A revision of the Chilean Brachyglutini – Part 7. Revision of Achilia Reitter, 1890: A. cosmoptera species group (Coleoptera: Staphylinidae: Pselaphinae)

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Abstract: The Achilia cosmoptera species group sensu Jeannel (1962) of the species-rich genus Achilia Reitter, 1890 is revised. Of the twelve taxa placed so far in this informal group, four species – A. andina Franz, 1996, A. maiopensis Franz, 1996, A. pseudangularis Franz, 1996, and A. quinteroi Franz, 1996 – belong to different genera and will be treated in forthcoming papers, and one name is placed in synonymy – A. picea Raffray, 1904 = A. elfridae Raffray, 1904 syn. nov. The remaining seven species are redescribed, and three new species fitting the concept of the A. cosmoptera group are described – A. covidia n. sp., A. pandemica n. sp., and A. quarantena n. sp. The lectotypes of A. cosmoptera (Blanchard, 1851), A. blanchardi Raffray, 1904, A. elfridae Raffray, 1904, A. bifrons Jeannel, 1962, and A. nahueltutae Franz, 1996 are designated, and the new synonymsies A. nahueltutae Franz, 1996 = A. angularis Jeannel, 1962 syn. nov., and A. caneloi Franz, 1996 = A. temporalis Jeannel, 1962 syn. nov. are also established. For all these species of the A. cosmoptera group their distribution is detailed and mapped, and habitat.collecting data are summarized.

Keywords: Achilia - Chile - taxonomy - new species - distribution.

INTRODUCTION

This article is the seventh contribution to our series aiming at a taxonomic revision of the Brachyglutini of the temperate region of southern South America, and the sixth dedicated to the genus Achilia Reitter, 1890 (Kurbatov & Sabella, 2015; Sabella et al., 2017; Kurbatov et al., 2018; Sabella et al., 2019; Kurbatov et al., 2019; Sabella et al., 2020).

We here focus on the A. cosmoptera species group (sensu Jeannel, 1962). All the members of this group are critically reexamined and their synonymic framework is detailed, and these species are redescribed. Three new species placed in the group are described. Regarding the prevalence of the spelling of the genus Achilia versus Achillia see Sabella et al. (2017: 120). The species groups of Achilia as defined by Jeannel (1962), which are mainly based on male sexual dimorphism, as well as their possible phylogenetic relationships will be reassessed later. A key to identification of the species of Achilia will be provided only at the end of this series of contributions.

MATERIAL AND METHODS

This study is based on the examination of 900 specimens. The acronyms used in the present study refer to the following collections (relevant curator/collection manager are acknowledged in parentheses):

DBUC Department of Biological, Geological and Environmental Sciences, University of Catania, Italy
FMNH Field Museum of Natural History, Chicago, U.S.A. (M. Turcatel)
HNHM Hungarian Natural History Museum, Budapest, Hungary (O. Merkl)
JEBC Colección Entomológica Y Museo Juan Enrique Barriga – Tuñón, Curicó, Chile (J. E. Barriga – Tuñón)
MHNG Musée d’Histoire Naturelle, Genève, Switzerland
MNHN Muséum National d’Histoire Naturelle, Paris, France (T. Deuve and A. Taghavian)
MNHS Museo Nacional de Historia Natural, Santiago, Chile (M. Elgueta Donoso and Y. J. Sepulveda Guaico)
Only critical references are cited for the species. Under the sections “type material” or “additional material” the locality data are standardized, with indications of major administrative units (Regions and Provinces) and names of collectors; for the holotypes of older specimens the labels are also given verbatim. For MHNG materials additional informations pertaining to sampling sites are enriched from unpublished locality lists when available.

For the method of selection of the type material see Sabella et al. (2017).

The aedeagi and other body parts illustrated here were mounted in Canada balsam on acetate slides, and drawn using a drawing tube mounted on a Zeiss Axioskop compound microscope. Images were taken using a Leica DFC425 camera in conjunction with a Leica M205-C compound microscope. Zerene Stacker (version 1.04) was used for image stacking. All images were modified and grouped using Adobe Photoshop CC and Illustrator CS6.

The body length is measured from the anterior clypeal margin to the posterior margin of the last visible abdominal tergite. The length and width of the body parts were measured between points of maximum extension, e.g. the head length is measured between the anterior clypeal margin and the posterior margin of the neck, the head width includes the eyes, the elytral length along the suture line, and the elytral width is the total width of the two elytra taken together. The abdominal tergites are numbered based on order of visibility. Morphological terminology follows that of Chandler (2001), except our use of ‘ventrite’ instead of ‘sternite’ when describing meso- and metathoracic structures, and that the sclerotized features of the aedeagus termed “dorsal strips” in Sabella et al. (2017) are here termed “longitudinal struts”.

TAXONOMY

Achilla cosmoptera species group

Remarks: Jeannel (1962: 398, 425) characterized this group as follows: elytra with two basal foveae; basal striae of first abdominal tergite separated at most by a quarter of tergal width; frontal lobe of males modified, male’s antennomeres unmodified; aedeagal parameres with long setae.

Franz (1996: 118) proposed a new group of species – i.e. the A. angularis group – to accommodate Achilia species in which the internal sac of aedeagus bears a complex of ramified spines. In addition to A. angularis, previously attributed by Jeannel (1962: 426) to the A. cosmoptera group, he included in this new group A. pseudangularis Franz, 1996, A. quinteroi Franz, 1996, A. andina Franz, 1996 and A. maiopensis Franz, 1996. However the delimitation of this A. angularis group overlaps that of the A. cosmoptera group of Jeannel, and moreover Franz placed in it species having little in common in our opinion. For convenience we treat here all the species included by Franz in his A. angularis group as members of the A. cosmoptera group, which would thus consist of: A. andina Franz, 1996, A. angularis Jeannel, 1962, A. bifrons Jeannel, 1962, A. blanchardi Raffray, 1904, A. cosmoptera (Blanchard, 1851), A. elfridae Raffray, 1904, A. maiopensis Franz, 1996, A. melanocephala Jeannel, 1963, A. picea Raffray, 1904, A. pseudoangularis Franz, 1996, A. quinteroi Franz, 1996, and A. temporalis Jeannel, 1962.

However, after examination of the types we concluded that A. andina Franz, 1996 and A. maiopensis Franz, 1996 resemble members of Pseudachillia Jeannel, 1964, while A. pseudangularis Franz 1996 and A. quinteroi Franz, 1996 resemble members of Achillidia Jeannel, 1962; we will deal in more depth with these four species as well as assess the opportunity of their transfer in our forthcoming reviews of these genera. Also, one name is placed in synonymy – Achilia picea Raffray, 1904 = Achilia elfridae Raffray, 1904 (syn. nov.). As a result, the A. cosmoptera group is reduced to A. cosmoptera (Blanchard, 1851), A. blanchardi Raffray, 1904, A. elfridae Raffray, 1904, A. bifrons Jeannel, 1962, A. temporalis Jeannel, 1962, A. angularis Jeannel, 1962, and A. melanocephala Jeannel, 1963, to which we add three new species described below – i. e. A. covida n. sp., A. pandemica n. sp. and A. quarantena n. sp. – for a total of ten species.

The species of the A. cosmoptera group possess the following common features: pubescence decumbent, consisting of long setae sparse over the body, and very sparse on the elytra (except in A. bifrons, A. temporalis, and A. angularis); head distinctly wider than long (only slightly wider than long in A. angularis and A. quarantena n. sp.) with two big vertexal foveae, eyes fairly protruding and longer than temples; antennae with antennomeres III-VIII about the same width; pronotum wider than long, slightly wider than head, and with slightly convex disc, its surface smooth and shiny with some punctures; median antebasal fovea slightly smaller than lateral fovea; anterior portion of lateral margins of pronotum distinctly convergent and sinuate anteriorly; posterior portion of lateral margins of pronotum slightly convergent; basal margin of pronotum bordered with row of contiguous shallow impressions; elytra together wider than long with protruding humeri; elytral disc smooth, shiny, with very

MSNG  Museo Civico di Storia Naturale “G. Doria”, Genova, Italy (R. Poggi)

NHMW  Naturhistorische Museum, Wien, Austria (H. Schillhammer)

PCTS  Private collection of Tim Struyve, Mechelen, Belgium (T. Struyve)

PCVB  Private collection of Volker Brachat, Geretsried, Germany (V. Brachat)

PHPC  Private collection of Peter Hlaváè, Prague, Czech Republic (P. Hlaváè)

UNHC  University of New Hampshire Arthropod Collection, Durham, NH, U.S.A. (D.S. Chandler)
few punctures (except in *A. angularis* for which they are more densely punctate); elytra with two big basal foveae, sometimes with two small more medial foveae (as for example in the holotype of *A. melanocephala*); sutural stria entire; elytral discal striae extending to about elytral mid-length; abdomen smooth, with some minute punctures; first abdominal tergite with diverging basal striae, and separated at base by about one-fourth of paratergal length (except in *A. angularis* in which they are longer than one-fourth of paratergal length), and separated at base by about one-fourth of tertal width (except in *A. angularis*, *A. pandemica* n. sp. and *A. melanocephala*, in which they are wider than one-fourth of tertal length); short and sparse setal brush between basal striae. Many specimens of both sexes of *A. cosmospera*, *A. elfrieda*, *A. pandemica* n. sp. and *A. angularis* bear also a bundle of long setae on lateral side of first visible abdominal sternite (see Figs 49-50: arrows).

In order to keep the text more concise, these features are not repeated in their respective descriptions.

**Achilia angularis** Jeannel, 1962

Figs 8-12, 15, 21, 24, 30, 32, 33-36, 64

*Achilia angularis* Jeannel, 1962: 426, 430, figs 198 (head and antennal male), 199 (edeagus). *Achilia nahuelbutae* Franz, 1996: 115, fig. 62 (edeagus) syn. nov.

**Type material (2 ex.):** CENTRAL CHILE: Región Bio Bio: Ñuble Prov.: MNHN: 1 ♂ (holotype of *A. angularis*); labels verbatim “Holotype / Chile; Chillan / Newton & M. Thayer 980. – 39° 22.48'S 71° 58.30'W; 1180 m; 26.XII.1996; II.1985; *Nothofagus-Araucaria*; for FIT; S. & J. Peck. – MHNG; 3 ♂; Nahuelbuta National Park, 40 km W Angol; 1200-1500 m; 19.XII.1984/17. II.1985; *Nothofagus-Araucaria*; for FIT; S. & J. Peck. – MHNG; 8 ♂; Nahuelbuta National Park, 45 km W Angol; 1400 m; 09.XII.1984/16.II.1985; *Nothofagus-Araucaria* forest, car trap; S. & J. Peck. – FMNH (FMHD#985-13); 1 ♂; same locality; 09.XII.1984; *Nothofagus-Araucaria* forest, Berlese, litter; S. & J. Peck. – JEB; 2 ♂; Nahuelbuta National Park, Nahuelbuta (entrance); 37° 49.555’S 72° 58.008’W; III.2001; soil; J. E. Barriga-Tuñón. – JEB; 1 ♂; National Park, Nahuelbuta; 36° 52’ 34’S 71° 28’ 3”W; 06.XII.2008; fogging lenga *Nothofagus obliqua*; J. E. Barriga-Tuñón. – JEB; 1 ♂ and 2 ♀; Arauco, National Park Nahuelbuta, Pichinahuel; 37° 47’ 53” 00’W; 1200 m; 22.IX.2001; Berlese trap, *Araucaria araucana*; J. E. Barriga-Tuñón. – FHNM (FMHD #2002-041); 2 ♂ and 7 ♀; Nahuelbuta National Park, E of Guarderia Pichinahuel; 37° 48.20’S 73° 01.41’W; 1290 m; 05-24.XII.2002; *Araucaria-Nothofagus dombei* with Chusquea bamboo, flight intercept trap; A. Newton, M. Thayer, A. Solodovnikov, D. J. Clarke & M. Chani 1054. – MHNG; 2 ♂ and 2 ♀; same data. – FMNH (FMHD #2002-042); 1 ♂; same data but carrion trap (octopus); M. Thayer & A. Newton 1054. – FMNH (FMHD #2002-054); 6 ♂ and 52 ♀; Nahuelbuta National Park, Comallin area, between Guarderia and picnic area; 37° 48.33’S 73° 00.89’W; 1260 m; 21.XII.1996/07. II.1997; *Nothofagus spp. Araucaria araucana* forest, flight intercept trap; A. Newton & M. Thayer 974. – MHNG: 2 ♂; same data. – FMNH (FMHD #96-221); 2 ♂; same data but 21.XII.1996; leaf & log litter. – MHNG; 1 ♂; same data. – FMNH (FMHD #96-222); 2 ♂; Nahuelbuta National Park, 4.5 km W Los Portones entrance; area; 37° 48.21’S 73° 00.89’W; 1260 m; 21.XII.1996/07. II.1997; *Nothofagus spp. Araucaria araucana* forest, flight intercept trap; A. Newton & M. Thayer 974. – MHNG: 2 ♂; same data. – FMNH (FMHD #96-221); 2 ♂; same data but 21.XII.1996; leaf & log litter. – MHNG; 1 ♂; same data. – FMNH (FMHD #96-222); 2 ♂; Nahuelbuta National Park, 4.5 km W Los Portones entrance; area; 37° 49.25’S 72° 59.82’W; 1300 m; 21.XII.1996/07. II.1997; *Nothofagus spp. Araucaria araucana* forest, flight intercept trap; A. Newton & M. Thayer 974. – MHNG: 1 ♂; same data. – FMNH (FMHD #96-224); 1 ♂ and 3 ♀; same data but 21.XII.1996; leaf & log litter. – MHNG; 2 ♂; same data. – FMNH (FMHD #97-48); 3 ♂ and 8 ♀; Nahuelbuta National Park, 2.3 km W Los Portones entrance; 37° 49.32’S 72° 58.73’W; 1190 m; 07.II.1997; *Nothofagus spp. forest* (evergreen and deciduous), Berlese, leaf & log litter; A. Newton & M. Thayer, 1010. – FMNH (FMHD #2002-051); 1 ♂ and 1 ♀; Nahuelbuta National Park, Comallin, 8.2 km NW Los Portones entrance area; 37° 48.10’S 73° 00.89’W; 1260 m; 21.XII.1996/07. II.1997; *Nothofagus-Araucaria* bamboo + shrub understory, flight intercept trap; A. Newton & M. Thayer 974. – MHNG; 1 ♂; same data. – FMNH (FMHD #95-224); 1 ♂ and 2 ♀; same data but 21.XII.1996; leaf & log litter. – MHNG; 1 ♂; same data. – FMNH (FMHD #97-48); 3 ♂ and 8 ♀; Nahuelbuta National Park, 2.3 km W Los Portones entrance; 37° 49.32’S 72° 58.73’W; 1190 m; 07.II.1997; *Nothofagus spp. forest* (evergreen and deciduous), Berlese and leaf & log litter; A. Newton & M. Thayer, 1010. – FMNH (FMHD #2002-051); 1 ♂ and 1 ♀; Nahuelbuta National Park, Comallin, 8.2 km NW Los Portones entrance area; 37° 48.10’S 73° 00.93’W; 1210 m; 06.XII.2002; *Nothofagus antarctica* w/ *Araucaria* & *Chusquea* bamboo, sun-extracted, leaf & log litter; A. Solodovnikov 1058. – FMNH (FMHD #2002-052); 3 ♀; same data but 06-08. XII.2002; flight intercept trap (10). – FMNH (FMHD #2002-056); 3 ♀; Nahuelbuta National Park, 2.3 km W Los Portones entrance; 37° 49.41’S 72° 58.95’W; 1150 m; 07-25.XII.2002; *Nothofagus dombei* + *antarctica*, mostly open understory, flight intercept trap; A. Newton & M. Thayer 1057. – MHNG; 2 ♂; same data. – FMNH (FMHD #2002-045); 1 ♂; Nahuelbuta National Park, road to Piedra del Águila; 37° 49.29’S 73° 01.90’W; 1360 m; 06-24.XII.2002; *Nothofagus dombei* + *pumilio*, large *Araucaria* bamboo + shrub understory, flight intercept trap; M. Thayer, A. Newton, A. Solodovnikov, D. J. Clarke & M. Chani 1055. – FMNH (FMHD #2002-048); 1 ♂ and 4 ♀; Nahuelbuta
National Park, Vic Pehuenco (Centro Visitantes); 37°49.06’S 73°00.47’W; 1130 m; 06-25 XII.2002; Nothofagus sp. (decid.), w/shrubby understory, no bamboo, flight intercept trap; M. Thayer, A. Newton, A. Solodovnikov, D. J. Clarke & M. Chani 1056.

Description: Body 1.35-1.65 mm long, reddish with darkened head and abdomen; antennae and legs reddish; palpi yellowish.

Male: Head as in Figs 33-36, subrectangular with slightly convex occipital region; frons and frontal lobe punctate; transverse frontal sulcus narrow and shallow, limited to the area posterior to antennal tubercles; temporal angles prolonged as spiniform process directed upwards. Antennae (Fig. 21) with scape distinctly longer than wide; pedicel slightly longer than wide; antennomere III slightly wider than long; antennomeres IV-VIII wider than long; antennomere IX wider than VIII and wider than long, wider than long; antennomeres IV-VIII wider than long; antennomeres IX-X wider than VIII-X combined. Metaventrite with very shallow transverse frontal sulcus narrow and shallow, limited to the area posterior to antennal tubercles; temporal angles prolonged as spiniform process directed upwards. Antennae (Fig. 21) with scape distinctly longer than wide; pedicel slightly longer than wide; antennomere III slightly wider than long; antennomeres IV-VIII wider than long; antennomere IX wider than VIII and wider than long, with some tubercles and setae; antennomere X distinctly wider than long and wider than IX, with some tubercles and setae; antennomere XI moderately elongate, longer than VIII-X combined. Metaventrite with very shallow mediobasal impression. First abdominal sternite slightly raised and flattened at middle. Profemora (Fig. 15) enlarged and densely pubescent; protibiae (Fig. 24) with distal half swollen and densely pubescent, with acute apical spine; mesotibiae (Fig. 30) with distal half slightly bulging, with group of dense setae near basal third of medial margin, medial margin indented and ending as subapical spine; metatibiae (Fig. 32) with medial margin expanded on basal third as pubescent lamina and ending with very short subapical spine. Aedeagus (Fig. 8) 0.25-0.26 mm long, with ovoidal dorsal plate; dorsal longitudinal struts divergent. Parameres relatively wide with one seta on short outer lobe; apical portion of parameres recurved anteriorly, bearing one ventral medial seta. Copulatory pieces consisting of two subequal sclerites basally recurved and more robust, and apically pointed with some short subapical spines; these sclerites associated with two lateral sclerites variable in shape and forming apically two or three spines (Figs 8-12).

Female: Similar to male except head not modified; antennae shorter; eyes smaller; metaventrite, abdominal sternites, and legs unmodified.

Collecting data: Collected from December to April; found in different types of forests of Nothofagus spp., sometimes with Araucaria araucana and Chusquea at elevations ranging from 800 m to 1500 m. Most of the material come from sifted samples of leaf and log litter; some specimens were collected with pitfall traps, and several males have also been collected by flight intercept traps, and car netting.

Distribution: Achilia angularis is known from Southern Argentina (Neuquén Prov.) and Central Chile (Araucania and Bio Bio Regións) (Fig. 64: squares edged in blue).

Comments: In a previous article (Sabella et al., 2017: 123) we claimed to have examined the type series of Achilia nahueltarum Franz, 1996 housed in the NHMW; which included three different species of Achilia and one specimen of the tribe Euplectini; all 56 specimens are labeled as “Cordillera Nahueltarum / lg. H. Franz.”. In the original description Franz (1996: 115) mentions a holotype male and 39 paratypes, but in Franz’s collection none of the specimens examined bear holotype or paratypes labels, and only 3 males – the only specimens dissected and pinned with the aedeagus preparation – have an identification label handwritten by Franz “Achilia nahueltarum m.”. Among these three males, which are very similar both in exoskeletal morphology and the shape of the aedeagus, we designate one as the lectotype of A. nahueltarum Franz, 1996. The comparison between this lectotype of A. nahueltarum Franz, 1966 and the holotype of A. angularis Jeannel, 1962 showed that they are conspecific, and therefore we place Achilia nahueltarum Franz, 1996 as a junior synonym of A. angularis Jeannel, 1962 (syn. nov.). The remaining 54 specimens, excluding the member of Euplectini, belong to A. angularis (3 male and 30 females), to A. jeanneli Sabella, Cuccodoro & Kurbatov, 2019 (1 male and 15 females), to A. pachycera Jeannel, 1963 (3 females), and to A. bicornis Jeannel, 1962 (2 females). The males of A. angularis are easily distinguished from those of the other species of the A. cosmoptera group by the shape of the head (Figs 33-36), antennae (Fig. 21), profemora (Fig. 15), protibiae (Fig. 24), mesotibiae (Fig. 30), metabiae (Fig. 32), and aedeagus (Fig. 8). The females of A. angularis strongly resemble those of A. quarantena n. sp.; for characters to distinguish females of these two species see the “Comments” section of the latter species.

Achilia bifrons Jeannel, 1962
Figs 5, 18, 37, 39, 41, 63

Achilia bifrons Jeannel, 1962: 426, 428, fig. 192 (aedeagus).

Type material (2 ex.): CENTRAL CHILE: Región Bio Bio: Concepción Prov.: MNHN; 1 ♂ (Lectotype, here designated) labels verbatim “Lectotype / Boca del Biobio / Concepcion; 26.V.1957 / Achilia bifrons (handwritten by Jeannel)”. – MNHN, 1 ♂ (Paralectotype, here designated); labels verbatim “Paralectotype / El Caracol; Conc.; 26.V.1957 / 2 Fb”.

Additional material examined (4 ex.): CENTRAL CHILE: Región Bio Bio: Concepción Prov.: MSNG; 1 ♂ and 1 ♀; Lomas Coloradas; 21.V.1988; site TC- 208; T. Cekalovic. – MHNG; 1 ♂ and 1 ♀; same data.

Description: Body 1.55-1.60 mm long, entirely reddish with slightly darkened abdomen; palpi yellowish.

Male: Head as in Figs 37, 39 & 41, wide, surface with scattered punctures; occipital region and basal half of frons raised with U-shaped median notch; basal half of...
frons very long and convex, and separated from distal half of frons by transverse sulcus; anterior margin of this sulcus raised and pointed at middle, bearing tuft of long setae. Antennae (Fig. 18) with scape and pedicel longer than wide; antennomeres III-IV slightly longer than wide; antennomeres V-VII longer than wide; antennomere VIII about as long as wide; antennomere IX only slightly wider than VIII and slightly wider than long; antennomere X wider than long and wider than IX; antennomere XI elongate, about as long as VII-X combined. Metaventrite with wide medial sulcus on apical on two-thirds, sulcus densely pubescent. Aedeagus (Fig. 5) 0.31-0.32 mm long, with subrectangular dorsal plate slightly narrowed and densely pubescent. Mesotibiae with distal half swollen and densely pubescent. Aedeagus (Fig. 5) 0.31-0.32 mm long, with subrectangular dorsal plate slightly narrowed apically; dorsal longitudinal struts slightly divergent. Parameres relatively wide with large and long recurved apically; dorsal longitudinal struts slightly divergent. Parameres relatively wide with large and long recurved seta on well-developed and relatively long outer lobe; apical portion of parameres slightly recurved anteriorly; apex bearing one ventral medial seta. Copulatory pieces consisting of two subequal bifid sclerites basally recurved and more robust, topped with medial sclerites with rounded apical sides.

**Female:** Similar to male except head not modified; antennae shorter; eyes smaller; metaventrite, and legs unmodified.

**Collecting data:** The data in our possession do not allow statements in this regard other than members of this species are active in May.

**Distribution:** Achillia bifrons is only known from Concepción Province (Región Bio Bio) (Fig. 63: blue inverted triangles).

**Comments:** Jeannel (1962: 428) described *A. bifrons* on the basis of two males collected in Concepción Province, respectively at Bocas del Biobio and at Cerro Caracol. He stated that the holotype of *A. bifrons* was housed in the MNHS and the paratype in the MNHN. However in the MNHS we couldn’t find any specimens of *A. bifrons*, and moreover this taxon is not listed in the catalog of the MHNS holotypes of insects (Camousseigne, 1980). Instead we found in the MNHN two males of this species identified as such by Jeannel and labeled as from Bocas del Biobio and Cerro Caracol, but not bearing any type labels. Considering that Jeannel (1962: 428) indicated the type locality as generically from Concepción, we designate here the male labeled “Boca del Biobio / Concepcion; 26.V.1957 / Achillia bifrons (handwritten by Jeannel)” as the lectotype of *A. bifrons*, and the other male from Cerro Caracol as paralectotype.

The males of *A. bifrons* are easily distinguished from other species of the *A. cosmoptera* group by the shape of the head (Figs 37, 39, 41), antennae (Fig. 18), and aedeagus (Fig. 5). The females of this species are similar to those of *A. temporalis* from which they can be easily distinguished by their very long frontal lobe with the anterior margin slightly pointed at the middle, while the frontal lobe is short with a straight anterior margin in *A. temporalis*.

**Achillia blanchardi** Raffray, 1904

Figs 3, 17, 27, 38, 40, 42, 63

*Bryaxis valdiviensis* Reitter, 1883: 50, pl. 1 fig. 8 (head and antenna) (nec *valdiviensis* Blanchard, 1851). – Reitter, 1885: 326; 330, pl. 2 fig. 14 (head and antenna).

*Achilia clavata* Raffray, 1904: 137, fig. 53 (head and antenna) (synonymized by Jeannel, 1962: 429).

*Achillia blanchardi* Raffray, 1904: 138 (new name for *Bryaxis valdiviensis* Reitter, 1883). – Jeannel, 1962: 426, 430, figs 195 (head and antenna of male), 196 (head and antenna of female), 197 (aedeagus).

**Type material (12 ex.):** MNHN; 1 ♂ (Holotype of *A. clavata*); labels verbatim “Museum de Paris; 1917; coll. Raffray / Chili / Type / clavata; det. A. Raffray / clavata (handwritten by Jeannel)”. – SOUTHERN CHILE: Región Los Ríos: Valdivia Prov.; MNHN; 1 ♂ (lectotype of *A. blanchardi* here designated); labels verbatim “Lectotype / Type / 1880; Chili; Valdivia; leg. Kindermann / Bryaxis; valdiviensis; m. Valdivia / Museum de Paris; 1917; coll. Raffray / A. blanchardi; A. Raffray det.”. – MNHN; 1 ♂ and 9 ♀ (Paralectotypes of *A. blanchardi* here designated); labels verbatim “Paralectotype / Chili / Museum de Paris; 1917; coll. Raffray / A. blanchardi; A. Raffray det.”.

**Additional material examined (5 ex.):** FMNH; 1 ♀; Field Mus. Nat. Hist.; Orlando Park; Pselaphidae Colln.; F. C. Fletcher Collection. – MNHN; 1 ♂; Chile; P. Germain. – HNHM; 1 ♂; “Chili”. – MNHN; 2 ♀; “Chili”; Gay; 1849.

**Description:** Body 1.35-1.40 mm long, dark brown with reddish elytra; antennae and legs reddish; palpi yellowish. 

**Male:** Head as in Figs 38, 40 & 42, very wide, surface with some very scattered punctures; occipital region raised, frons flattened and separated by large transverse sulcus from large frontal lobe; anterior margin of frontal sulcus slightly raised and pointed at middle. Antennae (Fig. 17) with scape and pedicel longer than wide; antennomere III distinctly longer than wide; antennomere IV about as long as wide; antennomeres V-VII slightly longer than wide; antennomere VIII as long as wide; antennomere IX wider than wide; antennomeres III-IV slightly longer than wide; antennomere V-VII longer than wide; antennomere IX wider than VIII and wider than long; antennomere X distinctly wider than long, shorter and wider than IX; antennomere XI elongate, longer than VII-X combined. Metaventrite with deep and wide transverse sulcus on apical two-thirds, sulcus with deflected and posteriorly prominent margins forming sort of tubercles. First abdominal sternite slightly raised and flattened at middle; remaining abdominal sterna slightly flattened at middle. Protibiae with distal half slightly swollen; mesotibiae (Fig. 27) with distal half swollen and densely pubescent. Aedeagus (Fig. 3) 0.23 mm long, with dorsal plate subrectangular; dorsal longitudinal struts divergent. Parameres relatively wide with very large and long recurved seta on well-developed outer lobe, this seta bifid and very swollen
on basal third; apical portion of parameres slightly recurved anteriorly and prolonged laterally at tip; apex of parameres bearing one long ventral medial seta associated with wider and shorter seta. Copulatory pieces consisting of two subequal short sclerites slightly enlarged apically, recurved and more robust basally.

**Female:** Similar to male except head not modified; antennae shorter with antennomere XI shorter; metaventrite, abdominal sternites, and legs unmodified.

**Collecting data:** The data in our possession do not allow us to make statements in this regard.

**Distribution:** *Achilia blanchardi* is only known from Valdivia (Región Los Ríos: Valdivia Prov.) (Fig. 63: green diamonds).

**Comments:** Raffray (1904: 138) proposed the new name *Achilia blanchardi* for *Bryaxis valdiviensis* Reitter, 1883, described on an unspecified number of specimens from Valdivia, because this name was preoccupied by *Pselaphus valdiviensis* Blanchard, 1851 (now *Achilia valdiviensis* (Blanchard, 1851)) (see Sabella et al., 2020: 140, 144-145).

Jeannel (1962: 430) stated *Achilia clavata* Raffray, 1904 as a junior synonym of *A. blanchardi*, but without justifying this assertion. We have examined the holotype of *A. clavata*, which is a female resembling in all features those of *A. blanchardi*, and therefore we confirm the synonymy proposed by Jeannel.

Jeannel (1962: 430) stated that the type of *Achilia blanchardi* Raffray, 1904 was housed in the MNHN collections. In the MNHN we found in Raffray’s collection a series of 11 specimens identified by Raffray as *Achilia blanchardi*; the first specimen of the series is a male labeled “Type / 1880; Chili; Valdivia; leg. Kindermann/ Bryaxis; valdiviensis; m. Valdivia / Museum de Paris; 1917; coll. Raffray / *A. blanchardi*; A. Raffray det.” which we designate here as the lectotype of *A. blanchardi* Raffray, 1904 (Blanchard, 1851), and the remaining 10 specimens (1 male and 9 females) labeled “Chili” without further label data are designated as paralectotypes.

Within the *A. cosmoptera* group the males of *A. blanchardi* are easily distinguished from other species by the shape of the head (Figs 38, 40, 42), antennae (Fig. 17) and aedeagus (Fig. 3). The females of this species are very similar to those of *A. elfridae*, from which they can be distinguished by their wider head with a wider frontal sulcus, and their slightly longer antennomere XI (0.16 mm for *A. blanchardi* vs 0.14-0.15 mm for *A. elfridae*).

**Bryaxis chilensis** Reitter, 1883: 49, pl. 1 figs 11 (head and antenna), 12 (palpus), 13 (leg). – Reitter, 1885: 326 (synonymized by Raffray, 1904: 138).

**Bryaxis tripunctata** Reitter, 1885: 326, 330 (synonymized by Jeannel, 1962: 429).

**Type material (2 ex.):** MNHN; 1 ♂ (lectotype of *Achilia cosmoptera*, here designated); labels verbatim: “Lectotype / Chile; Gay 1849 / 4 / cosmoptera / Gen. Achilia Reitt. = Bryaxis aut. Raffray = Pselaphus Blanchard / cosmoptera Blanch. = chilensis; A. Raffray det. 1904”. – SOUTHERN CHILE: Región Los Ríos: Valdivia Prov.: MNHN; 1 ♀ (Holotype of *Bryaxis tripunctata*); labels verbatim: “Bryaxis tripunctata; m. Valdivia 1880 / Type / tripunctata Reitt. (handwritten by Jeannel) / B. tripunctata; A. Raffray det. / Museum de Paris; 1917; coll. Raffray”.

**Additional material examined (83 ex.):** HNHM; 1 ♂; “Chili”. – MNHN; 8 ♂ and 2 ♀; “Chili” [Valdivia?]. – PCVB; 1 ♂; “Chili”. – SOUTHERN AND CENTRAL CHILE: Región Los Lagos: Palena Prov.: PCTS; 1 ♂ and 6 ♀; Homopterium; 41° 87′S 72° 36′W; 17.XII.2013; forest layer. – Chiloé Prov.: MNHG; 2 ♂; Chiloé; H. Franz. – NHMW; 1 ♂; Chiloé; H. Franz. – PCVB; 4 ♂; Isla Chiloé, Mocopulli; 04.II.1983; ex Berberis buxifolia; T. Cekalovic. – NHMW; 1 ♂ (identified as *A. bifissifrons*); Quinchao Island. – MSNG; 1 ♂; Rio Pudeto; 21.I.1998; site SyTC-226; S. & T. Cekalovic. – FMNH (FMHD #2002-72); 3 ♂; S side of Huillinco lake, road to Bellavista, 1.3 km S road of Cuaco; 42° 41′.81″S 73° 55′.88″W; 45 m; 12-12.2002; valdivian rainforest w/emergent Saxeegothea conspicua, flight intercept trap; A. Newton, M. Thayer & M. Chani 1062. – MSNG; 1 ♂; Rio Pudeto; 21.II.1989; site SyTC-226; S. & T. Cekalovic. – FMNH; 1 ♂; 2 km N of Puente Pudeto; TC-554; 17.I.1998; Berlese; T. Cekalovic. – FMNH (FMHD #2002-91); 1 ♂ and 2 ♀; Castro, S of Cabañas Trayen; 42° 31′.S 48°W; 20.XII.2002; grassy yard on hill, some tres nearby, Berlese, cut grass pile ca. one week old; A. Solodovnikov, M. Chani, A. Newton & M. Thayer. – MSNG; 2 ♂; Chepu; 26.I.2000; site TC-624; T. Cekalovic. – FMNH (FMHD #97-21); 1 ♂; Puente La Caldera, 9.8 km E of Cuaco; 42° 39′.96″S 74° 00′.70″W; 10 m; 14.1I.1997; valdivian rainforest, Berlese, leaf & log litter; A. Newton & M. Thayer 991. – Osnoro Prov.: MNHG; 1 ♂ and 1 ♀; Puyehue National Park, Aguas Calientes, station 20b; 40° 40′.S 72° 20′W; 450-600 m; 01-03.XII.1992; sifting of moss on dead tree trunks, branches and rocks and vegetation debris; D. Burckhardt. – Región Los Ríos, Valdivia Prov.: MNHG; 4 ♂; Corral, 39° 95′S 73° 20′W; 06.XII.2013; car net. – MNHG; 4 ♂; Corral, 39° 95′S 73° 20′W; 06.XII.2013; car net. – PCTS; 1 ♂; Caleta Chaihuín, 39° 96′.3S 73° 58′6″W; 76.XII.2013; litter layer. – MNHG; 1 ♂; Parque Nacional Alerce Costero, Chaihuín; 0-100 m; 16.II.2018; forest litter; S. Kurbatov. – JEB; 1 ♂; Chaihuín, Camino a Huacila; 39° 59′.26″S 73° 38′.97″W; 107 m; 12.II.2007; fogging *Nothofagus dombeyi*; J. E. Barriga-Tuñón. – JEB; 5 ♂ and 3 ♀; Chaihuín, Reserva Costiera Valdiviana, en estero; 39° 58′.16″S 73° 34′.230″W; 30 m; 28.II.2008; J. E. Barriga-Tuñón. – PCVB; 1 ♂ and 1 ♀; Panguipulli. – Región Araucanía: Malleco Prov. – FMNH (FMHD #96-222); 1 ♂; Nahuebuta National Park, 4.5 km W Los Portones entrance; 37° 49′.25″S 72° 59′.82″W; 1300 m; 21.XII.1996/07.II.1997; *Nothofagus* spp. emergent Araucaria araucana, Chucaoa understory, flight intercept trap; A. Newton & M. Thayer 975. – Cautín Prov: NHMW; 1 ♂ (identified as *Achilia approximans*); Rio Pedregoso. – Región Bio Bio: Concepción Prov. – PCVB; 1 ♂; Parque Hualpén;
Description: Body 1.20-1.40 mm long, dark brown with reddish elytra, generally with darker head and sometimes also darker pronotum, some specimens brown with darker abdomen; antenae and legs reddish; palpi reddish or yellowish. 

Male: Head as in Figs 43, 45 & 47, wide, surface with distinct but very scattered fine punctures; occipital region and basal half of frons raised at middle, with flattened and slanting anterior margins; basal half of frons separated by deep transverse sulcus from anterior half of frons, the latter prolonged posteriorly as large median process reaching transverse sulcus and producing median constriction; vertexal foveae lacking. Antennae with scape and pedicel distinctly longer than wide; antennomeres III-VI longer than wide; antennomere VII about as long as wide; antennomere VIII slightly wider than long; antennomere IX distinctly wider than long and wider than IX; antennomere X distinctly longer than VIII and wider than long; antennomere XI elongate, about as long as VII-X combined. Metaventer with deep and wide transverse sulcus on apical two-thirds, sulcus with prominent margins. First abdominal sternite slightly raised and flattened at middle; remaining abdominal sternites slightly flattened at middle. Protibiae with distal two-thirds swollen, distal third densely pubescent; mesotibiae with small subapical spur on medial margin, distal half swollen and densely pubescent. Aedeagus (Fig. 1) 0.20-0.21 mm long, with suboval dorsal plate distinctly narrower apically; dorsal longitudinal struts divergent. Parameres relatively wide with very large and long recurved seta on well-developed outer lobe; apical portion of parameres slightly recurved posteriorly, prolonged laterally as short tip; apex bearing one ventral median seta. Copulatory pieces consisting of two subequal pointed sclerites recurved at both ends and more robust basally.

Female: Similar to male except head not modified. Antennae shorter with antennomere XI much shorter; metaventrite, abdominal sternites, and legs unmodified.

Collecting data: Collected from September to March, in different types of forests (i.e. Berberis buxifolia; Valdivian rainforest with Saxeagothea conspicua; Nothofagus spp. forest sometimes with Araucaria araucana and Chusqua) at elevations ranging from 0 m to 1300 m. Most specimens come from sifted samples of leaf and log litter, sometimes with moss and vegetational debris, and males have also been collected by flight intercept traps, window traps, and car netting.

Distribution: Achilia cosmoptera is distributed in Southern and Central Chile (Fig. 63: red square) from Palena Province to Cauquenes Province. Jeannel (1962: 429) mentions that this species occurs in Valdivia based on 8 males and 2 females, which probably refers to the specimens we identified as such from the Raffray collection labeled “Chili” without further label data. Jeannel mentions the presence of specimens of A. cosmoptera from Nahuelbuta (1963: 353, 1 ♀ collected by F. Castri in 14.XI.1961) and Tiltil (1964:10-11, 1 ♀ collected by F. Castri in VIII.1962), that appear to be based on two misidentified females of A. testacea.

Comments: Blanchard described Pselaphus cosmopterus (1851: 563) based on an unspecified number of specimens from San Cárlos (Region Bio Bio, Ñuble Province). The description was so imprecise that subsequent authors (Reitter, 1885; Schaufuss, 1886; and Raffray, 1895) thought the species belonged in the Tyrini. Reitter (1883: 50) described Bryaxis chilensis based on an unspecified number of specimens from Valdivia. Raffray (1904: 138), having studied the type of Pselaphus cosmopterus Blanchard, 1851, which he mentions as being housed in the MNHN collections, established that this species was not a member of Tyrini and should be transferred to Achilia in the Brachyglutini, pointing out that Bryaxis chilensis Reitter, 1883 was the same taxon as Achilia cosmoptera (Blanchard, 1851).

Jeannel (1962: 429) claimed that Bryaxis tripunctata Reitter, 1885, which was described based on one single female from Valdivia, was indeed a female of A. cosmoptera but was darker and had a small pit on the head vertex. These characters are apparently variable within this species.

Jeannel (1962: 428) affirmed that the types of Achilia cosmoptera (Blanchard, 1851), Bryaxis chilensis Reitter, 1883, and Bryaxis tripunctata Reitter, 1885 were present in the MNHN collections. In the MNHN we found in the Raffray collection the holotype female of Bryaxis tripunctata Reitter, 1885. We also found 8 females (the first bearing a red label Type) and 2 males with the label locality “Chili” without further data, identified by Raffray as A. cosmoptera, these ten specimens could well represent the type series of B. chilensis Reitter, 1883, or possibly part of it. Finally, we found in the general collection 1 male labeled “Chile; Gay 1849/ 4 / 40 / cosmoptera / Gen.Achilia Reitt. =; Bryaxis aut. Raffray =; / Pselaphus Blanchard / cosmoptera Blanch. =; chilensis; A. Raffray det. 1904”. We think that this male, which was collected by Gay and studied by Raffray, belongs to the type series of Achilia cosmoptera (Blanchard, 1851), and therefore we designate it as the lectotype of Pselaphus cosmopterus Blanchard, 1851.

The males of A. cosmoptera are easily distinguished from other species of the A. cosmoptera group by the shape of the head (Figs 43, 45, 47), and aedeagus (Fig. 1).
The females of this species are very similar to those of *A. elfridae*, from which they can be distinguished by their more convex frons, smaller vertexal foveae, and narrower frontal sulcus.

*Achilia covidia* n. sp.
Figs 2, 16, 26, 44, 46, 48, 63

**Holotype:** MHNG (# MHNG-ENTO-85480); 1 ♂; SOUTHERN CHILE: Región Los Lagos: Osorno Prov.: Puyehue National Park, Antillanca road; 500-1000 m; 18-20. XII.1984; car netting; S. & J. Peck.

**Description:** Body 1.15 mm long, dark with dark reddish elytra, antennae, legs, and palpi.

**Male:** Head as in Figs 44, 46 & 48, wide. Occipital region and median part of frons raised; frons flattened laterally and confluent with deep and large transverse sulcus delimiting it from frontal lobe; anterior part of frontal lobe prolonged posteriorly as short median process; sides of frons slightly sharp; surface of frontal lobe with sparse punctures. Antennae (Fig. 16) with scape distinctly longer than wide; pedicel slightly longer than wide; antennomeres III and V about as long as wide; antennomeres IV and VI-VII slightly wider than long; antennomere VIII wider than long; antennomere IX wider than VIII and distinctly wider than long; antennomere X distinctly wider than long and wider than IX; antennomere XI elongate, longer than VII-X combined. Metaventrite with deep and wide medial semi-oval impression on apical half, impression sparsely pubescent and punctate. Protibiae with distal half slightly swollen; mesotibiae (Fig. 26) with two small subapical spurs on medial margin, distal half swollen and densely pubescent; metatibiae with distal half slightly arcuate. Aedeagus (Fig. 2) 0.21 mm long, with suboval dorsal plate distinctly narrowed and frayed apically; dorsal longitudinal struts divergent. Parameres
relatively wide with very large and long recurved seta on well-developed outer lobe; apical portion of parameres prolonged laterally as short tip; apex bearing one ventral long medial seta. Copulatory pieces consisting of a pair of subequal sclerites that are rounded apically, recurved and more robust basally.

**Female:** Unknown.

**Collecting data:** The only specimen was collected in December by car netting at an elevation of 500-1000 meters.

**Distribution:** *Achilia covidia* n. sp. is only known from Puyehue National Park (Región Los Lagos: Osorno prov.) (Fig. 63: blue triangles).

**Comments:** The males of *A. covidia* n. sp. are easily distinguished from other species of the *A. cosmoptera* group by the shape of the head (Figs 44, 46, 48), antennae (Fig. 16), and aedeagus (Fig. 2).

**Etymology:** The epithet of this new species refers to the COVID-19 pandemic and the periods of quarantine during which this study was carried out by the authors.

* Achilia elfridae* Raffray, 1904

Figs 4, 23, 28, 49-51, 53, 55, 64

*Achilia elfridae* Raffray, 1904: 139, fig. 54 (head and antennae of male). – Jeannel, 1962: 426, figs 190 (head), 191 (aedeagus).

*Achilia picea* Raffray, 1904: 139. – Jeannel, 1962: 426-427 (syn. nov.).

**Type material (7 ex.):** SOUTHERN CHILE: Región Los Ríos: Valdivia Prov.: MNHN; 1 ♂ (lectotype of *A. elfridae*, here Figs 7-15. Aedeagi (7, 8, 13), their internal sacs (9-12), and profemora (14, 15) of *Achilia*. (7, 14) *A. quarantena*. (8-12, 15) *A. angularis*, specimens from Malleco, Nahuelbuta National Park. (10) *A. angularis*, type from Chillan. (13) *A. pandemica*. 

Figs 7-15. Aedeagi (7, 8, 13), their internal sacs (9-12), and profemora (14, 15) of *Achilia*. (7, 14) *A. quarantena*. (8-12, 15) *A. angularis*, specimens from Malleco, Nahuelbuta National Park. (10) *A. angularis*, type from Chillan. (13) *A. pandemica*. 


designated); labels verbatim “Lectotype / Type / Bryaxis elfridae m.; Valdivia / Museum Paris; 1917; coll. Raffray / A. elfridae; A. Raffray det.”. – MNHN; 3 ♂ and 2 ♀ (Paralectotypes of A. elfridae, here designated); labels verbatim “Paralectotype / Chili”. – MNHN; 1 ♀ (holotype of Achilia picea); labels verbatim “Type/Valdivia, var. valdiviensis; / Museum Paris; 1917; coll. Raffray/ A. picea; A. Raffray det. / picea Raff. (handwritten by Jeannel)”.

Additional material examined (67 ex.): SOUTHERN ARGENTINA: Rio Negro Prov.: MHNG; 1 ♂; El Bolsón, Topal, n. 51; 06.II.1961. – SOUTHERN AND CENTRAL CHILE: Región Los Lagos: Llanquihue Prov.: MHNG; 28 ♂; Frutillar Bajo, Universidad Chile Forest Reserve; 100 m; 22.XII.1984/02.II.1985; FIT, ravine mixed forest; S. & J. Peck. – Chiloé Prov.: MSNG; 1 ♂; Piriquina; 22.II.1991; site TC-280; T. Cekalovic. – Región Los Ríos: Valdivia Prov.: PCTS; 1 ♂; Corral, 39° 95’S 73° 20’W; 06.XII.2013; car net. – PCVB; 1 ♂ and 1 ♀; Panguipulli. – FMNH (FMHD #85-905, #85-19); 1 ♂; Curaracautín (40 km E); 1500 m; 12.XII.1984/16.II.1985; Nothofagus-Araucaria forest, malaise trap; S. & J. Peck. – MNHN; 1 ♂; E Malalcahuello, 38° 26,0’S 71° 30,2’W; 1200 m; 11.II.2018; litter near stream; S. Kurbatov. – FMNH (FMHD #2002-041); 2 ♂; Nahuelbuta National Park, E of Guardeña Pichinahuel; 37° 48.20’S 73° 01.41’W; 1290 m; 05-24.XII.2002; Araucaria-Nothofagus domebyei with Chusquea bamboo, flight intercept (windows) trap; A. Newton, M. Thayer, A. Solodovnikov; D. J. Clarke & M. Chani 1054. – Región Bio Bio: Nuble Prov.: MNHN; 3 ♂ and 7 ♀; Chillán. – MNHS; 4 ♂ and 5 ♀; Chillán; P. Germain.

Figs 16-22. Male antennae of Achilia. (16) A. covidia. (17) A. blanchardi. (18) A. bifrons. (19) A. temporalis. (20) A. pandemica. (21) A. angularis. (22) A. quarantena.
Description: Body 1.25-1.35 mm long, brown with reddish elytra, generally with darker head and sometimes also darker pronotum, some specimens brown with darker abdomen; antennae and legs reddish; palpi reddish or yellowish.

Male: Head as in Figs 51, 53, 55, wide, with occipital region slightly raised; frons flattened with enlarged and carinate sides on anterior half, and shallow triangular impression at middle; frons separated from enlarged frontal lobe by wide transverse sulcus. Antennae with scape and pedicel longer than wide; antennomere III longer than wide; remaining funicular articles slightly varying from antennomeres IV-VII slightly longer than wide to distinctly longer than wide and thinner, and from antennomere VIII wider than long to as long as wide; antennomere IX slightly wider than VIII and wider than long; antennomere X wider than long, and slightly wider than IX; antennomere XI elongate, about as long as VII-X combined. Metaventrite with deep and wide transverse sulcus on apical two-thirds, sulcus with prominent margins. First abdominal sternite slightly raised and flattened at middle (Fig. 50); remaining abdominal sternites distinctly flattened at middle. Protibiae (Fig. 23) with distal half swollen, distal third densely pubescent; mesotibiae (Fig. 28) with distal half swollen and densely pubescent. Aedeagus (Fig. 4) 0.24-0.26 mm long, with suboval dorsal plate narrowed and frayed at apex; dorsal longitudinal struts divergent. Parameres relatively wide with long recurved seta on well-developed outer lobe; apical portion of parameres prolonged laterally as long tip; apex bearing ventral medial seta. Copulatory pieces consisting of pair of subequal sclerites curved at both ends and more robust basally.

Female: Similar to male except head not modified; antennae shorter with antennomere XI shorter; metaventrite, abdominal sternites, and legs unmodified.

Collecting data: Collected from November to February in different type of forests (mixed forest, disturbed Valdivian rainforest, Nothofagus dombeyi and Saxegothea forest with Drimys, Nothophagus and Araucaria forest, Araucaria-Nothofagus dombeyi with Chusquea bamboo), at elevations ranging from 50 m to 1290 m. Some specimens come from sifted samples of leaf and log litter, but most males have been collected by flight intercept traps, window traps, car netting, and malaise traps.

Distribution: Achilia elfridae is distributed in Southern Argentina (Rio Negro Province) and Southern and Central Chile (from Llanquihue to Curicó Provinces) (Fig. 64: red circles).

Comments: Raffray (1904: 139) described Achilia elfridae based on an unspecified number of specimens from Chile, without further indication of locality, claiming to use the unpublished name attributed by Reitter to the specimens in his collection (now in Raffray’s collection). Jeannel (1962: 426-427) affirmed that the type of Achilia elfridae Raffray, 1904 collected in Valdivia was housed in the MNHN collections. In the MNHN we found in the Raffray collection a series of 6 specimens identified by Raffray as Achilia elfridae; the first specimen is a male labeled “Type / Bryaxis elfridae m.; Valdivia / Museum Paris; 1917; coll. Raffray / A. elfridae; A. Raffray det.” that we designate here as the lectotype of Achilia elfridae Raffray, 1904, and the...
remaining 5 specimens (4 males and 1 female) labeled “Chili” without further label data are designated as paratypes.

Raffray (1904: 136) described *Achilia picea* on the basis of one female that Reitter had in his collection (now in Raffray’s collection) and placed it as a variety of *Bryaxis valdiviensis* Reitter, 1883 (= *Achilia blanchardi* Raffray, 1904). According to Raffray (1904: 136) *A. picea* differs from *A. blanchardi* by having a longer head, thinner antennae, longer elytrae with denser punctures, and a darker body color. According to Jeannel (1962: 427) *A. picea* strongly resembles the females of *A. elfridae*, from which it differs only by the darker coloration, the more transverse pronotum, and the narrower lateral bulges of the frontal lobe. We examined the holotype and only known specimen of *A. picea*; it is a female which indeed has a darker body color, but is otherwise similar in all other aspects to the females of *A. elfridae*, and therefore we here place *A. picea* Raffray, 1904 as a junior synonym of *A. elfridae* Raffray, 1904 (*syn. nov*).

The males of *A. elfridae* are easily distinguished from other species of the *A. cosmoptera* group by the shape of the head (Figs 51, 53, 55), and aedeagus (Fig. 4). For characters to distinguish the females of *A. elfridae* from those of *A. cosmoptera* and *A. blanchardi* see the “Comments” section for the two latter species.

**Achilia melanocephala** Jeannel, 1963

*Fig. 64*

*Achilia melanocephala* Jeannel, 1963: 353, 367.

**Type material (1 ex.):** CENTRAL CHILE: Región O’Higgins: Cachapoal Prov.: MNHN; 1 ♯ (holotype); labels verbatim “Holotype / Palmas de Cocálan / Achillia melanocephala nov. (handwritten by Jeannel)”.

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**Figs 33-36. Achilia angularis.** Male head in (33) dorsal, (34) lateral, (35) semifrontal, and (36) frontal views. Scale bar = 200 μm.
Figs 37-42. (37, 39, 41) *Achilia bifrons*. (38, 40, 42) *A. blanchardi*. Male head in (37-38) dorsal, (39-40) lateral and (41-42) frontal views. Scale bars (200 μm) left for (37, 39, 41) and right for (38, 40, 42).
Figs 43–48. (43, 45, 47) *Achilia cosmoptera*. (44, 46, 48) *A. covidia* n. sp. Male head in (43–44) dorsal, (45–46) lateral and (47–48) frontal views. Scale bars (200 μm) left for (43, 45, 47) and right for (44, 46, 48).
Description: Male: Unknown.

Female: Body 1.40 mm long, reddish brown with darkened head and abdomen; antennae and legs reddish; palpi yellowish. Head with frons and occipital region slightly convex; frontal lobe short, separated from frons by shallow transverse sulcus. Antennae with scape and pedicel slightly longer than wide; antennomeres III-VIII wider than long; antennomere IX wider than VIII, distinctly wider than long; antennomere X wider than IX, distinctly wider than long; antennomere XI moderately elongate, shorter than VII-X combined.

Collecting data: No data available.

Distribution: Achilia melanocephala is only known from Cachapoal Province (Región O’Higgins) (Fig. 64: triangles edged in blue).

Comments: The holotype of A. melanocephala is a female very similar to those of A. angularis. However, since it was collected in a region quite distant from where A. angularis is known, we prefer at present to maintain A. melanocephala as a valid species. Its status should be reassessed once additional specimens, notably males, are available from or near the type locality.

Achilia pandemica n. sp.

Figs 13, 20, 29, 52, 54, 56, 64

Holotype: MHNG (# MHNG-ENTO-85483); 1 ♂; CENTRAL CHILE: Región Bio Bio: Concepción Prov.: Periquillo; 21.IX.1996; site TC-486; T. Cekalovic.

Paratypes (318 ex.): CENTRAL CHILE: Región Bio Bio: Concepción Prov.: NHMW; 4 ♂ and 18 ♀ (identified as Achilia elfridae.

Figs 49-50. Achilia elfridae. Left elytra and basal abdominal segment head in semilateral view (49) and left portion of basal abdominal sternites in ventral view (50). Arrows indicate bundle of long setae on lateral side of first visible abdominal sternite. Scale bar = 200 µm.
Figs 51-56. (51, 53, 55) *Achilia elfridae*. (52, 54, 56) *A. pandemica* n. sp. Male head in (51-52) dorsal, (53-54) lateral and (55-56) frontal views. Scale bars (200 μm) left for (51, 53, 55) and right for (52, 54, 56).
Figs 57-62. (57, 59, 61) *Achilia quanrantena* n. sp. (58, 60, 62) *A. temporalis*. Male head in (57-58) dorsal, (59-60) lateral and (61-62) frontal views. Scale bars (200 μm) left for (57, 59, 61) and right for (58, 60, 62).
Description: Body 1.45-1.65 mm long, entirely reddish, some specimens with slightly darkened abdomen; palpi yellowish. Male: Head as in Figs 52, 54 & 56, wide, with slightly raised occipital region and frons; frons flattened laterally with sharp and subparallel sides, separated from frontal lobe by deep and flatten narrowed transverse sulcus. Antennae (Fig. 20) with scape distinctly longer than wide; pedicel and antennomere III slightly longer than wide; antennomere IV about as long as wide; antennomeres V-VII longer than wide; antennomere VIII slightly wider than long; antennomere X distinctly wider than VIII and wider than long; antennomere XI distinctly wider than long; antennomere XII distinctly wider than long; antennomere XIII distinctly wider than long and wider than IX; antennomere XIV elongate, about as long as VII-X combined. Metaventrite with apical portion crossed on two thirds by deep and wide medial suboval impression, impression with prominent margins. First abdominal sternite slightly raised and flattened at middle; remaining abdominal sternites flattened at middle. Mesotibiae (Fig. 29) with distal half swollen and densely pubescent, with stout subapical mesal spine. Aedeagus (Fig. 13) 0.25-0.26 mm long, with ovoidal dorsal plate narrowed and frayed at apex; dorsal longitudinal struts slightly divergent. Parameres relatively wide with large and long recurved seta on well-developed outer lobe; apical portion of parameres slightly enlarged and prolonged laterally as short spine;

Fig. 63. Distribution map of the *Achilia cosmoptera* species group. (▼ blue inverted triangles) *A. bifrons*. (◆ green diamonds) *A. blanchardi*. (■ red square) *A. cosmoptera*. (▲ blue triangles) *A. covidia* n. sp.
apex bearing one ventral median seta. Copulatory pieces consisting of a pair of short subequal lateral sclerites recurved and more robust basally.

**Female:** similar to male except head not modiﬁed; antennae shorter; eyes smaller; metaventrite with shallow and narrow medial sulcus; abdominal sternites, and legs unmodiﬁed.

**Collecting data:** The label data indicate a very long collecting period from August to April.

**Distribution:** *Achilia pandemica* n. sp. occurs in Central Chile (Región Bio Bio and Región Maule) from Concepción to Curicó Provinces (Fig. 64: circles edged in green).

**Comments:** The males of *A. pandemica* n. sp. are easily distinguished from other species of the *A. cosmoptera* group by the shape of the head (Figs 52, 54, 56), and antennae (Fig. 20). The aedeagus is very similar to that of *A. temporalis*, but the shape of the parameres is distinctive. The females of *A. pandemica* n. sp. are similar to those of *A. temporalis*, from which they can be distinguished by their narrower head with the frons slightly convex and ﬂattened anteromedially (distinctly convex and not ﬂattened in *A. temporalis*), and mostly by the lateral margins of the frons being subparallel and acute with very prominent antennal tubercles (sides of frons slightly convergent, blunt and with antennal tubercles not prominent in *A. temporalis*).

**Etymology:** The epithet of this new species refers to the COVID-19 pandemic and the periods of quarantine during which this study was carried out by the authors.

*Achilia quarantena* n. sp.

Figs 7, 14, 22, 25, 31, 57, 59, 61, 64

**Holotype:** MHNG (# MHNG-ENTO-85515); 1 ♂;
CENTRAL CHILE: Región Bio Bio: Ñuble Prov.: 72 km SE Chillán, Trancas, near Termas; 1700 m; 06.XII.1984; *Nothofagus* forest litter, Berlese; S. & J. Peck.

**Paratypes (45 ex.):** CENTRAL CHILE: Región Bio Bio: Ñuble Prov.: MHNG (# MHNG-ENTO-85516 through 85524); 5 ♂ and 4 ♀; 72 km SE Chillán, Trancas, near Termas; 1700 m; 06.XII.1984; *Nothofagus* forest litter, Berlese; S. & J. Peck. – FMNH; 1 ♂ and 1 ♀; Las Trancas, 19.5 km ESE Recinto; 1250 m; site 647; 10.XII.1982/03.I.1983; *Nothofagus* forest,
flight intercept (windows) trap; A. Newton & M. Thayer. – FMNH; 1 ♀; same data but Berlese, leaf & log litter, forest floor. – FMNH (FMHD #54-65); 1 ♂; Refugio Andino, Volcán Chillán; Las Trancas; I.1954; Nothofagus forest; L. E. Peña. – FMNH; 2 ♀; Las Cabras, Cordillera de Chillán; 19-29.I.1955; L. E. Peña. – UHNC; 2 ♀; same data. – FMNH; 1 ♂; 22.7 km ESE Recinto; 1330 m; site 646; 10.XII.1982/03.I.1983; Nothofagus forest, window trap; A. Newton & M. Thayer. – FMNH; 1 ♀; same data but Berlese, leaf & log litter, forest floor. – MNHS; 1 ♀ and 1 ♂; same data. – FMNH; 14 ♀; same data but Berlese, leaf & log litter, forest floor, vouchers associated with larvae. – MHNG (# MHNG-ENTO-85525 through 85527); 3 ♀; same data. – MNHS; 2 ♀; same data.

Description: Body 1.45-1.60 mm long, reddish brown with darkened head and abdomen; antennae and legs reddish; palpi yellowish.

Male: Head as in Figs 57, 59 & 61, subrectangular with slightly convex occipital region and frons, lateral portion of the latter slightly flattened; frons and frontal lobe punctate, both separated by shallow transverse sulcus; temporal angles prolonged in long spiniform process directed upwards. Antenna (Fig. 22) with scape and pedicel distinctly longer than wide; antennomeres III-VIII wider than long; antennomere IX wider than VIII, slightly wider than long; antennomere X about as wide as IX, longer than wide; antennomeres IX and X bearing some tubercles, their mediodistal margin with three prominent tubercles each bearing thin recurved seta; antennomere XI moderately elongate, shorter than IX-X combined, its surface bearing some tubercles. Metaventrite with very shallow ovoidal medial impression on basal third. Profemora (Fig. 14) enlarged with some long seta on ventral margin; protibiae (Fig. 25) with distal third swollen and densely pubescent; mesotibiae (Fig. 31) with distal half slightly swollen and ending as very short apical spine, with group of dense short setae on basal third of medial margin; metatibiae sinuate and slightly arcuate on basal half. Aedeagus (Fig. 7) 0.22-0.23 mm long, with subrectangular dorsal plate; dorsal longitudinal struts divergent. Parameres relatively wide with one seta on very short outer lobe; apical portion of parameres recurved backwards, bearing one ventral median seta. Copulatory pieces consisting of two subequal sclerites recurved, more robust at base, and apically pointed; these sclerites associated with two large lateral sclerites apically forming four or five spines.

Female: Similar to male except head not modified; antennae shorter with unmodified club; eyes smaller; metaventrite slightly flattened near posterior margin; legs unmodified.

Collecting data: Collected from December to January in Nothofagus forest at elevations ranging from 1200 m to 1700 m. The specimens come from sifted samples of leaf and log litter, but many males have also been collected by flight intercept and window traps.

Distribution: Achilia quarantena n. sp. is known from Central Chile from the Bio Bio Región in Nuble Province (Fig. 64: fuchsia stars).

Comments: The males of A. quarantena n. sp. are easily distinguished from other species of the A. cosmoptera group by the shape of the head (Figs 57, 59, 61), the peculiar morphology of the antennae (Fig. 22) and aedeagus (Fig. 7). Females of A. quarantena n. sp. are similar to those of A. angularis, from which they can be distinguished by the convergent anterior sides of the head (subparallel in A. angularis), the flattened frons and occipital region (slightly convex for A. angularis), and the antennae distinctly longer (0.34-0.35 mm for A. quarantena vs. 0.30-0.31 mm for A. angularis).

Etymology: The epithet of this new species refers to the COVID-19 pandemic and the periods of quarantine during which this study was carried out by the authors.

Achilia temporalis Jeannel, 1962

Figs 6, 19, 58, 60, 62, 64

Achilia temporalis Jeannel,1962: 426, 427, fig. 200 (aedeagus). Achilia caneloi Franz, 1996: 122 (syn. nov.).

Type material (5 ex.): CENTRAL CHILE: Región Valparaíso: Quillota Prov.: MHNS; 1 ♂ (Holotype of A. temporalis) labels verbatim “Holotype / Quillota; P. Germain / Achilia temporalis / temporalis (handwritten by Jeannel) / CHILE, M.N.H.N., Typo, n. 1853”. – MNHN, 1 ♂ (Paratype of A. temporalis); labels verbatim “Paratype / Quillota, Germain; IV.1898 / temporalis (handwritten by Jeannel)”. – MNHN, 1 ♀ and 1 ♀ (Paratypes of A. temporalis); labels verbatim “Paratype / Quillota, Germain”. – Región Coquimbo: Choapa Prov.: NHMW; 1 ♀ (Holotype of A. caneloi); labels verbatim “Holotype / Bosque de Canelo; nordl. Los Vilos; Chile; H. Franz / Achilia caneloi m. (handwritten by Franz)”.

Additional material examined (91 ex.): CENTRAL CHILE: Región Valparaíso: Quillota Prov.: MHNS; 2 ♀ (mislabeled as paratype of Achilia temporalis n. 2078 but there are two specimens on the same pin); Quillota; P. Germain. – Petorca Prov.: MHNS; 1 ♂ and 1 ♀ (mislabeled as paratype of Achilia temporalis n. 1854 but there are two specimens on the same pin); Zapallar; 20.3.I.1954; G. Kuschel. – Valparaíso Prov.: MHNG; 1 ♂; Bosque de Quintero; 1963; H. Franz. – NHMW; 1 ♂ (identified as A. bifrons); same data. – MHNS; 1 ♀; same locality; II.1968; J. Solervicens. – San Antonio Prov.: MHNS; 1 ♂ (identified as A. elfridae); Algarrobo; 21.VII.1951; G. Kuschel & L. E. Peña. – Región Coquimbo: Prov. Choapa: MHNG; 2 ♂; Hda Illapel; 600 m; 16.XI.1954; L. E. Peña. – FMNH (FMHD #54-66); 2 ♂; El Bato, Illapel, Coquimbo; 600 m; X.1954; L. E. Peña. – FMNH, 2 ♂ and 2 ♀; El Bato, Illapel Coquimbo; V-VI.1960; L. E. Peña. – NHMW; 1 ♂ (identified as A. bifrons); Quebrada La Palma, Hacienda La Palma, S of
Description: Body 1.55-1.85 mm long, generally entirely reddish with slightly darkened abdomen, some specimens darker; palpi yellowish.

Male: Head as in Figs 58, 60 & 62, very wide, with slightly raised occipital region and frons, the latter flattened laterally with enlarged and sharp lateral margins, and crossed by transverse wide U-shaped sulcus originating posterior to antennal tubercles; frontal lobe very large and slightly convex, punctate and with slight medial carina separated from frons by prominent ridge angled posteriorly at middle. Antennae (Fig. 19) with scape and pedicel longer than wide; antennomeres III-VII about as long as wide; antennomere VIII wider than long; antennomere IX slightly wider than VIII and slightly wider than long; antennomere X distinctly wider than long and wider than IX; antennomere XI moderately elongate, about as long as VII-X combined. Metaventrite with deep and wide transverse sulcus on apical two-thirds, sulcus with prominent margins. First abdominal sternite slightly raised and flattened at middle; remaining abdominal sternites flattened at middle. Mesotibiae with distal half swollen and densely pubescent. Aedeagus (Fig. 6) 0.265-0.275 mm long, with ovoidal dorsal plate narrowed apically; dorsal longitudinal struts slightly divergent. Parameres relatively wide with very large and long recurved seta on well-developed outer lobe; apical portion of parameres slightly enlarged, prolonged laterally as short spine; apex bearing two long ventral medial setae. Copulatory pieces consisting of pair of subequal and slightly medially separated parameres, and legs unmodified.

Female: Similar to male except head not modified; antennae shorter; eyes smaller; metaventrite, abdominal sternites, and legs unmodified.

Collecting data: The label data indicate a very long collecting period from November to July.

Distribution: Achilia temporalis occurs in Central Chile (Región Valparaíso and Región Coquimbo) from San Antonio to Choapa Provinces (Fig. 64: green squares).

Comments: We have examined the holotype of A. caneloi Franz, 1996. Despite its missing abdomen (lost by Franz) we identified it as a female (and not a male as stated by Franz) of A. temporalis, and consequently place A. caneloi Franz, 1996 as a junior synonym of A. temporalis Jeannel, 1962 (syn. nov.). The males of A. temporalis are easily distinguished from other species of the A. cosmoptera group by the shape of the head (Figs 58, 60, 62), antennae (Fig. 19) and aedeagus (Fig. 6). For characters to distinguish the females of A. temporalis from those of A. bifrons see the “Comments” section of the latter species.

Species removed from the Achilia cosmoptera species group

Achilia andina Franz, 1996

Achilia andina Franz, 1996: 119, fig. 70 (aedeagus).

Comments: We have examined the holotype and paratypes of this species, which are housed in the NHMW. In our opinion Achilia andina is very similar to members of the genus Pseudachillia Jeannel, 1964. However we decided to investigate in more detail the identity and generic assignment of this taxon in a forthcoming study dealing with the members of Pseudachillia.

Achilia maipoensis Franz, 1996

Achilia maipoensis Franz, 1996: 119, fig. 71 (aedeagus).

Comments: We have examined the holotype and paratypes of this species, which are housed in the NHMW. In our opinion Achilia maipoensis is very similar to members of the genus Pseudachillia Jeannel, 1964. However we decided to investigate in more detail the identity and generic assignment of this taxon in a forthcoming study dealing with the members of Pseudachillia.

Achilia pseudangularis Franz, 1996

Achilia pseudangularis Franz, 1996: 118 fig. 68 (aedeagus).

Comments: We have examined the holotype of A. pseudangularis housed in the NHMW. It is a female of an Achilia sp. that is not dissected but is mounted on the same pin as a polyvinyl acetate slide bearing a microscopical preparation of an aedeagus that is very similar to that of species of the genus Achillidia Jeannel, 1962. According to Franz (1996: 188, fig. 68) the holotype of A. pseudangularis is a male, and the aedeagus he figured corresponds to that in the microscopical preparation. So we selected the mounted aedeagus as being the holotype and, based on its observation, remove the species from the cosmoptera species group. However we decided to investigate in more detail the identity and generic assignment of this taxon in a forthcoming study dealing with the members of Achillidia.
Achillidia quinteroi Franz, 1966

Achillidia quinteroi Franz, 1996: 118, fig. 69 (aedeagus).

Comments: We have examined the holotype and the paratype of this species, which are housed in the NHMW. In our opinion A. quinteroi is very similar to the members of the genus Achillidia Jeannel, 1962. However we decided to investigate in more detail the identity and generic assignment of this taxon in a forthcoming study dealing with the members of Achillidia.

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