurs primarily in mesic forest (Wagner et al., 1990: 722–723). The *Osmanthus* record (with *Myrsine*) is updated from *Osmanthus* to *Nestegis sandwicensis* which grows in dry to mesic forest (Wagner *et al*., 1990: 992). These together with an earlier record from *Charpentiera* plus the mountain locations certainly indicate a forest habitat which on Lāna'i would be Lowland Mesic Forest (Gagné & Cuddihy, 1990: 80–85).

Status. Extant. Various collections to 1988. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus squamiger Perkins Figs. 56, 78, 114, 121

Rhyncogonus squamiger Perkins, 1900, FH 2: 123–124 (original description).—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.

Rhyncogonus species D: Howarth & Mull, 1992, HIK, 119 (photo*, in situ*).

Diagnosis. Species group: *vittatus* group. With *R. depressus* Perkins, *R. ricei* n. sp., *R. vittatus* Perkins. Sexual dimorphism is carried to the extreme in this species: the male, hitherto unknown, appears quite unlike the female: it appears as a nearly glabrous shining black species because of the especially reduced dorsal pubescence. The female is notable by having abdominal sternum 4 lobed apically, similar to *R. nitidus* Perkins. *R. squamiger* appears closest to *R. vittatus*, which also has naviculate squamae predominating on elytron but *R. vittatus* tends to have the elytral stripes broader with multiple series of squamae in each row (vs rows in mostly single series).

Redescription. Female (Holotype). Gross body length 13.3 mm (o.d. 14 mm). Derm dark red-fuscous to subpiceous on head and prothorax; black on scutellum and elytron. Dorsal pubescence of white squamae, the broader squamae with an opalescent lustre. Rostrum and front sparsely set with setiform squamae; inner eye margins with stout squamae. Antennal scape finely setose, the setae quite raised. Pronotum more sparsely set with setiform squamae on central disc, these becoming heavier on sides of prothorax, each with a basal patch of

broader naviculate squamae. Scutellum with a flattened group of small fairly broad squamae directed posteriorad. Elytral disc exclusively of broad naviculate squamae, these mostly in single longitudinal series, with a tendency to form aggregated longitudinal partial rows; infolded surface with generally narrower squamae, mixed with some setiform and some broader squamae. Ventral surfaces submoderately clothed with elongate setiform squamae. Femora submoderately setose with some lanceolate squamae beyond middle forming a weak preapical band. Tibiae set with bristles and setae of submoderate length.

Rostrum and front rather flattened and obscurely strigose more due to elongate punctures forming grooves rather than elevated ridges, these surfaces smooth, shining; punctures moderately large but punctures above on vertex rather fine and close. Eye subcircular, moderately large and elevated. Antennal funicular segment 1 much longer than afs2; afs3 distinctly longer than afs4. Prothorax short globose, sides moderately and evenly convex; anterior margin barely emarginate at middle; base slightly emarginate across middle; pronotal disc rather evenly convex; median impunctate line obsolete; punctures circular and moderate in size, and mostly 1–3 × as large as intervals; intervals flattened to slightly swollen, surface smooth, shining. Elytron moderately robust, the preapical closure gradual and sinuate to acuminate apex; disc somewhat flattened but gradually gibbous postbasally in lateral profile; puncture rows 1–6 distinct, 7–8 short and developed along mid section; interstices 1–7 slightly swollen but short, mostly confined along mid section, surfaces smooth with some opaqueness but still shining; humeral margin continued to apex, margin rather sharp along entire length, the edge with low serrations along entire length; elytral infolded surface very flat and smooth, with irregular puncturation. Ventral surfaces: prothorax finely granulate with a dull satiny shine; metasternum and abdominal sterna 1+2 closely and deeply punctate, intervals nearly smooth; sterna 1+2 broadly concave, the intervening suture visible across middle though connate; sterna 3–5 smooth-granulate-punctulate; sternum 4 with apical margin produced as a convex lobe, extending over base of sternum 5. Femora smooth-granulate with shallow punctures. Tibiae smooth-granulate with weak asperations. Spermatheca (non-type) as figured.

BL 13.27 mm; BB 5.88 mm; PNL 241 cmm (= 100ths mm); PNB 299 cmm; ELL 934 cmm; ELB 581 cmm; IO 112 cmm; EB 212 cmm; EH 32 cmm; E 80 cmm; AS (cmm) 364 : 116 : 80 : 56 : 48 : 48 : 42 : 48 : 164 (= club: 52+44+68). Ratios (× 100): BL/BB 226; PNL/PNB 81; ELL/ELB 161; IO/EB 53; EH/E 40; IO/E 140; AFS1/AFS2 145; AFS3/AFS4 117.

Male (nov.). Gross body length 11.1 mm. Derm: body surfaces shining pitch black; antenna dark reddish fuscous; legs blackish except tarsi fuscous. Dorsal pubescence setose and broadly squamose ranging from white to yellow buff. Rostrum and front thinly setose, setae buff and becoming stouter along inner eye margins. Antennal scape finely setose, the setae suberect. Pronotal disc submoderately setose, setae whitish, these becoming slightly denser on sides but no lateral stripe, the extreme base with a denser tuft of white setae on each side. Scutellum clothed with white setiform squamae. Elytron appearing rather sparsely squamose (squamae smaller than in ♀), squamae buff, stout-naviculate and arranged in longitudinal series associated with punctures; infolded surface similarly clothed; discal sensory setae not conspicuous but occasional extremely fine, somewhat raised setae present. Ventral surfaces moderately setose, the setae slender; apical 2 abdominal sterna densely clothed with elongate setae. Femora subsparsely clothed with adpressed slender whitish setae, these rather uniform over most of length. Tibiae fitted with suberect setiform bristles of submoderate length.

Rostrum and front largely flattened and smooth with only the interocular area briefly strigose, surface smooth and punctate; punctures above, on vertex, small and circular. Eye circular, large, and moderately raised. Antennal scape extending to middle of pronotum; antennal funicular segment 1 longer than afs2; afs3 slightly longer than afs4. Prothorax globose, sides moderately convex; median impressed line obsolescent, visible along middle part of disc, surface smooth shining; discal punctures moderate in size, deep, and commonly 1.5–2 × as large as intervals; intervals flattened and smooth shining. Elytron slender, preapical closure gradual and sinuate before slightly extended apex; disc somewhat flattened but still convex; puncture rows distinct to 4, then slightly irregular to 12 at humeral margin; punctures moderately large; interstices slightly convex, smooth shining; humeral margin continued to preapex, the edge sharply dentate at broad intervals; margin sharply beaded for entire length; infolded surface similar to disc. Ventral surfaces largely granulate-punctate; abdominal sterna 1 + 2 shallowly concave on 1 and flat on 2, the suture dividing them distinct though connate across middle. Femora smooth-granulate. Tibiae granulate-punctate with slight asperites. Aedeagus (2nd male): apex as figured.

BL 11.09 mm; BB 4.11 mm; PNL 212 cmm (= 100ths mm); PNB 241 cmm; ELL 714 cmm; ELB 420 cmm; IO 92 cmm; EB 172 cmm; EH 22 cmm; E 66 cmm; AS (cmm): 316 : 92 : 72 : 48 : 44 : 40: 44 : 40 : 152 (= club: 56+42+54). Ratios (× 100): BL/BB 264; PNL/PNB 88; ELL/ELB 174; IO/EB 53; EH/E 33; IO/E 139; AFS1/AFS2 128; AFS3/AFS4 109.

Range (n = 6, including lectotype, ♂ nov.): BL 9.40–15.79 mm; BB 3.86–7.06 mm; PNL 178–282 cmm (= 100ths mm); PNB 208–340 cmm; ELL 598–1096 cmm; ELB 365–681 cmm; IO 88–116 cmm; EB 162–236 cmm; EH 22–40 cmm; E 58–80 cmm; AFS1 92–118 cmm; AFS2 60–88 cmm; AFS3 44–60 cmm; AFS4 36–48 cmm. Ratios (× 100): BL/BB 224–264; PNL/PNB 81–88; ELL/ELB 161–174; IO/EB 49–54; EH/E 33–50; IO/E 133–152; AFS1/AFS2 128–153; AFS3/AFS4 109–125.

Types. Holotype label data: *Rhyncogonus squamiger*. Type. [on card mount with specimen]/ Type/ Hawaiian Is. 1900–99/ Lihue 3000 ft Kauai vii.[18]96.

Material examined. **KAUA'I**: Lihue, 915 m, vii.1896, R.C.L. Perkins collector (holotype ♀, BMNH); Powerline Road, 580 m (1900 ft), 9.viii.1973, on [*'ōhi'a*] *lehua* regrowth foliage at night, R.C.A. Rice collector (♂ nov.: 4♂, 4♀ ex); Powerline Road, 600 m (2000 ft), 24.x.1975, Rice (1♀, 6♂ ex); same loc., 15.vii.1976, Rice (10♀, 9♂ ex); Makaleha Mts, Kuilau Ridge, 29.viii.1975, Rice (1♀ ex). Examples (pairs) distributed to BMNH, CAS, MNHN, USNM.

Collection and taxonomic history. Described by Perkins, 1900: 123–124 ("Kauai Mountains near Lihue (3000 ft.); 1 ♀ taken"; holotype in BMNH). Holotype seen through the kindness of Ms Sharon Shute, London. Several collections of this species in fair series were taken in the Makaleha Mts and on the Powerline Road at 600 m (2000 ft) by R.C.A. Rice from 1973 to 1976.

Distribution. Kaua'i. Mountains above Lihue, Makaleha Mountains, and Powerline Road. Restricted montane distribution: Pattern 4.

Habitat and life history notes. A series was taken on *Metrosideros* regrowth, the only plant associate reported so far. The Lowland Mesic Forest community (Gagné & Cuddihy, 1990: 80–82) might fit the habitat at 900 m above Lihue.

Status. Extant. Various collections to 1976. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus stellaris Samuelson, **n. sp.** Figs. 29, 93, 133

Rhyncogonus giffardi?: Howarth & Mull, 1992, HIK, 114 (photo 101, *in situ* on *Dodonaea*).

Diagnosis. Species group: *simplex* group. With *R. simplex* Perkins. Differs from *R. simplex* in having the elytral preapical closure quite sinuate (vs rather evenly narrowed to feebly sinuate) and eyes weakly raised (vs strongly raised).

Female (Holotype). Gross body length 8.7 mm. Derm rather uniformly castaneous on body surfaces and appendages, except orangish apical abdominal sterna and tarsi. Pronotum evenly colored without the reddish basal border commonly seen in *simplex*. Dorsal pubescence of fine whitish setae and whitish narrow squamae, all adpressed. Rostrum and front ± sparsely setose becoming slightly denser in interocular area and with narrow white squamae along inner eye margins. Antennal scape finely setose, the setae adpressed. Pronotum moderately setose on disc, the setae becoming slightly heavier anteriorly and generally blending with slender squamae at sides forming a moderately dense lateral stripe, the stripe slightly more concentrated near extreme base and slightly more diffused beyond base. Scutellum finely squamose. Elytron with discal pubescence subdense and forming patches and one incipient longitudinal stripe on interstice 4 (disc rubbed and partly bare anteriorly); the infolded surface with pubescence subdense and similar to discal pubescence. Sensory setae barely evident on posterior part of disc but noticeable as slightly raised curved white setae a little higher than ground squamae. Ventral surfaces moderately setose overall, the setae more aggregated and becoming squamose at sides of thorax and abdominal sterna 1+2; sterna 3–5 with generally denser pubescence. Trochanteral bristles single. Femora setose and squamose, and rather evenly clothed with slender white squamae over apical half. Tibiae set with bristles short length, plus some longer silvery setae.

Rostrum and front strigose with straight median impunctate ridge, the ridges smooth shining and the punctures and depressions somewhat duller. Eye subcircular, moderately in size and rather weakly raised. Antennal

scape short, extending to about anterior 1/3 of pronotum; antennal funicular segment 1 and afs2 subequal in length; afs3 and afs4 also subequal. Prothorax subcylindrical, sides weakly convex; base weakly emarginate across middle; disc subevenly convex, vaguely depressed on sides; median impunctate line largely obsolescent, a narrow remnant ± visible along middle, surface smooth shining; discal punctures close, small-moderate in size and deep; intervals smooth shining. Elytron robust, the preapical closure sinuate before slightly extended apex; disc convex; puncture rows distinct internally, 5–8 irregular in places and the remainder ± irregular; interstices slightly swollen; punctures moderately large and deep, much larger than pronotal punctures; intervals smooth-alutaceous, somewhat opaque and duller than pronotal surface; humeral margin reaching preapex, then irregularly continued to apex, the edge nearly smooth but with some indefinite rounded denticles along preapex; margin with a heavier bead basally than along middle, then briefly sharper along preapex; infolded surface similar to disc but with central punctures more confused. Ventral surfaces granulate-subshagreened with a bright satiny lustre on thorax; punctures of metathorax fine and shallow; abdominal sterna smooth-punctate with a hint of granulation and a strong shine on 1+2 but the last 3 increasingly obscured by pubescence; sterna 1+2 slightly and evenly convex anteriorly and flattening on the apical part, the intervening suture arched across middle where it shallower than at sides; punctures largest on the basal part of 1+2; 3–4 smoother and 5 punctulate. Femora smooth-granulate to alutaceous with small asperites. Tibiae smooth-granulate with low shining asperites.

BL 8.74 mm; BB 4.70 mm; PNL 208 cmm (= 100ths mm); PNB 245 cmm; ELL 656 cmm; ELB 448 cmm; IO 96 cmm; EB 168 cmm; EH 20 cmm; E 56 cmm; AS (cmm): 192 : 38 : 38 : 28 : 28 : 26 : 26 : 26 : 102 (= club: 40+28+34). Ratios (× 100): BL/BB 186; PNL/PNB 85; ELL/ELB 146; IO/EB 57; EH/E 36; IO/E 171; AFS2/AFS2 100; AFS3/AFS4 100.

Male (Allotype). Derm, pubescence, and major features similar to above, except the last 3 abdominal sterna more densely clothed with whitish buff setae, the last pilose. This specimen had been badly mildewed with much of the dorsal vestiture lost. BL 8.90 mm; BB 4.20 mm; PNL 199 cmm (= 100ths mm); PNB 224 cmm; ELL 623 cmm; ELB 415 cmm; IO 92 cmm; EB 162 cmm; EH 20 cmm; E 62 cmm; AS (cmm): 188 : 44 : 38 : 32 : 30 : 26 : 26 : 26 : 104 (= club: 48+24+32). Ratios (× 100): BL/BB 212; PNL/PNB 89; ELL/ELB 150; IO/EB 57; EH/E 32; IO/E 148; AFS1/AFS2 116; AFS3/AFS4 107.

Paratypes (6♀, 5♂). Some of the paratypes are not in good condition due to earlier mildewing. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 10, including holotype, allotype): BL 7.39–10.08 mm; BB 4.03–5.38 mm; PNL 183–241 cmm (= 100ths mm); PNB 203–299 cmm; ELL 564–805 cmm; ELB 390–531 cmm; IO 84–120 cmm; EB 144–196 cmm; EH 18–22 cmm; E 52–68 cmm; AFS1 36–48 cmm; AFS2 34–44 cmm; AFS3 24–34 cmm; AFS4 22–34 cmm. Ratios (× 100): BL/BB 183–212; PNL/PNB 81–90; ELL/ELB 141–154; IO/EB 57–64; EH/E 30–38; IO/E 148–194; AFS1/AFS2 100–126; AFS3/AFS4 100–109.

Types. Holotype ♀ (BPBM 16,396), paratype ♀, HAWAI'I: South Kohala: Waikoloa, Kamakoa Gulch, 915 m (3000 ft), 19.ix.1939, *Bidens*, E.Y. Hosaka collector; Saddle Road, Mile 52 [near Kamakoa Gulch], 915 m (3000 ft), 22.i.1977, R.C.A. Rice collector (allotype ♂, 3♂ paratypes, 5♀ paratypes, 1♀ paratype lacking head and prothorax); Puakō, 245 m (800 ft), 22.vi.2002, sweeping *Chenopodium*, S.L. Montgomery collector (1♂ paratype); North Kona: Pohakuloa Training Area Military Reservation (Burnt Tie Area 896), ca. 1500 m, 1.i.1997, P.T. Oboyski collector (1♂ paratype); same data, except, 27.x.2000, Malaise trap (1♀ paratype). Paratypes distributed to BMNH (♀), USNM (pair).

Collection and taxonomic history. This new species is named for the stars, which are seen with great clarity from parts of the Big Island.

Distribution. Hawai'i. South Kohala, North Kona. First collected in 1939 but remained unstudied until now. Broad lowland distribution: Pattern 1a.

Habitat and life history notes. *Bidens* and *Chenopodium* are possible hosts. The habitat is the dry, leeward slopes below the saddle between Mauna Kea and Mauna Loa; much of the area has been altered into rangeland. The present scene includes Lowland Dry Grassland and Lowland Dry Shrubland (Gagné & Cuddihy, 1990: 67–70, 70–72).

Status. Extant. Five collections to 2002. Threats would include replacement of native plant hosts by the widespread occurrence of forage plants or escaped exotic grasses; also possible predation by ants or rodents.

Rhyncogonus stygius Perkins Figs. 43, 82, 125

Rhyncogonus stygius Perkins, 1900, FH 2: 124 (original description); Perkins, 1927, PHES 6: 457.—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018; Howarth & Mull, 1992, HIK, 116 (photo, *in situ*).

Diagnosis. Species group: *stygius* group. With *R. pi* n. sp., *R. segnis* Perkins. These species (in group) appearing ± glabrous but dorsum with a fine micropubescence, additionally prothorax with lateral stripe remnant ± tufted basally but otherwise weakly developed or incomplete, and elytral disc with granules on at least outer interstices. Differs from *R. segnis* by having the central part of the elytral humeral margin weakly developed (vs well-defined), elytral infolded surface with limited white squamose patches (vs no patches) and the darker, piceous or blackish coloration (vs a slightly paler reddish fuscous).

Female (Lectotype). Derm, pubescence, and major features as noted in redescription. BL 13.61 mm; 6.22 mm; PNL 291 cmm (= 100ths mm); PNB 324 cmm; ELL 988 cmm; ELB 606 cmm; IO 136 cmm; EB 228 cmm; EH 22 cmm; E 64 cmm; AS (cmm): 320 : 70 : 64 : 48 : 40: 38 : 38 : 38 : 136 (= club: 52+36+48). Ratios (× 100): BL/BB 219; PNL/PNB 90; ELL/ELB 163; IO/EB 60; EH/E 34; IO/E 213; AFS1/AFS2 109; AFS3/AFS4 120.

Male (nov.). Derm, pubescence, and major features as noted below. BL 13.61 mm; 6.06 mm; PNL 282 cmm (= 100ths mm); PNB 307 cmm; ELL 921 cmm; ELB 605 cmm; IO 116 cmm; EB 208 cmm; EH 34 cmm; E 68 cmm; AS (cmm): 336 : 76 : 72 : 52 : 48 : 40 : 40 : 40 : 140 (= club: 52+40+48). Ratios (× 100): BL/BB 225; PNL/PNB 92; ELL/ELB 152; IO/EB 56 EH/E 50; IO/E 171; AFS1/AFS2 111; AFS3/AFS4 118.

Redescription (pooled). Gross body length 13.1–15.3 mm (o.d. 12.5–15 mm). Derm piceous to black. Dorsal pubescence of clear silvery setae and white lanceolate squamae. Rostrum and front finely and sparsely setose on rostrum and sparsely squamose along inner eye margins (squamae short but lanceolate). Antennal scape finely setose, setae ± sparse. Pronotum with very fine short sparse setae on disc, these rather evenly continued to side of prothorax without forming a lateral stripe but sometimes a patch of white narrow squamae at base on each side. Scutellum very finely and narrowly squamose. Elytron finely setose on disc, the pubescence generally finer than that of pronotum. Raised elytral sensory setae not evident. Elytral infolded surface with basal patches or broken longitudinal lines of white squamae, these not large and mostly confined to basal half. Ventral surfaces rather finely clothed with silvery setae; abdominal sterna becoming more evenly and densely setose on 3+5 in ♀; pubescence subdense on 3+4, and pilose on 5 in male. Femora setose and squamose, the later densest preapically and forming a distinct band. Tibiae with setae and bristles of moderate length.

Rostrum and front ± coarsely strigose, the ridges smooth and shining; punctures mostly small. Eye circular to just subovate, moderately small and strongly raised. Antennal funicular segment 1 much longer than afs2; afs3 subequal to or slightly longer than afs4. Prothorax subglobose-cylindrical, sides moderately convex; base moderately emarginate across middle; disc somewhat evenly convex, sometimes slightly flattened sublaterally; median impunctate line obsolescent to narrow, incomplete: restricted to middle part, surface smooth; discal punctures close and fine to small, commonly 2–4 × as large as intervals; larger intervals slightly swollen, smaller intervals briefly raised between punctures; surface smooth with a hint of granulation. Elytron ± slender, the preapical closure nearly straight to feebly sinuate before very slightly produced apex; disc convex; puncture rows distinct to beyond 8 with only lateralmost rows irregular or confused; interstices rather narrow, evenly and slightly convex; punctures moderately small; surface dull alutaceous, subopaque and adorned with many smooth grains; humeral margin reaching apex, the entire edge set with smoothly rounded teeth; margin in male rounded basally through mid portion (sometimes obsoletely beaded along middle) and only sharply beaded along apical 3/10; margin in ♀ finely beaded basally, ± rounded along middle and sharp apically. Ventral surfaces granulate to subshagreened with a dull satiny lustre. Femora granulate-alutaceous-punctulate with minute grains. Tibiae finely granulate-asperate, the latter feebly raised and briefly microrugulose. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 6, including lectotype, ♂ nov.): BL 13.10–15.29 mm; 6.05–6.72 mm; PNL 282–324 cmm (= 100ths mm); PNB 307–382 cmm; ELL 921–1096 cmm; ELB 598–672 cmm; IO 116–156 cmm; EB 208–250 cmm; EH 22–34 cmm; E 60–72 cmm; AFS1 68–88 cmm; AFS2 60–72 cmm; AFS3 44–52 cmm; AFS4 40–48

cmm. Ratios (× 100): BL/BB 213–228; PNL/PNB 85–92; ELL/ELB 148–176; IO/EB 56–62; EH/E 34–50; IO/E 171–217; AFS1/AFS2 109–133; AFS3/AFS4 100–120.

Types. Lectotype label data. *Rhyncogonus stygius* Type. Halemanu Kauai v.1895. Perkins. [handwritten in ink on surface of cardmount with specimen]/ 502. [handwritten in ink on undersurface of same card, = Perkins field number]/ Type [typeset circular label with red border]/ Hawaiian Is. 1900–99. [typeset]/ + new lectotype label.

Material examined. **KAUA'I**: 1220 m (4000 ft), R.C.L. Perkins collector (lectotype ♀ and 1♀ paralectotype, BMNH); same data (1♀ paralectotype); Perkins' field number 501 = Kaua'i, Halemanu, 1220 m (4000 ft), v.1895, Perkins, Fauna Hawaiiensis Collection (1 ♀ paralectotype); Halemanu, 12.vii.1937, *Acacia koa*, E.C. Zimmerman collector (1♂ ex); Koke'e, 24.viii.1959, J.W. Beardsley collector (1♀ ex); Koke'e, 25.vii.1958, R.C.A. Rice collector (1♀ ex); Kumuwela Lookout, 1100 m (3600 ft), 26.viii.1975, on *koa*, Rice (2♂, 3♀ ex); same data but 27.ix.1975 (7♂, 9♀ ex); Kumuwela Lookout, 16.vii.1976, Rice (1♂, 1♀ ex); 0–4 km on Kumuwela Trail, Koke'e, 1160 m (3800 ft), 16.iv.1976, Rice (1♂, 2♀ ex); Kaou, Koke'e, 1050 m (3450 ft), 14.iv.1976, Rice (18♂, 16♀ ex); Halemanu Lookout Trail, Koke'e, 1070 m (3500 ft), 31.xii.1975, Rice (1♂ ex); same data but 14.iv.1976 (3♂, 2♀ ex). Examples (pairs) distributed to BMNH, CAS, MNHN, USNM.

Collection and taxonomic history. Described by Perkins, 1900: 124 ("Kauai, Halemanu (4000 ft.)."; syntypes in BMNH, BPBM). Four specimens appear to comprise this series. The actual number was not given, though a range of body lengths was stated in the original description. The BMNH syntypes seen through the kindness of Ms Sharon Shute, London. Lectotype presently designated to stablize the taxonomy of the species.

Distribution. Kaua'i. Halemanu, 1220 m, Koke'e. Restricted montane distribution: Pattern 4.

Habitat and life history notes. Some specimens were taken from *Acacia koa*, a probable plant host. The habitat is possibly *Koa* Mesic Forest or Diverse Mesic Forest subtypes of the Lowland Mesic Forest community (Gagné & Cuddihy, 1990: 80–85).

Status. Extant. Various collections to 1976. Threats include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus sylvicola Perkins Figs. 46, 88, 129

Rhyncogonus sylvicola Perkins, 1900, FH 2: 130 (original description).—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.

Diagnosis. Species group: *tuberculatus* group. With *R. haupu* n. sp., *R. kahili* n. sp., *R. tuberculatus* Perkins. Differs from *R. tuberculatus* by having pustules small and its associated bristle ± flat or decumbent; the elytral humeral margin with outline barely interrupted by low rounded serrations (vs larger elytral prominences, each with an associated suberect bristle and the outline of the humeral margin distinctly interrupted by tubercles). This species has close similarities to the *R.kauaiensis* group due the small pustulate tubercles (absent in *R. kauaiensis* Perkins) which are hardly tubercles at all; both groups are characterized by elongate, subcylindrical prothorax, robust and ± gibbous elytra (female), eye of moderate size and elevation, rather strong stripe at sides of prothorax, and elytral infolded surface with strong patchy pubescence.

Female (Lectotype). As noted in redescription. BL 9.05 mm; BB 4.48 mm; PNL 191 cmm (= 100ths mm); PNB 208 cmm; ELL 606 cmm; ELB 448 cmm; IO 100 cmm; EB 172 cmm; EH 22 cmm; E 54 cmm; AS (cmm): 204 : 56 : 48 : 32 : 28 : 26 : 26 : 26 : 102 (= club: 40+30+32). Ratios (× 100) BL/BB 202; PNL/PNB 92; ELL/ELB 135; IO/EB 58; EH/E 41; IO/E 185; AFS1/AFS2 117; AFS3/AFS4 114.

Redescription (pooled, females). Gross body length 7.5–9.5 mm (o.d. 9–9.5 mm). Derm subpiceous. Dorsal pubescence of whitish setiform squamae, becoming slightly thicker lanceolate in places. Rostrum and front sparsely setose with a few broader squamae at inner eye margins. Antennal scape finely setose; some setae slightly raised and curved. Pronotum submoderately setiform on central disc, squamae becoming a little thicker anteriorly and basally; the latter becoming quite dense and forming a heavy stripe on each side. Scutellum densely squamose. Elytron submoderately and subevenly clothed with setiform squamae, squamae densest on base of

humeral margin and just beneath that margin on the infolded surface. Sensory setae low and curved and not conspicuous on elytron, these located preapically and along the suture (otherwise barely evident on disc). Ventral surfaces: pubescence moderate and setose; last abdominal sternum most heavily clothed. Femora with lanceolate squamae forming a preapical band. Tibiae set with short bristles and some elongate fine setae.

Rostrum and front strigose, surface (ridges) smooth shining; the anterior part rugulose and dull granulate, the vertex with close fine punctures, intervals granulate. Eye subcircular, moderately large and elevated. Antennal funicular segment 1 much longer than afs2; afs3 slightly longer than afs4. Prothorax subcylindrical, sides weakly convex; anterior margin and base slightly emarginate across middle; disc flattened basally, otherwise convex; median impunctate line narrow, surface smooth shining; discal punctures of mixed sizes: small and moderate, these deep; intervals raised and smooth. Elytron robust; preapical closure concave to acuminate apex, each obliquely emarginate; disc subgibbous postbasally; puncture rows fairly distinct to interstice 8, then ± obscure; punctures small; interstices feebly swollen, surface smooth-alutaceous with a slightly dulled shine; surface otherwise with a few low pustules (not quite tubercles); humeral margin continued to apex, edge ± smooth along basal 2/3, then with rounded serrations on apical 1/3; margin sharply explanate basally, then sharp to apex; infolded surface smoother than disc and lacking pustules. Ventral surfaces not examined. Femora smooth-granulate-punctate with low asperations. Tibiae granulate-asperate. Spermatheca as figured.

The lectotype is blacker than the slightly paler, more reddish paralectotype. The latter has the pronotal median impunctate line more strongly developed and reaching base (only developed along the middle 1/3 in the lectotype) and the elytral pustules a little less conspicuous.

Male (nov.). Smaller and flatter than ♀. Pronotal intervals smooth with a hint of granulation. Elytron slender, the disc irregularly flattened; humeral margin ± sharply beaded along length, the outline with rounded dentations. Ventral surfaces lustrous smooth-subshagreened; abdominal sterna 1+2 broadly and shallowly concave, 1+3 moderately setose, 4–5 increasingly more densely setose with 5 pilose. Aedeagus: apex as figured.

BL 8.57 mm; BB 4.03 mm; PNL 199 cmm (= 100ths mm); PNB 212 cmm; ELL 581 cmm; ELB 390 cmm; IO 80 cmm; EB 148 cmm; EH 20 cmm; E 54 cmm; AS (cmm): 236 : 60: 48 : 36 : 32 : 28 : 28 : 32 : 124 (= club: 48+36+40). Ratios (× 100): BL/BB 213; PNL/PNB 94; ELL/ELB 145 IO/EB 54; EH/E 37; IO/E 148; AFS1/AFS2 125; AFS3/AFS4 113.

Range (n = 5, including lectotype, ♂ nov.): BL 7.56–9.41 mm; BB 3.11–4.54 mm; PNL 149–208 cmm (= 100ths mm); PNB 174–220 cmm; ELL 498–659 cmm; ELB 315–448 cmm; IO 68–84 cmm; EB 124–160 cmm; EH 18–22 cmm; E 44–58 cmm; AFS1 46–60 cmm; AFS2 38–48 cmm; AFS3 26–36 cmm; AFS4 24–32 cmm. Ratios (× 100): BL/BB 202–243; PNL/PNB 86–94; ELL/ELB 135–158; IO/EB 53–58; EH/E 34–41; IO/E 145–185; AFS1/AFS2 117–130; AFS3/AFS4 108–117.

Types. Lectotype label data. *Rhyncogonus sylvicola*. Type. Kauai 4000 ft. Perkins [handwritten in ink on cardmount with specimen]/ Type [circular typeset label with red border]/ Hawaiian Is. 1900-99. [typeset]/ Halemanu, Kauai, 4000 ft. Perkins. v. 1895. [typeset]/ + new lectotype label.

Material examined. **KAUA'I**. Halemanu 1200 m (4000 ft), v.1895, R.C.L. Perkins collector (lectotype ♀, BMNH, paralectotype ♀); Kumuwela, 19.viii.1925, *Coprosma*, O.H. Swezey collector (1♂ ex); 0–1/4 mile on Kumuwela Trail, Koke'e, 1160 m (3800 ft), 16.iv.1976, R.C.A. Rice collector (1♂, 1♀ ex).

Collection and taxonomic history. Described by Perkins, 1900: 130 ("Kauai, Halemanu (4000 ft.); 2 ♀ taken."; syntypes in BMNH, BPBM). The BMNH "principal syntype" was seen through the kindness of Ms Sharon Shute, London. It is this syntype that is now designated as the lectotype to stabilize the taxonomy of the species. This species has shown up infrequently since its description.

Distribution. Kaua'i. Mountains at around 1000–1200 m elevation in the Koke'e area. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The habitat is Montane Mesic Forest, probably within the *Acacia-Metrosideros* belt (Gagné & Cuddihy, 1990: 97–98). The only plant host/associate record is *Coprosma*.

Status. Extant. Three collections to 1976. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus tristis Samuelson, **n. sp**. Figs. 37, 105, 139

Rhyncogonus species A: Howarth & Mull, 1992, HIK, 116 (photo, *in situ*).

Diagnosis. Species group: *sordidus* group, *sordidus* subgroup. With *R. lahainae* Perkins, *R. montygorum* n. sp., *R. sordidus* Perkins, *R. wiliwilinui* n. sp. in the subgroup. This species has a more abrupt aedeagal apical closure with sides more strongly concave than in the others (the unique male of *R. lahainae* not dissected). Differs from *R. lahainae* Perkins by having the prothorax less globose. All subgroup members are from different islands.

Male (Holotype). Gross body length 11.8 mm. Derm dorsally appearing dark grayish at distance but reddish fuscous to subpiceous under strong lights. Head and pronotal disc darkest, subpiceous; elytra slightly paler and duller reddish. Antenna dark red-fuscous. Venter and legs moderately dark red-fuscous. Pubescence of fine grayish to buff setiform squamae and thicker whitish to buff lanceolate squamae. Rostrum and front rather sparsely clothed with setiform squamae and with a line of broader whitish squamae along inner eye margins. Antennal scape setose, the setae partly fine and adpressed and some slightly raised and curved. Pronotum submoderately clothed with mixed buff and whitish setae on central disc, these merging with heavier squamae at side where pubescence remains largely diffuse with perhaps a hint of a lateral stripe. Scutellum with a patch of fine straight white adpressed squamae. Elytron clothed with a patchy pubescence of whitish buff slender squamae distally but the infolded surface with only a few patches. Elytral sensory setae slightly raised and curved but not too conspicuous. Ventral surfaces moderately clothed with slender silvery setae, these becoming denser on abdominal sternum 3 and densely pilose on 4+5. Trochanteral bristles single. Femora subevenly clothed with whitish slender squamae, these tending to be only slightly thicker ventrally on the hind legs forming an indistinct band at most. Tibiae set with short bristles and some fine elongate setae.

Rostrum and front flattened, the surface granulate with a dull shine; punctures largest and elliptical on mid rostrum but very fine and circular on anterior part; interocular surface briefly substrigose: some weak longitudinal ridges; vertex with close fine circular punctures, intervals smoother but with a hint of granulation. Eye subovate, moderately large but not strongly elevated. Antennal funicular segment 1 longer than afs2; afs3 longer than afs4. Prothorax subcylindrical, sides weakly convex; anterior margin and base slightly emarginate across middle; disc briefly flattened basally, otherwise convex; median impunctate line narrow, slightly broadened along middle, otherwise obsolescent, surface finely granulate, with a fairly bright shine; discal punctures mixed of generally small-moderate sizes, these close and deep; intervals slightly raised, ± reticulate and finely granulate; antebasal surface smoother and less densely punctured than disc. Elytron subrobust; preapical closure nearly straight to apex; disc convex; puncture rows regular on 1–4, then becoming more irregular to confused; punctures of moderate size internally, smaller laterally interstices nearly flat, the surface opaque, dull; humeral margin apically continued to apex, edge rather smooth; margin ± rounded from base through middle and becoming beaded along apical 1/3; infolded surface similar to outer part of disc but with innermost 2 rows more regular. Ventral surfaces smooth-subshagreened-punctate with a satiny lustre; punctures small to moderate sized and generally shallow; abdominal sterna 1+2 very shallowly concave to flat. Femora smooth-granulate-punctulate with a moderately bright shine. Tibiae granulate, generally smooth except for low asperites.

BL 11.76 mm; BB 5.54 mm; PNL 274 cmm (= 100ths mm); PNB 315 cmm; ELL 896 cmm; ELB 544 cmm; IO 116 cmm; EB 194 cmm; EH 28 cmm; E 68 cmm; AS (cmm): 300 : 76 : 64 : 48 : 40 : 40 : 38 : 44 : 136 (= club: 56+36+44). Ratios (× 100) BL/BB 212; PNL/PNB 87; ELL/ELB 165; IO/EB 60; EH/E 41; IO/E 171; AFS1/AFS2 119; AFS3/AFS4 120.

Female (Allolectotype). Some differences from male are: pronotum smoother, shinier and more regularly convex; elytron with preapical closure sinuate before slightly extended apex; humeral margin weakly beaded from base to apex. Derm, pubescence, and major features otherwise as in male.

BL 15.29 mm; BB 7.56 mm; PNL 324 cmm (= 100ths mm); PNB 382 cmm; ELL 1087 cmm; ELB 722 cmm; IO 136 cmm; EB 280 cmm; EH 26 cmm; E 72 cmm; AS (cmm): 348 : 84 : 66 : 50 : 44 : 42 : 42 : 44 : 128 (= club: 52+32+44). Ratios (× 100) BL/BB 202; PNL/PNB 85; ELL/ELB 151; IO/EB 60; EH/E 36; IO/E 189; AFS1/AFS2 131; AFS3/AFS4 114.

Paratypes. The whole series is rather uniformly somber grayish with patchy elytral pubescence but some specimens rubbed with much of discal area bare and dull, opaque. Some males have the prothorax rather strong-

ly globose. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 12, including holotype, allotype): BL 11.76–15.29 mm; BB 5.54–7.56 mm; PNL 270–324 cmm (= 100ths mm); PNB 311–382 cmm; ELL 830–1087 cmm; ELB 540–722 cmm; IO 108–140 cmm; EB 188–280 cmm; EH 22–28 cmm; E 60–74 cmm; AFS1 66–84 cmm; AFS2 52–70 cmm; AFS3 38–56 cmm; AFS4 34–46 cmm. Ratios (× 100): BL/BB 197–215; PNL/PNB 82–89; ELL/ELB 147–165; IO/EB 56–63; EH/E 35–41; IO/E 165–213; AFS1/AFS2 113–131; AFS3/AFS4 110–126.

Types. Holotype ♂ (BPBM 16,397), 1 paratype ♀, KAUA'I: Makaha Ridge Road, 28.viii. 1976, R.C.A. Rice collector; Makaha Ridge Road, 1000 m (3300 ft), 25.x.1975, Rice (allotype ♀, 14♀, 3♂ paratypes); same as preceding but 27.iii.1976, Rice (1♂ paratype). Paratypes (♀) distributed to BMNH, CAS, HDOA, USNM.

Collection and taxonomic history. This new species was first collected in 1975 by R.C.A. Rice, possibly the first person to search for any *Rhyncogonus* on Makaha Ridge, Kaua'i. The name is in keeping with the somber appearance of this insect.

Distribution. Kaua'i. Makaha Ridge at about 1000 m elevation. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The habitat of Makaha Ridge may possibly be Montane Mesic Forest (Gagné & Cuddihy, 1990: 97–99).

Status. Extant. Three collections to 1976. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus tuberculatus Perkins Figs. 47, 85, 126

Rhyncogonus tuberculatus Perkins, 1900, FH 2: 129–130 (original description).—Swezey, 1954, BMSP 44: 190.—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.

Rhyncogonus tubercullatus: Howarth & Mull, 1992, HIK, 114 (photo 103, *in situ*).

Diagnosis. Species group: *tuberculatus* group. With *R. haupu* n. sp., *R. kahili* n. sp., *R. sylvicola* Perkins. This species group is restricted to Kaua'i and is characterized by having elytral tubercles, these fairly large in this species and smallest in *R. sylvicola*. Differs from *R. kahili* by having raised setae on the antennal scape (vs adpressed setae) and the elytral tubercles occurring throughout the disc (vs restricted to the sublateral part).

Male (Lectotype). Derm, pubescence, and major features as noted in redescription. BL 8.06 mm; BB 3.70 mm; PNL 183 cmm (= 100ths mm); PNB 203 cmm; ELL 531 cmm; ELB 361 cmm; IO 84 cmm; EB 140 cmm; EH 18 cmm; E 44 cmm; AS (cmm): 200 : 44 : 38 : 30 : 28 : 28 : 28 : 28 : 104 (= club: 48+28+28). Ratios (× 100) BL/BB 218; PNL/PNB 90; ELL/ELB 147; IO/EB 60: EH/E 41; IO/E 191; AFS1/AFS2 116; AFS3/AFS4 107.

Female (Allolectotype). Derm, pubescence, and major features as noted below. BL 8.40 mm; BB 4.12 mm; PNL 208 cmm (= 100ths mm); PNB 224 cmm; ELL 598 cmm; ELB 407 cmm; IO 96 cmm; EB 152 cmm; EH 18 cmm; E 46 cmm; AS (cmm): 220 : 48 : 44 : 32 : 28 : 28 : 30 : 30 : 96 (= club: 38+26+32). Ratios (× 100) BB/BL 204; PNL/PNB 93; ELL/ELB 147; IO/EB 63; EH/E 39; IO/E 209; AFS1/AFS2 109; AFS3/AFS4 114.

Redescription (pooled). Gross body length 7.3–9.3 mm (o.d. 8.5–9 mm). Derm red-fulvous to darker red-fuscous. Dorsal pubescence of buff setae and squamae. Rostrum and front moderately setose, these becoming heavier and denser above; inner eye margins with a dense patch of stout squamae. Antennal scape finely setose, the setae distinctly raised. Pronotum rather thinly clothed on central disc, permitting darker derm to predominate, squamae becoming thicker laterally and blending with a fairly dense stripe of stouter squamae at side of prothorax. Elytra rather densely and evenly clothed with buff squamae. Erect sensory setae present as a single bristle on each elytral tubercle. Elytral infolded surface unevenly but densely clothed with squamae. Ventral surfaces with pubescence moderate and even but closer on apical abdominal sterna. Femora setose and squamose, the later forming a pale band preapically. Tibiae bearing short setae and bristles.

Rostrum and front strigose, surface granulate except the raised intervals that are ± smooth with only slight granulosity. Eye subovate, moderate in size and elevation. Antennal funicular segment 1 longer than afs 2; afs

3 slightly longer than afs 4. Prothorax subcylindrical, sides not strongly convex; apical margin and base rather straight across middle; disc subevenly convex, somewhat flattened medially on basal part; median impunctate line obsolescent; discal punctures mostly obliterated but surface irregular and granose. Elytron of average robustness in ♀ and more slender in male; preapical closure slightly concave to slightly acuminate apex; disc slightly flattened; puncture rows largely mostly irregular to confused, often partly obscured by pubescence; intervals flat except tuberculate areas, tubercles mainly follow in loose series: along sutural margin, interstice 4, 8, and between 8 and humeral margin, and on humeral margin itself; derm opaque (where visible); humeral margin continued to preapex, the outline interrupted by tubercles along entire length; the edge sharply beaded in both sexes; infolded surface flat and opaque. Ventral surfaces ± shagreened with a satiny lustre; abdominal sterna 1+2 in male broadly concave; in ♀ depressed basally but otherwise flat. Femora ± smooth and granulate with scattered small grains. Tibiae smooth-granulate with small grain-like asperites. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 8, including lectotype, allolectotype): BL 7.39–9.24 mm; BB 3.36–4.70 mm; PNL 158–208 cmm (= 100ths mm); PNB 191–240 cmm; ELL 490–614 cmm; ELB 336–457 cmm; IO 76–96 cmm; EB 132–166; EH 16–20 cmm; E 35–46 cmm; AFS1 44–60 cmm; AFS2 38–64 cmm; AFS3 28–36 cmm; AFS4 26–32 cmm. Ratios (× 100): BL/BB 196–234; PNL/PNB 83–93; ELL/ELB 127–147; IO/EB 54–63; EH/E 35–41; IO/E 146–209; AFS1/AFS2 109–140; AFS3/AFS4 100–114.

Types. Lectotype label data: *Rhyncogonus tuberculatus* Perkins Type. [handwritten in ink on surface of card to which the specimen is pinned]/ Type [circular typeset label with red border]/ Hawaiian Is. 1900-99. [typeset]/ Halemanu. Kauai, 4000 ft. Perkins. v. 1895. [typeset]/ + new lectotype label.

Material examined. **KAUA'I**: Halemanu, 4000 ft, v.1895, R.C.L. Perkins collector (lectotype, allolectotype); same loc., 12.viii.1925, *Acacia koa*, O.H. Swezey collector; Miloli'i, 7.viii.1925, *Lobelia*, Swezey (1 ex); Kumuwela, 3.viii.1925, *Rubus*, Swezey (4 ex); Trail from Koke'e to Kalalau, 15.viii.1925, *Scaevola*, Swezey (1 ex); Koke'e, 6.vii.1937, *Alyxia*, E.C. Zimmerman collector (4 ex); near Koke'e, 14,16,17,19.vii.1937, Zimmerman (20 ex, including 9 from *Gouldia*); Kaunuohua Ridge, 20,21,22.vii.1937, Zimmerman (51 ex); Koke'e, Pu'u Kaohelo Trail, 1130 m (3700 ft), 14.viii.1975, R.C.A. Rice collector (14 ex); Koke'e, 0–0.4 km on Nualolo Trail, Rice (15 ex); Koke'e, 0–0.4 km on Honopu Trail, 1250 m (4100 ft), 14.viii.1975, Rice (7 ex); Upper Miloli'i Road, 28.viii.1975, Rice (16 ex); Makaha Ridge, 1000 m (3300 ft), 25.x.1975, Rice (15 ex); Koke'e, Miloli'i Road, 975 m (3200 ft), 7.x.2001, in litter at base of *Melicope knudsenii*, M. LeGrande & K.R. Wood collectors, # 1115 (fragments of 1 ex); same data, except in litter at base of *Psychotria mariniana*, LeGrande & Wood, # 1116 (fragments of 5 ex). Examples (pairs) distributed to BMNH, CAS, MNHN, USNM.

Collection and taxonomic history. Described by Perkins, 1900: 129–130 ("Kauai, Halemanu (4000 ft.); 1♂ 1♀ taken."; syntypes in BMNH, BPBM). The "primary syntype" was seen through the kindness of Ms Sharon Shute, London. This specimen is a male and is hereby designated the lectotype to stabilize the taxonomy of the species.

Distribution. Kaua'i. Mountains at around 1000–1250 m elevations in the Koke'e area. The original pair was collected at Halemanu at around 1200 m, a locality near or within Koke'e State Park. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The habitat is Montane Mesic Forest, probably within the *Acacia-Metrosideros* belt (Gagné & Cuddihy, 1990: 97–98). Plant hosts/associates are: *Acacia koa*, *Alyxia*, *Gouldia*, *Lobelia*, *Melicope*, *Psychotria*, *Rubus*, and *Scaevola*.

Status. Extant. Various collections to 1975; fragments found in 2001. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus vestitus Sharp Figs. 53, 109, 150

Rhyncogonus vestitus Sharp, 1885, RDST (2)3: 177–178 (original description).—Blackburn & Sharp, 1885, RDST (2)3: 253,287.—Perkins, 1900, FH 2: 130; Perkins, 1913, FH 1: 119 roman; Perkins, 1924, PHES 379.—Williams, 1931, HSCI, 209.—Swezey, 1934, PHES 8: 527.

Diagnosis. Species group: *vestitus* group. With *R. bryani* Perkins, *R. extraneus* Perkins, *R. gagneorum* n. sp.,*R. kapapa* n. sp., *R. saltus* Perkins. Species in this group have conspicuous raised sensory setae dorsally (on elytra at least), small protruding eyes, and usually subequal antennal funicular segments 1 and 2. *R. vestitus* is a ± robust species with rather smooth uniformly convex body form much like *R. extraneus*. Differs from the latter in having the elytral sensory setae shorter and carried lower (vs straight and suberect).

Male (Lectotype). Derm, pubescence, and major features as noted in redescription. BL 7.90 mm; BB 4.03 mm; PNL 174 cmm (= 100ths mm); PNB 203 cmm; ELL 531 cmm; ELB 398 cmm; IO 82 cmm; EB 140 cmm; EH 20 cmm; E 40 cmm; AS (cmm): 164 : 30 : 30 : 28 : 26 : 22 : 22 22 : 92 (= club: 40+20+32). Ratios (× 100): BL/BB 196; PNL/PNB 86; ELL/ELB 133; IO/EB 59; EH/E 50; IO/E 205; AFS1/AFS2 100; AFS3/AFS4 108.

Female (Allolectotype). Derm, pubescence, and major features as noted below. This is the specimen with the dark areas on the elytra mentioned in the original description. These areas were rubbed; otherwise, the vestiture of this specimen is intact and in better condition than that of the male. BL 8.90 mm; BB 4.54 mm; PNL 208 cmm (= 100ths mm); PNB 232 cmm; ELL 598 cmm; ELB 440 cmm; IO 96 cmm; EB 164 cmm; EH 24 cmm; E 48 cmm; AS (cmm): 180 : 28 : 28 : 26 : 24 : 20 : 20 20 : 84 (= club: 36+20+28). Ratios (× 100): BL/BB 196; PNL/PNB 89; ELL/ELB 136; IO/EB 59; EH/E 50; IO/E 200; AF1/AFS2 100; AFS3/AFS4 108.

Redescription (pooled). Gross body length 6.0–9.5 mm (o.d. 8–9 mm). Derm red-fulvous to subpiceous; antenna and legs dark red-fuscous. Dorsal pubescence setose of clear silvery to slightly yellowish hairs and of white or yellow-buff squamae, these usually short and robust obovate-lanceolate. Rostrum and front moderately setose and subdensely squamose, the scales often mixed with more buff centrally and white laterally, densely white squamose along inner eye margins. Antennal scape setose, setae slightly curved and raised. Pronotum mixed with setae and squamae on disc, less dense centrally with more derm showing, the pubescence predominantly buff distally, becoming thicker and more whitish laterally as a dense stripe. Scutellum clothed with small slender white squamae. Elytron with squamae ± predominantly white with some buff and a tendency for patches of white or buff, these squamae generally shorter than those of pronotal disc. Raised but fairly short sensory setae moderately dense on pronotal and elytral discs. Ventral surfaces generally setose with heavier squamae toward sides of thorax and abdominal sterna 1+2; in male, the setae less dense on 1+2 than on the following which become pilose on 4+5; in ♀ the pubescence more uniform. Femora with setae and squamae rather evenly distributed to apex. Tibiae squamose and set with raised setae and bristles of short to moderate length.

Rostrum and front reticulate-punctate to coarsely strigose, intervals and ridges smooth. Eye circular, moderately small, and strongly raised. Antennal funicular segment 1 subequal to or shorter than afs2; afs3 subequal to or slightly longer than afs4. Prothorax subcylindrical, sides convex; base straight to feebly concave across middle; disc subevenly convex and appearing rather rough on a fine scale due to deep punctures or narrow intervals; median impunctate line obsolescent to narrow, surface smooth shining; discal punctures small to moderately large, the smaller punctures occupying the broader intervals; intervals flattened-punctulate to narrow-subreticulate, surface smooth, with a hint of granulosity. Elytron robust, preapical closure feebly sinuate near apex; disc convex; puncture rows sometimes distinct to beyond 8 with outermost rows somewhat irregular or rows sometimes irregular from 4 to 8 and beyond to humeral margin; interstices slightly swollen; punctures often obscured by vestiture but moderately large; surface smooth-opaque with a dull shine; humeral margin with apical part continued to apex; margin sharp basally in some ♀, otherwise in both sexes beaded basally, rounded along middle, beaded apically, edge ± smooth. Ventral surfaces finely granulate to shagreened with dull satiny lustre; abdominal sterna 1+2 with larger punctures than beyond; sterna 1+2 ± flattened in male and gently convex in ♀. Femora rather smooth-alutaceous. Tibiae smooth-alutaceous to granulate, asperate. Aedeagus (Lāna‘i specimen): apex as figured. Spermatheca (Lāna‘i specimen) as figured.

Range, Maui population (n = 8, including lectotype, allolectotype): BL 7.39–9.41 mm; BB 3.69–4.87 mm; PNL 174–216 cmm (= 100ths mm); PNB 203–249 cmm; ELL 498–664 cmm; ELB 357–473 cmm; IO 76–96 cmm; EB 136–168 cmm; EH 20–24 cmm; E 40–52 cmm; AFS1 28–36 cmm; AFS2 28–36 cmm (!); AFS3 26–32 cmm; AFS4 24–28 cmm. Ratios (× 100): BL/BB 186–200; PNL/PNB 83–89; ELL/ELB 125–143; IO/EB 51–62; EH/E 38–50; IO/E 173–205; AFS1/AFS2 89–100; AFS3/AFS4 100–117.

Range, Lāna‘i population (n = 10): BL 5.98–8.05 mm; BB 3.07–4.32 mm; PNL 154–199 cmm (= 100ths mm); PNB 166–232 cmm; ELL 448–606 cmm; ELB 307–432 cmm; IO 68–96 cmm; EB 122–160 cmm; EH 18–20 cmm; E 36–48 cmm; AFS1 26–36 cmm; AFS2 24–32 cmm; AFS3 24–28 cmm; AFS4 20–28 cmm. Ratios (× 100): BL/BB 185–203; PNL/PNB 80–95; ELL/ELB 126–146; IO/EB 55–61; EH/E 42–53; IO/E 168–215; AFS1/AFS2 100–115; AFS3/AFS4 93–120.

Types. Lectotype label data. m *Rhyncogonus vestitus* Type D.S. Maui. Blackburn. [handwritten in ink on cardmount with specimen]/ Type [circular typeset label with red border]/ Sandwich Is. [typeset]/ Sharp Coll. 1905–313./ + new lectotype label.

Material examined. **MAUI** (E/W lowlands): Maui, T. Blackburn collector (lectotype ♂, allolectotype ♀, both BMNH); Kahului, iii.1894 (5 ex); ditto, R.C.L. Perkins Collection (1 ex); Wailuku, Maui, iii.1894, R.C.L.P. (4 ex); ditto, sand hills (1 ex); Fauna Hawaiiensis Collection (17 ex); Spreckelsville, 16.xii.1912, O.H. Swezey (1 ex). MAUI (E): Makaeha, Haleakala Hwy, near bunkers, about 650 m (2125 ft), 26.ix.1994, sweeping, G.K. Uchida and C. McGrath collectors (1 ex, HDOA). **LĀNA‘I**: Hulopoe Bay, 6 m (20 ft), 2–7–71, on *Sida* leaf, J.W. Beardsley collector (2 ex); on shore of Hulopoe Bay, 2–10 m, 12.i.1987, night, picked from both *Sida* and *Gossypium*, G. Paulay and S.L. Montgomery collectors (8 ex); ditto, from *Sida* and *Gossypium* (2 ex). Examples (Lāna‘i f) distributed to MNHN, USNM.

Collection and taxonomic history. Described by Sharp, 1900: 177–178 (“Maui. No.110. Two specimens, differing very little from one another, except that one has a dark mark at the side of each wing case, owing to the absence of the scales at this point.*” — footnote: “* This species is extant in the National Collection, where it is indicated as a new genus and species by Jekel.”; syntypes in BMNH). Both BMNH syntypes were seen through the kindness of Ms Sharon Shute, London. Lectotype presently designated to stablize the taxonomy of the species.

The original publication cited “Maui. No. 110” without further data but neither specimen is so numbered. The Fauna Hawaiiensis series was mainly taken from sand hills in the Kahului-Wailuku area.

Distribution. Maui. Lowlands near Kahului, Spreckelsville, and Wailuku; Lāna‘i (new island record). Broad coastal/lowland distribution: Pattern 1a.

Habitat and life history notes. An egg batch was laid on leaves of *Gossypium* on a sample taken from Hulopoe Bay, Lāna‘i. A note read “3 hatched, ii.1987” [Paulay & Montgomery] but I don’t know whether they were kept. Coastal Dry Mixed communities (Gagné & Cuddihy, 1990: 59–60) embrace most of the range for this species. Individuals were taken from both *Gossypium* and *Sida.* Perkins (1913: 119–120) noted that *R. vestitus* was found in enormous numbers frequenting *Vitex trifolia* on the sandy isthmus on Maui. The single record from Makaeha (Maui) at about 650 m is the highest elevation reported for *R. vestitus*.

Status. Extant in part but not seen on the isthmus since 1912; 1 record from E Maui in 1994; 2 collections on Lāna‘i to 1987. Considerable urbanization has taken place on the Kahului-Wailuku sandhills, a locality where *R. vestitus* was formerly very abundant and was thought at the time to be the only locality for this species (Perkins, 1900: 130). This area could be surveyed for pockets of native plants, particularly *Gossypium* and *Sida*, as it would be worth knowing if any remnants of the population still exist there, but no specimens turned up in recent surveys (through 1999–2000) in the Kahului-Spreckelsville (airport and beach) area. *Scaevola* is the dominant shrub on the coastal dunes next to the airport and was sampled a number of times with no *R. vestitus* seen (*Gossypium* and *Sida* were not noted in that small area). The range extension to Lāna‘i is based on specimens collected within the last 30 years and this population is presumed to be extant.

Rhyncogonus vittatus Perkins Figs. 57, 75, 118

Rhyncogonus vittatus Perkins, 1900, FH 2: 129 (original description).—Van Dyke, 1922, PHES 5: 50.—Swezey, 1925, PHES 6: 198.—Perkins, 1927, PHES 6: 469,471.—Van Dyke, 1932, BMB 98: 24.—Swezey, 1954, BMSP 44: 11.—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.

Diagnosis. Species group: *vittatus* group. With *R. depressus* Perkins, *R. ricei* n. sp., *R. squamiger* Perkins. This species group is characterized by conspicuous suberect setae on the antennal scape,

elytral humeral margin continued to apex, elytral apices acuminate, and femora rather evenly clothed. *R. vittatus* differs from others of group in having elytral interstices subcostate with intervening rows of squamae better organized into stripes.

Male (Lectotype). Derm, pubescence, and major features as noted in redescription. BL 9.24 mm; BB 4.20 mm; PNL 191 cmm (= 100ths mm); PNB 216 cmm; ELL 606 cmm; ELB 407 cmm; IO 86 cmm; EB 164 cmm; EH 22 cmm; E 56 cmm; AS (cmm): 252 : 68 : 52 : 38 : 36 : 32 : 36 : 36 : 142 (= club: 54+36+52). Ratios (× 100) BL/BB 220; PNL/PNB 88; ELL/ELB 149; IO/EB 52; EH/E 39; IO/E 154; AFS1/AFS2 131; AFS3/AFS4 106.

Female (Allolectotype). Ventral surfaces: abdominal sterna 1+2 shallowly concave and becoming flattened apically; 3+4 normally tilted, each raised apically and 4 without lobe; 1+2 submoderately clothed with slender squamae centrally, these much heavier and denser toward sides; 3–5 with finer setiform squamae, these slightly denser centrally than on the preceding sterna. BL 10.75 mm; BB 4.70 mm; PNL 208 cmm (= 100ths mm); PNB 261 cmm; ELL 747 cmm; ELB 448 cmm; IO 90 cmm; EB 172 cmm; EH 24 cmm; E 56 cmm; AS (cmm): 272 : 72 : 56 : 40 : 36 : 32 : 34 : 32 : 122 (= club: 52+32+38). Ratios (× 100) BL/BB 229; PNL/PNB 79; ELL/ELB 167; IO/EB 52; EH/E 43; IO/E 161; AFS1/AFS2 129; AFS3/AFS4 111.

Redescription (pooled). Gross body length 9.0–11.0 mm (o.d. 10–11 mm). Derm dark red-fuscous to piceous. Dorsal pubescence of yellow-buff setae and squamae. Rostrum and front moderately setose and squamose, more densely squamose along inner eye margins. Antennal scape finely setose, setae curved and moderately raised. Pronotum moderately setose and squamose on central disc, the squamae short and broadly lanceolate, continued (including some setae) to each side and blending with thicker lateral stripe of broad squamae. Scutellum with small, short squamae. Elytron squamose on disc, these scales short and broadly lanceolate as on pronotum. Elytral sensory setae inconspicuous, these flat to slightly raised, short, curved, and somewhat visible on elytral disc, especially on costae. Ventral surfaces densely covered with yellowish squamae on sides, centrally more sparsely covered with slender setae. Femora clothed with setiform squamae rather evenly to apex. Tibiae set with raised setae and bristles of short length.

Rostrum and front reticulate to longitudinally rugulose, punctate, intervals and ridges smooth. Eye circular to just subovate, moderately large and raised. Antennal funicular segment 1 much longer than afs2; afs3 slightly longer than afs4. Prothorax subcylindrical, sides convex; base straight or weakly emarginate before scutellum; disc somewhat evenly convex to rugosely irregular, with sometimes occasional low swellings; median impunctate line narrow, shining; discal punctures moderately close and large; intervals smooth, shining but surface sometimes irregular. Elytron ± slender, preapical closure sinuous to acuminate apex; disc flattened in both sexes but ♀ slightly less so; puncture rows not distinct but interstices regular and swollen and equally developed on 2, 4, 6, 8, 10; punctures themselves shallow and associated with low smooth swellings; surface smooth, shining; humeral margin continued to apex: rather sharply beaded along entire length in both sexes, entire edge with rounded serrations. Ventral surfaces smooth-granulate; abdominal sternite 1 moderately depressed in male, slightly so in ♀. Femora smooth alutaceous. Tibiae granulate-asperate. Aedeagus: apex as figured. Spermatheca (paralectotype) as figured.

Range (n = 8, including lectotype, allolectotype): BL 9.07–10.92 mm; BB 4.03–5.21 mm; PNL 191–216 cmm (= 100ths mm); PNB 216–261 cmm; ELL 606–747 cmm; ELB 398–506 cmm; IO 86–104 cmm; EB 164–186 cmm; EH 22–30 cmm; E 40–56 cmm; AFS1 68–74 cmm; AFS2 52–64 cmm; AFS3 38–40 cmm; AFS4 34–38 cmm. Ratios (× 100): BL/BB 210–248; PNL/PNB 79–88; ELL/ELB 148–167; IO/EB 52–57; EH/E 39–54; IO/E 154–186; AFS1/AFS2 116–131; AFS3/AFS4 105–111.

Types. Lectotype label data. *Rhyncogonus vittatus*. Type. m. [handwritten in ink on top surface of cardmount to which specimen is pinned]/ Type [circular typeset label with red border]/ 260 [handwritten in ink = Perkins field number = Kauai, mountains above Makaweli, 2000–3000 ft, vi.'94]/ Hawaiian Is. 1900–99./ + new lectotype label.

Material examined. **KAUA'I**: mountains above Makaweli, 610–915 m (2000–3000 ft), vi.1894, Perkins no. 260, R.C.L. Perkins collector (lectotype ♂, BMNH); Makaweli, 610–915 m, vi.1894, Perkins no. 260, Fauna Hawaiiensis, Perkins (1 ♂, 1 ♀ paralectotype); 690 [= Perkins field number = Makaweli, 2000+ ft, i.1897 (allolectotype ♀, BMNH); Makaweli, 610+ m (2000+ ft), ii.1897, on *koa*, Perkins (1 ♂, 1 ♀ paralectotype);

Waimea, 915 m (3000 ft), 1894, Perkins (1 ♀ paralectotype); Waimea, 610 m (2000 ft), iv.1902, Perkins (1 ♂ ex); Kōloa Mtns, 8–2–1908, O.H. Swezey collector, Giffard Collection (1 ♂ = Sharp dissection R.5, 2 ♀ ex).

Collection and taxonomic history. Described by Perkins, 1900: 129 ("Kauai, mountains (3000 ft.); not common."; ♂ and ♀ mentioned; syntypes in BMNH, BPBM). A syntype series of 7 specimens seen. BMNH syntypes seen through the kindness of Ms Sharon Shute, London. Lectotype presently designated to stablize the taxonomy of the species.

Distribution. Kaua'i. Mountains. 600–900 m. Early collections from Makaweli and Kōloa Mountains. Restricted montane distribution: Pattern 4.

Habitat and life history notes. This species may be associated with *Acacia koa*. The Kōloa and Makaweli areas at 600–900 m essentially lie in the Lowland Mesic Forest community (Gagné & Cuddihy, 1990: 80–82). *Acacia koa* is the only plant associate noted so far.

Status. Extant. Various collections to 1908. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus welchii Perkins Figs. 27, 95, 135

Rhyncogonus welchii Perkins, 1933, PHES 8: 269 (original description).—Swezey, 1934, PHES 8: 364; Swezey, 1934, PHES 8: 528.—Ford, 1956, PHES 16: 6.—Gagné, 1974, CNPRS 6: 36.—Beattie, 1994, FR 59: 59018.—Howarth & Mull, 1992, HIK, 114 (photo 102, *in situ*).—Evenhuis, 1997, BMTR 9: 138.

Diagnosis. Species group: *sharpi* group. With *R. sharpi* Perkins. Differs from *R. sharpi* by the weakly produced eyes (vs strongly produced), larger body size, and opalescent white dorsal pubescence of squamae, forming discrete elytral discal stripe/s and spots, these strongly contrasting with pitch black elytral derm color (vs a general pubescence of squamae forming diffused stripes).

Female (Holotype). Derm, pubescence, major features as noted in redescription.. BL 18.14 mm; BB 8.40 mm; PNL 357 cmm (= 100ths mm); PNB 374 cmm; ELL 1262 cmm; ELB 830; IO 144 cmm; EB 260 cmm; EH 32 cmm; E 92 cmm; AS (cmm): 480 : 116 : 80 : 56 : 52 : 48 : 48 : 52 : 168 (= club: 70+46+52). Ratios (× 100): BL/BB 216; PNL/PNB 96; ELL/ELB 152; IO/EB 55; EH/E 35; IO/E 157; AFS1/AFS2 145; AFS3/AFS4 108.

Male (nov.). Derm, pubescence, major features as noted below. BL 14.28 mm; BB 6.22 mm; PNL 299 cmm (= 100ths mm); PNB 357 cmm; ELL 913 cmm; ELB 598; IO 126 cmm; EB 228 cmm; EH 30 cmm; E 84 cmm; AS (cmm): 384 : 100 : 76 : 44 : 38 : 38 : 36 : 36 : 156 (= club: 60+44+52). Ratios (× 100): BL/BB 230; PNL/PNB 80; ELL/ELB 153; IO/EB 55; EH/E 36; IO/E 150; AFS1/AFS2 131; AFS3/AFS4 116.

Redescription (pooled). Gross body length 14.2–18.2 mm (o.d. 18 mm). Derm subpiceous throughout head and prothorax and pitch black on elytra. Dorsal pubescence of mainly opalescent white squamae and secondarily of small whitish or silvery setae. Rostrum and front ± moderately pubescent of setiform squamae, these sparser anteriorly and forming a pair of circlets adjacent to anterior expansion of rostrum, squamae thicker along middle of rostrum and again diminishing slightly on vertex; inner eye margins with a dense patch of heavier squamae above. Antennal scape finely setose, the setae mostly adpressed. Pronotum submoderately clothed centrally with fine setae and heavier squamae, these becoming closer and heavier laterally and blending with a somewhat diffused stripe on each side. Scutellum finely setiform. Elytron with a heavy discrete longitudinal stripe occupying interstices 5–8 for entire length and partial stripes or spots on either side of main stripe; the humeral-epipleural surface with a heavy subhumeral stripe, this sometimes branching into a discal stripe, and a thin epipleural stripe. Ventral surfaces rather densely to copiously pubescent, especially abdominal sterna 4–5 in the male. Femora densely and evenly clothed with slender squamae. Tibiae set with bristles and setae of submoderate length.

Rostrum and front with a median carina flanked by strongly developed ridges on each side, the slightly depressed areas on each side of the median carina set with elongate punctures; vertex with smaller circular punctures; surfaces smooth shining. Eye large, subtriangular, and feebly raised. Antennal funicular segment 1 much longer than afs2; afs3 slightly longer than afs4. Prothorax normally robust, weakly convex at sides which converge anteriorly; anterior margin straight across middle; base slightly emarginate medially; disc subevenly con-

vex being feebly flattened medially near base; median impunctate line narrow, surface smooth; discal punctures moderately large and close; intervals smooth and flat to slightly swollen, surfaces smooth shining. Scutellum with exposed part small. Elytron fairly robust and almost wedge-shaped: broadest posthumerally and then narrowing to concave preapical closure and acuminate apex; disc convex; puncture rows 1–4 regular but 4–8 concealed beneath discal stripe, outermost part confused; punctures moderately small and deep; inner interstices flattened to weakly swollen, surface smooth shining, sometimes smooth-alutaceous; humeral margin continued and beaded to preapex, the edge smooth; margin strongly beaded in both sexes but basal 1/3 sharper in ♀; subhumeral-epipleural surface closely punctate. Ventral surfaces ± smooth but with fine granulation. Femora smooth punctulate. Tibiae closely asperate-punctate, the raised areas briefly shining. Aedeagus (male nov.): apex as figured. Spermatheca as figured.

Range (entire series, n = 5): BL 14.28–18.14 mm; BB 6.22–8.40 mm; PNL 299–357 cmm (= 100ths mm); PNB 374–432 cmm; ELL 913–1262 cmm; ELB 598–830 cmm; IO 126–144 cmm; EB 228–260 cmm; EH 20–32 cmm; E 84–92 cmm; AFS1 100–116 cmm; AFS2 72–80 cmm; AFS3 44–56 cmm; AFS4 38–52 cmm. Ratios (× 100): BL/BB 216–230; PNL/PNB 79–96; ELL/ELB 151–162; IO/EB 52–55; EH/E 23–36; IO/E 143–157; AFS1/AFS2 129–150; AFS3/AFS4 108–118.

Types. Holotype label data: Oahu, Hawaiian Is. Wai'anae Mts. Lualualei: Halona Valley/ 4th gulch SW of Pohakea Pass. Altitude about 1600 ft. Sept. 25, 1932/ on unidentified shrub or small tree. D'Alte Welch coll./ *Rhyncogonus welchii* Type [< all labels handwritten in ink]/ Holotype No.[typeset] 2563 *Rhyncogonus welchii* Perkins [handwritten].

Material examined. **O'AHU**: Wai'anae Mts., Lualualei, Halona Valley, 490 m, 25.xi.1932, d'A.A. Welch collector (1, holotype, BPBM); same loc., 31.i.1976, R.C.A. Rice collector (1♀ ex); same loc., 470 m, 13.v.1976, Rice (♂ nov., 2♀ ex). Example (♀) distributed to BMNH.

Collection and taxonomic history. Described by Perkins, 1933: 269–270 ("OAHU, Wai'anae Mts., Lualualei, Halona Valley, in the 4th gulch southwest of Pohakea Pass, about 1600 feet elevation, from an unidentified shrub or small tree, September 25, 1932 (d'Alte A. Welch)"; type in BPBM). Perkins (t.c. 270) mentioned that the area, "... is a part of a large region included in a U.S. Naval Reservation, and it may not be possible to visit the locality again." E.J. Ford, Jr was the first subsequent person to search for *R. welchii*; he found elytral fragments on various visits to Halona Valley: v.1955, vi, x, xi.1957, presumably at the bases of *Sapindus* trees. R.C.A. Rice collected 4 adults in 1976, finally proving that living specimens were still surviving. In the period 1994 through 1996, repeated visits to Halona Valley were made by Bishop Museum personnel in connection with another study but only fragments were recovered (Evenhuis, 1997).

Distribution. O'ahu. Wai'anae Mountains, Halona Valley. *R. welchii* appears to be restricted to around the 500 m elevation on a bench in this valley. Restricted montane distribution: Pattern 4.

Habitat and life history notes. The type locality is restricted to Halona Valley at the edge of the extensive Lualualei Valley. Halona Valley at approximately the 470–520 m elevation contains a narrow, gradually sloping bench where there is a grove of mainly *Antidesma* and *Sapindus oahuensis* trees. The elytral fragments were found at the bases of these trees. The habitat is Lowland Dry Forest, specifically *Sapindus* forest associates (Gagné & Cuddihy, 1990: 72–75).

Status. Extant but rare. Three collections to 1976; fragments found in 1990s. The overall area is under the jurisdiction of the military, which has taken steps to protect the immediate site. Threats would now include disturbance to soil by pigs and possible predation by ants or rodents; the former grazing by cattle has been reduced throughout this area.

Rhyncogonus wiliwilinui Samuelson, **n. sp.** Figs. 40, 106, 140

Diagnosis. Species group: *sordidus* group, *sordidus* subgroup. With *R. lahainae* Perkins, *R. montygorum* n. sp., *R. sordidus* Perkins, *R. tristis* n.sp in the subgroup. The new species is close to *R. sordidus* but the rostrum is more irregularly flattened and coarsely punctate and the pronotum is usually less strongly impressed basally, also the apical closure of the aedeagus is nearly straight-sided (vs distinctly concave). Somewhat resembles *R. mutatus* Perkins in the *koebelei* subgroup; it differs

from the latter by having the rostrum with a rougher substrigose sculpture (vs smooth, shagreened with very shallow punctures), pronotal puncturation finer and closer with intervals narrow-reticulate surrounding deeper though smaller punctures (vs larger shallow punctures with commonly flattened intervals).

Male (Holotype). Gross body length 9.07 mm. Derm dark orangish to reddish fuscous, elytral sutural area narrowly paler red-fuscous. Antenna and legs reddish fuscous. Dorsal pubescence of fine clear silvery setae and whitish buff narrowly lanceolate squamae. Rostrum and front essentially glabrous over discal region: a few sparse fine hairs visible at 25 × but inner eye margins sparsely squamose. Antennal scape finely setose; setae adpressed to slightly raised. Pronotal disc appearing glabrous: actually sparsely and finely setose at 25 ×; prothorax laterally with a complete but rather weak stripe of pale squamae on each side. Scutellum essentially glabrous: a few fine adpressed microsetae. Elytron generally but thinly clothed with slender squamae, these somewhat patchy; infolded surface much less conspicuously clothed. Elytral sensory setae inconspicuous, these curved and only slightly raised. Ventral surfaces ± sparsely setose but apical abdominal sternite densely clothed, subpilose. Trochanteral bristles single. Femora sparsely setose and with a mid- to preapical band of adpressed slender pale squamae. Tibiae set with suberect setae and bristles of submoderate length.

Rostrum and front rather flattened barely strigose on upper part of rostrum; surface granulose with a dull shine (not quite shagreened or with a satiny shine). Eye subcircular, moderate in size and elevation. Antennal funicular segments gradually thickened toward apices: afs1 much longer than afs2; afs3 slightly longer than afs4. Prothorax globose, sides convex, briefly constricted below at side near base; base weakly convex across middle; disc subevenly convex; median impunctate line narrow, obscure, more like a indefinite crease, surface strongly granulate; discal punctures rather close, small, and moderately deep; intervals narrowly raised and granulate. Elytron fairly slender with preapical closure fairly evenly narrowed beyond abrupt ending of humeral margin; disc convex; puncture rows ± regular to 4, then irregular to 8, and confused to 12 at humeral margin; interstices flat, not exceeding general curvature; punctures submoderate in size; intervals dull opaque; humeral margin ending at apical 1/5, well before actual apex, the edge beaded and without irregularities; lateral infolded surface flat, microsculpture similar to disc. Ventral surfaces including coxae and undersides of femora with fine granulation and a lubricated satiny shine as typical in certain other species; thoracic surfaces more finely punctate than those of abdomen; abdominal sternites 1+2 with surface slightly concave. Femora smooth-granulate. Tibiae smooth-granulate-asperate.

BL 9.07 mm; BB 4.12 mm; PNL 199 cmm (= 100ths mm); PNB 232 cmm; ELL 606 cmm; ELB 407 cmm; IO 88 cmm; EB 158 cmm; EH 20 cmm; E 56 cmm; AS (cmm): 228 : 64 : 42 : 32 : 30 : 26 : 26 : 28 : 112 (= club: 42+30+40). Ratios (× 100): BL/BB 220; PNL/PNB 86; ELL/ELB 149; IO/EB 56; EH/E 36; IO/E 157; AFS1/AFS2 152; AFS3/AFS4 107.

Female (Allotype). Derm dark reddish *fuscus* (much blacker than holotype). Dorsal pubescence with setation fairly conspicuous on rostrum, front, and pronotal disc (these areas subglabrous in holotype); lateral stripe of prothorax moderately thick; elytral disc moderately clothed, largely patchy and tending to form weak stripes; abdominal sternite 5 with denser setae on apical part but not subpilose as in male. Elytral puncturation general irregular to confused distally; humeral margin beaded to termination just before apex, the edge sharper basally than in male. Abdominal sternites 1+2 with surface largely convex.

BL 11.42 mm; BB 5.21 mm; PNL 232 cmm (= 100ths mm); PNB 282 cmm; ELL 813 cmm; ELB 498 cmm; IO 112 cmm; EB 192 cmm; EH 24 cmm; E 64 cmm; AS (in cmm): 264 : 56 : 56 : 32 : 28 : 28 : 28 : 30 : 104 (= club: 40+28+36). Ratios (× 100): BL/BB 219; PNL/PNB 82; ELL/ELB 163; IO/EB 58; EH/E 38; IO/E 175; AFS1/AFS2 100; AFS3/AFS4 114.

Paratypes (pooled). Derm commonly blackish fuscous, sometimes dark reddish fuscous (all specimens generally darker than holotype); antenna and legs paler reddish fuscous. Rostrum finely granulate to shagreened, surface ± flattened and usually substrigose, the punctures shallow and slightly elongated. Pronotum with median line sometimes complete but often incomplete or very narrow. Scutellum glabrous. Elytral disc dull alutaceous-opaque, this more pronounced in male because of generally thinner vestiture; in ♀ the vestiture thicker and usually patchy. Aedeagus: apex as figured. Spermatheca as figured.

Range (n = 13, including holotype, allotype): BL 9.07–11.59 mm; BB 4.03–5.54 mm; PNL 199–266 cmm (= 100ths mm); PNB 224–303 cmm; ELL 581–863 cmm; ELB 398–540 cmm; IO 88–118 cmm; EB 156–202

cmm; EH 16–28 cmm; E 56–68 cmm; AFS1 48–72 cmm; AFS2 40–56 cmm; AFS3 29–38 cmm; AFS4 26–32 cmm. Ratios (× 100): BL/BB 197–230; PNL/PNB 82–95; ELL/ELB 145–163; IO/EB 54–60; EH/E 32–41; IO/E 111–175; AFS1/AFS2 100–152; AFS3/AFS4 106–129.

Types. Holotype ♂ (BPBM 16,398), allotype ♀, 5♂ paratypes, 6♀ paratypes, O'AHU: Ko'olau Range, Wiliwilinui Ridge, 17.ix.1976, R.C.A. Rice collector. Paratypes (pairs) distributed to BMNH, USNM.

Collection and taxonomic history. This new species was missed until R.C.A. Rice collected a fine series on Wiliwilinui Ridge in 1976. Named for the ridge from which it was collected.

Distribution. O'ahu. Wiliwilinui Ridge, Ko'olau Range. Restricted montane distribution: Pattern 4.

Habitat and life history notes. While no elevation is given on the labels, the collecting area is most likely from the upper part of Wiliwilinui Ridge. There the habitat includes Lowland Mesic Forest (Gagné & Cuddihy, 1990: 80–85).

Status. Extant. Original series only, taken in 1976. Threats would include disturbance to soil by pigs and possible predation by ants or rodents.

Rhyncogonus zeta Samuelson, **n. sp.** Figs. 20, 97

Diagnosis. Species group: *fordi* group. With *R. fordi* Zimmerman, *R. howarthi* n. sp. Differs from both *R. fordi* and *R. howarthi* in having the elytral infolded surface smooth with a bright shine (vs opaque with a dull shine), puncture intervals slightly swollen (vs flattened); all have small grains on the infolded surface but they are least evident in this species.

Male (Holotype). Gross body length 12.3 mm. Derm: body surfaces and antenna subpiceous; legs paler, reddish fuscous. Dorsal pubescence of clear silvery setae and silvery white to off-white-buff lanceolate squamae. Rostrum and front sparsely setose and with whitish squamae grouped along inner eye margins. Antennal scape finely setose, setae short, slightly curved and loosely adpressed. Pronotum very finely setose centrally, these abruptly meeting white-buff squamae on each side, forming a moderately dense strong lateral stripe. Scutellum microsetose. Elytral disc submoderately setose; sensory setae essentially absent but disc and preapex with occasional longer decumbent setae, these not very conspicuous; infolded surface rather sparsely and finely setose excepting a slightly denser diffused concentration below and parallel with humeral margin. Ventral surfaces submoderately setose; abdominal sternum 4 rather finely and closely pubescent; 5 densely clothed with long setae. Femora unevenly clothed with fine silvery setae and buff lanceolate squamae, the latter most pronounced on metafemur with squamae concentrated from near middle to about apical 1/5 forming a broad preapical band. Trochanteral bristles single. Tibiae fitted with suberect setiform golden bristles of moderately short length and longer finer setae along retrofemoral surface.

Rostrum and front rather flat with moderate sized punctures ovate along middle becoming circular at anterior part and then again above on vertex where punctures are smaller and closer; intervals smooth to subreticulate; surface strongly shining but with some granulation on anterior part of rostrum. Eye subovate-subtriangular, moderately large and moderately high. Antennal scape attaining middle of pronotum; antennal funicular segment 1 much longer than afs2; afs3 and afs4 subequal in length. Prothorax subglobose, sides convex, briefly constricted laterally near base; base barely emarginate before scutellum; disc somewhat depressed basally and irregularly channeled submedially (along sides of median raised line) and shallowly depressed sublaterally; median line fairly strong but narrowed along basal 1/4, surface smooth shining; discal punctures of small and close, mostly 3–4 × as large as intervals; intervals raised, subreticulate, surface smooth and strongly shining; hypopleural punctures noticeably larger than discal punctures. Elytron slender, preapical closure weakly convex before abruptly meeting slightly produced apex; disc convex; puncture rows distinct to humeral margin; interstices rather evenly slightly convex; punctures close and moderately small; surface smooth-alutaceous but much duller than pronotum; humeral margin extended to apex, the edge slightly irregular and subdentate on apical part; the margin rounded from base through middle, then beaded on apical 2/5. Ventral surfaces smooth-finely granulate, with a satiny (thorax) to shining (abdomen) lustre; abdominal sternite 1 shallowly concave; connate suture between sternites 1+2 distinct across middle but sternite 2 abruptly lower at extreme side; sternite 4 tilted with

apical membrane showing (as typical in males). Femora smooth-alutaceous-punctulate. Tibiae tending to be straight and only the foretibia slightly bent at preapex; surface smooth-alutaceous-punctate, some punctures rougher and asperate. Aedeagus: apex as figured.

BL 12.26 mm; BB 5.29 mm; PNL 249 cmm (= 100ths mm); PNB 295 cmm; ELL 830 cmm; ELB 515 cmm; IO 102 cmm; EB 196 cmm; EH 28 cmm; E 68 cmm; AS (cmm): 304 : 96 : 68 : 40 : 40 : 36 : 36 : 36 : 140 (= club: 60+32+48). Ratios (× 100) BL/BB 232; PNL/PNB 85; ELL/ELB 161; IO/EB 52; EH/E 41; IO/E 150; AFS1/AFS2 141; AFS3/AFS4 100.

Types. Holotype ♂ (BPBM 16,399), MAUI (W): Honokohau Valley, Pu'u Kukui watershed, 520 m (1700 ft), 22.viii.1996, mesic forest, H. Oppenheimer collector.

Collection and taxonomic history. The species name takes the Greek letter *zeta* in apposition. The "z" is meant remind readers of Elwood C. Zimmerman, who continues his extraordinary entomological researches and writings of the Pacific world. Another *Rhyncogonus* from Marotiri had been dedicated to Zimmerman: *R. zimmermani* Van Dyke (1937: 122).

Distribution. W Maui. Mountains, Honokohau Valley, Pu'u Kukui watershed at around 520 m elevation. Restricted montane distribution: Pattern 6.

Habitat and life history notes. Nothing reported on the life history but related species are associated with *Freycinetia*, and I asked the collector, H. Oppenheimer of Maui Land and Pineapple Company, whether he noticed *Freycinetia* in the area. Oppenheimer replied (in litt.):

> "We were in the Valley (Honokohau) for several days doing a botanical survey. The last day I was at a place along the stream that was wide and clear enough for the helicopter to land and pick me up. I had another hour so I went up on the valley wall (West side), and yes, there is ie'ie there. When I got back to the stream for p/u the rhynco was on me! so I just put it in a vial. The vegetation in the area is kind of interesting. If you were to go directly above the site you would be in very wet forest, but along the valley bottom it is much more mesic. I had thought it, too, would be wet as a result of lack of sun (the valley is narrow and very deep) plus the extra drainage from above. Dominant plant taxa are *Metrosideros polymorpha*, *Xylosma hawaiiense*, *Psychotria mariniana*, *Freycinetia arborea*, *Perrottetia sandwicensis*, a rich Pteridophyte component, and understory shrubs including *Broussaisia arguta*, *Cyrtandra* spp. (including the rare *C. filipes*), *Cyanea elliptica*, *C. scabra*, *Clermontia micrantha* and *C. kakeana*, *Labordia tinifolia*, *Hedyotis* spp., *Dubautia plantaginea*, *Bidens micrantha*."

Status. Extant. Unique, collected in 1996. Hank Oppenheimer (pers. comm.) said that *Tibouchina herbacea* and *Clidemia hirta* are invading the site. However, feral pig activity has dropped considerably over the years since Maui Land and Pineapple Co. initiated controls. No pig sign has been noted in the upper reaches of the valley for several years.

Rhyncogonus fallax group Figs. 1, 58–60, 70–72, 115

Rhyncogonus fallax Perkins, 1926, *R. fosbergi* Van Dyke, 1937, and *R. vagus* Van Dyke, 1937 appear to form a distinct species-group predictably recognized in both sexes by a "beaked" EL apex (female not yet known for *fallax*). These species share a slender BF with surfaces smooth, finely punctate, and finely pubescent. Also, the eye is only moderately produced: not flattened and not quite hemispherical: EHE 35–43; eye size is moderate with maximum eye diameter about 0.58–0.78 × as broad as the narrowest distance across the interocular space. The aedeagal apex is figured for all 3 species in this group. Females: EL humeral margin with surface briefly pushed in postbasally producing a strange outline when viewed from above. The spermatheca is figured for only *R. fosbergi*.

Range. Restricted to an imaginary arc connecting Line Islands and Wake Island. This arc lies S of Hawai'i and N of Micronesia.

Plant associates. *Tournefortia* for *R. fallax*; *Scaevola* and *Tournefortia* for *R. fosbergi*.

Remarks. *Rhyncogonus* from the Marquesas, Australs, Tuamotus, and Society Islands seem to comprise several clades based on external morphology but only one of these seems to approach the *R. fallax* group. In these species, the lateral infolded part of the elytron is strongly expanded apically before it is suddenly narrowed to a sinuate preapex with a somewhat beaked extremity. This condition is strongly expressed in females but barely so in males. Examples include: *R. debilis* Van Dyke and *R. excavatus* Van Dyke from Rurutu, and *R. rufulus* Van Dyke from Rimatara. In the *fallax* group, the infolded part of elytron is of rather constant breadth until the preapical emargination; also, the condition is expressed in both sexes, when known.

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