

**Revision of the South American wasp genus *Alophophion* Cushman, 1947 (Hymenoptera:
Ichneumonidae: Ophioninae)**

BY

MABEL ALVARADO GUTIERREZ

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Chairperson: Caroline S. Chaboo

Michael Engel

Kirsten Jensen

Date approved: Monday,
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The Thesis Committee for MABEL ALVARADO
GUTIERREZ certifies that this is the approved version of the
following thesis:

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ABSTRACT

The species of the strictly Neotropical ophionine wasp genus *Alophophion* Cushman, 1947 are revised. New descriptions of all previously named species are provided, except *Alophophion holosericeus* (Taschenberg, 1875) for which the type series is lost and the name is herein considered a *nomen dubium*. The female of *A. flavorufus* is described for the first time. Four informal species groups are proposed based on the morphology of the mandibles, development of the malar space, and general proportions of the head (*i.e.*, development of the face and gena). Whereas the genus previously included only seven named species, it is here expanded to include 44 species (not including the aforementioned *nomen dubium*), 38 of which are newly discovered and described and thereby increasing the diversity by over seven times. *Alophophion* now includes the following species groups and species: species-group A [*A. new species 1*, *A. new species 2*, *A. new species 3*, *A. new species 4*, *A. new species 5*, *A. new species 6*, *A. new species 7*, *A. new species 8*, *A. new species 9*, *A. new species 10*, *A. new species 11*, *A. new species 12*, *A. new species 13*, *A. new species 14*, *A. new species 15*, *A. new species 16*, *A. new species 17*], species-group B [*A. filicornis* (Morley, 1912), *A. flavorufus* (Brullé, 1846), *A. politus* (Morley, 1912), *A. new species 18*, *A. new species 19*, *A. new species 20*], species-group C [*A. chilensis* (Spinola, 1851), *A. porculatus* (Morley, 1912) and *A. larseni* (Enderlein, 1912), *A. new species 21*, *A. new species 22*, *A. new species 23*, *A. new species 24*, *A. new species 25*, *A. new species 26*, *A. new species 27*, *A. new species 28*, *A. new species 29*, *A. new species 30*, *A. new species 31*, *A. new species 32*, *A. new species 33*, *A. new species 34*, *A. new species 35*, *A. new species 36*], and species-group D [*A. new species 37*, *A. new species 38*]. A key to the four species groups and their included species is provided. *Alophophion* is confined to cold and/or dry areas of subequatorial South America, with a sole exception of *Alophophion new species 1* which occurs in Marcapara, Peru. The genus is newly recorded from Bolivia and Ecuador, and more extensive and accurate distributions are summarized for *A. chilensis*, *A. flavorufus*, and *A. politus*. *Alophophion flavorufus* is newly recorded from Argentina.

Key Words

Ichneumonoidea, taxonomy, new species, parasitoid, Euhymenoptera, neotropical

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INTRODUCTION

Alophophion Cushman is an endemic South American genus of parasitoid wasps in the diverse ichneumonid subfamily Ophioninae (Gauld & Lanfranco 1987). Currently comprising seven species distributed in Argentina, Brazil, Chile, and the Falkland Islands (Yu & Horstmann 1997), the genus is also known to include numerous undescribed species including several in the Andean region such as Peru and Ecuador (e.g., Gauld 1985, Gauld & Lanfranco 1987, Alvarado *et al.* 2010). Species of *Alophophion* are not rare and can be found throughout South America. Even though it has been known that there are at least 30 species in the genus (e.g., Gauld 1985, Gauld & Lanfranco 1987, Baudino 2005) no new species has been described formally during its 66-year history. Cushman (1947) established the genus by removing its type species from *Ophion* Fabricius, and Townes & Townes (1966) did the same by removing additional species from the latter genus and moving them to *Alophophion* without naming any additional taxa. Thus, despite a steady accumulation of new species the systematics of the group has only become more and more challenging given the lack of any taxonomic action to address the circumscription of the genus and identification of its included units.

Gauld (1980, 1985) proposed the following characters to support the putative monophyly of *Alophophion*: complete absence of the occipital carina; R_{s+2r} joining the pterostigma near the its midpoint; the first subdiscal cell stouter than is typical for other ophionine genera; and the ramulus, when present, is directed more anteriorly than that of other ophionines (Gauld 1980, 1985). These have never been tested in a formal cladistic analysis. Nonetheless, monophyly of the genus seems solid, particularly in relation to genera such as *Ophion* Fabricius which are undoubtedly holding genera for taxa not readily placed elsewhere (Gauld 1985). The proper classification of the numerous species presently placed within *Ophion* remains one of the more complicated and long-standing challenges for the systematics of the subfamily.

The aim of the present paper is to clearly delineate the genus, redescribe the currently recognized species, and add the description of 38 new species. As will be discussed more below, resolving such taxonomic issues surrounding the biodiversity of *Alophophion* will also provide a solid basis for future biological investigation which is critical given the apparent importance of these wasps as biological control agents of critical crop pests (e.g., cutworms on alfalfa). This monograph will permit for the first time a more accurate perspective on the species and

morphological diversity within *Alophophion*, a finer understanding of their distribution and ecological preferences, and allow for their identification by biologists and agronomists interested in further study of these wasps.

MATERIALS AND METHODS

The present study was based on examination of 919 specimens of *Alophophion* and housed in the following institutions and curators:

AEIC American Entomological Institute, Gainesville, Florida, USA (David Wahl)

BMNH Natural History Museum, London, England (Gavin Broad)

MNHN Muséum national d'histoire naturelle, Paris, France (Claire Villemant)

MLP Museo de La Plata, Argentina (Marta Loiacono)

MUSM San Marcos Natural History Museum, Peru (Gerardo Lamas)

SEMC Snow Entomological Museum Collection, Kansas, USA (Michael Engel)

UCDC Bohart Museum of Entomology, University of California, California, USA (Steve Heydon).

USNM United States National Museum, Washington D.C., USA (Robert Kula)

All of the descriptions were based of females, while information from males was provided only if they were confidently associated with females.

Large portions of the specimens studied where collected in Peru and from the following localities:

- **Wildlife Refuge “Bosques Nublados de Udimá”** is located between the basins of the Rio Zana and Chancay-Lambayeque Rivers; between the departments of Cajamarca and Lambayeque. It has a unique environment including montane cloud forests on the western slopes of the Peruvian Andes and associated ecosystems, such as dry forests and puna grasslands (SERNANP 2011). Three expeditions were conducted, the first during April 2009 at the following elevations: 1615m, 2150m, and 2841m; the second was during October 2009 at elevations of 1195m, 1615m, 2150m, and 2841m; and the last was in May 2010 at

elevations of 1232m, 1615m, 2150m, 2841m, and 3116m. At each locality 15 hours of clear light traps were used.

- The *Polylepis* forest located in **Chaviña District**, Lucanas Province, Ayacucho Department, between 4000m and 4200m Species of *Polylepis* Ruiz & Pav. (Rosaceae) are rosaceous shrubs or trees native to the mid- and high-elevation tropical Andes (Simpson 1979). The expedition was conducted in April 2010 and the following collecting methods were used: two malaise traps and four yellow pan traps working during five days; 10 pitfall traps during three days; and light traps during 12 hours.

Measurements and morphological terminology

The morphological terminology adopted in this work broadly follows Gauld & Mitchell (1981) and Gauld (1988). Indices used by Gauld & Mitchell (1981) were also followed, but some are further explained below. The following measurements were realized as suggested by Gauld & Mitchell (1981): the width of the face is the minimum distance between the compound eyes, and its height is the median vertical distance from the clypeal margin to the facial tubercle. The head in lateral view is measured perpendicularly to the torulus. Malar space is measured as the shortest distance between a point just above the anterior dorsal margin of the mandible and the compound eye. The indices for wing used are cubital index of fore wing (CI), intercubital index (ICI), second discoidal index (SDI) and nervellar index of hind wing (NI). The propodeal anterior area and posterior to the anterior transverse carina are referred respectively as propodeum anterior area and propodeum posterior area (Gauld & Mitchell, 1981). The measurement of the flagellomeres were done in lateral view, the width of each was measured at its individual apex. The ventral face of the mesopleuron is described as “mesosternum” (Bennett 2008). Selected terms from Townes (1969) were used.

For the purpose of indicating the level of accuracy, ratios are expressed to the nearest tenth and represent estimated values. Integumental sculpture terminology follows Harris (1979).

Imaging

Photomicrographs were prepared using a Canon 7D digital camera attached to an Infinity K-2 long-distance microscopic lens. Digital photos were combined by using the program CombineZP. Plates were prepared using Adobe Fotoshop and Illustrator CS3.

TAXONOMY

Genus *Alophophion* Cushman

Alophophion Cushman, 1947: 439. Type species: *Ophion chilensis* Spinola, 1851, by original designation.

Diagnosis. This lineage is characterized by the following putative apomorphies: occipital carina entirely absent (Fig. 2); $Rs+2r$ joining pterostigma near center (Fig. 1); first subdiscal cell stouter than normal; ramulus, when present, directed more anteriorly than that of other ophionines (Gauld 1980, 1985).

Description (modified from Gauld 1985). **Head.** Mandibles not twisted, weakly narrowed apically, subequally bidentate; outer mandibular surface flat, usually punctate and hirsute; upper mandibular surface generally slightly convex or concave, with or without a diagonal groove extending from upper corner to middle of mandible.. Maxillary palp 5-segmented, labial palp 4-segmented. Margin of clypeus often impressed, sometimes very narrowly so. Ocelli generally large, posterior (lateral) ocelli close to compound eyes; frontal carina absent; occipital carina absent.

Mesosoma. Pronotum unspecialized or mediodorsally somewhat flattened and quite long; spiracle longer than wide; spiracular sclerite exposed. Notauli present on anterior part of mesoscutum. Epicnemial carina generally strong. Mesopleural furrow varying in length, from absent to reaching the lower-posterior end of mesopleuron; diagonal, extending from episternal scrobe to near subalar prominence. Mesoscutellum very weakly convex, usually narrow and not carinate laterally. Posterior transverse carina of mesosternum absent except for lateral vestiges (Fig. 3). Propodeum with anterior area occluded, transverse and often lateromedian longitudinal carinae discernible, sometimes complete; posterior area smooth, rugulose or carinate. Fore wing with pterostigma broad; marginal cell long; $Rs+2r$ slender, curved near proximal 0.3x before joining pterostigma near center; discosubmarginal cell with glabrous area anterior; $1m-cu$ generally centrally angled, sometimes with a short ramulus which is directed more anteriorly than that of *Ophion*. Hind wing with Rs curved. Protibial spur with a membranous flange behind macrotrichial comb; meso- and metatrochantelli unspecialized; inner metatibial spur flattened, with a margin of long close setae; metapretarsal claws unspecialized; inner surface of tarsi with a margin of long close setae.

Metasoma. Gaster moderately slender; tergite II in profile elongate, thyridium oval, separated from anterior margin of tergite by its own length or less; umbo distinct; epipleuron up-turned. Ovipositor sheath narrow.

Comments.

- **Genus diagnosis remarks**

The upper mandibular surface is described; the presence of a diagonal groove on the mandible is newly described for the genus. The description of the mesopleural furrow is included.

The genus currently contains seven species, while here are presented 38 putative new species. Four informal species groups are proposed on the basis of their morphology, supported by the presence/absence and degree of development of a diagonal groove on the mandible, size of the compound eyes in relation to the face, coloration, and facial and genal proportions.

- **Key to Species-groups of *Alophophion***

- 1 Mandibles with a diagonal groove extending from upper corner to middle of mandible, groove bears long setae (Figs. 4, 5) **Species-group B**
- Mandibles without a groove in upper surface (Figs. 10, 11); if there is a concavity basally, them bears small setae (Figs. 6–9) 2
- 2 Malar space 0.4–0.8x as long as basal width of mandible; body bright yellow with reddish or black spots; diurnal activity **Species-group D**
- Malar space 0.1–0.3x as long as basal width of mandible; body brownish, olive green, or light straw yellow; nocturnal activity 3
- 3 Face generally long, at least 1x as long as wide (Figs. 12–28); compound eyes at least 0.8x as wide as facial width; head, in lateral view, with gena 0.3–0.5x as wide as compound eyes (Figs. 29–45) **Species-group A**
- Face at least 1.0x as wide as long (Figs. 111–129); compound eyes at most 0.6x as wide as facial width; head, in lateral view, with gena at least 0.7x as wide as compound eyes (Figs. 130–148) **Species-group C**

- **Biology**

Ophionines are solitary koinobiont endoparasitoids of the caterpillars of many conspicuous larger Lepidoptera (Fernandez-Triana 2005, Gauld 1985, Gauld & Lanfranco 1987, Townes 1971). The parasitoid egg is apparently free in the host's haemocoel where it hatches to produce a caudate first instar larva; species attacking mature larvae undergo rapid development, but taxa that oviposit in very young larvae have a protracted first larval instar. The parasitoid larva completes development just prior to host-pupation, often after the host has constructed a cocoon. The ichneumonid larva spins a characteristic fibrous, ovoid cocoon which is generally dark brown with a pale equatorial band. Species may remain as mature larvae or even adults inside this cocoon for the greater part of the year in seasonal habitats (Gauld 1985).

Alophophion have been recovered from Noctuidae (Baudino 2005, Gauld & Lanfranco 1987). Baudino (2005) recovered species from larvae of the cutworms *Agrotis malefida* (Guenée), *Feltia gypaetina* (Guenée), and *Peridroma saucia* (Hübner) feeding on *Medicago sativa* L. (Fabaceae) during a survey conducted over four years (1999–2002) in La Pampa Province, Argentina. *Alophophion* was responsible for 80% of the parasitoidism of these cutworms, indicating them as potentially critical biological control agents. Pupal formation occurred between 18 September and 28 November of each year of sampling, and adults emerged between 5 May and 4 August the year after cocoon formation; the average date of adult emergence was 12 June. The period between adult emergences averaged 222.7 days (about 7 months), meaning that once the cocoon is formed, and the larva remains in diapause until early winter of the following year, so that emerging adults coincide with the birth of cutworms. *Alophophion larseni* (Enderlein, 1912) was recovered from an undetermined noctuid (Gauld & Lanfranco 1987).

Gauld & Lanfranco (1987) mentioned that *Alophophion* occurs in South America south of the equator and in cooler areas partially replaces *Ophion*, a cosmopolitan genus; that *Alophophion* is most diverse in southern Chile and Patagonia. *Alophophion larseni* (Enderlein, 1912) is the only ophionine present in the Falkland Islands (Yu & Horstmann 1997, Gauld & Lanfranco 1987).

Most Ophionines, including *Alophophion*, are crepuscular or nocturnal and frequently come to light at night in large numbers (Gauld & Carter 1983). They may be collected using light

traps which makes them particularly suitable for zoogeographic and ecological study; and large samples may be collected in terrain where sweep netting and Malaise traps yield poor results, or, as in the case of the rainforest canopy, where collections can only be achieved by cumbersome, expensive, and (for fast-flying insects) unproven techniques (Gauld 1985).

- **Taxonomic History**

Cushman (1947) proposed *Alophophion* on the basis of the lack of the occipital carina, a character that barely warranted generic distinction from *Ophion* and commented that "... several species before me, all from South America, present such uniformity of structure as to form a compact group more conveniently treated here as a genus". He designated *Ophion chilensis* Spinola, 1851 as the type species but did not formally transfer any other species into *Alophophion* thereby leaving it monotypic for the time.

Townes & Townes (1966) transferred *O. filicornis* (Morley, 1912), *O. flavorufus* (Brullé, 1846), *O. holosericeus* (Taschenberg, 1875), *O. politus* (Morley, 1912), *O. porculatus* (Morley, 1912), and *O. larseni* (Enderlein, 1912) to *Alophophion*. It is unclear whether some or all of these species were those already mentioned by Cushman (1947) when he wrote, "... several species before me..."

Townes (1971) proposed two tribes in Ophioninae, the Ophionini and Enicospilini. *Alophophion* was included in Ophionini, a group that was distinguished by the protibial spur with a longitudinal comb of short bristles on its front side, and on its hind side a longitudinal membranous scraper, the scraper similar in shape to the comb and parallel to it; protibial spur a little thicker than in the Enicospilini; and second tergite usually with a median triangular or semi-triangular raised area at the base that is bounded by a weak impression. He re-described *Alophophion* and mentioned that it occurs in South America and Falkland Islands and that it was a large genus despite including only seven described species.

Gauld (1980) did an analysis of the classification of the *Ophion* genus-group, he disagreed with Cushman (1947) that *Alophophion* scarcely warranted generic distinction from *Ophion* and despite the fact that *Alophophion* was undoubtedly close to *Ophion*, the combination of characters exhibited by this group separated it well from *Ophion*. Gauld did not consider the tribes proposed by Townes (1971) because he considered that the tribe Enicospilini was a heterogeneous assemblage of potentially unrelated genera. He also mentioned that *Alophophion*

occurs in southern South America from Ecuador to the Falkland Islands and that it may potentially comprise about 30 species.

Gauld & Lanfranco (1987) provided a key for genera occurring in South America, and suggested that *Alophophion* was not present north of 25°S latitude and in cooler areas was partially replacing *Ophionin* such regions. Additionally, they noted that the genus was more diverse in the south part of Chile and Patagonia and that *Alophophion* was the only lineage of ophionines collected in the Falkland Island (Islas Malvinas). These authors also proposed that *A. occidentalis* should be considered as a synonym of *A. larseni*.

- **Relationships to other genera**

Gauld (1985) made the first attempt to reconstruct the phylogeny of the genera of the Ophioninae using both parsimony and compatibility methods of analysis. He recognized within Ophioninae five major evolutionary lineages as the *Ophion*, *Sicophion*, *Eremotylus*, *Thyreodon*, and *Enicospilus* genus-groups for thirty-two genera and a scenario for the possible evolution of the subfamily was suggested. The *Ophion* group contained seven genera: *Afrophion* Gauld, *Agathophiona* Westwood, *Alophophion*, *Xylophion* Gauld, *Sclerophion* Gauld, *Rhopalophion* Seyrig, and *Ophion*. According to Gauld (1985) *Ophion* is apparently a paraphyletic stem-group from which all other genera in this group have arisen, and the genus was primarily a Holarctic taxon, originating in the temperate north. It is probable that at some period it was present in most regions and has gradually disappeared from equatorial regions leaving isolated relicts in South Africa (*Afrophion*), Australia (*Xylophion*), Madagascar (*Rhopalophion*), and Patagonia (*Alophophion*). The possibility that there has been repeated expansion into and extinction within the tropics is suggested by the presence of some groups of species of *Ophion* on isolated mountains in Southeast Asia, New Guinea, and South America, and by the occurrence of distinctive *Ophion* species-complexes in Australia and New Zealand (Gauld 1985). Obviously, if this scenario is correct, then *Ophion* s.str. requires a comprehensive and rigorous phylogenetic analysis and eventual division into monophyletic genera. Quicke *et al.* (2009) analyzed the internal phylogeny of the Ichneumonidae and found scant evidence for the *Thyreodon* genus group of Gauld (1985), though these taxa did tend to form a grade in the combined morphological and molecular trees leading to a clade comprising *Ophion*, *Alophophion*, *Afrophion*, *Xylophion*, and *Rhopalophion*, and various additional genera in their gaps-

informative tree. Unfortunately, their study was not specifically designed to fully resolve internal relationships within Ophioninae and this remains an area for critical investigation.

Species-group A

Diagnosis. Face long, at least 1x as long as wide; compound eyes at least 0.8x as wide as face; head, in lateral view, with gena 0.3–0.4x as wide as compound eyes (Figs. 30–45), exceptionally 0.5x in *A. new species 1* (Fig. 29). Lateral ocellus separated from compound eye by usually less than 0.2x ocellar diameter (Figs. 46–49), exceptionally 0.3x in *A. new species 5*. Compound eyes and ocelli, in relation to vertex, larger than in other species groups. Upper margin of mandibles with a small concavity at base, glabrous in lateral edge; bearing small setae (Fig. 9), concavity longer in *A. new species 10* (Fig. 8) and *A. new species 11* but not reaching external surface of mandibles. Notaulus reaching to 0.4x of distance to posterior margin of mesoscutum, exceptionally reaching to 0.6x in *A. new species 17*. Color yellowish, brownish, some species brownish with cream or yellowish spots.

Included species. Seventeen species are presently included in this species-group, all of which are newly described: *A. new species 1*, *A. new species 2*, *A. new species 3*, *A. new species 4*, *A. new species 5*, *A. new species 6*, *A. new species 7*, *A. new species 8*, *A. new species 9*, *A. new species 10*, *A. new species 11*, *A. new species 12*, *A. new species 13*, *A. new species 14*, *A. new species 15*, *A. new species 16*, and *A. new species 17*.

Comments. Most of the species of species-group A are distributed along the western slopes of the Andes with the exception of *A. new species 2* and *A. new species 12* that occur in Brazil and Argentina and *A. new species 1* which is distributed on the eastern slopes of the Andes of Peru.

Key to species of species-group A

- 1 Mesopleuron furrow absent (Figs. 50–57) 2
- Mesopleural furrow present (Figs. 58–64), projecting from upper epicnemial carina to posterior-lower end of mesopleuron, sometimes short, not reaching middle of mesopleuron 11
- 2 Propodeum without transverse carinae; hind wing with 9 hamuli on R1 distally; gena 0.5x as wide as compound eyes in lateral view (Fig. 29) *Alophophion new species 1*

- Propodeum with transverse carinae; hind wing with 6–8 hamuli on R1 distally; gena at most 0.4x wide as compound eyes in lateral view (Fig. 30–45) 3
- 3 Lateral ocelli almost in contact with compound eyes, separated from compound eyes by less than 0.1x maximum diameter of lateral ocelli (Fig. 46) ***Alophophion* new species 2**
- Lateral ocelli separated from compound eyes by at least 0.1x as maximum diameter of posterior ocelli (Fig. 48–49)..... 4
- 4 Epicnemial carina oval in a lateral view (Fig. 51); metasomal tergite light straw yellow with a brownish spot apically ***Alophophion* new species 3**
- Epicnemial carina forming an angle or strongly curved between mesopleuron and mesosternum (Figs. 50, 52–57); metasomal tergite with a single color 5
- 5 Posterior transverse carina faintly indicated centrally; area superomedia+ dentipara with longitudinal striate sculpture (Fig. 75) ***Alophophion* new species 4**
- Posterior transverse carina well defined (Figs. 76–82); area superomedia discernible and smooth 6
- 6 Lateromedian longitudinal carinae behind posterior transverse carinae separated, sometimes faint; area petiolaris present (Figs. 76–78)7
- Lateromedian longitudinal carinae behind posterior transverse carinae confluent; area petiolaris absent (Figs.79–81) 9
- 7 Marginal cell of fore wing with a glabrous area next to Rs+2r and cover by setae next to pterostigma (Fig. 84) ***Alophophion* new species 5**
- Marginal cell of fore wing with a glabrous area next to Rs+2r and pterostigma (Fig. 85) ... 8
- 8 Compound eyes 0.7–0.8x as wide as face (Fig. 14); metasoma with tergite II with spiracle located at 0.6x length of tergite ***Alophophion* new species 6**
- Compound eyes 1.0x as wide as face (Fig. 18); metasoma with tergite II with spiracle located at 0.5x length of tergite ***Alophophion* new species 7**
- 9 Compound eyes 1.0x as wide as face (Fig. 19); mesopleuron brownish red with cream colored spots ***Alophophion* new species 8**
- Compound eyes 0.8–0.9x as wide as face (Figs. 17, 28); mesopleuron homogeneously fulvous with or without few yellow spot 10

10	Lateral longitudinal carinae present and well defined between transverse carinae	<i>Alophophion</i> new species 9
–	Lateral longitudinal carinae faint between transverse carinae	<i>Alophophion</i> new species 10 (in part)
11	Carinae on propodeum developed as laminae (Figs. 81–82)	12
–	Carinae on propodeum not lamellate, sometime faint (Figs. 66–69)	13
12	Metapleuron with rugulose texture (Fig. 59)	<i>Alophophion</i> new species 11
–	Metapleuron generally smooth between punctures (Fig. 58)	<i>Alophophion</i> new species 10 (in part)
13	Lower edge of speculum scrobiculate (Fig. 60); lateral ocelli almost in contact with compound eyes (Fig. 47)	<i>Alophophion</i> new species 12
–	Lower edge of speculum smooth between punctures or/ and smooth; lateral ocelli separated from compound eyes by at least 0.1x maximum diameter of lateral ocelli (Figs. 48–49)...	14
14	Juxtacoxal carina present (Fig. 61)	<i>Alophophion</i> new species 13
–	Juxtacoxal carina absent	15
15	Metapleuron with granulo-striate or softly scrobiculate texture over entire surface or only on apical half (Figs. 62–63)	16
–	Metapleuron homogeneously punctate	17
16	Gena, in lateral view (Fig. 41), 0.3x as wide as compound eyes; habitus fulvous to light straw yellow	<i>Alophophion</i> new species 14
–	Gena, in lateral view (Fig. 42), 0.2x as wide as compound eyes; habitus reddish brown with cream spots	<i>Alophophion</i> new species 15
17	Mesopleuron with coriarius texture between punctures, except speculum smooth between punctures; predominately fulvous	<i>Alophophion</i> new species 16
–	Mesopleuron with smooth texture between punctures; predominantly reddish brown	<i>Alophophion</i> new species 17

***Alophophion* new species 1**

(Figs. 12, 29, 72, 83)

Diagnosis. This species is easy to recognize by its entirely yellow face; fore wing R_{s+2r} markedly sinuous just before the center of vein; and the hind wing with 9 hamuli on R_1 distally.

Description. ♀: **Head.** Face (Fig. 12) 1.0 x as wide as long; coarsely punctate, coriarius texture between punctures; median portion weakly convex. Clypeus convex; coarsely punctate, coriarius texture between punctures; apical edge straight centrally, slightly convex laterally. Compound eyes 0.8x as wide as face. Malar space 0.1x as long as basal width of mandible. Gena, in lateral view (Fig. 29), 0.5x as wide as compound eyes, coriarius texture between punctures. Frons coriarius, slightly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.1x ocellar diameter; distance between ocelli 0.3x ocellar diameter. Antenna with 56 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.1:2.3:2.1:2.0:1.9:1.8:1.7. Ratio of length/width of pre-apical flagellomeres: 2.7x.

Mesosoma. Pronotum in upper half punctate, coriarius between punctures; collar striate. Mesoscutum punctate, coriarius between punctures. Notaulus reaching to 1/3 distance to posterior margin of mesoscutum, rugulose basally. Mesoscutellum evenly convex, coriarius texture between punctures; lateral carina reaching 0.4x to posterior margin of mesoscutellum. Mesopleuron punctate, coriarius between punctures; mesopleural furrow absent. Epicnemial carina not curved to meet anterior margin of mesopleuron, reaching about lower third of pronotum. Metapleuron punctate, coriarius between punctures. Fore wing with $CI=0.5$; $ICI=0.9$; $SDI=1.2$; $1m-cu$ straight; ramulus present; R_{s+M} curved; R_{s+2r} markedly sinuous just before center of vein; marginal cell with a glabrous area next to R_{s+2r} ; sub-basal cell glabrous with a row of setae next to $M+Cu$. Hind wing with 9 hamuli on R_1 distally; $NI=1.1$; $cu-a$ slightly curved. Propodeum (Fig. 72) with transverse carinae absent; longitudinal carinae present only apically; coriarius texture between punctures; pleural carina absent.

Metasoma. First tergite 4.0x as long as apical width. Tergite II with spiracle located at 0.6x length of tergite.

Color. Fulvous except following: face, gena, frons, vertex, subalar prominence and mesoscutellum yellowish, and apical quarter of tergite III and tergites IV to VIII brownish. Wings infusate; veins and pterostigma brownish except next to R_{s+2r} fulvous.

♂: Unknown.

Comments. This is the sole species to have been collected on the eastern slopes of the Andes. The locality label mentions Quincemil near Macapata, but it should be Marcapata given that Macapata in Peru is in Lima Department.

Holotype: 1♀: labeled as follows: **PERU:** 1♀, “Quincemil, Perú 30 m. nr. Macapata [Marcapata] IX.1-3.62 Luis Peña [handwritten]” (AEIC).

Alophophion new species 2

(Figs. 16, 30, 46, 50, 73)

Diagnosis. This species can be recognized by having the ocelli in contact with compound eyes, the mesopleural furrow absent, and olive green color.

Description. ♀: **Head.** Face (Fig. 16) 0.8x as wide as long; coriarius texture between punctures; median portion weakly convex. Clypeus convex; coriarius texture between punctures; apical edge straight centrally, slightly convex laterally. Compound eyes 1.0x as wide as face. Malar space 0.1x as long as basal width of mandible. Gena, in lateral view (Fig. 30), 0.3x as wide as compound eyes; coriarius texture between punctures. Frons with setae present laterally and between ocelli; coriarius, slightly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by less than 0.1x ocellar diameter; distance between ocelli 0.3–0.4x ocellar diameter (Fig. 46). Antenna with 47–48 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 3.9–4.0:2.4–2.6:2.2–2.4:2.1–2.2:2.1:2.1:2.0–2.1. Ratio of length/width of pre-apical flagellomeres: 2.0–2.1x.

Mesosoma. Pronotum coriarius between punctures. Notaulus reaching to 1/4 distance to posterior margin of mesoscutum. Mesoscutum and mesoscutellum with coriarius texture between punctures. Mesoscutellum evenly convex lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 50) coriarius between punctures; mesopleural furrow absent. Epicnemial carina not joining to anterior margin of mesopleuron. Metapleuron coriarius between punctures. Fore wing with CI=0.7; ICI=0.8; SDI=1.5; 1m-cu slightly curved; ramulus present; Rs+M slightly curved; marginal cell apically glabrous, except by a row of setae next to upper margin; sub-basal cell glabrous. Hind wing with 6–8 hamuli on R1 distally; NI=0.8; cu-a slightly curved. Propodeum (Fig. 73).with anterior transverse carina present,

reaching pleural carinae; posterior transverse carina absent centrally; lateromedian longitudinal carinae present after anterior transverse carina, converging at the middle; lateral longitudinal carinae faint; anterior area coriarius texture between punctures, behind anterior transverse carina coriarius-striate

Metasoma. First tergite 4.7x as long as apical width. Tergite II with spiracle located at 0.6x length of tergite.

Color. Olive green to light straw yellow except following: antennae, two diagonal stripes in externum, trochanter, trochantellus, femur, tibia, tarsomeres and ovipositor sheath ferruginous.

♂: Similar to female except: Hind wing with 6–8 hamuli on R1 distally.

Comments. This species was been only collected in Bahia, Brazil. Its distribution is overlapping with *A. new species 12*; both species have predominately olive green color, and ocelli in contact with compound eyes; within the Species-group A are the only that share these features. Additionally, *A. new species 2* and *A. new species 12* they have the easternmost distribution of the genus.

Examined material. 2♂♂, 6♀♀: labeled as follows: **BRAZIL:** 3♀♀ “Encruzilhada Bahia, Brazil XI.'74 [xi.1974] 980m. M. Alvarenga”; and 2♂♂, 3♀♀ “Encruzilhada, Bah. [Bahia] XI.'72 [xi.1972] 960m. Braz. [Brazil] M. Alvarenga” (AEIC).

Alophophion new species 3

(Figs. 20, 31, 51, 74)

Diagnosis. This species can be recognized by having the epicnemial carina oval, and the metasomal tergite I–IV light straw yellow with an apical brownish spot.

Description. ♀: **Head.** Face (Fig. 20) 0.9 x as wide as long; punctate, smooth texture between punctures; median portion weakly convex. Clypeus convex; with upper half punctate, smooth texture between punctures and lower half punctate, coriarius texture between punctures; smooth texture between punctures; apical edge straight centrally, laterally slightly convex. Compound eyes 0.7–0.8x as wide as face. Malar space 0.1x as long as basal width of mandible. Gena, in lateral view (Fig. 31), 0.4x as wide as compound eyes, smooth texture between punctures. Frons

smooth, slightly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.2–0.3x ocellar diameter; distance between ocelli 1.0x ocellar diameter. Antenna with 50 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.5–5.2:2.4–2.8:2.3–2.5:2.2–2.4:2.2–2.3:2.1–2.3:2.0–2.2. Ratio of length/width of pre-apical flagellomeres: 1.2x.

Mesosoma. Pronotum punctate, smooth between punctures; lower half of propodeum and collar punctate, coriarius between punctures. Mesoscutum punctate, smooth between punctures. Notaulus reaching to 1/4 distance to posterior margin of mesoscutum. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 51) smooth between punctures; mesopleural furrow absent. Epicnemial carina oval in a lateral view; curved to meet anterior margin of mesopleuron at lower third of pronotum. Metapleuron punctate, smooth between punctures. Fore wing with CI=0.4–0.5; ICI=0.7; SDI=1.5; 1m-cu straight; ramulus present; Rs+M slightly curved; marginal cell apically and next to Rs+2r glabrous; sub-basal cell glabrous with some isolate setae apically. Hind wing with 6–7 hamuli on R1 distally; NI=0.9; cu-a slightly curved. Propodeum (Fig. 74) with anterior transverse carina present, faint laterally; posterior transverse carina weak reaching to pleural carinae; longitudinal carinae present, faint; carinate texture on areas superomedia and lateralis; areas basalis and externa punctate, smooth texture between punctures; softly carinate-rugulose texture on areas dentipara, superomedia, posteroexterna and petiolaris; pleural carina present.

Metasoma. First tergite 4.0x as long as apical width. Tergite II with spiracle located at 0.5x length of tergite.

Color. Light straw yellow except following: except following: palpi, antennomeres, a posterior spot in fore coxae, an anterior spot in mid and hind coxae, basal 2/3 of trochanter, tibiae, tarsomeres, axilla, mesopleuron with a longitudinal stripe between notaulus and lateral mesoscutum and one between notauli, a spot in posterior lower mesopleuron, metapleuron basal half, basal half of propodeum and hind coxae dorsally fulvous; and tergites I–IV with an apical central spot, tergites IV–VI basally and ovipositor sheath brownish.

♂: Unknown.

Comments. One female has the lateromedian longitudinal carinae, behind posterior transverse, wavy; while the other specimen have these carinae straight.

This species is distributed in the Chilean region of Metropolitana de Santiago.

Examined material. CHILE: 2♀♀: labeled as follows: 2♀♀ “[Metropolitana de Santiago, Cordillera] Las Gunilias [Lagunillas] II.19.66 [19.ii.1966] Chile LPenaGuzman [L. Peña Guzmán]” (AEIC).

Alophophion new species 4

(Figs. 15, 32, 52, 75)

Diagnosis. This species is easy to recognize, within the Species-groups A, by having the propodeum with areas dentipara and superomedia faintly delimited and with carinate texture.

Description. ♀: **Head.** Face (Fig. 15) 1.0 x as wide as long; punctate, smooth texture between punctures, laterally coriarius texture; median portion weakly convex. Clypeus convex; smooth texture between punctures, apically coriarius texture between punctures; apical edge slightly convex. Compound eyes 0.8–0.9x as wide as face. Malar space 0.1x as long as basal width of mandible. Gena, in lateral view (Fig. 32), 0.4x as wide as compound eyes, coriarius texture between punctures. Frons coriarius softly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.1x ocellar diameter; distance between ocelli 0.3–0.6x ocellar diameter. Antenna with 52–54 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.5–4.9:2.4–2.6:2.1–2.3:2.0–2.2:2.0–2.1:2.0–2.1:1.9–2.1. Ratio of length/width of pre-apical flagellomeres: 1.5–1.6x.

Mesosoma. Pronotum in upper half punctate, coriarius between punctures; lower half striate; collar striate. Mesoscutum punctate, coriarius between punctures. Notaulus reaching to 1/3 distance to posterior margin of mesoscutum, scrobiculate. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 52) punctate, coriarius between punctures; lower edge of speculum finely scrobiculate; mesopleural furrow absent. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron punctate, coriarius between punctures. Fore wing with CI=0.4; ICI=0.8; SDI=1.3–1.4; 1m-cu slightly curved; ramulus present; Rs+M

slightly curved; marginal cell homogeneously covered by setae; sub-basal cell glabrous, except row of setae next to vein 1A apically. Hind wing with 6–7 hamuli on R1 distally; NI=0.8–0.9; cu-a slightly curved. Propodeum (Fig. 75) with anterior transverse carina present, faint laterally; posterior transverse carina weak centrally; longitudinal carinae present, faint; longitudinal carinate texture, except areas basalis and externa punctate with smooth texture between punctures; pleural carina present.

Metasoma. First tergite 5.5–5.7x as long as apical width. Tergite II with spiracle located at 0.6 of tergite.

Color. Fulvous except following: area surrounding compound eyes, between ocelli, vertex and gena.

♂: Unknown.

Comments. *Alophophion* new species 4 is distributed in the Chilean region of Maule and Araucanía.

Examined material. CHILE: 6♀♀: labeled as follows: 1♀ “Chovellen Maule Prov. [Province] XII.5.53 [05.xii.1953] Chile L Pena Guzman [Peña Guzman]”; and 5♀♀ “Curacautín, Malleco II.'64 [ii.1964] R. [Río] Blanco Chile Luis E. Peña” (AEIC).

Alophophion new species 5

(Figs. 13, 33, 48, 53, 76, 84)

Diagnosis. This species can be recognized by this combination of features: epicnemial carina oval, lateromedian longitudinal carinae converging behind posterior transverse carina, and tergites fulvous.

Description. ♀: **Head.** Face (Fig. 13) 0.8–0.9x as wide as long; coriarius between punctures; median portion weakly convex. Clypeus convex; coriarius texture between punctures; apical edge straight centrally, laterally slightly convex. Compound eyes 0.8–0.9x as wide as face. Malar space 0.1x as long as basal width of mandible. Mandibles smooth texture between punctures. Gena, in lateral view (Fig. 33), 0.4x as wide as compound eyes, smooth between punctures. Frons coriarius, softly carinate between antennae and median ocellus. Vertex with texture as

gena. Lateral ocellus separated from compound eye by 0.2x ocellar diameter; distance between ocelli 0.6–0.8x ocellar diameter (Fig. 48). Antenna with 47–54 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.2:2.4–2.5:2.2–2.3:2.1–2.2: 2.0–2.1:1.9–2.0:1.9. Ratio of length/width of pre-apical flagellomeres: 1.6–1.8x.

Mesosoma. Pronotum with coriarius texture between punctures, getting smooth to the posterior end; collar striate. Mesoscutum smooth between punctures. Notaulus reaching to 1/4 distance to posterior margin of mesoscutum. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 53) punctate, upper half smooth between punctures, lower half coriarius between punctures; mesopleural furrow absent. Epicnemial carina oval in a lateral view, curved to meet anterior margin of mesopleuron at lower quarter of pronotum; faint next to pronotum. Metapleuron smooth between punctures. Fore wing with CI=0.5; ICI=0.6–0.7; SDI=1.4; 1m-cu slight curved; ramulus present; Rs+M slightly curved; marginal cell with a glabrous area next to Rs+2r; sub-basal cell glabrous. Hind wing with 7–8 hamuli on R1 distally; NI=1.0–1.1; cu-a slightly curved. Propodeum (Fig. 76) with anterior transverse carina present, faint laterally; posterior transverse carina present between pleural carinae; lateral longitudinal carinae present, faint between transverse carinae; lateromedian longitudinal carinae present, behind posterior transverse carina converging; anterior area coriarius between punctures; areas spiracularis, lateralis, dentipara, superomedia, posteroexterna and petiolaris softly carinate texture, punctate; pleural carina present.

Metasoma. First tergite 4.5–4.7x as long as apical width. Tergite II with spiracle located at 0.5x length of tergite.

Color. Fulvous except following: face, frons laterally, vertex, gena, pronotum, lateral margins of mesoscutum, spot from notaulus to posterior end of mesoscutum, mesoscutellum, tegula, subalar prominence, speculum, a diagonal stripe in mesopleuron, metapleuron apical half, propodeum apical half and tergites laterally yellowish. Wings grayish hyaline; veins brownish and pterostigma fulvous.

♂: Similar to female.

Comments. A few females have metapleuron and propodeum coriarius between punctures. Some specimens have, behind posterior transverse, the lateromedian longitudinal carinae present

and with only one carina each one; while other specimens an additional carina next to lateromedian and lateral longitudinal carinae. This species was only collected in Coquimbo.

Examined material. CHILE: 18♂♂, 16♀♀: labeled as follows: 18♂♂, 15♀♀ “[Coquimbo, Valle de Elqui] Las Hedionditas [Termas Las Hediondas] I.10-11.66 [10-11.i.1965] Chile Luis Peña”; 1♀ “Río Los Chores [Los Choros], Coquimbo, Chile X.29-30 1961 [29-30.x.1961] Luis Peña” (AEIC).

Alophophon new species 6

(Figs. 14, 34, 54, 77, 85)

Diagnosis. This species has a similar appearance to *A. new species 5*. *Alophophon* new species 6 has the clypeus with the upper half convex and the lower half flat while *A. new species 5* has the clypeus convex.

Description. ♀: **Head.** Face (Fig. 14) 0.9–1.0 x as wide as long; coriarius between punctures; median portion weakly convex. Clypeus with upper half convex and lower half flat; coriarius texture between punctures; apical edge straight centrally, laterally slightly convex. Compound eyes 0.7–0.8x as wide as face. Malar space 0.1x as long as basal width of mandible. Mandibles coriarius texture between punctures. Gena, in lateral view (Fig. 34), 0.3–0.4x as wide as compound eyes, smooth texture between punctures. Frons coriarius, softly carinate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.2–0.3x ocellar diameter; distance between ocelli 0.6–0.8x ocellar diameter. Antenna with 48–46 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.5–4.6:2.3–2.7:2.1–2.3:2.0–2.2:1.9–2.1:1.9–2.0:1.9. Ratio of length/width of pre-apical flagellomeres: 1.6–1.8x.

Mesosoma. Pronotum with coriarius texture between punctures; collar striate; with a row of transverse carinae on posterior edge of pronotum. Mesoscutum punctate, smooth texture between punctures. Notaulus reaching to 1/4 distance to posterior margin of mesoscutum, basally scrobiculate. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 54) punctate, coriarius between punctures, except smooth between punctures upper epicnemial carina; speculum smooth

between punctures; mesopleural furrow absent. Epicnemial carina curved to meet anterior margin of mesopleuron at lower third of pronotum. Metapleuron punctate, coriarius between punctures. Fore wing with CI=0.4–0.5; ICI=0.8–1.0; SDI=1.3–1.4; 1m-cu straight; ramulus present; Rs+M slightly curved; marginal cell with a glabrous area apically, extending next to Rs+2r and pterostigma; sub-basal cell glabrous, with isolate setae apically. Hind wing with 7–8 hamuli on R1 distally; NI=0.6–0.9; cu-a slightly curved. Propodeum (Fig. 77) with anterior transverse carina present, faint laterally; posterior transverse carina present between pleural carinae, sometimes broken medially; lateromedian longitudinal carinae absent before anterior transverse carina, present and well defined between transverse carinae, behind posterior transverse carina, sometimes converging, when converging there are two lateral carinae; lateral longitudinal carinae faint between transverse carinae, behind posterior transverse carina present; softly wavy-rugulose texture areas lateralis, petiolaris and posteroexterna, and areas anterior, dentipara and superomedia punctate, smooth with punctures; pleural carina present.

Metasoma. First tergite 4.7–4.8x as long as apical width. Tergite II with spiracle located at 0.6x of tergite.

Color. Fulvous except following: face, frons laterally, vertex, gena, lower pronotum, collar, lateral margins of mesoscutum, spot from notaulus to 3/4 of mesoscutum, mesoscutellum, tegula, subalar prominence, speculum, a diagonal stripe in mesopleuron, metapleuron apical half and propodeum apical half yellowish. Wings grayish hyaline; veins brownish and pterostigma fulvous.

♂: Similar to female.

Comments. *Alophophion* new species 6 is distributed in the Chilean regions Biobío, Coquimbo and Valparaíso. This species overlaps with *A.* new species 5.

Examined material. 1♂, 17♀♀: labeled as follows: **CHILE:** 7♀♀ “El Pangué, Coquimbo, Chile XI.3-5 1961 [03-05.xi.1961] Luis Peña”; 1♀ “El Pangué, Coquimbo, Chile XI.4 1961 [04.xi.1961] Luis Peña”; 1♀ “Las Vizcachas Chile 50 km. E Valparaíso X.20-21.51 [20-21.x.1951] L. Peña”; 1♂, 6♀♀ “Río Los Chores [Los Choros], Coquimbo, Chile X.29-30 1961[29-30.x.1961] Luis Peña”; 1♀ “Rio los Molles [handwritten] Coquimbo, Chile XI.7-10.61 [07-10.xi.1961; handwritten] Luis Peña” and 1♀ “Rivadavia Elqui valley Coquimbo X.28-29.57 Chile L Pena Guzman [Peña Guzmán]” (AEIC).

Alophophion new species 7

(Figs. 18, 35, 55, 78)

Diagnosis. This species can be recognized by this combination of the features: the clypeus convex, the compound eyes 1.0x as wide as face and hind wing with 6 hamuli on R1 distally.

Description. ♀: **Head.** Face (Fig. 18) 0.8–0.9x as wide as long; coarsely punctate, coriarius texture between punctures; median portion weakly convex. Clypeus convex; smooth texture between punctures in lower half; coriarius texture between punctures apically; apical edge slightly convex. Compound eyes 1.0x as wide as face. Malar space less than 0.1x as long as basal width of mandible. Gena, in lateral view (Fig. 35), 0.4x as wide as compound eyes, coriarius texture between punctures. Frons coriarius, slightly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.2x ocellar diameter; distance between ocelli 0.7–0.8x ocellar diameter. Antenna with 50–53 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 5.0:2.5–2.7:2.3:2.2:2.1–2.2:2.1:2.0–2.1. Ratio of length/width of pre-apical flagellomeres: 1.7–1.8x.

Mesosoma. Pronotum punctate, coriarius between punctures; collar striate. Mesoscutum punctate, coriarius between punctures. Notaulus reaching to 1/4 distance to posterior margin of mesoscutum. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 55) punctate, coriarius between punctures; mesopleural furrow absent. Epicnemial carina curved to meet anterior margin of pleuron at lower quarter of pronotum. Metapleuron punctate, coriarius between punctures. Fore wing with CI=0.4–0.5; ICI=0.7–0.9; SDI=1.4; 1m-cu slightly curved; ramulus present; Rs+M slightly curved; marginal cell with glabrous area next to proximal half of Rs+2r and pterostigma; sub-basal cell with isolate setae in the third apical. Hind wing with 6 hamuli on R1 distally; NI=0.9; cu-a slightly curved. Propodeum (Fig. 78) with anterior transverse carina present, faint laterally; posterior transverse carina present, reaching to pleural carinae; lateromedian longitudinal carinae absent before anterior transverse carina, present and well defined between transverse carinae, behind posterior transverse carina faint; lateral longitudinal carinae faint; softly rugulose-carinate texture, except anterior area punctate, coriarius between punctures; pleural carina present.

Metasoma. First tergite 4.9–5.1x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Fulvous except following: face, frons laterally, vertex, gena, pronotum (except upper dorsal corner), lateral margins of mesoscutum, spot from notaulus to 3/4 of mesoscutum, mesoscutellum, tegula, subalar prominence, speculum, a spot between subalar prominence and mesopleural furrow, a spot in posterior lower mesopleuron, metapleuron apical half, propodeum apical half and hind coxae dorsally yellowish. Wings grayish hyaline; veins brownish; pterostigma fulvous.

♂: Unknown.

Comments. One female has the mesopleuron with isolate holes in the surface. *Alophophion* new species 6 is distributed in the Chilean region of Coquimbo

Examined material. CHILE: 3♀: labeled as follows: 1♀ “Canela Baja, Coquimbo, Chile X.23 1961 [23.x.1961] Luis Peña”; 1♀ “El Calabazo Had. [Hacienda] Illapel Coquimbo Prov. [Provincia] XI.21-23.57 [21-23.xii.1957] Chile L Pena Guzman [L. Peña Guzmán]”; and 1♀ “Rivadavia Elqui valley Coquimbo V.16.53 [16.v.1953] Chile L Pena Guzman [L. Peña Guzmán]” (AEIC).

Alophophion new species 8

(Figs. 19, 36, 56, 79)

Diagnosis. This species can be recognized by this combination of the features: body mainly brownish red colored, nervellar index of hind wing 1.0 and compound eyes 1.0x as wide as face.

Description. ♀: **Head.** Face (Fig. 19) 0.9 x as wide as long; punctate, coriarius texture between punctures in upper half and smooth texture between punctures in lower half; median portion weakly convex. Clypeus convex; upper half smooth texture between punctures and lower coriarius texture between punctures; apical edge centrally straight and slightly convex laterally. Compound eyes 1.0x as wide as face. Malar space 0.1–0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 36), 0.4x as wide as compound eyes, smooth texture between punctures. Frons smooth, softly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.1x ocellar diameter; distance

between ocelli 0.5–0.6x ocellar diameter. Antenna with 51–52 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 5.3:2.7:2.4:2.3:2.2:2.1:2.1. Ratio of length/width of pre-apical flagellomeres: 1.5x.

Mesosoma. Pronotum in upper half punctate, coriarius between punctures; lower half and collar striate. Mesoscutum punctate, smooth between punctures. Notaulus reaching to 1/3 distance to posterior margin of mesoscutum, finely scrobiculate. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 56) punctate, coriarius between punctures, except smooth between punctures upper epicnemial carina; speculum smooth between punctures; mesopleural furrow absent. Epicnemial carina curved to meet anterior margin of mesopleuron at lower third of pronotum; forming an angulation between mesopleuron and mesosternum. Metapleuron punctate, smooth between punctures. Fore wing with CI=0.5; ICI=0.8–0.9; SDI=1.4–1.5; 1m-cu straight; ramulus present; Rs+M slightly curved; marginal cell with a glabrous area next to the upper half of Rs+2r; sub-basal cell glabrous with isolate setae in the apical half. Hind wing with 7 hamuli on R1 distally; NI=1.0; cu-a slightly curved. Propodeum (Fig. 79) with anterior transverse carina present between lateral longitudinal carinae; posterior transverse carina present, reaching to pleural carinae; longitudinal carinae present; lateromedian longitudinal carinae confluent behind posterior transverse carina and absent before anterior transverse carinae; punctate, smooth between punctures; pleural carina present.

Metasoma. First tergite 5.6x as long as apical width. Tergite II with spiracle located at 0.5x length of tergite.

Color. Brownish red except following: face, gena, between ocelli, vertex, anterior upper half of pronotum, collar, lateral margins of mesoscutum, a longitudinal stripe from notaulus to the posterior end of mesoscutum, mesoscutellum, tegula, subalar prominence, anterior half of speculum, spot between subalar prominence and mesopleural furrow, a spot in posterior lower mesopleuron, and a spot in upper-apical third metapleuron. Wings grayish hyaline; veins brownish and pterostigma fulvous.

♂: Unknown.

Comments. This species is distributed in the Chilean region of Coquimbo.

Examined material. CHILE: 2♀♀: labeled as follows: 2♀♀ “CHILE: Prov. [Provincia] Elqui Choros Bajos 25.X.1988 JEBarriga [J.E. Barriga]” (AEIC).

Alophophion new species 9

(Figs. 17, 45, 57, 80)

Diagnosis. This species can be recognized by this combination of the features: lateral longitudinal carinae present between transverse carinae, area dentipara well defined and distance between ocelli 0.9–1.0x ocellar diameter.

Description. ♀: **Head.** Face (Fig. 17) 0.8–0.9x as wide as long; median portion weakly convex; punctate with smooth texture between punctures centrally and punctate with coriarius texture between punctures laterally. Clypeus convex; with upper half punctate with smooth texture between punctures and lower half punctate with coriarius texture between punctures; apical edge slightly convex. Compound eyes 0.8–0.9x as wide as face. Malar space 0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 45), 0.4x as wide as compound eyes, coriarius texture between punctures. Frons coriarius, slightly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.1–0.2x ocellar diameter; distance between ocelli 0.9–1.0x ocellar diameter. Antenna with 56 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 5.1–5.2:2.5–2.6:2.3:2.2–2.3:2.1–2.2:2.0–2.2:1.9–2.1. Ratio of length/width of pre-apical flagellomeres: 1.6x.

Mesosoma. Pronotum in upper half punctate, smooth between punctures; lower half striate; collar striate. Mesoscutum punctate, smooth between punctures. Notaulus reaching to 1/4 distance to posterior margin of mesoscutum. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.2x to posterior margin of mesoscutellum. Mesopleuron (Fig. 57) punctate, coriarius between punctures; speculum punctate, smooth between punctures; mesopleural furrow absent. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron punctate, coriarius between punctures, except upper-apically smooth between punctures. Fore wing with CI=0.3–0.5; ICI=0.8; SDI=1.4–1.5; 1m-cu straight; ramulus present; Rs+M slightly curved; marginal cell apically with a glabrous area next to Rs+2r vein; sub-basal cell glabrous, with isolate hairs apically. Hind wing with 6 hamuli on

R1 distally; NI=1.0–1.1; cu-a slightly curved. Propodeum (Fig. 80) with anterior transverse carina present between lateral longitudinal carinae; posterior transverse carina present between pleural carinae; lateromedian longitudinal carinae present before anterior transverse carina; lateromedian longitudinal carinae present between transverse carinae; lateromedian longitudinal carinae converge behind posterior transverse carina; lateral longitudinal carinae present between transverse carinae; punctate with coriarius texture between punctures; pleural carina present.

Metasoma. First tergite 5.6x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Fulvous except following: face laterally, frons laterally, between ocelli, vertex, gena, tegula, subalar prominence, anteriorly speculum and a spot between subalar prominence and mesopleural furrow yellowish. Wings grayish hyaline; veins brownish and pterostigma fulvous.

♂: Unknown.

Comments. The propodeal carinae are well developed but not as much as *A. new species 10* and *new species 11*. *Alophophion new species 9* is distributed in the Chilean region of Biobio.

Examined material. 2♀♀: labeled as follows: **CHILE:** “Las Trancas, Chile XII.1-15.75 [01-15.xii.1975] Chillán Luis Peña” (AEIC).

Alophophion new species 10

(Figs. 8, 28, 37, 58, 81)

Diagnosis. *Alophophion new species 10* has the propodeum with carinae lamellate as *A. new species 36* and *A. new species 11*; but can be distinguished from them by having mesopleural furrow small, not reaching posterior end.

Description. ♀: **Head.** Face (Fig. 28) 0.9x as wide as long; smooth texture between punctures, coriarius texture between punctures laterally; median portion weakly convex. Clypeus convex; smooth texture between punctures in lower half; coriarius texture between punctures apically; apical edge straight, laterally slightly convex. Compound eyes 0.8x as wide as face. Malar space 0.1x as long as basal width of mandible. Gena, in lateral view (Fig. 37), 0.4x as wide as compound eyes, coriarius texture between punctures. Frons coriarius, slightly striate between

antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.1x ocellar diameter; distance between ocelli 0.7–0.8x ocellar diameter. Antenna with 54 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.2–4.4:2.3–2.4:2.1:2.0:1.9:1.8–1.9:1.8. Ratio of length/width of pre-apical flagellomeres: 1.5–1.6x.

Mesosoma. Pronotum punctate, smooth between punctures; collar striate. Mesoscutum punctate, smooth between punctures. Notaulus reaching to 1/4–1/3 distance to posterior margin of mesoscutum, basally with a carina along notaulus. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 58) punctate, coriarius between punctures, except smooth between punctures upper epicnemial carina; mesopleural furrow present next to epicnemial carina. Upper part of epicnemial carina, at mesopleuron, indistinguishable from mesopleural furrow; epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron punctate, coriarius between punctures. Fore wing with CI=0.3–0.3; ICI=0.7–0.9; SDI=1.3–1.4; 1m-cu straight; ramulus present; Rs+M slightly curved; marginal cell with a glabrous area next to 0.3 proximal of Rs+2r vein; sub-basal cell glabrous. Hind wing with 7 hamuli on R1 distally; NI=0.8; cu-a slightly curved. Propodeum (Fig. 81) with carina lamellate; anterior transverse carina present, faint laterally; posterior transverse carina present between pleural carina; lateromedian longitudinal carinae present before anterior transverse carina reaching to the base of propodeum, between transverse carinae, behind posterior transverse carina close together, area petiolaris thin; lateral longitudinal carinae present between transverse carinae, faint; smooth texture with punctures, except: areas spiracularis and lateralis with softly carinate-rugulose texture; pleural carina present.

Metasoma. First tergite 4.4–4.5x as long as apical width. Tergite II with spiracle located at 0.5–0.6x of tergite.

Color. Fulvous except following: face and frons laterally yellowish. Wings grayish hyaline; veins brownish and pterostigma fulvous.

♂: Similar to female except hind wing with 8 hamuli on R1 distally.

Comments. There is some variation in the lateromedian longitudinal carinae, behind posterior transverse carina confluent with or without traces of lateromedian longitudinal carinae next to it.

All males have a single lateromedian longitudinal carina behind the posterior transverse carina without traces next to it.

This species is distributed in the Chilean regions Araucanía, Coquimbo and O'Higgins. Its distribution overlaps with *A. new species 36* and *A. new species 10*.

Examined material. CHILE: 5♂♂; 5♀♀: labeled as follows: 1♂, 5♀♀ “Curacautín, Malleco II.'64 R. [ii.1964] Blanco Chile Luis E. Peña”, 1♂ “El Pangue, Coquimbo, Chile XI.3-5 1961 [03-05.xi.1961] Luis Peña”; 2♂♂ “[Libertador General Bernardo O'Higgins, Cachapoal] Las Nieves XI.12.47 Chile L. Pena Guzman [Peña Guzmán]”; and 1♂ “[Libertador General Bernardo O'Higgins, Cachapoal] Las Nieves XI.16.47 [16.xi.1947] Chile L. Pena Guzman [Peña Guzmán]” (AEIC).

Alophophion new species 11

(Figs. 27, 38, 59, 82, 86)

Diagnosis. *Alophophion* new species 11 has propodeum with carinae lamellate as *A. new species 10* and *A. new species 36*; but can be distinguished of them by having metapleuron and mesopleural furrow scrobiculate-rugulose.

Description. ♀: **Head.** Face (Fig. 27) 0.9–1.0 x as wide as long; median portion weakly convex; punctate with smooth texture between punctures centrally and punctate with coriarius texture between punctures laterally. Clypeus convex; smooth texture between punctures, apically coriarius between punctures; apical edge slightly straight, laterally slightly convex. Compound eyes 0.7–0.9x as wide as face. Malar space 0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 38), 0.4–0.6x as wide as compound eyes, coriarius texture between punctures. Frons coriarius, slightly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.1–0.3x ocellar diameter; distance between ocelli 0.8–0.9x ocellar diameter. Antenna with 53–56 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 3.6–4.3:2.1–2.3:1.9–2.0:1.9:1.9:1.8:1.7. Ratio of length/width of pre-apical flagellomeres: 1.3–1.5x.

Mesosoma. Pronotum coriarius between punctures; collar striate. Mesoscutum punctate, smooth between punctures, centrally coriarius between punctures. Notaulus reaching to 1/3

distance to posterior margin of mesoscutum, basally with a carina along notaulus. Mesoscutellum evenly convex, smooth between punctures; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 59) punctate, coriarius between punctures, except smooth between punctures upper epicnemial carina; mesopleural furrow scrobiculate- rugulose, reaching to the posterior end. Epicnemial carina curved to meet anterior margin of mesopleuron at lower third of pronotum. Metapleuron scrobiculate- rugulose. Fore wing with CI=0.4–0.6; ICI=0.8–0.9; SDI=1.2–1.5; 1m-cu straight; ramulus present; Rs+M slightly curved; marginal cell with a glabrous area next to 0.3 proximal of Rs+2r vein; sub-basal cell glabrous with isolate setae apically. Hind wing with 6–7 hamuli on R1 distally; NI=1.1–1.2; cu-a slightly curved. Propodeum (Fig. 82) with carinae lamellate; anterior transverse carina present, faint laterally; posterior transverse carina present between pleural carinae; behind posterior transverse carina confluent; lateromedian longitudinal carinae present before anterior transverse carina and between transverse carinae, behind posterior transverse carina confluent;

Softly carinate texture, except: areas basalis and externa punctate, smooth texture between punctures; pleural carina present.

Metasoma. First tergite 4.2–4.7x as long as apical width. Tergite II with spiracle located at 0.6x length of tergite.

Color. Fulvous except following: face laterally, frons laterally, between ocelli, vertex and gena yellowish. Wings grayish hyaline; veins brownish and pterostigma fulvous.

♂: Similar to female.

Comments. There is some variation in the lateromedian longitudinal carinae behind the posterior transverse carina, in some specimens the carinae are close together forming a thin area petiolaris; while one specimen has these carinae wavy. The specimen from Paso de Pino Hachado is distinctly smaller than the remainder of the series and with a forewing CI=0.4, hind wing NI=0.7, and spiracle of tergite II near the middle, otherwise it agrees with the species. This size difference likely represents development in a slightly smaller or malnourished host.

This species was collected at an elevation of 1080 m and 1600 m in the Chilean regions Araucania, Biobío and Maule. Its distribution overlaps with *A. new species 10* and *A. new species 36*.

Examined material. CHILE: 15♂♂; 5♀♀: labeled as follows: 6♂♂, 4♀♀ “Curacautín, Malleco II.'64 [ii.1964] R. [Río] Blanco Chile Luis E. Peña”; 1♀ “Fundo El Coigo Cord [Cordillera] Curico Chile XII.20-31.59 [20-31.xii.1959] Luis Pena [Peña]”; 1♂ “Las Trancas Chillán, Chile I.19-22.79 [19-22.i.1979] 1600m. L. Peña”; 1♂ “Las Trancas, Chile II.6-11.66 [06-11.ii.1966] Chillán Luis Peña”; 1♂ “Las Trancas, Chile XII.1-15.75 [01-15.xii.1975] Chillán Luis Peña”; 1♂ “Las Trancas, Ñuble, Chile, December 1976 [xii.1976] Luis Peña”; and 1♀ “Pino Hachado [Paso de Pino Hachado] Lonquimay, Mal. [Malleco] II.18.80 [18.ii.1980] Chile 1600m. L. Peña” (AEIC); and 4 ♂♂ “CHILE: VIII Región [Biobío] Los Lleuques 14km w. Termas de Chillán 1080m 36°54'S [°] 71°32'W 23-24.XI.1994 SLHeydon [S.L. Heydon] & EArias [E. Arias]” (UCDC).

Alophophon new species 12

(Figs. 9, 22, 39, 47, 60, 66)

Diagnosis. This species can be recognized by this combination of the features: light straw yellow to olive green colored, posterior ocelli almost in contact with compound eyes and distance between ocelli 0.2–0.3x ocellar diameter.

Description. ♀: **Head.** Face (Fig. 22) 0.8–0.9 x as wide as long; coarsely punctate, coriarius texture between punctures; median portion weakly convex. Clypeus slightly convex; coriarius texture between punctures; apical edge slightly convex. Compound eyes 1.0x as wide as face. Malar space at most 0.1x as long as basal width of mandible. Gena, in lateral view (Fig. 39), 0.4x as wide as compound eyes; coriarius between punctures. Frons coriarius, slightly striate between antennae and median ocellus; setae present laterally and between ocelli. Vertex with texture as gena. Lateral ocellus separated from compound eye by less than 0.1x ocellar diameter; distance between ocelli 0.2–0.3x ocellar diameter (Fig. 47). Antenna with 51–62 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.0–4.6:2.3–2.7:2.1–2.5:2.0–2.4:1.9–2.4:1.9–2.3:1.9–2.2. Ratio of length/width of pre-apical flagellomeres: 2.0–2.1x.

Mesosoma. Pronotum in upper half punctate, coriarius between punctures; lower half striate; lower half of collar striate. Mesoscutum punctate, smooth between punctures, centrally coriarius between punctures. Notaulus reaching to 1/5 distance to posterior margin of

mesoscutum, basally scrobiculate. Mesoscutellum evenly convex; smooth between punctures; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 60) punctate, coriaceous between punctures; lower edge of speculum finely scrobiculate; mesopleural furrow rugulose reaching to the posterior end, finely scrobiculate upper epicnemial carina. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron rugulose. Fore wing with CI=0.6; ICI=0.7; SDI=1.4–1.5; 1m-cu slightly sinuate; ramulus present; marginal cell covered by setae; sub-basal cell glabrous with isolated setae. Hind wing with 6–7 hamuli on R1 distally; NI=1.0–1.1; cu-a slightly curved. Propodeum (Fig. 66) with anterior transverse carina present, faint laterally; posterior transverse carina present between pleural carinae, weak centrally; lateral longitudinal carinae present before anterior transverse carina, faint between transverse carinae, well developed behind posterior transverse carina with traces of an additional one next to it; lateromedian longitudinal carinae present, behind posterior transverse carina confluent with traces of an additional one between them; carinate texture, except: areas basalis and externa punctate, smooth with punctures; pleural carina present.

Metasoma. First tergite 4.7x as long as apical width. Tergite II with spiracle located at 0.6x of tergite.

Color. Light straw yellow to olive green except following: mandibles, antennae, mesopleuron, trochanter, trochantellus, femur, tibia and tarsomeres. Wings grayish hyaline; veins brownish and pterostigma fulvous.

♂: Unknown

Comments. There is some variation in the specimen from Brazil, it has posterior transverse carina homogeneously developed and longitudinal carinae behind simple.

This species is distributed in the Argentinean regions of Jujuy, Salta, and Tucuman and the Brazilian state of Bahia. Its distribution overlaps with *A. new species 2*. And they seem to be closely related, as both have the ocelli in contact with the compound eyes and have similar coloration.

Examined material. 7♀♀: labeled as follows: **ARGENTINA:** 6♀♀: 1♀ “Horco Molle nr. Tucumán I.28-II.3.66 [28.i-03.ii.1966] Arg. Lionel Stange”; 2♀♀ “Horco Molle nr. Tucumán I-8-15-66 [08-15.i.1966] Arg. [Argentina] H. & M. Townes”; 1♀ “Horco Molle nr. Tucumán XII-

26-65 [26.xii.1965] Arg. [Argentina] H. & M. Townes”; 1♀ “Jujuy, Argent. [Argentina] I-14-66 [14.i.1966] H. & M. Townes”; and 1♀ “Tartagal, Salta I.'72 [i.1972] Argentina Manfred Fritz” (AEIC). **BRAZIL:** 1♀ “Encruzilhada [,] Bahia, Brazil XI.'74 [xi.1974] 980m. M. Alvarenga” (AEIC).

Alophophion new species 13

(Figs. 26, 40, 61, 67)

Diagnosis. This species can be recognized by this combination of the features: metapleuron reddish brown, mesoscutellum cream colored, and, uniquely within this species-group, has the juxtacoxal carina developed.

Description. ♀: **Head.** Face (Fig. 26) 0.8–0.9 x as wide as long; median portion weakly convex; centrally punctate with smooth texture between punctures and laterally punctate with coriarius texture between punctures. Clypeus convex; with upper half punctate with smooth texture between punctures and lower half punctate with coriarius texture between punctures; apical edge slightly convex. Compound eyes 0.8x as wide as face. Malar space 0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 40), 0.4x as wide as compound eyes, coriarius texture between punctures. Frons coriarius, slightly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.1x ocellar diameter; distance between ocelli 0.4–0.5x ocellar diameter. Antenna with 56 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 5.0–5.8:2.9–3.2:2.7–2.8:2.5–2.7: 2.4–2.6: 2.4–2.5: 2.3–2.4. Ratio of length/width of pre-apical flagellomeres: 1.7x.

Mesosoma. Pronotum punctate coriarius between punctures; collar striate. Mesoscutum coarsely punctate, smooth between punctures. Notaulus reaching to 1/3 distance to posterior margin of mesoscutum. Mesoscutellum evenly convex, smooth texture between punctures; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 61) punctate, coriarius between punctures, except smooth between punctures upper epicnemial carina; speculum smooth between punctures; mesopleural furrow faintly scrobiculate reaching to posterior end. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron punctate, coriarius between punctures; juxtacoxal carina present.

Fore wing with CI=0.6–0.7; ICI=0.7; SDI=1.4; 1m-cu straight; ramulus present as an angulation or absent; Rs+M slightly curved; marginal cell with a glabrous area next to Rs+2r; sub-basal cell glabrous. Hind wing with 6–7 hamuli on R1 distally; NI=0.9–1.0; cu-a slightly curved. Propodeum (Fig. 67) with anterior transverse carina present, faint laterally; posterior transverse carina break at the middle; longitudinal carinae present, faint; coriarius between punctures; pleural carina present.

Metasoma. First tergite 4.8–5.2x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Reddish brown except following: face laterally, frons laterally, between ocelli, vertex, gena, collar, basal half of tegula, subalar prominence, postscutellum and mesoscutellum yellowish. Wings grayish hyaline; veins brownish and pterostigma fulvous.

♂: Unknown.

Comments. *Alophophion* new species 13 and *A.* new species 17 occur in central Peru, on the eastern slopes of the Andes. They have a similar appearance, but can be differentiated by the color of speculum which is fulvous reddish in *A.* new species 13 and is fulvous reddish with a yellowish spot in *A.* new species 17. *Alophophion* new species 13 has the area superomedia coriarius between punctures while in *A.* new species 17 this area this is carinate.

Examined material. 2♀♀: labeled as follows: **PERU:** 1♀ “PERU: Dpto. [Departamento] Lima: Tornamesa (R. [Rio] Rimac) 25:II:12 [25.ii.2012] (1600 mt.) Pedro Hocking [Handwritten]”; and “Huamachuco, PERU: 3200m. 23.II [23.ii.?] Coll. Weyrauch / MHN 3276 [Handwritten]” (MUSM)

***Alophophion* new species 14**

(Figs. 21, 41, 62, 68)

Diagnosis. This species can be recognized by this combination of the features: body mainly fulvous to light straw yellow colored, compound eyes 1.1x as wide as face and metapleuron softly rugulose.

Description. ♀: **Head.** Face (Fig. 21) 0.8x as wide as long; median portion weakly convex; centrally punctate with smooth texture between punctures and laterally punctate with coriarius texture between punctures. Clypeus convex; upper half smooth texture between punctures and lower half coriarius texture between punctures, slightly striate; smooth texture between punctures; apical edge slightly convex. Compound eyes 1.1x as wide as face. Malar space 0.1x as long as basal width of mandible. Gena, in lateral view (Fig. 41), 0.3x as wide as compound eyes, smooth texture between punctures. Frons coriarius, slightly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.1x ocellar diameter; distance between ocelli 0.8x ocellar diameter. Antenna with 56 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.4–4.6:2.5–2.8:2.2–2.3:2.0–2.2:1.9–2.1:1.8–2.1:1.8–2.0. Ratio of length/width of pre-apical flagellomeres: 1.4x.

Mesosoma. Pronotum in upper half punctate, coriarius between punctures; lower half striate; lower half of collar striate. Mesoscutum punctate, smooth between punctures. Notaulus reaching to 1/3 distance to posterior margin of mesoscutum, basally scrobiculate. Mesoscutellum evenly convex, with smooth texture between punctures; lateral carina reaching 0.2x to posterior margin of mesoscutellum. Mesopleuron (Fig. 62) punctate, coriarius between punctures except upper epicnemial carina; mesopleural furrow softly rugulose reaching to the posterior end. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron softly rugulose. Fore wing with CI=0.7–0.8; ICI=0.8–0.9; SDI=1.3–1.4; 1m-cu straight; ramulus present; marginal cell apically with a glabrous area next to pterostigma and Rs+2r; sub-basal cell glabrous with isolated setae in the apical half. Hind wing with 7–8 hamuli on R1 distally; NI=1.0; cu-a slightly curved. Propodeum (Fig. 69) with anterior transverse carina present, faint laterally; posterior transverse carina weak centrally and absent between lateromedian longitudinal carinae; lateral longitudinal carinae present before anterior transverse carina, faint between transverse carinae, well develop behind posterior transverse carina; lateromedian longitudinal carinae present after anterior transverse carina; areas superomedia and petiolaris more less confluent, posterior transverse carinae rarely faintly indicated; behind posterior transverse carina with traces of an additional one between them; softly carinate texture, except: areas basalis and externa punctate, coriarius between punctures; pleural carina present.

Metasoma. First tergite 4.5–4.6x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Fulvous to light straw yellow except following: face, frons laterally, between ocelli, vertex and gena. Wings grayish hyaline; veins brownish and pterostigma fulvous.

♂: Unknown.

Comments. This species overlaps in distribution with *A. new species 25* and both even seem to have the same seasonality, although sample sizes are quite small so this may reflect collecting bias. Both even seem have the same general appearance but they are easily differentiable by having the face longer than wide in *A. new species 14* and face 1.1x as wide as long in *A. new species 25*.

Examined material. 4 ♀♀: labeled as follows: **PERU:** 3 ♀♀, “PERU: MO [Moquegua], General Sánchez Cerro, La Capilla, 71°20’56”W/ 16°45’37”S, 2739 m. 16.iv.2011. C. Carranza” (MUSM) and 1 ♀ “Arequipa [,] Peru Dr Esemel [handwritten] / Press. By Imp. Bur. Ent. Brit. Mus. 1921–472/ 179 u [handwritten] / Ophion sp n [handwritten]” (BMNH).

Alophophion new species 15

(Figs. 25, 42, 49, 63, 69)

Diagnosis. This species can be recognized by this combination of the features: body mainly reddish brown colored with cream color spots, compound eyes 0.9x as wide as face and metapleuron softly rugulose.

Description. ♀: **Head.** Face (Fig. 25) 0.8x as wide as long; coarsely punctate, coriarius texture between punctures; median portion weakly convex. Clypeus smooth texture between punctures; apical edge slightly straight, laterally slightly convex. Compound eyes 0.9x as wide as face. Malar space less than 0.1x as long as basal width of mandible. Gena, in lateral view (Fig. 42), 0.2x as wide as compound eyes, coriarius texture between punctures. Frons coriarius, slightly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.1x ocellar diameter; distance between ocelli 0.4–0.5x ocellar diameter (Fig. 49). Antenna with 50–51 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.8–5.1:2.5–2.7:2.3–2.4: 2.3–2.4: 2.2–2.1:2.0–2.1: 2.0–2.1. Ratio of length/width of pre-apical flagellomeres: 1.5–1.6x.

Mesosoma. Pronotum in upper half punctate, coriarius between punctures; lower half rugulose; lower half of collar striate. Mesoscutum punctate, coriarius between punctures, except smooth in the anterior margins between notaulus and tegula. Notaulus reaching to 1/3 distance to posterior margin of mesoscutum, basally scrobiculate. Mesoscutellum evenly convex; smooth between punctures; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 63) punctate, coriarius between punctures, except smooth between punctures upper epicnemial carina; speculum smooth between punctures; mesopleural furrow softly rugulose, reaching to posterior end. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron softly rugulose. Fore wing with CI=0.7–0.8; ICI=0.8; SDI=1.5; 1m-cu slightly curved; ramulus present; Rs+M slightly curved; marginal cell apically with a glabrous area next to pterostigma and Rs+2r; sub-basal cell glabrous with isolated setae apically. Hind wing with 7 hamuli on R1 distally; NI=1.0; cu-a slightly curved. Propodeum (Fig. 69) with anterior transverse carina present, faint laterally; posterior transverse carina present between pleural carinae; lateral longitudinal carinae present before anterior transverse carina, faint between transverse carinae, well develop behind posterior transverse carina; lateromedian longitudinal carinae present between transverse carina, behind posterior transverse carina confluent; softly carinate texture, except: areas basalis and externa punctate, coriarius between punctures; pleural carina present.

Metasoma. First tergite 5.0–5.2x as long as apical width. Tergite II with spiracle located at 0.5x length of tergite.

Color. Reddish brown except following: face laterally, frons laterally, between ocelli, vertex, gena, collar, a spot in upper margin of pronotum and lower half, tegula, subalar prominence, lateral margins of mesoscutum, a longitudinal stripe from notaulus to the posterior end of mesoscutum, mesoscutellum, anterior half of speculum, spot between subalar prominence and mesopleural furrow, a spot in posterior lower mesopleuron, metapleuron apical half, propodeum apical half and hind coxae dorsally yellowish. Wings grayish hyaline; veins brownish; pterostigma cream colored, centrally brownish.

♂: Similar to female.

Comments. There are variations in the marginal cell of some specimens; they have setae next to the pterostigma and posterior transverse carina weak centrally. This species is distributed on the western Andes north of Chile.

Examined material. 4♂♂, 15♀♀: labeled as follows: **CHILE:** 4♂♂, 15♀♀ “Q. El León [Quebrada El León], Atac. [Atacama] X.5.1980 [05.x.1980] Chile [,] Luis Peña” (AEIC).

Alophophion new species 16

(Figs. 23, 43, 64, 70)

Diagnosis. This species can be recognized by this combination of the features: face 0.8x as wide as long, clypeus convex with coriarius texture between punctures and metapleuron fulvous with apical half yellowish.

Description. ♀: **Head.** Face (Fig. 23) 0.8x as wide as long; median portion weakly convex; punctate, coriarius texture between punctures. Clypeus convex; coriarius texture between punctures; apical edge slightly convex. Compound eyes 0.8–0.9x as wide as face. Malar space 0.1x as long as basal width of mandible. Gena, in lateral view (Fig. 43), 0.3–0.4x as wide as compound eyes, coriarius texture between punctures. Frons coriarius, slightly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.2x ocellar diameter; distance between ocelli 0.5–0.9x ocellar diameter. Antenna with 46–52 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.5–5.3:2.9–3.0:2.6:2.4–2.5: 2.4–2.5:2.4:2.2–2.3. Ratio of length/width of pre-apical flagellomeres: 1.5–1.7x.

Mesosoma. Pronotum in upper half punctate, coriarius between punctures; rugulose; lower half of collar striate. Mesoscutum punctate, coriarius between punctures. Notaulus reaching to 1/3 distance to posterior margin of mesoscutum, basally scrobiculate. Mesoscutellum evenly convex, with smooth texture between punctures; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 64) coarsely punctate, coriarius between punctures; speculum smooth between punctures; mesopleural furrow softly rugose, reaching to middle of mesopleuron. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron coarsely punctate, coriarius between punctures; lower half softly

rugose. Fore wing with CI=0.5–0.6; ICI=0.8–0.9; SDI=1.4–1.5; 1m-cu slightly curved; ramulus small; marginal cell apically with a glabrous area next to proximal half of Rs+2r; sub-basal cell glabrous. Hind wing with 6–7 hamuli on R1 distally; NI=0.6–0.9; cu-a slightly curved. Propodeum (Fig. 70) with anterior transverse carina present, faint laterally; posterior transverse carina present between pleural carinae; lateral longitudinal carinae present before anterior transverse carina, faint between transverse carinae, well develop behind posterior transverse carina; lateromedian longitudinal carinae present between transverse carina, behind posterior transverse carina confluent; softly carinate texture, except: areas basalis and externa punctate, coriarius between punctures; pleural carina present.

Metasoma. First tergite 5.3x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Fulvous except following: face laterally, frons laterally, between ocelli, vertex, gena, collar, a spot in upper margin of pronotum and lower half, tegula, subalar prominence, lateral margins of mesoscutum, a longitudinal stripe from notaulus to the posterior end of mesoscutum, mesoscutellum, anterior half of speculum, spot between subalar prominence and mesopleural furrow, a spot in posterior lower mesopleuron, metapleuron apical half, propodeum apical half and lateral and posterior margins of tergites III to VII yellowish. Wings grayish hyaline; veins brownish and pterostigma cream colored, centrally brownish.

♂: Similar to female.

Comments. There are variations in the texture of the face and clypeus whereby they are smooth instead of coriarius between the punctures. There is also variation in the propodeum with a few specimens having the lateromedian longitudinal carinae behind the posterior transverse carina close together forming a thin area petiolaris and with a smoother texture. This species is distributed in the Chilean regions of Atacama, Araucanía, and Coquimbo.

Examined material. CHILE: 3♂♂, 9♀♀: labeled as follows: 1♀ “40 km. S. Copiapo CHILE Prov. [Provincia] Atacama Oct. 15, 1957 [15.x.1957] L.E. Pena [Peña]”; 1♂ “El Pangué, Coquimbo, Chile Oct. 27, 1961 [27.x.1961] Luis Peña”; 2♂♂, 2♀♀ “[Valparaíso, Petorca] Los Molles XI.20.65 [20.xi.1965] Chile Luis Peña”; 1♀ “Q. [Quebrada] Algodones Pr. [Provincia] Atacama CHILE Oct. 18, 1957 [18.x.1957] L.E. Pena [Peña]”; 3♀♀ “[Araucanía] Q. [Quebrada] Boquerón Atacama Pr. [Provincia] X.18.57 Chile LPenaGuzman [Peña Guzmán]”; 2♀♀ “Q.

[Quebrada] de CHANARAL [Chañaral] Pr. [Provincia] Atacama CHILE Oct.1957 [x.1957] 300m. L.E. Pena [Peña]"; and 1♀ "Río Los Choros [Los Choros], Coquimbo, Chile X.29-30 1961 [29-30.x.1961] Luis Peña" (AEIC).

Alophophion new species 17

(Figs. 24, 44, 65, 71)

Diagnosis. This species can be recognized by this combination of the features: notaulus reaching to the 0.6x of distance to posterior margin of mesoscutum and mesoscutellum with basal half brownish and apical half yellowish.

Description. ♀: **Head.** Face (Fig. 24) 0.9 x as wide as long; median portion weakly convex; from coriarius between punctures to centrally smooth texture between punctures and laterally coriarius texture between punctures. Clypeus convex; with upper half punctate with smooth texture between punctures and lower half punctate with coriarius texture between punctures; apical edge slightly straight, laterally slightly convex. Compound eyes 0.8x as wide as face. Malar space 0.1x as long as basal width of mandible. Gena, in lateral view (Fig. 44), 0.4x as wide as compound eyes, coriarius texture between punctures. Frons coriarius, slightly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.1–0.2x ocellar diameter; distance between ocelli 0.4–0.5x ocellar diameter. Antenna with 51–53 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.8–5.1:2.8–2.9:2.5–2.6:2.4–2.5: 2.3–2.4: 2.3: 2.2–2.3. Ratio of length/width of pre-apical flagellomeres: 1.9x.

Mesosoma. Pronotum in upper half coarsely punctate, smooth between punctures; rugulose; lower half of collar striate. Notaulus reaching to 0.6 distance to posterior margin of mesoscutum. Mesoscutellum evenly convex, smooth texture between punctures; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 65) coarsely punctate, smooth between punctures; mesopleural furrow upper epicnemial carina finely scrobiculate, after that faintly scrobiculate reaching to middle of mesopleuron. Epicnemial carina weak anteriorly, curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron coarsely punctate, coriarius between punctures; juxtacoxal carina absent. Fore wing with CI=0.5–0.6;

ICI=0.7–0.8; SDI=1.5; 1m-cu slightly curved; ramulus present; marginal cell apically with a glabrous area next to pterostigma and proximal half of Rs+2r; sub-basal cell glabrous with one or two setae apically. Hind wing with 6 hamuli on R1 distally; NI=0.8; cu-a slightly curved. Propodeum (Fig.71) with anterior transverse carina present, faint laterally; posterior transverse carina faint or absent between lateromedian longitudinal carinae; lateral longitudinal carinae faint; lateromedian longitudinal carinae present between transverse carina, behind posterior transverse carina close to each other with traces of additional ones between them; carinate texture, except: areas basalis and externa punctate, coriaceous between punctures; pleural carina present.

Metasoma. First tergite 4.2–4.6x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Reddish brown except following: face laterally, frons laterally, between ocelli, vertex, gena, upper half of collar, basal half of tegula, subalar prominence, anterior half of speculum, apical half of mesoscutellum yellowish; between subalar prominence and speculum blackish brown. Wings grayish hyaline; veins brownish and pterostigma cream colored, centrally brownish.

♂: Unknown.

Comments. *Alophophion* new species 13 and *A.* new species 17 overlap in distribution in Lima.

Examined material. PERU: 5♀♀ labeled as follows: 3♀♀ “PERU: AY [Ayacucho], Laramate 14°50'44.1"S/74°44'13.4"W. 2100m. 14.ii.2009. Light Trap. L Figueroa”; 1♀ “LIMA 20-V-68 N. ESPINOLA COL”; and 1♀ “PERU: Dpto. [Departamento] Lima: Capillucas (R. [Rio] Cañete) 19:III:87 Pedro Hocking” (MUSM).

Species-group B

Diagnosis. Face at most 1x as long as wide; compound eyes at most 0.5x wide as face; head, in lateral view, gena at least 0.7x as wide as compound eyes. Mandibles with a diagonal groove extending from upper corner to middle of mandible, bearing long setae. Notaulus reaching 0.3–0.8x of distance to posterior margin of mesoscutum. Forewing with discosubmarginal cell covered by setae next to Rs+M. Color orange, brownish, some species brownish with cream spots.

Included species. Six species are included in this group, three of which are new: *A. filicornis*, *A. flavorufus*, *A. politus*, *A. new species 18*, *A. new species 19*, and *A. new species 20*.

Comments. This species group is distributed in Argentina, the south of Brazil, and Chile, possibly also Uruguay and Paraguay but collections are lacking from that countries. The distribution of this species group seems to be limited to the north by the presence of the Atacama Desert and the Altiplano or the biogeographic province of Puna and Atacama according to Morrone (2001).

Key to species of species-group B

- 1 Pre-apical flagellomeres wider than long; ramulus absent *A. filicornis* (Morley, 1912)
 - Pre-apical flagellomeres longer than wide; ramulus present 2
- 2 Propodeum with posterior transverse carina when present faintly indicated; no trace of longitudinal carinae (Fig. 106) *A. flavorufus* (Brullé, 1846)
 - Propodeum with transverse carinae well developed; longitudinal carinae delimiting dentipara area (Figs. 107–110) 3
- 3 Lateral ocelli separated from compound eyes by 0.1x maximum ocellar diameter (Fig. 99); female with area petiolaris and posteroexterna confluent, without traces of longitudinal carinae *Alophophion new species 18*
 - Lateral ocelli separated from compound eyes by at least 0.2x maximum ocellar diameter (Fig. 100); female with area petiolaris and posteroexterna separated by traces of longitudinal carinae 4
- 4 Mesopleural furrow reaching to posterior lower edge of mesopleuron (Fig. 103); marginal cell apically covered by setae; mesosoma entirely burnt orange; marginal cell of fore wing basally cover by setae *Alophophion new species 19*
 - Mesopleural furrow reaching at most to middle of mesopleuron (Fig. 104); marginal cell of fore wing basally glabrous; mesosoma fulvous or brownish with yellowish spots 5
- 5 Hind wing length of Cu1 between M and cu-a 0.6–0.7x length of cu-a; metapleuron fulvous *A. politus* (Morley, 1912)
 - Hind wing length of Cu1 between M and cu-a 0.9–1.0x length of cu-a; metapleuron with basal half brownish and apical half cream colored *Alophophion new species 20*

Alophophion filicornis (Morley, 1912)

(Figs. 87, 93, 105)

Ophion filicornis Morley, 1912: 57. Holotype ♀ BMNH [Morley's use of "type" is herein regarded as an original holotype designation (ICZN 1999: Art. 73.1.1)] [description, key].

Alophophion filicornis (Morley): Townes & Townes, 1966: 171 [generic transfer]; Yu & Horstmann, 1997: 730 [listed].

Diagnosis. This species is easily differentiable of the rest member of this species-group due lack of ramulus and apical flagellomeres wider than long, this last feature is only found in this species within the genus.

Description. ♀: **Head.** Face (Fig. 87) 1.2x as wide as long; smooth with punctures centrally, laterally with coriarius texture between punctures; median portion weakly convex. Clypeus upper half of clypeus convex, smooth texture between punctures; lower half with granulose texture between punctures; apical edge straight centrally, slightly convex laterally. Compound eyes 0.5x as wide as face. Outer mandibular surface smooth between punctures bearing long setae in the basal 2/3 and smooth between punctures in the apical 1/3. Malar space 0.3x as long as basal width of mandible. Gena, in lateral view (Fig. 93), 0.7x as wide as compound eyes, with fine punctate texture. Frons carinate between antennae and median ocellus. Vertex with texture as that of gena. Lateral ocelli separated from compound eye by 0.3x ocellar diameter; distance between ocelli 1.0x ocellar diameter. Antenna with 43 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 3.8:1.9:1.6:1.4:1.4:1.4:1.3. Ratio of length/width of pre-apical flagellomeres: 0.8x.

Mesosoma. Pronotum in upper posterior half with punctures separated between them by less than the puncture diameter, smooth between punctures; lower half and dorsal to collar striate-punctate. Mesoscutum smooth between punctures, punctures separated between them by less than the puncture diameter. Notaulus reaching to 3/4 distance to posterior margin of mesoscutum, scrobiculate. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching to posterior margin of mesoscutellum. Mesopleuron with punctures separated between them by less than the puncture diameter, smooth between punctures; lower edge of speculum scrobiculate; mesopleural furrow basally scrobiculate them becoming areolate-

rugose, reaching to posterior lower mesopleuron; lower edge of speculum to subalar prominence, on area next to epicnemial carinae scrobiculate. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of the pronotum. Metapleuron with rugulose texture. Fore wing with CI=0.5; ICI=0.5; SDI=1.4; 1m-cu centrally curved and with ramulus absent; fenestra in a bead shape; sub-basal cell without setae; marginal cell marginal cell apically cover by setae. Hind wing with 7 hamuli on R1 distally; NI=0.7; cu-a curved. Propodeum (Fig. 105) with anterior and posterior transverse carina present, between them longitudinal carinae present but faintly indicated; with rugulose texture, except punctate before anterior transverse carinae; pleural carinae present.

Metasoma. First tergite 3.8x as long as apical width. Tergite II with spiracle located at 0.5 of tergite.

Color. Reddish brown except following: laterally to compound eyes, between ocelli, mesoscutellum and subalar prominence yellowish. Wings grayish hyaline; veins and pterostigma brownish black.

♂: unknown

Type material examined. Holotype: ♀ labeled as follows: “Type [handwritten:] MS/B.M. TYPE HYM. [handwritten:] 3.b.1304/ Name by Claude Morley [handwritten:] *O. filicornis* Morl. Slm Type ♀ ii.1911/ Argentina. O.W. Thomas 1904-148” (BMNH).

Alophophion flavorufus (Brullé, 1846)

(Figs. 5, 88, 94, 101, 106)

Ophion flavo-rufus Brullé, 1846: 144. [description]

Ophion flavorufus Dalla Torre, 1902: 191 [listed]; Hooker, 1912: 164 [translation of original description].

Neophion flavorufus (Brullé): Morley, 1912: 31 [generic transfer].

Alophophion flavorufus (Brullé): Townes & Townes, 1966:171. Lectotype ♂ MNHN [generic transfer, lectotype designation]; Yu & Horstmann, 1997: 730 [listed].

Diagnosis. This species can be recognized by this combination of the features: propodeum with anterior and posterior transverse carinae defined with carinate-rugose texture between them, ramulus present and apical flagellomeres longer than wide.

Description. ♀: **Head.** Face (Fig. 88) 1.2–1.3x as wide as long; with smooth texture between punctures; median portion weakly convex. Clypeus slightly convex; apical edge straight centrally, slightly convex laterally. Outer mandibular surface smooth between punctures bearing long setae in the basal 1/2 and small setae in apical 1/2. Compound eyes 0.3–0.5x as wide as face. Malar space 0.3x as long as basal width of mandible. Gena, in lateral view (Fig. 94), 0.7–0.8x as wide as compound eyes, with fine punctate texture. Frons carinate between antennae and median ocellus. Vertex with texture as that of gena. Lateral ocelli separated from compound eye by 0.2x ocellar diameter; distance between ocelli 0.7–0.8x ocellar diameter. Antenna with 44–54 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.1–4.2:2.1–2.8:1.8–2.1:1.6–2.1:1.6–2.1:1.5–2.1:1.6. Ratio of length/width of pre-apical flagellomeres: 1.2–1.3x.

Mesosoma. Pronotum in upper posterior half with punctures separated between them by more than the puncture diameter, smooth between punctures; lower half and dorsal to collar striate-punctate. Mesoscutum smooth between punctures. Notaulus reaching to 3/4 distance to posterior margin of mesoscutum, scrobiculate basally and apically rugulose. Mesoscutellum evenly convex, punctate; lateral carina reaching ca. 0.2x to posterior margin of mesoscutellum. Mesopleuron (Fig. 101) punctate, smooth between punctures, punctures separated between them by less than the puncture diameter; except lower edge of speculum scrobiculate. Mesopleural furrow basally scrobiculate then becoming areolate-rugose reaching to posterior lower mesopleuron; lower edge of speculum to subalar prominence, on area next to epicnemial carinae scrobiculate. Epicnemial carina not reaching pronotum. Metapleuron with rugulose texture. Fore wing with CI=0.5–0.7; ICI=0.6; SDI=1.4–1.6; 1m-cu straight; ramulus present; Rs+M curved; marginal cell apically covered by setae; sub-basal cell without setae, rarely with one. Hind wing with 7 hamuli on R1 distally; NI=0.6–0.8; cu-a curved. Propodeum (Fig. 106) with anterior present and well defined, not reaching to pleural carinae; posterior transverse carina present, wavy-rugulose, generally faintly indicated in the middle, reaching to pleural carinae; punctate before anterior transverse carinae, with longitudinal carinate-rugose texture between transverse carinae, and behind posterior transverse carinae areolate-rugose; pleural carinae present.

Metasoma. First tergite 4.8–5.0x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Reddish brown except following: around to compound eyes, something between ocelli, collar, mesoscutum basally between notauli and lateral edges, sometimes notauli, tegula, mesoscutellum, subalar prominence and posterior lower mesopleuron yellowish. Wings grayish hyaline; veins dorsally brownish black, veins ventrally and pterostigma yellowish brown.

♂: Similar to female except by gena, in lateral view, 0.6x as wide as compound eyes. Hind wing with 7 hamuli on R distally but in a small male 6.

Comments. This species is distributed in the east of the Andes, in Argentina and southern Brazil, from 250 to 1000m.

Brullé (1846) described the species from material collected in Brazil, but no type was designated. Townes & Townes (1966) designated a lectotype from Argentina. The specimens studied of *A. flavorufus* were distributed in the Argentinan provinces Catamarca, Buenos Aires, Mendoza, and San Juan; in Brazil it was only recorded from Rio Grande do Sul.

Type material examined. Lectotype: ♂ labeled as follows: “Muséum Paris EY6718/ del’emb. Del’uruguay jusqu’au missions/*Ophion flavorufus*”(MNHN).

Non type examined material: 2♂♂ 29♀♀: labeled as follows: **ARGENTINA:** 2♂♂, 28 ♀♀: 1♂ 3♀♀ “16-18 Km. N. La Merced IX.26-27.68 [26-27.ix.1968] 1000m Cat. [Catamarca] Argentina Luis Peña”, 4♀♀ “Alapachiri, Tuc. [Tucumán] X.1.68 [01.x.1968] Argent. [Argentina] Luis Peña”, 1♀ “R. A. [Argentina] MENDOZA III.946 [, iii.1946] Col. Mansoner/Inst. M. Lillo [Instituto Miguel Lillo]”, 3♀♀ “San Luis Argentina Mendoza iv.4.62 [04.iv.1962] Luis Peña”, 2♀♀ “San Pedro de Colalao Tucumán, Argent. [Argentina] XI.8-XII.8.67 [08.xi-08.xii.1967] Lionel Stange”, 1♀ “N. Aconquija, Cat. [Catamarca] X.1-2.68 [01-02.X.1968] Argent. [Argentina] Luis Peña”, 1♂ “Amaicha del Valle XII-30-65 [30.xii.1965] Argent. [Argentina] H. & M. Townes: and 1♀ “Tafi del Valle [Tafi del Valle] I-2-66 [02.i.1960] Argent. [Argentina] H. & M. Townes” (AEIC); 5♀♀ “Tandil 250m. Bs. Aires [Buenos Aires] Argent. [Argentina] XII.1953 [xii.1953] F.H. Walz” 4 ♀AEIC; 1♀ MNHN); 1♀ “[Argentina] Pergamino Buenos Aires -8-ix-1979 [08.ix.1979]” and 7♀♀ “[Argentina: San Juan] Villa

Mercedes San Juan x-1979 [x.1979] Col Mansuz” (MLP). **BRAZIL:** 1 ♀: “BRAZIL: R.G.S. [Rio Grande do Sul] Pelotas 16 x 1952 [16.x.1952] C.M. Blezanko B.M. 1953-249” (BMNH).

Alophophion politus (Morley, 1912)

(Figs. 92, 95, 107)

Ophion politus Morley, 1912: 57 Holotype ♀ BMNH [Morley use of “type” is herein regarded as an original holotype designation (ICZN 1999: Art. 73.1.1)] [description, key].

Alophophion politus Townes & Townes, 1966:171 [generic transfer]; Yu & Horstmann, 1997: 730 [listed].

Diagnosis. This species can be recognized by this combination of the features: propodeum with longitudinal carinae well defined between transverse carinae defined and area dentipara and superomedia smooth with isolated punctures

Description. ♀: **Head.** Face (Fig. 92) 1.2–1.4x as wide as long; with smooth texture between punctures; median portion weakly convex. Clypeus with upper half convex, smooth texture between punctures; lower half flat, granulose texture between punctures; apical edge straight centrally, slightly convex laterally. Outer mandibular surface smooth between punctures bearing long setae in the basal 2/3 and smooth between punctures in the apical 1/3. Compound eyes 0.4–0.5x as wide as face. Malar space 0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 95), 0.7–0.8x as wide as compound eyes, with fine punctate texture. Frons striate between antennae and median ocellus. Vertex with texture as that of gena. Lateral ocellus separated from compound eye by 0.3–0.4x ocellar diameter; distance between ocelli 0.7–1.0x ocellar diameter. Antenna with 47–55 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.4–3.9:2.6–2.4:2.2–2.1:2.2–2.0:2.2–1.9:2.1–1.9:2.0–1.8. Ratio of length/width of pre-apical flagellomeres: 1.4–1.7x.

Mesosoma. Pronotum in upper posterior half with punctures separated between them by approximately the puncture diameter, coriarius texture between punctures; lower lateral half and dorsal to collar striate-punctate. Mesoscutum punctate, smooth between punctures, punctures separated between them by more than the puncture diameter. Notaulus reaching to 2/5 distance to posterior margin of mesoscutum, scrobiculate basally. Mesoscutellum evenly convex, with

texture as that of mesoscutum; lateral carina reaching 0.2x to posterior margin of mesoscutellum. Mesopleuron (Fig. 104) on upper half smooth between punctures and in lower half coriarius between punctures; with lower edge of subalar prominence punctate, smooth between punctures in big specimens and coriarius texture between punctures in small specimens; on the area between subalar prominence and mesopleural furrow punctate, smooth between punctures, punctures separated between them by more than the puncture diameter; lower edge of speculum scrobiculate; area between speculum and mesopleural furrow coriarius texture between punctures. Mesopleural furrow basally scrobiculate-rugose reaching usually to the middle of mesopleuron, rarely reaching to posterior lower mesopleuron. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of the pronotum. Metapleuron punctate with rugulose texture. Fore wing with $CI=0.5-0.7$; $ICI=0.6-0.7$; $SDI=1.3-1.5$; 1m-cu straight; ramulus present; Rs+M curved; marginal cell apically glabrous; sub-basal cell with isolated setae apically. Hind wing with 7–8 hamuli on R1 distally; $NI=0.6-0.7$; cu-a curved. Propodeum (Fig. 107) with anterior transverse carina present and well defined, up curved laterally, reaching to pleural carinae; posterior transverse carina present, reaching to pleural carina; punctate before anterior transverse carinae, area dentipara and superomedia smooth with isolated punctures; sometimes with a longitudinal carina dividing area superomedia; carinae longitudinal present behind posterior transverse carina but faintly indicated, wavy carinate; pleural carinae present.

Metasoma. First tergite 4.2–4.7x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Orange brown except following: around to compound eyes, between ocelli, vertex, pronotum laterally, mesoscutum basally between notauli and lateral edges, notauli, tegula, mesoscutellum, subalar prominence, posterior lower mesopleuron and metapleuron apically yellowish. Wings grayish hyaline; veins dorsally brownish black, veins ventrally and pterostigma yellowish brown.

In small specimens yellowish spot largest, mesopleuron yellowish except lower edge of speculum and subalar prominence orange; in mesoscutum spots reaching to posterior edge and apical half of metapleuron.

♂: Similar to female except some specimens with propodeal carinae less defined and with yellowish spot in the apical half of metapleuron and propodeum and a diagonal stripe in mesopleuron.

Comments. *Alophophion politus* is quite similar to *A.* new species 28. They are differentiated easily by the presence of a groove bearing long hair on the mandibles and shorter mesopleural furrow in *A. politus*.

The type locality only mentions Chile. On base of the material examined *A. politus* more precise distribution is found. It occurs at the center of Chile, regions of Araucanía, Biobío, Coquimbo, Los Ríos, Maule, Libertador General Bernardo O'Higgins Region, Metropolitana de Santiago and Valparaíso; and the Argentinian provinces of Chubut and Rio Negro. This is the first record of *A. politus* in Argentina.

Type examined material. Holotype: ♀ labeled as follows: “Type [handwritten:] MS/ B.M. TYPE HYM. 3.b.1301/Named by Claude Morley [handwritten:] *Ophion politus* Morl. Slm Type ♀ ii.1911/Chili. E. Sanders. 93-49” (BMNH).

Non type material examined. 25♂♂, 123♀♀, 2??: labeled as follows: **ARGENTINA:** 7♂♂, 12♀♀, 1?; 9♀♀ “CHILE [Argentina]: Chubut. 18.vi.1962. A. Kovacs. B.M. 1964-193.”; 7♂♂, 2♀♀ “CHILE [Argentina]: R.N. [Río Negro], El Bolson. 30.xi.1960. A. Kavocs. B.M.1964-193”; and 1♀ “L. Gutierrez 3-14.xi.1926/ Argentina: Terr. Rio Negro. F. & M. Edwards. B. M. 1927-63” (BMNH). 3♀♀, “Chubut Patagonia / From WFH Rosenberg/ [identification label: *Ophion chilensis* Spinola det C.W. Hooker 3.12-18.1909]”; and 1♀, “Chubut,-Gargo Blanco Valle Patagonia / Collection Rosenberg / [identification label: *Ophion bilineatus* Say det C.W. Hooker III.2.1909]” (USNM). **CHILE:** 24♂♂, 112♀♀, 1?: 1♀ “Alto Vilches Tal. [Talca] XII.20.77 [20.xii.1977] Chile Luis Peña”; 1♂, 3♀♀ “Canela Baja, Coquimbo, Chile X.23 1961 [23.x.1961] Luis Peña”; 2♀♀ “Concepción, Chile Quebrada Pinares II-III. 1967 [ii-iii.1967] T. Cekalovic”; 4♂♂ “[Chile] Cord. [Cordillera] Las Raices [,] Lonquimay, Chile III.22.79 [22.iii.1979], [L.] Peña”; 1♀ “Chevillen-Tregudema [¿] Chile I.25.67 [25.i.1967], [L.] Peña”; 1♀ “Curacautín, Malleco Chile XII.19-21.'50 [19-21.xii.1950] L. Pena [Peña]”; 1♀ “Curacautín, Malleco Chile XII.8.50 [08.xii.1950] L. Pena [Peña]”; 4♀♀ “Curacautín, Malleco II.'64 [ii.1964] R. [Río] Blanco Chile Luis E. Peña”; 1♀ “El Coigual, Curico I.21-25.64 [21-25.i.1964] Chile Luis E. Peña”; 1♀ “El Marchan, Chile III.1971 [iii.1971] Chillán Luis Peña”; 1♂, 1♀ “El Radal

1000-1500 Talca prov. [Provincia] XI.22.57 [22.xi.1957] Chile L Pena Guzman [L. Peña Guzmán]”; 7♀♀ “Estero La Jaula Los Quenes [Los Queñes] Curico I.4-18.64 [04-18.i.1964] Chile Luis E. Peña”; 1♀ “Fundo El Coigo [,] Cord [Cordillera] Curico Chile XII.20-31.59 Luis Pena [Peña]”; 1♀ “Lago Italma Cord. [Cordillera] Lonquimay I.12-17.62 [12-17.i.1962] Chille Luis Peña”; 1♂ “Lago Puyehue, Pr. [Provincia] Osorno CHILE Feb.18, 1957 [18.ii.1957] L.E. Pena [Peña]”; 1♂, 2♀♀ “Las Trancas, Chile April 1972 [vi.1972] Chillán Luis Peña”; 1♀ “Las Trancas, Chile II.6-11.66 [06-11.ii.1966] Chillán Luis Peña”; 1♂, 1♀ “Las Trancas, Chile I-II.71 [i-ii.1971] Chillán Luis Peña”; 12♀♀ “Las Trancas, Chile XII.1-15.75 Chillán Luis Peña”; 1♀ “Las Trancas, Chillán Chile Jan.1967 [i.1967], [L.] Peña”; 1♀ “Pucatrihue Chile Dec 1967 [xii.1967] 1966 (crossed out) Luis Peña”; 1♀ “Pucatrihue, Chile I.23-31.1966 [23-31.i.1966] Luis Peña”; 2♂♂ “Pucatrihue, Chile Sept.1967 [ix.1966] 1966 (crossed out) Luis Peña”; 1♂, 9♀♀ “Q. [Quebrada] Teniente, Coquimbo, Chile Oct. 26, 1961 [26.x.1961] Luis Pena [Peña]”; 1♀ “Recinto [,] Ñuble I.'76 [i.1976] Chile Luis Pena [Peña]”; 4♀ “Rio Blanco, Aconcagua, Chile Dec. 5-8, 1961 [05-08.xii.1961] Luis Peña”; 3♂♂, 5♀♀ “S. Pedro deQuile [San Pedro de Quiles] Coquimbo, Chile Nov. 16-17 [16-17.xi.1961], 1961 Luis Pena [Peña]”; and 1♀ “Vilches Alto Cord. [Cordillera] Talca I.'75 Chile [i. 1975] Luis Peña” (AEIC). 2♀♀ “Cespedes Had. [Hacienda] Illapel Coquimbo Pr. [Provincia] XI.26.59 [26.xi.1959] Chile L Pena Guzman [L. Peña Guzmán]” (1♀ MNHN, 1♀ AEIC). 1♂, Quebrada El Manzano Prov. [Provincia] Santiago Chile X.28.51 [28.x.1951] 1200 m Thra Walz” (MNHN). 1♂ “Casa Pangué. 4-10.xii.1926./ S. Chile: Llanquihue prov. F. & M. Edwards. B.M. 1927-63”; 1♀ “CHILE: Maipo [Maipo] Valley 5.xi.1971 BM1973-192 [handwritten:]”; 1♀ “CHILE: Trata [¿] Victoria. 24.iii.1961. A. Kovacs. B.M. 1964-193” (BMNH). 2♀♀ “CHILE MALLECO Vn. [¿] Lonquimay 1400m 22.XII.1994 [22.xii.1994] J.E. Barriga”; 1♀ “CHILE: CURICO Licancel [Licantén], Licnateú [Lincancel] 22.XII.1993 [22.xii.1993] JEBarriga [J.E. Barriga] & Lperalta [& L. peralta] black light”; 1♀ “CHILE: IX Región road to Volcan Villarrica o Rio Seco 7.XII.1994 [07.xii.1994] 39°20'S 71°58'W SLHeydon [S.L. Heydon] & Earias [E. Arias]”; 1♂, 2♀♀ “CHILE: IX Región [Araucanía] Salto El Puma ~ 28km SE Pucón 39°25'S 71°45'W 7.XII.1994 [07.xii.1994] SLHeydon [S.L. Heydon] & Earias [E. Arias]”; 5♀♀ “ CHILE: Prov. [Provincia] Curico 10km w. Licanten 20.XII.1993 JEBarriga [J.E. Barriga] & LPeralta [& L. Peralta] at light”; 18♀♀ “ CHILE: TALCA Alto Vilches 27.XII.1987 [27.xii.1987] J.E. Barriga”; 1♀ “CHILE: VII [Maule] Región Curicó Altos de Vilches 18.XII.1996 [18.xii.1996] E. Arias lighth trap”; 1♀ “CHILE: VIII

Región [Biobío] Hotel de Montaña Los Pirineos Termas de Chillán 36°54'S 71°29'W 22.XI.1994 [22.xi.1994] 1200m SLHeydon [S.L. Heydon] & Earias [E. Arias]"; and 9♀♀ "CHILE: VIII Región Los Lleuques 14km w. Termas de Chillán 1080m 36°54'S 71°32'W 23-24.XI.1994 [23-24.xi.1994] SLHeydon [S.L. Heydon] & Earias [E. Arias]" (UCDC). 1♀ "MUSEUM PARIS CHILI GAY 1843 / *Ophion intricatus*" (USNM).

Alophophon new species 18

(Figs. 4, 90, 96, 99, 102, 108)

Diagnosis. *Alophophon* new species 18 is unique, within this species-group, in having the posterior ocelli separated from the compound eyes by 0.1x its maximum diameter and the distance between ocelli 0.6x ocellar diameter.

Description. ♀: **Head.** Face (Fig. 90) 1.2x as wide as long; smooth texture between punctures; median portion weakly convex. Clypeus slightly convex, coriarius texture between punctures; apical straight centrally, slightly convex laterally. Outer mandibular surface smooth bearing isolate long setae in the basal 1/2. Compound eyes 0.5x as wide as face. Malar space 0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 96), 0.7x as wide as compound eyes, smooth texture between punctures. Frons striate between antennae and median ocellus. Vertex with texture as that of gena. Lateral ocellus separated from compound eye by 0.1x ocellar diameter; distance between ocelli 0.6x ocellar diameter. Antenna with 53–59 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.5–4.9:2.6:2.2:2.1–2.0:2.0:1.9:1.9. Ratio of length/width of pre-apical flagellomeres: 1.5–1.6x.

Mesosoma. Pronotum in upper posterior half with punctures separated between them by less than the puncture diameter, coriarius texture between punctures; lower lateral half and dorsal to collar striate-carinate. Mesoscutum punctate, smooth between punctures, punctures separated between them by less than the puncture diameter. Notaulus reaching to 2/5 distance to posterior margin of mesoscutum; scrobiculate. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.6x to posterior margin of mesoscutellum. Mesopleuron (Fig. 102) rugulose except under speculum, subalar prominence scrobiculate and between subalar prominence and mesopleural furrow scrobiculate; mesopleural furrow basally

scrobiculate them becoming rugulose reaching to posterior lower mesopleuron. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of the pronotum. Metapleuron with rugulose texture. Fore wing with CI=0.5–0.6; ICI=0.5–0.7; SDI=1.4; 1m-cu straight; ramulus present; Rs+M curved; marginal cell apically cover by setae; sub-basal cell usually without setae, at most with one or two isolate setae. Hind wing with 7 hamuli on R1 distally, rarely with 8 hamuli; NI=0.9; cu-a curved. Propodeum with anterior and posterior transverse carina present, between them longitudinal carinae present; transverse carinae wavy; area petiolaris confluent with area posteroexterna, occupying more than half of propodeum (Fig. 108); with coarsely wavy carinate texture, except punctate before anterior transverse carinae; pleural carinae present.

Metasoma. First tergite 4.4–4.6x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Head fulvous orange except following: surrounding area of compound eyes, vertex, gena, pronotum, lateral margin of mesoscutum, notauli, tegula lower 1/3 and apical 1/3, axila, mesoscutellum, postscutellum centrally, subalar prominence, speculum, a diagonal stripe in mesopleuron, metapleuron, sternite I and II, sternite III to VI centrally yellowish and tarsomeres yellowish.

♂: Similar to female except following: softer texture in propodeum, behind posterior transverse carinae with several longitudinal carinae and mesopleuron between mesopleural furrow and subalar prominence (under scrobiculate area) punctate, smooth between punctures, punctures separated between them by less than the puncture diameter.

Comments. Restricted to the Tucumán and Salta provinces in Argentina.

Examined material: 5♂♂, 7♀♀: labeled as follows: **ARGENTINA:** 1♂, 2♀♀ “San Pedro de Colalao Tucumán, Argent. [Argentina] IX.1-11.68 [01-11.xi.1968] Lionel Stange”, 4♂♂, 1♀ “Tacamas, Tucumán IX.11-X.5.68 [11.ix-05.x1968] Argent. [Argentina] Lionel Stange”, 3♀♀ “Tacamas, Tucumán X.5-30.68 [05-30.x.1968] Argent. [Argentina] Lionel Stange”, and 1♀ “R. A. [Argentina] SALTA Cafayate 26.VII.944 [26.vii.1944] Col. R. Golbach” (AEIC).

Alophosphion new species 19

(Figs. 91, 97, 100, 103, 109)

Diagnosis. The most striking characteristic of this species, within the species-group, is the mesopleural furrow reaching to the posterior lower edge of the mesopleuron, and the lateromedian longitudinal carinae convergent behind posterior transverse carina.

Description. ♀: **Head.** Face (Fig. 91) 1.2–1.3x as wide as long; smooth texture between punctures; median portion weakly convex. Clypeus slightly convex, smooth texture between punctures; apical edge straight centrally, slightly convex laterally, coriarius texture between punctures. Outer mandibular surface smooth bearing long setae in the basal 2/3. Compound eyes 0.5x as wide as face. Malar space 0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 97), 0.7x as wide as compound eyes, smooth texture between punctures. Frons striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.2–0.3x ocellar diameter; distance between ocelli 0.5–0.6x ocellar diameter. Antenna with 51–52 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.1–4.2:2.4:2.2–2.1:2.1–2.0:1.9–2.0:1.8–1.9:1.7:1.8. Ratio of length/width of pre-apical flagellomeres: 1.6–1.8x.

Mesosoma. Pronotum in upper posterior half with punctures separated between them by less than the puncture diameter, coriarius texture between punctures; lower half and dorsal to collar striate. Mesoscutum punctate, smooth between punctures, punctures separated between them by less than the puncture diameter. Notaulus reaching to 1/3 distance to posterior margin of mesoscutum, finely scrobiculate. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.4x to posterior margin of mesoscutellum. Mesopleuron (Fig. 103) punctate, smooth between punctures, punctures separated between them by more than the puncture diameter; lower edge of speculum scrobiculate; mesopleural furrow basally softly scrobiculate then becoming rugulose reaching to posterior lower mesopleuron. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of the pronotum. Metapleuron with rugulose texture. Fore wing with CI=0.4–0.5; ICI=0.7; SDI=1.5–1.6; 1m-cu straight; ramulus present; Rs+M curved; marginal cell apically cover by setae; sub-basal cell usually without setae, at most with one or two isolate setae. Hind wing with 7 hamuli on R1 distally, rarely with 8 hamuli; NI=0.5–0.6; cu-a curved. Propodeum (Fig. 109) with anterior and

posterior transverse carina present; longitudinal carinae present, except before anterior transverse carina; lateromedian longitudinal carinae after posterior transverse carinae convergent, fused to form a single median longitudinal carina, unusually longitudinal carinae getting close but not converging; with coarsely wavy carinate texture, except punctate before anterior transverse carinae; pleural carinae present.

Metasoma. First tergite 5.0–5.3x as long as apical width. Tergite II with spiracle located at 0.4–0.5x of tergite.

Color. Burnt orange except following: surrounding area of compound eyes, vertex and gena yellowish orange.

♂: Similar to female

Comments. Some specimens have softer texture in the propodeum and the epicnemial carina is not well defined in mesopleuron. These variations are indistinct from the sex. The apical corner of marginal cell sometimes with the setae fallen down, but the hollows left by them allow them to be identify.

There is one specimen determinate as *Ophion luteus* (Linnaeus, 1758) examined by Morley (1912), he mentioned that he could not find distinction between this specimen and others distributed in Jamaica, Monte Video and Soriano in Uruguay. This specimen belongs to *Alophophion* and was misidentified.

This species is distributed from Biobío in Chile and Neuquén in Argentina to the south of the continent.

Examined material: 10♂♂, 14♀♀: labeled as follows: **ARGENTINA:** 1♂, 4♀♀: 1♀ “CHILE [Argentina]: R.N. [Río Negro], El Bolson. 20.i.1960. A. Kavocs. B.M.1964-193” and 1♀ “CHILE [Argentina]: R.N. [Río Negro], Rio Azul. 05.i.1960. A. Kavocs. B.M.1964-193” (BMNH); 1♀ “Pucará, Lago Lacar, Neuquen, Argentina February 4, 1968 [04.ii.1968] L & J Stange”; and 1♂ “Pto. [Puerto] Aqua, L. [Lago] Trafal, Neuquen, Argentina January 30, 1968 [30.i.1968] L & J Stange” (AEIC). **CHILE:** 9♂♂, 8♀♀: labeled as follows: 1♂, 4♀♀ “Isla Riesco [,] Magallanes [Magallanes y de la Antártica Chilena, Magallanes] II-18-61 [18.ii.1961] Chile T. Cehalovick”; 1♂ “Pucatrihue Osomo Chile II.3-4.67 [03-04.ii.1967], [L.] Peña”; 1♀ “3 km. E Las Trancas Ñuble Chile I.16.67 [16.i.1967] Lionel Stange” and 5♂♂, 2♀♀ “Dalcahue

CHILE Prov. [Provincia] Chiloe Feb. 1957 [ii.1957] L. E. Pena [Peña]" (AEIC); 1♂, 1♀ "Punta Arenas [,] Magallanes [Magallanes y de la Antártica Chilena, Magallanes] III-09-61 [09.iii.1961] Chile T. Cehalovick" (1♀ BMNH, 1♂ AEIC); and 1♂, 2♀♀ "CHILE: Chiloe Al Pacifico Road 7.ii.1985 I.D. Gauld" (BMNH). **Unknown location:** 1♀ "6349/ Ophion luteus, Linn [handwritten:]/ Referred to Holiday Trans Linn. Soc. 1836 p. 319" (BMNH).

Alophophion new species 20

(Figs. 89, 98, 110)

Diagnosis. Within this species-group, *A. new species 20* is the only one with coloration brownish red with cream color spots, and the lateromedian longitudinal carinae after posterior transverse carinae well defined, not converging.

Description. ♀: **Head.** Face (Fig. 89) 1.3x as wide as long; with smooth texture between punctures; median portion weakly convex. Clypeus with upper half convex, smooth texture between punctures; lower half flat, smooth texture between punctures; apical edge straight centrally, slightly convex laterally. Outer mandibular surface smooth between punctures bearing long setae in the basal 2/3 and smooth between punctures in the apical 1/3. Compound eyes 0.5x as wide as face. Malar space 0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 98), 0.9x as wide as compound eyes, with fine punctate texture. Frons carinate between antennae and median ocellus. Vertex with texture as that of gena. Lateral ocellus separated from compound eye by 0.3–0.4x ocellar diameter; distance between ocelli 0.7–0.8x ocellar diameter. Antenna with 45–49 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 5.0–5.2:2.3:2.1:2.0–1.9:2.0–1.9:1.9–1.8:1.8:1.7. Ratio of length/width of pre-apical flagellomeres: 1.2–1.4x.

Mesosoma. Pronotum in upper posterior half with punctures separated more than puncture diameter, smooth between punctures; lower lateral half and dorsal to collar striate-punctate. Mesoscutum punctate, smooth between punctures, punctures separated between by about the puncture diameter. Notaulus reaching to 1/3 distance to posterior margin of mesoscutum, scrobiculate basally. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.2x to posterior margin of mesoscutellum. Mesopleuron coarsely punctate,

smooth between punctures, separated between by about the puncture diameter; lower edge of speculum scrobiculate; mesopleural furrow basally scrobiculate-rugose reaching usually to the middle of mesopleuron. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of the pronotum. Metapleuron punctate with rugulose texture. Fore wing with CI=0.6; ICI=0.6–0.7; SDI=1.5–1.6; 1m-cu straight; ramulus present; Rs+M curved; marginal cell apically glabrous; sub-basal cell with isolated setae apically. Hind wing with 7 hamuli on R1 distally; NI=0.9–1.0; cu-a curved. Propodeum (Fig. 110) with anterior present and well defined, reaching to lateral longitudinal carina; posterior transverse carina present, reaching to pleural carina; longitudinal carinae present, except before anterior transverse carina; lateromedian longitudinal carinae after posterior transverse carina convergent, fused to form a single median longitudinal carina; rugulose texture, except punctate before anterior transverse carina.

Metasoma. First tergite 4.9x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Brownish red except following: around to compound eyes, between ocelli, vertex, anterior half of upper half of pronotum, collar, lateral margins of mesoscutum, a central stripe, a longitudinal stripe from notaulus to 3/4 of mesoscutum, mesoscutellum, tegula, subalar prominence, speculum, spot between subalar prominence and mesopleural furrow, a spot in posterior lower mesopleuron, metapleuron apical half, propodeum apical half and tergite basal half. Wings grayish hyaline; veins brownish and pterostigma brownish, basally yellowish.

♂: Similar to female except by the yellowish spots more expanded than in females.

Comments. This species is distributed in the Chilean regions of Atacama and Coquimbo.

Examined material: 1♂, 2♀♀: labeled as follows: **CHILE:** 1♂ “Canela Baja, Coquimbo, Chile X.23 1961 [23.x.1961] Luis Peña” (AEIC); and 2♀♀ “Vista Alegre prov. [province] Huasco CHILE 6.XI.1991 [06.xi.1991 leg. J.E. Barriga/Collection J.E. Barriga CHILE 26192 [other specimen 26193]” (UCDC).

Species-group C

Diagnosis. Face at most 1x as long as wide or wider (Figs. 111–130); compound eyes at most 0.6x wide as face; head, in lateral view (Figs. 131–148), gena 0.7 to 0.9 x wide as compound

eyes. Mandible with upper surface with small groove (Figs. 6–7), groove rarely reaches external surface of mandible, if so, then only in intersection between upper and external surface and never reaching to center of external surface; groove bears small setae. Color yellowish, olive green, brownish, some species brownish with cream spots.

Included species. Nineteen species were found in this group – *A. chilensis* (Spinola 1851), *A. porculatus* (Morley, 1912) and *A. larseni* (Enderlein, 1912), *A. new species 21*, *A. new species 22*, *A. new species 23*, *A. new species 24*, *A. new species 25*, *A. new species 26*, *A. new species 27*, *A. new species 28*, *A. new species 29*, *A. new species 30*, *A. new species 31*, *A. new species 32*, *A. new species 33*, *A. new species 34*, *A. new species 35* and *A. new species 36*.

Key to species of species group C

- 1 Discosubmarginal cell with area next to Rs+M vein with setae, usually setae extending until pterostigma (Figs. 187–189, 191) 2
 - Discosubmarginal cell with a glabrous area next to the Rs+M vein, this area confluent with fenestra (Figs. 190, 192) 16
- 2 Propodeum with posterior transverse carina absent between lateral longitudinal carinae (Figs. 171–173)..... 3
 - Propodeum with posterior transverse carina present between lateral longitudinal carinae; sometimes weaker centrally (Figs. 174–180) or only present between lateromedian longitudinal carinae (Fig. 169) 5
- 3 Propodeum only with longitudinal carinae present apically (Fig. 171); sub-basal cell glabrous, only bearing one seta ***Alophophion new species 21***
 - Propodeum with anterior transverse carina present, sometimes only present centrally (Figs. 172–173); sub-basal cell with setae over apical section (Fig. 187–188) 4
- 4 Fore wing with sub-basal cell with a row of setae parallel to M+Cu (Fig. 187); fenestra comma-shaped ***Alophophion new species 22***
 - Fore wing with sub-basal cell without a row of setae parallel to M+Cu (Fig. 188), if it is present with only two setae; fenestra bead shaped ***Alophophion new species 23***

5	Mesopleural furrow absent (Figs. 150, 151, 155–157); mesopleuron with surface homogeneously ornamented, generally punctate	6
–	Mesopleural furrow present (Figs. 149, 158–160), mesopleural furrow scrobiculate, rugulose or areolate-rugose texture; rest of mesopleuron with surface generally punctate	11
6	Propodeum with striate-punctate texture except coarsely punctate anterior area (Fig. 174)	<i>Alophophion</i> new species 24
–	Propodeum with texture not as described above (Figs. 168, 170, 174–176)	7
7	Propodeum with longitudinal carinae present between transverse carinae, enclosing area superomedia and dentipara (Figs. 168, 170)	8
–	Propodeum with lateral longitudinal carinae not distinguishable between transverse carinae (Figs. 169, 175)	9
8	Lateral ocellus separated from compound eye by 0.2x ocellar diameter	<i>A. chilensis</i> (Spinola 1851) (in part)
–	Lateral ocellus separated from compound eye by 0.4x ocellar diameter	<i>A. porculatus</i> (Morley, 1912)
9	Speculum smooth between punctures (Fig. 157)	<i>Alophophion</i> new species 26
–	Speculum scrobiculate, sometimes only in the proximal half (Figs. 150, 156)	10
10	Propodeum with posterior transverse carina present except between lateromedian and lateral longitudinal carinae	<i>Alophophion</i> new species 25
–	Propodeum with transverse carinae faint only well-defined between lateromedian longitudinal carinae (Fig. 169)	<i>A. larseni</i> (Enderlein, 1912)
11	Metapleuron rugulose (Figs. 158, 159)	12
–	Metapleuron punctate, granulo-punctate, or punctate on upper half and rugulose on lower half (Figs. 149, 160–161)	13
12	Mesopleuron furrow scrobiculate; epicnemial carina well delimited laterally (Fig. 158)	<i>Alophophion</i> new species 27

- Mesopleuron furrow rugulose, sometimes present only around epicnemial carina, generally reaching to posterior lower mesopleuron; epicnemial carina not well delimited laterally (Fig. 159) ***Alophophion* new species 28**
- 13 Propodeum with lateromedian longitudinal carinae confluent behind posterior transverse carina, area petiolaris absent; carinae lamellate (Fig. 167) ***Alophophion* new species 36**
- Propodeum with lateromedian longitudinal carinae independent behind posterior transverse carina, area petiolaris present; carinae not lamellate, sometimes weak 14
- 14 Speculum with lower edge smooth (Fig. 149); area superomedia of propodeum well delimited, smooth (Fig. 168) ***A. chilensis* (Spinola 1851)** (in part)
- Speculum with inferior edge scrobiculate (Figs. 160–161); area superomedia of propodeum usually not delimited, if delimited, then carinate-rugose (Figs. 179–180) 15
- 15 Fenestra thin, wider transverse diameter narrower than area between fenestra and Rs+M vein (Fig. 189); notaulus basally coarsely punctate, smooth between punctures
..... ***Alophophion* new species 29**
- Fenestra wide, wider transverse diameter wider than the area between fenestra and Rs+M vein (Fig. 190); notaulus basally scrobiculate ***Alophophion* new species 30**
- 16 Propodeum without posterior transverse carina, if present, then only present laterally forming area coxalis (Fig. 182) 17
- Propodeum with posterior transverse carina present (Figs. 183) 18
- 17 Ramulus present (Fig. 191); body color brownish with cream white spots (Fig. 162) ...
..... ***Alophophion* new species 31** (in part)
- Ramulus absent or only represented as an angle of Rs+M (Fig. 132); body color brownish (Fig. 163) ***Alophophion* new species 32**
- 18 Clypeus with ventral-lateral edges angulate giving a square appearance
..... ***Alophophion* new species 33**
- Clypeus with ventral-lateral edges more or less curved 19
- 19 Mesosoma whitish cream with brown spots ***Alophophion* new species 31** (in part)

- Mesosoma olive green or yellowish 20
- 20 Propodeum more or less smooth, shiny; lateral longitudinal carina absent between transverse carinae (Fig.184) ***Alophophion* new species 34**
- Propodeum coarsely striate especially behind posterior transverse carinae; lateral longitudinal carina present between transverse carinae (Fig.185)
..... ***Alophophion* new species 35**

***Alophophion chilensis* (Spinola 1851)**

(Figs. 111, 130, 149, 168)

Ophion chilensis Spinola, 1851: 515. [description]; Dalla Torre, 1902: 188 [listed]; Hooker, 1912: 39. [translation of original description, key]; Morley, 1912: 55. [description, key];
Alophophion chilensis Cushman, 1947: 440 [genotype, generic transfer]; Townes & Townes, 1966:171 [listed]; Yu & Horstmann, 1997: 730 [listed].

Diagnosis. This species is easy to distinguish by the presence of the areas superomedia and dentipara enclosed by carinae, and body predominantly olive green colored with the legs ferruginous.

Description. ♀: **Head.** Face (Fig. 111) 1.0 x as wide as long; with smooth texture between punctures; median portion weakly convex. Clypeus slightly convex; upper half smooth texture between punctures; lower half coriarius between punctures; apical edge straight centrally, curved laterally. Compound eyes 0.6x as wide as face. Malar space 0.1–0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 130), 0.6–0.7x as wide as compound eyes, smooth texture between punctures. Frons striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.2x ocellar diameter; distance between ocelli 0.6x ocellar diameter. Antenna with 48–54 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 3.7–4.2:2.4–2.4:2.1–2.3:2.0:1.9–2.0:1.8–1.9:1.7–1.9. Ratio of length/width of pre-apical flagellomeres: 1.5–1.7x.

Mesosoma. Pronotum in upper-distal punctate, smooth between punctures; lower half striate-carinate; lower half of collar striate. Mesoscutum smooth between punctures; rarely coriarius

between punctures in lower half. Notaulus reaching to 1/3 distance to posterior margin of mesoscutum, finely scrobiculate basally. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 149) smooth between punctures; lower edge of speculum usually with texture as mesopleuron, in some specimens with anterior half softly scrobiculate; mesopleural furrow absent or small and rarely reaching to posterior lower mesopleuron. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron punctate, smooth between punctures, some specimens with punctate-rugulose texture in the lower half. Fore wing with CI=0.4–0.5; ICI=0.7; SDI=1.4; 1m-cu straight; ramulus present; Rs+M curved; marginal cell basally cover by setae; sub-basal cell glabrous. Hind wing with 7 hamuli on R1 distally; NI=0.7–1.0; cu-a curved. Propodeum (Fig. 168) with anterior and posterior transverse carina present; longitudinal carinae present between transverse carinae; area petiolaris and area posteroexterna continuous, longitudinally striate; area superomedia and area lateralis continuous, transversally striate; propodeum anterior area punctate; pleural carinae present.

Metasoma. First tergite 4.3–4.4x as long as apical width. Tergite II with spiracle located at 0.6x of tergite.

Color. Olive green to light straw yellow except following: antennae, frons centrally, mesosternum, three vittae, legs, lateral and apical metasomal tergites III to VI, and ovipositor sheath ferruginous.

♂: Similar to female

Comments. Bigger specimens usually are greener than smaller and mesopleural furrow extending longer; instead of having smooth texture as in small specimens, they have granulose texture in the bigger specimens.

Hooker (1912) re-described the species and mentioned that the localization of the type was unknown for him; Townes & Townes (1966) in their catalogue and reclassification of the Neotropical Ichneumonidae also mentioned that the type was lost; Casorali & Casorali Moreno (1980) assembled a catalogue of the Hymenoptera types of Massimiliano Spinola and in that document *A. chilensis* is not listed; therefore the type specimen is considered lost. Here is not designed a neotype, the species is easily differentiable from the rest of species of this species-group by the feature mentioned in the diagnosis.

Hooker (1912) translated the original description of the species; and studied numerous specimens from “Largo Blanco Valle, Chubut Territory, Patagonia, Argentina”. He determined them as *A. chilensis*, mentioning that there were some variations in the color, the size and presence of ramulus. I revised this material and none of them belong to *A. chilensis*, there are at least four species, between them are *A. politus*, *A. new species 28* and *A. new species 38*.

Spinola (1851) put as locality Chili. This species is distributed in the Chilean regions of Atacama, Coquimbo and Valparaiso. This provides a more accurate distribution for the species, previously known only as Chile. *Alophophion chilensis* is distributed from sea level to 1600 m.

Non type examined material: 3♂♂, 38♀♀, 2??: labeled as follows: CHILE: 2♀♀, 2♂♂ “Huasco, Atacama Pr. [Province], x.20-22.57 [20-22.x.1957], Chile L Pena [Peña] Guzman [Guzmán]”; 4♀♀ “S. Pedro deQuile [San Pedro de Quiles],Coquimbo [Región], nov. 16-17, 1961 [16-17.x.1961], Luis Pena [Luis Peña]”; 3♀♀ “El Pangue, Coquimbo [Región],Chile, xi.4 1961[4.xi.1961], Luis Peña; 1♀ “El Pangue, Coquimbo [Región],Chile, x.23 1961[23.x.1961], Luis Peña; 3♀♀ “El Pangue, Coquimbo [Región],Chile, xi.3-5 1961[3-5.xi.1961], Luis Peña; 14♀♀ “Rio Los Choros, Coquimbo [Región],Chile, x.29-30 1961[4.xi.1961], Luis Peña; 3♀♀ “Vicuna [Vicuña]/Pangue, Coquimbo [Región],Chile, xi.2-3.61 [2-3.xi.1961], Luis Peña; 1♂ “Rivadavia, Elqui Valley, Coquimbo [Región], x.28-29.57 [28-29.x.1957], Chile, L Pena [Luis Peña] Guzman”; 1♀ “CHILE: Prov. [Province] Elqui Choros Bajos 25.X.1988 [25.x.1988] JEBarriga [J.E. Barriga]”; 1♀ “Rivadavia, Elqui Valley, Coquimbo [Region], v.16.53 [16.v.1953], Chile, L Pena [Luis Peña] Guzman”; 1♀ “*Q.[Quebrada] Chañaral*, Coquimbo [Region] 300 m, x.23.57 [23.x.1957], Chile, L Pena [Luis Peña] Guzman”; 2♀♀ “Rio Blanco, Aconcagua [Valparaiso Region], Chile, Dec. 5-8, 1961 [5-8.x.1961], Luis Peña; 1♀ “Piscicultura, Chile, R. [Río] Blanco, Aconcagua, XI.10.64 [10.xi.1964], 1600 m. Luis E. Peña”1♀ “Los Molles, [Valparaiso Region], XI.20.65 [20.xi.1965], Chile, Luis Peña” (AEIC) and 1♀,2?? [metasoma lost] “Chili, 28 08 [reverse of label, 28 in the line and 08 below]” (BMNH). 1♀ “CHILE: Prov. [Province] Elqui Choros Bajos 25.X.1988 JEBarriga [J.E. Barriga]” (UCDC).

***Alophophion larseni* (Enderlein, 1912)**

(Figs. 112, 131, 150, 169)

Ophion larseni Enderlein, 1912:41. [description]; Townes & Townes, 1966:170. [listed].

Ophion occidentalis Morley, 1912: 57. [description, key].

Alophophion occidentalis Townes & Townes, 1966:171. Lectotype ♀ BMNH [generic transfer, lectotype designation, list]; Gauld & Lanfranco, 1987:263. [generic transfer]; Gauld & Lanfranco, 1987:263. [synonymized with *A. larseni*]; and

Alophophion larseni Gauld & Lanfranco, 1987:263; Yu & Horstmann, 1997: 730 [listed].

Diagnosis. *Alophophion larseni* has transverse carinae faint, lateral longitudinal carinae absent but lateromedian longitudinal carinae well defined.

Description. ♀: **Head.** Face (Fig. 112) 1.1–1.2 x as wide as long; median portion weakly convex; centrally smooth with punctures, laterally with coriaceous texture between punctures. Clypeus slightly convex; apical edge straight. Compound eyes 0.4–0.5x as wide as face. Malar space 0.3x as long as basal width of mandible. Gena, in lateral view (Fig. 131), 0.7x as wide as compound eyes, smooth texture between punctures. Frons finely striate. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.2–0.3x ocellar diameter; distance between ocelli 0.7–1.0x ocellar diameter. Antenna with 51–56 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.3–4.7:2.2–2.4:2.0:1.9:1.8–1.9:1.7–1.8:1.7. Ratio of length/width of pre-apical flagellomeres: 1.4–1.6x.

Mesosoma. Pronotum in upper half with punctate, smooth between punctures; lower half and dorsal to collar striate. Mesoscutum punctate, smooth between punctures. Notaulus reaching to 1/2 distance to posterior margin of mesoscutum, finely scrobiculate. Mesoscutellum evenly convex, punctate; lateral carina reaching 0.2x to posterior margin of mesoscutellum. Mesopleuron (Fig. 150) punctate, smooth between punctures; speculum with proximal half finely scrobiculate; mesopleural furrow short, rugulose. Epicnemial carina curved to meet anterior margin of mesopleuron at lower third of pronotum. Metapleuron punctate, smooth between punctures, except apically with transversally carinate. Fore wing with CI=0.4; ICI=0.8; SDI=1.3–1.4; 1m-cu slightly curved; ramulus present, sometimes small; Rs+M curved; marginal cell basally cover by setae; sub-basal cell with setae apically, distributed in a triangular area next to the intersection between veins 1A and cu-a. Hind wing with 7 hamuli on R1 distally; NI=0.9–1.0; cu-a slightly curved. Propodeum (Fig. 169) with anterior and posterior transverse carina

present centrally and laterally defined, between longitudinal carinae complete or faintly indicated; area superomedia well enclosed; lateral longitudinal carinae faint or absent between transverse carinae; posterior transverse carina reaching pleural carina; areas behind posterior transverse carina not well defined, with longitudinal carinate texture; propodeum punctate, except posterior transverse carina with longitudinal carinate texture; pleural carina present.

Metasoma. First tergite 4.7–4.8x as long as apical width. Tergite II with spiracle located at 0.5x length of tergite.

Color. Fulvous except following: surrounding area of compound eyes, vertex, gena, subalar prominence, a diagonal stripe in mesopleuron, mesoscutellum and apically metapleuron yellowish.

♂: Similar to female

Comments. All the material studied suggests that there is only one species of *Alophophion* in Falkland Island; there is no doubt that *A. occidentalis* (Morley, 1912) is a synonym of *A. larseni* (Enderlein, 1912). *Alophophion larseni* was rear from an unknown Noctuid (Gauld & Lanfranco, 1987).

Type material examined. Lectotype of *Alophophion occidentalis* (Morley, 1912): 1♀ “East I. [East Falkland], Falkland Is. [Island], Nov.08,-Feb.09. [xi.1908-ii.1909], Col. [collector] A. M. Reid., 1909-277.” (BMNH).

Non type examined material: 11 ♂♂, 8 ♀♀: labeled as follows: **FALKLAND ISLANDS (ISLAS MALVINAS):** 1♂, 6♀♀ “Falkland Is [Island], ex [extracted] blowfly?, May 1979, Vet. Officer coll., No. 1, CIE a.11226”; 1♀, 4♂♂ “Falkland Is [Island]: Port Stanley, i-ii.1984, I.J. Strange; E. [East] Falkland: Port Stanley, III.1983 [iii.1983], N. Prendergast”; 2♂♂ “Falkland Island: -Elliot. [Maggie Elliot Rock], B.M. 1934-526”; 2♂♂, 1♀ “Falkland Is [Island]: Stanley [Port Stanley], A. G. Bennett., 1920-199; 1♀ “East I. [East Falkland], Falkland Is. [Island], Nov.08,-Feb.09. [xi.1908-ii.1909], Col. [collector] A. M. Reid., 1909-277.”; 1♀ “Falkland Isl [Island], [reverse of label, 74 in the line and 49 below]”; 1♂ “Falkland Is [Island], 20.12.60 [20.xii.1960], I. Stange [in a second labe 1961-443]; Falklands Island, Stanley, vi.2010, Coll. [collector] P. Cornell, at night, FERA 21015606”; 1♂ “unlabelled-data presumably same as specimens eifler side? [Det. G. Broad 2012]” (BMNH).

Alophophion porculatus (Morley, 1912)

(Figs. 113, 132, 151, 170)

Ophion porculatus Morley, 1912: 55. Holotype [Morley use of “type” is herein regarded as an original holotype designation (ICZN 1999: Art. 73.1.1)] [description, key].

Alophophion porculatus Townes & Townes, 1966:171. [generic transfer, list]; Yu & Horstmann, 1997: 730. [listed].

Diagnosis. This species can be distinguish by the lateral ocellus separated from the compound eye by 0.4x ocellar diameter, the mesopleural furrow absent and the body olive green colored.

Description. ♀: **Head.** Face (Fig. 113) 1.3 x as wide as long; smooth between punctures; median portion convex. Clypeus convex; smooth between punctures; apical edge slightly curved. Compound eyes 0.4x as wide as face. Malar space 0.3x as long as basal width of mandible. Gena, in lateral view (Fig. 132), 0.7x as wide as compound eyes, smooth texture between punctures. Frons coriarius, slightly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.4x ocellar diameter; distance between ocelli 1.0x ocellar diameter. Ratio of length/width of first flagellomere: 4.4x.

Mesosoma. Pronotum punctate, smooth between punctures; collar striate. Mesoscutum smooth between punctures. Notaulus reaching to 1/2 distance to posterior margin of mesoscutum, finely scrobiculate basally. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 151) smooth between punctures; speculum with proximal half scrobiculate; mesopleural furrow absent. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron smooth between punctures. Fore wing with CI=0.6; ICI=0.9; SDI=1.4; 1m-cu slightly curved; ramulus present; Rs+M slightly curved; marginal cell basally glabrous; sub-basal cell with setae distributed in the apical quarter. Hind wing with 7 hamuli on R1 distally; NI=1.0; cu-a curved. Propodeum (Fig. 170) with anterior and posterior transverse carina present; longitudinal carinae present, except before anterior transverse carina; lateromedian longitudinal carinae after posterior transverse carinae faint; smooth between punctures, surrounding area of carinae with softly transverse carinate texture; pleural carina present.

Metasoma. First tergite 2.7x as long as apical width. Tergite II with spiracle located at 0.5 of tergite.

Color. Olive green.

♂: unknown

Comments. The collecting information only mentions Argentina, and this species is only known by the holotype. This species has small ocelli, a feature usually found in diurnal species.

Type material examined. Holotype: ♀ labeled as follows: “Type/ B.M. TYPE HYM. 3b.2009 [handwritten]/ “Argentina. Fitzgerald. 99 124.” / Named by Claude Morley porcellanus type [handwritten]/ Ophion porculata Morl [handwritten] J.F. Perkins 1958 [last number handwritten] type [handwritten]” (BMNH).

***Alophophion* new species 21**

(Figs. 114, 133, 152, 171)

Diagnosis. This species can be recognized by this combination of the features: propodeum with the longitudinal carinae only present apically and the epicnemial carina faint.

Description. ♀: **Head.** Face (Fig. 114) 1.0 x as wide as long; coriarius texture between punctures; median portion weakly convex. Clypeus with upper half convex and lower half flat; coriarius texture between punctures; apical edge straight centrally, slightly convex laterally. Compound eyes 0.5x as wide as face. Malar space 0.2–0.3x as long as basal width of mandible. Gena, in lateral view (Fig. 133), 0.8–0.9x as wide as compound eyes, softly coriarius texture between punctures. Frons coriarius softly striate between central ocelli and toruli. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.7–0.8x ocellar diameter; distance between ocelli 0.9–1.1x ocellar diameter. Antenna with 52–53 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 5.2–5.7:3.0–3.1:2.6–2.9:2.3–2.6:2.0–2.6: 2.0–2.5: 2.0–2.4. Ratio of length/width of pre-apical flagellomeres: 1.9–2.0x.

Mesosoma. Pronotum in upper half punctate, smooth between punctures; lower half striate. Mesoscutum coarsely punctate, smooth texture between punctures. Notaulus reaching to 1/4 distance to posterior margin of mesoscutum. Mesoscutellum evenly convex; punctate; lateral

carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 152) coarsely punctate, smooth between punctures; mesopleural furrow absent. Epicnemial carina faint; not joining to anterior margin of mesopleuron. Metapleuron coarsely punctate, smooth between punctures. Fore wing with CI=0.5–0.7; ICI=0.4–0.5; SDI=1.4–1.5; 1m-cu straight; ramulus absent; Rs+M curved; marginal cell apically glabrous; sub-basal cell glabrous. Hind wing with 5–6 hamuli on R1 distally; NI=0.8–0.9; cu-a slightly curved. Propodeum (Fig. 171) without transverse carinae; longitudinal carinae present apically, faint; smooth between punctures; pleural carina present.

Metasoma. First tergite 5.8–5.9x as long as apical width. Tergite II with spiracle located at 0.6x of tergite.

Color. Brownish except following: face laterally, gena, frons laterally, vertex, collar, lateral edges of mesoscutum, two longitudinal stripes at the level of notaulus, central-apically spot on mesoscutum, mesoscutellum, subalar prominence, a diagonal stripe on mesopleuron from the anterior edge to the middle, a spot on posterior lower mesopleuron, apical half of metapleuron, apical third of propodeum, colored. Wings apically infuscate.

♂: Similar to female except metapleuron and propodeum completely brownish.

Comments. One female has, on sub-basal, cell one apical seta dorsally. *Alophophion* new species 21 is similar to *A. new species 32* in appearance; they can be distinguished by the texture of the face coriarious texture between punctures in *A. new species 21* and smooth in *A. new species 32*. This species was collected in *Polylepis* forest using light trap and yellow pan traps.

Examined material. 18♂♂, 4♀♀: labeled as follows: **PERU:** 16♂♂ “PERU: AY. [Ayacucho] Ayacucho, Chaviña, 14°54'21.49"S/73°53'55.78"W, 4153m. 05-12.iv.2010. Bosque de Polylepis. N. Martinez Leg. [Ligth trap]”; 1♂ “PERU: AY. [Ayacucho] Ayacucho, Chaviña, 73°53'56.68"W/14°54'21.56"S, 4164m. 06-10.iv.2010. Bosque de Polylepis. Pan Trap [yellow]. N. Martinez Leg.”; and 1♂, 4♀♀ “PERU: AY. [Ayacucho] Ayacucho, Chaviña, 73°53'56.99"W/14°54'20.71"S, 4165m. 06-10.iv.2010. Bosque de Polylepis. Pan Trap [yellow]. N. Martinez Leg.” (MUSM).

Alophophion new species 22

(Figs. 115, 134, 153, 172, 187)

Diagnosis. This species can be recognized by the presence of a row of setae parallel to the M+Cu in sub-basal cell of fore wing, and the propodeum with the anterior transverse carina present centrally.

Description. ♀: **Head.** Face (Fig. 115) 1.0x as wide as long; punctate, coriarius between punctures; median portion weakly convex. Clypeus convex; smooth texture between punctures; apical edge almost truncate, laterally slightly convex. Compound eyes 0.6x as wide as face. Malar space 0.3x as long as basal width of mandible. Gena, in lateral view (Fig. 134), 0.9x as wide as compound eyes; coriarius between punctures. Frons coriarius, striate between central ocelli and toruli. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.5x ocellar diameter; distance between ocelli 0.8x ocellar diameter. Antenna with 59 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 6.3:3.4:3.0:2.8:2.6:2.5:2.4. Ratio of length/width of pre-apical flagellomeres: 1.8x.

Mesosoma. Pronotum punctate, coriarius between punctures; lower half striate. Mesoscutum punctate, coriarius between punctures. Notaulus reaching to 1/4 distance to posterior margin of mesoscutum. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.2x to posterior margin of mesoscutellum. Mesopleuron (Fig. 153) coarsely punctate, coriarius between punctures mesopleural furrow absent. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron coarsely punctate, coriarius between punctures. Fore wing with CI=0.5; ICI=0.6; SDI=1.4; 1m-cu straight; ramulus absent; Rs+M slightly curved; fenestra with comma shape; marginal cell apically cover by setae; sub-basal cell with a row of setae parallel to the M+Cu vein and triangular area formed by 1A and cu-a cover by setae. Hind wing with 6 hamuli on R1 distally; NI=0.6; cu-a slightly curved. Propodeum (Fig. 172) with anterior transverse carina present centrally; posterior transverse carina absent centrally, laterally present; longitudinal carinae present apically; softly coriarius between punctures; pleural carina present.

Metasoma. First tergite 5.4x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Reddish brown except following: surrounded area to compound eyes and between ocelli cream colored.

♂: Similar to female except following: hind wing with 5–6 hamuli on R1 distally; gena, occiput, tegula, lateral edges of mesoscutum, two longitudinal stripes at the level of notaulus, central-apically spot on mesoscutum and mesoscutellum cream colored.

Comments. One male has same color as female. *Alophophion* new species 22 has similar appearance than *A.* new species 23 in structure both have the propodeum with the anterior transverse carina present centrally, the ramulus absent and the mesopleural furrow absent, but they can be distinguish by the presence of a row of setae parallel to the M+Cu vein in sub-basal cell of fore wing in *Alophophion* new species 22. All the specimens were collected in *Polylepis* forest; most of the specimens were collected using light traps.

Examined material. 7♂♂, 1♀: labeled as follows: **PERU:** 6♂♂; 1♀ “PERU: AY. [Ayacucho] Ayacucho, Chaviña, 14°54'21.49"S/73°53'55.78"W, 4153m. 05-12.iv.2010. Bosque de Polylepis. N. Martinez Leg. [Light trap]”; and 1♂ “PERU: AY. [Ayacucho] Ayacucho, Chaviña, 14°54'21.00"S/ 73°53'56.48"W, 4070m. 05-12.iv.2010. Bosque de Polylepis. T. [Trap] Malaise 1. N. Martinez Leg.” (MUSM).

Alophophion new species 23

(Figs. 116, 135, 154, 173, 188)

Diagnosis. This species can be recognized by having the anterior transverse carina of the propodeum present centrally; and the sub-basal cell with setae restricted to a triangular area formed by 1A and cu-a.

Description. ♀: **Head.** Face (Fig. 116) 1.0x as wide as long; coarsely punctate, coriarius texture between punctures; median portion weakly convex. Clypeus convex; coriarius texture between punctures; apical edge slightly convex. Compound eyes 0.5–0.6x as wide as face. Malar space 0.2–0.3x as long as basal width of mandible. Gena, in lateral view (Fig. 135), 0.7–0.9x as wide as compound eyes, coriarius texture between punctures. Frons coriarius texture between punctures, softly striate between central ocelli and toruli. Vertex coriarius texture between punctures. Lateral ocellus separated from compound eye by 0.5x ocellar diameter; distance

between ocelli 1.0x ocellar diameter. Antenna with 59–62 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 5.1–5.4:2.8–3.3:2.3–2.8:2.3–2.7:2.2–2.5: 2.2–2.5: 2.2–2.5. Ratio of length/width of pre-apical flagellomeres: 1.7–2.0x.

Mesosoma. Pronotum in upper half punctate, coriarius between punctures; lower half striate. Mesoscutum coarsely punctate, coriarius between punctures. Notaulus reaching to 1/4 distance to posterior margin of mesoscutum. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.4x to posterior margin of mesoscutellum. Mesopleuron (Fig. 154) coarsely punctate, coriarius between punctures; mesopleural furrow absent. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron coarsely punctate, coriarius between punctures. Fore wing with CI=0.6; ICI=0.6; SDI=1.6; 1m-cu straight; ramulus absent; Rs+M slightly curved; fenestra in a bead shape; marginal cell apically of fore wing cover by setae; sub-basal cell apically in triangular area formed by 1A and cu-a cover by setae. Hind wing with 6–7 hamuli on R1 distally; NI=0.7–0.8; cu-a slightly curved. Propodeum (Fig. 173) with anterior transverse carina present centrally, curve; posterior transverse carina absent centrally, laterally present; longitudinal carinae present apically; softly coriarius between punctures; pleural carina present.

Metasoma. First tergite 5.0–5.3x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Reddish brown except following: surrounded area to compound eyes and between ocelli yellowish.

♂: Similar to female.

Comments. This species is distributed at the north of Peru, probably overlapping its distribution with *A. new species 27* but all the records *A. new species 23* are at higher altitude. Morphologically are easily distinguished between them; *A. new species 27* has the area superomedia of propodeum well develop while *A. new species 23* lack of carinae behind anterior transverse carina.

Examined material. 5♂♂, 3♀♀: labeled as follows: **PERU:** 4♂♂, 2♀♀ “PERU: LL. [La Libertad] Bolivar, Condormarca Lag. [Laguna] Quishuar 77°32'15.13"W/7°36'17.33"S [.] 3482m[.] 28-30.iii.2011[.] Ligth trap. C. Carranza” and 1♂, 1♀ “PERU, CA, Cajamarca,

Potererillo, E795943/N9233538 [78°19'27"W/6°55'48"S], 3641 msnm, 20/ix/2006 [20.ix.2006], M. Alvarado" (MUSM).

Alophosphion new species 24

(Figs. 117, 136, 155, 174)

Diagnosis. This species can be recognized by this combination of the features in the propodeum: the presence of anterior and posterior transverse carinae; and striate-punctate texture behind anterior transverse carina.

Description. ♀: **Head.** Face (Fig. 117) 1.1 x as wide as long; coarsely punctate, smooth texture between punctures; median portion weakly convex. Clypeus convex; coarsely punctate, smooth texture between punctures and lower half coarsely punctate, coriarius texture between punctures; apical edge almost truncate, laterally slightly convex. Compound eyes 0.5x as wide as face. Malar space 0.2–0.3x as long as basal width of mandible. Gena, in lateral view (Fig. 136), 0.7–0.9x as wide as compound eyes; coarsely punctate, smooth texture between punctures. Frons coriarius, softly striate between central ocelli and toruli. Vertex coarsely punctate, smooth texture between punctures. Lateral ocellus separated from compound eye by 0.3–0.4x ocellar diameter; distance between ocelli 0.7–0.8x ocellar diameter. Antenna with 51 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.9–5.0:2.7–2.8:2.6:2.3–2.5:2.3–2.4:2.2:2.1. Ratio of length/width of pre-apical flagellomeres: 1.4x.

Mesosoma. Pronotum with upper half coarsely punctate, smooth between punctures; lower half striate; lower half of collar striate. Mesoscutum coarsely punctate, smooth between punctures; notaulus reaching to 1/5 distance to posterior margin of mesoscutum. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 155) coarsely punctate, smooth between punctures; lower edge of speculum finely scrobiculate; mesopleural furrow absent. Epicnemial carina weak laterally, joins to anterior margin of mesopleuron at lower third of pronotum. Metapleuron coarsely punctate, smooth between punctures. Fore wing with CI=0.4–0.5; ICI=0.8; SDI=1.5; 1m-cu straight; ramulus present, small; Rs+M slightly curved; marginal cell cover by setae; sub-basal cell glabrous with two setae apically. Hind wing with 6 hamuli on R1 distally; NI=0.9–1.0;

cu-a slightly curved. Propodeum (Fig. 174) with anterior transverse carina present between lateral longitudinal carinae; posterior transverse carina weak centrally, carina wavy- rugulose; lateral longitudinal carinae faint; lateromedian longitudinal carinae weak between transverse carinae, faint behind posterior transverse carina; pleural carina present; striate-punctate texture except anterior area coarsely punctate.

Metasoma. First tergite 5.4–5.5x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Fulvous except following: around to compound eyes and between ocelli yellowish.

♂: Similar to female.

Comments. *Alophophion* new species 24 is the only species collected in Bolivia.

Examined material. 1♂, 3♀♀: labeled as follows: **BOLIVIA:** 1♂, 2♀♀ “N. E. Sacaba Cocha. [Cochabamba] Bolivia I.28.76 [28.i.1976] 3300m Luis Peña”; and 1♀ “Vacas BOLIVIA Dep. [Departamento] Cochabamba 3000m Feb. 15, 1950 [15.ii.1950] Coll: [colector] L.E. Pena [Peña]” (AEIC).

Alophophion new species 25

(Figs. 118, 137, 156, 175)

Diagnosis. This species can be recognized by this combination of the features: light straw yellow colored, propodeum with longitudinal carinae present delimiting the area dentipara and the gena 0.7x as wide as the compound eyes.

Description. ♀: **Head.** Face (Fig. 118) 1.1x as wide as long; with smooth texture between punctures; median portion weakly convex. Clypeus upper half of clypeus convex, smooth texture between punctures; lower half of clypeus smooth texture between punctures; apical edge slightly curved. Compound eyes 0.5–0.6x as wide as face. Malar space 0.1–0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 137), 0.7x as wide as compound eyes; smooth between punctures. Frons smooth, slightly striate between toruli and central ocelli. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.1–0.2x ocellar diameter; distance between ocelli 0.6–0.7x ocellar diameter. Antenna with 54–56 flagellomeres. Ratio of

length/width from first to seventh flagellomeres: 4.2–4.3:2.5–2.4:2.1–2.2:2.0:1.8–2.0:1.7–1.9:1.7–1.9. Ratio of length/width of pre-apical flagellomeres: 1.3–1.6x.

Mesosoma. Pronotum in upper posterior half with punctate, coriarius between punctures; lower half scrobiculate and laterally collar striate. Mesoscutum punctate, smooth between punctures. Notaulus reaching to 1/4 distance to posterior margin of mesoscutum, finely scrobiculate basally. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 156) punctate, smooth between punctures; speculum scrobiculate, becoming finer to lower edge; mesopleural furrow absent; next to propodeum, on the lower half, scrobiculate. Epicnemial carina curved to meet anterior margin of mesopleuron at lower third of pronotum. Metapleuron smooth texture between punctures. Fore wing with CI=0.5–0.6; ICI=0.9; SDI=1.5; 1m-cu straight; ramulus present; Rs+M curved; marginal cell basally cover by setae, next to Rs a small glabrous longitudinal area; sub-basal cell glabrous. Hind wing with 8 hamuli on R1 distally; NI=0.7; cu-a curved. Propodeum (Fig. 175) with anterior and posterior transverse carinae present; anterior transverse carina not reaching pleural carina; longitudinal carinae present, except anterior area; lateromedian longitudinal carinae faint between transverse carinae; lateromedian longitudinal carinae faint after posterior transverse carina; rugulose, except: area superomedia longitudinally carinate and anterior area punctate; pleural carina present.

Metasoma. First tergite 4.0–4.5x as long as apical width. Tergite II with spiracle located at 0.5x of tergite.

Color. Light straw yellow except following: vertex, antennae and three stripes on mesoscutum fulvous.

♂: Unknown

Comments. Big specimens have slightly rugulose texture next to epicnemial carina. This species has the same appearance as *A. new species 14*; they were collected together, but can be easily differentiate by the proportion of the head. This species has the face wider face and gena. This species was collected at the westerns slope of the Andes.

Examined material. 3 ♀♀: labeled as follows: **PERU:** 3 ♀♀, “PERU: MO [Moquegua], General Sánchez Cerro, La Capilla, 71°20’56”W/ 16°45’37”S, 2739 m. 16.iv.2011. C. Carranza” (MUSM).

***Alophophion* new species 26**

(Figs. 119, 138, 157, 176)

Diagnosis. This species can be recognized by this combination of the features: the speculum with same texture as the mesopleuron, the mesopleural furrow absent, and the lateral longitudinal carina faint between the transverse carinae.

Description. ♀: **Head.** Face (Fig. 119) 1.1 x as wide as long; coarsely punctate, coriarius texture between punctures; median portion weakly convex. Clypeus with upper half convex and lower half flat; coriarius texture between punctures; apical edge convex. Compound eyes 0.6x as wide as face. Malar space 0.1–0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 138), 0.8x as wide as compound eyes, coriarius texture between punctures. Frons coriarius striate between central ocelli and toruli. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.3x ocellar diameter; distance between ocelli 0.6–0.8x ocellar diameter. Antenna with 54–55 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.3–4.7:2.6–2.7:2.5:2.2:2.2:2.2:2.1–2.2. Ratio of length/width of pre-apical flagellomeres: 1.6–1.7x.

Mesosoma. Pronotum on the upper half coarsely punctate, smooth between punctures; lower half striate and lower collar striate. Mesoscutum punctate, smooth between punctures. Notaulus reaching to 0.3x distance to posterior margin of mesoscutum, scrobiculate. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 157) punctate, smooth between punctures; mesopleural furrow absent. Epicnemial carina curved to meet anterior margin of mesopleuron at lower third of pronotum. Metapleuron punctate, smooth between punctures. Fore wing with CI=0.5; ICI=0.8–0.9; SDI=1.5; 1m-cu slightly sinuate; ramulus present; Rs+M curved; marginal cell basally cover by setae; sub-basal cell usually with isolate setae apically or without setae. Hind wing with 7–8 hamuli on R1 distally; NI=0.8; cu-a curved. Propodeum (Fig. 176) with

anterior transverse carina present between lateral longitudinal carinae; posterior transverse carina present between pleural carinae, between lateral longitudinal carinae with “M” shape; lateral longitudinal carinae faint between transverse carinae; lateromedian longitudinal carinae faint; lateromedian longitudinal carinae after posterior transverse carinae convergent, fused to form a single median longitudinal carina; supermedia, coxalis and posteroexterna rugulose texture, areas anterior, spiracularis, lateralis and dentipara coriarius between punctures.

Metasoma. First tergite 4.0–4.3x as long as apical width. Tergite II with spiracle located at 0.5x length of tergite.

Color. Brownish fulvous except following: head (except frons centrally fulvous), collar, lower half of pronotum, apical edge of mesoscutum, notauli, mesoscutellum, tegula, subalar prominence, speculum, a diagonal stripe in mesopleuron, apical half of metasternum, dorsal view of coxae light straw yellow. Wings hyaline; veins brownish and pterostigma fulvous.

♂: Unknown.

Comments. *Alophophion* new species 26 is quite similar to *A.* new species 25, beside the differences mentioned in the key; *A.* new species 26 has darker brownish color than *A.* new species 25.

Examined material. 8♀♀: labeled as follows: **PERU:** 8♀♀ “PERU: AY [Ayacucho], Laramate 14°50'44.1"S/74°44'13.4"W. 2100m. 14.ii.2009 Light Trap. L Figueroa” (MUSM).

Alophophion new species 27

(Figs. 1, 2, 3, 120, 139, 158, 177)

Diagnosis. This species can be recognized by this combination of the features: the speculum and the mesopleural furrow are homogenously scrobiculate.

Description. ♀: **Head.** Face (Fig. 120) 1.0 x as wide as long; with smooth texture between punctures; median portion weakly convex. Clypeus slightly convex; apical edge straight. Compound eyes 0.5–0.6x as wide as face. Malar space 0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 139), 0.7–0.8x as wide as compound eyes, smooth texture between punctures. Frons striate, between central ocelli and toruli. Vertex with texture as gena. Lateral

ocellus separated from compound eye by 0.2x ocellar diameter; distance between ocelli 0.5–0.6x ocellar diameter. Antenna with 54 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.8–5.3:3.2–3.1:2.5–2.8:2.5–2.6:2.4:2.3:2.2–2.3. Ratio of length/width of pre-apical flagellomeres: 1.3–1.5x.

Mesosoma. Pronotum on the upper half coarsely punctate, smooth between punctures; lower half scrobiculate and lower collar striate. Mesoscutum punctate, smooth between punctures. Notaulus reaching to 3/4 distance to posterior margin of mesoscutum, basally scrobiculate. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 3, 158) punctate, smooth between punctures; lower edge of speculum scrobiculate; mesopleural furrow scrobiculate reaching to middle to the posterior lower mesopleuron. Epicnemial carina curved to meet anterior margin of mesopleuron at lower third of pronotum. Metapleuron rugulose texture. Fore wing with CI=0.3–0.4; ICI=0.6; SDI=1.5–1.6; 1m-cu straight; ramulus present; Rs+M curved; marginal cell basally cover by setae; sub-basal cell usually without setae. Hind wing with 6–7 hamuli on R1 distally; NI=0.6–0.8; cu-a curved. Propodeum (Fig. 177) with anterior and posterior transverse carina present; longitudinal carinae present before anterior transverse; carinae forming areas petiolaris, posteroexterna and coxalis wavy; areas before anterior transverse carinae punctate, smooth between punctures; areas behind anterior transverse carinae slightly wavy carinate texture, between carinae punctate; pleural carinae present.

Metasoma. First tergite 4.7–5.1x as long as apical width. Tergite II with spiracle located at 0.5–0.6x length of tergite.

Color. Brown reddish except following: surrounding area of compound eyes, vertex, gena mesoscutum, collar, subalar prominence, basal spot in speculum yellowish orange and a spot on posterior lower mesopleuron light straw yellow.

♂: Similar to female except by the presence of isolate setae apically in sub-basal cell.

Comments. This species has a wide distribution and the northern distribution for the genus, from Lima-Peru to Ecuador. It is present at elevations of 1700 to 3177 m. They are more abundant in higher elevations as was observed Udima collections; they were collected at elevations of 2150 to 3116m, and were absent at lower elevations (1195m and 1615 m).

Examined material. 11♂♂, 127♀♀: labeled as follows: **ECUADOR:** 7♂♂, 6♀♀ “Río León, Ecuador III.21-22.65 [21-22.iii.1965] 1700m. Luis Peña” (AEIC). **PERU:** 4♂♂, 121♀♀: labeled as follows: 1♂, 94♀♀ “PERU, CA [Cajamarca]. S.N. [Zona Reservada] Udimá, Monteseco, 6°50'40.04” [S]/79°03'45.53” [W], 3116m. 14-15.v.2010. J. Grados Leg.”; 5♀♀, “PERU, CA [Cajamarca]. S.N. [National Sanctuary] Udimá, 4.6 Km al NE de Monteseco, 2841 m, 6°50'15.8” [S]/79°04'16” [W], 24-26.iv.2009. J. Grados Leg.”; 3♀♀ “PERU, CA [Cajamarca]. S.N. [Zona Reservada] Udimá, 4.6 Km al NE de Monteseco, 2841 m, 6°50'15.8” [S]/79°04'16” [W], 19.x.2009. J. Grados Leg.”; 2♂♂, 10♀♀ “PERU, CA [Cajamarca]. S.N. [National Sanctuary] Udimá, 4.6 Km al NE de Monteseco, 2841 m, 6°50'15.8” [S]/79°04'16” [W], 12.v.2009 [12.v.2010]. J. Grados Leg.”; 5♀♀, “PERU, CA [Cajamarca, National Sanctuary Udimá], 3.8 Km al NE de Monteseco, 2150 m, 6°50'37” [S]/79°04'52” [W], 17.x.2009. J. Grados Leg.”; 1♀, “PERU: CA. 3.8 Km al NE de Monteseco, 2150 m 06°50'37”[S] / 79°04'52”[W] 16-19.v.2010 J. Grados leg.”; and 1♀ “PERU: AN. [Ancash] Huari, Chavin de Huantar 77°19'42.34”W/ 9°35'33.9”S. 3177m. v.2010 L. Figueroa” (MUSM); 1♂, 1♀ “Lima Peru II.15.56 [15.ii.1956] Thra Walz” (AEIC); and 1♂ “PERU, Amazonas Chachapoyas, 2800 m. 26.iii.1984 [handwritten] M Cooper / M. Cooper BMNH(E)2005-152” (BMNH) .

Alophophion new species 28

(Figs. 121, 140, 159, 178)

Diagnosis. This species can be recognized by this combination of the features: the epicnemial carina not well delimited laterally and confluent with the mesopleural furrow, and the areas dentipara and superomedia with carinate texture.

Description. ♀: **Head.** Face (Fig. 121) 1.0–1.2 x as wide as long; coarsely punctate, smooth texture between punctures; median portion weakly convex. Clypeus with upper 2/3 convex and lower 1/3 flat; coriarius texture between punctures; apical edge slightly convex. Compound eyes 0.5–0.6x as wide as face. Malar space 0.1–0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 140), 0.8–1.0x as wide as compound eyes, smooth texture between punctures. Frons coriarius, striate between central ocelli and toruli. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.2–0.3x ocellar diameter; distance between ocelli 0.7–0.8x ocellar diameter. Antenna with 48–53 flagellomeres. Ratio of length/width from first to

seventh flagellomeres: 4.6–4.7:2.7–2.8:2.4:2.3:2.2–2.3:2.1–2.2:2.0–2.1. Ratio of length/width of pre-apical flagellomeres: 1.3–1.7x.

Mesosoma. Pronotum in upper half coarsely punctate, smooth between punctures; lower half striate-carinate. Mesoscutum punctate, smooth between punctures. Notaulus reaching from 1/4–1/2 distance to posterior margin of mesoscutum, basally scrobiculate. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 159) punctate, smooth between punctures; lower edge of speculum scrobiculate; mesopleural furrow scrobiculate weakly develop reaching to the posterior-lower margin of mesopleuron. Epicnemial carina curved to meet anterior margin of mesopleuron at lower third of pronotum. Metapleuron from scrobiculate to punctate, smooth between punctures. Fore wing with CI=0.6; ICI=0.5–0.6; SDI=1.4–1.5; 1m-cu straight; ramulus present; Rs+M slightly curved; marginal cell of fore wing cover by setae, with a pre-apical glabrous area; sub-basal cell glabrous, rarely with one seta apically. Hind wing with 7–8 hamuli on R1 distally; NI=0.6; cu-a slightly curved. Propodeum (Fig. 178) with anterior transverse carina present, faint laterally; posterior transverse carina present, reaching pleural carinae; lateral longitudinal carinae present, faint; lateromedian longitudinal carinae present, wavy; areas, spiracularis, lateralis, petiolaris and posteroexterna carinate with wavy-rugulose texture, areas dentipara and superomedia longitudinally carinate and areas externa and basalis punctate, smooth; pleural carina present.

Metasoma. First tergite 4.4–5.2x as long as apical width. Tergite II with spiracle located at 0.5–0.6x length of tergite.

Color. Fulvous except following: surrounded area to compound eyes, between ocelli and subalar prominence yellowish.

♂: Similar to female.

Comments. There is variation in the mesopleural furrow length, from scrobiculate only basally to reaching the posterior margin of the mesopleuron, and the metapleuron texture from punctate to scrobiculate. Some specimens have mesopleuron and metapleuron yellowish.

Alophophion new species 28 is distributed in the Chilean regions of Araucanía, Biobío, Coquimbo, Libertador General Bernardo O'Higgins, Los Rios, Maule, Metropolitana de Santiago and Valparaíso.

Examined material. 23♂♂, 180♀♀: labeled as follows: **CHILE:** 1♂ “Angol, Malleco XI.16-21.70 [16-21.xi.1970] Chile T. Cekalovic”; 1♂ “Cord. [Cordillera] Lonquimay Chile I.9 1962 [09.i.1962] Luis Peña/Lago Galletue [38.6833S/71.2833W]”; 2♂♂, 60♀♀”Curacautín, Malleco II.'64 [ii.1964] R. [Río] Blanco Chile Luis E. Peña”; 1♀ “El Coigual, Curico I.21-25.64 [21-25.i.1964] Chile Luis E. Peña”; 1♂ “[Libertador General Bernardo O'Higgins] El Manzano XII.18-19.47 L. Peña Chile”; 1♀ “[Libertador General Bernardo O'Higgins] El Marchan, Chile III.1971 [iii.1971] Chillán Luis Peña”; 1♂, 11♀♀ “El Panguel, Coquimbo, Chile Oct. 27, 1961 [27.x.1961] Luis Peña”; 2♀♀ “Enco, Valdivia II.24.78 [24.ii.78] Chile Luis Peña”; 2♀♀ “Estero La Jaula Los Quenes Curico I.4-18.64 [04-18.i.1964] Chile Luis E. Peña”; 1♂, 2♀♀ “Hualpén, Concep. XII.26.70 [26.xii.1970] Chile T. Cekalovic”; 1♂, 5♀♀ “Lago Italma Cord. Lonquimay I.12-17.62 [12-17.i.1962] Chile Luis Peña”; 1♀ “[Biobío, Ñuble] Las Trancas Chile Jan.1968 Cord. [Cordillera] Chillán Luis Peña”; 1♂, 2♀♀ “[Biobío, Ñuble] Las Trancas Chillán Chile Jan.1967 [i.1967] Peña [L. Peña]”; 1♂, 2♀♀ “[Biobío, Ñuble] Las Trancas, Chile II.6-11.66 [06-11.ii.1966] Chillán Luis Peña”; 3♂♂, 6♀♀ “[Biobío, Ñuble] Las Trancas, Chile I-II.71 [i-ii.1971] Chillán Luis Peña”; 1♂, 2♀♀ “[Biobío, Ñuble] Las Trancas, Chile I-III.1972 [i-iii.1972] Chillán Luis Peña”; 2♀♀ “[Biobío, Ñuble] Las Trancas, Chile XII.1-15.75 [01-15.xii.1975] Chillán Luis Peña”; 1♀ “Macul, Stgo. [Metropolitana de Santiago, Santiago] IX.'74 [ix.1974] Chile Luis E. Peña”; 1♀ “3 km. E. Las Trancas, Ñuble, Chile I.16.67 [16.i.1967] Lionel Stange”; 10♀♀ “Pino Hachado [Paso de Pino Hachado] Lonquimay, Mal. [Malleco] II.18.80 [18.ii.1980] Chile 1600m. L. Peña”; 1♂ “Piscicultura, Chile R. [Río] Blanco, Aconcagua XI.10.64 [10.xi.1964] 1600m. Luis Peña”; 1♀ “Q. Sn. Ramón [Quebrada de San Ramón], Stgo. [Metropolitana de Santiago, Santiago] XII.'74 [xii.1974] Chile Luis Peña”, 1♂ “Rio Blanco III.5-27.195- Chile L Pena Guzman [Peña Guzmán]”; 6♀♀ “Rio Blanco, Aconcagua, Chile Dec. 5-8, 1961 [05-08.xii.1961] Luis Peña”; 4♀♀ “Río Blanco, C-tín [Curacautín] I.'74 [i.1974] Chile Luis Peña”; and 2♀♀ “Río Blanco, Cura. [Curacautín] Jan.1974 [i.1974] Chile Luis Peña” (AEIC). 3♀♀ “CHILE: IX Region [Araucanía] Lago Icalma nr. Icalma I. 1980 J.E. Barriga”; 1♂, 18♀♀ “CHILE: Prov. [Provincia] Curico 10km w. Licanten 20.XII.1993 JEBarriga [J.E. Barriga] & LPeralta [& L. Peralta] at light”; 25♀♀ “CHILE: CURICO Licancel, Licnateú 22.XII.1993

JEBarriga [J.E. Barriga] & LPeralta [& L. Peralta] black lighth”; 11♀♀ “CHILE: CURICO Licancel, Licnateú 22.XII.1993 [22.xii.1993] L. Peralta”; 5♀♀ “CHILE MALLECO Vn. [¿] Lonquimay 1400m 22.XII.1994 [22.xii.1994] J.E. Barriga” (UCDC).

Alophophion new species 29

(Figs. 122, 141, 160, 179, 189)

Diagnosis. This species can be recognized by this combination of the features: propodeum with the anterior and posterior transverse carina present and the longitudinal carinae faint; fenestra thin; the sub-basal cell of the fore wing with setae; and body with olive green coloration.

Description. ♀: **Head.** Face (Fig. 122) 1.2–1.3 x as wide as long; coarsely punctate, smooth texture between punctures; median portion weakly convex. Clypeus with upper half convex and lower half flat; coriarius texture between punctures; apical edge straight centrally, curved laterally. Compound eyes 0.4x as wide as face. Malar space 0.3x as long as basal width of mandible. Gena, in lateral view (Fig. 141), 0.9–1.0x as wide as compound eyes, smooth texture between punctures. Frons and vertex with texture as gena. Lateral ocellus separated from compound eye by 0.3x ocellar diameter; distance between ocelli 0.6x ocellar diameter. Antenna with 46–51 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.9–5.0:3.0:2.6–2.5:2.4–2.3:2.2–2.1: 2.2–1.9:2.2–1.9. Ratio of length/width of pre-apical flagellomeres: 1.2–1.3x.

Mesosoma. Pronotum coarsely punctate, smooth between punctures. Mesoscutum coarsely punctate, smooth between punctures. Notaulus reaching to 1/4 distance to posterior margin of mesoscutum; basally coarsely punctate, smooth between punctures. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.3x to posterior margin of mesoscutellum. Mesopleuron (Fig. 160) punctate, smooth between punctures; lower edge of speculum finely scrobiculate; mesopleural furrow scrobiculate softly weakly development or absent. Epicnemial carina curved to meet anterior margin of mesopleuron at lower third of pronotum. Metapleuron coarsely punctate, smooth between punctures. Fore wing with CI=0.5; ICI=0.6–0.9; SDI=1.5–1.6; 1m-cu straight; ramulus present, small; Rs+M curved; marginal cell basally cover by setae; sub-basal cell with a row of setae at center, parallel to the M+Cu vein and

apically with setae between row of setae and 1A,. Hind wing with 6 hamuli on R1 distally; NI=0.6; cu-a slightly curved. Propodeum (Fig. 179) with anterior and posterior transverse carina present, reaching to pleural carina; longitudinal carinae faint; areas superomedia and petiolaris with longitudinal carinate texture; rest of propodeum smooth between punctures; pleural carinae present.

Metasoma. First tergite 4.6–5.1x as long as apical width. Tergite II with spiracle located at 0.5x length of tergite.

Color. Olive green to light straw yellowish except following: two lateral vittae distributed from $\frac{1}{4}$ to posterior edge of mesoscutum, central vittae distributed from anterior edge to $\frac{1}{2}$ of mesoscutum; mesosternum; and metasomal laterotergites.

♂: Similar to female except by sub-basal cell with setae covering a bigger area; some specimens with anterior transverse carina faint.

Comments. All the specimens were collected in *Polylepis* forest; most of the specimens were collected using light traps. This is the only species olive green colored collected in this type of forest.

Examined material. 9♂♂, 2♀♀, 1? labeled as follows: **PERU:** 1♀ “PERU: AY. [Ayacucho] Ayacucho, Chaviña, 14°54'9.12"S/73°53'55.77"W, 4120m. 07-10.iv.2010. Bosque de Polylepis. Pitfall trap. N. Martinez Leg.”; and 9♂♂, 1♀, 1? “PERU: AY. [Ayacucho] Ayacucho, Chaviña, 14°54'21.49"S/73°53'55.78"W, 4153m. 05-12.iv.2010. Bosque de Polylepis. N. Martinez Leg. [Ligth trap]” (MUSM).

Alophophion new species 30

(Figs. 123, 142, 161, 180, 190)

Diagnosis. This species can be recognized by this combination of the features: propodeum with the anterior and posterior transverse carina present and the longitudinal carinae faint; sub-basal cell of the fore wing glabrous; and body with light straw yellowish coloration.

Description. ♀: **Head.** Face (Fig. 123) 1.1–1.2 x as wide as long; coarsely punctate, smooth texture between punctures; median portion weakly convex. Clypeus with upper half convex and

lower half flat; smooth texture between punctures; apical edge slightly convex. Compound eyes 0.6x as wide as face. Malar space 0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 142), 0.7–0.8x as wide as compound eyes, smooth texture between punctures. Frons smooth, softly striate between central ocelli and toruli. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.2x ocellar diameter; distance between ocelli 0.5–0.7x ocellar diameter. Antenna with 43–48 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 3.5–3.7:2.1–2.2:1.9–2.1:1.7–1.8:1.7:1.6–1.7:1.6–1.7. Ratio of length/width of pre-apical flagellomeres: 1.3–1.4x.

Mesosoma. Pronotum in upper half punctate, coriarius between punctures; lower half striate. Mesoscutum punctate, coriarius between punctures. Notaulus reaching to 1/4 distance to posterior margin of mesoscutum, scrobiculate. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 161) punctate, smooth between punctures; lower edge of speculum finely scrobiculate; mesopleural furrow scrobiculate softly weakly development or absent. Epicnemial carina curved to meet anterior margin of mesopleuron at lower third of pronotum. Metapleuron punctate, smooth between punctures. Fore wing with CI=0.4–0.5; ICI=0.5–0.6; SDI=1.6; 1m-cu straight; ramulus present; Rs+M slightly curved; marginal cell apically glabrous; sub-basal cell glabrous. Hind wing with 6–8 hamuli on R1 distally; NI=0.8–0.9; cu-a slightly curved. Propodeum (Fig. 180) with anterior transverse carina present, faint laterally; posterior transverse carina weak centrally, carina wavy-rugulose; longitudinal carinae present, faint; carinate wavy-rugulose texture, except: areas basalis and externa punctate, smooth with punctures and area dentipara with softly wavy-rugulose texture; pleural carina present.

Metasoma. First tergite 3.5–3.9x as long as apical width. Tergite II with spiracle located at 0.4–0.5x length of tergite.

Color. Light straw yellow.

♂: Similar to female except propodeal carinae straight and well develop.

Comments. One female has the propodeum with the carinae faint and the lower edge of speculum with same the texture as rest of the mesopleuron.

This species was collected at the western slope of the Andes. This species has light straw yellow coloration as *A. new species 14* and *A. new species 25*, also distributed in the western slope of the Andes in Peru but apparently their distribution does not overlap. *Alophophion new species 30* were collected during most part of the year.

Examined material. 5♂♂, 7♀♀: labeled as follows: **PERU:** 3♂♂, 5♀♀ “PERU: AY [Ayacucho], Laramate 14°50'44.1"S/74°44'13.4"W. 2100m. 14.ii.2009 Light Trap. L Figueroa”; 1♀ “PERU: IC. [Ica] Ica, Fdo. [Fundo] Yolanda 14°09'17.4"S/ 75°40'27.7"W 434m 22.iv.2011. Ligth trap. L. Salinas Leg.”; 1♀ “PERU: IC. [Ica] Ica, Fdo. [Fundo] Yolanda 14°09'17.4"S/ 75°40'27.7"W 434m i.2011. Malaise trap. L.”; and 2♂♂ “PERU: IC. [Ica] Ica, Fdo. [Fundo] Yolanda 14°09'17.4"S/ 75°40'27.7"W 434m viii.2010. Light trap. L. Salinas Leg.” (MUSM).

Alophophion new species 31

(Figs. 7, 124, 143, 162, 181, 191)

Diagnosis. This species can be recognized by this combination of the features: lateral ocellus separated from the compound eye by 0.4–0.6x the ocellar diameter and body with cream color with brownish spots.

Description. ♀: **Head.** Face (Fig. 124) 1.1x as wide as long; median portion weakly convex; smooth with punctures centrally, laterally with coriarius texture between punctures. Clypeus slightly convex, smooth with punctures centrally, laterally with coriarius texture between punctures; apical edge straight centrally, curved laterally. Compound eyes 0.5–0.6x as wide as face. Malar space 0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 143), 0.7–0.8x as wide as compound eyes, smooth texture between punctures. Frons striate between central ocelli and toruli. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.4–0.6x ocellar diameter; distance between ocelli 0.6–0.7x ocellar diameter. Antenna with 47–49 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 6.0–7.0:3.6–4.0:3.0–3.3:2.9–3.0:2.8–2.9:2.8–2.6:2.7–2.4. Ratio of length/width of pre-apical flagellomeres: 1.6–2.0x.

Mesosoma. Pronotum on the upper half coarsely punctate, smooth between punctures; lower half and lower collar striate. Mesoscutum finely punctate, smooth with punctures centrally, laterally with coriarius texture between punctures. Notaulus reaching to 1/3 distance to posterior margin

of mesoscutum, finely scrobiculate. Mesoscutellum evenly convex, punctate; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 162) punctate, smooth between punctures; lower edge of speculum and subalar prominence with the same texture as mesopleuron; mesopleural furrow absent. Epicnemial carina curved to meet anterior margin of mesopleuron at lower 0.3 of pronotum. Metapleuron punctate, smooth between punctures. Fore wing with CI=0.4–0.5; ICI=0.6; SDI=1.3–1.4; 1m-cu straight; ramulus present but small; Rs+M curved; marginal cell basally cover by setae, next to r-rs glabrous; sub-basal cell usually without setae, at most with one to three setae. Hind wing with 6 hamuli on R1 distally; NI=0.7–1.2; cu-a straight. Propodeum (Fig. 181) with anterior transverse carina present between lateral longitudinal carinae; posterior transverse carina absent centrally, reaching pleural carina; longitudinal carinae absent before transverse carina; lateral longitudinal carinae faint between transverse carinae; punctate except areas petiolaris and coxalis with a softly carinate texture; pleural carina present.

Metasoma. First tergite 4.5–5.0x as long as apical width. Tergite II with spiracle located at 0.5x length of tergite.

Color. Cream color except following: antennae, palpi, mandibles, clypeus central-apically, surrounded area of anterior tentorial pit, vertex centrally, notauli, two lateral vittae distributed from $\frac{1}{4}$ to posterior edge of mesoscutum, a central vittae distributed from anterior edge to $\frac{1}{2}$ of mesoscutum, a spot between central vittae and posterior edge of mesoscutum, scuto-scutellar groove, axilla, surrounded area of speculum, mesosternum, basal half of metasternum, inner, anterior and posterior of pro and meso-coxae, a central vittae in external meso-coxae, basal-inner $\frac{3}{4}$ of hind coxae, anterior of hind coxae, $\frac{1}{2}$ basal posterior and external of hind coxae, trochanter, trochantellus, femur, tibia, tarsomeres, basal half of propodeum, a spot distributed from spiracles to pre-apical apical end of tergite I, tergite II except laterally, tergites II to III except laterally and in posteriorly and ovipositor sheath brownish.

♂: Similar to female except brownish spot smaller.

Comments. In small specimens the ramulus is present as an angulation of the vein; propodeum with the carinae faint and with the brownish spot smaller than in the big specimens.

This is the only species that has cream color with brownish spots occurring in the *Polylepis* forest.

Examined material. 2♂♂, 3♀♀: labeled as follows: **PERU:** 1♂ “PERU: AY. [Ayacucho] Ayacucho, Chaviña, 14°54'31.16"S/73°53'56.87"W, 4115m. 07-10.iv.2010. Bosque de Polylepis. Pitfall trap. N. Martinez Leg.”; and 1♂, 3♀♀ “PERU: AY. [Ayacucho] Ayacucho, Chaviña, 14°54'21.49"S/73°53'55.78"W, 4153m. 05-12.iv.2010. Bosque de Polylepis. N. Martinez Leg. [Ligth trap]” (MUSM).

Alophophion new species 32

(Figs. 125, 144, 163, 182, 192)

Diagnosis. This species can be recognized by this combination of the features: propodeum with the posterior transverse carina present only laterally, ramulus present, face smooth and brownish colored.

Description. ♀: **Head.** Face (Fig. 125) 1.1x as wide as long; smooth texture between punctures; median portion weakly convex. Clypeus with upper half convex, smooth texture between punctures and lower half flat, coriarius texture between punctures; apical edge centrally slightly concave. Compound eyes 0.5–0.6x as wide as face. Malar space 0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 144), 0.7x as wide as compound eyes, smooth texture between punctures. Frons smooth, softly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.5–0.6x ocellar diameter; distance between ocelli 0.8x ocellar diameter. Antenna with 51–53 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 5.3:2.9–3.0:2.4–2.6:2.4–2.6:2.2:2.2:2.2. Ratio of length/width of pre-apical flagellomeres: 1.3–1.6x.

Mesosoma. Pronotum smooth between punctures. Mesoscutum smooth between punctures. Notaulus reaching to 1/5 distance to posterior margin of mesoscutum, punctate. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 163) smooth between punctures; mesopleural furrow scrobiculate absent. Epicnemial carina not curved to meet anterior margin of mesopleuron. Metapleuron smooth between punctures. Fore wing with CI=0.5; ICI=0.5; SDI=1.3–1.4; 1m-cu slightly sinuate; ramulus present; Rs+M slightly curved; marginal cell apically glabrous; sub-basal cell glabrous except apically with isolate setae. Hind wing with 6

hamuli on R1 distally; NI=0.9–1.0; cu-a slightly curved. Propodeum (Fig. 182) with anterior transverse carina present, faint laterally; posterior transverse and lateromedian longitudinal carinae present, absent; lateral longitudinal carina present only apically; smooth between punctures; pleural carina present.

Metasoma. First tergite 5.7–5.8x as long as apical width. Tergite II with spiracle located at 0.5–0.6x length of tergite.

Color. Brownish except following: surrounding area of compound eyes, face centrally, gena, collar, lateral edges of mesoscutum, two longitudinal stripes at the level of notaulus, a longitudinal stripe at the center reaching to 2/3 distance to posterior margin of mesoscutum, mesoscutellum laterally, subalar prominence, a diagonal stripe of mesopleuron, apical half of metapleuron, apical edge of tergites III–VII and legs brownish-cream colored. Wings hyaline, apically infusate; veins and pterostigma brownish.

♂: Similar to female.

Comments. *Alophophion* new species 32 is similar in appearance to *A.* new species 21. They can be distinguished by the presence of anterior transverse carinae in *A.* new species 32. This species was collected in *Polylepis* forest.

Examined material. 3♂♂, 2♀♀ labeled as follows: **PERU:** 3♂♂ “PERU: AY. [Ayacucho] Ayacucho, Chaviña, 14°54'21.49"S/73°53'55.78"W, 4153m. 05-12.iv.2010. Bosque de Polylepis. N. Martinez Leg. [Light trap]”; 1♀ “PERU: AY. [Ayacucho] Ayacucho, Chaviña, 14°54'21.36"S/ 73°53'56.87"W, 4170m. 06-10.iv.2010. Bosque de Polylepis. Pan trap [yellow]. N. Martinez Leg.”; and 1♀ “PERU: AY. [Ayacucho] Ayacucho, Chaviña, 14°54'21.36"S/ 73°53'56.98"W, 4170m. 07-10.iv.2010. Bosque de Polylepis. N. Martinez Leg. [Light trap]” (MUSM).

***Alophophion* new species 33**

(Figs. 126, 145, 164, 183)

Diagnosis. This species can be recognized by clypeus with ventral-lateral edges angulate giving a square appearance.

Description. ♀: **Head.** Face (Fig. 126) 1.0x as wide as long; punctate, coriarius texture between punctures; median portion weakly convex. Clypeus convex; apical edge straight centrally, angulated laterally; coriarius texture between punctures. Compound eyes 0.6x as wide as face. Malar space 0.1–0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 145), 0.6–0.8x as wide as compound eyes, coriarius between punctures. Frons concave between toruli and compound eyes; between toruli and ocelli striate; coriarius. Vertex and gena coriarius. Lateral ocellus separated from compound eye by 0.3–0.4 x ocellar diameter; distance between ocelli 0.6x ocellar diameter. Antenna with 46–47 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.1–4.2:2.4–2.2:2.0–2.1:1.9:1.9–1.8:1.8:1.8. Ratio of length/width of pre-apical flagellomeres: 1.3–1.5x.

Mesosoma. Pronotum with upper half coarsely punctate, smooth between punctures; lower half striate; lower half of collar striate. Mesoscutum smooth between punctures. Notaulus reaching to 0.3 distance to posterior margin of mesoscutum; scrobiculate. Mesoscutellum evenly convex, with texture as mesoscutum; lateral carina reaching 0.3x to posterior margin of mesoscutellum. Mesopleuron (Fig. 164) on upper half smooth between punctures and on lower half coriarius between punctures; lower edge of speculum finely scrobiculate; mesopleural furrow scrobiculate absent. Epicnemial carina curved to meet anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron coriarius between punctures. Fore wing with CI=0.4; ICI=0.8–0.9; SDI=1.4–1.5; 1m-cu straight; ramulus present; Rs+M curved; marginal cell glabrous; sub-basal cell with or without setae apically. Hind wing with 6–7 hamuli on R1 distally; NI=0.6–0.9; cu-a slightly curved. Propodeum (Fig. 183) with anterior transverse carina present between lateral longitudinal carinae, convex; posterior transverse carina present between pleural carinae, between lateral longitudinal carinae with “M” shape; lateral longitudinal carinae faint between transverse carinae; areas externa and basalis coriarius texture between punctures, areas spiracularis, lateralis, coxalis and posteroexterna rugulose, and areas dentipara and superomedia coriarius between punctures.

Metasoma. First tergite 4.0x as long as apical width. Tergite II with spiracle located at 0.5x length of tergite.

Color. Fulvous except following: head (except frons centrally fulvous), collar, lower half of pronotum, apical edge of mesoscutum, notauli, mesoscutellum, tegula, subalar prominence,

speculum, a diagonal stripe in mesopleuron, apical half of metasternum, apical half of propodeum, coxae apically and dorsally light straw yellow.

♂: Unknown.

Comments. This species is restricted to Araucanía and all the specimens were collected in February during the wed season.

Examined material. 9♀♀: labeled as follows: **CHILE:** 8♀♀ “Curacautín, Malleco II.'64 [ii.1964] R. Blanco Chile Luis E. Peña”; and 1♀ “Pino Hachado Lonquimay, Mal. II.18.80 [18.ii.1980] Chile 1600m. L. Peña” (MUSM).

Alophophion new species 34

(Figs. 127, 146, 165, 184)

Diagnosis. This species can be recognized by this combination of the features: propodeum with the posterior transverse carina present, lower edge of the speculum softly scrobiculate and the lateromedian longitudinal carinae converge behind posterior transverse carina.

Description. ♀: **Head.** Face (Fig. 127) 1.1x as wide as long; with smooth texture between punctures, area between toruli with coriarius texture between punctures; median portion weakly convex. Clypeus slightly convex; smooth texture between punctures; apical edge straight centrally, curved laterally. Compound eyes 0.6–0.7x as wide as face. Malar space 0.1x as long as basal width of mandible. Gena, in lateral view (Fig. 146), 0.6–0.7x as wide as compound eyes, smooth texture between punctures. Frons smooth, softly striate dorsal toruli. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.2–0.3x ocellar diameter; distance between ocelli 0.7–0.9x ocellar diameter. Antenna with 48–52 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.1–4.4:2.7:2.3–2.4:2.2–2.3:2.2–2.3:2.1–2.3:2.0–2.1. Ratio of length/width of pre-apical flagellomeres: 1.5–1.6x.

Mesosoma. Pronotum smooth texture between punctures, collar with coriarius texture. Mesoscutum coarsely punctate, smooth between punctures. Notaulus reaching to 1/3 distance to posterior margin of mesoscutum, basally scrobiculate. Mesoscutellum evenly convex, smooth between punctures; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 165) smooth between punctures; lower edge of speculum softly scrobiculate;

mesopleural furrow absent. Epicnemial carina weaker at join to propodeum; joining on anterior margin of mesopleuron at lower quarter of pronotum. Metapleuron smooth between punctures. Fore wing with CI=0.7–0.8; ICI=0.5–0.6; SDI=1.3–1.4; 1m-cu straight; ramulus present; Rs+M curved; marginal cell basally glabrous; sub-basal cell with isolate setae in the apical half, only distributed dorsally. Hind wing with 7–8 hamuli on R1 distally; NI=0.6–0.7; cu-a curved. Propodeum (Fig. 184) with anterior transverse carina present centrally; posterior transverse carina complete, reaching pleural carina; lateral longitudinal carinae absent; lateromedian longitudinal carinae present between transverse carinae, faint sometimes absent; lateromedian longitudinal carinae after posterior transverse carinae convergent, fused to form a single median longitudinal carina, rarely separate; smooth texture between punctures.

Metasoma. First tergite 3.7–3.8x as long as apical width. Tergite II with spiracle located at 0.5x length of tergite.

Color. Olive green to light straw yellow except following: antennae, palpi, mandibles, two lateral vittae distributed from $\frac{1}{4}$ to posterior edge of mesoscutum, a central vittae distributed from anterior edge to $\frac{1}{2}$ of mesoscutum, a spot between central vittae and posterior edge of mesoscutum, scuto-scutellar groove, axilla, posterior half of speculum, lower edge of subalar prominence, mesosternum, basal half of metasternum, basal half ventrally coxae, basal half of propodeum, a spot distributed from spiracles to pre-apical apical end of tergite I, tergites II–VII except lateral and posterior margins and ovipositor sheath fulvous.

♂: unknown

Comments. Some specimens have metasoma brownish instead of olive green, this variation in the color was obtained probably because the killing method.

Examined material. 5♀♀: labeled as follows: **ARGENTINA:** 2♀♀ “Cipolleti Rio Negro IX.29.57 [29.ix.1957] Argent. [Argentina] F.H. Walz”; and 3♀♀ “Villa Regina Argentina Rio Negro X.7.61[07.x.1961] Luis Peña” (AEIC).

Alophophion new species 35

(Figs. 6, 128, 147, 166, 185)

Diagnosis. This species can be recognized by this combination of features: lower edge of the speculum with the same texture as the mesopleuron, propodeum with the transverse carinae present and with rugulose texture except in the areas basalis and externa.

Description. ♀: **Head.** Face (Fig. 128) 1.0–1.2x as wide as long; median portion weakly convex; smooth with punctures centrally, laterally with coriarius texture between punctures. Clypeus slightly convex, smooth with punctures centrally, laterally with coriarius texture between punctures; apical edge straight centrally, curved laterally. Compound eyes 0.4–0.6x as wide as face. Malar space 0.1–0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 147), 0.6–0.7x as wide as compound eyes, smooth texture between punctures. Frons softly striate between central ocelli and toruli. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.3–0.4x ocellar diameter; distance between ocelli 0.8–0.9x ocellar diameter. Antenna with 48–50 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 3.6–4.3:1.8–2.1:1.6–2.0:1.5–1.9:1.5–1.8:1.4–1.7:1.4–1.7. Ratio of length/width of pre-apical flagellomeres: 1.3–1.4x.

Mesosoma. Pronotum on the upper half coarsely punctate, smooth between punctures; lower half scrobiculate and lower collar striate. Mesoscutum punctate, smooth with punctures centrally, laterally with coriarius texture between punctures. Notaulus reaching to 1/5 distance to posterior margin of mesoscutum, finely scrobiculate. Mesoscutellum evenly convex, smooth with finely punctures; lateral carina reaching 0.1x to posterior margin of mesoscutellum. Mesopleuron (Fig. 166) punctate, smooth between punctures; lower edge of speculum and subalar prominence with the same texture as mesopleuron; mesopleural furrow absent. Epicnemial carina curved to meet anterior margin of mesopleuron at lower 0.4 of pronotum. Metapleuron punctate, smooth between punctures. Fore wing with CI=0.4–0.5; ICI=0.7–0.9; SDI=1.3–1.4; 1m-cu straight; ramulus present; Rs+M curved; marginal cell basally glabrous; sub-basal cell usually without setae, at most with one seta. Hind wing with 7 hamuli on R1 distally; NI=0.8–1.0; cu-a straight. Propodeum (Fig. 185) with anterior transverse carina present between lateral longitudinal carinae; posterior transverse carina present between pleural carinae; lateromedian longitudinal carinae present, faint before anterior transverse carina; rugulose, except: areas basalis and externa punctate, smooth with punctures; pleural carina present.

Metasoma. First tergite 5.1–5.5x as long as apical width. Tergite II with spiracle located at 0.5x length of tergite.

Color. Olive green to light straw yellow except following: antennae, palpi, “M” form sport on mesosternum, metasternum, coxae basal-ventrally, trochanter, trochantellus, femurs ventrally and laterally, basally centrally on tergites II to III, laterotergites and ovipositor sheath fulvous.

♂: Similar to female except following: antenna with 43 to 53 flagellomeres. Fulvous spots on tergites II to III bigger, also sometime present basally centrally on tergites IV to VI.

Comments. There is variation in the texture of the areas petiolaris and posteroexterna of the propodeum, being more or less rugulose between specimens.

This species is distributed in the Chilean regions Araucanía, Biobío, Libertador General Bernardo O'Higgins, Metropolitana de Santiago and Maule. All the species studied were collected between January and February.

Examined material. 6♂♂, 11♀♀: labeled as follows: **CHILE:** 1♂ “3 km. E. Las Trancas, Ñuble, Chile I.16.67 [16.i.1967] Lionel Stange”; 4♂♂, 9♀♀ “Pino Hachado [Paso de Pino Hachado] Lonquimay, Mal. II.18.80 [18.ii.1980] Chile 1600m. L. Peña”; 1♂ “Las Trancas Chillán, Chile I.19-22.79 [19-22.i.1979] 1600m. L. Peña”, “Cord. [Cordillera] Lonquimay, Chile I.1.1962 [01.i.1962] Luis Peña “; and 1♀ “Río Tinguiririca Colchagua, Chile II.17.78 [17.ii.1978] 1400m Luis Peña” (AEIC).

***Alophophion* new species 36**

(Figs. 129, 148, 167, 186)

Diagnosis. This species is the only one in the Species-group C that has the propodeal carinae lamellate. It is quite similar to *A. new species 11* and *A. new species 10* but can be distinguish of them by the presence of a glabrous area in the marginal cell next to pterostigma, beside of the head proportions.

Description. ♀: **Head.** Face (Fig. 129) 1.0 x as wide as long; smooth between punctures; median portion weakly convex. Clypeus convex; smooth texture between punctures; apical edge centrally straight, laterally slightly convex. Compound eyes 0.6–0.7x as wide as face. Malar

space 0.1–0.2x as long as basal width of mandible. Gena, in lateral view (Fig. 148), 0.7–0.8x as wide as compound eyes; smooth between punctures. Frons smooth, slightly striate between antennae and median ocellus. Vertex with texture as gena. Lateral ocellus separated from compound eye by 0.3–0.4x ocellar diameter; distance between ocelli 0.9–1.0x ocellar diameter. Antenna with 50–54 flagellomeres. Ratio of length/width from first to seventh flagellomeres: 4.7–4.8:2.3:2.1–2.2:2.1:2.0–2.1:1.9–2.1:1.8–2.0. Ratio of length/width of pre-apical flagellomeres: 1.6–1.7x.

Mesosoma. Pronotum in upper half punctate, coriarius between punctures; lower half carinate; collar striate. Mesoscutum smooth texture between punctures laterally, coarsely punctate coriarius between punctures centrally. Notaulus reaching to 1/3 distance to posterior margin of mesoscutum, scrobiculate. Mesoscutellum evenly convex, without lateral carina; smooth between punctures. Mesopleuron (Fig. 167) punctate, coriarius between punctures, except smooth between punctures upper epicnemial carina; lower edge of speculum finely scrobiculate; mesopleural furrow scrobiculate-rugulose reaching to posterior edge. Epicnemial carina curved to meet anterior margin of mesopleuron at lower third of pronotum; forming an angulation between mesopleuron and mesosternum. Metapleuron rugulose. Fore wing with CI=0.6–0.8; ICI=0.8; SDI=1.3–1.6; 1m-cu straight; ramulus present, small, sometimes only as an angulation; Rs+M slightly curved; marginal cell marginal cell basally glabrous, glabrous area reaching next to vein Rs+2r and pterostigma; sub-basal cell glabrous with a row of setae next to 1A. Hind wing with 6 hamuli on R1 distally; NI=0.8–1.4; cu-a slightly curved. Propodeum (Fig. 186) with carinae lamellate; transverse carinae present reaching pleural carinae; longitudinal carinae present; lateromedian longitudinal carinae confluent behind posterior transverse carina; slightly carinate texture except areas basalis and externa smooth between punctures; pleural carina present.

Metasoma. First tergite 4.4–4.5x as long as apical width. Tergite II with spiracle located at 0.4–0.5x length of tergite.

Color. Fulvous except following: surrounding area of compound eyes, between ocelli, vertex and in some specimens subalar prominence yellowish. Wings grayish hyaline; veins brownish and pterostigma fulvous.

♂: Unknown.

Comments. *Alophophion* new species 36 was consider in the Species-group C, but seems to be closely related with *A.* new species 11 and *A.* new species 10. They share the same structure of the propodeal carinae, lamellate. Beside, its distribution overlaps with the other two species. This species is distributed in the Argentinean region of Neuquen and the Chilean region of Araucania.

Examined material. 4♀♀: labeled as follows: **ARGENTINA:** 1♀ “Pto. [Puerto] Aqua, L. [Lago] Trafal Neuquen, Argentina January 30, 1968 [30.x.1968] L & J Stange” (AEIC). **CHILE:** 3♀♀: labeled as follows: 2♀♀ “Curacautín, Malleco II.'64 [ii.1964] R. [Río] Blanco Chile Luis E. Peña”; and 1♀ “Pino Hachado [Paso de Pino Hachado] Lonquimay, Mal. [Malleco] II.18.80 [18.ii.1980] Chile 1600m. L. Peña” (AEIC).

Species-group D

Diagnosis. Face at most 1x as long as wide; compound eyes at most 0.6x wide as face; head, in lateral view, gena at least 0.8x wide as compound eyes. Lateral ocellus separated from compound eye by 0.4–0.5x ocellar diameter, ocelli small. Mandible with upper margin more or less convex, without setae (Figs. 10–11). Notaulus reaching about 0.3x of distance to posterior margin of mesoscutum. Mesopleural furrow absent. Body bright yellow colored with reddish or black spots; diurnal activity.

Included species. Two species are included in this species group: *A.* new species 37 and *A.* new species 38.

Comments. The species of this species group are presumably diurnal. They are geographically isolated, *A.* new species 37 is distributed in the highlands of Peru while *Alophophion* new species 38 is restricted to Patagonia.

Key to species of species-group D

- 1 Malar space 0.7–0.8x as long as basal width of mandible (Peru)
..... *Alophophion* new species 37
- Malar space 0.4x as long as basal width of mandible (Chile and Argentina)
..... *Alophophion* new species 38

Alophophion new species 37

(Figs. 11, 193–197)

Diagnosis. *Alophophion* new species 37 and *A.* new species 38 are quite similar but *A.* new species 37 is thinner and has the malar space wider.

Description. ♀: **Head.** Face (Fig. 194) 1.1x as wide as long, lateral margins almost parallel, with coriarius between punctures, median portion weakly convex. Clypeus evenly convex, with texture as that of face; apical edge slightly convex. Mandible stout, very weakly narrowed apically, curved, with upper tooth slightly broader and slightly longer than the lower tooth; outer mandibular surface punctate, coriaceous between punctures. Malar space 0.7–0.8x as long as basal width of mandible. Gena, in lateral view (Fig. 195), 0.8x as wide as compound eyes, with fine leathery texture; strongly convergent. Vertex and frons with texture as that of gena. Lateral ocellus separated from compound eye by 0.5x ocellar diameter; distance between ocelli 0.8–1.2x ocellar diameter (Fig. 196). Antenna with 48–49 flagellomeres; Ratio of length/width from first to seventh flagellomeres: 4.6–3.9:2.4–2.2:2.0–1.8:2.0–1.9:2.0–1.9:1.8–1.7:1.7.

Mesosoma. Pronotum and mesoscutum punctate with coriarius between punctures. Notaulus scrobiculate. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching ca. 0.2x to posterior margin of mesoscutellum. Mesopleuron weakly polished, punctate with coriarius between punctures, except speculum smooth, under speculum with oblique transverse wrinkles. Epicnemial carina curved to meet anterior margin of mesopleuron at lower third of the pronotum. Metapleuron with texture as mesopleuron. Submetapleural carina complete. Fore wing with CI=0.4; ICI=0.7; SDI=1.2; 1m-cu centrally curved, ramulus absent. Hind wing with 6 hamuli on R1; NI=0.4; cu-a curved. Propodeum (Fig. 197) with anterior transverse carina faint, centrally arcuate; pleural carinae present; other carinae absent; area anterior punctate; area posterior with rugulose texture.

Metasoma. First tergite 4.4x as long as apical width. Tergite II with spiracle located at 0.6x length of tergite.

Color. Head bright yellow except following: area of clypeal fovea and a spot form around inter-antennal tubercle, front centrally, area around ocelli and dorsal projection of posterior ocelli black; scape, mandibles teeth, maxillary and labial palpi yellowish brown; pedicel and

flagellomere dark brown. Mesosoma bright yellow except following: a black transverse stripe in pronotum, three stripes in mesoscutum, axilla, a stain that runs from inferior edge of subalar prominence, speculum and anterior margin of mesopleuron, mesopleural suture, four stripes in mesosternum, prosternum, metasternum and hind ring behind postscutellum. Fore leg with coxae bright yellow; trochanter, trochantellus, femur and tibia yellowish brown; and, tarsomeres brown. Mid and hind leg with coxae dorsally bright yellow; coxae ventrally, trochantellus, femur and apical-ventral tibia yellowish brown; and trochanter, tibia and tarsomeres brown. Wings grayish hyaline; veins basally yellowish, rest brownish black; pterostigma dorsally yellowish brown; metasoma with first sternite brown, first tergite bright yellow except yellowish brown area behind spiracle; tergite II–VI yellowish brown, tergites III–VI with a lateral yellow spot; tergite VII bright yellow; ovipositor and valve yellowish brown.

♂: Fore wing length 9.4mm. Similar to female except: four stripes in mesosternum wider forming “M” shape and claspers bright yellow.

Comments. This species was collected in puna grassland over 4000 m, actively flying during the day; all the specimens were collected during the rainy season.

Examined material. 1♂, 2 ♀♀: labeled as follows: 1♀, “PERU: AP. Cotabambas 72°23'19"W/ 13°56'18"S, 4030 m, pajonal, colecta manual, iii.2007, M. Alvarado & E. Quispitupac” and 1♂, 1♀, PERU:CU. Espinar, Qbra [Quebrada] Chaisamayo 14°59'46.15"S/ 71°16'25.93"W, 4167 m. 16-17.iii.2011. Pastizal. M. Alvarado (MUSM).

Alophophion new species 38

(Figs. 10, 198–202)

Diagnosis. *Alophophion* new species 38 can be distinguished of *A.* new species 37 for its face, wider than in *A.* new species 37 and the gena thinner.

Description. ♀: **Head.** Face (Fig. 199) 1.2–1.3x as wide as long, lateral margins almost parallel, smooth with punctures centrally, laterally with coriaceous between punctures; median portion weakly convex. Clypeus evenly convex, with texture as that of face centrally; apical edge straight slightly convex. Mandible stout, very weakly narrowed apically, curved, with upper tooth slightly broader and slightly longer than the lower tooth; outer mandibular surface smooth

between punctures in the upper 2/3 and coriaceous between punctures in the basal 1/3. Malar space 0.4x as long as basal width of mandible. Gena, in lateral view (Fig. 200), 0.8–0.9x as wide as compound eyes; smooth between punctures; strongly convergent. Vertex and frons with texture as that of gena. Lateral ocellus separated from compound eye by 0.4–0.5x ocellar diameter; distance between ocelli 1.0–1.3x ocellar diameter (Fig. 201). Antenna with 47–56 flagellomeres; Ratio of length/width from first to seventh flagellomeres: 3.8–3.6:2.5–2.1:2.1–1.8:2.0–1.8:2.0–1.7:1.9–1.7:1.9–1.7.

Mesosoma. Pronotum and mesoscutum punctate with smooth texture between punctures. Notaulus scrobiculate. Mesoscutellum evenly convex, with texture as that of mesoscutum; lateral carina reaching ca. 0.2x to posterior margin of mesoscutellum. Mesopleuron weakly polished, punctate, except speculum smooth; under speculum with oblique transverse wrinkles. Epicnemial carina curved to meet anterior margin of mesopleuron at lower third of the pronotum. Metapleuron with texture as mesopleuron. Submetapleural carina complete. Fore wing with CI=0.3–0.6; ICI=0.6–0.7; SDI=1.1–1.2; 1m-cu centrally curved and with ramulus absent or 1m-cu centrally angulate and with ramulus present. Hind wing with 6 hamuli on R1; NI=0.6; cu-a curved. Propodeum (Fig. 202) with rugulose texture; with anterior and posterior transverse carina present, pleural carinae present.

Metasoma. First tergite 4.2–4.5x as long as apical width. Tergite II with spiracle located at 0.5x length of tergite.

Color. Head bright yellow except following: spot form around toruli and surrounded area of median ocellus, projected in front of toruli and facial tubercle by triangular expansions; dorsal part of vertex, behind lateral ocelli, with a “v” shape going to the occiput brownish red. Mesosoma bright yellow except following: upper transverse stripe in pronotum, three stripes in mesoscutum; axilla; a spot that runs from inferior edge of subalar prominence, speculum and anterior margin of mesopleuron; mesopleural suture; mesosternum; prosternum; metasternum; hind ring behind postscutellum and basal half of propodeum brownish red. Legs brownish red except coxae ventral-apically bright yellow; wings grayish hyaline; veins basally yellowish, rest brownish black; pterostigma dorsally yellowish brown. Metasoma with first sternite brownish red, first tergite bright yellow except brownish red area behind spiracle; tergite II–VI yellowish

brownish red except laterally to the spiracle with yellow band; tergite VII brownish red; ovipositor and valve brownish red.

♂: Fore wing length 9.5mm. Similar to female except by the spot not brownish red, dark brown. Antenna with 46 flagellomeres

Comments. The proportions of the head of *A. new species 38* varied within the population especially with the male, additionally there are differences in the coloration of the spots this seems to be intrinsic of the species. *Alophophion new species 37* was collected bellow 1000m.

Examined material. 1♂, 6♀♀: labeled as follows: **ARGENTINA:** 1♀, “ARGENTINA. N.-W [NW] Patagonia. 1,000-3,000ft. [305-915m] Dec. 1919. H.E. Box”; 1♀ “CHILE [ARGENTINA]: Chubut, Rio Turbio. 25.i.1962. A. Kovacs. B.M. 1964-193.” (BMNH). 1♀, “Chubut Patagonia / From WFH Rosemberg/ [identification label: *Ophion chilensis* Spinola det C.W. Hooker 3.18.1909]” (USNM). **CHILE:** 1♂, 2♀♀: 1♂ “Curacautín, Malleco II.'64 [ii.1964], R. Blanco Chile Luis E. Peña”; 1♀ “Las Nieves XI.12.47 [12.xi.1947] Chile L. Pena Guzman”, and 1♀, “Renco, Chile, nr. Santiago I.20.51 [20.i.1951] L. Peña” (AEIC); and 1♀, “Prov. Valdivia Valdivia-Chile 15.xi.81 E. Krahmer” (BMNH).

Nomen dubium

Alophophion holosericeus (Taschenberg, 1875)

Ophion holosericeus Taschenberg, 1875: 427 Holotype ♀ ZMH [Taschenberg's use of “type” is herein regarded as an original holotype designation (ICZN 1999: Art. 73.1.1) [description]. Dalla Torre, 1900: 192 [listed]; Hooker, 1912: 164 [translation of original description]; Morley, 1912: 57 [key].

Alophophion holosericeus (Taschenberg): Townes & Townes, 1966: 171 [generic transfer]; Yu & Horstmann, 1997: 730 [listed].

Description. ♀: Based on the original description provided by Hooker (1912). Propodeum with anterior transverse carina present and well defined; posterior transverse carina weaker than anterior; lateral and lateromedian longitudinal carinae present before anterior transverse carina, faint after it. Fore wing with ramulus present in discosubmarginal cell. Reddish brown except

following: head dorsally and mesoscutellum yellowish and apice of metasoma brownish (Hooker, 1912).

Comments. The type specimen was collected in Parana, Brazil and was deposited in the Zoologischen Instituts und Zoologischen Museums der Universität Hamburg (ZMH). This collection was largely destroyed by Allied bombing during World War II. In the available catalogue of Hymenoptera from the University of Hamburg collections (Weidner 1972), any material not listed in is considered to have been destroyed during the war (Kai Schütte, pers. comm.).

According to the material examined there are three species of *Alophophion* occurring in Brazil: *A. flavorufus*, *A. new species 2*, and *A. new species 12*. The last two are greenish while *A. flavorufus* has coloration similar to the description of *A. holosericeus*. However, *A. flavorufus* lacks the lateral and lateromedian longitudinal carinae which, according to Hooker (1912) description are present in *A. holosericeus*, so unlikely to be the same species.

Among the species occurring in Argentina *A. filicornis* cannot be *A. holosericeus* because it lacks a ramulus and according to the original description of the latter it is present. Similarly, *A. holosericeus* cannot be *A. new species 38* and *A. new species 34* because of the body coloration; and cannot be *A. politus*, *A. new species 18*, *A. new species 19*, or *A. new species 36* since they have the longitudinal carinae well defined (absent in *A. holosericeus* behind anterior transverse carina). None of the available species before me suitably match the description of *A. holosericeus* and so its identity will have to await extensive new collections from Parana.

DISCUSSION

Species of *Alophophon* are not rare and there is an abundance of specimens deposited in collections. Nonetheless, only seven species have been described prior to the present revision and this despite the fact that many of these new taxa were already recognized from collections (e.g., Gauld 1985, Gauld & Lanfranco 1987, Baudino 2005). This situation begs the question as to why the genus was never revised or these species at least described since Cushman established the genus in 1947. One reason may be that the type material was deposited in Europe while *Alophophon* is restricted to South America, a situation leaving local researchers without access to the material necessary for suitably identifying which species were those named and which were truly novel. Another reason may be that ophonines are not charismatic, as reality suggested by Gauld (1980). Indeed, most species have a relatively uniform morphology, reduced sculpture, slender bodies, elongate rather featureless appendages, and uniform fulvous coloration; and they lack the taxonomically useful differences in thoracic and abdominal sculpture, color, etc., that are so widely used to characterize genera and species of other ichneumonid subfamilies. Such uniformity means that species within the group are more challenging to distinguish. The combination of this difficulty in species recognition and lack of access to critical type material clearly resulted in a long stagnation of much needed taxonomic work.

The re-descriptions provided herein were necessitated by the poor status of earlier descriptions, which provided little morphological information. Earlier accounts used almost exclusively color as a discriminating feature and this is not necessarily a reliable feature, which taken in isolation, for ophonines. Moreover, body coloration can change depending on the sampling method used to kill specimens; specimens that were greenish in life could turn to yellowish or those yellowish in life turn to orange depending on the medium used to collect them. Coloration can be used, as was done hereing, but must be evaluated carefully and placed in context with additional morphological traits.

The species of *Alophophon* were segregated into in four species groups herein. The features used were in the head morphology, particularly in the structure of the mandible. Species-group B has a diagonal groove extending from the upper corner to the middle of the mandible and bearing numerous, distinctly long setae. This structure was used as main feature to separate this species group from the others. Species-groups A and C also have a groove in the upper margin of the mandible and bearing setae but the groove is rather small, rarely reaching to the

external surface of the mandible, and the setae are distinctly short and typically not as numerous. Species-group A has the compound eyes and ocelli larger than in the other groups and a narrower gena, while species-group C has a broader gena and face. Although these features were used to separate species-groups A and C, in some species these differences are somewhat vague or difficult to discern, such as in *A. new species 36* (species-group C) which is similar to (perhaps closely related?) *A. new species 10* and *A. new species 11* (both in species-group A). Either such features are convergent between these three species (if the species groups are monophyletic), or one of the species groups is paraphyletic with respect to the others. *Alophophion new species 36* was placed in species-group C due to the proportions of the compound eyes and gena, thereby facilitating the identification keys. Overall species-group A and C seem more similar between them than any other species group. Clearly all of this requires testing by a phylogenetic analysis. Species-group D has the upper surface of mandibles slightly convex; but the most striking characteristic is the bright yellow color, unique for them. The size of the ocelli was not considered alone to establish this species-group because the presence of small ocelli was found in other species like *A. porculatus* and *A. new species 31*. Gauld (1985) suggested that ophonines that have adopted a diurnal habit have small ocelli, particularly in areas where competition with other Ichneumonidae is low, such as the top of high mountains, deserts, and remote islands; and this seem to be the case.

Gauld (1985) mentioned that the *Ophion* genus-group originated in the temperate north and that the origin of *Alophophion* was in Patagonia. During the middle Miocene (about 10 million years ago), much of South America was covered by a seawater transgression inside the continent, ultimately dividing it into three portions of land corresponding to the Andes, Guayanan, and Brazilian shield (Peña 2004, Räsänen *et al.* 1995, Webb 1995). This arrangement of landmasses persisted until the beginning of the Pleistocene (about 5 million years ago) (Räsänen *et al.*, 1995, Webb, 1995). This transgression would have been one of the most important barriers to prevent the spread of *Alophophion* between these three high masses of land, and restricting it to the Andean region, only with subsequent opportunities for dispersal elsewhere after the sea levels had regressed sufficiently.

Since the mountain ecosystems of the Andean region were formed in the early Pleistocene, several antarctic-austral elements are found in the highlands of the Andes. The Andes allowed the dispersion of these antarctic-austral elements northward into a cold

environment and open plant formation which held to a certain similarity to the austral landscape (Moret 2005). The elevation of the Andes progressively increased the possibility of dispersal by creating cool and arid habitats near the equator (Michener 2000). These factors may have allowed the northward dispersion of species of *Alophophion*, particularly those treated herein in species-groups A, C, and D. *Alophophion* new species 27 is the species with the northernmost distribution and was collected through an elevational gradient (from ~1700 to 3100m) and was most abundant at the higher elevations where the habitat is cooler and most arid. .

The aforementioned distribution is not unique to *Alophophion*. There are other genera of Ichneumonidae that inhabit cooler, arid, and higher regions of South America. The *Trachysphyrus-Aeliopotes* complex (Ichneumonidae: Cryptinae) is confined to subequatorial South America, with species ranging from Ecuador to Tierra del Fuego, and occurring in the Andean, subtropical, temperate, and Neantarctic habitats (Porter, 1985). Porter found that the species were confined to the Andean Puna and Altiplano (in Peru, Bolivia, northern Chile, and northwestern Argentina); on the western slopes of the Andes, they occur above 2800 m and more than 4000 m, however, and the eastward distribution of this complex is bounded by Andean peaks at 4000–6000 m elevation. *Aeglocryptus* (Cryptinae) is also a subequatorial genus; distributed from the central Peru to neantarctic Chile and through Bolivia, Uruguay and Argentina to the Strait of Magellan on the east. This genus is excluded from tropical wet forests and tropical deciduous forests, although it is represented in almost every habitat from sea level to 4000 m (Porter 1987). Another genus studied by Porter (1987) is *Thymebatis* (Ichneumoninae: Joppini). It has many species concentrated in the Andean, Neantarctic, and subtropical regions of South America. It is found also from sea level to 4000 m but generally inhabits cooler, higher, and more arid regions than those preferred by other Joppini, although some *Thymebatis* have invaded the subtropical wet forests of northern Argentina and southeastern Brazil (Porter 1980).

The northern distribution of *Alophophion* seems to be limited by the equator. None of the specimens of *Alophophion* studied here were collected north of 3°S latitude, but the distribution is certainly wider than the 25°S latitude suggested by Gauld & Lanfranco (1987). A genus adapted to this cold and dry environments may give a rise to a species able to persist in humid habitats like seems to be the case of *Alophophion* new species 1, the only species found in the eastern slopes of the Andes.

Another factor that may be limiting the distribution *Alophophion* along the eastern slopes of the Andes is competition with *Enicospilus* Stephens, an extremely species-rich genus that is represented in tropical America and most diverse in lower montane tropical forests (Gauld & Lanfranco 1987). Along the western slopes of the Andes *Enicospilus* has few species in deserts and a restricted number in areas that have a pronounced dry season (Gauld 1985), a stark contrast to that of *Alophophion*.

Alophophion larseni is the only species distributed outside of continental South America. It is likely the species may have reached the islands by rafting or dispersing over glacial ice during the late Pleistocene as was proposed for the Falklands Island wolf *Dusicyon australis* (Kerr) (Slater *et al.* 2009). The majority of animals and plants on the Falkland Islands have strong affinities with taxa living in Patagonia (Otley *et al.* 2008).

The distributions of *A. chilensis*, *A. politus*, and *A. flavorufus* can be more fully characterized now, as each was previously known only from the type localities which only mentioned countries where were collected. For example, *A. chilensis* was known to be distributed in Chile, but seems to be restricted to the Chilean regions of Atacama, Coquimbo and Valparaíso. For *A. politus* was known to be distributed in Chile, but seems to be restricted to the Chilean regions of Araucanía, Biobío, Coquimbo, Los Ríos, Maule, Libertador General Bernardo O'Higgins Region, Metropolitana de Santiago and Valparaíso; and the Argentinian provinces of Chubut and Rio Negro. For *A. flavorufus* was known to be distributed in Argentina and Brazil, but seems to be restricted to the Argentinian provinces Catamarca, Buenos Aires, Mendoza, and San Juan; in Brazil it was only recorded from Rio Grande do Sul. For both *A. filicornis* and *A. porculatus* the type localities are in Argentina, but no other specimen of these species has been collected and so they remain poorly understood. This situation certainly inhibits our ability to ascertain what factors are influencing their distribution, such as an association with a particular vegetation, climate, or host species. Further collections are needed to help establish a more complete picture of the distribution of several species in *Alophophion*. The distribution of many species may be wider than presently understood since several are only known from one or two localities. With few locality records is difficult to determine to what degree they are endemic or tied to particular local factors.

More collections will not only help to establish the distribution of the species but will assuredly increase the number of species. For example, during the last six years 14 species were

collected in Peru of which those only three had been previously sampled. Clearly when targeted collecting is undertaken the number of species has risen rapidly. Given that there are many suitable regions for *Alophophion* where no collecting efforts have been made; there will undoubtedly be new species to discover. Most importantly, modern collections are needed which have accurate geo-reference coordinates, elevation, habitat data, collecting methods employed, and dates and time (for phenological information). Much of the material available is historical and lacks many of these important data elements, thereby hindering our ability to make inferences about the biology, ecology, and history of the lineage.

Unfortunately, there are no definitive host associations for any species of *Alophophion*. Beside that Baudino (2005) recovered undetermined species of *Alophophion* from larvae of the cutworms *Agrotis malefida* (Guenée), *Feltia gypaetina* (Guenée), and *Peridroma saucia* (Hübner) feeding on *Medicago sativa* L. (Fabaceae); no host-species and parasitoid-species relation was done. The species of *Alophophion* attaching these cutworms are unknown; as Baudino (2005) mentioned the main reason were the lack of revision for the *Alophophion* and that there were probably several new species, this were her two limitations to determine them to species. Certainly the lack of any previous means of identifying the species has hindered researchers working on possible hosts from positive host-parasitoid associations. Going forward it is hoped that the keys provided herein will permit researchers studying the biology of regional Lepidoptera to identify parasitoids when they are reared from caterpillars.

The present revision provides a significantly improved perspective of species diversity and distribution for *Alophophion* and sets the stage for future cladistic and biogeographic work in lineage. The current study also highlights that species of *Alophophion* face two potential problems: several of the species are distributed in endangered habitats such as *Polylepis* forest and puna grassland, and most are likely to be susceptible to changes in climate. It is predicted that the distribution of most insect species will shift towards the poles and to higher elevations as our current era of climate change plays out (Regniere 2009). Given that many species of *Alophophion* are already inhabiting these extremes, such as some of the highest portions of the Andes, it leaves one to wonder what recourse these taxa have as the climate shifts. Clearly the wasps and their hosts may be as endangered as, or more so, than the habitats in which they reside.

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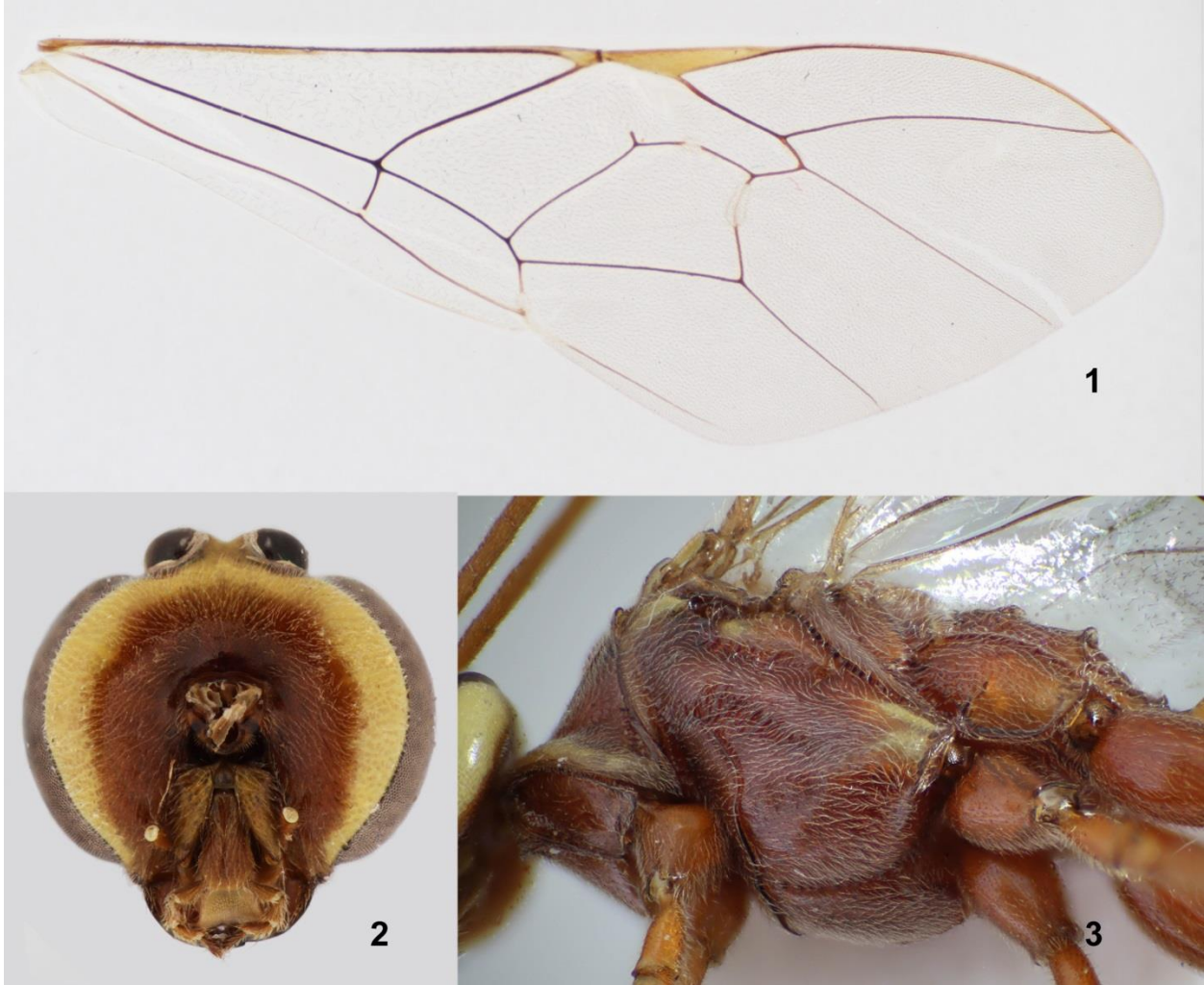
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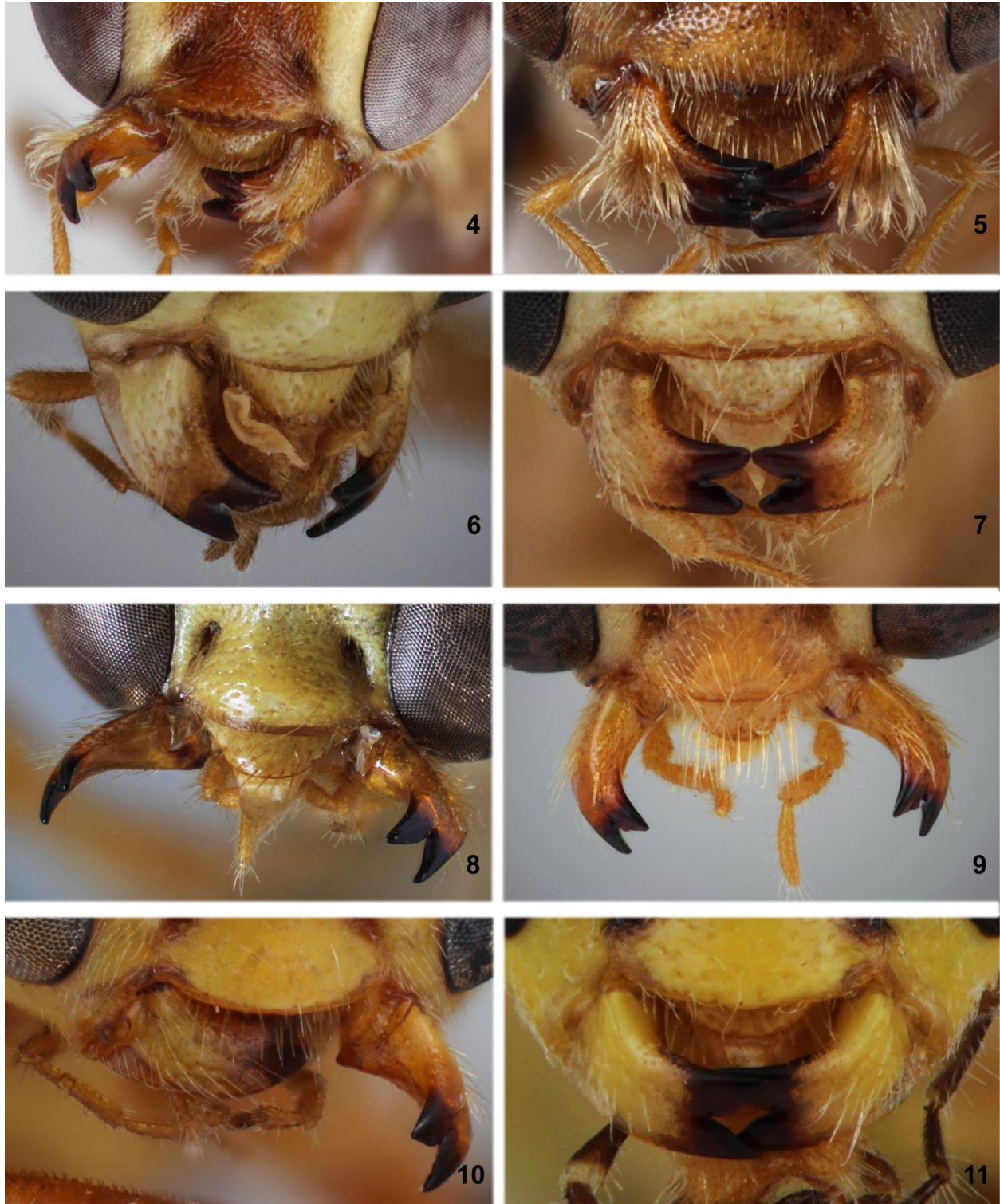
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APPENDICES



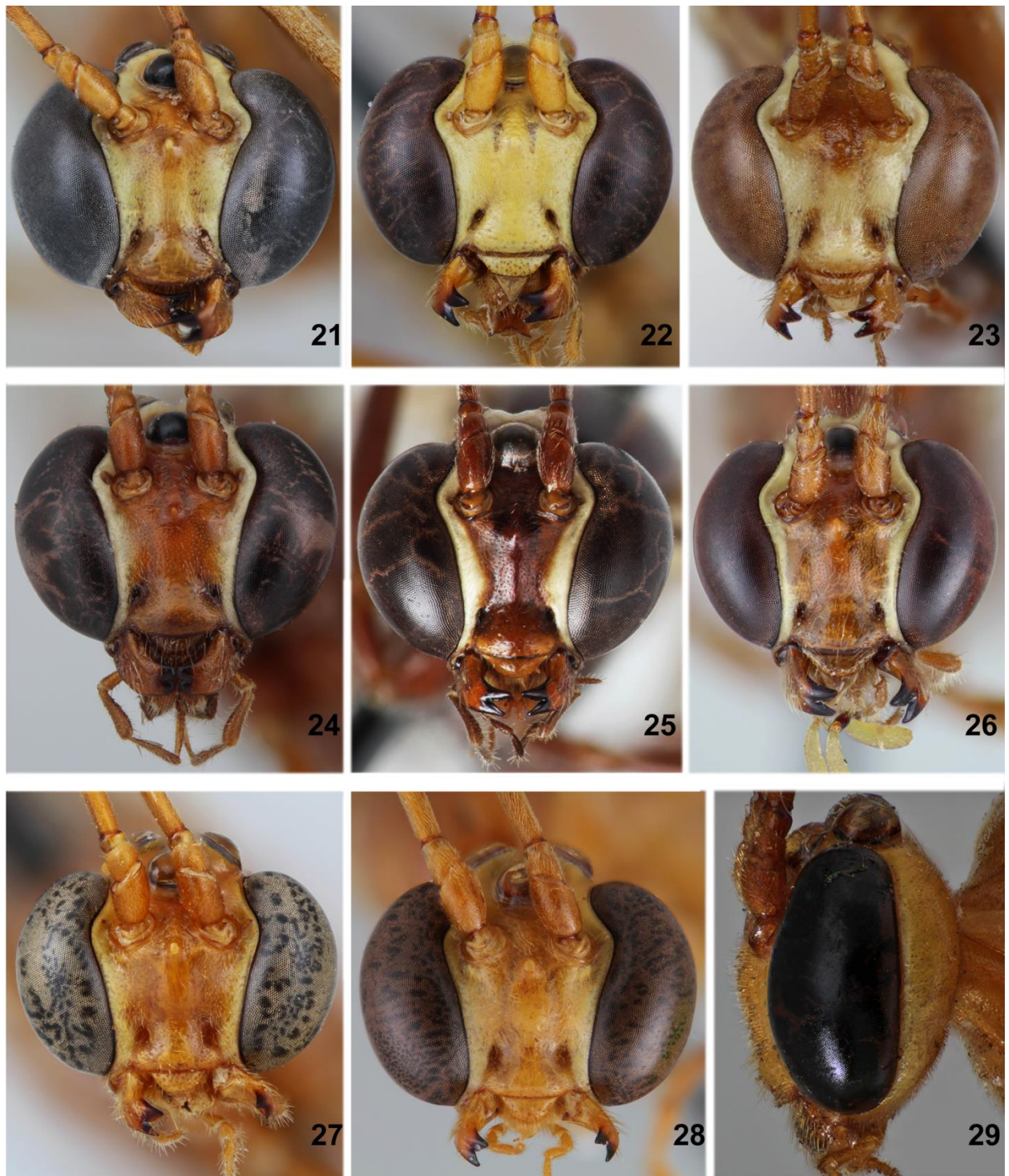
Figs 1–3. Details of *Alohophion* new species 27. **1** Fore wing **2** Head, in dorsal view **3** Mesosoma, in lateral view.



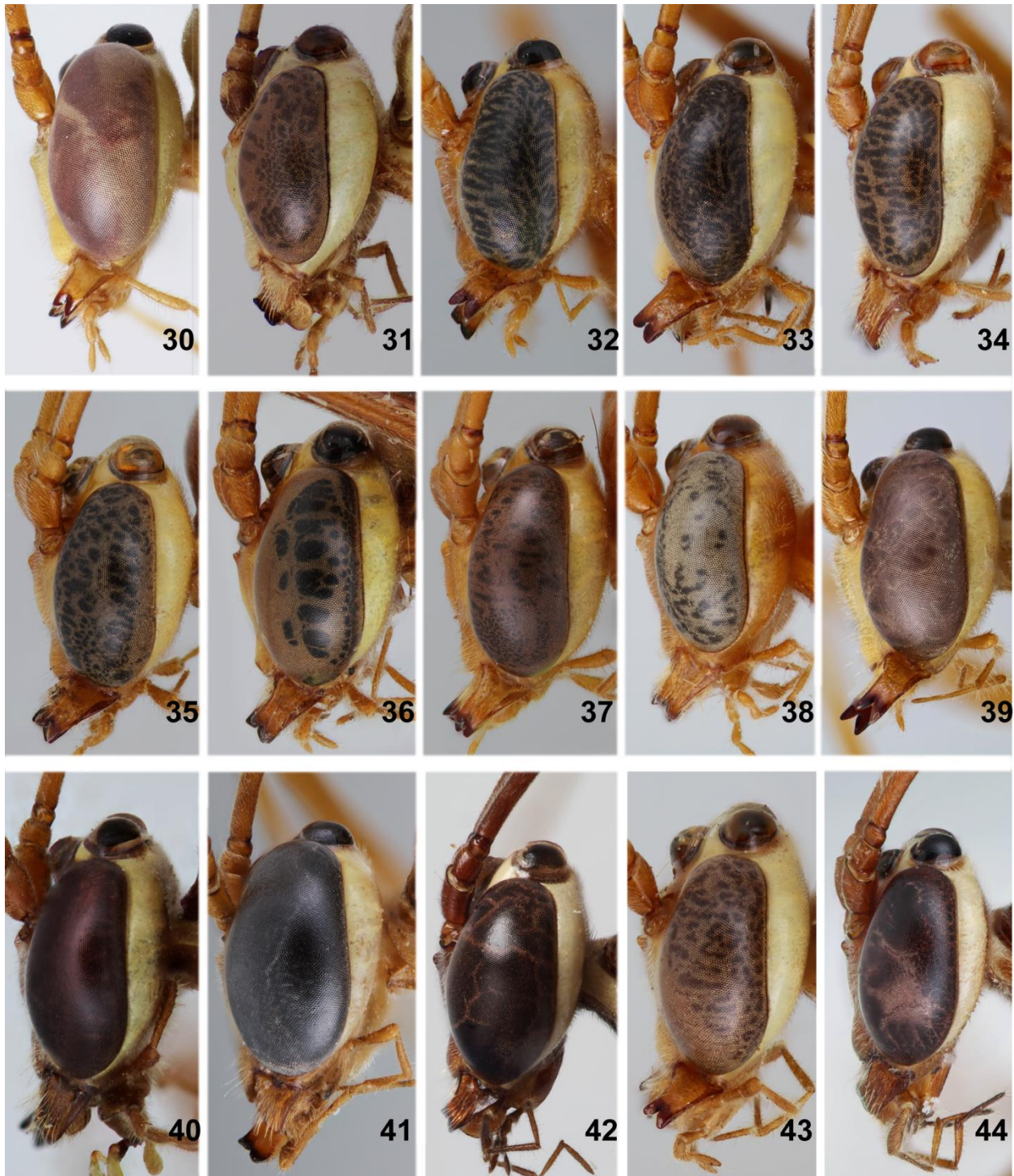
Figs 4–11. Details of mandibles in ventral view. **4** *A. new species 18* **5** *A. flavorufus* **6** *A. new species 35* **7** *A. new species 318* **8** *A. new species 10* **9** *A. new species 12* **10** *A. new species 38* **11** *A. new species 37*.



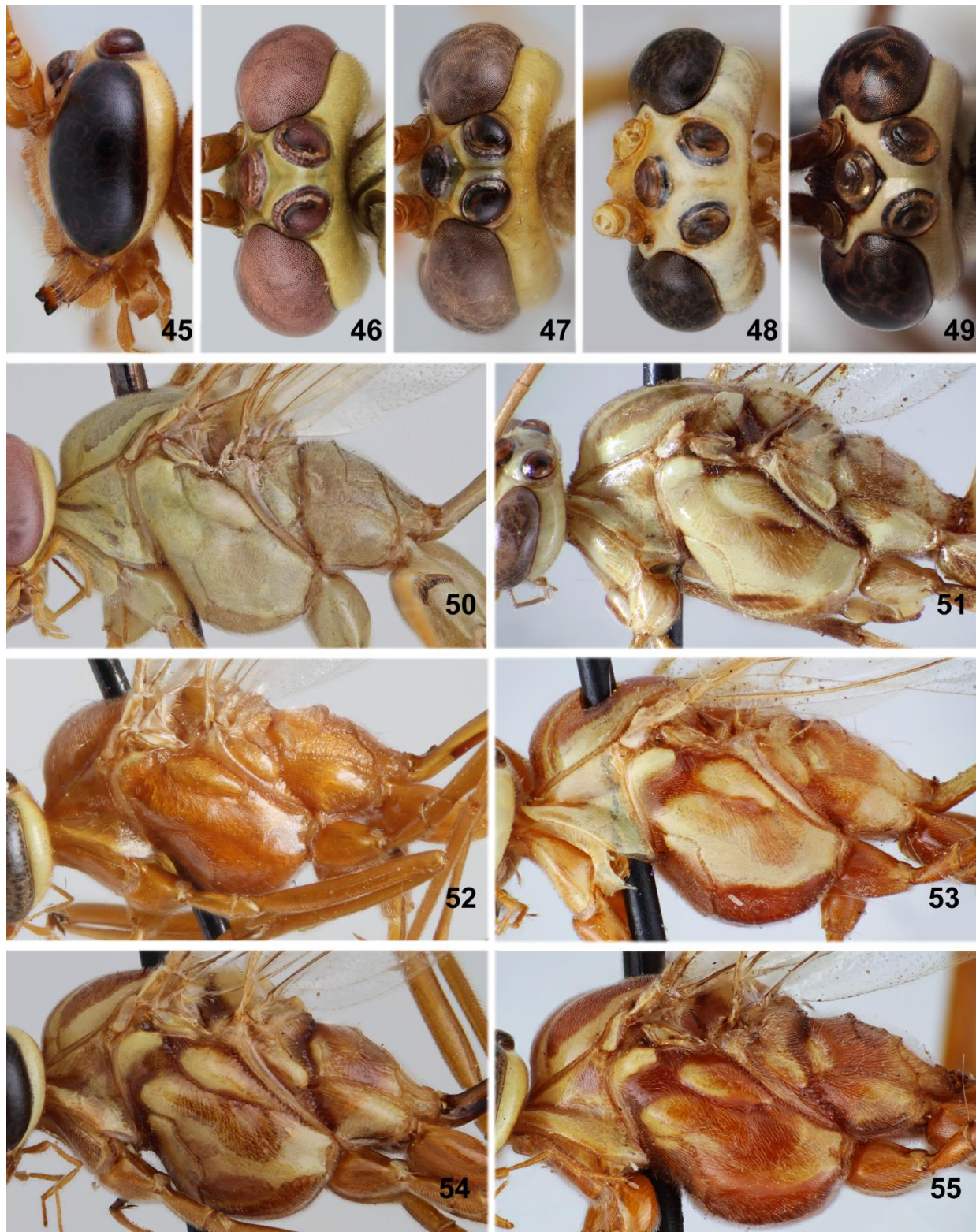
Figs 12–20. Details of face. **12 A.** new species 1 **13 A.** new species 5 **14 A.** new species 6 **15 A.** new species 4 **16 A.** new species 2 **17 A.** new species 9 **18 A.** new species 7 **19 A.** new species 8 **20 A.** new species 3.



Figs 21–29. Details of face. **21** A. new species 14 **22** A. new species 12 **23** A. new species 16 **24** A. new species 17 **25** A. new species 15 **26** A. new species 13 **27** A. new species 11 **28** A. new species 10. **Fig 29** Details of face in lateral view. A. new species 1



Figs 30–44. Details of head in lateral view. **30 A.** new species 2 **31 A.** new species 3 **32 A.** new species 4 **33 A.** new species 5 **34 A.** new species 6 **35 A.** new species 7 **36 A.** new species 8 **37 A.** new species 10 **38 A.** new species 11 **39 A.** new species 12 **40 A.** new species 13 **41 A.** new species 14 **42 A.** new species 15 **43 A.** new species 16 **44 A.** new species 17.



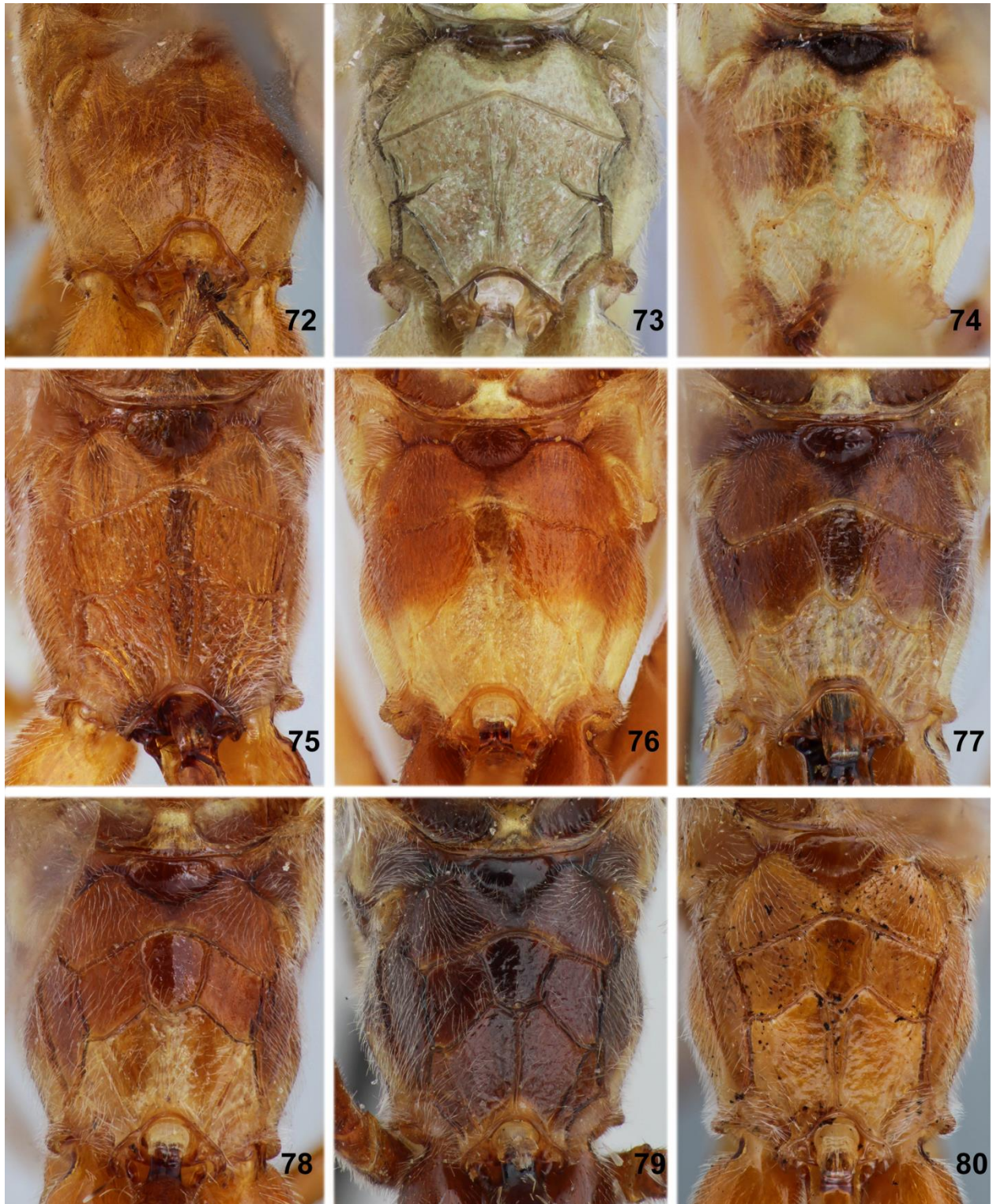
Figs 45 Details of head in lateral view, *A. new species* 9. **Figs 46–49.** Details of head in dorsal view. **46** *A. new species* 2 **47** *A. new species* 12 **48** *A. new species* 5 **49** *A. new species* 15. **Figs 50–55.** Details of Mesosoma in lateral view. **50** *A. new species* 2 **51** *A. new species* 3 **52** *A. new species* 4 **53** *A. new species* 5 **54** *A. new species* 6 **55** *A. new species* 7.



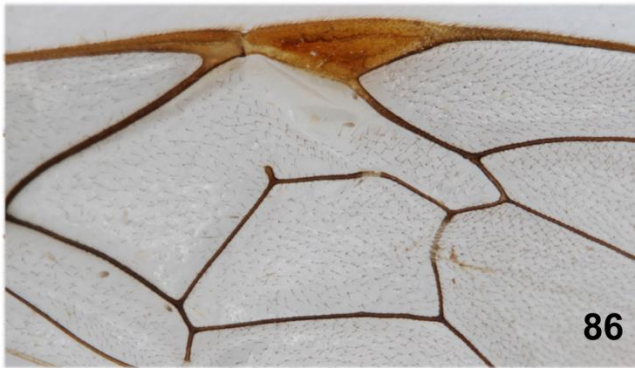
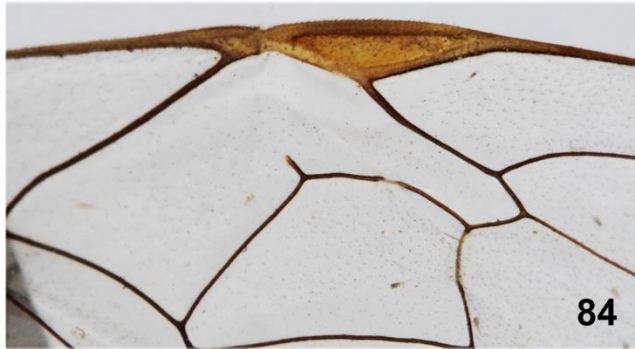
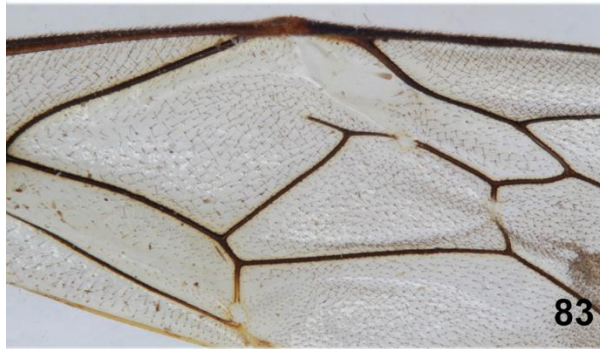
Figs 56–63. Details of mesosoma in lateral view. **56** A. new species 8 **57** A. new species 9 **58** A. new species 10 **59** A. new species 11 **60** A. new species 12 **61** A. new species 13 **62** A. new species 14 **63** A. new species 15.



Figs 64–65. Details of mesosoma in lateral view. **64** A. new species 16 **65** A. new species 17. **Figs 66–71.** Details of propodeum. **66** A. new species 12 **67** A. new species 13 **68** A. new species 14 **69** A. new species 15 **70** A. new species 16 **71** A. new species 17.



Figs 72–80. Details of propodeum. **72** A. new species 1 **73** A. new species 2 **74** A. new species 3 **75** A. new species 4 **76** A. new species 5 **77** A. new species 6 **78** A. new species 7 **79** A. new species 8 **80** A. new species 9.



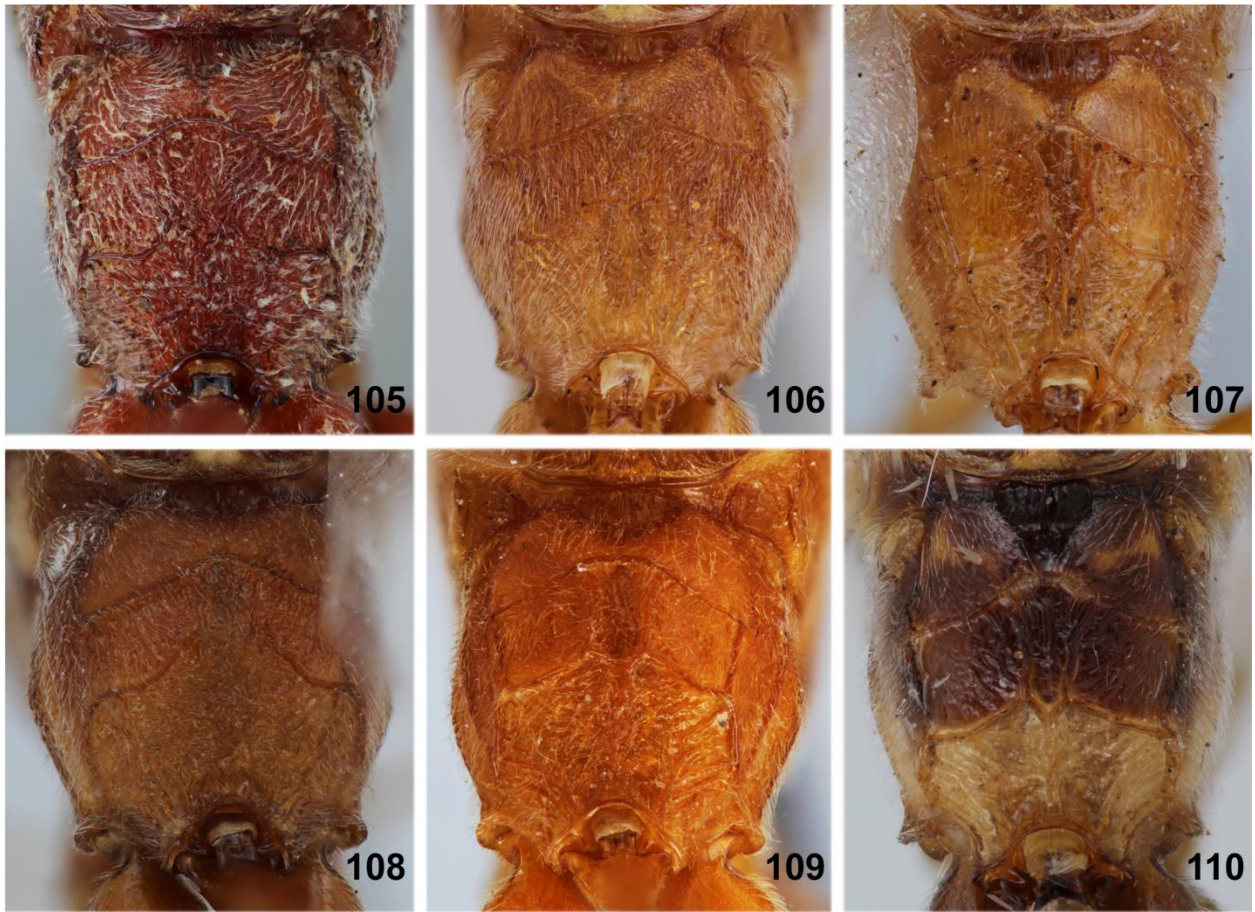
Figs 81–82. Details of propodeum. **81** A. new species 10 **82** A. new species 11 **Figs 83–86.** Details of fore wing. **83** A. new species 1 **84** A. new species 6 **85** A. new species 10 **86** A. new species 11.



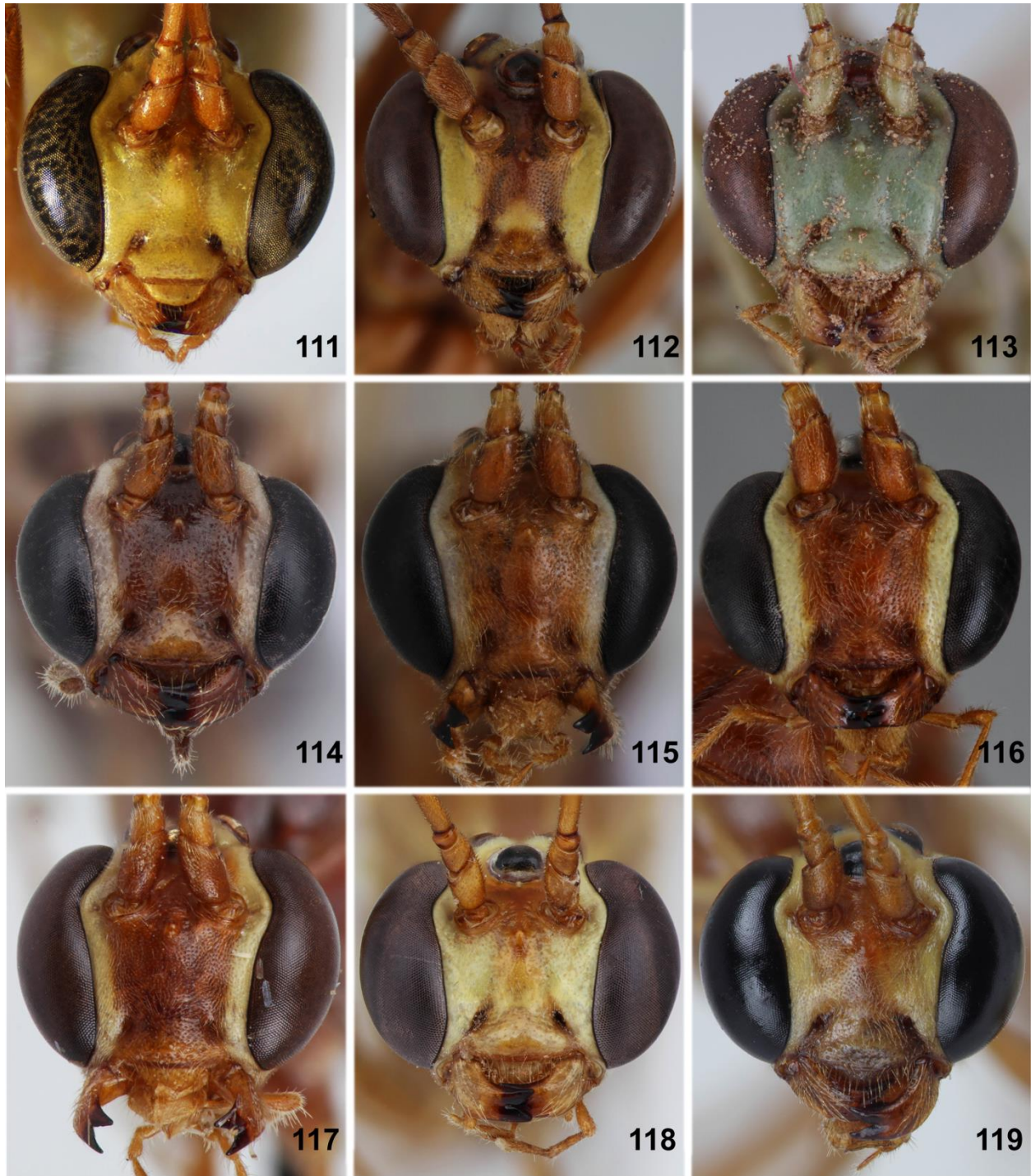
Figs 87–92. Details of face. **87** *A. filicornis*, holotype **88** *A. flavorufus* **89** *A.* new species 20 **90** *A.* new species 18 **91** *A.* new species 19 **92** *A. politus* .**Figs 93–96.** Details of head in lateral view. **93** *A. filicornis*, holotype **94** *A. flavorufus* **95** *A. politus*, holotype **96** *A.* new species 18.



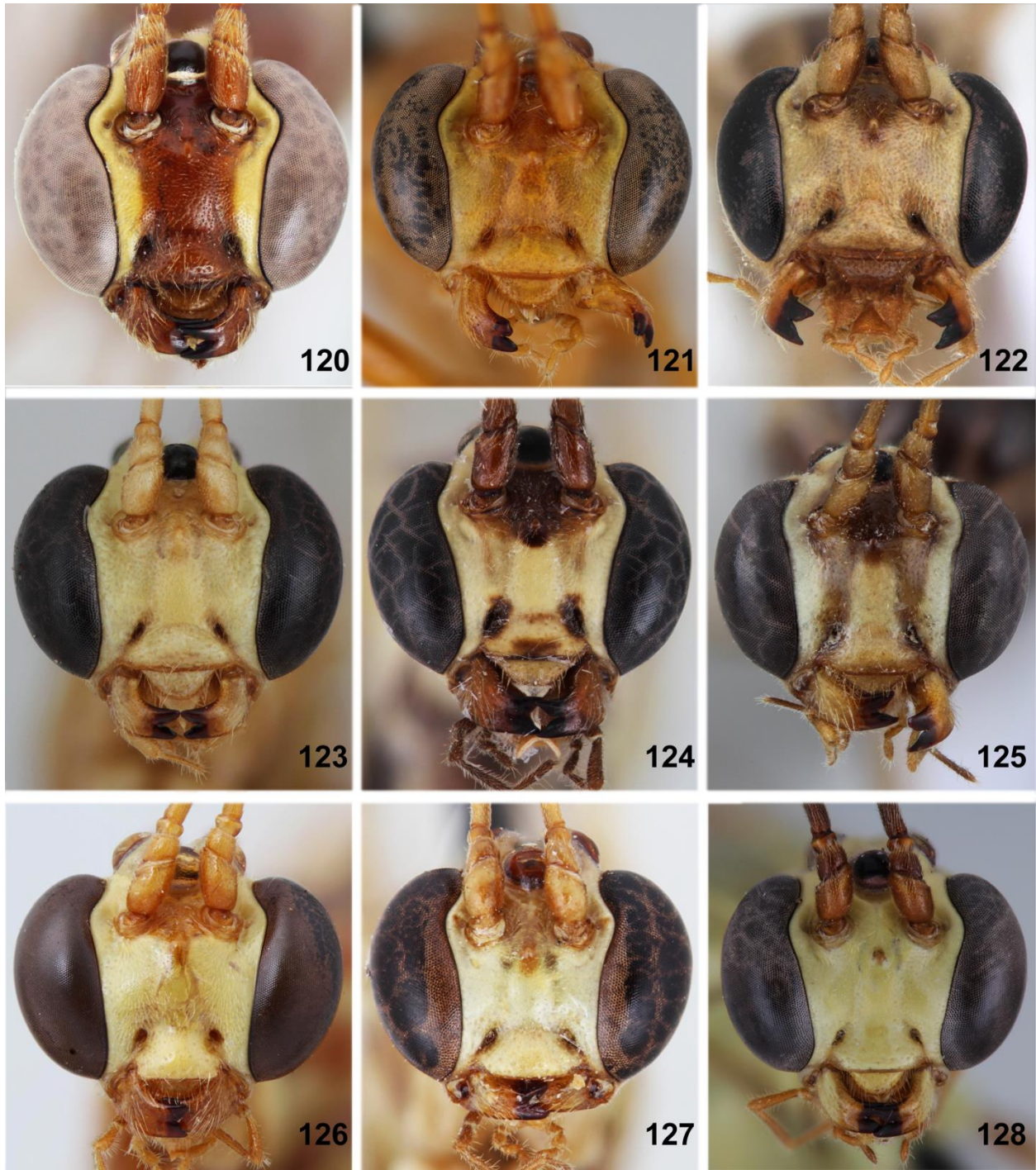
Figs 97–98. Details of face in lateral view. **97** A. new species 19 **98** A. new species 20. **Figs 99–100.** Details of head in dorsal view. **99** A. new species 18 **100** A. *flavorufus*. **Figs 101–104.** Details of mesosoma in lateral view. **101** A. *flavorufus* **102** A. new species 18 **103** A. new species 19 **104** A. *politus*.



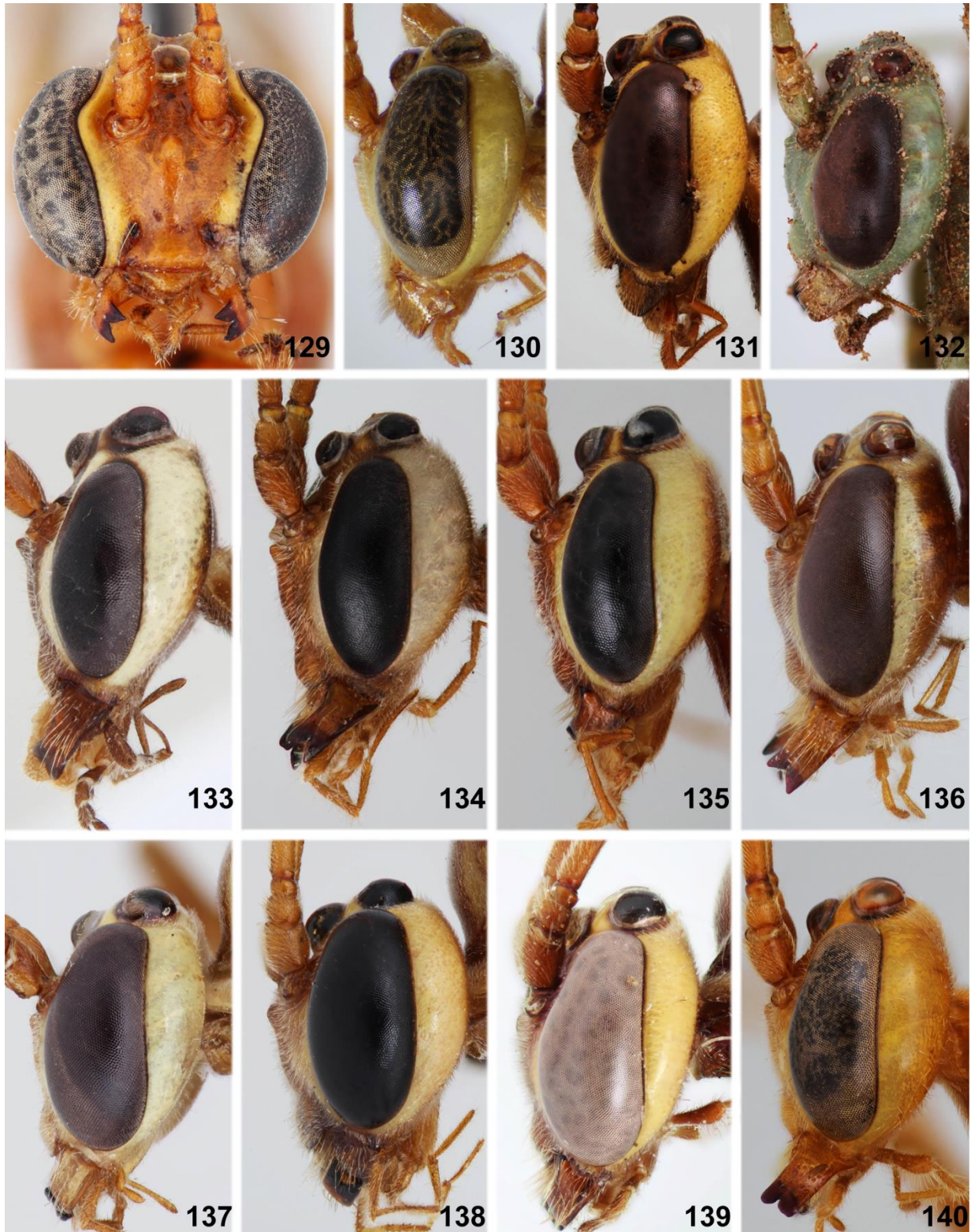
Figs 105–110. Details of propodeum. **105** *A. filicornis*, holotype **106** *A. flavorufus*, holotype **107** *A. politus*, holotype **108** *A.* new species 18 **109** *A.* new species 19 **110** *A.* new species 20.



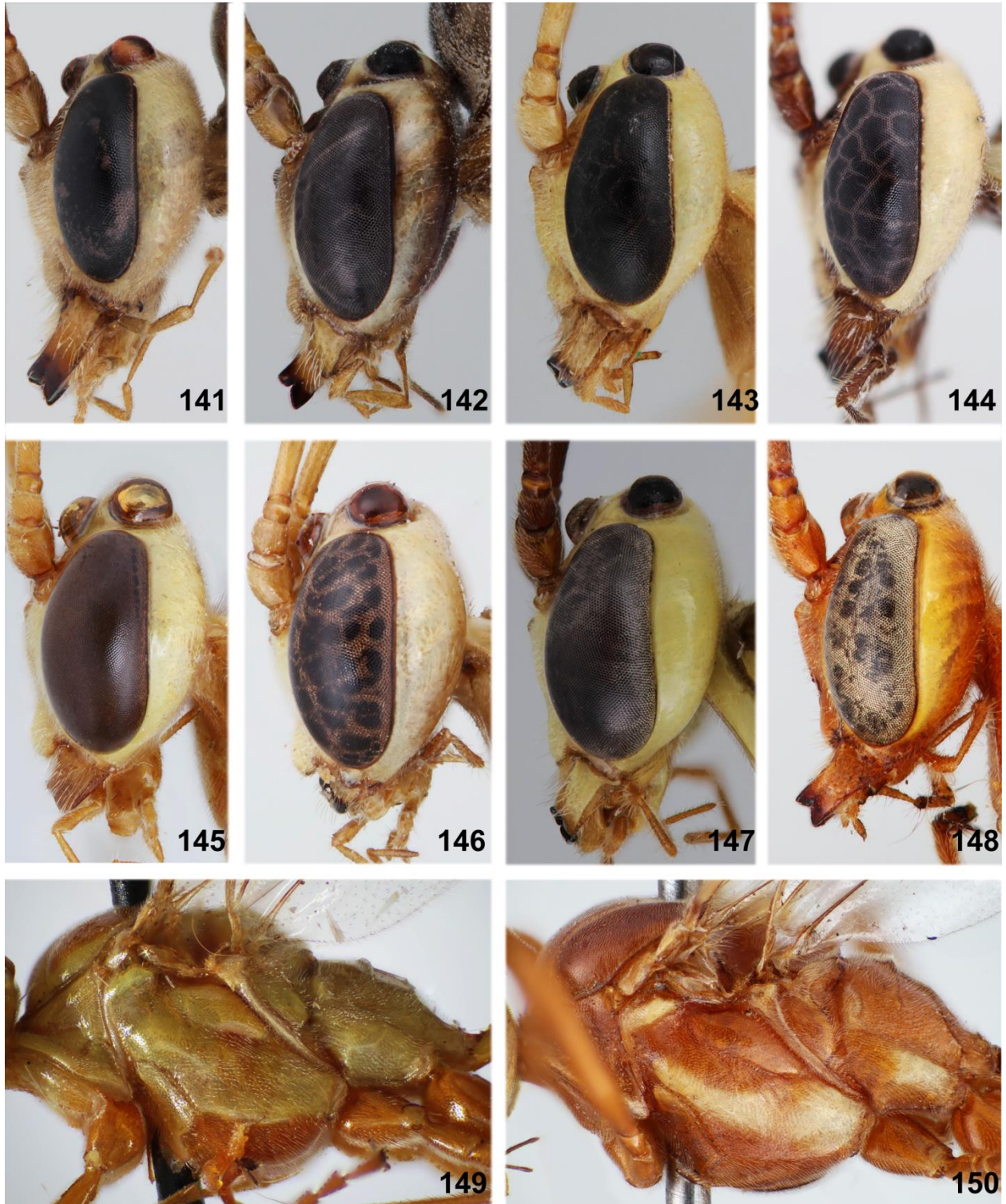
Figs 111–119. Details of face. **111** *A. chilensis* **112** *A. larseni* **113** *A. porculatus* **114** *A.* new species 21
115A. new species 22 **116** *A.* new species 23 **117** *A.* new species 24 **118** *A.* new species 25 **119** *A.*
new species 26.



Figs 120–128. Details of face. **120** A. new species 27 **121** A. new species 28 **122** A. new species 29 **123** A. new species 30 **124** A. new species 31 **125** A. new species 32 **126** A. new species 33 **127** A. new species 34 **128** A. new species 35.



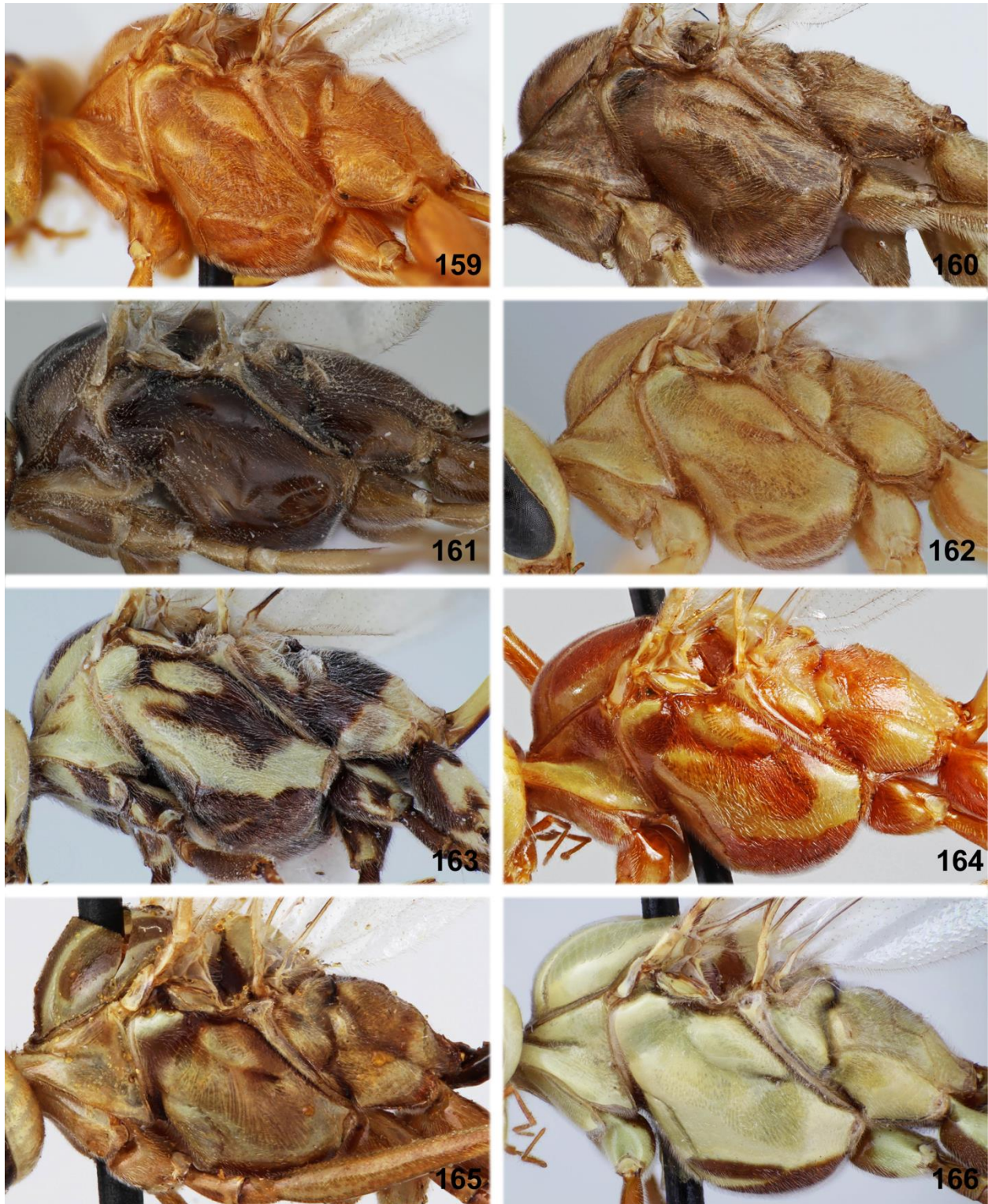
Figs 129 Details of face, *A.* new species 36 **Figs 130–140.** Details of head in lateral view **130** *A. chilensis* **131** *A. larseni* **132** *A. porculatus* **133** *A.* new species 21 **134** *A.* new species 22 **135** *A.* new species 23 **136** *A.* new species 24 **137** *A.* new species 25 **138** *A.* new species 26 **139** *A.* new species 27 **140** *A.* new species 28.



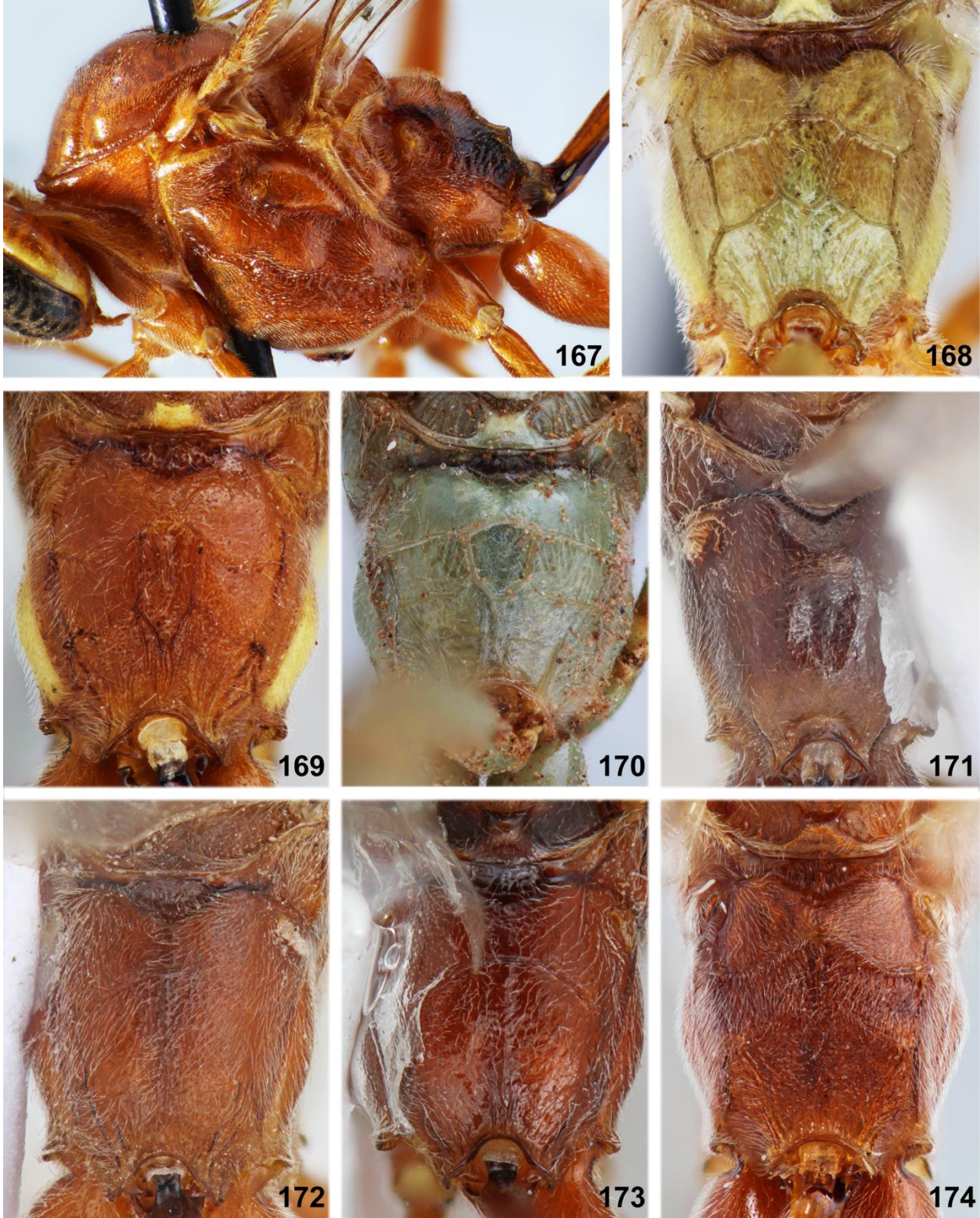
Figs 141–148. Details of head in lateral view **141** A. new species 29 **142** A. new species 30 **143** A. new species 31 **144** A. new species 32 **145** A. new species 33 **146** A. new species 34 **147** A. new species 35 **148** A. new species 36. **Figs 149–150.** Details of mesosoma in lateral view. **149** A. *chilensis* **150** A. *larseni*.



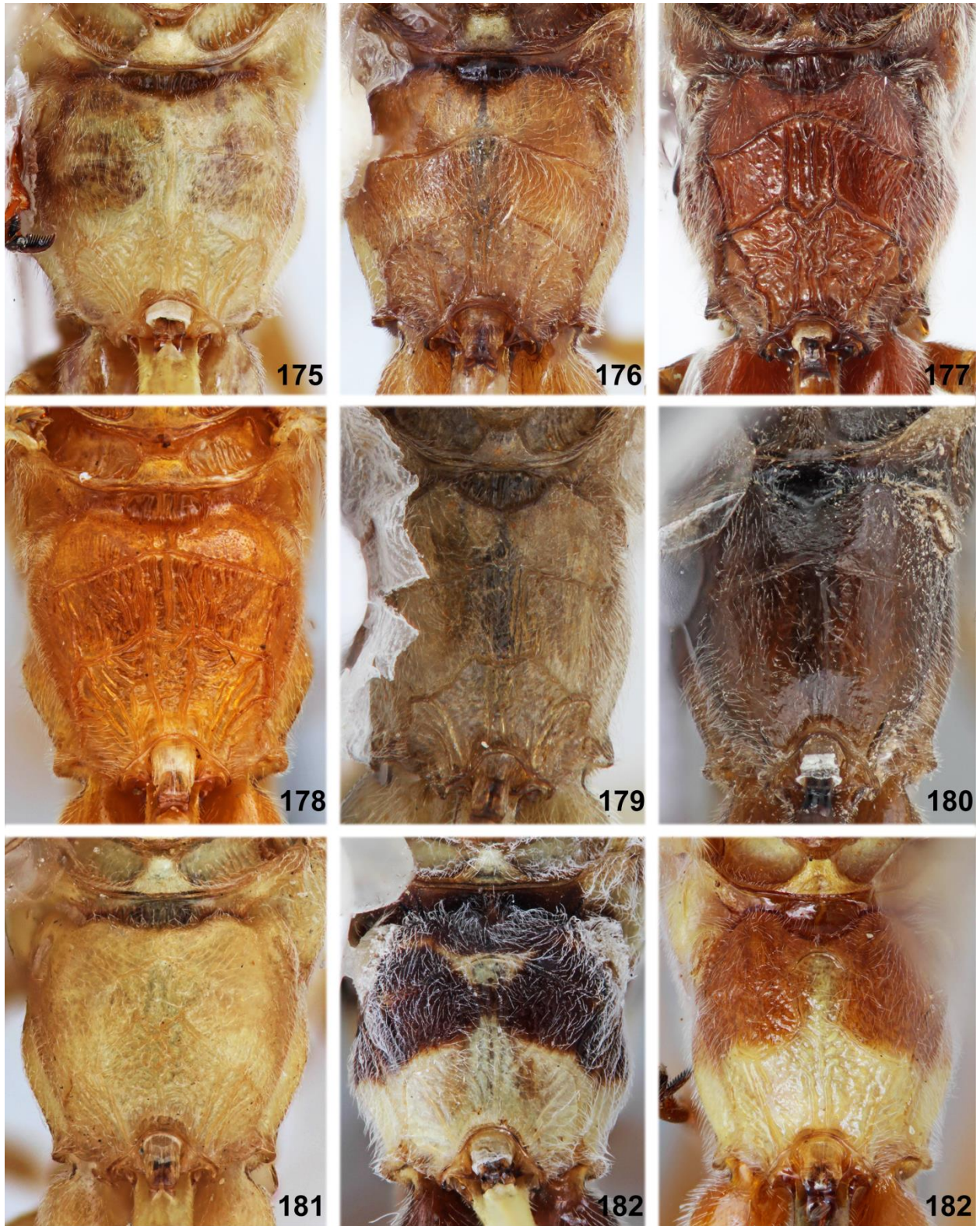
Figs 151–158. Details of mesosoma in lateral view. **151** *A. porculatus* **152** *A.* new species 21 **153** *A.* new species 22 **154** *A.* new species 23 **155** *A.* new species 24 **156** *A.* new species 25 **157** *A.* new species 26 **158** *A.* new species 27



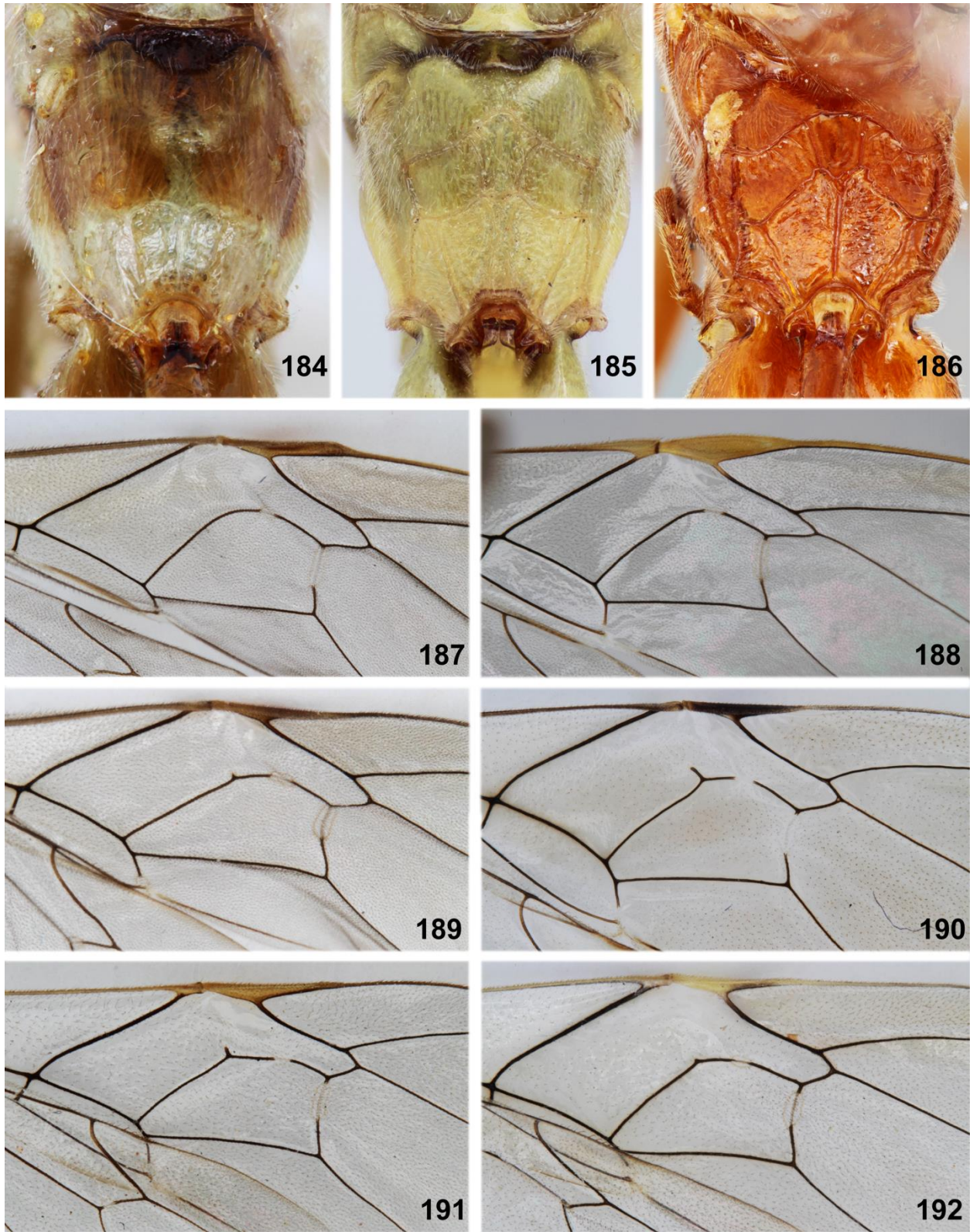
Figs 159–166. Details of mesosoma in lateral view. **159** A. new species 28 **160** A. new species 29 **161** A. new species 30 **162** A. new species 31. **163** A. new species 32 **164** A. new species 33 **165** A. new species 34 **166** A. new species 35.



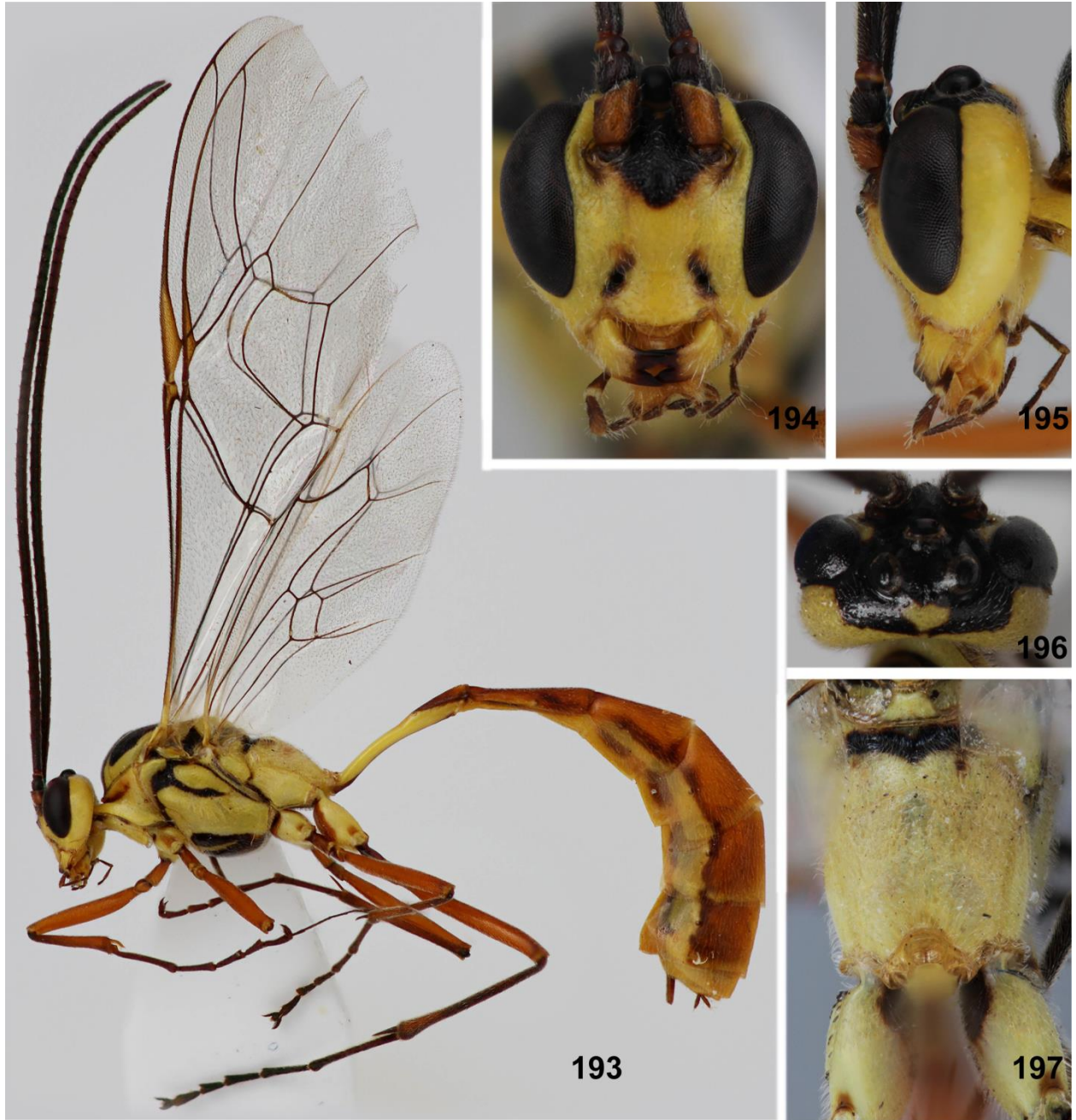
Figs 167. Details of mesosoma in lateral view, *A.* new species 36 **168–177** Details of propodeum, **168***A. chilensis* **169** *A. larseni* **170** *A. porculatus* **171** *A.* new species 21 **172** *A.* new species 22 **173** *A.* new species 23 **174** *A.* new species 24.



Figs 175–183. Details of propodeum. **175** A. new species 25 **176** A. new species 26 **177** A. new species 27 **178** A. new species 28 **179** A. new species 29 **180** A. new species 30 **181** A. new species 31 **182** A. new species 32 **183** A. new species 33.



Figs 184–186. Details of propodeum. **184** A. new species 34 **185** A. new species 35 **186** A. new species 36. **Figs 187–192.** Details of fore wing. **187** A. new species 22 **188** A. new species 23 **189** A. new species 29 **190** A. new species 30 **191** A. new species 31 **192** A. new species 32.



Figs 193–197. A. new species 37 **193** Habitus **194** face **195** head in lateral view **196** head in dorsal view **197** propodeum.



Figs 198–202. A. new species 38 **198** Habitus **199** face **200** head in lateral view **201** head in dorsal view **202** propodeum.