

Cladistics and redescription of *Hybreoleptops* Kuschel (Coleoptera: Curculionidae: Entiminae) with the description of two new species from the Central Chilean subregion

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(Accepted 22 September 2006)

Abstract

Hybreoleptops Kuschel was established in a key to Chilean “Leptopini” for four species previously included in other genera. Those species are: *H. tuberculifer* (Boheman), *H. aureosignatus* (Blanchard), *H. vestitus* (Blanchard), and *H. xanthomelas* (Fairmaire and Germain). The genus is endemic to southern South America, inhabiting the southernmost part of Santiago Province (Central Chilean subregion) and Maule province, and the northernmost part of Valdivian province (Subantarctic subregion). All the species are recorded only from Chile, except *H. tuberculifer* which has been recorded both for Chile and Argentina. We undertake a cladistic analysis of the genus based on adult external morphology and genitalia. In the cladistic analysis two terminal taxa correspond to new species. The resulting cladogram confirms that these new species must be assigned to *Hybreoleptops* and lead us to redescribe the genus. Accordingly, we also describe the two new species, *H. santiagensis* Pérez and Posadas n. sp. and *H. juanjosei* Pérez and Posadas n. sp., and provide a key to the species of the genus.

Keywords: Cladistics, Curculionidae, Entiminae, *Hybreoleptops santiagensis*, *Hybreoleptops juanjosei*, southern South America, weevils

Introduction

Hybreoleptops (Coleoptera: Curculionidae: Entiminae) was established by Kuschel (1949, p 19) for four species previously described in other genera. Kuschel designated *Leptops tuberculifer* Boheman (1842) as the type species of the genus. The species included by Kuschel in *Hybreoleptops* were: *H. tuberculifer* (Boheman), *H. aureosignatus* (Blanchard), *H. vestitus* (Blanchard), and *H. xanthomelas* (Fairmaire and Germain).

Hybreoleptops tuberculifer (Boheman, 1842) was originally described in *Leptopius* Oke (1951) which is the replacement name for *Leptops* Schoenherr, and transferred to

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Published 1 December 2006

ISSN 0022-2933 print/ISSN 1464-5262 online © 2006 Taylor & Francis

DOI: 10.1080/00222930601046345

Strangaliodes Schoenherr (1842) by Lacordaire (1863); *Megalometis margaritaceus* (Erichson, 1847) had been treated as a synonym of *H. tuberculifer* by several authors, including Kuschel (1949). *Hybreoleptops aureosignatus* (Blanchard, 1851) was originally described in *Megalometis* Schoenherr (1842) and transferred to *Strangaliodes* by Lacordaire (1863). *Hybreoleptops vestitus* (Blanchard, 1851) was originally described in *Megalometis* and transferred to *Strangaliodes* by Lacordaire (1863). *Hybreoleptops xanthomelas* (Fairmaire and Germain, 1861) was originally described in *Megalometis*.

The original description of *Hybreoleptops* by Kuschel (1949) was inserted in a key to the Chilean “Leptopini”. The main characters used to define the genus were: enclosed corbels; stria 9 and 10 notably close to each other in the basal third; mentum glabrum; rostrum slightly wide, always forward directed; almost straight scrobes, directed toward lower edge of eye and notably visible in dorsal view; intervals 3 and 5 with one or two tubercles, tubercle on interval 5 bigger than the one on interval 3.

Hybreoleptops is endemic to southern South America. According to the biogeographical scheme proposed by Morrone (2001), *Hybreoleptops* inhabits the southernmost part of Santiago province (Central Chilean subregion) and the northernmost part of the Subantarctic subregion (Maule and Valdivian provinces). Figure 1 shows the distribution of the four known species of *Hybreoleptops* and the two new species described herein.

Little is known about the biology of these species. Morrone and Roig-Juñent (1995) mentioned *Aristotelia chilensis* (Molina) Stuntz (Elaeocarpaceae) and *Nothofagus* Blumme (Nothofagaceae) as host plants of *H. tuberculifer*.

The main objectives of this paper are: (1) to undertake a cladistic analysis of *Hybreoleptops*; (2) to complement the original description of this genus; and (3) to describe two new species of this genus. Additionally, a key to the species is provided.

Material and methods

The specimens examined are from the following collections: American Museum of Natural History (AMNH), New York, USA; Natural History Museum (BMNH), London, UK; Museo Argentino de Ciencias Naturales “Bernardino Rivadavia” (MACN), Buenos Aires, Argentina; Museo de La Plata (MLP), La Plata, Argentina; Museo de Historia Natural (MHNS), Santiago, Chile; Smithsonian Institution (USNM), Washington, DC, USA; and Museo de Zoología “Alfonso L. Herrera” (MZFH), Universidad Nacional Autónoma de México, México D.F., México. The list of examined specimens is presented in the appendix.

Measurements were made with an ocular micrometer in a stereoscopic microscope. Body length was measured dorsally, along the midline, from elytral apex to fore margin of prothorax. Photographs were made with a digital camera attached to a stereoscopic microscope and drawings were made with a camera lucida. Label data are cited in full for type specimens, each line separated by a slash and enclosing information from each label with square brackets.

The species were analysed cladistically based on morphological characters. Analysis of the data matrix (Table I) was carried out using an exhaustive search under equal weights in Hennig86 (Farris 1988) using the *ie** command. Three taxa were used as outgroups: *Leptopius* Oke and the two species included in *Megalometides* Kuschel (*M. cacticus* Kuschel and *M. discors* Kuschel). The ingroup consisted of six species: *H. aureosignatus* (Figure 2A, B), *H. tuberculifer* (Figure 2C, D), *H. vestitus* (Figure 3A, B), *H. xanthomelas* (Figure 3C, D) and the two new species (see below). WinClada (Nixon 1999/2000) was used for examination of character distribution.

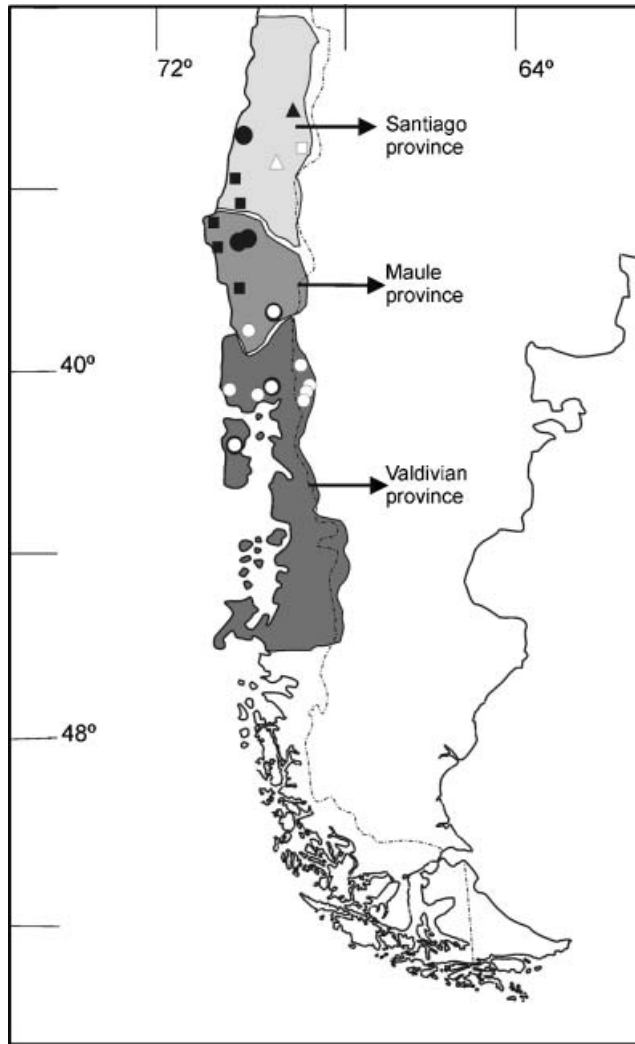


Figure 1. Map of southern South America showing the distribution of the four known species of *Hybreoleptops* and the two new species here described. (●) *H. aureosignatus*; (○) *H. tuberculifer*; (△) *H. xanthomelas*; (▲) *H. santiagensis* n. sp.; (■) *H. vestitus*; (□) *H. juanjosei* n. sp. Santiago province belongs to the Central Chile subregion and Maule and Valdivian forest belong to the Subantarctic subregion.

Characters

We coded 43 adult morphological characters. Some absolute measurements were included as characters since they had been previously established as systematically informative through multivariate analysis (Pérez 2004). Measurements were coded as qualitative characters using intervals. Coding required different measurements for females and males due to sexual size dimorphism (Pérez 2004). All multistate characters were treated as non-additive. The characters analysed were as follows:

0. Vestiture: (0) with scales; (1) lacking scales.
1. Rostral length: (0) short (rostral length/width ratio minor than 1.8); (1) long (rostral length/width ratio up to 2).

Table I. Data matrix for cladistic analysis.

	Ciudad de Matagalpa: 12:30 7 February 2025																																																	
	0										10										20										30										40									
<i>Leptopius</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
<i>M. cacticus</i>	1	0	0	0	0	2	1	0	2	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	2	2	1	1	0	0	1	0	1	2	1	0	0	0	0	0	0	0	1	0					
<i>M. discors</i>	1	0	0	0	1	2	0	0	2	1	0	0	0	0	0	0	0	0	1	1	0	0	0	1	2	2	1	1	0	0	1	0	1	2	1	0	0	0	0	0	0	0	0	1	1					
<i>H. aureosignatus</i>	0	1	2	1	0	2	0	2	1	1	0	1	1	1	2	0	0	2	0	0	1	0	0	2	1	1	2	2	1	1	0	2	1	1	0	1	1	1	0	1	1	1	2							
<i>H. tuberculifer</i>	0	1	2	1	0	2	0	2	1	2	0	1	1	1	2	0	1	2	0	0	0	0	0	1	1	1	2	2	1	1	0	2	1	1	1	1	1	0	0	1	0	0	1							
<i>H. vestitus</i>	0	1	2	1	0	2	1	1	1	2	1	1	1	1	2	0	0	2	0	0	0	0	0	0	1	1	2	2	1	1	0	2	1	2	0	1	0	0	0	0	1	0	2							
<i>H. xanthomelas</i>	0	1	2	1	1	0	0	1	1	1	0	1	1	1	2	1	1	2	0	0	0	0	0	1	1	1	2	2	1	1	0	2	1	?	?	?	?	?	?	?	?	0	1	0						
<i>H. juanjoiei</i>	0	1	1	0	1	1	1	2	1	1	0	0	1	1	1	1	1	1	0	0	1	1	1	2	1	0	1	0	1	1	0	1	0	2	0	1	1	1	1	1	1	1	1	1						
<i>H. santiagensis</i>	0	1	1	0	0	1	1	2	1	1	1	0	1	0	1	1	1	1	0	0	1	1	1	2	1	0	1	0	1	1	0	1	0	1	0	1	1	1	1	1	1	?	?	?						

M., Megalometides; *H.*, Hydreoleptops.

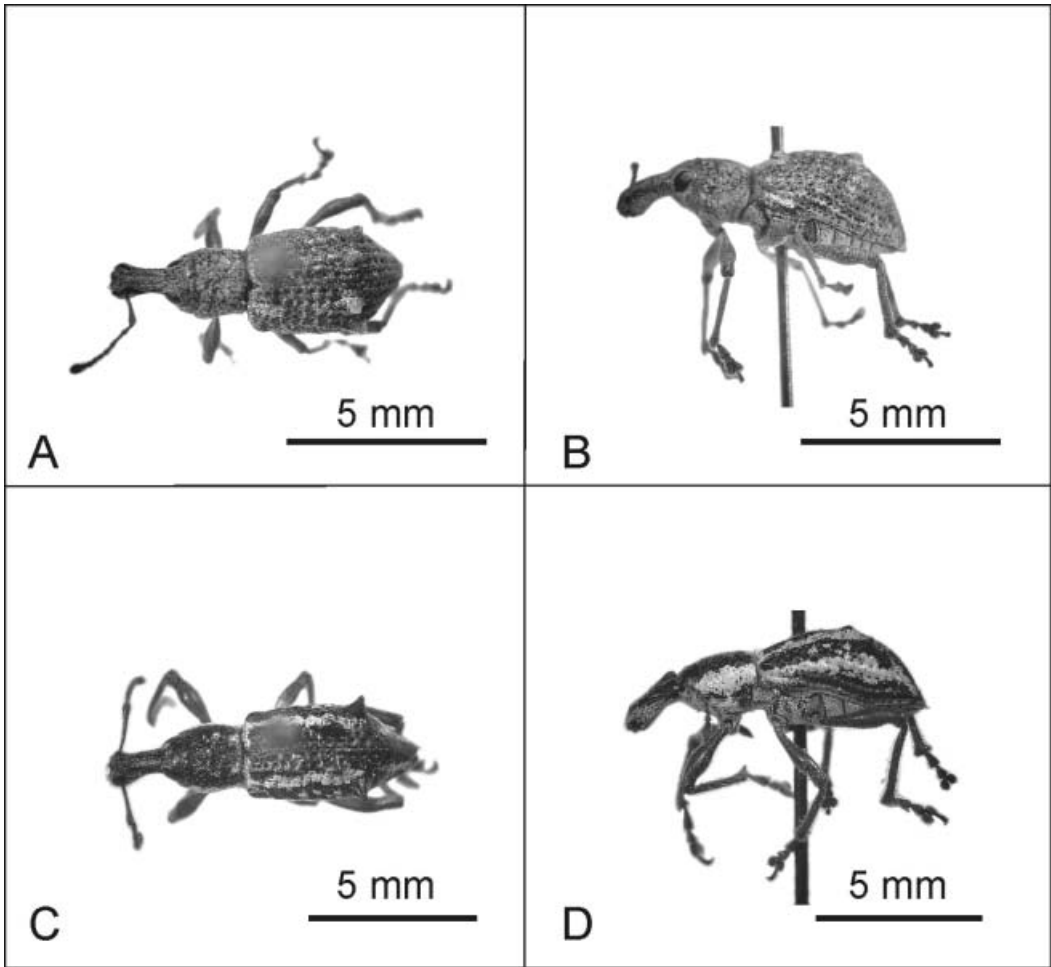


Figure 2. (A, B) *Hybreoleptops aureosignatus*: (A) female habitus, dorsal view; (B) female habitus (lateral view). (C, D) *Hybreoleptops tuberculifer*: (C) male habitus, dorsal view; (D) male habitus (lateral view).

2. Rostral width at base: (0) wide (up to 1.4 mm in females and up to 1.15 mm in males); (1) slightly narrow (from 1.1 to 1.25 mm in females and 0.9 to 1 mm in males); (2) narrow (from 0.9 to 1 mm in females and from 0.65 to 0.85 mm in males).
3. Rostral width at apex: (0) wide (up to 1.75 mm in females and up to 1.25 mm in males); (1) narrow (less than 1.3 mm in females and less than 1.15 mm in males).
4. Rostral area behind the epistome: (0) slightly depressed; (1) flat.
5. Rostral median carina: (0) conspicuous; (1) inconspicuous; (2) absent.
6. Rostral median sulcus: (0) absent; (1) present.
7. Suprascrobal sulcus: (0) strongly developed; (1) normally developed; (2) slightly developed.
8. Fovea: (0) circular; (1) elongate; (2) absent.
9. Scape length (when resting in scrobe): (0) exceeding hind margin of eye; (1) reaching hind margin of eye; (2) reaching middle line of eye.
10. Prothorax anterior impression: (0) absent; (1) present.

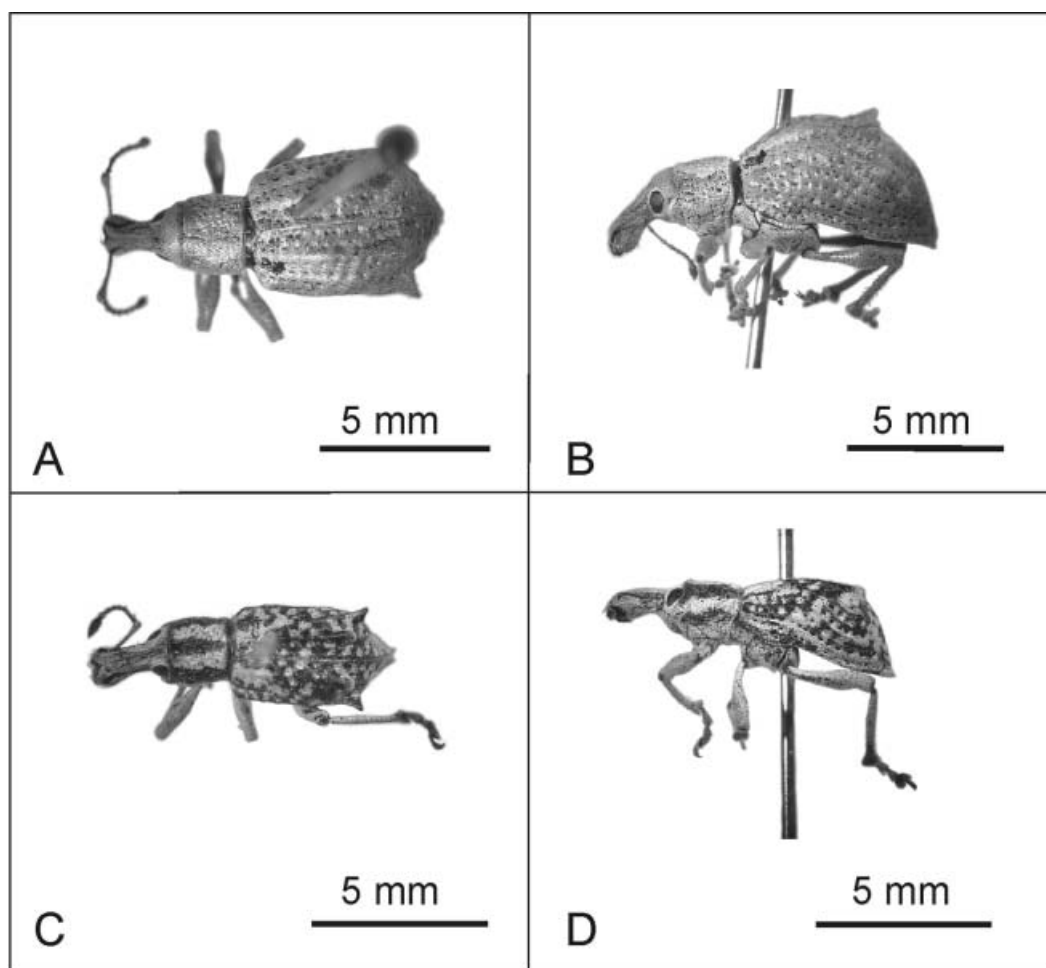


Figure 3. (A, B) *Hybreoleptops vestitus*: (A) female habitus, dorsal view; (B) female habitus (lateral view). (C, D) *Hybreoleptops xanthomelas*: (C) male habitus, dorsal view; (D) male habitus (lateral view).

11. Prothorax width at apex: (0) wide (up to 2.5 mm in females and up to 2 mm in males); (1) narrow (less than 2.25 mm in females and less than 1.9 mm in males).
12. Prothorax maximum width: (0) wide (up to 3.25 mm in females and up to 2.25 mm in males); (1) narrow (less than 3 mm in females and less than 2.1 mm in males).
13. Prothorax width at base: (0) wide (up to 3 mm in females and up to 2.25 mm in males); (1) narrow (less than 2 mm in females and males).
14. Prothorax length: (0) long (up to 2.5 mm in females and up to 2 mm in males); (1) medium (from 2 to 2.4 mm in females and from 1.75 to 1.9 mm in males); (2) short (less than 2 mm in females and less than 1.7 mm in males).
15. Prothorax longitudinal, medio-dorsal white stripes: (0) absent; (1) present.
16. Prothorax longitudinal, lateral white stripes: (0) absent; (1) present.
17. Elytra length: (0) long (up to 8 mm in females and up to 6 mm in males); (1) medium (from 6.5 to 7.5 mm in females and from 5 to 5.25 mm in males); (2) short (from 5.5 to 6 mm in females and from 4.25 to 4.75 mm in males).

18. Brush of multifid setae on elytral base: (0) present; (1) absent.
19. Interval 7 base: (0) protruding; (1) flat.
20. Costate and translucent seta-like scales at basal area of interval 3: (0) absent; (1) present.
21. Interval 3 width at base: (0) slightly wider than intervals 1+2; (1) two times wider than intervals 1+2.
22. Interval 5 width at base: (0) slightly wider than interval 4; (1) two times wider than interval 4.
23. Interval 5 posterior to declivital tubercle area: (0) with a small tubercle; (1) flat; (2) slightly convex.
24. Tubercles on interval 3: (0) absent; (1) one declivital tubercle; (2) three to six tubercles.
25. Tubercles on interval 5: (0) absent; (1) one declivital tubercle; (2) two to seven tubercles.
26. Declivital area of interval 3: (0) convex; (1) with a rounded and short tubercle; (2) with a conical and short tubercle.
27. Declivital area of interval 5: (0) convex; (1) with a rounded and short tubercle; (2) with a conical tubercle (higher than the one on interval 3).
28. Venter 1 and 2 length ratio: (0) up to 1.75; (1) less than 1.6.
29. Venter 2 and (3+4) length ratio: (0) almost equal (ratio 1–1.1); (1) venter 2 longer than (3+4) (ratio >1.25).
30. Venter 2: (0) flat; (1) with a transversal semilunar depression.
31. Vestiture of venter 5: (0) integument completely exposed; (1) integument exposed on a central stripe; (2) integument completely covered by subcircular scales.
32. Lenticular area of metatibial corbel: (0) setose; (1) smooth.
33. Apodeme sternum VIII length: (0) short (apodeme length/plate length ratio lower or equal to 1); (1) median (apodeme length/plate length ratio 1.2–1.4); (2) long (apodeme length/plate length ratio 1.6–1.9).
34. Incision on sternum VIII apodeme arms: (0) in basal third of plate; (1) in base of plate.
35. Apical area of sternum VIII plate: (0) unincised; (1) incised.
36. Sternum VIII plate: (0) triangular; (1) ovate.
37. Ovipositor incision: (0) distal related to styli; (1) proximal related to styli.
38. Ovipositor styli: (0) apical; (1) in depression.
39. Spermathecal cornu: (0) exceeding nodulus and ramus; (1) not exceeding nodulus and ramus.
40. Aedeagal apodeme length: (0) short (apodeme length/body length ratio lower than 1.4); (1) long (apodeme length/body length ratio larger than 1.6).
41. Aedeagal body in lateral view: (0) slender (aedeagal body length/body width ratio up to 5.5); (1) robust (aedeagal body length/body width ratio lower than 4.5).
42. Aedeagal middle line in dorsal view: (0) widely open; (1) open; (2) slightly open.

Results

Cladistic analysis

Data matrix analysis under equal weights results in a single most parsimonious cladogram ($L=83$; $CI=69$; $RI=73$). The cladogram and the optimization of characters are illustrated

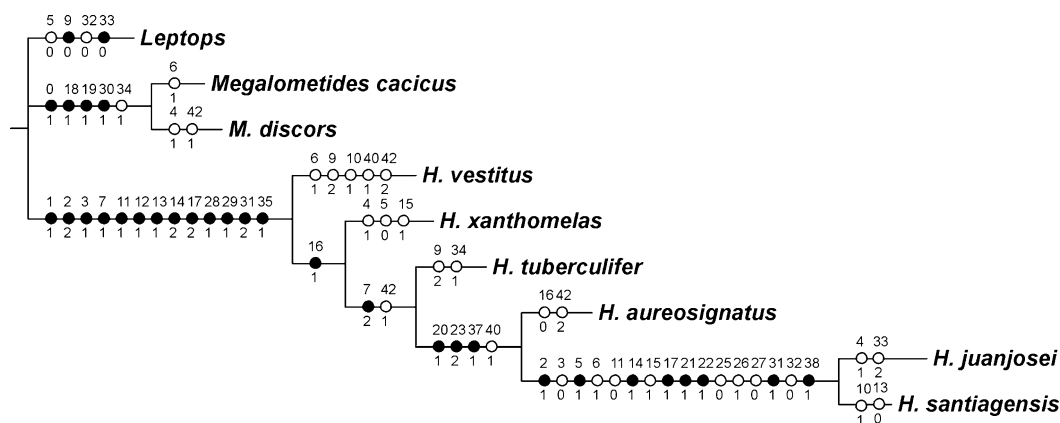


Figure 4. Single maximum parsimony cladogram resulting from cladistic analysis (L=83; CI=69; RI=73).

in Figure 4 (only those characters with unambiguous optimization were illustrated). According to this cladogram the two new species belong to *Hybreoleptops*.

Hybreoleptops Kuschel (1949)

Redescription

Type species. *Leptops tuberculifer* Boheman by original designation.

Scrobes widely visible in dorsal view, scales on distal half. Suprascrobal sulcus slightly developed. Mandibular scars subcircular and well-developed, located at apex of a cylindrical pedicel; scar on left mandible larger than that on right mandible. Funicular article 1 shorter than article 2 (articles 1/2 ratio: 0.5–0.8). Hind margin of prothorax and fore margin of elytra densely covered by multifid setae. Interval 3 with one declivital tubercle. Interval 5 with or without declivital tubercle (if present, larger than declivital tubercle on interval 3). Ventrites 1–4 completely covered by subcircular scales. Ventrite 5 mostly covered by subcircular or seta-like scales, some *Hybreoleptops* species could exhibit a middle triangular area lacking scales. Hind tibiae showing an enclosed corbel delimiting a flat lenticular area which could be smooth and bare or setose. Males with pro, meso, and metatibiae with well-developed mucro; females with pro, meso, and metatibiae with slightly developed mucro; metatibial mucro occasionally absent in some females. Female sternum VIII ovate, apex incised.

Hybreoleptops santiagensis Pérez and Posadas, sp. n.

(Figures 5, 6)

Type material

Holotype: female: [Luis E. Pena] [CHILE/El Coigo/Curico Prov.] [X-X159] [327-3/det. D.G. Kissinger] [? *Hybreoleptops*/det. DRWhitehead] [USNM/2008983] (USMN).

Type locality

El Coigo, Curicó, Chile.

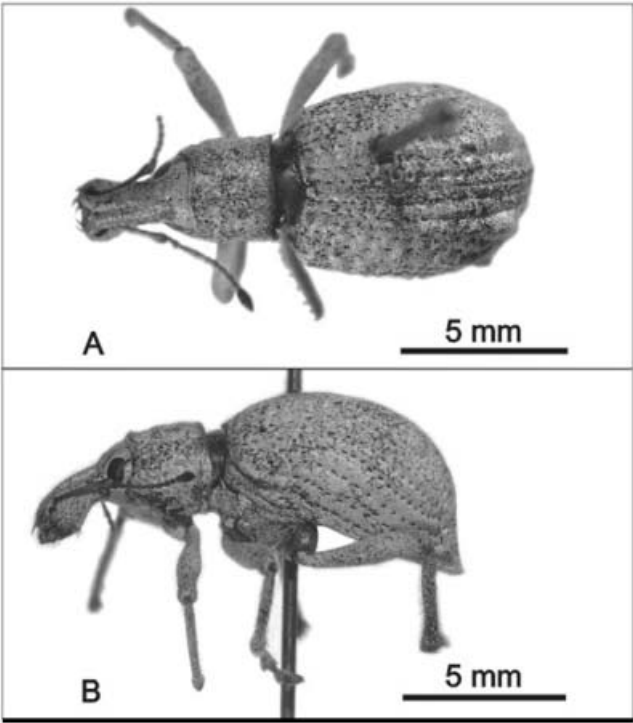


Figure 5. *Hybreoleptops santiagensis* n. sp. (A) Female habitus, dorsal view; (B) female habitus (lateral view).

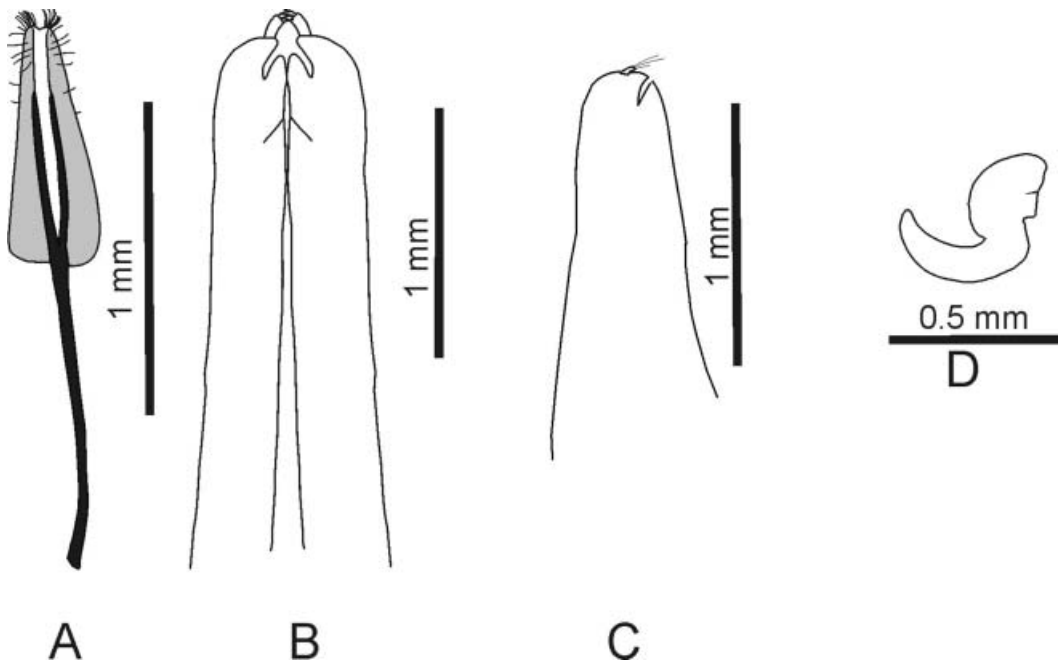


Figure 6. Female genitalia of *Hybreoleptops santiagensis* n. sp. (A) Sternum VIII; (B) oviscapto, dorsal view; (C) oviscapto, lateral view; (D) spermatheca.

Etymology

The name refers to species distribution in the Santiago biogeographic province.

Diagnosis

This species is recognized by the following combination of characters: strongly evident, subcircular mandibular scars with a conical protuberance placed at apex of a cylindrical and well-developed pedicel. Dorsal rostrum surface with strong lateral convexities. Scape reaching middle line of eye when resting in scrobe. Prothorax showing anterior impression. Interval 7 protruding at base, resulting in protuberant humeri. Interval 3 with rounded, low, declivital tubercle; this tubercle slightly elongated on anterior–posterior axis, completely covered by white subcircular scales and exhibiting numerous translucent and costate seta-like scales. Ventrite 5 middle area lacking scales (integument exposed); both lateral areas of ventrite 5 completely covered with seta-like scales and setae. Lenticular area of metatibial corbel covered with setae.

Description of holotype

General habitus as in Figure 5. Body length 9.8 mm. General body shape ovate. Integument mostly covered by scales; black in exposed areas (e.g. rostrum apex). Body vestiture mainly constituted of subcircular scales, which cover most of the integument; subcircular scales ornamented with longitudinal ribs which are only visible up to $\times 100$, in some areas as ventrite 5 vestiture constituted by white seta-like scales. Dorsal general colour of vestiture mixed, mainly of white scales, alternating with grey scales and sparse black scales. Ventral surface vestiture mainly of white scales. Additionally, tubercle on interval 3, abundant decumbent and translucent seta-like scales, especially at its apex. Base of interval 3, abundant decumbent and translucent seta-like scales. Dorsal surface of rostrum and prothorax, most elytra intervals, femora, and ventrites showing sparse decumbent and translucent seta-like scales. All these seta-like scales ornamented with longitudinal ribs visible up to $\times 60$. Each mandible with a well-developed, subcircular mandibular scar placed at apex of a cylindrical and tall pedicel which exhibits a conical protuberance; pedicel showing several long setae and white seta-like scales on its external side. Mandibular scar differing from all scars on other *Hybreoleptops* species (placed at apex of a short, cylindrical pedicel and lack conical protuberance). Rostrum 2.1 times longer than wide; dorsal surface convex with central longitudinal sulcus containing a very slightly developed central carina. Suprascrobal sulcus visible at each side of rostrum. Frons slightly convex, elongate fovea. Scrobes incurved, directed downward to lower margin of eyes. As in all species of the genus, distal half of scrobe presenting several scales (subcircular and seta-like). Eyes ovate and flat, with major axis dorso-ventrally orientated. Antennal scape reaching middle line of eye when resting in scrobe. Funicular articles conical; article 2 1.4 times longer than 1; article 3 shorter than 1 but longer than articles 4–7; articles 4–7 subequal in size. Club ovate, short, inflated. Prothorax subquadrangular, 1.25 times longer than its maximum width; presenting anterior impression and longitudinal sulcus; impressions ornamenting both sides of sulcus. Prothorax base showing a brush of multifid setae. Postocular lobes present. Scutellum rounded and small. Elytra 1.3 times longer than its maximum width; its anterior margin covered with a dense brush of multifid setae. Interval 7 convex at its base, resulting in protuberant humeri. Intervals 3, 5, and 9 strongly convex (specially at apical third of elytra). Interval 7 slightly convex; remaining intervals

flat. Declivital tubercle on interval 3 low, rounded, and slightly enlarged following anterior–posterior axis of body. Declivital tubercle completely covered by white subcircular scales and apex presenting numerous, translucent and costate seta-like scales. Declivital area on interval 5 with similar vestiture. Intervals 3 and 9 fused at end resulting in a highly evident and elongated convex rib; this rib, extending diagonally to elytral apex. Elytral apex slightly acuminate, with abundant setae. Ventrites 1–4 completely covered with white subcircular scales, exhibiting sparse translucent seta-like scales and setae. Ventrite 5 with two broad lateral stripes completely covered by white seta-like scales; central area almost black because of the exposure of integument. Venter joints between ventrites 2 and 3, 3 and 4, and 4 and 5 profound and evident. Fore and hind edge of ventrite 1 and fore edge of ventrite 2 with multifid setae, specially abundant in fore edge of ventrite 1 and sparse on hind edge of ventrite 1 and fore edge of ventrite 2. Ventrites 3+4 3.2 times shorter than ventrites 1+2. Apex of tibiae 1 and 2 with comb of enlarged setae, comb continuing around all tibial apices, briefly interrupted on dorsal edge of apex. Tibia 3 with enclosed corbel surrounded by setae, defining an internal and external comb (following nomenclature by Thompson 1992). Lenticular area limited by these combs, flat and extremely setose. All tibiae slightly mucronate (at least in females). Female genitalia as in Figure 6.

Distribution

Hybreoleptops santiagensis is known only from its type locality (Chile, Curicó: El Coigo). This locality is located in the Santiago province which belongs to the Central Chilean subregion (see Figure 1), according to the biogeographic scheme proposed by Morrone (2001).

***Hybreoleptops juanjosei* Pérez and Posadas, sp. n.** (Figures 7–9)

Type material

Holotype: female, [CHILE: Talca/Vilches, 14–15/Dec. 1976, Gurney/and Barria] [USNM/2008983] (USMN). Paratype: one male, data as holotype.

Etymology

The name refers to Juan José Morrone, our professor and friend, who has contributed enormously to the knowledge of the Andean weevil fauna.

Diagnosis

This species is recognized by the combination of the following characters: ovate to subcircular, flat mandibular scar, placed at apex of a cylindrical and well-developed pedicel; rostrum with slightly developed central carina; scape reaching posterior margin of eyes when resting in scrobe; intervals 5–7 convex at bases, resulting in protuberant humeri; interval 3 with rounded, low, declivital tubercle; slightly elongate on anterior–posterior axis, and covered mostly by white subcircular scales and numerous apical, translucent, and costate seta-like scales (ornamentation visible up to $\times 60$); ventrite 5 with central area smooth (integument exposed); both lateral areas of ventrite 5 covered by white, subcircular scales; tibia 3 with enclosed corbel, lenticular area covered by abundant setae.

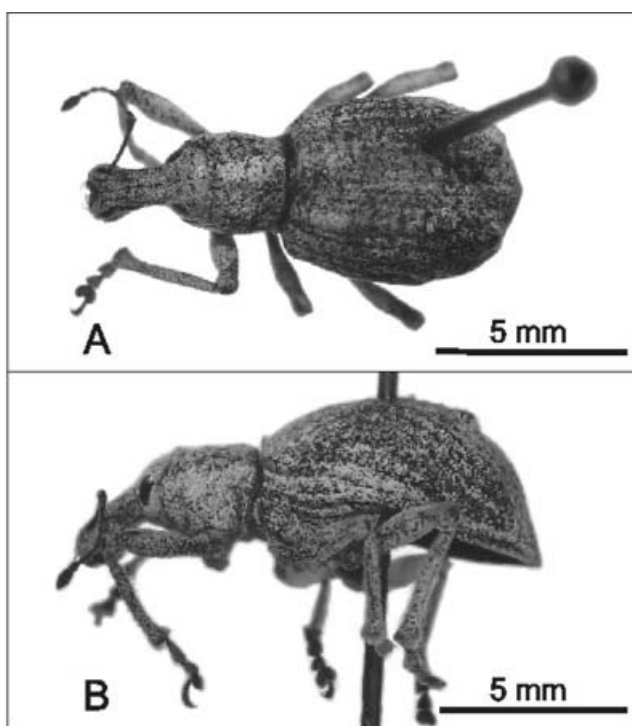


Figure 7. *Hybreoleptops juanjosei* n. sp. (A) Female habitus, dorsal view; (B) female habitus, lateral view.

Description

General habitus as in Figure 7. Body length 8.85 mm in female and 6.95 mm in male. General body shape ovate. Integument mostly covered by scales; black in exposed areas (e.g. rostrum apex). Vestiture mainly of subcircular scales, ornamented with longitudinal ribs visible up to $\times 100$. Vestiture colour mixed; dorsal surface of body mainly of an irregular mix of white and iridescent pink scales. However, prothorax exhibiting more uniform distribution of colours as follows: two white longitudinal stripes at each side of prothorax median sulcus; each of these followed by a longitudinal pink iridescent stripe; each followed by a new white stripe. Basal area of interval 3 completely covered by white subcircular scales and decumbent, costate seta-like scales (ornamentation visible up to $\times 60$), this vestiture covering interval 3 from base to 4th punctuation and visible as a lighter stripe on elytra. Seta-like scales abundant on declivital tubercle on interval 3 and sparse on dorsal surface of rostrum and prothorax, most elytra intervals, femora, and ventrites. White scales covering venter area both in male and female. Mandibular scar present, strongly developed, subcircular to ovate in shape, lacking conical protuberance; placed at apex of a well-developed cylindrical pedicel; pedicel showing several long setae and white seta-like scales on its external side. Rostrum two times longer than wide, poorly developed central carina. Suprascrobal sulcus present. Frons slightly convex, elongated fovea (less evident in female). Scrobes incurved, directed downward to lower margin of eyes; as in all species of genus, distal half of scrobe presenting several subcircular scales. Eyes ovate and flat, longer axis dorso-ventrally orientated. Antennal scape reaching posterior margin of eye when resting in scrobe. Funicular articles conical; article 2 longer than 1 (approximately two

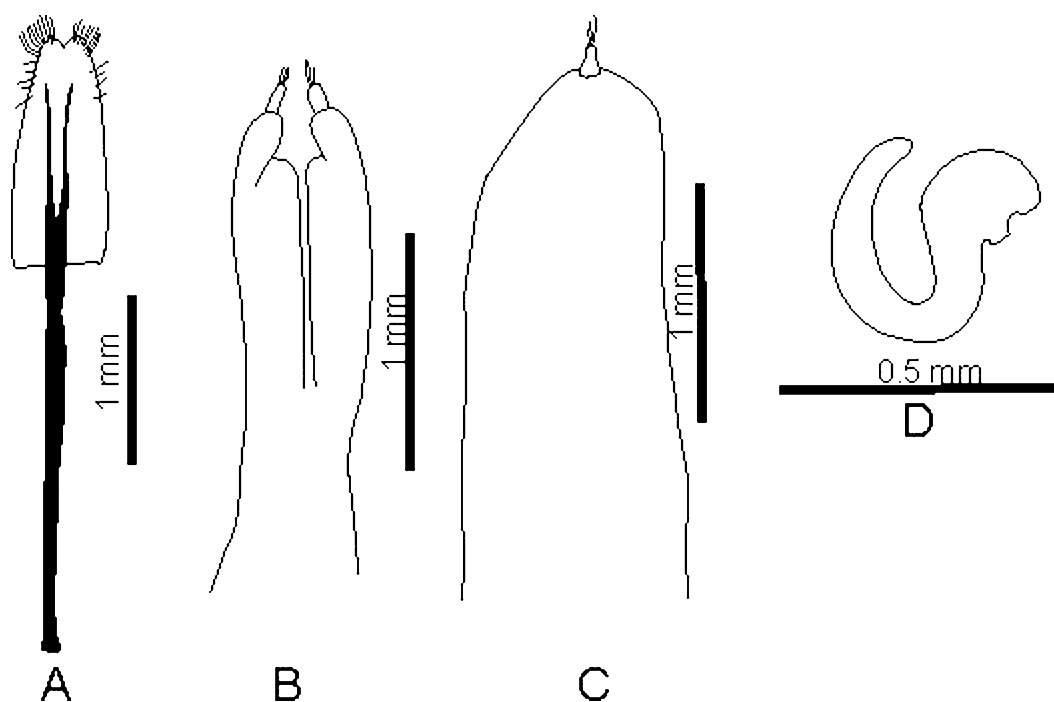


Figure 8. Female genitalia of *Hybreoleptops juanjosei* n. sp. (A) Sternum VIII; (B) oviscapto, dorsal view; (C) oviscapto, lateral view; (D) spermatheca.

times longer); articles 3–7 sub-equal in size and slightly shorter than article 1. Club ovate, short, inflated. Prothorax subquadrangular, 1.2 times longer than its maximum width in female and male; lacking anterior impression, with strongly developed median sulcus on dorsal surface, irregular impressions ornating both sides of sulcus. Postocular lobes present. Prothorax base with a brush of multifid setae. Scutellum visible and round. Elytra 1.5 times longer than maximum width in female and 1.6 times in male. A brush of multifid setae densely covering the anterior margin of elytra. Intervals 5–7 notably protruding at basis, resulting in protruding humeri. Intervals 3 and 5 strongly convex, especially at apical third. Intervals 7 and 9 just slightly convex. Short and rounded declivital tubercle on interval 3; this tubercle slightly elongated following the anterior–posterior axis and mostly covered by white subcircular scales with numerous translucent, costate seta-like scales at apex. Similar vestiture on interval 3 base and on declivital area of interval 5. Intervals 3 and 9 fused at end, resulting in an inconspicuous rib continuing toward the elytral apex. Elytral apex slightly acuminate and with abundant setae. Venter area completely covered by subcircular scales, excepting middle area of ventrite 5 lacking scales. Venter joints between ventrites 2 and 3, 3 and 4, and 4 and 5 notably deep. Ventrites 3+4, 3.5 times shorter than ventrites 1+2 in female and 3.2 times shorter in male. Apex of tibiae 1 and 2 with comb of enlarged setae, continuing around tibial apex, but briefly interrupted in dorsal edge of apices. Tibia 3 with enclosed corbel, surrounded by setae, defining an internal and external comb (following nomenclature by Thompson 1992). Lenticular area limited by combs, flat and setose. All tibiae slightly mucronate in female and strongly mucronate in male. Female genitalia as in Figure 8. Male genitalia as in Figure 9.

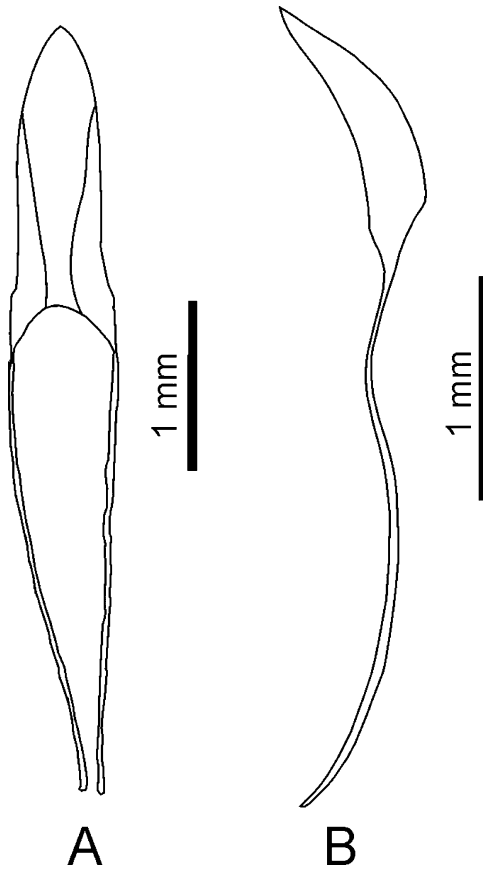


Figure 9. Male genitalia of *Hybreoleptops juanjosei* n. sp. (A) Aedeagus, dorsal view; (B) aedeagus, lateral view.

Distribution

This species is known only from the type locality: Chile, Talca, Vilches, in Santiago province (Central Chilean subregion) (see Figure 1).

Key to the species of *Hybreoleptops*

1. Mandibular scar at apex of a cylindrical and tall pedicel; rostral median carina inconspicuous; prothoracic median sulcus starting from anterior margin of prothorax; elytra with one rounded and short declivital tubercle on interval 3; declivital tubercle on interval 5 absent; central area of ventrite 5 lacking scales; lenticular area of metatibial enclosed corbel setose 2
- Mandibular scar at apex of a cylindrical and short pedicel; rostral median carina absent, or present and strongly developed (never inconspicuous); prothoracic median sulcus starting at level of coxa 1 or represented by discontinuous incisions; elytra with short conical declivital tubercle on interval 3; conical declivital tubercle on interval 5; ventrite 5 completely covered by subcircular scales; lenticular area of metatibial enclosed corbel lacking setae. 3

2. Mandibular scar with conical protuberance; rostrum with strongly developed lateral convexities which delimit a median sulcus; scape reaching middle line of eye when resting in scrobe; prothorax with anterior impression; prothoracic median sulcus not reaching base; protruding humeri constituted by basal convexities on interval 7; ventrite 5 with white seta-like scales; prothorax vestiture lacking stripes *H. santiagensis* n. sp.
- Mandibular scar flat; rostrum with slightly developed lateral convexities; scape reaching posterior margin of eye when resting in scrobe; prothorax lacking anterior impression; prothoracic median sulcus ending at base; protruding humeri constituted by basal convexities on intervals 5–7; ventrite 5 with white subcircular scales; prothoracic vestiture showing a white stripe at both sides of median sulcus, followed by an iridescent pink stripe, followed by a new white stripe *H. juanjozei* n. sp.
3. Rostral central carina strongly developed; prothoracic vestiture with medio-dorsal white stripes *H. xanthomelas*
- Rostral central carina absent; prothoracic vestiture lacking medio-dorsal white stripes 4
4. Scape reaching posterior margin of eye when resting in scrobe; prothoracic median sulcus absent (if present, discontinuous); base of intervals 3 and 4 with iridescent pink stripe which ends at the fourth or fifth puncture of the corresponding striae; base of interval 9 with a similar stripe; both declivital tubercle and the area between them coloured equal to basal area of intervals 3 and 4; basal area of interval 3 showing abundant costate seta-like scales *H. aureosignatus*
- Scape reaching middle line of eye when resting in scrobe; prothoracic median sulcus starting at prothorax apex; base of intervals 3 and 4 lacking iridescent pink stripe; interval 9 lacking an iridescent pink stripe; both declivital tubercle and area between them not of iridescent pink colour; basal area of interval 3 not showing abundant costate seta-like scales 5
5. Prothoracic median sulcus not reaching base; prothorax with anterior impression; femora integument completely covered by subcircular scales; vestiture uniform gold; elytra and prothorax lacking lateral white stripes; interval 5 with slightly developed tubercle behind declivital tubercle *H. vestitus*
- Prothoracic median sulcus reaching base; prothorax lacking anterior impression; femora integument reddish and lacking scales; elytra and prothorax with lateral white stripes; remaining areas of prothorax and elytra black; interval 5 without slightly developed tubercle behind declivital tubercle *H. tuberculifer*

Acknowledgements

We would like to thank Juan José Morrone for his critical reading of the original manuscript. Comments by Miguel Alonso-Zarazaga and Antonio Machado improved this manuscript. Lucy Mainer improved the English version. We acknowledge the support of Consejo Nacional de Investigaciones Científicas y Técnicas from Argentina (CONICET). We also acknowledge loan of the specimens by the curators of the collections. This work was supported by CONICET (Grant PIP no. 5604) and ANPCyT (Grant PICT 2004 26298).

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Appendix. List of additional material examined

Hybreoleptops tuberculifer (Boheman, 1842) (34 specimens)

Chile: Osorno, Pucatrihue (costa Osorno), February 1967 (AMNH); Osorno, Puyehue, 10 February 1979 (2) (MZFC). Cautín, Villarrica, Afunalhué (incorrectly spelled as Afunahuel), 10/15 January 1977 (7) (MZFC); 30 km NE Villarrica, January 1965, Rivera col. (2) (MHNS); Valdivia, Huelletlué, 6 March 1972, Elgueta col. (MHNS); Huelletlué, 24 January 1973, Elgueta col. (MHNS); Hulletlué, 3 February 76 (13) (MLP). **Argentina:** Neuquén, Lago Queñi 760 m, 2 December 1985, Roig col. (AMNH); Río Negro, San Carlos de Bariloche, 2 April 1964 (3) (AMNH); Nahuel Huapi, November 1954 (MLP); Nahuel Huapi without date (MLP); Lago Masecardi, March 1998 (MLP).

Temporal distribution: October to April.

Hybreoleptops vestitus (Blanchard, 1851) (10 specimens)

Chile: Arauco, Brier col. (3) (MACN); Ñuble, Atacalco, Cord. Chillán, 28 November 1951 (MHNS); Concepción, Talcahuano, Buchanan col. (2) (USNM); Malleco, Contulmo, 2 January 1966, Flint and Cekalovic (USNM); Cautín, Chacamo, NW Nueva Imperial, 600–700 m, 17/23 February 1981. Peña col, (USNM); Fundo las Selvas, NW Nueva Imperial, 750 m, 10/18 February 1981. Peña col, (USNM).

Temporal distribution: November to February.

Hybreoleptops xanthomelas (Fairmaire and Germain, 1861) (seven specimens)

Chile: Linares, Fundo Malcho, 11/20 November 1964 (7) (AMNH).

Temporal distribution: November to December.

Hybreoleptops aureosignatus (Blanchard, 1851) (45 specimens)

Chile: Maule, Constitución, 25 September 1970, Holsten col. (4) (AMNH); Constitución, 25 September 70, Eglitis col. (4) (AMNH); Malleco, Piedras de Águila, Parque Nacional Nahuelbuta, 1370 m, 19 November 1981, Platnick and R. Schuh col. (AMNH); same data, 1400 m, Schuh and Platnick col. (3) (AMNH). Angol, 1 February 1979, Peña col. (4) (AMNH); Angol, 1 February 1979 (9) (MLP); Arauco, Pichinahuel, Nahuelbuta Mt, 1200 m, 14/18 February 1956 (AMNH). Nahuelbuta, 15 December 1988 (MACN); Pichinahuel, December 1976 (3) (MLP); Cautín, Villarrica, Afunahue (incorrectly spelled as Afunahuel), 15/20 January 1977 (3) (MZFH); Osorno, Puyehue, 10 February 1979 (10) (MZFH); Chiloé, Dalcahué, 13 January 1989, Morrone col. (MLP); one specimen lacking data (MLP).

Temporal distribution: September to February.