

A new genus and two new species of Leiodinae from Chile, with keys to world genera of Sogdini and Leiodinae from Chile and Argentina (Coleoptera: Leiodidae)

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Abstract. *Anaballetus* gen. nov., *Anaballetus chilensis* sp. nov. (tribe Sogdini) and *Neohydnobius irregularis* sp. nov. (tribe Pseudoliodini), both from Chile, are described and distinguished from related and similar taxa. A key for the identification of the described world genera of the tribe Sogdini is presented, and the placement of the new genus is discussed; it is considered most closely related to still-undescribed genera known from Australia and New Zealand. A key is also provided to all described species of Leiodinae known from Chile and Argentina. With the exception of *Dietta* Sharp, 1876, all of these genera and species of Leiodinae are endemic (precinctive) to Chile and southern Argentina.

Key words. Coleoptera, Leiodidae, Leiodinae, Sogdini, Pseudoliodini, *Anaballetus*, *Neohydnobius*, taxonomy, new genus, new species, keys, Argentina, Chile.

Introduction

The Chilean fauna of the subfamily Leiodinae is inadequately known. Only four genera with 14 species have been formally described from Chile and adjacent southern Argentina up to now (JEANNEL 1962, NEWTON 1998), although additional new genera and species have been known for some time and have been referred to, e.g., in NEWTON (1985) and PECK et al. (2000). An additional, non-endemic genus, *Dietta* Sharp, 1876 (tribe Estadiini), occurs in northern Argentina with one described species, which also occurs in Bolivia (PECK & COOK 2003). The tribe Sogdini contains two genera in Chile and southern Argentina: *Hydnodietus* Jeannel,

1962 (two species) and *Metahyd nobius* Portevin, 1942 (five species); the tribe Leiodini contains one genus, *Ovocyrtusa* Daffner, 1985 (five species); and the tribe Pseudoliodini contains one genus, *Neohyd nobius* Jeannel, 1962 (two species). All of these genera and species are endemic (precinctive) to this region.

In this paper one genus new to science with one new species, *Anaballetus chilensis* gen. & sp. nov. belonging to Sogdini, and one new species *Neohyd nobius irregularis* sp. nov. belonging to Pseudoliodini, are added to the Chilean fauna. A key for the identification of the Sogdini genera of the world is provided to indicate differences between *Anaballetus* gen. nov. and the other taxa of the tribe. A key is also provided for all described species of the subfamily Leiodinae from Chile and Argentina.

Material and methods

The dissected male and female genitalia and other body parts were mounted in polyvinylpyrrolidin (LOMPE 1986) on small transparent plastic cards added to the same pin as the respective type specimen. Several entire specimens at FMNH (as noted in paratype lists) were dissected on temporary (in glycerin) or permanent (in Permout®) microscope slides.

The type specimens are indicated by a red label (yellow in case of FMNH paratypes) added to the same pin bearing the status of the specimen (holotypus or paratypus respectively), its name, name of the authors and year of the designation.

Data quoted from the labels accompanying the specimens are reproduced verbatim; a single slash (/) separates individual lines on each label, double slash (//) separates individual labels (except for paratypes recorded at FMNH). Any added data, such as coordinates in some cases, are given in square brackets []. Measurements of the body length and the individual body parts were measured to the first decimal place of millimetre.

The identification keys are partly based on the key by PECK & COOK (2009) (part of the key to Sogdini) and were constructed by checking morphological characters of relevant genera and species deposited in NMPC and ZSPC, and taking into account characters mentioned in the original descriptions (JEANNEL 1957, 1962; HLISNIKOVSKÝ 1964; DAFFNER 1985; FAIRMAIRE & GERMAIN 1859).

Examined material is deposited in the following collections:

- AMNH American Museum of Natural History, New York, USA (L. Herman);
- ANIC Australian National Insect Collection, CSIRO, Canberra, ACT, Australia (J. F. Lawrence);
- FMNH Field Museum of Natural History, Chicago, Illinois, USA (A. Newton, C. Maier);
- MCZ Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA (P. Perkins);
- MHNG Muséum d'Histoire Naturelle, Genève, Switzerland (I. Löbl);
- MNNC Museo Nacional de Historia Natural, Santiago, Chile (M. Elgueta);
- NMPC National Museum, Prague, Czech Republic (J. Hájek);
- NZAC New Zealand Arthropod Collection, Auckland (R. Leschen);
- SEMC Snow Entomological Museum, University of Kansas, Lawrence, Kansas, USA (Z. Falin);
- TMSA Ditsong National Museum of Natural History (formerly Transvaal Museum), Pretoria, South Africa (J. Harrison);
- UMCE Universidad Metropolitana de Ciencias de la Educación, Santiago, Chile (J. Solervicens Alessandrini);
- ZSPC Zdeněk Švec private collection, Prague, Czech Republic.

Additional abbreviations and explanations:

AI–AXI	antennomeres I–XI
TI–TV	tarsomeres I–V
L	length
W	width
W/L	ratio of the relevant measurements
procoxal rest	transverse raised area present at anterior part of mesoventrite
longitudinal carina	mesoventral longitudinal carina between mesocoxae
median lobe	median lobe of aedeagus.

Taxonomy

Tribe Sogdini

Diagnosis. Tarsal formula 5-5-5 (rarely 4-4-4) in both sexes. First tarsomere as long as or longer than the second. Labrum usually deeply emarginate apically. Mandibles usually with reduced non-contiguous molar lobes. Galea narrow, its setose brush small and poorly developed. Lacinia with a large densely setose brush.

Key for the identification of the world genera of the tribe Sogdini

- 1 Labrum shallowly to deeply emarginate, the emargination at least one-fifth as deep as width of labrum. 2
- Labrum very shallowly emarginate, the emargination less than one-sixth as deep as width of labrum. Head with microsculpture of fine, irregular lines; pronotum minutely punctured. Nearctic. *Kalohyd nobius* Peck & Cook, 2009
- 2(1) Antennal club 3-segmented. 3
- Antennal club interrupted 5-segmented. 5
- 3(2) Metafemur slender, metatibia not widened apically (Fig. 10); clypeus sexually dimorphic, deeply concave in males. Palaearctic, Nearctic. *Triarthron* Märkel, 1840
- Metafemur robust, metatibia widened apically; clypeus weakly concave in both sexes. 4
- 4(3) Tarsal formula 5-5-5. Palaearctic, Nearctic. *Pseudotriarthron* Normand, 1938
- Tarsal formula 4-4-4. Palaearctic. *Deltocnemis* J. Sahlberg, 1886
- 5(2) Pronotum almost as long as wide. Large species up to approximately 9 mm. Eastern Palaearctic. *Hinomoto* Hoshina, 2002
- Pronotum distinctly broader than long. Smaller species (with exception of *Macrohyd nobius*). 6
- 6(5) Pronotum margined at base. Mesoventrite flat or flatly depressed without longitudinal carina. 7
- Pronotum not margined. Mesoventrite flat or depressed, with or without carina. 11
- 7(6) On average larger species usually more than 4 mm; pronotum with sub-basal transverse impression or row of punctures. Nearctic. *Macrohyd nobius* Peck & Cook, 2009
- On average smaller species, length at most up to 4 mm; pronotum without sub-basal transverse impression or row of punctures. 8

- 8(7) Right mandible with one tooth at middle of blade. Eyes protruding. 9
 – Right mandible with two teeth, eyes not protruding. Nearctic, Palaearctic, Oriental.
 *Hydnobius* Schmidt, 1841
- 9(8) Parameres coalescent with median lobe far before base. Six visible abdominal ventrites. Male metafemur with tooth or series of distinct notches on posterior margin, mesofemur never with tooth. Nearctic, Palaearctic. *Sogda* Lopatin, 1961
 – Parameres free up to their base. Five visible abdominal ventrites. Male metafemur rarely toothed, in that case mesofemur also toothed. 10
- 10(9) Parameres longer than median lobe, and with large setae on dorsal surface before apex. Nearctic and northern Neotropical Region.
 *Platyhydnobius* Peck & Cook, 2009
 – Parameres distinctly shorter than median lobe, without conspicuous setosity. Southern Afrotropical Region. *Euliodes* Portevin, 1937
- 11(6) Mesoventrite with high angulate (in lateral view) carina; mesoventrite excavate between transverse and longitudinal carina. Southern South America.
 *Metahydnobius* Portevin, 1942
 – Mesoventrite without high angulate longitudinal carina, at most with low short unobtrusive carina. 12
- 12(11) Mesoventrite vertical between mesocoxae, with short very low wide unobtrusive longitudinal carina (Figs 3C–D), body highly convex and oval. Southern South America. *Anaballetus* gen. nov.
 – Mesoventrite more or less horizontal, body dorso-ventrally compressed, oval and almost cylindrical. 13
- 13(12) Mesoventrite with distinct impression described by a rim; metaventrite with several foveae just behind mesocoxae. Southern South America.
 *Hydnodiaetus* Jeannel, 1962
 – Mesoventrite without distinct impression; metaventrite lacking distinct foveae. New Zealand. *Isocolon* Broun, 1893

***Anaballetus* gen. nov.**

Type species. *Anaballetus chilensis* sp. nov.

Diagnosis. *Anaballetus* gen. nov. is defined by the following characters: (1) body moderately large (3.3–3.6 mm), highly convex, ovoid with elytra almost parallel-sided (Figs 1A–B); (2) head moderately broad with anterior margin of clypeus straight, margined by a distinct fine carina that extends laterally over the antennal insertions and inner margin of the eyes (Fig. 1C); (3) epistomal suture present internally, broadly curved, indistinctly indicated externally by fine groove; (4) labrum shallowly emarginate, the emargination deeper than one fifth of the labral width (Fig. 1C); (5) eyes bulging, almost hemispherical; (6) antennae 11-segmented with interrupted five-segmented club (Figs 1H, 2B,D), AVII, AIX and AX each with a shallow periarticular gutter, AIX and AX also with additional invaginations (shallow anteriorly but forming a deep two-chambered sensory vesicle posteriorly); (7) mandibles broad at base but without contiguous molae, with simple tips, left mandible with medial blade without tooth

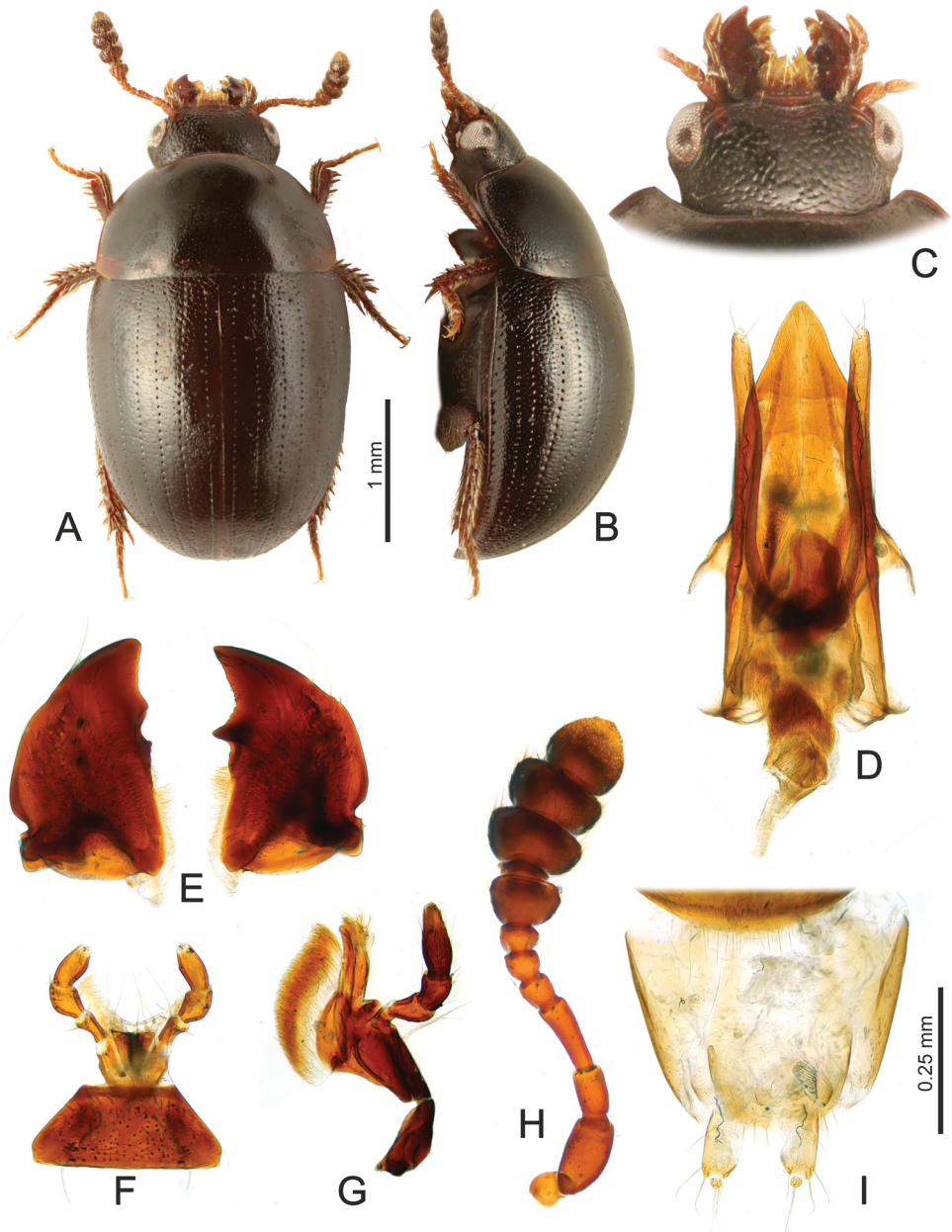


Fig. 1. *Anaballetus chilensis* gen. & sp. nov., holotype (A–D) and female paratype (E–I). A–B – body in dorsal and lateral view; C – head in dorsal view; D – aedeagus in dorsal view; E – mandibles; F – labium; G – maxilla; H – antenna; I – ovipositor in ventral view. Scale bars: 1 mm applies to A–B, 0.25 mm to D–I.

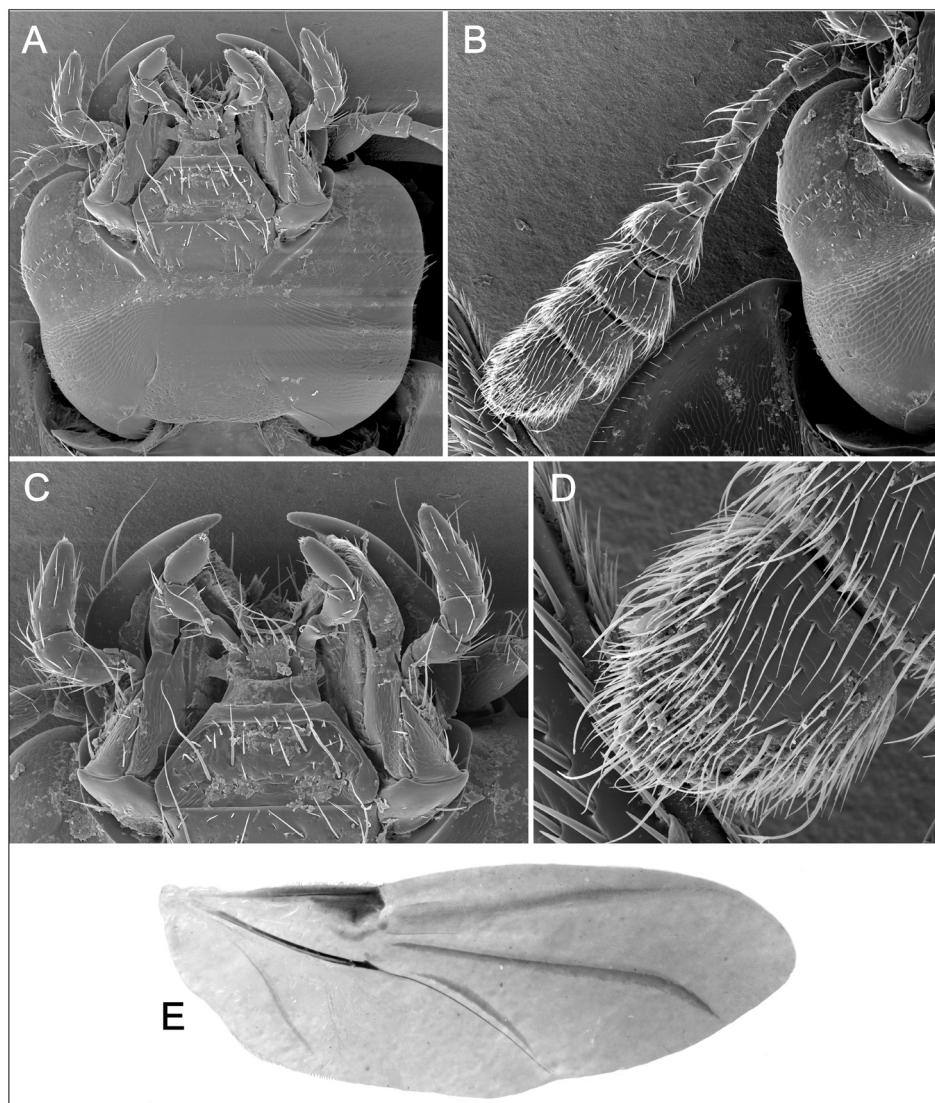


Fig. 2. *Anaballetus chilensis* gen. & sp. nov., paratypes (A–D – male; E – female). A – head in ventral view; B – antenna, ventral view; C – detail of mouthparts; D – detail of antennomere 11 in ventral view; E – hind wing. Not to scale.

but with feeble emargination in the middle, right mandible with strong tooth proximally just beyond middle of blade (Fig. 1E); (8) galea narrow, its setose brush small and poorly developed, lacinia with apical tooth and long densely setose brush along mesal edge (Fig. 1G); (9) maxillary palpi 4-segmented, apical palpomere about twice as long as and slightly narrower than penultimate palpomere (Figs 1G, 2C); (10) labial palpi 3-segmented, short,

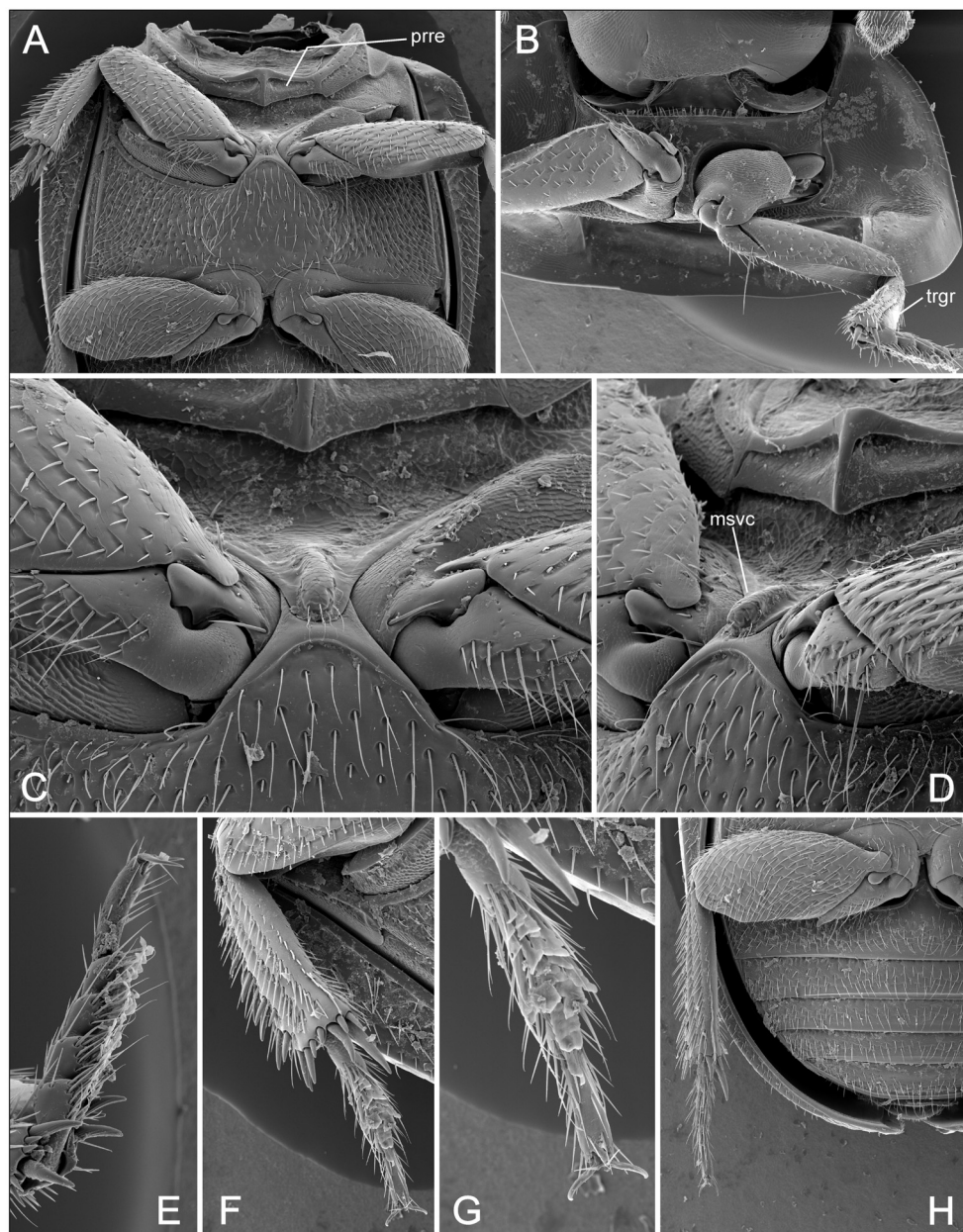


Fig. 3. *Anaballetus chilensis* gen. & sp. nov., male paratype. A – meso- and metathorax in ventral view; B – prothorax and anterior leg; C–D – detail of median part of meso- and metaventrite (C – ventral view; D – ventrolateral view); E – protarsus; F – mesothoracic leg; G – mesotarsus; H – metathoracic leg and abdomen. Not to scale. Abbreviations: msvc – mesoventral carina; prre – procoxal rests; trgr – tarsal groove of protibia.

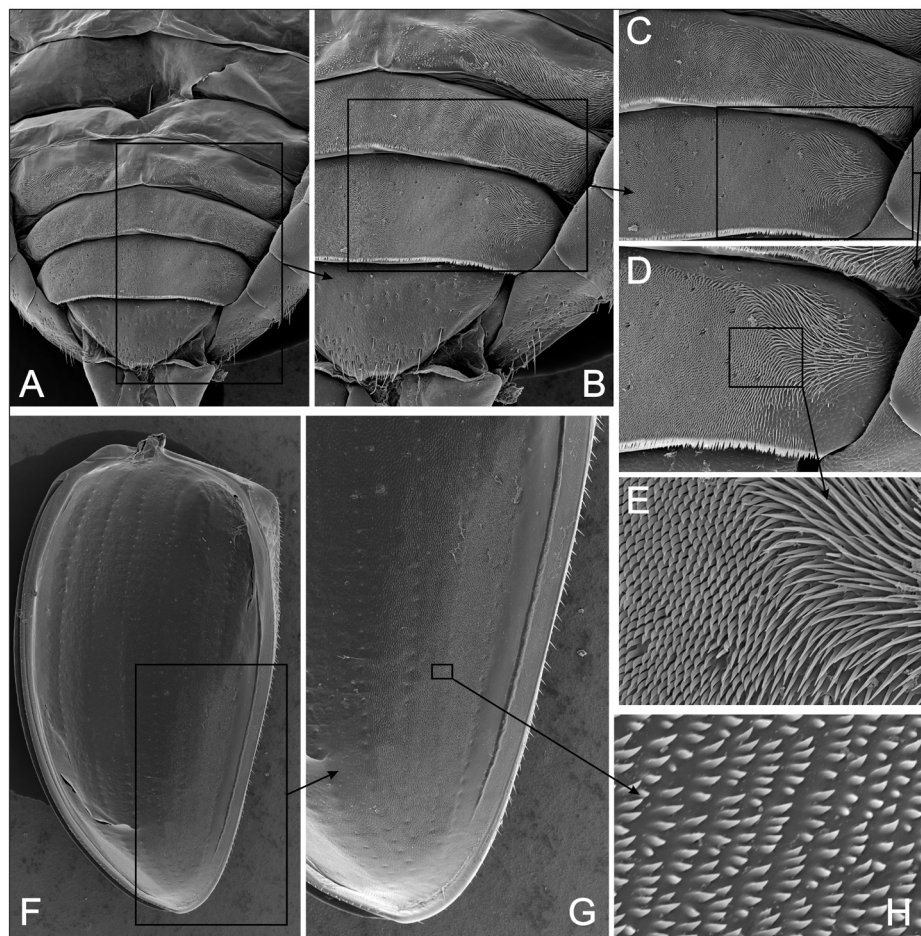


Fig. 4. *Anaballetus chilensis* gen. & sp. nov., female paratype; abdominal-elytral binding patches. A–E – abdominal tergites (A–B – tergites V–VIII; C–E – details of cuticular structures of tergite VII). F–H – ventral surface of elytron.

apical palpomere approximately as long as thickened penultimate palpomere (Fig. 2C); (11) mentum trapezoidal, apex bordered and about half as wide as base (Fig. 2C); (12) gular sutures widely separated, only partially evident externally (Fig. 2A); (13) pronotal base not bordered (Figs 1A–B); (14) scutellum distinct, triangular (Fig. 1A); (15) pair of large abdominal-elytral binding patches consisting of rows of very fine teeth on either side of the mid-line of tergites VI and VII (next to last visible tergite) occupying more than half of tergite VII (Figs 4A–E), and on the corresponding area on the underside of elytra (Figs 4F–H); (16) anterior tibiae with long distinct tarsal groove dorsally (Fig. 3B, trgr); (17) anterior coxae touching each other (Fig. 3B); (18) procoxal cavities nearly closed behind by notal process and proventrite that meet but are not fused to each other (Fig. 3B); (19) mesocoxae distant (Figs 3A,C); (20) me-

soventrite nearly vertical between the mesocoxae and with low short longitudinal carina (Figs 3C–D, msvc); (21) anterior process of metaventrite broadly rounded and bordered between mesocoxae (Figs 3A, C); (22) abdomen with five visible ventrites (Fig. 3H).

Etymology. The name of the genus is derived from Greek αναβάλλεται (= anaválletai) meaning postponed, because the genus had been discovered and mentioned many years ago by NEWTON (1985, 1998) and others; subsequently Z. Švec recognized the new taxon while examining a single female not suitable for description due to its sex (in litt. to Newton, 2002). Masculinum.

Discussion. The new genus can be easily differentiated from similar genera of Sogdini by the combination of the characters given in the key above. The abdominal-elytral binding patches are unique among described genera of Sogdini, but are similar to structures that occur in some members of the related family Agyrtidae (NEWTON 1997: Figs 24–25). These patches should not be confused with the normal patches of much larger “wing folding setae” (actually unarticulated setiform projections: HAMMOND 1979) found on the dorsum of the abdomen in most flying beetles, which are present in *Anaballetus* gen. nov. at the sides of tergites V–VII (Figs 4B–E).

This new genus and its single included species were previously referred to in publications as “Hydnobiini Genus D” in NEWTON (1985: 192) and NEWTON (1998: 83), “Sogdini Undescribed Genus 3” in PECK et al. (2000: 45), and “Sogdini Género 3 no descrito” in SOLERVICENS ALESSANDRINI (2014: 74), in all these cases identified by A. Newton. According to Mario Elgueta (in litt. to Newton, May 2016), this genus and species is also the “Sogdini sp.” of GREZ et al. (2003: 16), and was also referred to by the manuscript name *Hydnobius globulosus* by GERMAIN (1911: 62) and JEANNEL (1957: 55). NEWTON (1985) noted that the genus was closely allied to three other genera of Sogdini, also undescribed, and referred to by him collectively as the “BCDE” group, with two genera in Australia (B, C) and one in New Zealand (E) in addition to the Chilean genus (D). He considered these genera to form a monophyletic group because they “have retained molar lobes on their mandibles (reduced in all other Hydnobiini [= Sogdini]) and have unique elytral-abdominal interlocking patches”. *Anaballetus* gen. nov. is the first of these genera to be described, and does not strictly fit the above description because the mandibles do not have contiguous molar lobes like the other three genera, although the mandibular bases are broader than in other Sogdini. Clearly, further study and description of the other three new genera is needed to fully understand and document the origin and status of this group, but at present it can be said that the relationships of *Anaballetus* gen. nov. are to these other southern temperate genera from Australia and New Zealand, rather than to the two other Chilean genera or the numerous northern hemisphere genera of Sogdini.

Anaballetus chilensis sp. nov.

(Figs 1–4)

Type locality. Chile, La Araucanía Region, Malleco Province, PN Nahuelbuta, Sendero Piedra, 37°49.5'S 73°0.8'W, 1180 m a.s.l.

Type material. HOLOTYPE: ♂ (NMPC): “CHILE: IX. La Araucanía Region / PN Nahuelbuta, Sendero Piedra / de Aguila at Araucaria Milenaria / 27.xi.-12.xii.2013; 1180 m / 37°49.5'S 73°0.8'W; Fikáček, / Kment & Vondráček CH15 // flight intercept trap in sparse / *Nothofagus/Araucaria* forest with / understory of bushes+*Chusquea* / and numerous [sic!] mosses”. PARATYPES. **CHILE:** 4 ♂♂ 6 ♀♀, 60 unsexed specimens (NMPC, ZSPC): same data as the holotype; 1 ♀ (ZSPC): “CHILE CE reg. X / S of CARIRRINGUE / PANGUIPULLI / 20.1.2004 / LGT. M. SNÍŽEK”;

1 ♂ 4 ♀♀ (NMPC, ZSPC): "CHILE: IX. La Araucanía Region / PN Nahuelbuta, 0.9 km W of / Pehuenco, lower part Sendero / Piedra de Aguila, 11.xii.2013; / 37°49.7'S 73°1.1'W; 1140 m, / Fikáček, Kment & Vondráček lgt. / CH35 // *Nothofagus-Araucaria* forest / intercept trap"; 1 ♂ 1 ♀ (NZAC), 11 specimens, sex indet. (SEMC): "CHILE: Osorno / Lago Puyehue, 2 km W / Termas de Puyehue / 40°42'S 72°22'W, 300 m / 13-30 Nov. 1994 R. Lesch- / en&C. Carlton #182 / ex: flight intercept trap"; 1 ♂ (NZAC): "CHILE: Talca / 66.5 km E. San Clemente / 625 m, 35°48'S 70°55'W / 5-18 Nov. 1994 R. Lesch- / chen, C. Carlton #114 / ex: flight intercept trap"; 1 specimen, sex indet. (SEMC): same data except "#113"; 1 ♀ (NZAC): "CHILE: Osorno / 14.5 km W Puauchó / 40°37'S 73°45'W, 175 m / 11-28 Nov. 1994, H. Les- / chen&C. Carlton #170 / ex: flight intercept trap"; 6 ♂♂ 3 ♀♀ [1 ♀ dissected on permanent microscope slide in Permount] (FMNH): CHILE: Cautín, Bellavista, N shore Lago Villarica, 310 m, [39°12'S 72°8'W], 15.-30.xii.1982, A. Newton & M. Thayer ANMT 655, Valdivian rainforest, window trap; 2 ♂♂ 1 ♀ (MHNG): CHILE: Cautín, P.N. Huerquehue, 800-900 m, 22-24.xii.1990, Agosti & Burckhardt A&B 16a, forest litter; 1 ♂ (FMNH): CHILE: Cautín, Río Huachitivo, 1.xi.1992, T. Cekalovic TC-324; 1 ♂ (FMNH): CHILE: Cautín, Villarica (15 km NE), Flor del Lago, 300 m, [39°8'S 72°16'W], 14.xii.1984-10.ii.1985, S. & J. Peck #85-29, FMHD#85-914, *Nothofagus* forest, FIT; 2 ♀♀ (FMNH): CHILE: Concepción, Cerro Caracol, [36°50'S 73°2'W], 17.xi.1993, T. Cekalovic TC-367 [Berlese]; 2 ♂♂ 3 ♀♀ (FMNH): CHILE: Concepción, Cerro Caracol, Mirador Alemán, 100 m, [36°51'S 73°1'W], 2.x.1993, T. Cekalovic TC-364, Berlese funnels; 1 ♂ 3 ♀♀ (FMNH): same data except 28.xi.1993, TC-368; 1 ♂, 1 ♀ (FMNH): CHILE: Concepción, Chome, [36°46'S 73°13'W], 21.ix.1991, T. Cekalovic; 1 ♀ (FMNH): same data except 14.x.1995, TC-456, Berlese funnels; 1 ♂ [dissected on temporary microscope slide in glycerin] (FMNH): CHILE: Concepción, Estero Nonguén, [36°52'S 73°0'W], 29.iv.1978, T. Cekalovic TC-79; 1 ♂ (MHNG): same data except 19.viii.1978, TC-84; 2 ♀♀ (FMNH): same data except 26.xi.2003, TC-748; 1 ♂ 1 ♀ (ANIC): same data except 15 Oct. 1977 [no TC #]; 3 ♂♂ 1 ♀ (FMNH), 1 ♂ 1 ♀ (MCZ): CHILE: Concepción, Fundo Collico, Km 8 S Florida, 6.ix.1978, T. Cekalovic TC-53; 1 ♂ (FMNH): CHILE: Concepción, Las Escaleras, [36°11'S 73°46'W], 29.viii.1993, T. Cekalovic, TC-359, ex *Chusquea*; 1 ♂ (FMNH): CHILE: Concepción, Patagual, [37°1'S 73°1'W], 28.xi.1993, T. Cekalovic TC-369 [Berlese litter]; 1 ♀ (FMNH): CHILE: Concepción, Periquillo, [36°57'S 72°57'W], 13.ix.1992, T. Cekalovic; 1 sex indet. [completely dissected, parts glued on card] (MNNC): CHILE: Coquimbo, Co. Santa Inés, 24-5-1978, J. Solervicens [Choapa province, 32°09'47.15"S, 71°29'44.00"W, elevation 638 m, coastal cloud forest, teste J. Solervicens in lit. 25 May 2016]; 1 unsexed spec. (UMCE): CHILE: Llanquihue, P. N. Perez Rosales, Nov. 1976, J. Solervicens; 1 ♂ (FMNH): CHILE: Malleco, M.N. Contulmo, Sendero Lemu Mau, 410 m, 38°0.74'S 73°11.13'W, 8.xii.2002, Newton, Thayer ANMT 1059, FMHD#2002-063, *Nothofagus obliqua-Eucryphia cordifolia*++ w/fern & bamboo understory, berl., leaf & log litter; 1 ♂ 2 ♀♀ (FMNH): same data except 8.-24.xii.2002, Thayer, Newton, Solodovnikov, Chani, Clarke, FMHD#2002-061, flight intercept trap; 1 sex indet. (SEMC): CHILE: Malleco, Malacahuello (11.4 km E), 1425 m, 38°28'S 71°30'W, 18 Nov.-2 Dec.1994, R. Leschen & C. Carlton RL&CC#190, *Nothofagus-Araucaria* forest, flight intercept trap; 1 ♂ 1 ♀ (FMNH): CHILE: Malleco, Malacahuello (6.5 km E), 1080 m, [38°28'S 71°31'W], 13-31.xii.1982, A. Newton & M. Thayer ANMT 651, FMHD#82-846, *Nothofagus dombeyi* w/*Chusquea*, window trap; 1 ♂ (MHNG): CHILE: Malleco, P.N. Nahuelbuta, 1100 m, 14-17.xii.1990, Agosti & Burckhardt A&B 9a, forest litter; 1 ♂ 1 ♀ (FMNH): CHILE: Malleco, P.N. Nahuelbuta, 2.3 km W Los Portones entrance, 1150 m, 37°49.41'S 72°58.95'W, 7-25.xii.2002, Thayer, Newton ANMT 1057, FMHD#2002-057, *Nothofagus dombeyi* + ?*antarctica*, mostly open understory, carrion trap (octopus); 2 ♂♂ 2 ♀♀ (FMNH): CHILE: Malleco, P.N. Nahuelbuta, E of Guardería Pichinahuel, 1290 m, 37°48.2'S 73°1.41'W, 5-24.xii.2002, Thayer, Newton, Solodovnikov, Clarke, Chani ANMT 1054, FMHD#2002-041, *Araucaria-Nothofagus dombeyi* w/*Chusquea* bamboo, flight intercept trap; 1 ♂ (FMNH): CHILE: Malleco, P.N. Nahuelbuta, vic. Pehuenco (Centro de Visitantes), 1130 m, 37°49.6'S 73°0.47'W, 6.xii.2002, Newton, Thayer ANMT 1056, FMHD#2002-050, *Nothofagus* (decid.) w/shrubby understory, no bamboo, berl., leaf & log litter; 2 ♂♂ (FMNH): CHILE: Osorno, P.N. Puyehue, 4.1 km E Anticura, 430 m, [40°39.7'S 72°8.1'W], 19-26.xii.1982, A. Newton & M. Thayer ANMT 662, FMHD#82-840, Valdivian rainforest, window trap (incl. Malaise); 1 ♂, 1 ♀ (FMNH): CHILE: Osorno, P.N. Puyehue, Aguas Calientes, 600 m, [40°44'S 72°18'W], 18.xii.1984-8.ii.1985, S. & J. Peck #85-39, FMHD#85-924, *Nothofagus* forest, Malaise trap; 1 ♂ (AMNH): CHILE: Osorno, Termas de Puyehue, 180 m, 24 November 1981, N. Platnick & R. Schuh, modified forest, concentrated berlese floor litter & moss; 1 spec., (MNNC): Quillota, 9 97 [September 1897, in P. Germain handwriting]; 1 spec. (MNNC): [Santiago], Cord. Aculeo, Ger. [P. Germain] 1893, "1573" [P. Germain catalog number, see GERMAIN (1911: 62), = "*Hydnobius globulosus* P. G. ined."]; 5 ♂♂ 3 ♀♀, 10 unsexed spec. (UMCE, some to be deposited in MNNC): CHILE: Santiago, Reserva Nacional Río Clarillo, 23.vii-20.viii.1991, J. Solervicens, en trampa Barber; 3 ♀♀, 18 unsexed spec. (UMCE, some to be deposited in MNNC): same

data except 20.viii.-3.x.1991; 1 spec., (UMCE): same data except Oct. 1994; 1 ♂ 3 ♀♀ (FMNH): CHILE: Santiago, Tiltit, La Dormida, 800 m, x.1982, L.E. Peña, FMHD#82-426, under *Quillaja saponaria*; 1 ♂ (FMNH): same data except 13-20.xi.1982, FMHD#82-432, under *Drymis winteri*; 1 ♀ (FMNH): CHILE: Talca, Alto de Vilches, 70 km E Talca, 1300 m, [35°36'S 71°4'W], 5.xii.1984, 20.ii.1985, S. & J. Peck #85-6, FMHD#85-891, *Nothofagus* forest, FIT; 1 ♀ (FMNH): CHILE: Talca, R.N. Altos del Lircay, Sendero Laguna del Alto, 1240 m, 35°36.62'S 71°3.92'W, 3-26.xii.2002, Thayer, Newton, Clarke ANMT 1052, FMHD#2002-032, *Nothofagus dombeyi* & *antarctica* forest, dense understory, flight intercept trap; 1 unsexed spec. (MNNC): Talca, Altos de Vilches, 9-11 Oct 1971, M. Pino; 1 ♂, 3 ♀♀ (FMNH): CHILE: Valdivia, La Unión (34 km WNW), 700 m, [40°12'S 73°23'W], 17.xii.1984-7.ii.1985, S. & J. Peck #85-37, FMHD#85-922, mixed evergreen forest, FIT; 1 unsexed spec. (SEMC): CHILE: Valdivia, Panguipulli (30.0 km SE), 200 m, 39°44'S 72°20'W, 15 Nov. 1994, R. Leschen & C. Carlton RL&CC#107, sifting leaf litter; 2 spec., (MNNC): "1805" only [Philippi collection number, now without correlation to other data].

Additional material (not designated as paratypes because either we did not personally examine them (MNNC) specimens identified by M. Elgueta), or they are not now available to be labeled as paratypes): 2 spec. (MNNC): CHILE: Cauquenes, R. N. Los Queules, Octubre 2001, leg. P. Moreno; 3 spec., (MNNC): CHILE: Maipo, Ranguel, 5-11 Junio 2004, leg. M. Elgueta y M. Guerrero, trampa Barber, bosque higrófilo + esclerófilo; 1 spec. (TMSA): CHILE: Malleco, Victoria (6 km W), 38°14'S 72°26'W, 28-Nov-1990, Endrödy-Younga, E-Y CHI 168, forest floor litter; 2 spec., (TMSA): CHILE: Maule, Laguna Almargo, 700 m, 36°22'S 71°26'W, 6-Dec-1990, Endrödy-Younga, E-Y CHI 184, sifted forest floor.

Description. Body length 3.3–3.6 mm, in holotype 3.4 mm. Length of body parts (holotype): head 0.6 mm, pronotum 0.8 mm, elytra 2.0 mm, antenna 0.9 mm, aedeagus 0.8 mm. Maximum width of body parts (holotype): head 0.9 mm, pronotum 1.6 mm, elytra 1.7 mm.

Body ovoid (Fig. 1A), convex (Fig. 1B), brown-black, anterior margin of clypeus and pronotal margins lighter, legs red-brown with reddish anterior tarsi, AI–AVII reddish, AVIII–AXI infusate. Head with strigae in some places, pronotum without microsculpture, elytra with transverse strigae. Entire dorsum punctured. Underside almost entirely microsculptured by elongate cells oriented transversally or obliquely (Figs 3B–C).

Head. Very coarsely punctured, transversely wrinkled, punctures connected by oblique or longitudinal transverse strigae in some places (Fig. 1C). Punctures separated by about 2–3 times their own diameter. Several short erect setae placed at clypeus and near eyes. AI–AVI with several setae, antennal club more densely setose (Fig. 2B). Ratio of length of antennomeres II–XI (AII = 1.0): 1.0 : 1.4 : 0.6 : 0.5 : 0.5 : 1.1 : 0.5 : 1.2 : 1.2 : 1.9. Ratio of width of AII–AXI (AII = 1.0): 1.0 : 0.9 : 0.8 : 0.9 : 1.1 : 2.3 : 1.6 : 2.8 : 2.9 : 2.5. W/L of AII–AXI: 0.7 : 0.4 : 0.9 : 1.2 : 1.3 : 1.5 : 2.2 : 1.7 : 1.8 : 1.0.

Pronotum. Very finely punctured, punctures separated by about 6–7 times their diameter, several larger punctures dispersed before base. Punctuation coarser and denser near lateral margin. Base nearly straight for middle 8/10, obliquely angled toward hind angles, not bordered. Hind angles obtuse in both dorsal and lateral view (Figs 1A–B). Lateral margins bordered, roundly tapered from base towards anterior rounded angles as seen dorsally; in lateral view, margin slightly curved, and slightly downturned before hind angles. Anterior margin finely bordered.

Scutellum. Triangular, sparsely finely punctate like pronotum, with abruptly rounded apex.

Elytra. With nine rows of punctures, 9th row parallel to lateral margin (Figs 1A–B). Punctures in each elytral row separated by about 2–3 times their diameter. Intervals with irregularly distributed punctures that are distinctly smaller than those in rows, separated by about 4 times or more their own diameter. Punctures in rows and intervals equipped with transverse strigae. Strigae getting longer, connecting neighbouring punctures laterally, and

apically becoming distinctly deeper. Apical part of elytra with transverse wrinkles created by presence of deep strigae (Fig. 1B). Epipleura visible in lateral view; with short yellow erect setae (setae not visible in dorsal view). Sutural stria fine, punctured, confined approximately to apical third of elytral length.

Legs. TI–TIV of anterior and mid-tarsi of male feebly widened and bearing tenent setae ventrally (Figs 3E,G), same tarsomeres of female and hind tarsomeres of both sexes slender and with simple setae only ventrally (Fig. 3H); all tarsomeres dorsally with several stiff setae, anterior tarsomeres more densely setose on underside than others; empodia of all tarsi bisetose (Figs 3G, H). Anterior tibiae with tarsal groove at dorsal surface as long as tarsus (Fig. 3B, trgr). All tibiae with strong spines laterally (Figs 3B,F,H). Longest lateral spines approximately as long as TI, longest terminal spines a little longer than TI. Hind tibiae and femora without distinctive characters (Fig. 3H).

Mesoventrite. Concave, abruptly falling between mesocoxae with short low rounded longitudinal carina (Figs 3A,C–D; msvc). Procoxal rest with low but distinct longitudinal central carina (Fig. 3A,D; prre).

Metaventrite. Coarsely densely punctured with exception of strip before hind coxae (Fig. 3A). Punctures equipped with recumbent setae. Anterior process broadly rounded, reaching between mid-coxae; anterior process and portion of metaventrite behind mesocoxal cavities distinctly bordered (Fig. 3A).

Metathoracic wings fully developed (Fig. 2E).

Abdominal ventrites. Five visible ventrites, very finely punctured and setose (Fig. 3H). Without unusual characters.

Genitalia. Aedeagus as in Fig. 1D; parameres with short apical and preapical medial setae. Ovipositor (Fig. 1I) with elongate but unusually broad proximal and distal gonocoxites, and small apical stylus (scarcely longer than wide). Spermatheca not sclerotized.

Variability. The new species varies slightly in colour of dorsum from dark brown to almost black and colour of antennal club from light club almost coloured as AI–AVI to antennal club black. The head in some of the paratypes is very coarsely punctured but not wrinkled. The density of pronotal and elytral punctation varies – the pronotal punctures are separated by 2–4 times their own diameter in some paratypes to 6–8 times their own diameter in other paratypes; elytral rows of punctures are more densely punctured in some paratypes than in the holotype, separated by 1–2 times their own diameter.

Etymology. The species name is a Latinized adjective derived from the name of the country of origin.

Distribution and biology. The species has a wide distribution in Chile, from region IV (Coquimbo) in the north to region X (Los Lagos) in the south, and from coastal areas and mountains through the central valley to the Andes (Fig. 7A). Specimens have been collected in various kinds of indigenous forests (Valdivian rainforest and *Nothofagus*-dominant forests, with or without *Araucaria* trees or *Chusquea* bamboo understory, to drier forests and woodlands), at elevations from 100 m to more than 1400 m, mainly by use of flight intercept (window) traps, Berlese sampling of leaf litter, and pitfall traps. No fungus associations are known, but the compact body form and strong spinose legs suggest it may be associated with subterranean fungi, as is known or suspected for various other Sogdini species (e.g., NEWTON 1998).

Tribe Pseudoliodini

Neohydnobius Jeannel, 1962

Type species. *Neohydnobius brevis* Jeannel, 1962 (by original designation)

Neohydnobius irregularis sp. nov.

(Figs 5A–D)

Type locality. Chile, La Araucanía Region, Malleco Province, Sendero Piedra de Aguila at Araucaria Milenaria, 37°49.5'S, 73°0.8'W, 1180 m a.s.l.

Type material. HOLOTYPE: ♂ (NMPC): “CHILE: IX. La Araucanía Region / PN Nahuelbuta, Sendero Piedra / de Aguila at Araucaria Milenaria / 27.xi.-12.xii.2013; 1180 m / 37°49.5'S 73°0.8'W; Fikáček, / Kment & Vondráček, CH15 // flight intercept trap in sparse / Nothofagus/Araucaria forest with / understory of bushes+Chusquea / and numeous [sic!] mosses”. PARATYPES: **CHILE:** 2 ♂♂, 1 ♀ (NMPC, ZSPC): same data as the holotype; 2 ♂♂ 7 ♀♀ [1 ♂ 1 ♀ dissected on permanent microscope slide in Permout] (FMNH): CHILE: Cautín, Bellavista, N shore Lago Villarrica, 310 m, [39°12'S 72°8'W], 15-30.xii.1982, A. Newton & M. Thayer ANMT 655, Valdivian rainforest, window trap; 2 ♀♀ (FMNH): same data except FMHD#82-778, carrion trap (squid); 2 ♂♂, 1 ♀ 5 spec. (FMNH): CHILE: Malleco, Malalcahuello (12 km E), 1350 m, [38°26'S 71°30'W], 13-31.xii.1982, A. Newton & M. Thayer ANMT 650, FMHD#82-823, Nothofagus dombeyi-Araucaria forest, window trap; 1 ♂ 2 ♀♀ (FMNH): CHILE: Malleco, Malalcahuello (14 km E), 1570 m, [38°26'S 71°29'W], 13-31.xii.1982, A. Newton & M. Thayer ANMT 649, FMHD#82-820, Nothofagus pumilio-Araucaria forest, window trap; 1 ♂ (FMNH): CHILE: Malleco, Malalcahuello (6.5 km E), 1080 m, [38°28'S 71°31'W], 13-31.xii.1982, A. Newton & M. Thayer ANMT 651, FMHD#82-846, Nothofagus dombeyi w/Chusquea, window trap; 1 ♀ (FMNH): CHILE: Malleco, P.N. Tolhuaca, Lago Malleco, 890 m, [38°12'S 71°52'W], 1.i.1983, A. Newton & M. Thayer ANMT 651.3, FMHD#83-887, Nothofagus forest (disturbed), berl., wet leaves & flood debris, forest stream; 2 ♂♂ 2 ♀♀, 13 spec., [1 ♂ 1 ♀ dissected on permanent microscope slide in Permout] (FMNH): CHILE: Ñuble, Recinto (19.5 km ESE), Las Trancas, 1250 m, [36°54'S 71°28'W], 10.xii.1982-3.i.1983, A. Newton & M. Thayer ANMT 647, FMHD#82-818, Nothofagus forest, window trap; 1 ♀ (FMNH): same data except FMHD#82-817, screen-sweeping vegetation; 3 ♂♂ [1 ♂ dissected on permanent microscope slide in Permout] (FMNH): CHILE: Ñuble, Recinto (22.7 km ESE), 1330 m, [36°55'S 71°27'W], 10.xii.1982-3.i.1983, A. Newton & M. Thayer ANMT 646, FMHD#82-815, Nothofagus forest, window trap.

Description. Body length 1.5–2.1 mm, 2.1 mm in holotype. Length of body parts (holotype): head 0.3 mm, pronotum 0.6 mm, elytra 1.2 mm, antenna 0.6 mm, aedeagus 0.5 mm, spermatheca 0.1 mm. Maximum width of body parts (holotype): head 0.6 mm, pronotum 1.0 mm, elytra 1.1 mm.

Body oval (Fig. 5A), moderately convex (Fig. 5B), head, pronotum, elytral lateral parts and apex and legs red-brown, elytra brown-black, AI–AVI reddish, rest of antenna infuscate. Venter chestnut coloured, central part of mesoventrite darker. Head, pronotum and scutellum transversely microsculptured by elongate cells, elytra transversely strigose. Dorsal surface punctured.

Head. Microsculpture fine, distinct, finer and denser on clypeus. Dorsal surface with scattered fine punctures separated by about 2–3 times or more their diameter. Two large punctures on front, two large punctures on one side of clypeus, three large punctures at other side of clypeus. Relative length of AIII : AII = 1.3. Ratio of width of AX : AXI = 1.2.

Pronotum. Microsculpture distinct. Punctuation fine, similar to that on head, irregular, punctures separated by about 1–10 or more times their own diameter. Before base, at basal third and behind anterior margin of pronotum with some scattered larger punctures. Widest at base. Base

not bordered, slightly curved, feebly angled towards blunt moderately rounded hind pronotal angles. Hind angles blunt and broadly rounded in lateral view. Lateral sides conically narrowed anteriorly in dorsal view; slightly curved in lateral view. Anterior margin not bordered.

Scutellum. Small with rounded apex, covered by several transverse lines.

Elytra. Transversely strigose, strigae oriented obliquely medio-caudally, separated approximately by about 0.03 mm connecting elytral punctures. Irregularly punctured, punctures separated by about 2–4 times their own diameter tending to be seriate in some places. Without distinct regular longitudinal rows of punctures. Along lateral margins and near elytral apex several short yellow erect setae. Sutural stria confined to posterior three quarters of elytral length.

Legs. Tarsal formula 5-4-4. Male with anterior TI distinctly, TII–TIII feebly widened, TI–TIV each bearing one (TII–TIV) or multiple (TI) pairs of very large tenent setae; remaining tarsi of male and all tarsi of female slender and without tenent setae. Longest terminal tibial spine shorter than TI. Lateral and apical spines of mid- and hind tibiae shorter than relevant TI. Hind tibiae bent in blunt angle in middle, then gradually widened apically.

Mesoventrite. Hollowed between procoxal rest and longitudinal posterior carina. Procoxal rest margined anteriorly with longitudinal narrow keel in middle. Longitudinal posterior carina steeply falling between mid-coxae, feebly rounded in lateral view.

Metaventrite. Coarsely and densely punctured centrally, punctures separated by about 0.5–1.0 times their own diameter, punctation sparser anteriorly, laterally without punctures, microsculptured.

Metathoracic wings fully developed.

Abdominal ventrites. Very finely punctured and setose. Without unusual characters.

Genitalia. Aedeagus as in Fig. 5C; parameres with one apical seta medially. Ovipositor normal, with paired slender proximal and distal gonocoxites and styli. Spermatheca as in Fig. 5D.

Variability. Species varies in colour – one of the paratypes with dark chestnut coloured elytra only slightly darker than head and pronotum; antennae unicolorous red-brown in another paratype.

Differential diagnosis. *Neohydnobius irregularis* sp. nov. differs from both previously known species by irregularly punctured elytra; further it differs from *N. brevis* Jeannel, 1962 by the angularly truncated apex of the median lobe that is broadly rounded in the compared species. The new species differs also from *N. argentanicus* (Hlisenkovský, 1964) by possessing a coarsely punctured metaventrite while the metaventrite is punctured as fine as abdomen in *N. argentanicus*.

Etymology. The species name is a Latin adjective meaning irregular, in reference to the irregularly punctured elytra characteristic for the species.

Distribution and biology. This species has a relatively small known range in Ñuble, Malleco and Cautín provinces, in regions VIII (Biobío) and IX (Araucanía), in both the Andes and coastal Nahuelbuta mountains (Fig. 7B). Specimens have been collected in various kinds of indigenous forests (Valdivian rainforest and *Nothofagus*-dominant forests, with or without *Araucaria* trees or *Chusquea* bamboo understory), at elevations from 300 m to nearly 1600 m, mainly by use of flight intercept (window) traps. No associations with fungi are known.

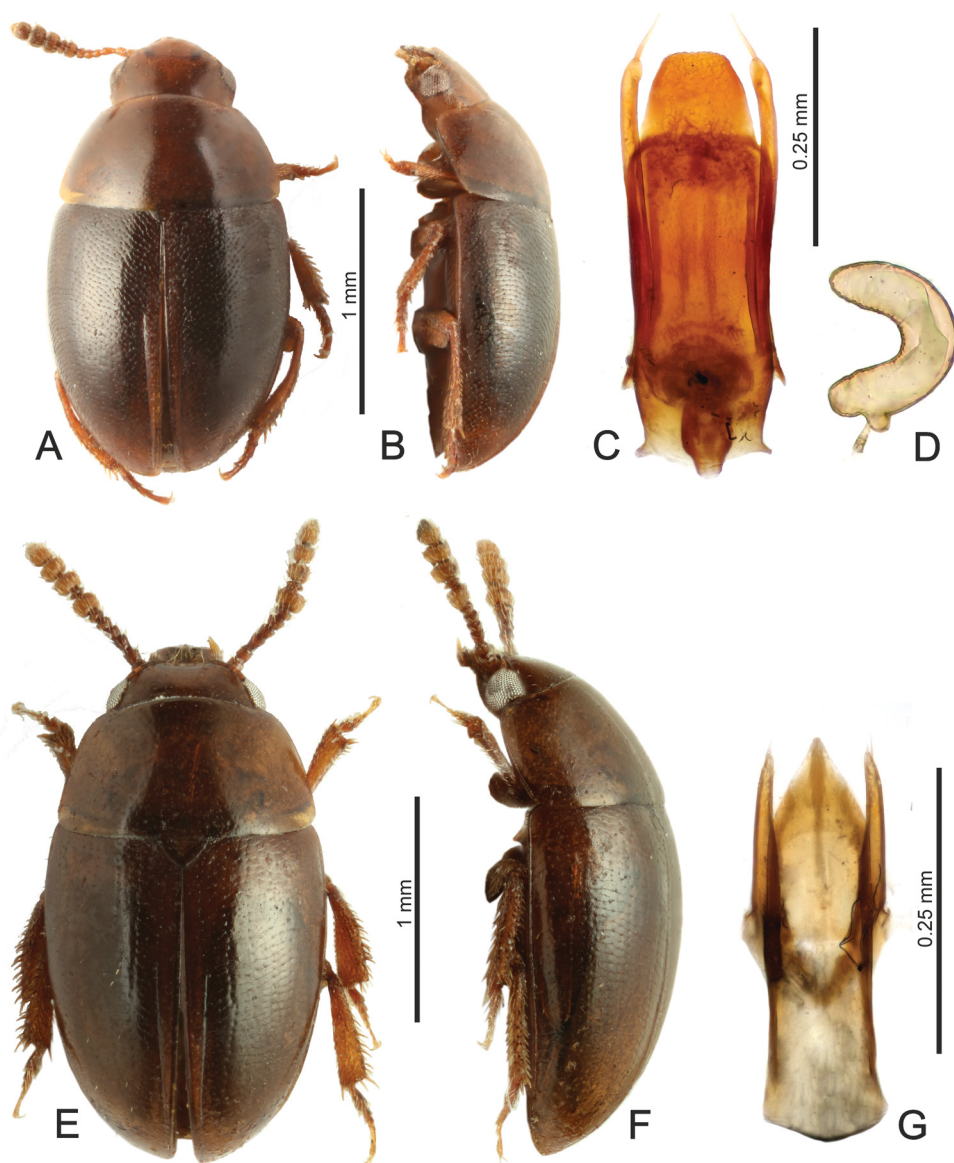


Fig. 5. Habitus and genitalia of Chilean Leiodinae. A–D – *Neohydnobius irregularis* sp. nov. (A–C – holotype; D – female paratype). E–G – *Metahydnobius forticornis* (Champion, 1918), male specimen from PN Nahuelbuta. A, E – body in dorsal view; B, F – body in lateral view; C, G – aedeagus in dorsal view; D – spermatheca.

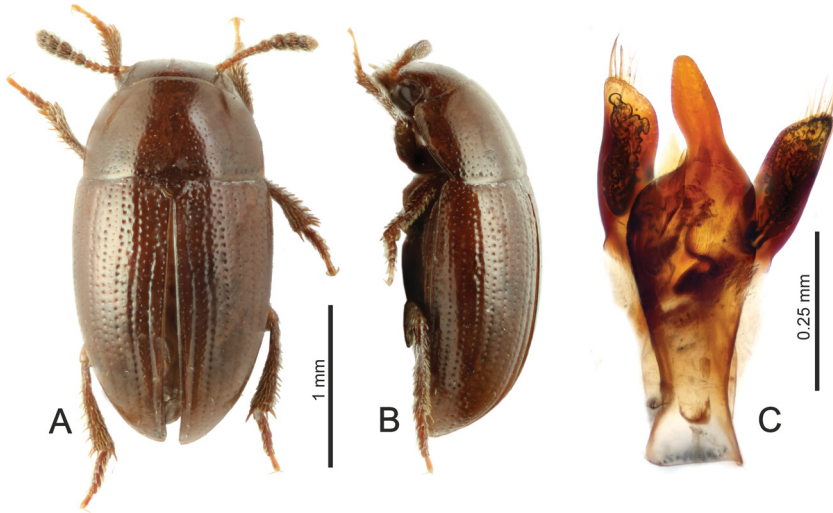


Fig. 6. *Hydnodiaetus brunneus* Jeannel, 1962, male specimen from PN Nahuelbuta. A – body in dorsal view; B – body in lateral view; C – aedeagus in dorsal view.

**Key for the identification of described Leiodinae species known
from Chile and Argentina***

- | | | |
|------|---|----|
| 1 | Tarsal formula 5-5-5 in both sexes. | 2 |
| – | Tarsal formula different, 5-5-4 or 5-4-4 in both sexes. | 10 |
| 2(1) | Tarsomere I as long as or longer than II. <i>Sogdini</i> | 3 |
| – | Tarsomere I much shorter than II. Mesocoxae very widely separated by about their length. Metatrochanter and metafemur with long, obtrusive curved tooth. Eyes protruding laterally. Aedeagus egg-shaped, apex of median lobe broadly rounded (Peck & Cook 2003: Fig. 12). Length: 4.2 mm. Argentina and Bolivia. | |
| | Estadiini: <i>Dietta argentinensis</i> Peck & Cook, 2003 | |
| 3(2) | Mesoventrite with high acute longitudinal carina (angulate in lateral view); mesoven-
trite deepened between procoxal rest area and longitudinal carina. | 4 |
| – | Mesoventrite without high angulate longitudinal carina, at most with low short unob-
trusive carina. | 8 |
| 4(3) | Elytra not transversely strigose (e.g. Figs 6A–B). | 5 |
| – | Elytra transversely strigose (e.g., Figs 5E–F). | 7 |

* Additional undescribed species, belonging to some of these genera as well as to some other genera not yet reported from Chile and Argentina, are present in both countries, so this key must be regarded as preliminary.

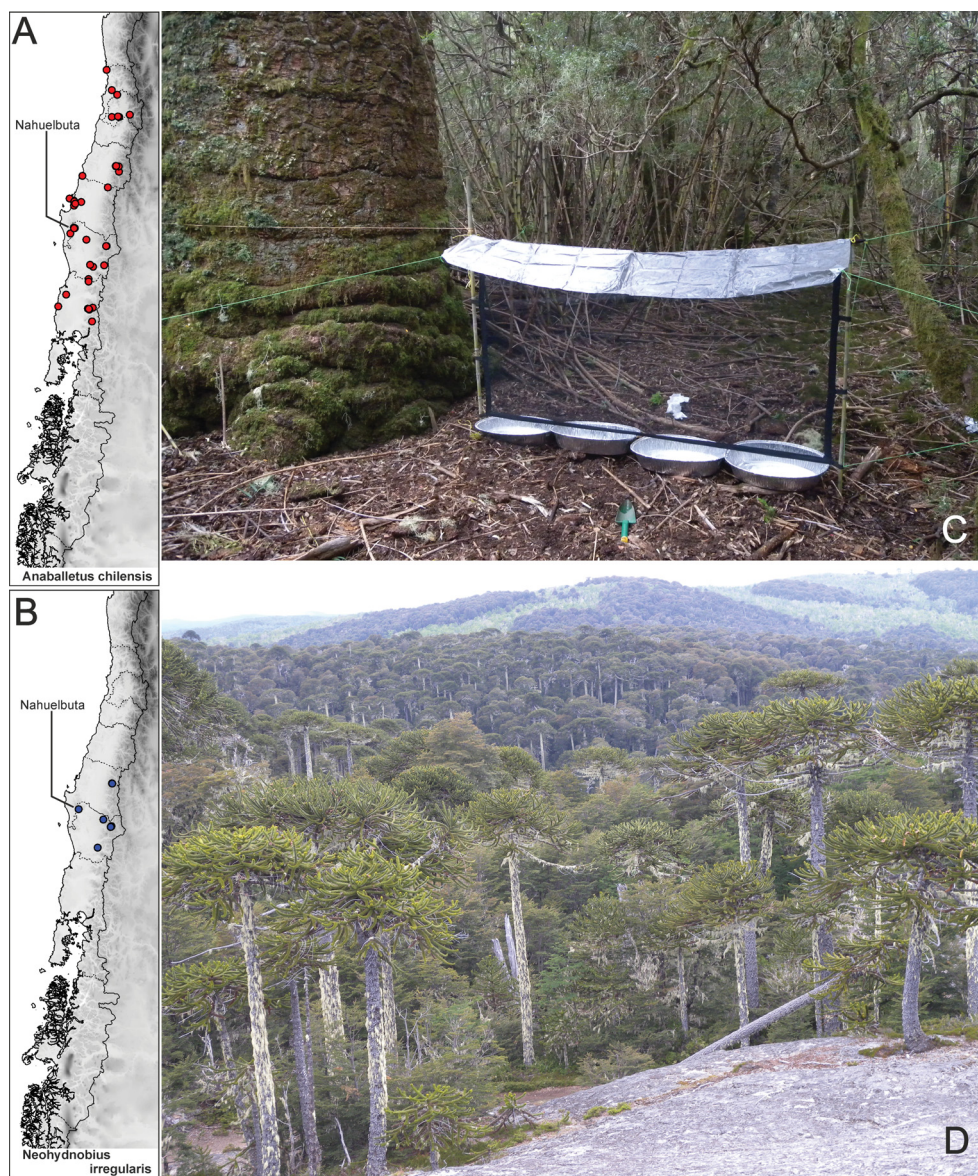


Fig. 7. Type locality and distribution of *Anaballetus chilensis* sp. nov. and *Neohydnoebius irregularis* sp. nov. A–B – distribution of both species in Chile; C – flight intercept trap in the *Araucaria araucana* forest in PN Nahuelbuta ($37^{\circ}49.5'S$ $73^{\circ}0.8'W$) at which examined specimens were collected; D – general view of the *Araucaria* forests in the area where specimens were collected (PN Nahuelbuta, view from Piedra de Aguila towards Pehuenco). Photos by M. Fikáček.

- 5(4) Body bicoloured or with light spots on pronotum and transverse strip on elytra. Parameres approximately as long as median lobe. 6
- Body unicoloured, reddish brown. Parameres distinctly shorter than median lobe (as in HLISNIKOVSKÝ 1964: Fig. 7). Length: 1.9–2.5 mm. Argentina and Chile. *Metahyd nobius basipunctatus* (Hlisnikovský, 1964)
- 6(5) Head and pronotum unicolorous black or brown. Elytra unicolorous yellowish. Median lobe terminating in strigose oval plate (JEANNEL 1962: Fig. 34). Length: 5.5 mm. Chile. *Metahyd nobius bicolor* (Jeannel, 1962)
- Pronotum with light rounded antero-lateral spots. Elytra with transverse bow-shaped dark strip. Median lobe terminating in simply shortly rounded tip (JEANNEL 1962: Fig. 31). Length: 2.0–2.6 mm. Chile. *Metahyd nobius bimaculatus* (Jeannel, 1962)
- 7(4) Antennal club black. Maximum width of pronotum in middle. Parameres distinctly shorter than median lobe (HLISNIKOVSKÝ 1962: Fig. 2). Length: 2.2 mm. Argentina. *Metahyd nobius hybridiformis* (Hlisnikovský, 1964)
- Antennae unicolorous, reddish (Figs 5E–F). Maximum width of pronotum at base (Fig. 5E). Parameres approximately as long as median lobe (Fig. 5G). Length: 1.8–2.2 mm. Chile and Argentina. *Metahyd nobius forticornis* (Champion, 1918)
- 8(3) Mesoventrite vertical with short very low unobtrusive longitudinal carina (Figs 3C–D), metaventrite without foveae just behind mesocoxae (Figs 3A,C). Body highly convex and ovoid (Figs 1A–B). Elytra transversely strigose. Median lobe symmetrical, parameres slim (Fig. 1D). Length: 3.3–3.6 mm. Chile. *Anaballetus chilensis* gen. & sp. nov.
- Mesoventrite more or less horizontal with shallow distinctly delimited impression, metaventrite with several foveae just behind mesocoxae. Body dorso-ventrally compressed, elongate and almost parallel-sided (Figs 6A–B). 9
- 9(8) Elytra without transverse strigae (Figs 6A–B). Median lobe asymmetrical, parameres conspicuously widened (Fig. 6C). Length: 2.2–3.2 mm. Chile and Argentina. *Hydnodiaetus brunneus* Jeannel, 1962
- Elytra with transverse strigae (similar to Figs 5E–F). 2 mm. Chile and Argentina. *Hydnodiaetus consobrinus* (Fairmaire & Germain, 1859)
- 10(1) Labrum simple, not emarginate. Elytral rows of punctures (if developed) straight. Tibiae with sporadic fine spines. Tarsal formula 5-4-4. **Pseudoliadini**. 11
- Labrum bilobed, distinctly emarginate. Elytral rows of punctures distinct, strongly curved. Tibiae with numerous strong spines. Tarsal formula 5-5-4. **Leiodini**. 13
- 11(10) Elytra with distinct punctured rows. Aedeagus with broader median lobe which does not extend to apices of parameres. 12
- Elytra irregularly punctured (Figs 5A–B). Aedeagus as in Fig. 5C, apex of median lobe narrowed but truncate at apex which extends beyond apices of parameres. Spermatheca as in Fig. 5D. Chile. *Neohyd nobius irregularis* sp. nov.
- 12(11) Body bicolored, pronotum yellow, head and elytra brown. Pronotum with indistinct microsculpture. Apex of median lobe convex, broadly rounded (JEANNEL 1962: Fig. 40). Length: 1.6 mm. Chile. *Neohyd nobius brevis* Jeannel, 1962

- Body unicolorous brown. Pronotum transversely microsculptured. Apex of median lobe broadly truncate. Length: 2.3 mm. Argentina and Chile.
..... *Neohydnobius argentinicus* (Hlisenkovský, 1964)
- 13(10) Vertex with two large punctures. 14
- Vertex with four large punctures. 15
- 14(13) Metaventricle finely and sparsely punctured laterally. Parameres a little shorter than median lobe (DAFFNER 1985: Fig. 11). 1.9–2.6 mm. Chile.
..... *Ovocyrtusa bicolor* Daffner, 1985
- Metaventricle densely and very coarsely punctured laterally. Parameres reach approximately to mid-length of median lobe (DAFFNER 1985: Fig. 15). Length: 1.6–2.0 mm. Chile. *Ovocyrtusa bipunctata* Daffner, 1985
- 15(13) Metaventricle coarsely and sparsely punctured laterally. Parameres distinctly longer than mid-length of median lobe. 16
- Metaventricle finely and sparsely punctured laterally. Parameres very short, not reaching mid-length of median lobe (DAFFNER 1985: Fig. 17). Length: 1.7–2.3 mm. Chile. *Ovocyrtusa thayeri* Daffner, 1985
- 16(15) Antennal club black or darkened. Body brown-black. Parameres reaching behind distal quarter of median lobe (DAFFNER 1985: Fig. 9). Length: 2.0–2.8 mm. Chile.
..... *Ovocyrtusa atricornis* Daffner, 1985
- Antennal club yellow-red. Body red-brown. Parameres shorter reaching approximately distal third of median lobe (DAFFNER 1985: Fig. 13). Length: 1.8–2.6 mm. Chile.
..... *Ovocyrtusa newtoni* Daffner, 1985

Acknowledgements

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