



## Correction of existing generic and species concepts in Platyceroidini (Coleoptera: Lucanidae: Lucaninae) and the description of four new species of *Platyceroides* Benesh

M.J. PAULSEN

*Systematic Research Collections, University of Nebraska State Museum, W436 Nebraska Hall, Lincoln, NE 68588-0546.*

*E-mail: mjpaulsen@unl.edu*

### Abstract

The endemic North American stag beetle tribe Platyceroidini Paulsen & Hawks (Coleoptera: Lucanidae: Lucaninae) is reviewed. All primary types were studied and the existing generic and species concepts are subsequently corrected. Based on study of the male genitalia and external morphology, the previously monotypic genus *Platyceropsis* Benesh is reduced to subgeneric status under *Platyceroides* Benesh, **new status**, and the species *Platyceroides laticollis* (Casey) and *Platyceroides keeni* (Casey) **new combination** are transferred to this subgenus. *Praocerus*, **new subgenus**, is created to contain the species *Platyceroides latus* (Fall), and *P. viriditinctus* (Benesh). In the nominal subgenus, confusion has resulted from the historic misapplication of the oldest available name, *Platyceroides agassii* (LeConte), resulting in significant underestimation of the number of extant taxa. Lectotypes are designated for four species-group names (listed in their original combinations): *Platycerus latus* Fall, *Platycerus opacus* Fall, *Platycerus pacificus* Casey, and *Platycerus parvicollis* Casey. Four **new species** (*Platyceroides barrae*, *P. infernus*, *P. pampinatus*, and *P. umpquus*) are described from California and Oregon, United States of America. The following species are valid and are removed from synonymy with *P. agassii*: *P. pacificus* (Casey), **revised status**, and *P. californicus* (Casey), **revised status**. The synonym *Platycerus parvicollis* Casey is transferred from *Platyceroides agassii* to *P. californicus*, **new synonymy**. With the addition of four new species and the correction of the mistaken synonymies the total number of species in the tribe Platyceroidini is now 16.

**Key words:** Taxonomy, stag beetles, USA, Canada, North America, key

### Introduction

The tribe Platyceroidini (Coleoptera: Lucanidae: Lucaninae) was created for two genera from western North America that at that time contained eight species in total (Paulsen & Hawks 2008). The taxa included are similar in appearance to the Holarctic genus *Platycerus* Geoffroy (Lucaninae: Platycerini), and most species were originally described in that genus despite important morphological differences between the tribes. These differences include small, weakly sexually dimorphic mandibles, less emarginate or non-emarginate anterior margin of the head, and brachyptery in females (Paulsen & Hawks 2008). As Holloway (1969) noted, “nothing in either the male or female genitalia or in external morphological characters suggests that they are particularly closely related” to *Platycerus*. Benesh (1946) created the genera *Platyceroides* (seven species) and the monotypic *Platyceropsis* to contain species distributed from British Columbia, Canada, to California, United States of America, throughout the Cascade, Sierra Nevada, and Coast mountain ranges. Species of *Platyceroides* have fully-winged males, while males of *Platyceropsis* are brachypterous (Benesh 1946). Two additional species of *Platyceroides* were recently added (Paulsen 2014; Paulsen 2015), bringing the number of described species to 10. In this paper, four additional species are described and two species that were erroneously synonymized with *P. agassii* (LeConte) are resurrected, bringing the total number of valid species to 16.

Most species are associated with fallen branches in contact with the soil in montane forests, with labels indicating either deciduous or coniferous tree hosts. However, *Platyceroides keeni* (Casey) displays the unique life history of burrowing in sand under driftwood on the Pacific coast. Males of some species are attracted to ethanol

traps or tar (Paulsen 2014). Females, being flightless, are less frequently collected. Large series have resulted from digging in soil or litter or from sieving debris in flumes in which they have fallen. Specimens that I have collected personally were found under small logs and branches. When exposed the adults are more active than other generally sluggish stag beetles, and quickly flee in a manner that is typically associated with ground beetles (Coleoptera: Carabidae).

Confusion has resulted from the chronic misapplication of the oldest available name, *Platyceroides agassii* (LeConte), and historically the identification of species has suffered as a result. Indeed most specimens in museum collections are so inaccurately identified that all older determinations should be disregarded.

Females of *Platyceroides* are conservative morphologically and are difficult to distinguish without locality data. The use of poorly labeled female specimens as holotypes by Casey (1885, 1889) greatly confused the prior understanding of taxa in the genus. Females of few species have a single character that allows for straightforward identification. Discerning specific differences between females required the study of all available material to compare antennal club size, narrowness of the head before the eyes, elytral shape/elongation, elytral gloss versus shagreen, general size, and body color. For some species no or very few females have been collected, further complicating species diagnoses. Locality and/or association with males greatly increases the chance of successfully identifying female *Platyceroides*.

The most useful morphological character for the identification of males is the form of the genitalia, specifically the armature of the apex of the everted internal sac. The punctuation of the elytra and the color and shine/dullness of the dorsal surface can also be useful. The size of the antennal club is useful, but within large series of at least one large-clubbed species there are occasionally aberrant small-clubbed individuals that are otherwise identical in genitalic characters. For this reason the identification of problematic male individuals should always include genitalic dissection.

Identification of males can be accomplished quickly and with minimal dissection through the use of a handheld steamer (*e.g.*, Haan® HS20R) to relax the genitalic capsule, which is nearly always protruding from the abdomen or slightly exposed. A few seconds of steam directed at the pygidium will relax the flagellum within the capsule sufficiently for the apex of the flagellum to be pulled into view using a bent insect pin. For definitive identification, geographic location and dissection of the male genitalia with this method is preferable to keying external characters for males. In the case that genitalic dissection of males is impossible, a key is provided below. A separate key for females of *Platyceroides* is also provided.

## Materials and methods

Label data is presented verbatim, with each label denoted by a letter (a, b, *etc.*) and with each line separated by a slash. The letter generally corresponds to the position on the pin, with ‘a’ labels highest, however most of the paratypes of *P. infernus* had the locality label in position ‘b’ and I did not take the time to correct this placement. Their labels are reported as if they were correctly positioned. Entirely handwritten labels are noted, and handwritten portions of otherwise printed labels are indicated in brackets.

AMNH	American Museum of Natural History, New York, New York, United States of America
ANSP	Academy of Natural Sciences, Philadelphia, Pennsylvania, United States of America
CASC	California Academy of Sciences, San Francisco, California, United States of America
CDFA	California Department of Food and Agriculture, California State Collection of Arthropods, Sacramento, California, United States of America
CMNC	Canadian Museum of Nature, Ottawa, Ontario, Canada
CNCI	Canadian National Collection of Insects, Ottawa, Ontario, Canada
CSUN	California State University, Northridge, California, United States of America
EMEC	Essig Museum Entomological Collection, University of California Berkeley, Berkeley, California, United States of America
FMNH	Field Museum of Natural History, Chicago, Illinois, United States of America
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, United States of America

MJPC	M.J. Paulsen Collection, Lincoln, Nebraska, United States of America
MSUC	Michigan State University Collection, East Lansing, Michigan, United States of America
NHM	Natural History Museum, London, United Kingdom
OSAC	Oregon State Arthropod Collection, Corvallis, Oregon, United States of America
RBCM	Royal British Columbia Museum, Victoria, British Columbia, Canada
SDEI	Senckenberg Deutsches Entomologisches Institut, Müncheburg, Germany
TCAC	Tulare County Agricultural Commissioner Collection, Visalia, California, United States of America
UCDC	Bohart Museum of Entomology, University of California Davis, Davis, California, United States of America
UNSM	University of Nebraska State Museum, Lincoln, Nebraska, United States of America
USNM	United States National Museum of Natural History, Washington, District of Columbia, United States of America
WFBC	W.F. Barr Collection, University of Idaho, Moscow, Idaho, United States of America
WSUC	Washington State University Collection, Pullman, Washington, United States of America

### Taxonomic treatment

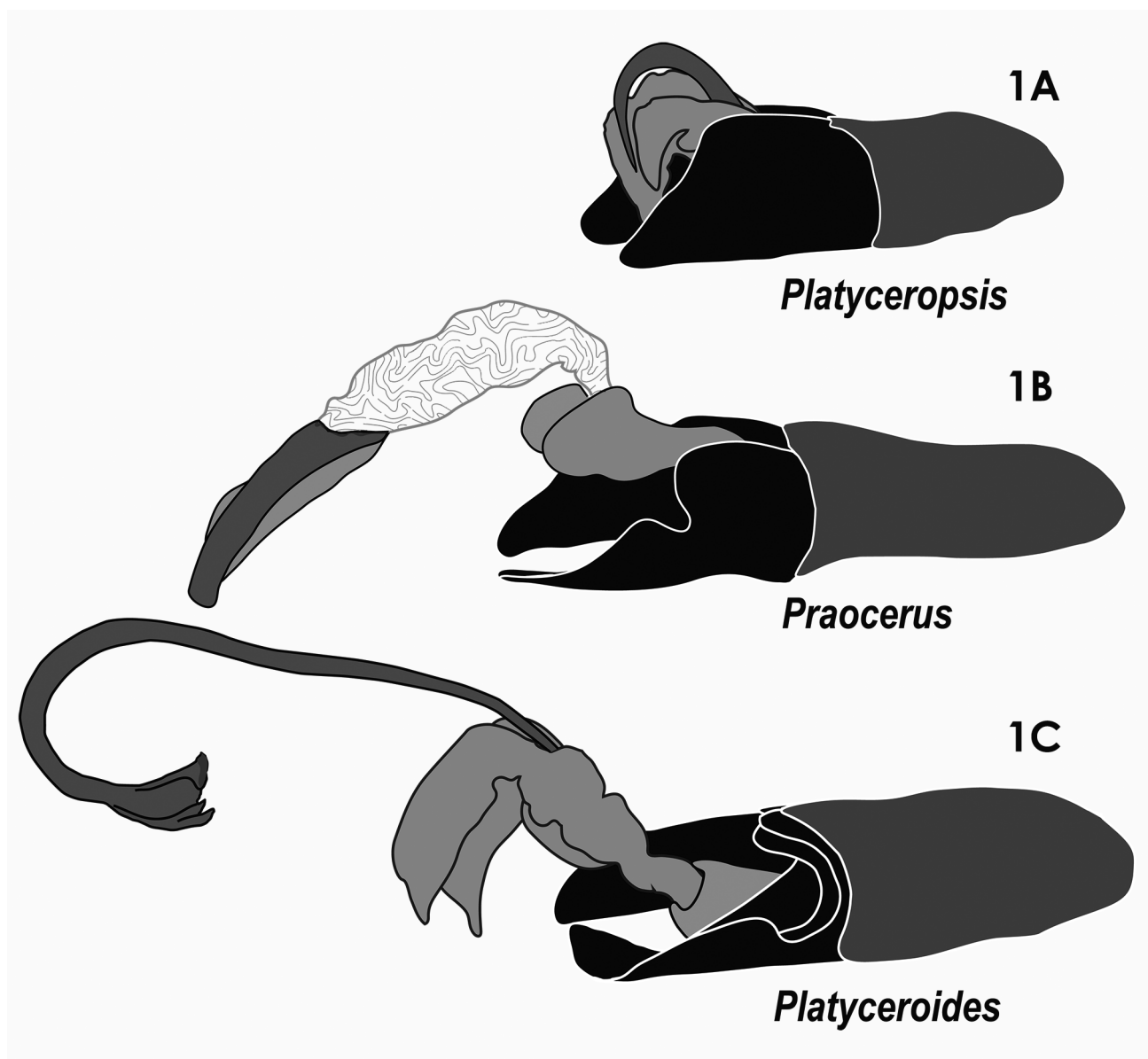
Although there have been two genera recognized since their creation by Benesh (1946), species in the tribe can be separated into three groups on the basis of the form of the permanently everted internal sac of the male genitalia and by the shape of the parameres. There are no consistent external characters to differentiate the three groups, and so I am conservatively considering these species groups to be subgeneric taxa within the single genus *Platyceroides*.

The nominal subgenus of *Platyceroides*, containing the type species *P. agassii* (LeConte), includes species with the everted sac terminating in a long, sclerotized flagellum with a gradually or abruptly expanded apex. The form of the apex provides the best characters for distinguishing species within the subgenus. The parameres of species in this subgenus uniquely display a complex, folded, and deeply emarginate form (Fig. 1C). The basal piece is produced into a rounded lobe medially above the parameres in typical view (this corresponds to the ventral surface of the genitalia when extruded). Externally, species in this subgenus have the width of the head anterior to the eyes (across the genae) narrower than the width across the eyes in both sexes.

The second group contains *Platyceroides keeni* **new combination**, which had been treated as comprising the monotypic genus *Platyceropsis*. However, the group also contains *Platyceroides laticollis* (Casey), thus requiring the concept of *Platyceropsis* to be revised. This combination is not straightforward based on external characters, because the flightless males of *P. keeni* possess several autapomorphies. Benesh (1946) recognized *P. laticollis* as the most aberrant species within his concept of *Platyceroides*, placing it in its own species group within the genus. While the male genitalia of *P. laticollis* are quite different from most *Platyceroides*, they are virtually identical to those of *P. keeni*. In these two species, the everted sac is not strongly sclerotized and does not reach past the parameres. In both species there is a short, sclerotized hook present medially that also does not extend past the parameres. Both species possess simple parameres (Fig. 1A) as opposed to the more complex forms found in all other species. With the inclusion of *P. laticollis*, the distinctness of *Platyceropsis* can no longer be defined with respect to autapomorphies related to male flightlessness or adaptations to living in sand. An external character that can almost be used satisfactorily to unite *P. keeni* and *P. laticollis* is that the head is widest before the eyes, across the genae (Fig. 19). However this character is too variable in *P. keeni* specimens, where a few specimens have the width across the eyes and genae more or less subequal. Both species display the most strongly emarginate anterior margin of the head due to produced anterior angles, but again this character is not consistently expressed in *P. keeni*. The lack of clear external morphological evidence to differentiate these species as a separate genus is the main argument for demoting *Platyceropsis* to subgeneric status. This results in the combinations *Platyceroides (Platyceropsis) keeni* and *Platyceroides (Platyceropsis) laticollis*.

A third subgenus is necessary to contain the species *Platyceroides latus* (Fall) and *P. viriditinctus* (Benesh). Males of these two species have long, membranous flagella that are armed distally with a sclerotized, club-like process (Fig. 1B). Males also possess parameres that are simply emarginate and thus are intermediate in form between the other two subgenera. The species display an equivocal state concerning the width of the head, wherein

the genae are generally subequal in width to the eyes in *P. latus*, but some individuals have distinctly wider genae. Conversely, *P. viriditinctus*, represented by only four known specimens, have the genae narrower than the greatest width across the eyes. Based on the genitalic differences, I propose *Praocerus* **new subgenus** to contain these two species. The name is derived from the Greek *praos* (meek) with the original *-cerus* pertaining to the ‘horns’ or mandibles of stag beetles. I have deliberately chosen not to create another genus-level name with *Platycerus* as the root. *Platycerus* is the oldest generic name in the family Lucanidae and was initially used to refer to all known European stag beetles, including *Lucanus cervus* (Linnaeus), with the meaning given as ‘broad horns’ in reference to the male mandibles (Geoffroy 1762). Later, Latreille (1810) reduced the genus in scope to comprise only *P. caraboides* (Linnaeus). While the mandibles of male *Platycerus* species are reasonably well developed and at least distinctly sexually dimorphic, the fact that this name forms the basis for the generic names within the Platyceroidini is unfortunate; males of this tribe have small, triangular, and unarmed mandibles nearly indistinguishable from those of the females. For this reason, I have chosen to recognize the meek nature of the mandibles in the subgeneric name. Transfer of the two species results in the following classification: *Platyceroides* (*Praocerus*) *latus* and *Platyceroides* (*Praocerus*) *viriditinctus*.



**FIGURE 1.** Illustration of the overall morphology in male genitalia in lateral view for the subgenera of *Platyceroides* Benesh, with parameres indicated in black. 1A, *Platyceropsis* Benesh, flagellum reduced to a short hook, paramera simple; 1B, *Praocerus*, flagellum basally membranous (white) with distal sclerotized process, parameres emarginate; 1C, *Platyceroides* nominal subgenus, long sclerotized flagellum, parameres complex and folded.



## *Platyceroides* Benesh, 1946

**Type species.** *Platycerus agassii* LeConte, by original designation.

**Generic description.** Length: 7.6–13.2 mm. Width: 3.2–5.8 mm. Color: Black to reddish brown, some with metallic reflections. *Head:* Anterior margin subtruncate (Fig. 20) or weakly emarginate (Fig. 19), not deeply, semi-circularly excised as in Platycerini. Canthus weak but distinct (anterior margin of eye located on dorsal surface of head, per Holloway (1969)). Antenna partially geniculate; antennal club composed of 3 antennomeres in both sexes. Mandibles short in both sexes (see Figs. 12A–B), approximately  $\frac{1}{3}$  to  $\frac{1}{2}$  length of head; form not strongly sexually dimorphic, simply falcate, at most with weakly indicated teeth internally. *Pronotum:* Form broadly rounded, narrowly to broadly explanate. *Elytra:* Surface punctate, punctures arranged in striae or irregularly. *Wings:* Males with functional wings (except *P. keeni*), females flightless in all species. *Abdomen:* Male genitalia with internal sac (flagellum) permanently everted, with wing-like accessory lobes of median lobe moderately sclerotized when present; form of flagellum variable, with sclerotized armature distally (Fig. 1).



**FIGURE 2.** Form of the flagellum of the male genitalia in species groups of the nominal subgenus. 2A, *Platyceroides agassii* species group, cylindrical and gradually widening to apex (basal piece and parameres shown for context); 2B, *Platyceroides pampinatus* species group, flagellum abruptly widening, apex with sclerotized tip; 2C, *Platyceroides californicus* species group; 2D, *Platyceroides opacus* species group, apices abruptly widened.

### Subgenus *Platyceroides* Benesh, 1946

**Subgeneric diagnosis.** Differing from other subgenera in the following characters. *Head:* Anterior margin subtruncate (Fig. 20). Genae not produced laterally past eyes (greatest width of head is across eyes). *Wings:* Males with functional wings. *Abdomen:* Male genitalia with internal sac (flagellum) elongate, much longer than parameres, entirely sclerotized, gradually (*P. agassii* group only) or abruptly expanded at apex (Fig. 2). Parameres complexly folded and emarginate (Fig. 1C).

**Species groups.** In the nominal subgenus the flagellum of the male genitalia is a snake-like, elongate, entirely sclerotized structure ending in a gradually or abruptly expanded apex (Fig. 1C). To facilitate correct identification, four species groups are used so that similar species can be compared directly. These groups can be defined within the nominal subgenus based on the form of the apex of the flagellum and elytral surface and punctation. In the *P. agassii* group (two species) the apex is much broader (gradually widening) and subcylindrical (Fig. 2A), with the elytral surface usually glossy.

In the *P. pampinatus* group (two species) the abruptly expanded apex ends with a leaf-like sclerite (Fig. 2B) visible in distal view and the elytral surface is shagreened (Fig. 5). Females of this group have moderate to large antennae for the subgenus. The two species in the *P. pampinatus* group have been most confused with *P. agassii* by previous authors and therefore had both remained undescribed, even though this group is represented by the most

specimens in collections. The species are widespread along the coast from southern Oregon to central California, also extending inland in the northern half of that range.

The remaining species in the nominal subgenus have a more similar, abruptly capitate apex of the flagellum (Fig. 2C–D) and form the last two species groups, depending on whether the elytra are distinctly glossy/polished and striate (*P. californicus* group, four species) or dull or shagreened and more irregularly punctate (*P. opacus* group, four species). Within these two groups differences in the capitate apex of the flagellum remains diagnostic to species.

### ***Platyceroides agassii* species group**

#### ***Platyceroides (Platyceroides) agassii* (LeConte)**

*Platycerus agassii* LeConte, 1861: 345, original combination.

*Platycerus agassizii*: Parry 1870: 114, misspelling.

*Platycerus agassizi*: Parry 1875: 20, misspelling.

*Platycerus agassii pygmaeus* Van Dyke, 1946: 88, synonym.

**Type series.** Holotype male of *P. agassii* (MCZ) labeled: a) handwritten “San / Mateo”; b) handwritten “*P. Agassii* / Lec.”; c) on red paper, “Type / 3692”; d) “July-Dec. 2001 / MCZ Image / Database”; e) “*Platyceroides agassii* / (LeConte, 1861) / det. M.J. Paulsen 2013”.

Holotype male of *P. pygmaeus* Van Dyke (CASC) labeled: a) “*Platycerus / agassizi / pygmaeus / Van Dyke*” with “Holotype” vertically on left.

**Taxonomy.** The identity (and name) of this species, the first described, has been confused in the literature, especially by Van Dyke (1928) and Benesh (1946). This resulted in a large synonymical list for *P. agassii* in Benesh (1946, 1960). LeConte (1861) and Casey (1889) both discussed the male holotype as being female; because the genitalia were not dissected and given the general lack of sexual dimorphism in *Platyceroides* (males being similar to female *Platycerus*) this is not surprising. Benesh (1960) treated four names as synonyms of *P. agassii*. Examination of their holotypes indicates that only one of the four names listed as synonyms of *P. agassii* by Benesh (1960) is indeed attributable to *P. agassii*. The three other names that were treated as synonymous with *P. agassii* by Benesh (1946) correspond instead to two other valid species, treated below.

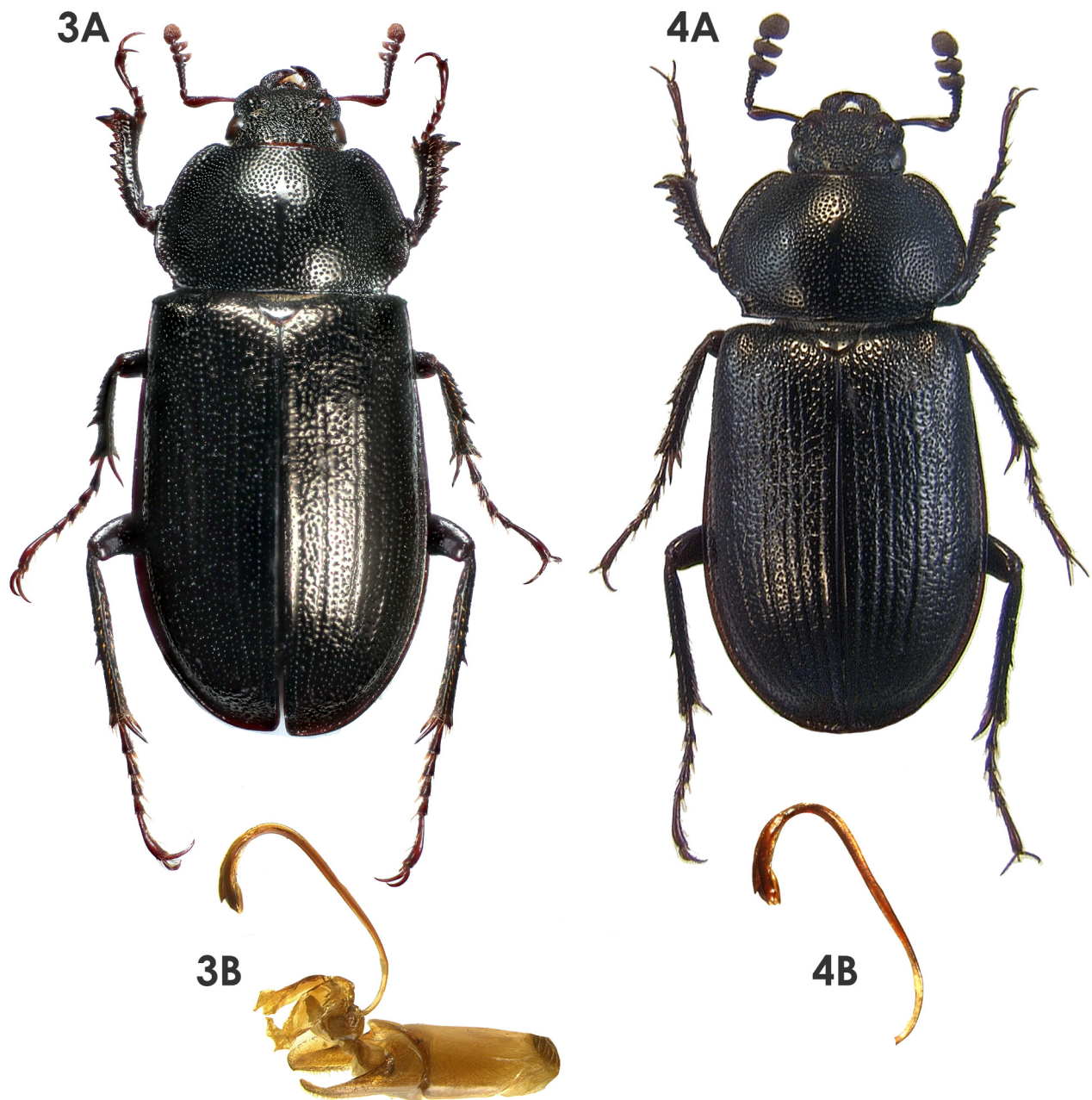
Comparison of the holotypes of *Platycerus agassii* and *P. pygmaeus* Van Dyke confirmed that they are identical. The name *P. agassii pygmaeus* was proposed by Van Dyke (1946) for specimens from the Pygmy Forest east of Mendocino, although he does also refer to the taxon as ‘generally smaller’ and ‘somewhat stunted’ so the name may have been proposed to provide a double meaning. Van Dyke was not, however, comparing his specimens to the true *Platyceroides agassii*. Specimens from the Pygmy Forest are not any smaller on average than other *P. agassii* examined and generally have the same size of antennal club and identical male genitalia.

There has been a tendency to use misspellings that appear to be more orthographically correct (*P. agassizii* in Parry 1870, *P. agassizi* in Parry 1875) instead of the original spelling. Although LeConte likely formed his patronym for Agassiz by dropping the silent *z* to preserve the appropriate pronunciation, it could be argued that he was using a Latinized form of Louis Agassiz’ name such as ‘*Agassius*’, so the spelling ‘*agassii*’ must be retained (International Commission on Zoological Nomenclature 1999, Article 31.1).

**Distribution** (Fig. 25). **CALIFORNIA:** MENDOCINO: Caspar; Fort Bragg; Henny Woods State Park; Mendocino; Pygmy Forest; Van Damme State Park. **SAN MATEO:** San Mateo. **SONOMA:** Plantation; Salt Point State Park.

**Remarks.** This species is distributed along the northern California coast at elevations less than 300 m. The holotype from ‘San Mateo’ is from farther south than all subsequently collected specimens, with no other specimens from south of San Francisco Bay present in any collection examined, although such a distribution does not seem extraordinary. The greatest number of specimens is known from Mendocino County.

Males and females of *P. agassii* have a shortened, more oval body form (Fig. 3A) and smaller and more glabrous antennal clubs than most other species. The male genitalia (Fig. 3B) can only be confused with those of *Platyceroides pacificus*.



**FIGURE 3–4.** *Platyceroides agassii* species group, males. *Platyceroides agassii*: 3A, dorsal habitus; 3B, male genitalia. *Platyceroides pacificus*: 4A, dorsal habitus; 4B, flagellum of male genitalia.

***Platyceroides (Platyceroides) pacificus* (Casey), revised status**

*Platycerus pacificus* Casey, 1889: 165, original combination.

**Type series.** Lectotype male of *P. pacificus* (USNM), **here designated**, labeled: a) handwritten “*pacificus* / Csy.”; b) “CASEY / bequest / 1925”; c) on orange paper, “TYPE USNM / [36210]”; d) “*Platyceroides pacificus* / (Casey, 1889) / det. M.J. Paulsen 2016”; e) on red paper, “*Platycerus / pacificus* Casey / Lectotype / det. MJ Paulsen”.

**Taxonomy.** Casey (1889) reported examining three specimens, but only one is present in the USNM collection, and I designate it as the lectotype. It has male genitalia that are barely discernible from those of *P. agassii*. However, it has a much larger antennal club, is darker in coloration and has more robust metatibiae (Fig.

4A). Additional specimens matching the holotype appear to be allopatric with *P. agassii* and are distributed at much higher elevations (most specimens examined are from ~2000 m) and farther inland, north of the Eel River in California (Fig. 25). I considered treating *P. pacificus* a subspecies of *P. agassii*, because there is far less variation between the male genitalia of the two taxa than is usually present between *Platyceroides* species. However, there are slight differences in the simple flagellum, with the enlarged portion of the apex smaller and with a shorter median process (Fig. 4B). In combination with the allopatry, distinctly larger antennal club, and other the morphological differences it seems more straightforward to treat the taxon as distinct.

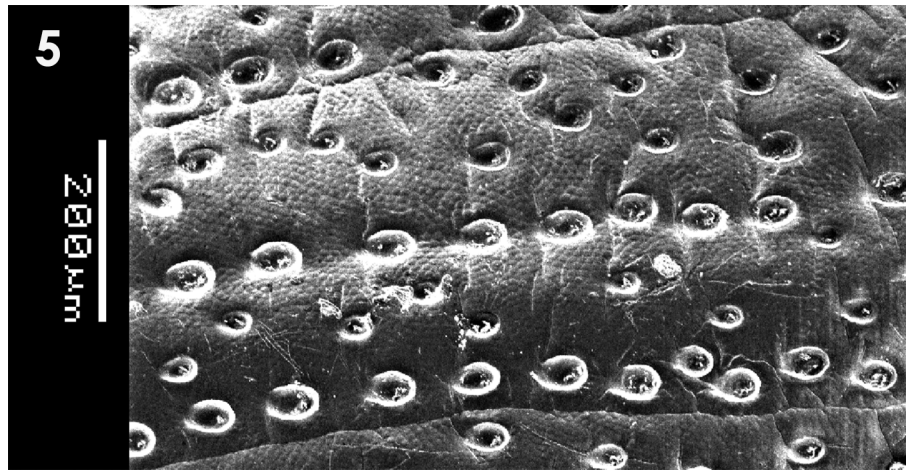
**Distribution** (Fig. 25). **CALIFORNIA:** COLUSA: No locality. GLENN: Telephone Camp. HUMBOLDT: Dinsmore; Iaqua; Mountains near Korbel; Larabee Valley. LAKE: Hullville. MENDOCINO: Covelo; Leech Lake. SISKIYOU: Copper Creek; El Capitan. TRINITY: no locality.

**Remarks.** Specimens of *P. pacificus* typically have elytra with a shiny appearance but vary from glossy to weakly micropunctate under high magnification. However, the two *P. pacificus* specimens seen from Trinity County, California, have distinct microsculpture and appear slightly opaque. Among coastal species such sculpturing is otherwise confined to the *P. pampinatus* species group. Because of this, genitalic dissection is the best method of verifying and identification.

### *Platyceroides pampinatus* species group

#### *Platyceroides (Platyceroides) pampinatus* Paulsen, new species

**Type series.** Holotype male (UCDC) labeled: a) “Crescent City / Cal. [VIII.3 1939]”; b) “A.T. McClay / Collector”; c) “[*Platycerus / agassizi* / LeC.] / det. A.T. McClay”; d) “[*Platyceroides / agassizi* / (LeConte) 1861] / det. A.V. Evans 19[94]”. Female allotype (UCDC) labeled: a) handwritten, “Prairie Creek / Ranger Sta. / V-13-1941”; b) “A.T. McClay / Collector”. Seven male paratypes (UCDC, MJPC) labeled a, b) as holotype. Four male paratypes (UCDC, UNSM) labeled: a) “Crescent City / Cal. [V.3 1939]”; b) “A.T. McClay / Collector”. Two male paratypes (UCDC) labeled: a) “Crescent City / Cal. [V.4 1946]”; b) “A.T. McClay / Collector”. Eleven male, one female paratypes (UCDC, MJPC) labeled: a) “Prairie Crk / Cal Humboldt / Co [V.5 1946]”; b) “A.T. McClay / Collector”. One male paratype (UCDC) labeled as allotype. Two male paratypes (UCDC) labeled: a) “USA OR Curry / Co. Brookings / Timeus Ranch 1500’ / 42 06N 124 17W / 29.VI-6.V.1996 (sic) / MS&JS Wasbauer YPT”. Two male paratypes (UCDC) labeled: a) “USA OR Curry / Co. Brookings / Timeus Ranch / 28.V-5.VI.1995 / M Wasbauer MT”. Two male paratypes (FMNH, OSAC) labeled: a) “ORE: Pistol River / Curry Co. / July 7.1951 / Borys Malkin”; b) “C.N.M.H. 1960 / Borys Malkin / Coleoptera Colln.”. Two male paratypes (FMNH, OSAC) labeled: a) “ORE: Pistol River / Curry Co. [missing month is June according to the following almost identical label] 1-18.1952 / traps, B. Malkin”; b) “C.N.M.H. 1960 / Borys Malkin / Coleoptera Colln.”. One female (OSAC) labeled: a) “ORE: Brookings / Curry Co. / June 1-19.1952 / traps, B. Malkin”. One male paratype (UCDC) labeled: a) “[23 mi NE Brookings] / Curry Co. OREGON / [4-VII-1969] / E.M. Fisher coll.”; b) “*Platyceroides / agassizi* LeC. [78] / Det. B Gavin”. One male paratype (UCDC) labeled: a) handwritten “Hornbrook / Sisk. Co. Cal / VIII-30-64”; b) “*Platyceroides / agassizi* LeC. [78] / Det. B Gavin”. One male, one female paratypes (UCDC) labeled: a) “[9 mi E.] / Crescent City / Del Norte Co., Cal / [VI-10-1959]”; b) “Collector / C.M. Haig”. One female paratype (CASC) labeled: a) “Crescent City / Cal. [VII.25.22]”; b) “Van Dyke / Collection”. One male paratype (UCDC) labeled: a) “[Happy Camp] / Siskiyou Co. / California / [VI-7-1967]”; b) “R.P. Allen / Collector”. One male paratype (AMNH) labeled: a) “Squaw Lake, Ore. / Jackson County / May 22, 1964 / Joe Schuh, Coll.”. One male paratype (AMNH) labeled: a) “6 mi E Elkton, Or. / Douglas Co.; Mehl Cr. / May 27, 1964 / J.D. Vertrees, Coll.”. One male paratype (AMNH) labeled: a) “Azalea, Oregon / Douglas County / June 12, 1964 / J.D. Vertrees, Coll.”. One male paratype (AMNH) labeled: a) “2 mi. W Scottsburg / Ore.; Douglas County / May 1, 1962 / Carter & Schuh”; b) handwritten, “14047 / B.B. ‘64”. Three male paratypes (CASC) labeled: a) “Humboldt Co / Cal. Vi-14-41”. Two male paratypes (CASC) labeled: a) “Humboldt Co / Cal. Vi-14-41”; b) handwritten, “10 m E / Orick”; c) “Coll’d by F.W. / Nunenmacher”. Two male paratypes (CASC) labeled: a) handwritten, “Seiad Calif. / VI-18-1952]”; b) “R.P. Allen / Collector”. One male paratype (CASC) labeled: a) “Siskiyou Co. / Cal. [VI-15-41] / E.R. Leach”. One male paratype (CASC) labeled: a) “Siskiyou Co. / Cal. [VI-15-41]”; b) “Coll’d by F.W. / Nunenmacher”. One male paratype (CASC) labeled: a) handwritten, “Camp 20 / Hammond / Lum. Co.”; b)



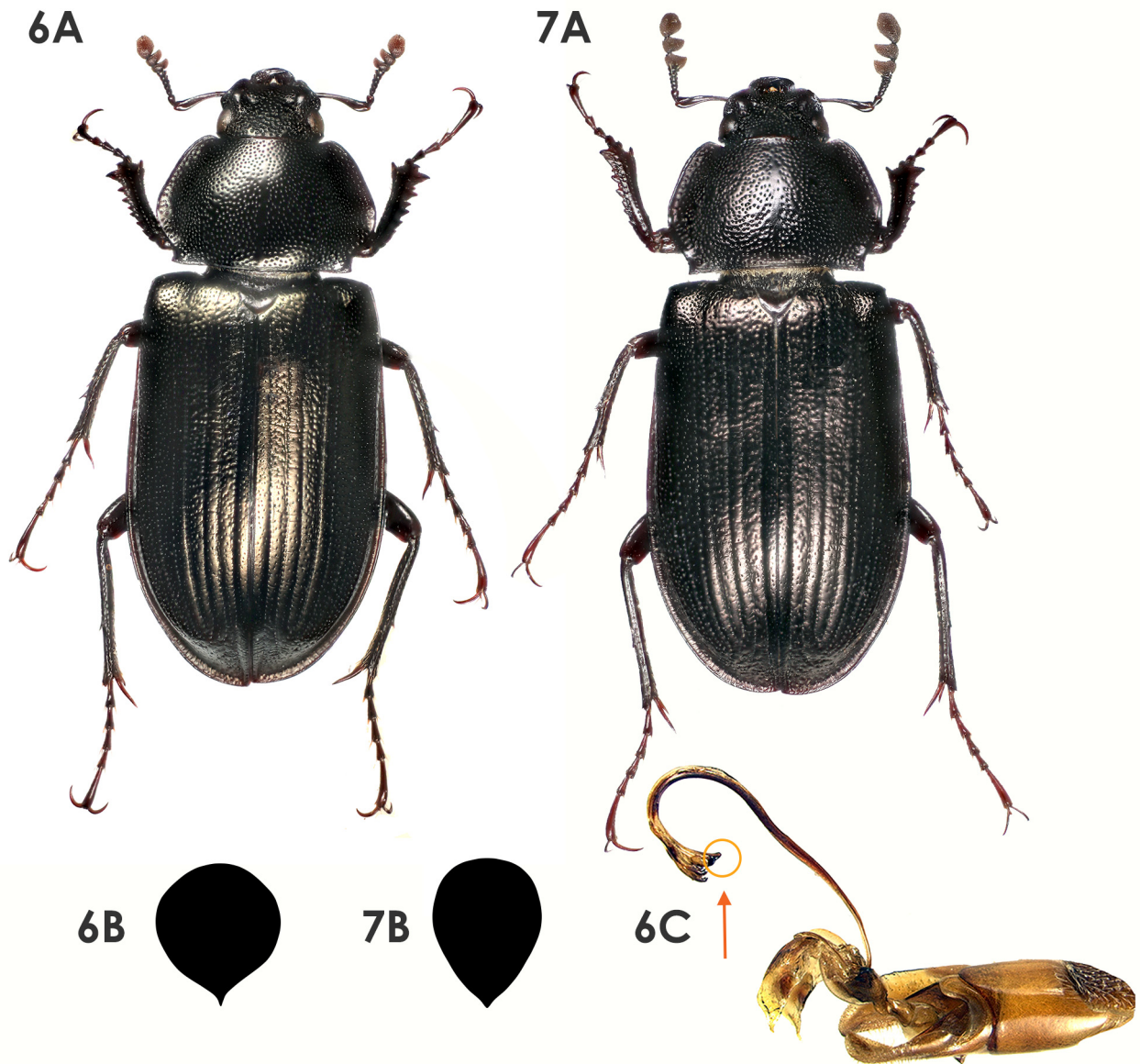
**FIGURE 5.** Scanning electron microscope image of elytral surface of *Platyceroides pampinatus* new species, showing shagreened microsculpture between punctures.

“Humboldt / Co. Cal. / [VII-1916]”; c) “Van Dyke / Collection”. One male paratype (CASC) labeled: a) “Orick, Cal. / Humboldt Co. / [VII-9-37]”; b) “Van Dyke / Collection”. One female paratype (CASC) labeled: a) “Mts. E of Orick / Humboldt Co. / Cal. VII-25-34]”; b) “Van Dyke / Collection”. One female paratype (CASC) labeled: a) “Mts. nr. Korbel / Humboldt Co. / July 20 1929”; b) “Van Dyke / Collection”. Two female paratypes (CASC) labeled: a) “Marshfield / Or. / VI-12-1914”; b) “Coll. by / E.C. Van Dyke”; c) “Van Dyke / Collection”. One male paratype (CASC) labeled: a) “[Little Riv.] / Humboldt / Co. Cal. / [V.25-VI.25-1916]”; b) “Coll. by / A. Muzzall”; c) “Van Dyke / Collection”. One female paratype (CASC) labeled: a) handwritten, “Green Point / Humboldt / Co. Cal. / VI-4-16”; b) “F.E. Blaisdell / Collector”; c) “Blaisdell / Collection”. One male paratype (CASC) labeled: a) handwritten, “Green Point / Humboldt / Co. Cal. / VII-7-16”; b) “F.E. Blaisdell / Collector”; c) “Blaisdell / Collection”. One male paratype (CASC) labeled: a) “U.S.A., California / Redwood National Park, / Orick Area, Lady Bird / Johnson Grove, 210 m / 29 July 1980, Stop #80-24 / D. H. Kavanaugh collector.”; b) “D. H. Kavanaugh / Collection”. One male paratype (CASC) labeled: a) handwritten, “Green Point / Ranch / Humboldt / Co. Calif.”; b) handwritten, “VI-6-16 / Elev. 1500 ft”; c) “F.E. Blaisdell / Collector”; d) “Blaisdell / Collection”. One male, two female paratypes (CASC) labeled: a) “Prairie Creek / nr. Orick, Cal. / Humboldt Co. / VI-9-26]”; b) “Van Dyke / Collection”. One male paratype (CASC) labeled: a) “[Hoopa Road] / Humboldt Co., Cal. / [June 4, ‘33]”. One male paratype (CASC) labeled: a) handwritten, “Mts. nr. / Korbel”; b) handwritten, “Humboldt / Co. VII-20-29”; c) “Van Dyke / Collection”. One male, two female paratypes (CASC) labeled: a) “Josephine Co. / Ore. [VI-6-38] / E.R. Leach”. One male paratype (CASC, MJPC) labeled: a) “Josephine Co. / [VI-12-41] / Ore.”; b) “Coll’d by F.W. / Nunenmacher”; c) handwritten, “SELMA”. One male paratype (CASC) labeled: a) “Calif: Siskiyou Co. / 9 mi W Happy camp / blacklight trap / [VI-24-]1982 / F.D. Horn collector”. One male paratype (CASC) labeled: a) “Del Norte Co. / Cal. [VI-12-41] / E.R. Leach”. One female paratype (CASC) labeled: a) “Del Norte Co. / Cal. [VI-5-38] / E.R. Leach Coll.”. One male, one female paratype (CASC) labeled: a) handwritten, “Waldo / Josephine / Co. Ore. / VI-8-10”; b) “Blaisdell / Collection”; c) handwritten, “*Platycerus / pacificus* / Casey”. One male, one female paratypes (CASC) labeled: a) handwritten, “Waldo / Josephine / Co. Or. / VI-8-1910”; b) handwritten, “Coll. by / Nunenmacher”; c) “Van Dyke / Collection”; d) handwritten, “*pacificus* / CAS”; e) handwritten, “*Platyceroides / agassii* LeC. / M. Hatch – 1969”. One male paratype (CNCI) labeled: a) “CA: Forest Glen / 18.VI.91 Lot 1 / BF & JL Carr”. One male paratype (CSUN) labeled: a) “USA: California, Del Norte Co. / Siskiyou Mts., Shelly Creek just / above Patrick Creek confluence / 41.90° N, 123.85° W, elev. 330 m / 31 May- 4 June 2009 / J.N. Hogue, notes JNH #341”; b) Photograph / Hogue 2009 (19-22). Six male paratypes (EMEC, MJPC) labeled: a) “CA: Humboldt Co. / Kneeland 69 Prairie / Lane [25-27.VI.03] / @ UV/MV lights / R.S. Wielgus, coll.”. One female paratype (EMEC) labeled: a) “40°52’58”N/123°32’44”W / USA: California: Trinity Co. / Mathews rest stop, rt 299 / 760 m, 11.xii.2005 / K. Will, J.K. Park”. One male paratype (EMEC) labeled: a) “CALIF: Trinity Co. / 3 mi W Forest Glen / V-25-73 Chemsak”. One male, one female paratypes (CMNC) labeled: a) “USA: CA: Humboldt Co. / 18 km S Orick / Patrick Point / St. Pk., N41°09.559’ W124° / Alder thicket forest FIT, 10 m / 16.V-21.VI.03, S. Peck, 03-35”. One male paratype (CMNC) labeled: a) “USA:



CA: Humboldt Co. / 18 km S Orick / Patrick Point / St. Pk., N41°09.559' W124° / Alder thicket forest FIT, 10 m / 16.V-21.VI.03, S. Peck, 03-35"; b) "[*Platyceroides / thoracicus / ?* (Casey)] / Det. / H.F. Howden [03]. One male paratype (USNM) labeled: a) "Oreg.". Six male, one female paratypes (CMNC, MJPC, UNSM) labeled: a) "USA: CA: Del Norte Co. / 20 km SE Crescent City, 330 m / Del Norte Redwoods St. Pk. / forest FIT, N41°42' W124°7' / 16.V-21.VI.03, S. Peck 03-37". Two male paratypes (CMNC) labeled: a) "USA: CA: Del Norte Co. / 12 km N Crescent City, 5 m / near Van Deventer Park, mixed / forest FIT, N41°52' W124°06' / 17.V-22.VI.03, S. Peck 03-38". Seven female paratypes (CMNC, MJPC) labeled: a) "USA: CA: Del Norte Co. / Gasquet, 145 m, mixed forest / FIT (sic), N41°51' W124°0' / 19.V-22.VI.03 / S. Peck, 03-41". One male paratype (CMNC) labeled: a) "USA: CA: Del Norte Co. / 20 km SSE Cave Jct., OR / N41°58.813' W123°43.162' / 27.V-22.VI.03, 575 m, mixed / riparian forest FIT S. Peck 03-42". One male paratype (CMNC) labeled: a) "USA: CA: Del Norte Co. / 20 km SSE Cave Jct., OR / N41°58.813' W123°43.162' / 27.V-22.VI.03, 575 m, mixed / riparian forest FIT S. Peck 03-42"; b) "[*Platyceroides / agassizi* (LeC.)] / Det. / H.F. Howden [03]. One male paratype (CMNC) labeled: a) "USA: OR: Josephine Co. / 17 km E Cave Junction, 550 m / N42°08' W123°27', Greyback / Camp, mixed forest FIT / 20.V-22.VI.03, S. Peck, 03-43". One male paratype (CMNC) labeled: a) "USA: OR: Josephine Co. / Oregon Caves Nat. Monument / N42°05' W123°24', 1250 m / Open fir forest FIT / 22.V-23.VI.03, S. Peck, 03-44". One male paratype (CMNC) labeled: a) "USA: OR: Josephine Co. / Oregon Caves Nat. Monument / N42°05' W123°24', 1250 m / Open fir forest FIT 22-30.VI.03 / Peck & Roth, 03-45". One male, one female paratypes (CMNC) labeled: a) "USA: OR: Josephine Co. / Oregon Caves Nat. Monument / N42°05' W123°24', 1250 m / Open fir forest FIT 1-30.VII.03 / Peck & Roth, 03-46". One male paratype (CMNC) labeled: a) "USA: CA: Humboldt Co. / Redwood Nat. Park, Orick / N41°18' W124°01', 400m / Lady Bird Johnson Grove, litter / Ber. 28.V.03, S. Peck, 03-85". One male, one female paratypes (USNM) labeled: a) "Oreg.". Two male, 1 female paratypes (USNM) labeled: a) "Bair's Rch / Redwd Crk"; b) "Humboldt / Co. [9.6.03] Cal.", one with handwritten, "From stomach of trout"; c) "HS Barber / Collector". One female paratype (USNM) labeled: a) handwritten, "Josephine Co. / VI-8.10 Or." B) "CASEY / bequest / 1925"; c) "Casey det [2] / [*californicus*]". One male paratype (C DFA) labeled: a) "USA: CA: Humboldt CO., / Redwoods N.P., L.B. Johnson / Grove, Redwd Crk Rd, / 41.3011°N, 124.0394°, ~15m, / 2.vi.2009, O. Lonsdale". One male paratype (CMNC) labeled: a) "CALIF: Humboldt Co. / Redwoods Nat. Forest / VI-13-1997 / Fred G. Andrews". Two male paratypes (ANSP) labeled: a) "Crescent Cy / [VI-11] 193[7] Cal"; b) "US Madrona / Forest Camp"; c) "K.L. Maehler / Collection". Seven male, 5 female paratypes (ANSP, MJPC) labeled: a) handwritten "Josephine / Co. OR / VI.8.10"; b) "Coll'd by F.W. / Nunenmacher"; c) "[ID] / Coll. John W. Angel (sic)" labels, with 5 males as "*agassizi*" (sic), 2 males as "*californicus*", and 5 females as "*pacificus*". One male paratype (ANSP), labeled: a) "Humboldt / Co. Cal. / [V.15.11]"; b) "Coll'd by F.W. / Nunenmacher"; c) J.W. Angell / Collection"; d) "[*agassizi*] / Coll. John W. Angel (sic)". One male paratype (ANSP), labeled: a) "Humboldt / Co. Cal. / [V.20.11]"; b) "Coll'd by F.W. / Nunenmacher"; c) "[*agassizi*] / Coll. John W. Angel (sic)". One male paratype (ANSP), labeled: a) handwritten, "Ft. Bragg / Calif. VI-20 / 1940". Two female paratypes (ANSP, CASC), labeled: a) "Del Norte / Co. Cal. / [VI.4.10]"; b) "Coll'd by F.W. / Nunenmacher". One female paratype (ANSP), labeled: a) "Del Norte / Co. Cal. / [V.27.10]"; b) "Coll'd by F.W. / Nunenmacher"; c) "[*pacificus*] / Coll. John W. Angel (sic)". One male paratype (OSAC) labeled: a) "Oreg. Jackson Co. / Little Squaw Lk. 7 mi. / E. Copper, 3200', R3W / T41S, Sec. 2,22 May 64"; b) "David R. Smith / collector". One male paratype (OSAC) labeled: a) "OREGON: Curry Co. / Pistol River / 2 May 1976 / Coll. B. & M. Gavin"; b) "*Platyceroides / agassizi* LeC / Det. B. Gavin". Two male, two female paratypes (OSAC, MJPC) labeled: a) "OREGON Curry Co. / 6 mi. N. Brookings / Whalehead Rd. side / 25 June 1977 / Coll. Bill Gavin". One male paratype (OSAC) labeled: a) "OREGON: Curry Co. / 9 mi. NW Port Orford / 26 June 1977 / Cape Blanco St. Pk. / Coll. B. & M. Gavin". One male paratype (OSAC) labeled: a) "OREGON: Curry Co. / 6 mi. N Brookings / Indian Sands TrPk / 11 June 1977 / Coll. B. & M. Gavin". One female paratype (OSAC) labeled: a) handwritten, "Golden, Or. / IV-6-15 E.S.L.". One male paratype (OSAC) labeled: a) handwritten, "Golden, Or. / V-10-15 E.S.L.". One male paratype (OSAC) labeled: a) handwritten, "Golden, Or. / V-12-14 E.S.L.". One male paratype (OSAC) labeled: a) "ORE" Cape Sebastian St. Pk. / (top of) May 28, 1952 / B. Malkin & V.E. Roth"; b) "*Platyceroides / agassii* LeC. / M. Hatch 1962". One male paratype (OSAC) labeled: a) "ORE" Cape Sebastian / St. Pk. Curry Co. / May 28, 1952 / V. Roth". One male paratype (OSAC) labeled: a) "ORE: Rogue River / 6 m. E. of Gold River Beach / Curry Co. May 28. 1952 / B. Malkin & V.E Roth". One female paratype (OSAC) labeled: a) handwritten, "Douglas Co. ORE. / Mill Cr. / VI.28.1959 / H. Hacker". One female paratype (OSAC) labeled: a) handwritten, "Douglas Co. ORE. / 5 m W Elkton / VI.27.1959 / H. Hacker"; b) "[*Platyceroides / agassii* LeC.] / Det. L. Russell [73]". One male

paratype (OSAC) labeled: a) “Orleans, Humboldt / Co. Calif. / [V-7-1962]”; b) “Hopk. U.S. / 37697E2”; c) “*Pseudotsuga / menziesii*”; d) “T.W. Koerber / Collector”; e) handwritten, “*Platycerus / agassizi* LeC. / Carter ‘63”. Four males, one female paratype (OSAC, MJPC, UNSM) labeled: a) “ORE: Curry Co. Gold / Beach, 22 March 1967 / in conifer limb(s) / J.F. Cornell Coll.”; b) “*Platyceroides / agassizi* LeC. / Det. B Gavin”. Two male paratypes (OSAC) labeled: a) “Acc. Number / 766”; b) “OREGON Curry Co. / 10 mi. N. Brookings / S.H. Boardman StPk / [8 May 1976 / Coll. B&M Gavin”; c) “*Platyceroides / agassizi* LeC. / Det. B Gavin”. One female paratype (FMNH) labeled: a) “ORE: Myrtle Grove on / Chetoo Riv. 7 m E. of / Brookings, Curry Co. / May 29. 1952. B. Malkin / & V.E. Roth.”; b) C.M.N.H. 1960 / Borys Malkin / Coleoptera Colln.”. All paratypes with label: on yellow paper, “*Platyceroides / pampinatus* Paulsen / PARATYPE”.



**FIGURES 6–7.** *Platyceroides pampinatus* species group, males. *Platyceroides pampinatus* new species: 6A, dorsal habitus; 6B, shape of sclerotized tip of flagellum; 6C, male genitalia, location of flagellum apex indicated with arrow. *Platyceroides infernus* new species: 7A, dorsal habitus; 7B, shape of sclerotized tip of flagellum of male genitalia.

**Description, holotype male.** *Length:* 10.5 mm. *Width:* 4.5 mm. *Color:* Dark piceous, lighter piceous at margins; shagreened with weak brassy reflection. *Head:* Form narrow anteriorly, with gena not produced laterally

as far as eye (Fig. 6A). Antennal club moderately small (distinctly shorter than funicle; about ½ length of scape); antennomeres of club entirely tomentose. Labrum relatively small, length subequal to width of distal maxillary palp. Mandibles falcate, externally rounded, internally with 1–2 indistinct teeth. *Pronotum*: Surface weakly shiny (minutely shagreened) with moderately deep punctures; punctures dense, separated by about 1 puncture diameter, median line impunctate. Form broad, explanate, lateral margins broadly rounded, posterior angle slightly < 90°. *Elytra*: Surface weakly shiny (distinctly shagreened), with few transverse rugae, distinctly striate; striae moderately impressed with small punctures, intervals not strongly convex, with punctures finer, sparse, irregular. *Wings*: Wings fully developed. *Legs*: Mesotibiae and metatibiae robust (not slender). *Abdomen*: Male genitalia with permanently everted internal sac sclerotized, elongate, with triangularly expanded apex; apex in distal view with leaf-like, strongly sclerotized plate; plate rounded with acute apex (Fig. 6B).

**Description, allotype female.** *Length*: 10.2 mm. *Width*: 4.5 mm. Color uniformly dark reddish brown. Differs from male holotype in the following characters. *Head*: Antennal club small, shorter than length of funicle, antennomeres of club partially glabrous. Mandibles falcate, externally rounded, with basal tooth weakly indicated. *Pronotum*: Form broader. *Elytra*: Form less elongate, suboval. Surface with distinct, transverse rugae; distinctly striate on disc; intervals with finer, irregular punctures. *Wings*: Wings atrophied. *Legs*: All tibiae distinctly broader, more robust than in male.

**Variation in paratypes.** Males ( $n = 122$ ): *Length*: 9.0–11.9 mm. *Width*: 3.8–4.7 mm.

Female paratypes ( $n = 46$ ): *Length*: 9.5–11.9 mm. *Width*: 4.1–4.8 mm.

**Distribution** (Fig. 26). **CALIFORNIA**: DEL NORTE: Crescent City; Del Norte Redwoods State Park; Gasquet; Shelly Creek; Van Deventer Park. HUMBOLDT: Eureka; Green Point; Hoopa Road; Korbel; Larabee Valley; Little River; Orick; Patrick's Point; Prairie Creek. SISKIYOU: Copper Creek; Happy Camp; Hornbrook; Seiad. TRINITY: Forest Glen. **OREGON**: COOS: Marshfield. CURRY: 6–10 mi. N Brookings (Boardman Park/Indian Sands/Whaleshead Road); 23 mi NE Brookings; Gold Beach; Cape Blanco State Park; Cape Sebastian State Park; Pistol River; Rogue River. DOUGLAS: Azalea; 5–6 mi. E Elkton; Mill Creek; Scottsburg. JACKSON: 4.4 mi. NW Copper; Squaw Lakes. JOSEPHINE: Oregon Caves National Monument; Selma; Waldo.

**Temporal distribution.** March (5), April (1), May (46), June (88), July (13), August (9), December (1).

**Etymology.** The name is derived from the Latin *pampinatus*, meaning having tendrils and vine leaves, and is used as an adjective in the nominative singular. This is with respect to the leaf-shaped sclerite at the apex of the tendril-like flagellum of the male genitalia.

**Remarks.** This species is one that was frequently misidentified as *P. agassii* in all collections, and it is relatively well represented in collections. Surprisingly, paratype specimens of *P. pampinatus* from a single collecting event were identified in the Angell collection (ANSP) as three different species. As with the males, females of this species possess relatively small antennal clubs.

### *Platyceroides (Platyceroides) infernus* Paulsen, new species

**Type series.** Holotype male of *P. infernus* (EMEC) labeled: a) "CALIF. Marin Co. 2 mi. / SE Inverness, Inverness Ridge 800- 1040' / 11 May 1973 / J. Powell"; b) Univ. Calif. / Insect Survey / Specimen # / 185877". Allotype female of *P. infernus* (EMEC) labeled: a) "CALIF. Marin Co. 2 mi. / SE Inverness, Inverness Ridge 800- 1040' / 10 May 1974 / D. Green". Four male paratypes (2 EMEC, 2 MJPC) labeled: a) as holotype; b) as holotype with #s 185874-185876, 185878. Three male paratypes (2 EMEC, 1 MJPC) labeled: a) as holotype, except collector "R. Kimball"; b) as holotype, except #s 152330, 152332, 152333. Four male paratypes (2 EMEC, 2 MJPC) labeled: a) as holotype, except collector "J. Cate"; b) as holotype, except #s 153520–153523. Six male paratypes (3 EMEC, 1 NHM, 2 UNSM) labeled: a) as holotype, except collector "M. Chinn"; b) as holotype, except #154218-154223. Two male paratypes (EMEC) labeled: a) as holotype, except collector "C. Pickel"; b) as holotype, except #s 158117–158118. Three male paratypes (EMEC) labeled: a) as holotype, except collector "E. Schlinger"; b) as holotype, except #s 158117–158118. Three male paratypes (EMEC) labeled: a) as holotype, except date "14 May 1972", collector "S.C. Kuba"; b) as holotype, except #s 133225, 133240–133241. One female paratype (EMEC) labeled: a) as holotype, except date "12 May 1972", collector "S.C. Kuba"; b) as holotype, except #133000. One male paratype (EMEC) labeled: a) as holotype, except date "14 May 1972", collector "C.E. Griswold"; b) as holotype, except #132962. One male paratype (EMEC) labeled: a) as holotype, except date "12 May 1972",



collector “P.D. Frist”; b) as holotype, except #126467. One female paratype (EMEC) labeled: a) as holotype, except date “12 May 1972”, collector “V.R. Landwehr”; b) as holotype, except #121536. Two male paratypes (EMEC) labeled: a) as holotype, except date “14 May 1972”, collector “R.W. Warner”; b) as holotype, except #s 124798–124799. One male paratype (EMEC) labeled: a) as holotype, except date “14 May 1972”, collector “E.J. Rogers”; b) as holotype, except #114523. Three male paratypes (2 EMEC; 1 MJPC) labeled: a) as holotype, except date “13 May 1973”, collector “D. Murphy”; b) as holotype, except #s 163488–163490. Four male paratypes (EMEC) labeled: a) as holotype, except date “12 May 1972”, collector “E.I. Schlinger”; b) as holotype, except #s 129434–129437. Four male paratypes (EMEC) labeled: a) as holotype, except date “14 May 1972”, collector “E.I. Schlinger”; b) as holotype, except #s 129595–129596, 129601, 129667. One male paratype (EMEC) labeled: a) as holotype, except date “11 May 1975”, collector “L. Vincent”; b) as holotype, except #206932. Six male paratypes (3 EMEC, 1 MJPC, 1 UNSM, 1 OSAC) labeled: a) as holotype, except collector “M. Dechant”, date “10 May 1974”; b) as holotype, except #s 189152–189154, 189209–189210. Two male paratypes (1 EMEC, 1 FSAC) labeled a) as holotype, except date “12 May 1972”, collector “R.C. Gregory”. ; b) as holotype, except # 125587”. One male paratype (EMEC) labeled: a) “CA: Marin County / Inverness Ridge / 100m, V-21/24-1995 / J.A. Powell, lights (sic)”. One male paratype (EMEC) labeled: a) “Alpine Lake / Marin Co. / Calif. [V-17-1958]”; b) “John M. Burns / Collector”. One male paratype (EMEC) labeled: a) “Calif: Marin Co. / Alpine Lk., 1 / mi. N. VI-3-64”; b) “R.L. Langston / Collector”. One male paratype (EMEC) labeled: a) “38°2.9’N 122°45.9’W / USA: California: Marin Co. / E slope Balinas Ridge, 60 m. / Sir Frances Drake Blvd. / 1.5 mi E of Olema, 27.v.1999 / K. Will, D.H. Kavanaugh [10139]”. One male paratype (EMEC) labeled: a) handwritten, “Muir Woods / Calif. / 6-11-39”; b) “Kenneth Frick / [1-2]”. One male paratype (EMEC) labeled: a) “CA: Marin County / Muir Woods Natl. / Mon. 10-V-1991 / coll. W.D. Shepard”; b) “C.B. Barr / Collection”. One female paratype (EMEC) labeled: a) “CAL. Marin Co. / Lk. Alpine / 5-19-79”; b) “Collected by / C. Parisek”. One female paratype (EMEC) labeled: a) “CA: Marin Co. / Laurel Cyn. 1.0 mi. / W. Nicasio Resvr. / 8 July 1979” / J. K. Liebherr”. Five male paratypes (4 EMEC, 1 MJPC) labeled: a) “CALIF. Marin Co. 2 mi. / SE Inverness, Inver- ness Ridge 700- 1100’ / 15 May 1970; Pine / Forest, M.M. Bentzien”; b) as holotype, except #s 3059–3063. Four male paratypes (3 EMEC, 1 MJPC) labeled: a) “CALIF. Marin Co. 2 mi. / SE Inverness, Inver- ness Ridge 700- 1100’ / 16 May 1970; Pine / Forest, F. Shon”; b) as holotype, except #s 4879, 4883–4884, 4888. Two male paratypes (EMEC) labeled: a) “CALIF. Marin Co. 2 mi. / SE Inverness, Inver- ness Ridge 700- 1100’ / 15-16 May 1970; Pine / Forest, G.R. Olson”; b) as holotype, except #s 4034–4035. Two male paratypes (EMEC) labeled: a) “CALIF. Marin Co. 2 mi. / SE Inverness, Inver- ness Ridge 700- 1100’ / 15-16 May 1970; Pine / Forest, R.E. Dietz”; b) as holotype, except #s 2356–2357. Three male paratypes (EMEC) labeled: a) “CALIF. Marin Co. 2 mi. / SE Inverness, Inver- ness Ridge 700- 1100’ / 15 May 1970, E.I. Sch- linger”; b) as holotype, except #s 6269–6271. One male paratype (EMEC) labeled: a) “CALIF. Marin Co. / 2 mi. SE Inverness / Inverness Ridge, / May 15, 1970 / J.A. Powell”; b) as holotype, except #110973. One male paratype (EMEC) labeled: a) “Calif. Marin Co. / Inverness, 1 mi / SE, V-16-1964”; b) “Collr. S.B. / Benson”. One male paratype (EMEC) labeled: a) “Lagunitas / [5-16-43] Cal”. One female paratype (EMEC) labeled: a) “Cal.”; b) handwritten, “Lagunitas”; c) “551”; d) handwritten, “*Platycerus / agassizii* / 14047 LeC.”. Three male paratypes (CASC, MJPC, UNSM) labeled: a) “Mill Valley, / Marin Co. Cal. / [19.VI.50]”; b) “[W.H.] / [R.E.]” “Leech / Collector”. One male paratype (CASC) labeled: a) “Mill Valley, / Marin Co. Cal. / [18.VI.50]”; b) “[H.B.]” “Leech / Collector”. One male paratype (CASC) labeled: a) “Mill Valley, / Marin Co. Cal. / [28.VI.50]”; b) “[H.B.]” “Leech / Collector”; c) [in / flight]. One male paratype (CASC) labeled: a) “Mill Valley, / Marin Co. Cal. / [28.V.1952]”; b) “[R.E.]” “Leech / Collector”. One male paratype (CASC) labeled: a) “Mill Valley, / Marin Co. Cal. / [24.V.1953]”; b) “[R.E.]” “Leech / Collector”. One male paratype (CASC) labeled: a) “Mill Valley, / Marin Co. Cal. / [24.VI.1952]”; b) “[R.E.]” “Leech / Collector”. One male paratype (CASC) labeled: a) “Mill Valley, / Marin Co. Cal. / [2.VI.1957]”; b) “[R.E.]” “Leech / Collector”. One male paratype (CASC) labeled: a) “Mill Valley, / Marin Co. Cal. / [IX.11.49]”; b) “[R.E.]” “Leech / Collector”. One male paratype (CASC) labeled: a) “Mill Valley, / Marin Co. Cal. / [III-27-49]”; b) “E.H. Ross / Collector”. One male paratype (CASC) labeled: a) “Mt. Tamalpais / Cal.”; b) handwritten, “VI-50”; c) “E.H. Ross / Collector”. One male paratype (CASC) labeled: a) “Mill Valley, / Marin Co. Cal. / [15.V.1949]”; b) “[H.B. Leech / Collector]”. Four male paratypes (CASC, MJPC) labeled: a) “U.S.A.: California / Marin County, / Fairfax Canyon, / 15.V.1955 / Derham Giuliani / Cal. Acad. Sci. Coll.”. One male paratype (CASC) labeled: a) “U.S.A.: California / Marin County / Mill Valley; chaparral / 13 May 1986 / E.S. Ross collector / Cal. Acad. Sci. Coll.”. One male paratype (CASC) labeled: a) “[Lake Lagunitas / under an oak branch] / Marin. Co. / Calif. [V-14-65] / Coll. [J. Lee]”. One male paratype (CASC) labeled: a) “Mill Valley,

/ Marin Co. Cal. / [VI.1911]". Two male paratypes (CASC) labeled: a) "[Muir Woods] / Marin Co. / [V-17|28-08] Cal."; b) "F.E. Blaisdell / Collection"; c) "Blaisdell / Collection". One male paratype (CASC) labeled: a) "Muir Woods / Marin Co. Cal. / [V-21-1916]"; b) "Van Dyke / Collection". Two male paratypes (CASC) labeled: a) "Muir Woods / Marin Co. Cal. / [V-24-08]"; b) "Van Dyke / Collection". One male paratype (CASC) labeled: a) "Lagunitas / Marin Co. Cal. / [VI-14-08]"; b) "Van Dyke / Collection"; c) "[*Platycerus* / *agassizi* / LeC.". One male paratype (CASC) labeled: a) "Lagunitas / Marin Co. Cal. / [IV-24-1910]"; b) "Van Dyke / Collection". One male paratype (CASC) labeled: a) "[Marin Co. / Lagunitas / V-18-54]"; b) "*Platyceroides* / *agassizi* LeC. / Det. B. Gavin [1978]". One male paratype (CASC) labeled: a) "[Bear Valley] / Marin Co. Cal. / [VI-12-21]"; b) "Coll. by / C.L. Fox". One male paratype (CASC) labeled: a) "CALIF.: Bear Val- / ley, Marin Co. / 16-V-1965 / E. S. Ross"; b) "In thimble- / berry flower". Three male paratypes (CASC) labeled: a) "Marin / Co. Cal. / [V-12-05]"; b) "Van Dyke / Collection". One male paratype (CASC) labeled: a) "Marin / Co. Cal. / [6-6-01]"; b) "Van Dyke / Collection". One male paratype (CASC) labeled: a) "Marin / Co. Cal."; b) "Van Dyke / Collection". One male paratype (CASC) labeled: a) "[Cal. Marin Co. / L. Lagunitas / V-29-59 / D. Rentz]". One male paratype (CASC) labeled: a) "Fairfax / Marin Co. / CAL. / 5-28-55"; b) "D. Giuliani / Collector". One male paratype (AMNH) labeled: a) "Cal.: Marin Co. / S. Taylor St. Pk. / May 25, 1975 / D.G. Denning". One male paratype (CMNC) labeled: a) "Muirwood, / Calif. / 6.9.48"; b) "[*Platyceroides* / *agassizi* (LeC.) / *ab. parvicollis* (Csy.)], obverse [Det. B. Benesh / 15-V-55". One male paratype (UCDC) labeled: a) "Mt. Tamalpais / Marin Co. CA / V-16 1976"; b) "M.L. Siri / R.B. Kimsey / Colls". One male paratype (UCDC) labeled: a) "Tomales Cal. / Marin Co. / VI-11 1960"; b) "S.M. Fidel / Colls". One male paratype (ANSP) labeled: a) "Lagunitas / Marin Co. Cal. / [VI-4-11]"; b) "[*agassizi*] / Coll. John W. Angel (sic)". One male paratype (ANSP) labeled: a) handwritten, "Muir Woods / Mt. Tamalpais"; b) handwritten, "Marin Co. / Cal. 5.7.08"; c) handwritten, "Van Dyke / Collection"; d) "[*agassizi*] / Coll. John W. Angel (sic)". One female paratype (CASC) labeled: a) "Lagunitas / Marin Co. / Cal. [VIII-9-15]"; b) "Pres. By / J.C. Huguenin". One female paratype (MJPC) labeled: a) "Lagunitas / Marin Co. / Cal. [VII-18-15]"; b) "Pres. By / J.C. Huguenin". One female paratype (CASC) labeled: a) "Mill Valley / Marin Co. Cal. / [VI-26-10]"; b) "Pres. By / J.C. Huguenin". One female paratype (CASC) labeled: a) "Marin / Co. Cal. / [VIII-5-15]"; b) "Pres. By / J.C. Huguenin". One female paratype (CASC) labeled: a) "[Redwood Cñ.] / Marin / Co. Cal. / [V-17-08]"; b) "Van Dyke / Collection". One female paratype (CASC) labeled: a) "[Redwood Cañ.] / Marin Co. / [5-14] Cal."; b) "Blaisdell / Collection"; c) F.E. Blaisdell / Collector". Two male, one female paratypes (CASC) labeled: a) "U.S.A., California, Marin / County, east slope Bolinas / Ridge, 1.5 E of / Olema on Sir Francis / Drake Blvd., 60m,"; b) "38°2.9' N 122°45.9' W, / 27 May 1999, Stop #99-5 / D.H. Kavanaugh & / K.W. Will collectors"; c) on orange paper "D.H. Kavanaugh / Collection". One male paratype (CASC) labeled: a) "USA CA Marin Co / Mill Valley / Blithedale Park / May 3, 1996"; b) 37° 55' N/ 122°33.5' W / coll: J. Schweikert / swept from foliage". One male paratype (MSUC) labeled: a) "California Marin Co. / Bon Tempe Lake area / W. of San Rafael / 15 May 2002 / F.W. Stehr". All paratypes with label: on yellow paper, "*Platyceroides* / *infernus* Paulsen / PARATYPE".

**Description, holotype.** *Length:* 10.5 mm. *Width:* 4.0 mm. *Color:* Shiny dark piceous (pronotal margin lighter), with indistinct bronze reflection (Fig. 7A). *Head:* Form narrow anteriorly, with gena not produced laterally as far as eye. Antennal club large (as long as length of scape), size of distal antennomere of club larger than dorsal surface of eye, antennomeres of club entirely tomentose. Labrum moderate, semicircular, as long as width of distal maxillary palp. Mandibles falcate, externally rounded. *Pronotum:* Surface weakly shiny, microsculptured (shagreened) with moderately sized, deep punctures; punctures dense, generally separated by about 1 puncture diameter, distance between punctures becoming greater on center of disc and in explanate lateral margins; median line impunctate in basal 2/3. Form broad, lateral margins broadly rounded, posterior angle subacute, < 90°. *Elytra:* Form elongate, nearly parallel sided. Surface weakly shiny, microsculptured (shagreened) with scarce transverse rugae, striate on disc; striae 1–5 impressed, with moderately deep punctures; intervals with moderate, irregular punctures. *Wings:* Wings fully developed. *Legs:* Mesotibiae and metatibiae distinctly slender (more slender than in *P. parvicollis* and *P. aeneus*). *Abdomen:* Male genitalia with permanently everted internal sac sclerotized, elongate, with triangularly expanded apex; apex in distal view with leaf-like, strongly sclerotized plate; plate oval with broadly triangular apex (Fig. 7B).

**Description, allotype female.** *Length:* 11.0mm. *Width:* 4.6 mm. Differs from male holotype in the following characters. *Head:* Antennal club moderate (large for *Platyceroides* females), as long as length of funicle, antennomeres of club entirely tomentose. Labrum longer than width of distal maxillary palp. Mandibles falcate with basal tooth weakly indicated. *Pronotum:* Form broader. *Elytra:* Form less elongate, suboval. Surface with

distinct transverse rugae, not distinctly striate on disc except sutural stria; intervals with finer, irregular punctures. *Wings*: Wings atrophied. *Legs*: All tibiae distinctly broader, more robust than in male.

**Variation in paratypes.** Males ( $n = 120$ ): Length: 8.5–11.2 mm. Width: 3.5–4.5 mm. Females ( $n = 12$ ): Length: 9.5–12.5 mm. Width: 3.7–5.3 mm. The majority of female paratypes have the striae more deeply impressed than the allotype.

**Distribution** (Fig. 26). **CALIFORNIA**: HUMBOLDT: Blocksburg/Fort Seward; Bolling Grove/Humboldt Redwoods State Park. LAKE: Highway 175; Middletown. MARIN: Alpine Lake; Bon Temps Lake; Fairfax; Inverness Ridge; Lagunitas; Laurel Canyon/Nicasio Reservoir; Mill Valley; Mount Tamalpais; Muir Woods; Point Reyes/Bear Valley. MENDOCINO: Angelo Coast Range Preserve; Branscomb; Comptche; Fort Bragg; Hedy Woods State Park; Mendocino; W. Willets. NAPA: Bothe-Napa Valley State Park. SAN MATEO: La Honda/Portola Redwoods. SANTA CLARA: 2 mi. W Saratoga. SANTA CRUZ: Aptos; Ben Lomond; Big Basin; Boulder Creek; Soquel. SAN FRANCISCO: No locality. SONOMA: Cazadero; Guerneville; 2 mi. E Healdsburg; Plantation; Salt Point State Park; Stewarts Point.

**Temporal distribution.** March (1), April (1), May (108), June (18), July (2), August (2), September (1).

**Etymology.** The specific epithet is derived from the Latin *infernus* = lower, beneath, and is used as an adjective in the nominal singular case. The species is found ‘below’ *P. pampinatus* in both elevation and latitude.

**Remarks.** This is the most commonly collected species that has been historically misidentified as *P. agassii*. Male *P. infernus* specimens have significantly larger antennal clubs than *P. pampinatus*, which interestingly is geographically opposite the pattern seen in *P. agassii* and *P. pacificus*. In addition the elytral punctation is more strongly impressed and the punctures larger in size in the southern species. However, the antennal club size is not entirely consistent, with a few southern individuals within large series showing a smaller club. Thus it was tempting to recognize *P. infernus* as at most a subspecies of *P. pampinatus*. However, there is a slight genitalic difference in the shape of the leaf-like sclerite, and relatively consistent external characters (usually larger antennal clubs, less elongate body, and more deeply impressed elytral punctures). In combination with the allopatry, it is more informative to treat the taxon as distinct. Because the species exists in large numbers in many collections, and due to the likelihood of regional differences due to the reduced dispersal due to female flightlessness, type material was restricted to Marin County, California.

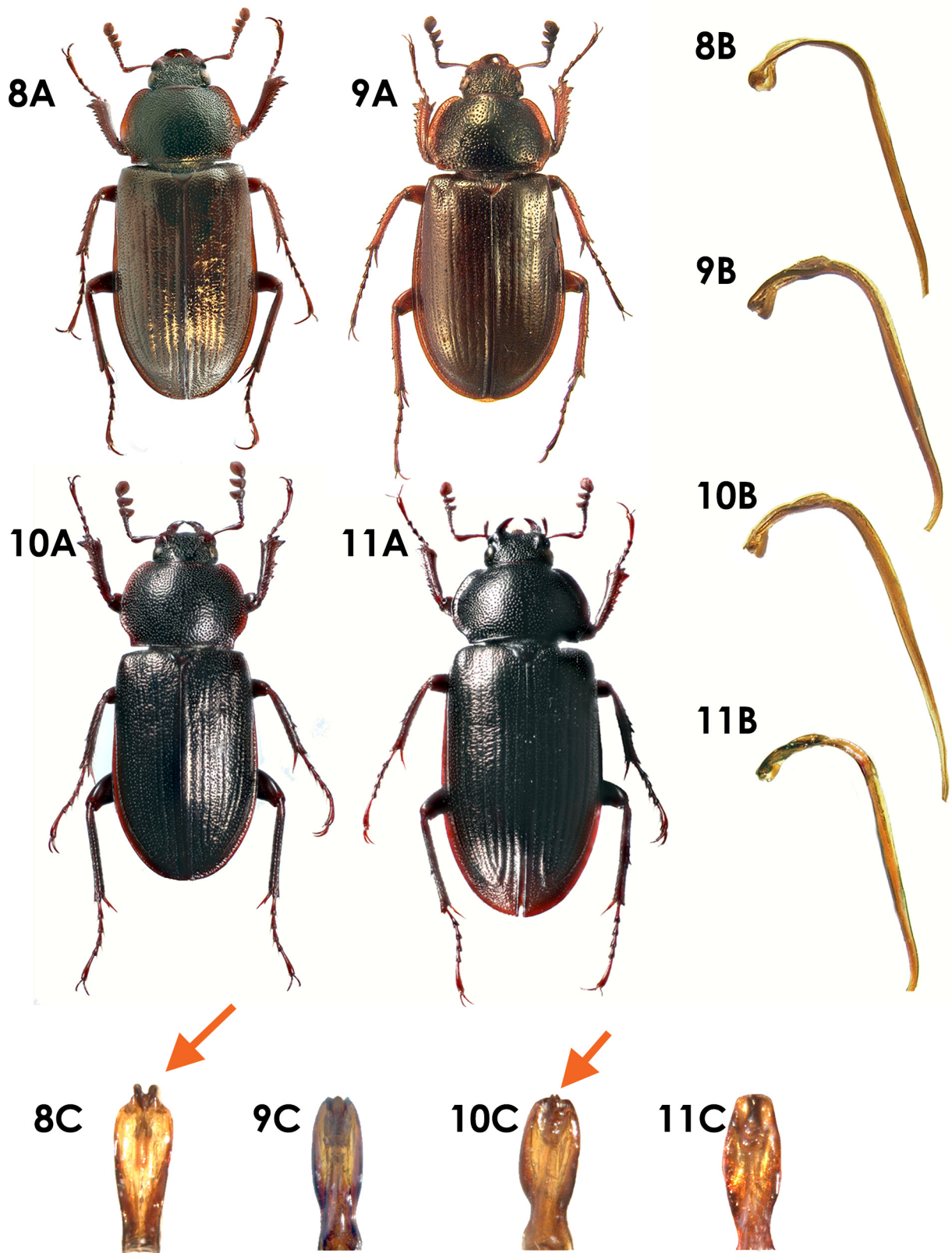
This species can be distinguished from those in other species groups by the form of the male genitalia (triangularly expanded apex with a leaf-like sclerite) and from *P. pampinatus* by the presence of a larger antennal club (length approximately equal to interocular distance instead of one-half interocular distance), or for aberrant *P. infernus* individuals with smaller clubs by the elytra having larger punctures and more strongly impressed elytral striae. The leaf-like sclerite is generally more elongate with a triangular apex (Fig. 7B), compared to a rounded sclerite with an acute apex in *P. pampinatus* (Fig. 6B).

### ***Platyceroides californicus* species group**

#### ***Platyceroides (Platyceroides) aeneus* (Van Dyke)**

*Platycerus aeneus* Van Dyke, 1928: 109, original combination.

**Type series.** Holotype male (CASC) labeled: a) “Cannon Beach / Oregon / June 18, 1927”; b) “EC Van Dyke / Collector”; c) “Van Dyke / Collection”; d) handwritten, “*Platycerus / aeneus / Van Dyke*”, with “Holotype” on red left margin; e) handwritten, “*Platycerus / aeneus / Van D.*”, with “Type 2535” on red left margin; f) “Collection of the / California Academy / of Sciences, San / Francisco, California”. Allotype female (CASC) labeled: a) “Cannon Beach / Oregon / June 9, 1927”; b) “EC Van Dyke / Collector”; c) “Van Dyke / Collection”; d) handwritten, “*Platycerus / aeneus / Van Dyke*”, with “Allotype” on red left margin; e) handwritten, “*Platycerus / aeneus / Van D.*”, with “Type 2536” on red left margin; f) “Collection of the / California Academy / of Sciences, San / Francisco, California”. Five male, one female paratypes (CASC) labeled a–d as holotype, except dates ranging from 12–17 June 1927, and with “Paratype”. One male paratype described in Van Dyke (1928) is present at CASC, but Van Dyke’s paratype label is lacking.



**FIGURES 8–11.** *Platyceroides californicus* species group, males: A, dorsal habitus; B, flagellum of male genitalia, lateral view; C, apex of flagellum of male genitalia, ventral view. 8, *Platyceroides aeneus*, arrow indicates large bifurcate process. 9, *Platyceroides californicus*. 10, *Platyceroides thoracicus*, arrow indicates small bifurcate process. 11, *Platyceroides umpquus* new species.

**Distribution** (Fig. 27). **OREGON:** CLATSOP: Astoria; Cannon Beach; Necanicum; Saddle Mountain. POLK: W of Falls City; Rickreall Ridge/Dixie. TILLAMOOK: Boyer; Manzanita; Sandlake; Tillamook. WASHINGTON: Dilley; Timber. YAMHILL: Bald Mountain; Carlton Meadow Lake. **WASHINGTON:** CLALLAM: Forks; Olympic Hot Springs; Sol Duc Hot Springs. GRAYS HARBOR: Hoquiam; Humptulips. JEFFERSON: Brinnon; Olympic National Park. LEWIS: Centralia. MASON: Lake Cushman; Spillman Camp; Stimson Creek. PACIFIC: Ilwaco; South Bend. THURSTON: Tenino. YAKIMA: Bench Lake/Mount Adams.

**Remarks.** This species displays the most obtuse hind pronotal angle, which in the remaining species is right-angled or less, and often subacute. Most specimens are coastal, making the Mount Adams (Washington) specimens in the OSAC interesting outliers, but with relatively recent and detailed labels I have no other reason to doubt them. Conversely, an old specimen labeled as originating from ‘Crater Lake, OR’ is from so far outside the known range that I consider it to be erroneous. The northern distribution, coloration (Fig. 8A), and the apex of the genitalia with a strong bifurcate extension (Fig. 8C) are diagnostic.

### ***Platyceroides (Platyceroides) californicus* (Casey)**

*Platycerus californicus* Casey, 1885: 331, original combination.

*Platycerus parvicollis* Casey, 1889: 164, original combination. **Revised synonymy.**

**Type series.** *Platycerus californicus* holotype female (USNM) labeled: a) “Cal.”; b) “CASEY / bequest / 1925”; c) on orange paper, “TYPE USNM / [36209]”; d) handwritten “*californicus* / Csy.”; e) “*Platyceroides californicus* / (Casey, 1885) / det. M.J. Paulsen 2013”.

*Platycerus parvicollis* lectotype male (USNM), **here designated**, labeled: a) handwritten “*parvicollis* / Cas.”; b) “CASEY / bequest / 1925”; c) on orange paper, “TYPE USNM / [36208]”; d) “*Platyceroides californicus* / (Casey, 1885) / det. M.J. Paulsen 2015”; e) on red paper, “*Platycerus / pacificus* Casey / Lectotype / det. MJ Paulsen”.

The female holotype of *P. californicus* is labeled simply “Cal.”, although Casey (1885) fortunately indicated that the specimen was “captured in a dusty wagon road” in Eureka, Humboldt County, California. Although two species of the nominal subgenus are located at coastal, low elevations near Eureka, the holotype has highly polished elytra and cannot be the female of *P. pampinatus*, new species, described above. Thus the holotype female belongs to the same taxon later described by Casey from a male specimen as *P. parvicollis*. For this reason I am considering *P. parvicollis*, which I had previously considered to constitute a valid species, to be a junior synonym of *P. californicus*.

The original description of *P. parvicollis* lists two specimens, although only one (now the lectotype) is present in the USNM. In the FMNH collection two male specimens are labeled as the type of *P. parvicollis*, and one female was invalidly designated as the allotype by Benesh. Label data indicates that all three specimens are much too recent to have been part of the original type series and are not types; furthermore all three specimens are actually *P. infernus*. The second female specimen in the UNSM that was part of the Casey bequest that was identified as *P. californicus* by him is a paratype of the new species *P. pampinatus* described above.

**Distribution** (Fig. 27). **CALIFORNIA:** HUMBOLDT: Arcata; Blocksburg; Bull Creek-South Fork Eel River; Dyerville; Eureka; Fieldbrook; Fort Seward; Hydesville; Redcrest; High Rock/Humboldt Redwoods State Park; Van Duzen River.

**Remarks.** Compared with *P. thoracicus*, males of *P. californicus* (Fig. 9A) have shinier, lighter-colored elytra that contrast with their distinctly darker pronotal disc with lighter margins, smaller antennal club size, and the clearly distinct apex of the flagellum of the male genitalia (Fig. 9B–C). This species lighter coloration is similar to that of *P. aeneus* from much farther north, but in that species the posterior pronotal angles are obtuse and the genitalia have a bifurcate apex medially.

### ***Platyceroides (Platyceroides) thoracicus* (Casey)**

*Platycerus thoracicus* Casey, 1895: 154, original combination.

**Type series.** Holotype female (USNM) labeled: a) “Cal.”; b) “CASEY / bequest / 1925”; c) on orange paper, “TYPE USNM / [36207]”; d) handwritten “*thoracicus* / Csy.”; e) “*Platyceroides thoracicus* / (Casey, 1895) / det. M.J. Paulsen 2013”.

Casey (1895) described the species based on a large (11.2 mm) female without detailed locality data, stating only that it was from California. The narrow genae indicate the female is from the nominal subgenus. The large size of the female, dark color, shiny elytra, and moderate-sized antennal club agrees with females of a species that is distributed predominantly near San Francisco Bay, which is the same species considered to be *P. thoracicus* by Benesh (1946). It is reasonable to expect that one of the earliest species collected would have come from the San Francisco area, and this species is unique in the subgenus with respect to the large size of the female specimens, frequently 11–12 mm, corresponding with the large holotype female.

**Distribution** (Fig. 27). **CALIFORNIA:** ALAMEDA: Berkeley; Oakland; Strawberry Canyon. CONTRA COSTA: Oakland Hills; Orinda; Mount Diablo; Strawberry Canyon; Wildcat Canyon. NAPA: No data. SANTA CLARA: Alum Rock Park; Cupertino; Los Altos. SONOMA: Duncan Mills; Eldridge; Fairfield Osborn Preserve; Guerneville.

**Remarks.** In this species, which is generally dark (Fig. 10A), the apex of the flagellum of the male genitalia is unique in possessing a minutely bifurcate projection medially (Fig. 10C).

### *Platyceroides (Platyceroides) umpquus* Paulsen, new species

**Type series.** Holotype male (CNCI) labeled: a) “So Fork Umpqua R / 14 mi North of / Tiller, Douglas / Co Ore DP Frechin / VI-1 to 5-48”; b) “*Platyceroides / agassizi* (LeC.) / Det. by / E. Mengersen 1972”; c) on red paper, “*Platyceroides / umpquus* Paulsen / HOLOTYPE”. Five male, one female paratypes (4 CNCI, 1 MJPC) labeled a, b as holotype. Two male paratypes (UCDC, MJPC) labeled: a) “Camas Valley / Ore V.7.1939”; b) “A.T. McClay / Collector”. One male paratype (CASC) labeled: a) “Camas Mts. / Coos Co. Or. / VI-17-1911”; b) “Coll. by / J.R. SLevin”. One female paratype (CASC) labeled: a) “Camas Valley / Or. VI-11-36 / F. Lawrence”; b) “R. Hopping / Collection”; c) “[*Platycerus* / sp. ♀] / Det. / Ralph Hopping”; d) “*Platyceroides / agassizi* LeC [1978] / Det. B. Gavin”. Two male paratypes (CASC) labeled: a) “Myrtle Point / Or. / VI-10-1914”; b) “Coll. by / E.C. Van Dyke”; c) “Van Dyke / Collection”. Three paratype males (2 CDFA, 1 MJPC) labeled: a) “OR: Douglas County / Tenmile, 5.5 mi. SW / 1 mi. W., VI-14/15-99”; b) “Collector / R.L. Penrose”. One male paratype (TAMU) labeled: a) “Pengra Pass / Ore. VI-9-62”; b) “Coll. by G.M. / Chamberlain”; c) “TAMU-ENTO / X0058695”. One male, one female paratype (MSUC) labeled: “OREGON: Douglas Co. / Honey Creek / 5 mi E. Idleyld Park / 13 June 1996 G. Parsons”; b) *Platyceroides / agassii* (LeConte) / det. G. Parsons 1999”. One male paratype (USNM) labeled: a) “OREGON / Brookings / Curry Co.”; b) “VI-1963 / NLH Krauss”. One male paratype (OSAC) labeled: a) “OREGON Curry Co. / 4 mi N. Gold Beach / Giesel Mon. Ways. / 14 June 1975. / Coll. M Gavin”; b) “*Platyceroides / agassizi* LeC [1978] / Det. B. Gavin”; c) OSAC barcode label 0000123661. All paratypes with label: on yellow paper, “*Platyceroides / umpquus* Paulsen / PARATYPE”.

**Description, holotype.** *Length:* 9.8 mm. *Width:* 4.0 mm. *Color:* Shiny dark piceous, with indistinct bronze reflection. *Head:* Form narrow anteriorly, with gena not produced laterally as far as eye. Antennal club moderately large (distinctly shorter than length of scape), size of distal antennomere of club subequal to dorsal surface of eye, antennomeres of club entirely tomentose. Labrum relatively small, shorter than width of distal maxillary palp. Mandibles falcate, externally rounded, internally with 1–2 indistinct teeth. *Pronotum:* Surface shiny (minutely shagreened) with moderately deep punctures; punctures dense, generally separated by about 1 puncture diameter, distance between punctures becoming greater on center of disc and in explanate lateral margins; median line impunctate. Form broad, lateral margins broadly rounded, posterior angle nearly 90°. *Elytra:* Surface shiny, with transverse rugae, striate; striae with moderately deep punctures; intervals with punctures finer, irregular. *Wings:* Wings fully developed. *Legs:* Mesotibiae and metatibiae not moderately slender as in *P. parvicollis* and *P. aeneus*. *Abdomen:* Male genitalia with permanently everted internal sac sclerotized, elongate, with capitate apex; apex lacking bifurcate process medially, in distal view with 2 strongly sclerotized triangular plates, with opposite side of ostium weakly sclerotized.

**Variation in paratypes.** Males ( $n = 17$ ): *Length:* 9.2–11.5 mm. *Width:* 4.1–4.6 mm. *Color:* Light to darker piceous, some with weaker bronze reflection. *Pronotum:* Surface more or less shiny, shagreened microsculpture

obsolete. Posterior angle variable,  $\geq 90^\circ$ , to rarely produced, subacute. Females ( $n = 3$ ): Length: 9.6–11.0 mm. Width: 4.2–5.0 mm (body more robust). *Color*: Lighter piceous to reddish brown, reflection obsolete. *Head*: Antennal club smaller, about  $\frac{1}{2}$  length of scape; not entirely tomentose (mostly glabrous, especially 2 proximal antennomeres). Mandibles internally blade-like. *Pronotum*: Form larger, longer; posterior margins slightly more than  $90^\circ$ . *Elytra*: Form more convex. Surface with transverse rugae reduced. *Wings*: Wings atrophied. *Legs*: All tibiae distinctly thicker than in males.

**Etymology.** The specific epithet is derived from the local indigenous word *umpqua*, meaning ‘across the waters’ or ‘satisfied’, also the name of the Umpqua River and valley of the type locality. The term is Latinized and used as a singular nominative adjective in the masculine gender.

**Diagnosis.** The apex of the male genitalia (Fig. 11B, 11C) is diagnostic for this species because it lacks the bifurcate apex of *P. aeneus* and the horizontal sclerotized plate visible in distal view in *P. californicus*. It is darker in color than those species and readily separable by eye from either (Fig. 11A).

**Distribution** (Fig. 27). **OREGON**: COOS: Camas Mountains; Marshfield; Myrtle Point. CURRY: Brookings; Gold Beach. DOUGLAS: Camas Valley; Honey Creek 5 mi. E Idleyd Park; South Umpqua River 14 mi. N. of Tiller. LANE: Pengra Pass.

**Temporal distribution.** May (5), June (17). Specimens have been collected from 7 May to 17 June, indicating a short annual period of activity for the adults.

**Remarks.** The life history of the species is unknown, without any pertinent habitat or host data present on existing labels.

### *Platyceroides opacus* species group

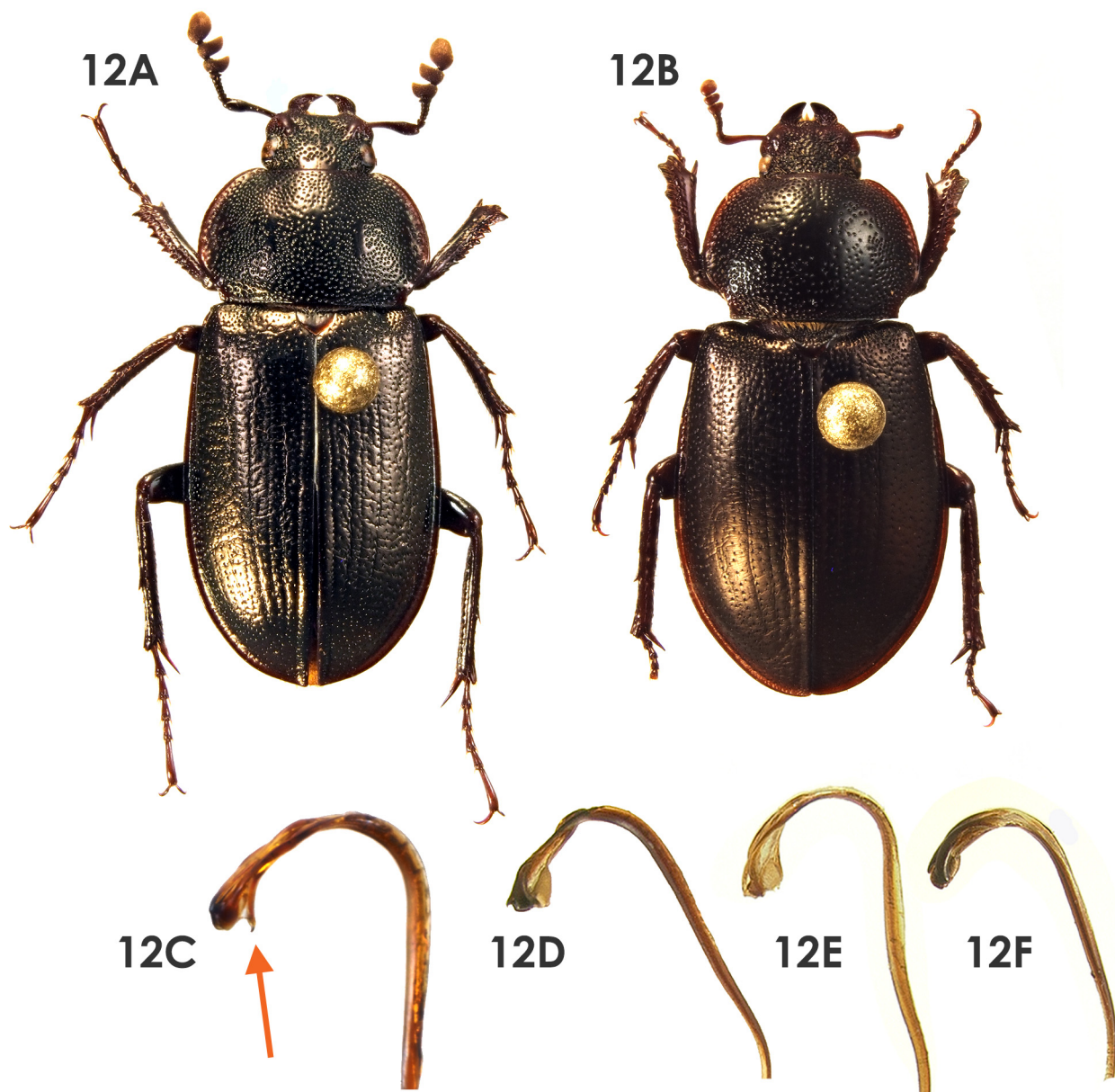
#### *Platyceroides (Platyceroides) barrae* Paulsen, new species

**Type series.** Holotype male and allotype female deposited at EMEC, labeled: a) “CA: Nevada County / Tahoe Natl. Forest / Eagle Lakes Trail / 12-VI-2016, C.B. Barr / coll. on the ground”; b) on red paper, “*Platyceroides / barrae* Paulsen / HOLOTYPE (or ALLOTYPE)”. One female paratype (MJPC) labeled a) as holotype. One male paratype (CASC) labeled, all handwritten, a) “Cisco / Cal. / VII-1911”; b) “Coll. by C. / Van Golden”; c) “Van Dyke / Collection”. One male paratype (AMNH) labeled, all handwritten, a) “VII-4-52 / Blue Lk. / Nev Co Cal.”; b) “14047? / C.A.F. ‘61””; c) male symbol; d) “14047 / B.B. ‘64”. Nine male paratypes (AMNH, FMNH, MJPC) labeled, all handwritten, a) “VII-2.52 / C.B.P, Nev. / Co. Calif.”; b) “14047? / C.A.F. ‘61””; c) male symbol; d) “14047 / B.B. ‘64””; one with label “*Platyceroides / agassizi* / B.B. -64 14047 (LeC)”. All paratypes with label: on yellow paper, “*Platyceroides / barrae* Paulsen / PARATYPE”.

**Description, holotype male** (Fig. 12A). *Length*: 10.4 mm. *Width*: 4.5 mm. *Color*: Dark piceous, with moderate bronze reflection. *Head*: Form narrow anteriorly, with gena not produced laterally as far as eye. Antennal club large (subequal to length of scape), size of distal antennomere of club larger than dorsal surface of eye, antennomeres of club entirely tomentose. Clypeus not thickened apically. Labrum relatively small, shorter than width of distal maxillary palp. Mandibles falcate, robust, strongly bent internally after base, internally with 1 indistinct tooth. *Pronotum*: Surface shiny (minutely shagreened) with large, deep punctures; punctures dense, generally separated by about 1 puncture diameter, distance between punctures becoming greater on center of disc and in explanate lateral margins; median line and area on either side more-or-less impunctate. Form broad, lateral margins broadly rounded, posterior angle nearly  $90^\circ$ . *Elytra*: Form elongate. Surface shiny, shagreened, with some transverse rugae, weakly striate (sutural and 2–3 striae on disc); striae with row of moderately deep punctures; intervals with punctures finer, irregular. *Wings*: Wings fully developed. *Legs*: Mesotibiae and metatibiae not distinctly slender. *Abdomen*: Male genitalia with permanently everted internal sac sclerotized, elongate, with capitate apex; apex emarginate (ventral view) and acutely produced in lateral view (Fig. 12C).

**Description, allotype female** (Fig. 12B). *Length*: 10.5 mm. *Width*: 4.7 mm. Differs from male holotype in the following characters. *Color*: Lighter reddish brown. *Head*: Antennal club smaller, shorter than length of scape, antennomeres of club mostly glabrous. Mandibles blade like, externally rounded. Labrum longer. *Pronotum*: Form broader. Surface less punctate medially. Posterior angles more strongly produced,  $< 90^\circ$ . *Elytra*: Form robust, less elongate, suboval. Surface with striae not distinctly impressed; intervals with finer punctures. *Wings*: Wings atrophied. *Legs*: All tibiae distinctly broader, more robust than in male.





**FIGURE 12.** *Platyceroides opacus* species group. 12A–C, *Platyceroides barrae* new species; 12A, holotype male; 12B, allotype female; 12C, flagellum of male genitalia, arrow indicates acute apical process. 12D–F, flagellum of male genitalia for comparison: 12D, *P. opacus*; 12E, *P. potax*; 12F, *P. marshalli*.

**Variation in paratypes.** Males ( $n = 11$ ): Length: 9.1–10.4 mm. Width: 3.8–4.5 mm. *Color*: Lighter reddish to brown piceous. *Pronotum*: Surface punctuation variably dense, more densely punctate either side of median line. Posterior angle variable, 90° to acute. Female ( $n = 1$ ): Length: 10.4 mm. Width: 4.7 mm.

**Etymology.** The species is named for Cheryl B. Barr (EMEC), a specialist on aquatic beetles, who recently collected the primary types and the only known female specimens. I am pleased to name this species for her in acknowledgment of her generous assistance with my research and for her skill at also finding the good terrestrial beetles.

**Diagnosis.** The apex of the male genitalia is diagnostic for this species due to the presence of an acute apical process. Both sexes can be immediately separated from the two geographically closest species by the thickened clypeal apex in *P. latus* and the much smaller antennal club in *P. potax*.



**Distribution** (Fig. 28). **CALIFORNIA:** NEVADA: Blue Lake; “C.B.P.”; Eagle Lakes. PLACER: Cisco.

**Temporal distribution.** June (3), July (11). Adults have been collected somewhat later than with other species, which may be related to the high elevation of 1700–1800 m.

**Remarks.** The largest series comes from a Nevada County, California, locality listed simply as “C.B.P.” My attempts to decipher that locality, including queries to several inveterate California collectors, have been unsuccessful. The five remaining specimens with clear locality data are from a relatively small area, and I assume that “C.B.P.” would be near to them as well. The life history of the species is unknown, with recent specimens being found walking on trails in a closed-canopy coniferous forest (Cheryl Barr, personal communication). The limited distribution of this species may be a cause for conservation concern.

### ***Platyceroides (Platyceroides) opacus* (Fall)**

*Platycerus opacus* Fall, 1906: 393, original combination.

**Type series.** Lectotype male of *P. opacus* (MCZ), **here designated**, labeled: a) handwritten “Tulare / Co. Cal.”; b) handwritten “Cedar / Creek / VI-12-05”; c) “TYPE / [*opacus*]”; d) on red paper, “M.C.Z. / Type / 24741”; e) “H.C. Fall / Collection”; f) “Aug-Dec. 2005 / MCZ Image / Database”; g) “*Platyceroides opacus* / (Fall, 1906) / det. M.J. Paulsen 2013”. Paralectotype female (MCZ) labeled: a) handwritten “Tulare / Co. Cal.”; b) handwritten “Cedar / Creek / VI-12-05”; c) “H.C. Fall / Collection”; d) red bordered, handwritten “*Platycerus / opacus* / Fall”; e) “[*Platyceroides / opacus* / (Fall)]” / Det. / N.E. Woodley 1983”. Paralectotype male (MCZ) labeled: a) handwritten “Tulare / Co. Cal.”; b) handwritten “So. Fork / Kaweah R. / Jan 28-30. / 1905.”; c) “H.C. Fall / Collection”. Paralectotype female (CASC) labeled: a) handwritten “So. Fork / Kaweah / New Trail / Jan 28-30. / 1905.”; b) “Tulare Co. / Calif 4500 ft / Hopping”; c) “COTYPE”; d) half red, half white label with black line; e) “R. Hopping / Collection”. One male, one female paralectotypes (CASC) labeled: a) handwritten “Cedar Cr. / June 12-05”; b) “Cedar Creek / Tulare Co.”; c) “Calif 4500 ft / Hopping”; d) “COTYPE”; e) half red, half white label with black line; f) “R. Hopping / Collection”. Male paralectotype (CASC) labeled: a) handwritten “Cedar Cr. / June 12 / 1905”; b) “Cedar Creek / Tulare Co.”; c) “Calif 4500 ft / Hopping”; d) “COTYPE”; e) handwritten “*Platycerus / opacus* / Fall”; f) half red, half white label with black line; g) “R. Hopping / Collection”; h) black-bordered handwritten “*Platycerus / opacus* / 14054 Fall”; i) black-bordered handwritten “H-936 / *Platycerus / opacus* / Fall”. All paralectotypes labeled, on yellow paper: “*Platycerus / opacus* Fall / PARALECTOTYPE”.

Fall (1906) described the species from four males and three females collected by Hopping from two localities in Sequoia National Park, Tulare County, California. Fall (1906) lists the first locality incorrectly as “Clear Creek”, but all labels indicate “Cedar Creek”, which is located at 36.355055°, -118.733025° (Dennis Haines, curator Tulare County Agricultural Commissioner Collection, personal communication). The second locality is the South Fork of the Kaweah River. Nine specimens examined have the distinctive black pins with minute heads found in the type series. Eight are labeled in such a way that they could belong in the type series, which should only number seven specimens. The extra specimen is most likely a female from the second locality (CASC) that has different labels and I am not considering it to be part of the original type series.

**Distribution** (Fig. 28). **CALIFORNIA:** FRESNO: Kings Canyon National Park [Paradise Valley]. TULARE: Camp Nelson; Sequoia National Park [Cedar Creek, Potwisha, South Fork Kaweah, Marble Fork].

**Remarks.** See Paulsen 2015. Flagellum of male genitalia (Fig. 12D) provided for comparison.

### ***Platyceroides (Platyceroides) potax* Paulsen**

*Platyceroides potax* Paulsen, 2014: 1, original combination.

**Type series.** Holotype male (CDFA) labeled: a) “USA: CA: Butte Co. / Coutolene [sic] Park; Paradise / 1-JUN-2006; R. Penrose / Ex: EtOH trap in forested area”; b) on red paper, “*Platyceroides / potax* Paulsen / HOLOTYPE”. See Paulsen (2014) for details on the rest of the type series.

**Remarks.** This species was described recently (see Paulsen 2014, 2015). The flagellum of the male genitalia (Fig. 12E) is provided for comparison with *P. barrae*. Since its description, additional locality records have been

added (Fig. 28). The first females of *P. potax* have been examined from Pulga, Butte County, and Challenge, Yuba County, California. They have shagreened pronota, unlike the nearby *P. barrae*, and lack the thickened clypeus of female *P. latus*. Also, numerous males have subsequently been collected at traps containing 70% ethanol in Magalia, Butte County (Brady Richards, personal communication).

### ***Platyceroides (Platyceroides) marshalli* Paulsen**

*Platyceroides marshalli* Paulsen, 2015: 1, original combination.

**Type series.** Holotype male (OSAC) labeled: a) “USA: OR: Jackson Co. / 7 km S of Gold Hill, Galls Creek / Rd; 42.367, -123.057; 566m / soil/litter under madrone branch / (~10 cm diam.); 3.VI.2015 / MJ Paulsen, C Marshall”; b) on red paper, “*Platyceroides / marshalli* Paulsen / HOLOTYPE”. See Paulsen (2015) for details on the rest of the type series.

**Remarks.** This species was described recently (see Paulsen 2015). The male genitalia of this species (Fig. 12F) bears some resemblance to that of *P. agassii*, which may indicate a relationship between the two species. Since publication, additional locality records have been added (Fig. 28). Specimens have been collected in southern Jackson County, Oregon, along Interstate 5 not far from the California border (Michael Kippenhan, personal communication). It is likely that this species will also be found in Siskiyou County, California.

### **Subgenus *Platyceropsis* Benesh, 1946, new status**

**Type species.** *Platycerus keeni* Casey, 1895, by original designation.

**Subgeneric description.** Differing from the other subgenera in the following characters: *Head:* Anterior margin distinctly emarginate (Fig. 19), rarely less emarginate. Genae usually produced laterally past eyes (greatest width of head is across genae). *Wings:* Males with functional wings or wings absent. *Abdomen:* Male genitalia (Figs. 13B, 14C) with internal sac (flagellum) short, not reaching beyond parameres in repose, flagellum with strongly sclerotized, median, hooked process and weakly sclerotized, lateral, wing-like processes. Parameres simple, not emarginate in lateral view (Fig. 1A).

### ***Platyceroides (Platyceropsis) keeni* (Casey), new combination**

*Platycerus keeni* Casey, 1895: 153, original combination.

*Platycerus pedicellaris* Möllenkamp, 1912: 302, synonym.

**Type series.** Holotype female of *Platycerus keeni* (USNM) labeled: a) “Q.C.I.”; b) “CASEY / bequest / 1925”; c) on orange paper, “TYPE USNM / [36206]”; d) handwritten “keeni / Csy.”; e) “*Platyceroides keeni* / (Casey, 1895) / det. M.J. Paulsen 2013”.

Holotype female of *Platycerus pedicellaris* (SDEI) labeled: a) “Humboldt / Co., CAL. / IV.29.11”; b) “Coll’d by F.W. / Nunenmacher”; c) female symbol; d) handwritten, “*Platycerus / pedicellaris* [female symbol] / Möllenk. / Typus!”; e) red paper, “Holotypus”; f) “Dtsch. Entomol. / Institut Berlin”.

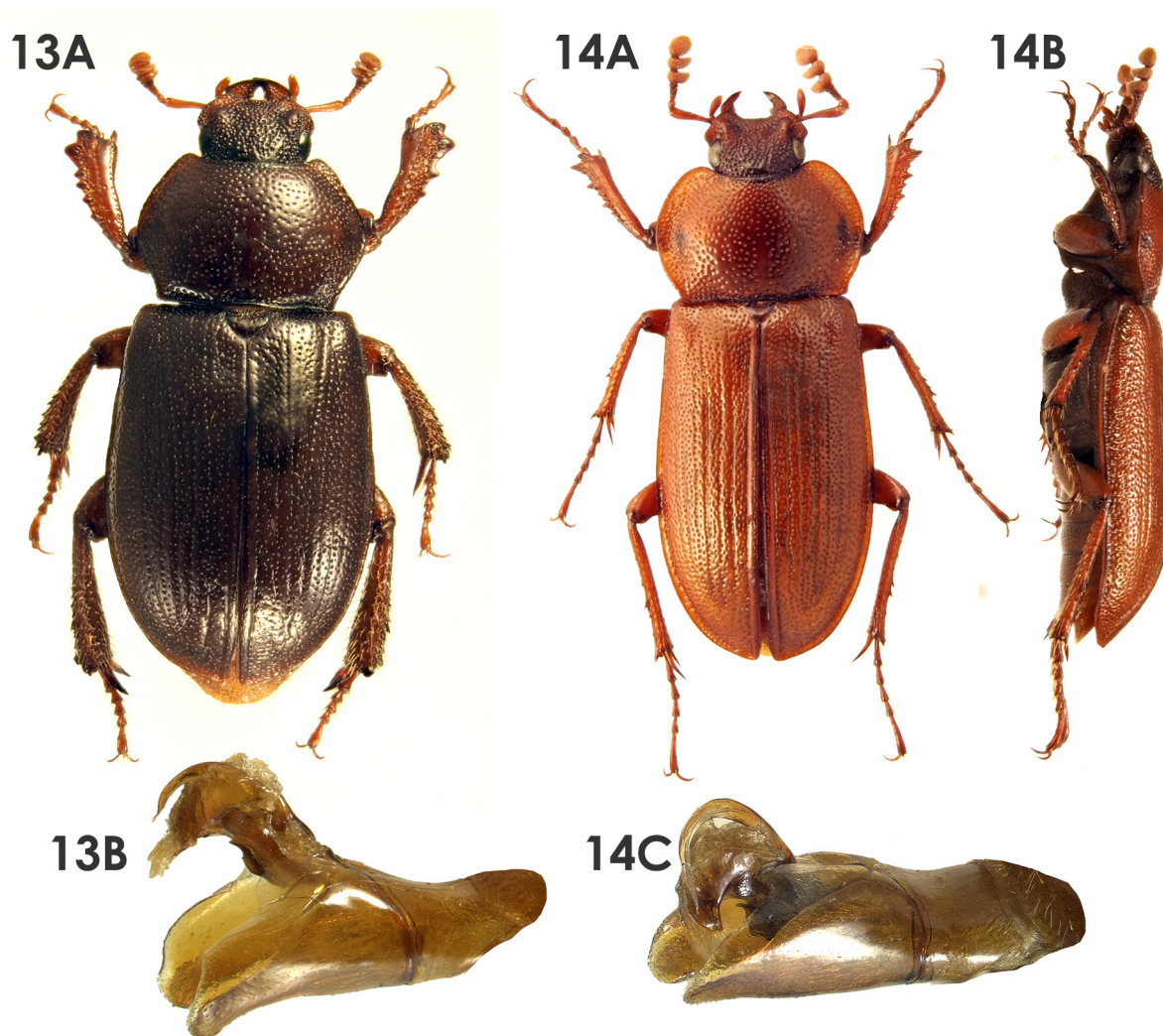
**Taxonomy.** Casey (1895) described the species based on a female from Haida Gwaii (then known as the Queen Charlotte Islands), British Columbia, Canada, which is the northernmost locality known for the tribe. Möllenkamp (1912) described a female from the mainland (California), however the synonymy of his name with Casey’s is confirmed. A second specimen encountered from CNCI is labeled as being the holotype by H. Bomans, however it is not the holotype specimen.

**Distribution** (Fig. 29). **CANADA: BRITISH COLUMBIA:** HAIDA GWAI: Massett; North Beach; Tlell. **VANCOUVER ISLAND:** Pacific Rim National Park-Long Beach/Green Point.

**UNITED STATES OF AMERICA: CALIFORNIA:** DEL NORTE: Crescent City. HUMBOLDT: Arcata; Trinidad. **OREGON:** CLATSOP: Cannon Beach; Gearhart. COOS: No locality. CURRY: Gold Beach; Pistol River. DOUGLAS: 6 mi. S Reedsport/Umpqua Lighthouse State Park. LANE: Heceta Beach. LINCOLN:

Beachside State Park; South Beach State Park; Taft; Waldport. TILLAMOOK: Bar View State Park; Nehalem; Neskowin; Pacific City/Cape Kiwanda. **WASHINGTON:** GRAYS HARBOR: Moclips. **PACIFIC:** Long Beach; Seaview.

**Remarks.** This species is unique in that it burrows in sand under driftwood on the Pacific coast. It displays autapomorphies related to this peculiar life history such as thickened legs, broader tibial spurs, and flightlessness in males (Fig. 13A). This is the most massive species in the genus, with some females from the type locality reaching 14 mm in length and 6 mm in width. It is the only species of the tribe known to occur in Canada. The male genitalia (Fig. 13B) are virtually identical to those of *P. laticollis*.



**FIGURES 13–14.** Subgenus *Platyceropsis*, males. 13A, *Platyceroides keeni*; 13B, male genitalia, median lobe and flagellum manually elevated from natural position. 14A, *Platyceroides laticollis*, dorsal habitus; 14B, lateral view; 14C, male genitalia, median lobe and flagellum manually elevated from natural position.

***Platyceroides (Platyceropsis) laticollis* (Casey), new combination**

*Platycerus laticollis* Casey, 1914: 373, original combination.

**Type series.** Holotype male (USNM) labeled: a) “Marys Peak / [VII-’09] Or”; b) “CASEY / bequest / 1925”; c) on orange paper, “TYPE USNM / [36211]”; d) handwritten “*laticollis* / Csy.”; e) “*Platyceroides laticollis* / (Casey, 1914) / det. M.J. Paulsen 2013”.

**Distribution** (Fig. 30). **CALIFORNIA:** DEL NORTE: no locality. **HUMBOLDT:** Kneeland; Prairie Creek/

Orick. **OREGON:** BENTON: Asea; Mary's Peak. COOS: Marshfield. CURRY: Floras Lake/10 mi. N Port Orford; 6 mi. N Brookings. DOUGLAS: Falls Creek; Honey Creek 5 mi. E Idleyd Park. LANE: HJ Andrews Experimental Forest, 11 mi. NE Blue River; Springfield. LINCOLN: Newport; Waldport. TILLAMOOK: Boyer.

**Remarks.** This light orange-brown, elongate, somewhat flattened species (Fig. 14B) is distinctive and generally correctly identified in collections. It is located in the Coast Range from northern Oregon to Humboldt County, California. One population in central Oregon is known to be present in the Cascades. Despite their drastically different appearance, the male genitalia (Fig. 14C) are virtually identical to those of *P. keeni*.

### **Subgenus *Praocerus* Paulsen, new subgenus**

**Type species.** *Platycerus latus* Fall, 1901, here designated.

**Etymology.** The gender is masculine, and derived from the Greek *praos* (meek) and *cerus* (horns, mandibles).

**Subgeneric description.** Differing from other subgenera in the following characters: *Head:* Anterior margin subtruncate (as in Fig. 20). Genae produced laterally to width of eyes (greatest width across genae and eyes subequal) or genae slightly narrower. *Wings:* Males with functional wings. *Abdomen:* Male genitalia (Figs. 15B, 16B) with internal sac (flagellum) elongate, much longer than parameres, partially sclerotized (proximal half membranous, distal half forming a sclerotized process). Parameres not folded, but distinctly emarginate (Fig. 1B).

As discussed previously, the subgenus is formed based on the unique form of the male genitalia that has a strongly sclerotized 'club' at the end of a median membranous area of the everted internal sac. In both the form of the parameres (simply but distinctly emarginate) and width of the head (generally with eyes and genae equally wide in most specimens) the subgenus is intermediate between *Platyceroides* and *Platyceropsis*.

### ***Platyceroides (Praocerus) latus* (Fall), new combination**

*Platycerus latus* Fall, 1901: 291, original combination.

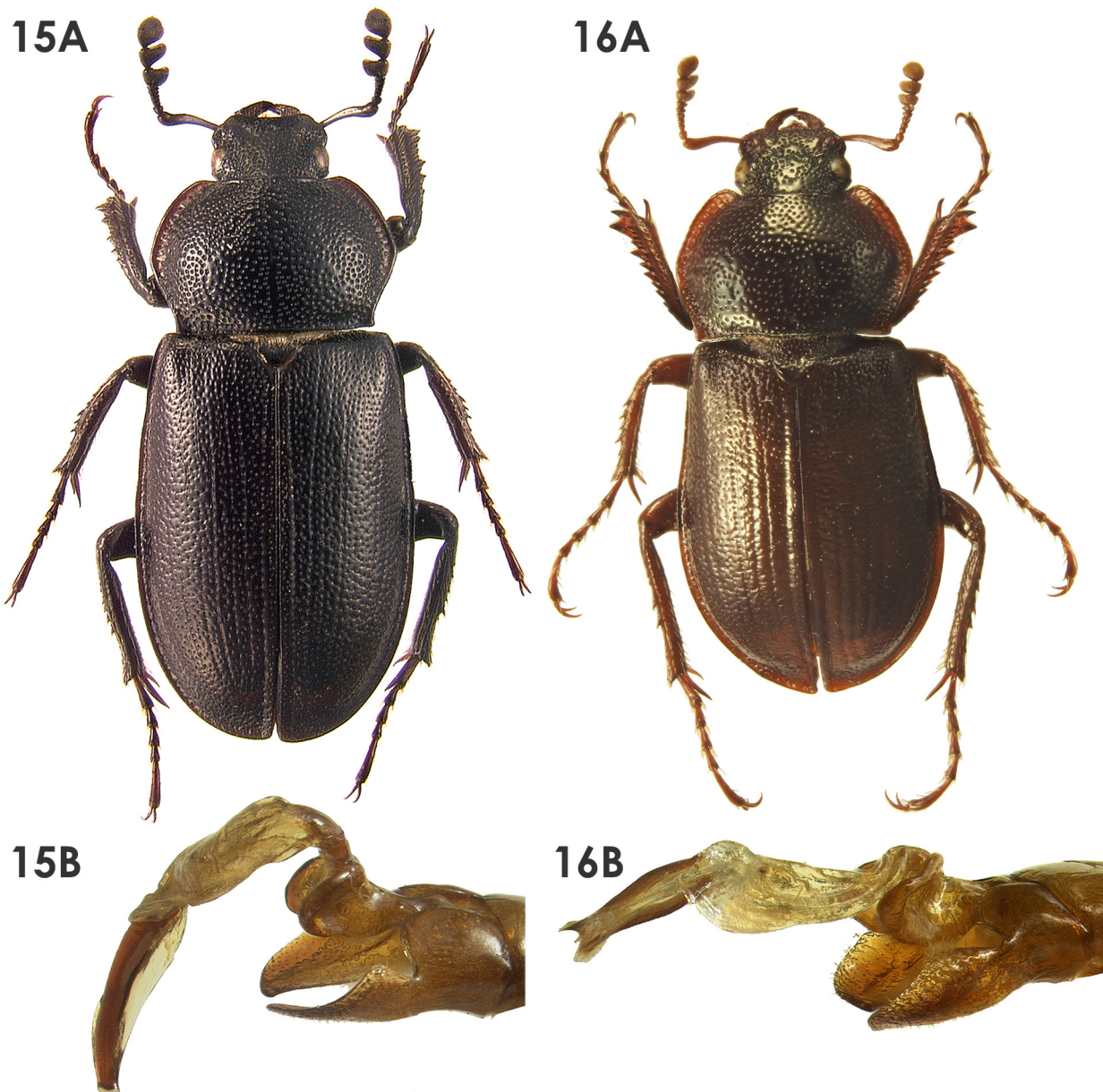
**Type series.** Lectotype female, **here designated** (MCZ) labeled: a) "Placer / Co. CAL"; b) "Collected by / Dr. E.C. Van Dyke"; c) "TYPE"; d) "H.C. Fall / Collection"; e) on red paper, "M.C.Z. / Type / 24740"; f) red bordered, handwritten "*Platycerus / latus / Fall*"; g) "[*Platyceroides / latus / (Fall)*]" / Det. / N.E. Woodley 1983"; h) on red paper, "*Platycerus / latus* Fall / LECTOTYPE"; i) "*Platyceroides latus / (Fall, 1901) / det. M.J. Paulsen 2013*". Paralectotype male (MCZ) labeled: a–c) as a, b, and d of lectotype. Two paralectotype females (CASC) labeled: a) "Placer / Co. CAL"; b) "Van Dyke / Collection". One paralectotype male (CASC) labeled: a) "Placer / Co. CAL"; b) "Van Dyke / Collection"; c) black bordered, handwritten "*Platycerus / latus / Fall*". Female paralectotype (CASC) labeled: a) "Alameda / CO. CAL"; b) "Van Dyke / Collection". All paralectotypes labeled, on yellow paper: "*Platycerus / latus* Fall / PARALECTOTYPE".

The Alameda female paralectotype has suspect data—all other specimens are from the Sierra Nevada, where the range is extensive. All other *Platyceroides* specimens examined from Alameda County are *P. thoracicus*. I do not consider *P. latus* to occur in Alameda County. One male and three females from the original type series were not located.

**Distribution** (Fig. 31). **CALIFORNIA:** ALPINE: Alpine Lake; Bloods Meadow. AMADOR: Ham's Station; "Ten Rise". BUTTE: No locality. CALAVERAS: Big Trees State Park. EL DORADO: Blodgett Forest; Kyburz; Pacific House; Placerville; Pollock Pines; Riverton; Snowline Camp. FRESNO: Bretz Mill; Shaver Lake. LASSEN: Lassen National Park. MADERA: Buck Camp/Yosemite National. Park; North Fork; Sugar Pine; Westfall Camp. MARIPOSA: Fish Camp; Miami Ranger Station; Yosemite National Park. NEVADA: Camp Spaulding; Nevada City; White Cloud. PLACER: No locality. PLUMAS: 1 mi. S Meadow Valley. SHASTA: Manzanita Lake. SIERRA: New York Ravine. TEHAMA: Lassen National Park. TUOLUMNE: Confidence; Strawberry. YUBA: Bullards Bar; Challenge; Woodleaf.

**Remarks.** This species has the largest distribution in the genus. Females of *P. latus* are the most easily recognized females in the genus due to the thickened anterior margin of the head (Fig. 21), which is also present in males (Fig. 15A). The flagellum of the male genitalia ends in a large, sclerotized club (Fig. 15B).





**FIGURES 15–16.** Subgenus *Praocerus*, males. *Platyceroides latus*: 15A, dorsal habitus; 15B, flagellum and parameres of male genitalia. *Platyceroides viriditinctus*: 16A, dorsal habitus; 16B, flagellum and parameres of male genitalia.

***Platyceroides (Praocerus) viriditinctus* (Benesh), new combination**

*Platycerus viriditinctus* Benesh, 1942: 222, original combination.

**Type series.** Holotype male (FMNH) labeled: a) handwritten “Stayton / Ore. V-3-41”; b) handwritten “Ex-coll. / K.M. Fender”; c) on red paper, “HoloTYPE / B. Benesh”; d) handwritten, “*Platycerus / viriditinctus / Benesh*”, with obverse “[MS] / JAN 14 '42 / [B.B.]”; e) “Chicago Nat Hist Mu / B. Benesh Colln. / Lucanidae (Benesh / Access No. 5362); f) “*Platyceroides viriditinctus / (Benesh, 1942) / det. M.J. Paulsen 2013*”.

**Distribution** (Fig. 31). **OREGON:** MARION: Stayton. **WASHINGTON:** Reehers Camp.

**Remarks.** Only four male specimens including the holotype (Fig. 16A) were located in collections (OSAC,

FMNH) for examination. My attempts to collect more individuals of this species around the known localities in early June 2015 were unsuccessful. The flagellum of the male genitalia ends in a large, trilobed, sclerotized club (Fig. 16B).

## Taxonomic keys

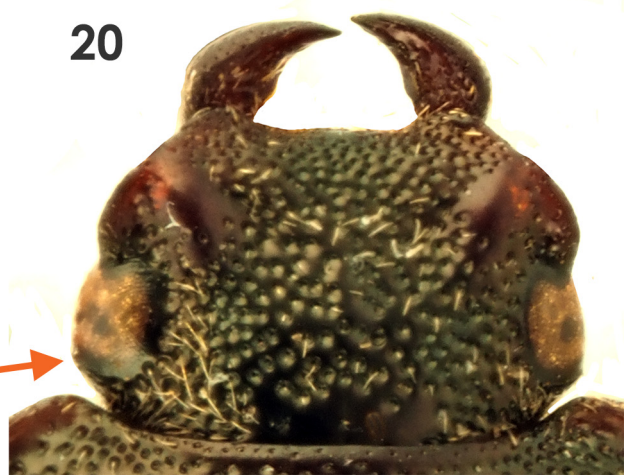
The following keys are provided to the males and known females of *Platyceroides*. Females are flightless and are more robust (less elongate in form, with a broader pronotum and elytra and with wider tibiae), with a smaller and more glabrous antennal club than their conspecific males. In *P. keeni*, although both sexes are flightless, the females can be discerned by their more robust gestalt and slightly broader protibiae, which are subjective. If the sex of *P. keeni* must be definitively determined genitalic dissection should be used. For the following keys the sex of *P. keeni* specimens is irrelevant and the species will fall out correctly in either key. In general, the best method of identifying male specimens of the remaining species is to examine the apex of the flagellum of the genitalia and compare to species known from the given area. Identification of females should also rely heavily on the geographic distribution and any association with males, although some localities have more than one species present.

### Key to males of *Platyceroides* Benesh

1. Flightless. Mesotibiae and metatibiae robust (Fig. 17). . . . . *Platyceroides keeni* (Casey)
- Fully winged. Mesotibiae and metatibiae long and narrow (Fig. 18) . . . . . 2
2. Head wider across genae than across eyes, anterior margin of head distinctly emarginate (Fig. 19) . . . . . *P. laticollis* (Casey)
- Head width across genae and eyes subequal, or genae narrower than eyes; anterior margin of head weakly emarginate, almost truncate (Fig. 20) . . . . . 3
3. Clypeus thickened, tumid anteriorly, strongly declivous before labrum (Fig. 21) . . . . . *P. latus* (Fall)
- Clypeus normal, not raised medially, descending to labrum (Fig. 22) . . . . . 4
4. Elytra shagreened (microsculptured), appearing dull . . . . . 5
- Elytra shiny or glossy, lacking microsculpture . . . . . 10
5. Antennal club small, shorter than funicle, or subequal in length (Fig. 23) . . . . . 6
- Antennal club distinctly larger, longer than funicle to subequal to scape (Fig. 24) . . . . . 8
6. Elytral striae distinctly impressed and serially punctate; Coastal mountains . . . . . *P. pampinatus* Paulsen, **new species**
- Elytral striae obsolete, longitudinal cracks (if present) not punctate; Sierra Nevada . . . . . 7
7. Labrum large, as long as width of terminal maxillary palp; Klamath Mountains, Oregon. . . . . *P. marshalli* Paulsen
- Labrum small, shorter than width of terminal maxillary palp; northern Sierra Nevada, California . . . . . *P. potax* Paulsen
8. Elytra lacking impressed, serially punctate striae . . . . . *P. opacus* (Fall)
- Elytra with feebly to distinctly impressed, punctate striae . . . . . 9
9. Elytra short (about 2x pronotal length); Sierra Nevada. . . . . *P. barrae* Paulsen, **new species**
- Elytra elongate (almost 3x pronotal length); coastal mountains . . . . . *P. infernus* Paulsen, **new species**
10. Form robust, elytra short, about 2x pronotal length . . . . . 11
- Form elongate, elytra longer, almost 3x pronotal length. . . . . 13
11. Mesotibiae and metatibiae with external margin subserrate with 3–4 similarly sized teeth; northeastern Oregon . . . . .
- . . . . . *P. viriditinctus* (Benesh)
- Mesotibiae and metatibiae with external margin usually with 1 larger tooth and proximal teeth when present distinctly smaller; northern California . . . . . 12
12. Antennal club unusually small, as short as funicle . . . . . *P. agassii* (LeConte)
- Antennal club larger, distinctly longer than funicle . . . . . *P. pacificus* (Casey)
13. Elytral color light brown or rufous with pronotal disc darker. . . . . 14
- Color uniformly darker piceous. If lighter (teneral), dorsum is unicolorous . . . . . 15
14. Antennal club large, subequal to scape; posterior angles of pronotum greater than 90°; Washington south to northern Oregon . . . . .
- . . . . . *P. aeneus* (Van Dyke)
- Antennal club smaller, distinctly shorter than scape; posterior angles of pronotum ~ 90°; known only from Humboldt County, California. . . . . *P. californicus* (Casey)
15. Antennal club large, distinctly longer than funicle; San Francisco Bay area . . . . . *P. thoracicus* (Casey)
- Antennal club smaller, subequal to funicle; southwestern Oregon. . . . . *P. umpquus* Paulsen, **new species**



**FIGURES 17–18.** Mesotibiae and metatibiae in *Platyceroides*. 17, *Platyceroides keeni*, tibiae robust. 18, *Platyceroides opacus*, tibiae typical of remainder of genus.

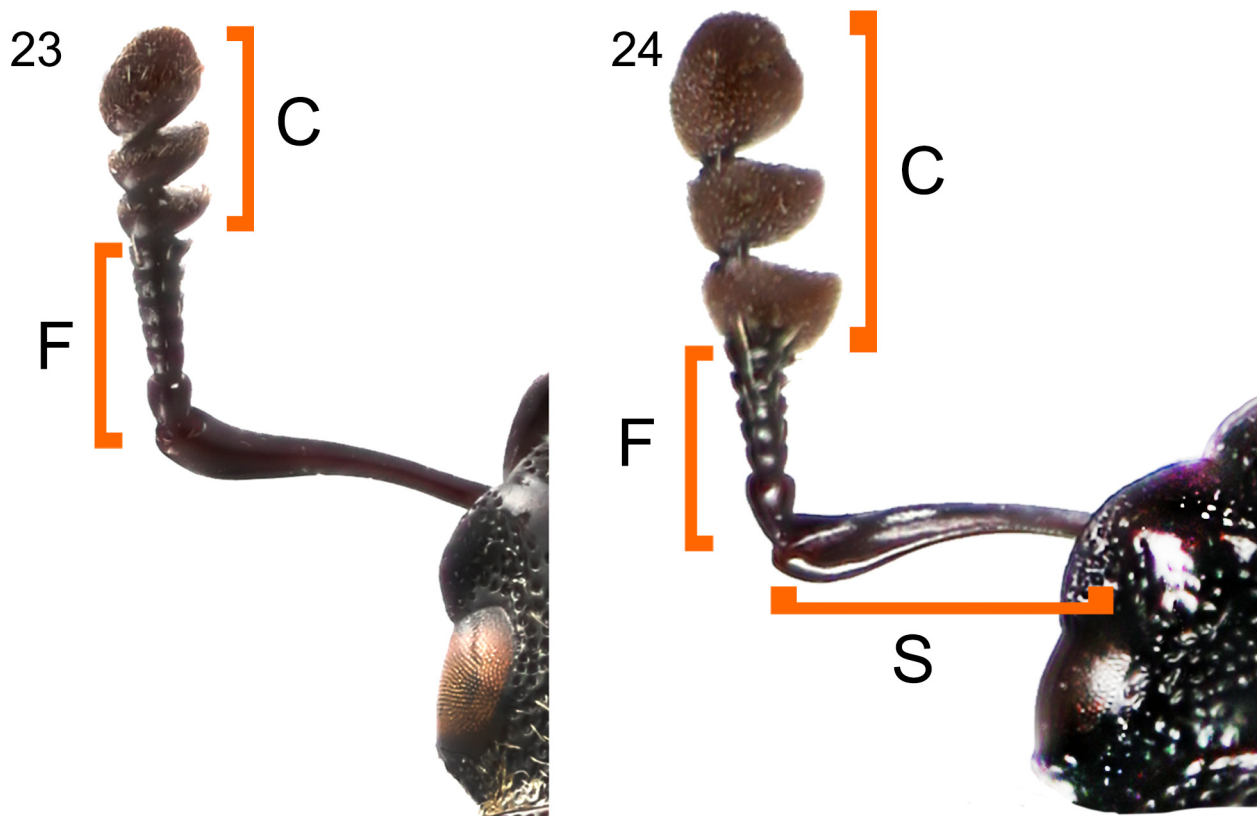


**FIGURES 19–20.** Head width and clypeal emargination in *Platyceroides*. 19, *Platyceroides laticollis*, clypeus distinctly emarginate; arrow indicates greatest width of head, across genae. 20, *Platyceroides barrae*, clypeus weakly emarginate; arrow indicates greatest width of head, across eyes.



**FIGURES 21–22.** Clypeal elevation in *Platyceroides*. 21, *Platyceroides latus*, clypeus distinctly raised, thickened. 22, *Platyceroides opacus*, clypeus normally declivous to labrum, typical of remainder of genus.





**FIGURES 23–24.** Relative size of male antennal characters in *Platyceroides*. S = scape (antennomere 1); F = funicle (antennomeres 2–7); C = club (antennomeres 8–10). 23, *Platyceroides potax*, club and funicle subequal in length. 24, *Platyceroides infernus*, club distinctly longer than funicle, subequal to scape in length.

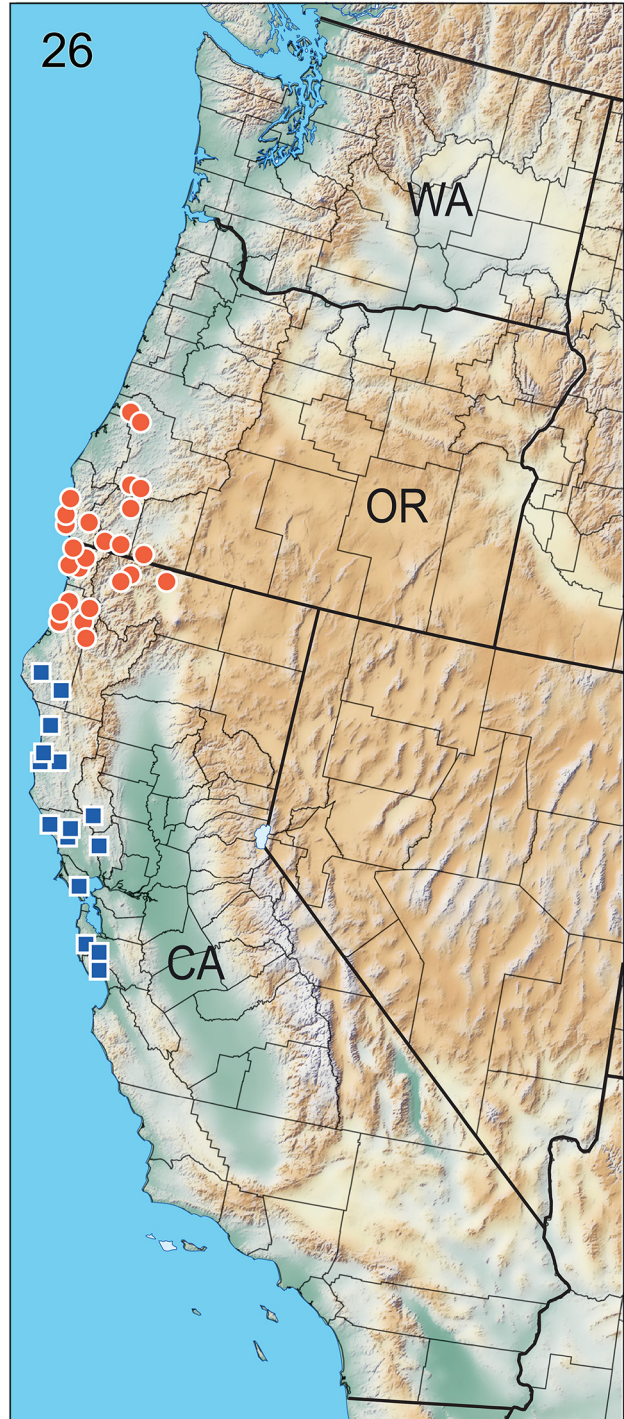
### Key to known Females of *Platyceroides* Benesh

Females of *P. viriditinctus* (Benesh) are unknown.

1. Mesotibiae and metatibiae robust (see Fig. 17) . . . . . *Platyceroides keeni* (Casey)
- Mesotibiae and metatibiae long and narrow (see Fig. 18) . . . . . 2
2. Head wider across genae than across eyes, anterior margin of head distinctly emarginate (see Fig. 19) . . . *P. laticollis* (Casey)
- Head as wide across genae as across eyes, or narrower across genae; anterior margin of head weakly emarginate, almost truncate (see Fig. 20) . . . . . 3
3. Clypeus thickened, tumid anteriorly, strongly declivous before labrum, as in Fig. 21 . . . . . *P. latus* (Fall)
- Clypeus normal, not raised medially, descending to labrum, as in Fig. 22 . . . . . 4
4. Elytra with microsculpture causing surface to appear dull or opaque . . . . . 5
- Elytra glossy and polished, surface lacking microsculpture . . . . . 10
5. Elytra with weakly to strongly impressed, punctate striae . . . . . 6
- Elytra lacking impressed, punctate striae (irregular, impunctate longitudinal furrows appearing false striae may be present) . . . . . 9
6. Elytral striae at most weakly impressed on disc, obsolete laterally; northern Sierra Nevadas, California. . . . . 7
- Striae distinctly impressed; coastal mountains . . . . . 8
7. Pronotum strongly shagreened . . . . . *P. potax* Paulsen
- Pronotum glossy, lacking microsculpture . . . . . *P. barrae*, Paulsen, **new species**
8. Antennal club longer than funicle . . . . . *P. infernus* Paulsen, **new species**
- Antennal club shorter than funicle . . . . . *P. pampinatus* Paulsen, **new species**
9. Antennal club small, shorter than funicle; Klamath Mountains, Oregon . . . . . *P. marshalli* Paulsen
- Antennal club larger, longer than funicle; Sierra Nevadas, California . . . . . *P. opacus* (Fall)
10. Color light reddish brown with green reflection; Washington south to northern Oregon . . . . . *P. aeneus* (Van Dyke)
- Color usually darker, if reddish brown (teneral) then lacking green reflection; south of northern Oregon . . . . . 11
11. Elytral form short, widest at apical third. . . . . 12

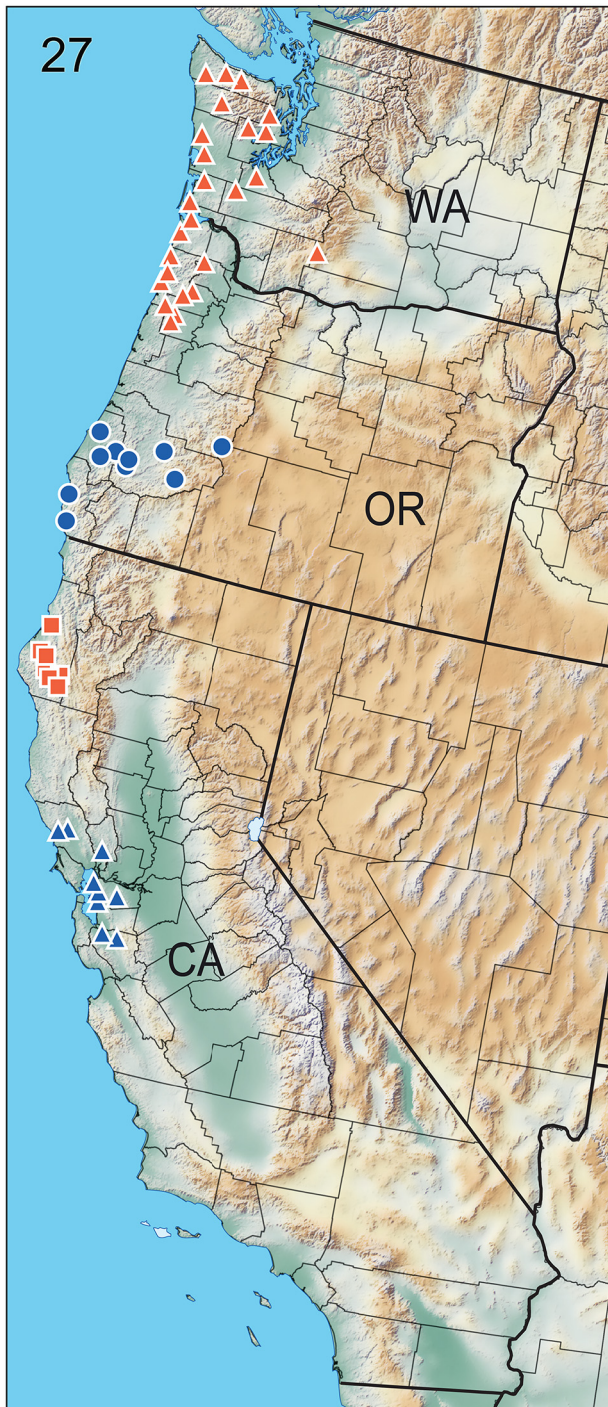


- Elytral form elongate, elytra more or less parallel-sided, widest at apical fourth ..... 13
- 12. Antennal club small, compact and distinctly shorter than funicle ..... *P. agassii* (LeConte)
- Antennal club distinctly larger, as long as funicle ..... *P. pacificus* (Casey)
- 13. Known only from Humboldt County, California ..... *P. californicus* (Casey)
- Not found in Humboldt County, California ..... 14
- 14. Antennal club largely pubescent; San Francisco Bay area north to Sonoma County, California ..... *P. thoracicus* (Casey)
- Antennal club with proximal two antennomeres mostly glabrous; southwestern Oregon . . . . *P. umpquus* Paulsen, **new species**



**FIGURES 25–26.** Distribution of *Platyceroides* species. 25, *Platyceroides agassii* species group: *P. agassii* (blue squares); *P. pacificus* (orange circles). 26, *P. pampinatus* group: *P. infernus* (blue squares); *P. pampinatus* (orange circles).



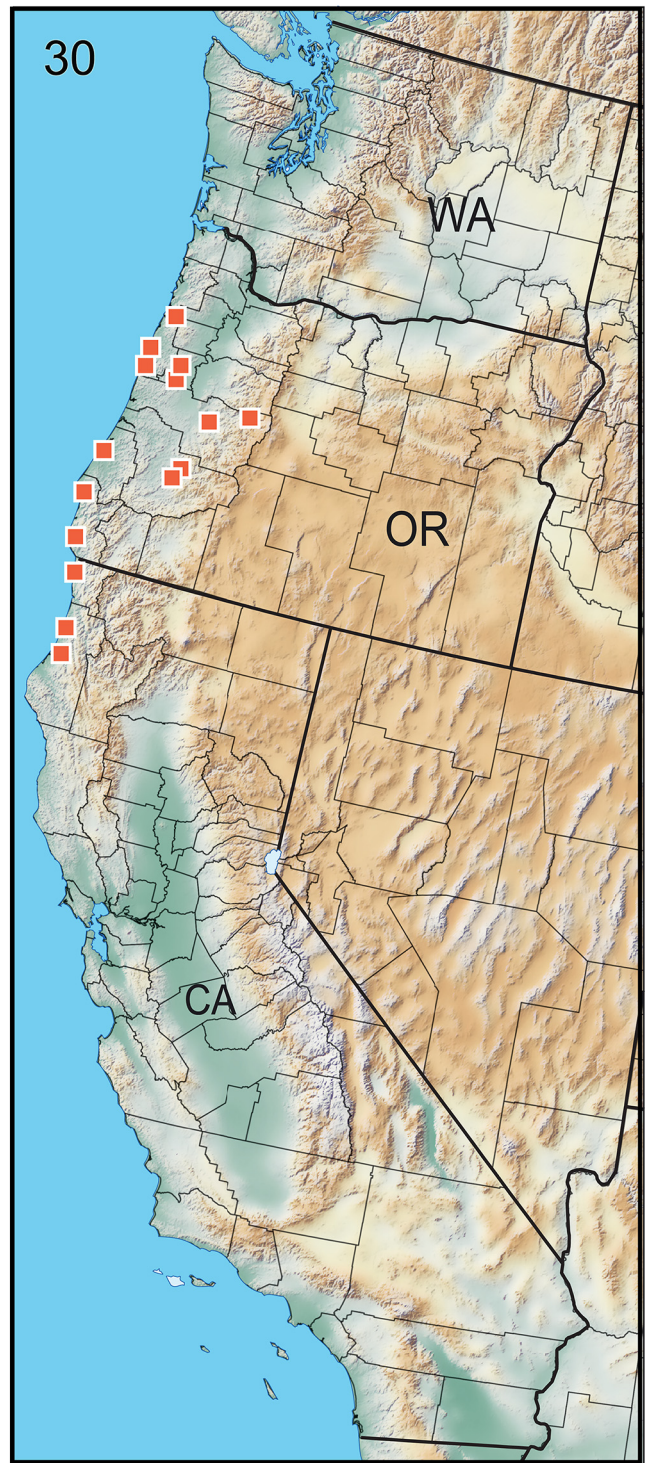


**FIGURES 27–28.** Distribution of *Platyceroides* species. 27, *Platyceroides californicus* species group: *P. aeneus* (orange triangles); *P. umpquus* (blue circles); *P. californicus* (orange squares); *P. thoracicus* (blue triangles). 28, *Platyceroides opacus* species group: *P. marshalli* (blue squares); *P. potax* (orange squares); *P. barrae* (blue circles); *P. opacus* (orange circles).

### Acknowledgments

I thank those who have helped me with loaned specimens and provided insights into localities and life histories, including numerous collection managers and also Cheryl Barr, Luca Bartolozzi, Jim Boone, Will Ericson, Dennis Haines, Jim Hogue, Dave Katz, Mike Kippenhan, Chris Marshall, Gary Parsons, A. Brady Richards, Jere Schweikert, William Shepard, and Andrew B.T. Smith. Thanks also to Brett Ratcliffe and David Hawks for their helpful comments on the manuscript.





**FIGURES 29–30.** Distribution of *Platyceroides*, subgenus *Platyceropsis*: 29, *Platyceroides keeni* (blue squares). 30, *Platyceroides laticollis* (orange squares).





**FIGURE 31.** Distribution of *Platyceroides*, subgenus *Praocerus*: 29, *Platyceroides viriditinctus* (blue squares). 30, *Platyceroides latus* (orange circles).

## References cited

- Benesh, B. (1942) Some notes on Nearctic stag beetles, with description of a new species of *Platycerus* from Pacific Northwest (Coleoptera: Lucanidae). *Entomological News*, 54, 221–223.
- Benesh, B. (1946) A systematic revision of the Holarctic genus *Platycerus* Geoffroy (Coleoptera: Lucanidae). *Transactions of the American Entomological Society*, 63, 139–203.
- Benesh, B. (1960) *Coleopterorum Catalogus Supplementa. Pars 8. Lucanidea (sic)*. W. Junk, The Hague, 178 pp.
- Casey, T.L. (1885) New genera and species of Californian Coleoptera. *Bulletin of the California Academy of Sciences*, 1, 283–336.  
<https://doi.org/10.5962/bhl.title.8839>
- Casey, T.L. (1889) Coleopterological notices. I. *Annals of the New York Academy of Sciences*, 5, 39–96.  
<https://doi.org/10.1111/j.1749-6632.1890.tb57003.x>
- Casey, T.L. (1895) On two new species of *Platycerus*. *Canadian Entomologist*, 27, 153–155.  
<https://doi.org/10.4039/Ent27153-6>
- Casey, T.L. (1914) Miscellaneous notes and new species. *Memoirs on the Coleoptera*, 5, 355–378.
- Fall, H.C. (1901) Two new species of Lucanidae from California. *Canadian Entomologist*, 33, 289–293.  
<https://doi.org/10.4039/Ent33289-11>
- Fall, H.C. (1906) A new *Platycerus*, and a new *Pleocoma*. *Entomological News*, 17, 393–395.
- Geoffroy, E.L. (1762) *Histoire abrégée des insectes qui se trouvent aux environs de Paris*. Durand, Paris, 561 pp.
- Holloway, B.A. (1969) Further studies on generic relationships in Lucanidae (Insecta: Coleoptera) with special reference to the ocular canthus. *New Zealand Journal of Science*, 12, 958–977.
- International Commission on Zoological Nomenclature (1999) *International Code of Zoological Nomenclature. 4<sup>th</sup> Edition*. International Commission on Zoological Nomenclature, London, 306 pp.
- Latreille, P.A. (1810) *Considérations générales sur l'ordre naturel des animaux composant les classes des crustacés, des arachnides, et des insectes; avec un tableau méthodique de leurs genres, disposés en familles*. F. Schoell, Paris, 444 pp.
- LeConte, J.L. (1861) New species of Coleoptera inhabiting the Pacific district of the United States. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 13, 338–359.
- Mollenkamp, W. (1912) Beitrag zur Kenntnis der Lucaniden. *Internationale Entomologische Zeitschrift*, 6 (42), 301–303.
- Parry, F.J.S. (1870) A revised catalogue of the lucanoid Coleoptera; with remarks on the nomenclature and descriptions of new species. *Transactions of the Royal Entomological Society of London*, 1870, 53–118.
- Parry, F.J.S. (1875) *Catalogus Coleopterorum Lucanoidum (Editio tertia)*. E. W. Janson, London, 29 pp.
- Paulsen, M.J. (2014) A new species of stag beetle (Coleoptera: Lucanidae) from California. *Insecta Mundi*, 358, 1–3.
- Paulsen, M.J. (2015) A new species of *Platyceroides* Benesh (Coleoptera: Lucanidae) from Oregon. *Insecta Mundi*, 430, 1–5.
- Paulsen, M.J. & Hawks, D.C. (2008) Platyceroidini, a new tribe of North American stag beetles (Coleoptera: Lucanidae: Lucaninae). *Insecta Mundi*, 58, 1–2.
- Van Dyke, E.C. (1928) Notes and descriptions of new species of Lucanidae and Cerambycidae (Coleoptera) from western North America. *Pan-Pacific Entomologist*, 4, 105–113.
- Van Dyke, E.C. (1946) New species of North American Coleoptera. *Pan-Pacific Entomologist*, 22, 81–89.