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Systematics of the American Katydids (Orthoptera: Tettigoniidae). Communication 9

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ABSTRACT

The Neotropical genus *Anaulacomera* Stål, 1873 is tentatively divided into six subgenera: *Anaulacomera* s. str.; *Anallomes* Stål, 1875, stat. nov.; *Oecella* Kirby, 1890, stat. nov.; *Bovicercora* subgen. nov.; *Cervicercora* subgen. nov. and *Munticercora* subgen. nov. A new material on the two latter subgenera as well as on *Oecella*, stat. nov. are considered with description of 25 new species and 9 new species groups from Peru, Ecuador and Bolivia: Bispinosa Species Group of *Cervicercora* subgen. nov. with *A. (C.) bispinosa* sp. nov. and *A. (C.) eubispinosa* sp. nov.; Superapex Species Group of *Cervicercora* subgen. nov. with *A. (C.) superapex* sp. nov.; Schunkei Species Group of *Cervicercora* subgen. nov. with *A. (C.) unispinosa* sp. nov. and *A. (C.) forceps* sp. nov.; Cercalis Species Group of *Cervicercora* subgen. nov. with *A. (C.) paracercalis* sp. nov., *A. (C.) spinulata* sp. nov., *A. (C.) abbreviata* sp. nov., *A. (C.) neohirsuta* sp. nov., *A. (C.) apicalis* sp. nov. and *A. (C.) denticulata* sp. nov.; Daedala Species Group of *Cervicercora* subgen. nov. with *A. (C.) daedala* sp. nov.; Mariposa Species Group of *Cervicercora* subgen. nov. with *A. (C.) mariposa* sp. nov., possibly *A. (C.) rectiapex* sp. nov. and *A. (C.) aenigma* sp. nov.; Virgula Species Group of *Cervicercora* subgen. nov. with *A. (C.) virgula* sp. nov., possibly *A. (C.) grandiramus* sp. nov. and *A. (C.) parviramus* sp. nov.; Bellator Species Group of *Cervicercora* subgen. nov.; Confusa Species Group of *Oecella*; *A. (O.) appendiculosa* sp. nov.; *A. (O.) tuberculosa* sp. nov.; *A. (O.) lobulosa* sp. nov.; *A. (O.) redunca* sp. nov.; *A. (M.) sclerogenitalis* sp. nov.; *A. (M.) pseudoepiproctalis* sp. nov. and *A. (M.) spinolobata* sp. nov. All the species from “Grupo Didieri” of *Anaulacomera* s. l. (sensu Cadena-Castañeda) are included in the subgenus *Deragramma* Ebner, 1953 of the genus *Grammadera* Brunner-Wattenwyl, 1878: *G. (D.) impudica* (Piza, 1952), comb. nov. and *G. (D.) didieri* (Cadena-Castañeda, 2012), comb. nov.

Key words: America, *Anaulacomera*, new taxa, Phaneropterinae, Tettigoniidae

Систематика американских кузнечиков (Orthoptera: Tettigoniidae). Сообщение 9

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РЕЗЮМЕ

Неотропический род *Anaulacomera* Stål, 1873 предварительно подразделен на шесть подродов: *Anaulacomera* s. str.; *Anallomes* Stål, 1875, stat. nov.; *Oecella* Kirby, 1890, stat. nov.; *Bovicercora* subgen. nov.; *Cervicercora* subgen. nov.; *Munticercora* subgen. nov. Рассмотрен новый материал по двум последним под родам, а также по *Oecella*, stat. nov.; из Перу, Эквадора и Боливии описаны 25 новых видов и 9 новых видовых групп: группа Bispinosa (*Cervicercora* subgen. nov.) с *A. (C.) bispinosa* sp. nov. и *A. (C.) eubispinosa* sp. nov.; группа Superapex (*Cervicercora* subgen. nov.) с *A. (C.) superapex* sp. nov.; группа Schunkei (*Cervicercora* subgen. nov.) с *A. (C.) unispinosa* sp. nov. и, возможно, *A. (C.) forceps* sp. nov.; группа Cercalis (*Cervicercora* subgen. nov.) с *A. (C.) paracercalis* sp. nov., *A. (C.) spinulata* sp. nov., *A. (C.) abbreviata* sp. nov., *A. (C.) neohirsuta* sp. nov., *A. (C.) apicalis* sp. nov. и *A. (C.) denticulata* sp. nov.; группа Daedala (*Cervicercora* subgen. nov.) с *A. (C.) daedala* sp. nov.; группа Mariposa (*Cervicercora* subgen. nov.) с *A. (C.) mariposa* sp. nov. и, возможно, *A. (C.)*

rectiapex sp. nov. и *A. (C.) aenigma* sp. nov.; группа *Virgula (Cervicercora* subgen. nov.) с *A. (C.) virgula* sp. nov. и, возможно, *A. (C.) grandiramus* sp. nov. и *A. (C.) parviramus* sp. nov.; группа *Bellator (Cervicercora* subgen. nov.); группа *Confusa (Oecella)*; *A. (O.) appendiculosa* sp. nov.; *A. (O.) tuberculosa* sp. nov.; *A. (O.) lobulosa* sp. nov.; *A. (O.) redunca* sp. nov.; *A. (M.) sclerogenitalis* sp. nov.; *A. (M.) pseudoepiproctalis* sp. nov. и *A. (M.) spinolobata* sp. nov. Все виды из “Grupo Didieri”, помещенной Каденой-Кастанедой в род *Anaulacomera*, включены здесь в подрод *Deragramma* Ebner, 1953 рода *Grammadera* Brunner-Wattenwyl, 1878: *G. (D.) impudica* (Piza, 1952), comb. nov. и *G. (D.) didieri* (Cadena-Castañeda, 2012), comb. nov.

Ключевые слова: Америка, *Anaulacomera*, новые таксоны, Phaneropterinae, Tettigoniidae

INTRODUCTION

This communication is the ninth one in the series of publications on the American Tettigoniidae (Gorochov 2012a, 2012b, 2014a, 2014b, 2015, 2016, 2017, 2018). It contains some results of the study of a new material on the genus *Anaulacomera* Stål, 1873 (Phaneropterinae: Phaneropterini: Anaulacomerina). The taxonomy of *Anaulacomera* is not very clear, because its type species has been described from a single female, but the majority of species included in this genus differ from each other and from some related genera in the male abdominal apex only. Moreover, a few species described in *Anaulacomera* by the previous authors belong to some other genera of the same subtribe Anaulacomerina: 1) *Separatula* Gorochov, 2018 [= “Grupo Falcata” of the genus *Anaulacomera* sensu Cadena-Castañeda (2012, 2015)] with *S. falcata* (Giglio-Tos, 1898), *S. wilsoni* (Cadena-Castañeda, 2015) and *S. adunca* Gorochov, 2018 (type species); 2) *Grammadera* Brunner-Wattenwyl, 1878 [its subgenus *Deragramma* Ebner, 1953 = “Grupo Didieri” in *Anaulacomera* sensu Cadena-Castañeda (2012, 2015)] with *G. (D.) impudica* (Piza, 1952), comb. nov. and *G. (D.) didieri* (Cadena-Castañeda, 2012), comb. nov.

The remaining species groups of *Anaulacomera* are also significantly distinguished from each other by the male characters; some of these differences almost reach generic level. It is surprising that some subgenera in the neotropical genus *Theia* Brunner-Wattenwyl, 1891 from the same tribe (Gorochov 2015: subtribe Pycnopalpina) are considered by Cadena-Castañeda (2014) and Orthoptera Species File (OSF) as separate genera; however, these “genera” have differences in their most important morphological characters more or less similar (in general volume) to those between some groups of *Anaulacomera*, but the latter genus is subdivided only into species groups

(Cadena-Castañeda 2012, 2015; OSF). Thus, this genus must be divided into several preliminary subgenera, some of which may be distinct genera. However, the nominotypical subgenus is not very understandable in connection with the above-mentioned problem of its type species. Here, we tentatively ascribed the name *Anaulacomera* s. str. to “Grupo Gracilis” sensu Cadena-Castañeda (2012, 2015), because its representatives have distinct whitish marks on the female tegminal dorsal field (as in the original description of *Anaulacomera* type species; Stål 1861).

MATERIAL AND METHODS

The material studied (including type specimens) is deposited at the Zoological Institute, Russian Academy of Sciences, Saint Petersburg. All the specimens are dry and pinned. The photographs of their morphological structures were made with a Leica MZ 16 stereomicroscope. Most part of this material was collected in mountain and plain rainforests at light. But some specimens were collected in these forests on leaves of bushes during the night work with a flashlight. This work was carried out within the framework of a large project on the invertebrate fauna of the Ene and Tambo river basins (Proyecto de Conservación de la Biodiversidad de la Selva Amazónica: Identificación taxonómica de la fauna invertebrada en la cuenca del Rio Ene y Rio Tambo) under the supervision of the Peruvian and Ukrainian entomologist Volodymyr Izersky (Asociación para el desarrollo y conservación de los recursos naturales del Perú – ACRENAP, Satipo). This project is founded by the National Service of Natural Areas Protected by the State (Servicio Nacional de Áreas Naturales Protegidas por el Estado – SERNANP) of the Environment Ministry of Peru. The online catalogue Orthoptera Species File (Cigliano et al. 2020) is cited in this paper as OSF.

SYSTEMATICS

Subfamily Phaneropterinae Burmeister, 1838

Tribe Phaneropterini Burmeister, 1838

Subtribe Anaulacomerina Brunner-Wattenwyl, 1878

Note. In accordance to Gorochov (2018) and OSF, this subtribe contains the following genera: *Anaulacomera*; *Grammadera*; *Abrodiaeta* Brunner-Wattenwyl, 1878; *Mendesius* Piza, 1960; *Phaneropteroides* Piza, 1971; *Montealegrezia* Cadena-Castañeda, 2012; *Tenellulus* Cadena-Castañeda, 2012; *Rostellula* Gorochov, 2018 and *Separatula* Gorochov, 2018. However, *Mendesius*, *Phaneropteroides* and *Tenellelus* are in need of examination of their taxonomic positions, because structure of their male tegminal mirror is unclear or unknown.

Genus *Anaulacomera* Stål, 1873

Note. Taxonomy of this genus is insufficiently understandable, because the structure of its male abdominal apex is more diverse than in many other genera of Phaneropterinae and was studied only for a part of its very numerous congeners. Cadena-Castañeda (2012, 2015) subdivided *Anaulacomera* s. l. into 17 species groups, but two of them belong to some other genera (see above, in the introduction to this communication). The remaining groups (15) are here reorganized into six preliminary subgenera, some of which may be divided into additional subgenera or erected up to generic level; these subgenera are described below, in a subgeneric key for *Anaulacomera* s. l.

1. Male cercus simple, long or moderately long, undivided into branches and without any large or moderately large spines, processes or lobes (but with small specializations at or near apex: small spinules and lobules, denticles, small hook and so on) subgenus *Anaulacomera* s. str. [Type species: *Phanoptera submaculata* Stål, 1861. Composition: type species; possibly almost all species of Cadena-Castañeda's "Grupo Gracilis", "Grupo Inermis", "Grupo Subinermis", "Grupo Uncinata" and "Grupo Latifolia" (belonging of type species and numerous other species to same subgenus problematic but possible and based on presence of whitish spots on female dorsal tegminal fields, because such colouration especially usual in "Grupo Gracilis" which most widely distributed in America).]

- Male cercus different in length, divided into branches or having rather large specializations (spines, processes or lobes) (Figs 20, 25, 30, 33, 35, 36, 39, 44, 48, 51–53, 59, 63, 67, 71, 73, 78, 82, 83, 88, 89, 93, 95, 99, 100, 104–112, 116, 117, 122, 123, 126, 130, 136, 139–144, 149, 151, 153, 155, 189, 191–195, 197, 198, 200) . . . 2
- 2. Male epiproct rather small and simple (oval, angular and so on; Figs 24, 29, 38, 56, 58, 77, 85, 91, 96, 102, 113, 119, 189, 194, 197, 200), or with more or less elongate posteromedian process (Figs 126, 128, 130, 132, 134, 136, 137, 139, 140–144, 146, 147, 149); male cercus elongate (distinctly protruding beyond genital plate) 3
- Male epiproct rather large (widened) and with more or less deep posteromedian notch; male cercus short (not protruding beyond genital plate), with two short and rather strong processes (dorsal and ventral ones) subgenus *Bovicercora* subgen. nov. [Type species: *Anaulacomera alfaroi* Rehn, 1918. Composition: type species; *A. crassicerca* Márquez Mayaudón, 1965; possibly *A. securifera* Brunner-Wattenwyl, 1878 (all these species from "Grupo Alfaroi"); possibly also *A. spinata* Brunner-Wattenwyl, 1878 (from "Grupo Spinata"). Etymology: from Bovinae (mammal subfamily name), cercus (Latinized Greek morphological term) and *Anaulacomera* (generic name) in connection with some similarity between horns of Bovinae and male cerci of this subgenus.]
- 3. Male last tergite with unpaired posteromedian lobe sometimes having weakly concave posterior edge (Figs 24, 29, 38, 56, 58, 77, 85, 102, 103, 113), without posterior lobe and often slightly concave posteriorly (Figs 91, 96, 119, 128, 132, 134, 137, 141, 142), or fused with epiproct (146) 4
- Male last tergite with a pair of distinct posterior lobes and rather deep notch between them (Figs 189, 194, 197, 200); male cercus distinctly bi- or trifurcate (Figs 189, 191, 192, 194, 195, 197, 198, 200) subgenus *Munticercora* subgen. nov. [Type species: *Anaulacomera poculigera* Hebard, 1924. Composition: type species (from "Grupo Poculigera"; but *A. franciscoi* Cadena-Castañeda, 2012 and *A. trispinata* Fianco, Faria et Cadena-Castañeda, 2019, also included by their authors in this group, lacking a pair of posterior lobes on male last tergite and belonging to unclear subgenus or subgenera); *A. hebarði* Cadena-Castañeda, 2015 (from "Grupo Hebarði"); *A. rosea* (Giglio-Tos, 1898) (from "Grupo Rosea"); *A. (M.) pseudoepiproctalis* sp. nov.; *A. (M.) spinolobata* sp. nov.; *A. (M.) sclerogenitalis* sp. nov.; possibly *A. neofurcifera* Otte, 1997 (from "Grupo Furcata" of Cadena-Castañeda). Etymology: from *Muntiacus* (mammal generic name) and *Bovicercora* (subgeneric name) in connection with similarity of male cerci to horns of *Muntiacus*.]

4. Male epiproct rather small and simple (oval or roundly angular; Figs 24, 29, 38, 56, 58, 77, 85, 91, 96, 102, 113, 119); male cercus with three or more processes (branches, rather large spines and lobes; Figs 20, 25, 30, 33, 35, 36, 39, 44, 48, 51–53, 59, 63, 67, 71, 73, 78, 82, 83, 88, 89, 93, 95, 99, 100, 104–110, 111, 112, 116, 117, 122, 123). subgenus **Cervicercora** subgen. nov. [Type species: *Anaulacomera (Cervicercora) bispinosa* sp. nov. Composition: type species; *A. festae* Giglio-Tos, 1898; *A. dama* Rehn, 1913; *A. cercalis* Caudell, 1918; *A. schunkei* Caudell, 1918; *A. longicercata* Caudell, 1918, possible secondary homonym of *A. longicercata* (Brunner-Wattenwyl, 1891), but belonging of latter species to this genus problematic; *A. hirsuta* Hebard, 1926; *A. apolinari* Hebard, 1926; *A. caucana* Hebard, 1926; possibly *A. cornucervi* Brunner-Wattenwyl, 1878, *A. biramosa* Brunner-Wattenwyl, 1891, *A. bidentata* Chopard, 1918 and *A. bellator* Rehn, 1920 (all these species from “Grupo Apolinari” sensu Cadena-Castañeda, which divided here into 8 species groups (7 groups new) and including also 17 additional new species). Etymology: from *Cervus* (mammal generic name) and *Bovicercora* (subgeneric name) in connection with similarity of male cerci to *Cervus* horns.]
- Male epiproct diverse; male cercus with only two processes (rather large spines or lobes; Figs 126, 130, 136, 139–144, 149, 151, 153, 155) **5**
5. Male epiproct with angular projection or specialized process at apex (Figs 126, 128, 130, 132, 134, 136, 137, 139–144, 146, 147, 149); male cercus long or moderately long (elongate), rather thin and with two processes (branches) or lobes in distal part (Figs 126, 130, 136, 139–144, 149, 151, 153) subgenus **Oecella** Kirby, 1890, stat. nov. [Type species: *Oecella furcifera* Kirby, 1890 (= *Anaulacomera harpago* Brunner-Wattenwyl, 1878). Composition: type species; *A. furcata* Brunner-Wattenwyl, 1878; *A. darwini* Scudder, 1893; *A. rusa* Rehn, 1917; *A. biloba* Brunner-Wattenwyl, 1878; *A. lingulata* Piza, 1952; *A. confusa* Piza, 1975; *A. maculifemora* (Piza, 1977) (all these species from “Grupo Furcata” sensu Cadena-Castañeda); three new species described here; possibly also *A. juanchoi* Cadena-Castañeda, 2012 (from “Grupo Juanchoi”) and one new species described here.]
- Male epiproct small and simple (oval or roundly triangular); male cercus short or moderately long (elongate), more or less different in shape but always with two distinct processes (spines, lobes, hooks) in proximal or middle parts subgenus **Anallomes** Stål, 1875, stat. nov. [Type species: *Anallomes nodulosa* Stål, 1875. Composition: type species; possibly *A. dentata* Brunner-Wattenwyl, 1878, *A. lanceolata* Brunner-Wattenwyl, 1878, *A. maculata* Brunner-Wattenwyl, 1878, *A. antillarum*

Brunner-Wattenwyl, 1893, *A. sulcata* Brunner-Wattenwyl, 1878, *A. valentinae* Cadena-Castañeda, 2012 (these species from “Grupo Lanceolata”; but all they, including type species, insufficiently studied and separated here from other subgenera only on base of characters given for this group by Cadena-Castañeda (2015): “cercos bufurcados antes de la mitad de su longitud, generalmente cerca de la base del mismo”, but male cerci of *A. antillarum* and *A. valentinae* with three or more processes, including spines, and looking more similar to those of *Cervicercora* subgen. nov.); possibly also *A. intermedia* Brunner-Wattenwyl, 1878 (Fig. 155) and *A. richteri* Cadena-Castañeda, 2012 (from “Grupo Furcata” sensu Cadena-Castañeda).]

Species with unclear generic position previously included in *Anaulacomera* s. l.

Note. Cadena-Castañeda (2015) indicated 12 species of this genus, which were left by him outside of all species groups of this genus. In OSF, number of such species was raised to 16 or 17. These species are poorly described or described only from females, and their generic position inside *Anaulacomerina* is also insufficiently understandable. Also a few insufficiently described species, tentatively included here in the subgenus *Anaulacomera*, may belong to different genus or genera. Some other species, included by Cadena-Castañeda in his “Grupo Libidinosa”, “Grupo Horti” and “Grupo Euceraiaformis”, may be members of the genus *Separatula*; because these species groups have a large dorsal process in the basal part of the male cercus, and this process is treated as homologous in these groups and in *Separatula*, judging by the same abbreviation “P1” on some figures of Cadena-Castañeda (2015: figs 26, 28–30). Moreover, almost all the females from my material cannot be exactly identified to species, species groups, subgenera and sometimes even genera. For this reason, they will be considered separately after the descriptions of species and species groups.

Bispinosa Species Group of *Cervicercora* subgen. nov.

Note. This new group differs from all the other species groups of this subgenus in the male cercus with its ventroproximal process widened and flattened as well as having a posteromedial notch (Figs 22, 27), with two dorsal spines, without ventral spines or lobules between the distal and ventroprox-

imal processes of this cercus, and without additional (lateral) process near ventroproximal one (Figs 20, 25). This group includes two species: *A. (C.) bispinosa* sp. nov. and *A. (C.) eubispinosa* sp. nov.

***Anaulacomera (Cervicercora) bispinosa* sp. nov.**
(Figs 1–4, 20–24, 165)

Etymology. This species name originates from the Latin word “spinosa” (spinous) and the Latin prefix “bi-“ (two), because the new species has two dorsal spines on its male cercus.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., 1000–1200 m, primary/secondary forest, at light, 20–23 October 2008, A. Gorochoy, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. *Paratypes*: 4 males, same data as for holotype; 8 males, PERU, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Ucayali River, environs of Sapani Vill., ~300 m, primary/secondary forest, at light, 26–31 October 2008, A. Gorochoy, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky.

Description. *Male* (holotype). General appearance typical of this genus. Body slender, medium-sized for this genus. Colouration yellowish (yellowish green in living specimen) with a pair of small reddish marks on dorsum of upper rostral tubercle between lateral ocelli (and slightly behind them; Figs 1, 2), brown eyes and very small marks on subapical and apical tarsal segments, some tegminal veins brownish rose (two longitudinal veins along lateral edge of stridulatory apparatus and one vein in basal area of dorsal field), stridulatory teeth and some membranes between venation light brown (these membranes located along lateral and medial edges of this apparatus as well as in above-mentioned basal area and along anal edge of remaining tegminal part), transparent mirror and nearest membranes of stridulatory apparatus as well as majority of membranes in hind wing, and rose venation of latter wing (but three veins along costal edge and nearest crossveins in this wings yellowish). Upper rostral tubercle short (not projected before apex of lower rostral tubercle), with rounded (but not wide) anterior half slightly flattened apically, with somewhat widened posterior half (above lateral ocelli), and with dorsal median groove running also to hind part of head; lower rostral tubercle barely not reaching upper one, with rather

narrowly rounded apex which somewhat narrower than apical part of upper rostral tubercle, and with flattened anterior surface; median ocellus distinct, almost round, located between ventral parts of antennal cavities and slightly not reaching these cavities; lateral ocelli also round but almost twice as large as median ocellus and located laterally on proximal half of upper rostral tubercle. Pronotum with anterior edge almost truncate, posterior edge of hind lobe roundly convex, lateral lobes rather high and having rounded ventral and posterior edges, and humeral notches moderately deep and clearly angular. Wings long (strongly protruding beyond abdominal apex and apices of hind femora); tegmina clearly shorter than hind wings, rather narrow, with almost straight costal and anal edges, with rounded apex, with one distinct branch on RA directed distomedially, with more or less normal RS running from proximal half of tegmen and having two branches in distal half of tegmen, and with stridulatory apparatus as in Figs 3, 4. Last tergite with large (cup-like) dorsal part having rather widely rounded and short posteromedian lobe directed downwards; epiproct small and simple (oval); paraprocts also small and rounded (Fig. 24); cercus with two large dorsal spines, long distal process and characteristic (widened, flattened and strongly hooked) ventroproximal process (Figs 20–22); genital plate narrowing to almost angularly notched apex, but this notch with somewhat sinuous edges and almost spine-like lobules around it (Fig. 23); genitalia mainly membranous but with a semimembranous distal parts of a pair of lobes having rounded apical tubercles (one on each lobe) with numerous microscopical denticles, and with a pair of semisclerotized oblique structures in middle part of genitalia (Fig. 165).

Variations. Paratypes (males) very similar to holotype including colouration and structure of cerci, but reddish marks on upper rostral tubercle often absent, and anterior and posterior halves of this tubercle sometimes separated from each other by slight narrowing.

Female unknown.

Length (mm). Body 13.0–16.0; body with wings 34.0–36.0; pronotum 3.2–3.5; tegmina 24.0–27.0; hind femora 16.0–17.0.

Comparison. The new species differs from all the other species groups of this subgenus in the characters listed in the note on *Bispinosa* Species Group above.

***Anaulacomera (Cervicercora) eubispinosa*
sp. nov.**

(Figs 5, 25–29)

Etymology. This species name originates from the species name *A. bispinosa* sp. nov. and the Latinized Greek prefix “eu-” (true), because the new species is most similar and related to *A. bispinosa* sp. nov.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., ~40 km NE of Satipo Town, environs of Calabaza Vill., ~2000 m, primary forest, at light, 16–17 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. *Paratype* – male, same data as for holotype.

Description. *Male* (holotype). Size, colouration and structure of body similar to those of holotype of *A. (C.) bispinosa* sp. nov. but with following differences: upper rostral tubercle without reddish marks (as in some paratypes of *A. bispinosa* sp. nov.); each tegmen with two distinct branches on RA; its dorsal field with white stridulatory vein having stridulatory teeth brown, white chord near previous vein, partly whitish and partly brown venation in basal area, and light brown space behind mirror (this space yellowish in *A. bispinosa* sp. nov.; compare Figs 3, 4 and 5); all veins of hind wing yellowish; epiproct larger (wider; Fig. 29); cercus with distinctly shorter dorsal spines and longer distal process as well as longer and narrower ventroproximal process having wider distomedial notch (Figs 25–27); genital plate with rounded posteromedian notch (Fig. 28).

Variations. Second male with apical part of distal cercal process slightly more curved medially, and with posteromedian notch of genital plate almost roundly angular (but edges of this notch not sinuate).

Female unknown.

Length (mm). Body 16.0–17.0; body with wings 36.0–38.0; pronotum 3.5–3.6; tegmina 27.0–28.0; hind femora 16.0–16.5.

Comparison. The new species differs from its most similar and related species *A. (C.) bispinosa* sp. nov. in the male epiproct somewhat larger, dorsal spines of male cercus shorter, distal process of this cercus different in shape (compare Figs 20 and 25), ventroproximal process of this cercus narrower and longer as well as with wider distomedial notch, and posteromedian notch of male genital plate more rounded and having non-sinuous edges (see Figs 22, 23 and 27, 28).

**Superapex Species Group of *Cervicercora*
subgen. nov.**

Note. This group is new one and characterized by the following characters of male cercus: its ventroproximal process is as in the Bispinosa Species Group, i.e. widened, flattened and with a posteromedial notch (Figs 31, 34); dorsal cercal edge is with one spine; ventral cercal edge is with one spine between the distal and ventroproximal processes; additional large lateral process near ventroproximal process is absent (Figs 30, 33).

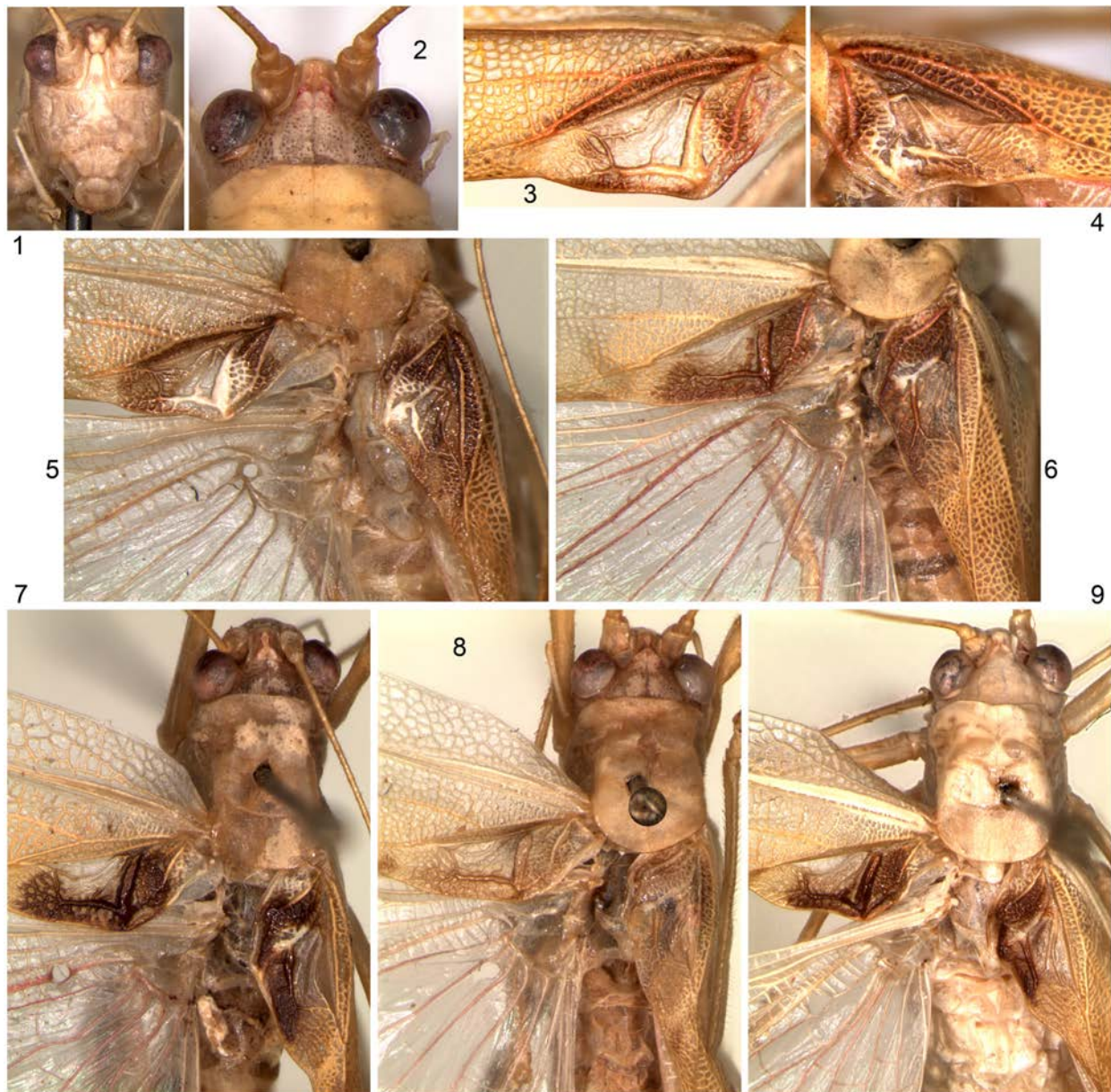
Composition: *A. (C.) superapex* sp. nov.; possibly *A. (C.) dama* Rehn, 1913.

***Anaulacomera (Cervicercora) superapex* sp. nov.**
(Figs 6, 30–34, 166)

Etymology. This species name originates from the Latin word “apex” (top, apex) with the Latin prefix “super-” (over-, super-), because the male cercus of the new species has a very long apical part.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., 1000–1200 m, primary/secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. *Paratypes*: 8 males, same data as for holotype; 2 males, same province, Rio Tambo Distr., 6 km N of Pichiguia Vill., protected area “Reserva Comunal Ashaninka”, “11.358244°S, 74.0320473°W”, ~500 m, primary forest, at light, 14–23 November 2017, A. Gorochov, G. Irisov; 2 males, PERU, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Ucayali River, environs of Sapani Vill., ~300 m, primary/secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky.

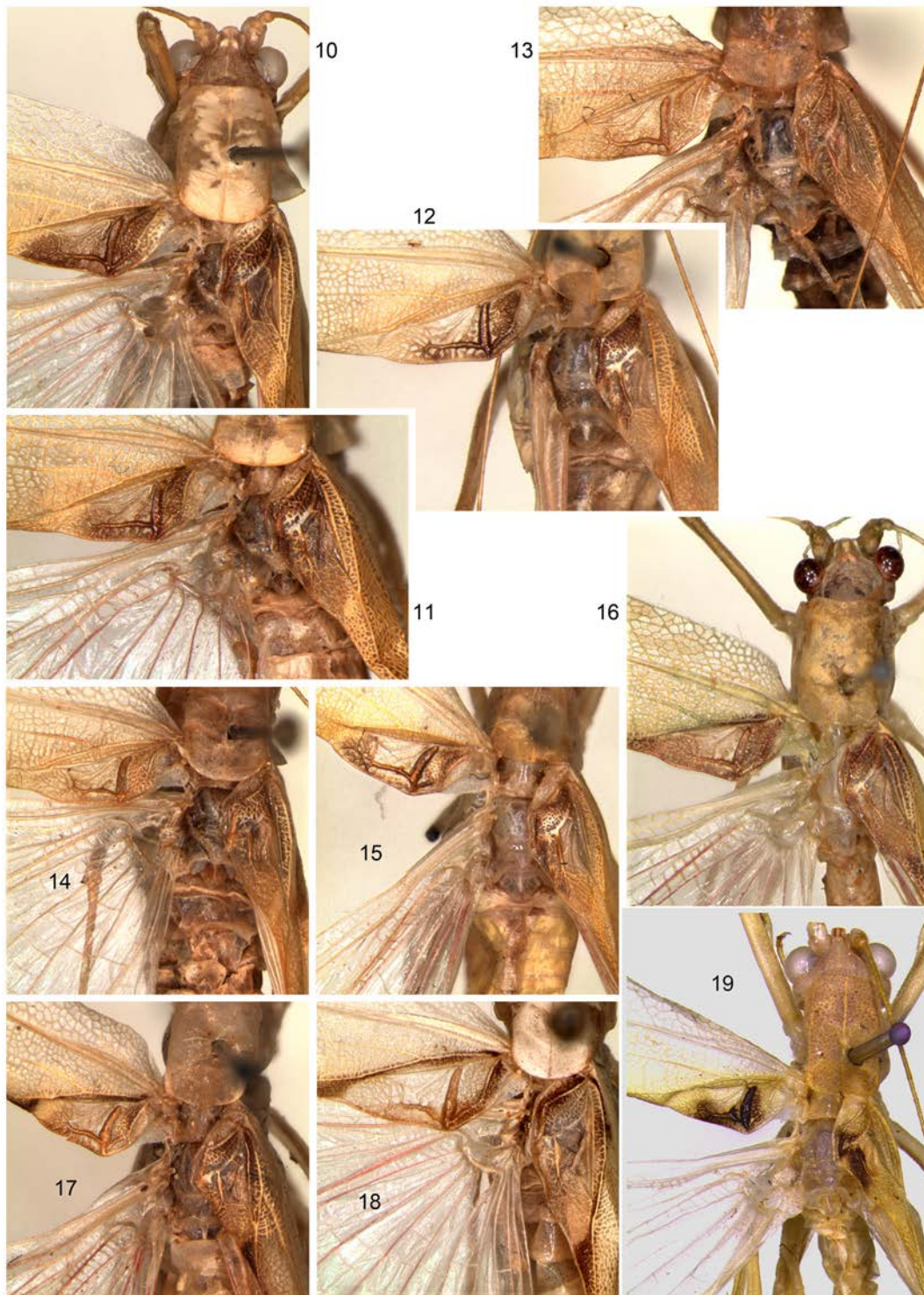
Description. *Male* (holotype). Size, colouration and structure of body similar to those of *A. (C.) bispinosa* sp. nov. and *A. (C.) eubispinosa* sp. nov. However, this male with following characteristic features: upper rostral tubercle with slight rose marks on dorsal part; tegmina with darkened parts (brown stridulatory vein, most part of basal area, and medial half of stridulatory apparatus including chord and space behind mirror) only in region of stridulatory apparatus and with whitish marks only in right tegmen (on stridulatory vein and near it; Fig. 6); hind wing with



Figs 1–9. *Anaulacomera* (*Cervicercora* subgen. nov.), males: 1–4 – *A. (C.) bispinosa* sp. nov.; 5 – *A. (C.) eubispinosa* sp. nov.; 6 – *A. (C.) superapex* sp. nov.; 7 – *A. (C.) unispinosa* sp. nov.; 8 – *A. (C.) forceps* sp. nov.; 9 – *A. (C.) paracercalis* sp. nov. Head in front (1) and from above (2); stridulatory apparatus of left (3) and right (4) tegmina as well as of both tegmina (5, 6) from above; this stridulatory apparatus and head with pronotum from above (7–9).

majority of longitudinal veins rose, but such veins along costal edge and all crossveins yellowish to whitish; upper rostral tubercle with slight narrowing between anterior and posterior halves; last tergite and epiproct almost as in *A. (C.) eubispinosa* sp. nov.; cercus with one dorsal spine, with very long distal process having dorsoapical part denticulate (Fig. 30),

with ventral spine between this and ventroproximal processes well developed and having widened basal part (Fig. 30), and with latter (ventroproximal) process as in Fig. 31; genital plate with apical part as in Fig. 32; genitalia with semimembranous distal parts of a pair of lobes somewhat smaller than in *Bispina* Species Group and lacking any distinct tubercles and



Figs 10–19. *Anaulacomera* (*Cervicercora* subgen. nov.), males: 10 – *A. (C.) spinulata* sp. nov.; 11 – *A. (C.) abbreviata* sp. nov.; 12 – *A. (C.) neohirsuta* sp. nov.; 13 – *A. (C.) apicalis* sp. nov.; 14 – *A. (C.) denticulata* sp. nov.; 15 – *A. (C.) daedala* sp. nov.; 16 – *A. (C.) mariposa* sp. nov.; 17 – *A. (C.) rectiapex* sp. nov.; 18 – *A. (C.) virgula* sp. nov.; 19 – *A. (C.) aenigma* sp. nov. Head, pronotum and stridulatory apparatus of both tegmina from above (10, 16, 19); stridulatory apparatus of both tegmina from above (11–15, 17, 18).

denticles, and with a pair of oblique semimembranous plates in middle part of genitalia (Fig. 166).

Variations. Other males sometimes with darker (almost dark brown) or lighter (light brown) darkened parts of dorsal tegminal field; their cerci also varied from barely shorter to somewhat longer, i.e. distal cercal process 2.5–6.5 times as long as ventral cercal spine between this process and ventroproximal cercal process; these ventral spine and ventroproximal process sometimes as in Figs 33, 34.

Female unknown.

Length (mm). Body 13.0–16.5; body with wings 32.0–35.0; pronotum 3.2–3.4; tegmina 24.0–26.0; hind femora 14.5–16.0.

Comparison. The new species differs from *A. (C.) dama* in the male distal cercal process clearly longer and directed partly downwards (not partly upwards) as well as in the male dorsal cercal spine directed strictly upwards (*vs.* this spine directed upwards/backwards and almost parallel to distal process; Fig. 51). From all the other species of *Cervicercora* subgen. nov., the new species is distinguished by the characters listed above, in the note about Superapex Species Group.

Schunkei Species Group of *Cervicercora* subgen. nov.

Note. This new group is distinguished from all the other species groups of this subgenus by the following characters of male cercus: its ventroproximal process is as in *Bispinosa* and *Superapex* Species Groups (Figs 37, 41, 45, 49); dorsal cercal edge is with one spine; ventral cercal edge is with two spines or lobules between the distal and ventroproximal processes; additional large lateral process near ventroproximal one is absent (Figs 35, 36, 39, 44, 48).

Composition: *A. (C.) schunkei* Caudell, 1918 and *A. (C.) forceps* sp. nov.; possibly *A. (C.) festae* Gigliot, 1898 and *A. (C.) unispinosa* sp. nov.

***Anaulacomera (Cervicercora) unispinosa* sp. nov.** (Figs 7, 38–43)

Etymology. This species name originates from the Latin word “spinosa” (spinous) and the Latin prefix “uni-” (one), because the new species has one dorsal spine on its male cercus.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., ~40 km NE of Satipo

Town, environs of Calabaza Vill., ~2000 m, primary forest, at light, 16–17 October 2008, A. Gorocho, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. *Paratypes*: 2 males, same data as for holotype; 1 male, same province, ~25 km SE of Satipo Town, environs of Rio Venado Vill., 1000–1200 m, primary/secondary forest, at light, 20–23 October 2008, A. Gorocho, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky; 3 males, same province, Rio Tambo Distr., 6 km N of Pichiguia Vill., protected area “Reserva Comunal Ashaninka”, “11.358244°S, 74.0320473°W”, ~500 m, primary forest, at light, 14–23 November 2017, A. Gorocho, G. Irisov.

Description. *Male* (holotype). General appearance very similar to that of holotype of *A. (C.) superapex* sp. nov. but with following differences: apical part of upper rostral tubercle barely wider and almost semiglobular, separated from rest of this tubercle by distinct narrowing (this narrowing somewhat more distinct than in all previous species described here); this tubercle with rose loop-like line on dorsum (Fig. 7); longitudinal vein in basal part of dorsal tegminal field yellowish (not rose; Fig. 7); epiproct barely narrower (but not smaller; Fig. 38); cercus with dorsal spine having its basal part somewhat separated from rest of cercus by short and almost vertical posterolateral groove, with distal process shorter but rather large as well as having small and almost angular dorsal projection near dorsal spine (this distal process widened under latter projection, narrowing to apex, somewhat arcuately curved and having almost completely denticulate dorsal edge; Fig. 39), with two ventral lobules between distal and ventroproximal processes (larger and almost horizontal ventrodistal lobule, and smaller and hooked as well as partly denticulate ventroproximal lobule; Figs 39, 40, 42), and with ventroproximal process having posteromedial (subapical) lobe slightly less projected backwards (Fig. 41); genital plate with posteromedian notch as in Fig. 43. Genitalia almost as in *A. (C.) superapex* sp. nov.

Variations. Darkened parts of tegmina sometimes slightly darker or barely lighter; genital plate with apical part also somewhat varied: from that as in Fig. 43 to almost that as in Fig. 32.

Female unknown.

Length (mm). Body 11.0–14.0; body with wings 28.0–32.0; pronotum 2.9–3.1; tegmina 2.2–2.3; hind femur 14.0–15.0.

Comparison. The new species is very similar to *A. (C.) festae* in the shape of its male cerci. However,

male syntype of *A. (C.) festae*, judging by its photographs in OSF, has the male cercal distal process with a clearly concave dorsal edge (i.e. this edge is with a rather large dorsoproximal projection, but in *A. unispinosa* sp. nov., this edge completely convex and denticulate from small dorsoproximal projection to apical part; compare Figs 35, 36 and 39); the latter syntype has also the distal process of the left male cercus distinctly shorter than that of the right male cercus (such asymmetry may be a result of strong medial curvature of the apical part of this process in the left cercus, or this part might be deformed or damaged; Figs 35, 36), but the above-mentioned process even in the right cercus is clearly smaller (shorter) than in *A. (C.) unispinosa* sp. nov. (see Figs 35 and 39). Differences from all the other species of this subgenus are given in the note about Schunkei Species Group.

***Anaulacomera (Cervicercora) forceps* sp. nov.**
(Figs 8, 44–47)

Etymology. This species name is the Latin word “forceps” (ticks, tongs) in connection with the structure of the male cercal distal part.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., 1000–1200 m, primary/secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. *Paratypes*: 3 males, same data as for holotype.

Description. *Male* (holotype). Size, coloration and structure of body almost as in *A. (C.) unispinosa* sp. nov. but with following characteristic features: upper rostral tubercle with reddish rose lateral ocelli (Fig. 8); tegmina with darkened parts light brown and with rest of venation yellowish (Fig. 8); cercus with smaller dorsal spine, clearly shorter and thinner

distal process (this process spine-like and without denticulation), somewhat longer (than in *A. unispinosa* sp. nov.) ventrodiscal lobule having rounded and setose apical part, moderately low widening near base of this lobule, small ventral spinule located before this base but also near it (this spinule probably homologous to ventroproximal lobule of *A. unispinosa* sp. nov.), moderately high keel along ventromedial cercal surface having roundly angular apical projection, and characteristic (with very large apical lobe) ventroproximal process (Figs 44–46); genital plate with very narrow and rather deep posteromedian notch (Fig. 47); genitalia almost as in *A. (C.) superapex* sp. nov. and practically indistinguishable from those of *A. (C.) schunkei* (Fig. 167).

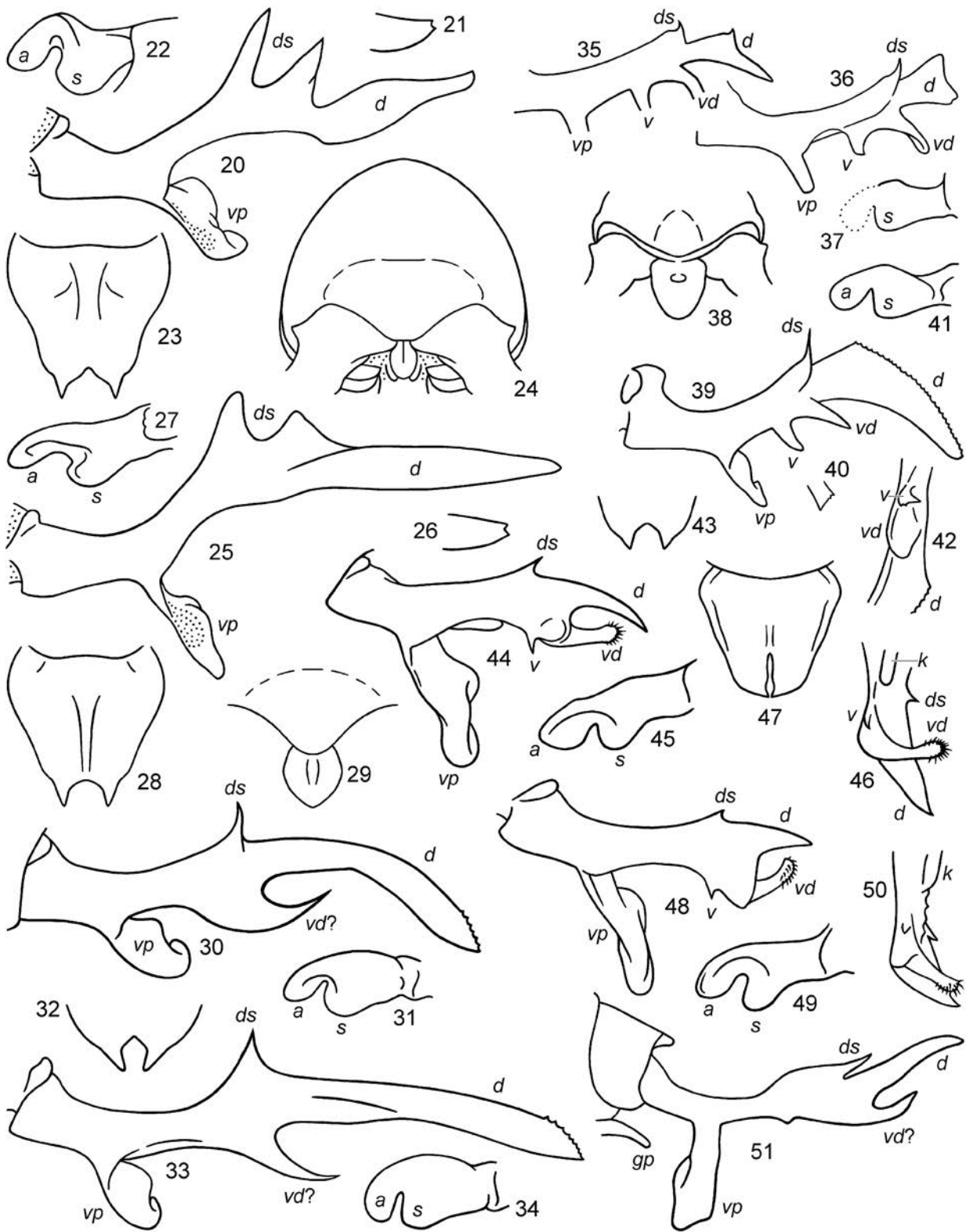
Variations. Some males almost without rose marks on dorsum of upper rostral tubercle; ventrodiscal lobule of cercus sometimes directed more medially or partly upwards (this lobule probably movable in relation to rest of cercus).

Female unknown.

Length (mm). Body 12.0–14.0; body with wings 31.0–33.0; pronotum 3.0–3.2; tegmina 23.0–24.5; hind femora 13.0–14.0.

Comparison. The new species is most similar to *A. (C.) schunkei* but distinguished from it by the distal process of male cercus longer and slightly narrower, subdistal part of this cercus (near the base of its movable ventrodiscal lobule) lower, longitudinal keel of this cercus located along its ventromedial surface and having distinct apical projection (*vs.* this keel located along medial cercal surface and without apical projection, i.e. almost gradually reducing towards apex of this keel), apical (lateral) lobe of ventroproximal process of this cercus larger, and subapical (medial) lobe of this process less projected backwards (compare Figs 44, 45 and 48, 49). From *A. (C.) unispinosa* sp. nov. and *A. (C.) festae* as well as from all the other species of this subgenus, the new

Figs 20–51. *Anaulacomera (Cervicercora)* subgen. nov., males: 20–24 – *A. (C.) bispinosa* sp. nov.; 25–29 – *A. (C.) eubispinosa* sp. nov.; 30–34 – *A. (C.) superapex* sp. nov.; 35–37 – *A. (C.) festae* Giglio-Tos, syntype; 38–43 – *A. (C.) unispinosa* sp. nov.; 44–47 – *A. (C.) forceps* sp. nov.; 48–50 – *A. (C.) schunkei* Caudell; 51 – *A. (C.) dama* Rehn. Left cercus from side (20, 25, 30, 33, 36, 39, 44, 48, 51); its apical part, posterolateral view (21, 26); ventroproximal cercal process, posterodorsal view (22, 27, 31, 34, 37, 41, 45, 49); genital plate (23, 28, 47) and its distal part (32, 43) from below; posterior part of last tergite and epiproct with cercal bases (24, 38) or without these bases (29); right cercus without apices of ventral lobules and of posteroventral process, inner view (35); distal half of smaller ventral lobule of left cercus, ventrolateral view (40); middle portion (42) and distal half (46, 50) of right cercus from below. [35–37 – after photographs from OSF; 51 – after Rehn (1913), modified.]. **Abbreviations:** *a*, apical lobe of ventroproximal process; *d*, distal process of cercus; *ds*, dorsal spine or spines of cercus; *gp*, genital plate; *k*, longitudinal keel on ventromedial or medial surface of cercus; *s*, subapical lobe of ventroproximal process; *v*, *vd*, ventral lobules of cercus (ventroproximal and ventrodiscal lobules, respectively); *vp*, ventroproximal process of cercus.



species differs in the movable ventrodiscal lobule of male cercus which, together with distal process of this cercus, forms a chela-like device; from the two first species, in the presence of a small ventral spinule (instead a distinctly longer ventroproximal lobule) before the previous lobule; and from other species groups, in the characters listed in the note about Schunkei Species Group.

Anaulacomera (Cervicercora) schunkei
Caudell, 1918

(Figs 48–50, 167)

Material examined. PERU, Junin Department, Satipo Prov.: Rio Tambo Distr., 6 km N of Pichiguia Vill., protected area “Reserva Comunal Ashaninka”, “11.358244°S, 74.0320473°W”, ~500 m, primary forest, at light, 14–23 November 2017, 2 males, A. Gorochov, G. Irisov; Pampa Hermosa Distr., waterfall “Cristal” near Pacasmayo Vill., 1400–1600 m, “11°22′02″S, 74°41′55″W”, 8–13 December 2018, 1 male, 1 female, A. Gorochov.

Note. These specimens are in accordance to the original description of this species and to the photographs of its holotype (OSF). Differences of these males from those of *A. (C.) forceps* sp. nov., which is most similar to *A. (C.) schunkei*, are given in the comparison for *A. (C.) forceps* sp. nov. The female examined is also in accordance to the female paratype of *A. (C.) schunkei* (see OSF) and differs from the above-mentioned males in sexual characters as well as uniformly yellowish tegmina having a very small darkish spot at the base of the narrowed part of the dorsal field.

Cercalis Species Group of Cervicercora
subgen. nov.

Note. This new group is characterized by the following characters of male cercus: its ventroproximal process is as in *Bispinosa*, *Superapex* and *Schunkei* Species Groups (Figs 54, 60, 64, 68, 72, 74, 79); dorsal cercal edge is without spines; ventral cercal edge is with two lobules between the distal and ventroproximal processes; additional large lateral process near ventroproximal one is absent (Figs 52, 53, 59, 63, 67, 71, 73, 78).

Composition: *A. (C.) cercalis* Caudell, 1918; *A. (C.) hirsuta* Hebard, 1926; *A. (C.) paracercalis* sp. nov.; *A. (C.) spinulata* sp. nov.; *A. (C.) abbreviata* sp.

nov.; *A. (C.) neohirsuta* sp. nov.; *A. (C.) apicalis* sp. nov.; *A. (C.) denticulata* sp. nov.

Anaulacomera (Cervicercora) paracercalis
sp. nov.

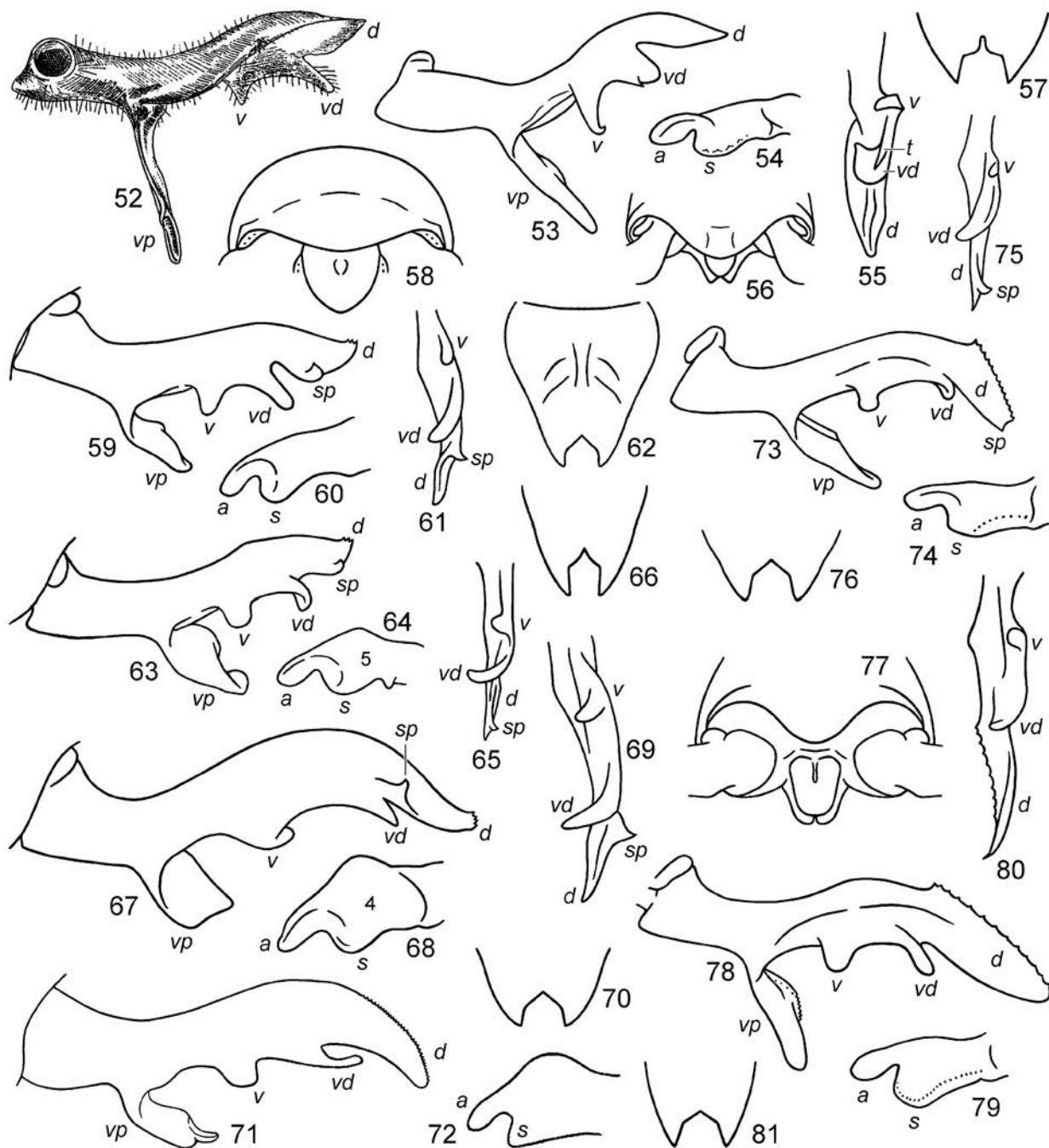
(Figs 9, 53–57, 169)

Etymology. This species name originates from the species name *A. cercalis* with the Latinized Greek prefix “para-“ (near) due to a significant similarity of the latter species and the new one.

Type material. *Holotype* – male, ECUADOR: Yasuni National Park on Rio Napo, June 2010, A. Bugrov. *Paratypes*: 2 males, PERU, Junin Department, Satipo Prov., Rio Tambo Distr., 6 km N of Pichiguia Vill., protected area “Reserva Comunal Ashaninka”, “11.358244°S, 74.0320473°W”, ~500 m, primary forest, at light, 14–19 December 2018, A. Gorochov.

Description. *Male* (holotype). General appearance more or less similar to that of all previous species of this subgenus described here but with following characteristic features: body medium-sized; coloration yellowish with light brown eyes and brown marks on dorsal tegminal fields only (Fig. 9); structure of upper rostral tubercle almost as in *Schunkei* Species Group; last tergite, epiproct and paraprocts approximately as in *A. (C.) bispinosa* sp. nov. (Fig. 56); cercus without spines, lobules and denticles on dorsal edge; apex of cercal distal process almost angular and without distinct denticles; ventrodiscal cercal lobule not very long, transversally widened, partly lamellar and with small lateral tubercle (*t*); ventral cercal lobule between previous lobule and ventroproximal process somewhat longer than ventrodiscal lobule, almost spine-like, with apical part curved medially; ventroproximal cercal process rather long, with large apical (lateral) lobe and narrow notch between this lobe and subapical (medial) lobe (Figs 53–55); genital plate with distinct and almost angular posteromedian notch having lateral edges strongly sinuous (Fig. 57). Genitalia almost as in *A. (C.) superapex* sp. nov. and *A. (C.) schunkei* (Fig. 169).

Variations. Paratypes distinguished from holotype by presence of a pair of distinct or barely visible rose lines on dorsum of upper rostral tubercle, slightly darker (almost dark brown) marks on tegmina, and somewhat less sinuous edges of posteromedian notch of genital plate. Their cerci variable: one male with two microscopical denticles near apex of distal process of left cercus; this process on both cerci of second



Figs 52–81. *Anaulacomera* (*Cervicercora* subgen. nov.), males: 52 – *A. (C.) cercalis* Caudell; 53–57 – *A. (C.) paracercalis* sp. nov.; 58–62 – *A. (C.) spinulata* sp. nov.; 63–66 – *A. (C.) abbreviata* sp. nov.; 67–70 – *A. (C.) neohirsuta* sp. nov.; 71, 72 – *A. (C.) hirsuta* Hebard; 73–77 – *A. (C.) apicalis* sp. nov.; 78–81 – *A. (C.) denticulata* sp. nov. Right cercus, inner view (52); left cercus from side (53, 59, 63, 67, 71, 73, 78); ventroproximal cercal process, posterodorsal view (54, 60, 64, 68, 74, 79); distal half of left cercus from below (55, 61, 65, 69, 75, 80); posteromedian lobe of last tergite, epiproct and cercal bases from behind (56, 58, 77); genital plate (62) and its distal portion (57, 66, 70, 76, 81) from below. [52, 71 – after Caudell (1918) and Hebard (1927), modified.]. *Abbreviations:* *sp*, subapical spinule of distal cercal process; *t*, lateral tubercle of ventrodorsal cercal lobule; others as in Figs 20–51.

male barely wider and with almost roundly angular apex having a few such denticles.

Female unknown.

Length (mm). Body 13.5–15.0; body with wings 31.0–34.0; pronotum 3.2–3.4; tegmina 23.0–25.0; hind femora 15.0–16.5.

Comparison. The new species is most similar to *A. (C.) cercalis*, especially in the male cercal structure, but differs in the following male cercal characters: ventrodiscal lobule is shorter than the nearest ventral (ventroproximal) lobule, probably more widened, with a distinct lateral tubercle; ventroproximal lobule located between the ventrodiscal lobule and the ventroproximal process is distinctly longer; ventroproximal process is slightly shorter, i.e. not longer than the basal cercal part (from cercal base to base of ventroproximal process; compare Figs 52 and 53). From *A. (C.) hirsuta* also similar in the male cerci, the new species is distinguished by the male cercus with its distal process directed backwards (but not arcuately downwards), with the ventrodiscal lobule clearly wider in profile and having a lateral tubercle, with the nearest ventral (ventroproximal) lobule much longer and spine-like (*vs.* not spine-like), and with the ventroproximal process longer and narrower (compare Figs 53, 54 and 71, 72). From all the other species of this subgenus, *A. (C.) paracercalis* sp. nov. differs in the characters given in the note about *Cercalis* Species Group.

***Anaulacomera (Cervicercora) spinulata* sp. nov.**
(Figs 10, 58–62)

Etymology. This species name is the Latin word “spinulata” (with small spine or spines) because the male cercus in this new species has a small subapical spinule on the distal process.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., ~40 km NE of Satipo Town, environs of Calabaza Vill., ~2000 m, primary forest, at light, 16–17 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izerskiy. *Paratypes*: 1 male, same data as for holotype; 6 males, same province, ~25 km SE of Satipo Town, environs of Rio Venado Vill., 1000–1200 m, primary/secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izerskiy.

Description. *Male* (holotype). Size, coloration and structure of body (Fig. 10) very similar to those

of holotype of *A. (C.) paracercalis* sp. nov. but with following differences: last tergite with somewhat shorter posteromedian lobe; epiproct larger, more or less as in *A. (C.) eubispinosa* sp. nov. and in Superapex and Schunkei Species Groups (Fig. 58); apical part of distal process of cercus slightly curved upwards and with almost horizontally truncate apex having more distinct (but also not numerous) small denticles (Fig. 59); lower part of this cercal process with small but distinct subapical spinule located near ventrodiscal cercal lobule and curved laterally; ventrodiscal cercal lobule much narrower than in *A. (C.) paracercalis* sp. nov., lacking lateral tubercle and arcuately curved (i.e. directed more or less medially); ventral (ventroproximal) cercal lobule between ventrodiscal lobule and ventroproximal process small (shorter than ventrodiscal lobule), less spine-like but also more or less medially curved (Figs 59, 61); ventroproximal cercal process with slightly narrower apical (lateral) lobe and barely wider notch between this lobe and subapical (medial) one (Fig. 60); genital plate with posteromedian notch having lateral edges almost non-sinuuous (Fig. 62).

Variations. Some males with rose tinge on dorsum of upper rostral tubercle and almost light brown marks on tegmina; genital plate sometimes with somewhat narrower posteromedian notch; one male with strongly reduced subapical spinule in left cercus.

Female unknown.

Length (mm). Body 13.0–15.0; body with wings 31.0–35.0; pronotum 3.0–3.4; tegmina 24.0–26.5; hind femora 13.5–15.5.

Comparison. The new species is most similar to *A. (C.) paracercalis* sp. nov. and *A. (C.) cercalis*. However, it is distinguished from *A. (C.) paracercalis* sp. nov. by the male cercus having a subapical spinule directed laterally (no such spinule in *A. paracercalis* sp. nov.), ventrodiscal lobule of this cercus much narrower and lacking any lateral tubercle, ventral cercal lobule between the previous lobule and the ventroproximal process shorter than the ventrodiscal lobule, ventroproximal cercal process with the apical lobe narrower and separated from the subapical one by a wider notch; from *A. (C.) cercalis*, the new species differs in the male cercus with the basal part somewhat wider, with the ventroproximal process distinctly shorter (shorter than distance from the cercal base to the base of this process; *vs.* longer than this distance), and with the distal process having apical denticles (compare Figs 52 and 59). From *A. (C.) hirsuta* and other congeners, *A. (C.) spinulata*

sp. nov. is distinguished by the male cercus with the distal process directed backwards (but not arcuately downwards) and having less pulled apical part, with ventrodiscal lobule wider in profile, and with ventroproximal process narrower, as well as by the diagnostic characters for Cercalis Species Group.

***Anaulacomera (Cervicercora) abbreviata* sp. nov.**
(Figs 11, 63–66, 170)

Etymology. This species name is the Latin word “abbreviata” (shortened), because the new species has its male cercal distal process shortened.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., ~40 km NE of Satipo Town, environs of Calabaza Vill., ~2000 m, primary forest, at light, 16–17 October 2008, A. Gorocho, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izerskyy. *Paratype* – male, same province, Pampa Hermosa Distr., waterfall “Cristal” near Pacasmayo Vill., 1400–1600 m, “11°22′02″S, 74°41′55″W”, 8–13 December 2018, A. Gorocho.

Description. *Male* (holotype). Body very similar to that of *A. (C.) spinulata* sp. nov. but distinguished by the following characters: tegmina with darkened parts of dorsal tegminal field light brown (Fig. 11); apical part of distal process of cercus distinctly shorter (clearly shortened; Fig. 63); subapical (directed laterally) cercal spinule smaller but distinct, located closer to apex of this process than to base of ventrodiscal lobule; ventrodiscal cercal lobule slightly shorter and more strongly curved (Figs 63, 65); ventroproximal cercal process slightly wider (with almost angular projection before distal lobes of this process) and with subapical (medial) lobe less projected backwards (Fig. 64); genital plate with posteromedian notch somewhat deeper (Fig. 66).

Variations. Second male with a pair of thin rose lines on dorsum of upper rostral tubercle and darker (brown) spots on dorsal fields of tegmina, almost without posteromedian lobe of last tergite, with ventroproximal cercal process having less distinct lateral projection and more sloping (not almost tubercle-like) medial convexity before subapical lobe, and with genital plate having slightly less deep posteromedian notch.

Female unknown.

Length (mm). Body 14.0–16.0; body with wings 32.0–34.0; pronotum 3.0–3.2; tegmina 25.5–27.0; hind femora 14.5–15.8.

Comparison. The new species differs from *A. (C.) spinulata* sp. nov. in the characters listed above, in the description of this new species, and from all the other congeners, in the same characters as this species.

***Anaulacomera (Cervicercora) neohirsuta* sp. nov.**
(Figs 12, 67–70)

Etymology. This species name originates from the species name *A. hirsuta* with the Latinized Greek prefix “neo-“ (new) due to a significant similarity of the new species to *A. hirsuta*.

Type material. *Holotype* – male, PERU: Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Ucayali River, environs of Sapani Vill., ~300 m, primary/secondary forest, at light, 26–31 October 2008, A. Gorocho, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izerskyy. *Paratypes*: 5 males, same data as for holotype.

Description. *Male* (holotype). General appearance similar to that of *A. (C.) paracercalis* sp. nov., *A. (C.) spinulata* sp. nov. and *A. (C.) abbreviata* sp. nov. but with following characteristic features: coloration uniformly yellowish with light brown spots only on proximal and medial (nearest to mirror) parts of dorsal tegminal field (Fig. 12) as well as some areas of stridulatory apparatus and majority of membranes in hind wing transparent; last tergite with very short and rounded posteromedian lobe; epiproct approximately as in *A. (C.) spinulata* sp. nov. and *A. (C.) abbreviata* sp. nov. in size; cercus with more strongly arcuate (than in these three species) dorsal edge in profile, with more pulled apical part of distal process which slightly curved upwards and having a few small denticles at apex, with subapical spinule directed laterally as in *A. (C.) spinulata* sp. nov. and *A. (C.) abbreviata* sp. nov. but larger as well as located closer to ventrodiscal lobule than in both latter species, with this lobule somewhat smaller (thinner) than in these two species and separated from nearest ventral (ventroproximal) lobule by longer distance, with latter lobule short, and with wide (almost rectangular) notch between apical and subapical lobes of ventroproximal process (Figs 67–69); genital plate with posteromedian notch more or less similar to that of *A. (C.) spinulata* sp. nov. (Fig. 70).

Variations. Some males with a pair of rose lines on dorsum of upper rostral tubercle and almost brown marks on tegminal dorsal field; notch between apical

and subapical lobes of ventroproximal cercal process sometimes insignificantly narrower.

Female unknown.

Length (mm). Body 16.0–18.0; body with wings 32.0–36.0; pronotum 3.2–3.5; tegmina 25.0–27.0; hind femora 16.0–17.5.

Comparison. The new species differs from *A. (C.) cercalis*, *A. (C.) paracercalis* sp. nov., *A. (C.) spinulata* sp. nov. and *A. (C.) abbreviata* sp. nov. in the male cercus with the dorsal edge more strongly arcuate, apical part of the distal process longer (more pulled), subapical spinule developed as well as larger and located closer to the ventrodistal lobule, distance between the two ventral lobules greater, and ventroproximal process wider. The new species is also similar to *A. (C.) hirsuta* in the general shape of its male cercus, but the distal process of this cercus is with its apical part slightly curved upwards (vs. arcuately curved downwards) and having much less numerous denticles at the apex (vs. having a rather long row of very small dorsal denticles), the ventrodistal lobule of this cercus is shorter in profile and with its base located farther from the nearest ventral lobule, the ventroproximal process of this cercus has its subapical lobule more projected backwards, and the notch between the subapical and apical lobes of the latter process distinctly narrower (compare Figs 67, 68 and 71, 72).

***Anaulacomera (Cervicercora) apicalis* sp. nov.**
(Figs 13, 73–77, 171)

Etymology. The species name is the Latin word “apicalis” (apical, related to top) due to the presence of a small spinule almost at the apex of the male cercal distal process.

Type material. *Holotype* – male, PERU: Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Ucayali River, environs of Sapani Vill., ~300 m, primary/secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. *Paratypes*: 2 males, same data as for holotype.

Description. *Male* (holotype). Size, coloration and structure of body similar to those of all other species of this group but with following characteristic features: tegmina yellowish with light brown stridulatory vein and one of chords on left tergmen as well as almost transparent mirror and some nearest membranes (Fig. 13); last tergite with posteromedian lobe and epiproct as in Fig. 77; cercus with weakly arcuate dorsal edge, with almost straight distal process directed downwards/backwards as well as having long row of small dorsal denticles (most proximal denticle distinctly projected upwards) and two small apical projections [one of these projections (ventral) with small but distinct spinule directed laterally; Figs 73, 75], with two rather small (short) ventral lobules located rather far from each other and curved more or less medially (Figs 73, 75), and with ventroproximal process rather narrow as well as having almost rectangular both subapical lobe and notch between this and apical lobes (Fig. 74); genital plate with posteromedian notch almost as in *A. (C.) neohirsuta* sp. nov. (i.e. barely wider than in holotype of *A. spinulata* sp. nov. and slightly shorter than in *A. abbreviata* sp. nov.; see Figs 62, 66, 70, 76).

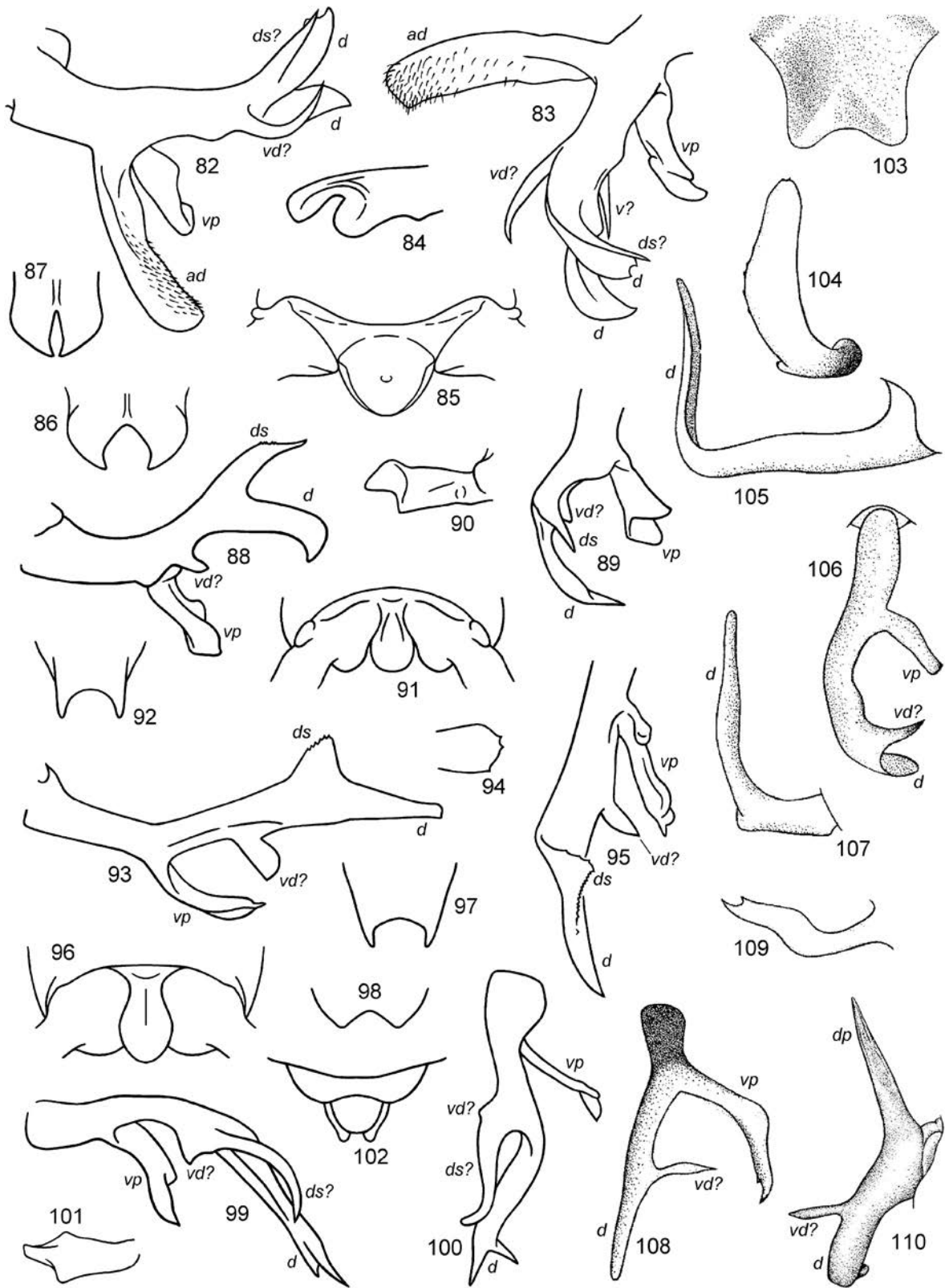
Variations. Other males with slight darkish dorsal marks on upper rostral tubercle or completely yellowish tegminal venation; their cercus with distal process having almost rounded apex (apical projections practically undeveloped), but this apex with distinct ventral spinule directed laterally (i.e. as in holotype).

Female unknown.

Length (mm). Body 14.0–16.0; body with wings 29.0–31.0; pronotum 3.1–3.3; tegmina 22.0–23.5; hind femora 14.0–15.0.

Comparison. The new species is most similar to *A. (C.) hirsuta* in the shape of the male cercus, but it is distinguished from the latter species by this cercus less high in its middle part, with the most proximal dorsal denticle on the distal process larger and distinctly projected upwards, with this process almost straight and having a ventroapical spinule curved laterally, with the distance between the ventral

Figs 82–110. *Anaulacomera (Cervicercora* subgen. nov.), males: 82–87 – *A. (C.) daedala* sp. nov.; 88–92 – *A. (C.) mariposa* sp. nov.; 93–97 – *A. (C.) rectiapex* sp. nov.; 98–102 – *A. (C.) aenigma* sp. nov.; 103–106 – *A. (C.) apolinari* Heb.; 107–109 – *A. (C.) caucana* Heb.; 110 – *A. (C.?) bellator* Rehn. Left cercus from side (82, 88, 93, 99) and from above (83, 89, 95, 100), and its apical part in posterolateral view (94); ventroproximal cercal process, posterodorsal (84, 90, 101) and lateral (109) views; abdominal apex with cercal bases from behind (85, 91, 96) and without cerci from above (102); distal part of genital plate from below (86, 87, 92, 97, 98); posteromedian lobe of last tergite from above (103); right cercus from side (105, 107, 110), from below (106), probably from below/behind (108), and its distal process from behind (104). [103–109 – after Hebard (1927); 110 – after Rehn (1920).]. *Abbreviations*: as in Figs 20–51.



lobules longer (almost as in *A. neohirsuta* sp. nov.), with the ventroproximal process narrower, and with the notch between the apical and subapical lobes of this process wider (compare Figs 71, 72 and 73, 74). From *A. (C.) cercalis*, *A. (C.) paracercalis* sp. nov., *A. (C.) spinulata* sp. nov., *A. (C.) abbreviata* sp. nov. and *A. (C.) neohirsuta* sp. nov., the new species differs in the development of clearly more numerous dorsal denticles forming a significantly longer and distinct row on the male cercal distal process.

***Anaulacomera (Cervicercora) denticulata*
sp. nov.**

(Figs 14, 78–81)

Etymology. This species name is the Latin word “denticulata” (denticulate, with small teeth) due to the presence of a very long row of denticles on the male cercal distal process.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., forest garden in outskirts of Satipo Town, ~600 m, at light, 15 October – 6 November 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. *Paratypes*: 1 male, same province, Rio Tambo Distr., 6 km N of Pichiguia Vill., protected area “Reserva Comunal Ashaninka”, “11.358244°S, 74.0320473°W”, ~500 m, primary forest, at light, 14–23 November 2017, A. Gorochov, G. Irisov.

Description. *Male* (holotype). General appearance as in *A. (C.) apicalis* sp. nov., but: venation with light brown stridulatory vein and one of chords in left tegmen as well as only one of chords in right tegmen (Fig. 14); cercus with distal process distinctly longer and rounded at apex (row from dorsal denticles on this process also clearly longer than in *A. apicalis* sp. nov.) as well as lacking apical spinule (which laterally curved in *A. apicalis* sp. nov.), with ventrodistal spinule somewhat larger (longer), with ventroproximal process somewhat wider as well as having clearly narrower notch between apical and subapical lobes, and with latter (subapical) lobe more projected backwards (Figs 78–80); genital plate with posteromedian notch barely larger than in *A. (C.) apicalis* sp. nov. (Fig. 81).

Variations. Venation of right tegmen almost completely yellowish; posteromedian lobe of last tergite slightly shorter than in holotype and *A. apicalis* sp. nov.

Female unknown.

Length (mm). Body 14.0–14.5; body with wings 29.0–30.0; pronotum 3.0–3.5; tegmina 22.5–23.0; hind femora 15.0–16.5.

Comparison. The new species is similar to *A. (C.) apicalis* sp. nov. in the shape of its male cercus, but this cercus is with a clearly longer distal process having a longer row of dorsal denticles and lacking any apical spinule (this spinule is short but distinctly developed and directed laterally in the other species of this group except for *A. paracercalis* sp. nov. and possibly *A. cercalis* and *A. hirsuta*), with the ventrodistal lobule longer, and with the ventroproximal process having a much narrower notch between the apical and subapical lobes as well as the latter lobe more projected backwards. From *A. (C.) hirsuta*, the new species differs in the male cercal distal process straight and having the proximal dorsal denticle clearly more projected upwards, and in the male cercal ventroproximal process narrower but with its subapical lobe wider; and from all the other species of this group, in the presence of a much longer row of dorsal denticles on the male cercal distal process.

***Daedala* Species Group of *Cervicercora*
subgen. nov.**

Note. This new group has the following characters of male cercus: its ventroproximal process is as in all the previous groups of this subgenus (Fig. 84); dorsal cercal edge is with one spine; ventral cercal edge is with two spines or lobules between the distal and ventroproximal processes; additional large lateral process near ventroproximal one is developed (Figs 82, 83).

Composition: *A. (C.) daedala* sp. nov.

***Anaulacomera (Cervicercora) daedala* sp. nov.**
(Figs 15, 82–87, 168)

Etymology. This species name is the Latin word “daedala” (intricate, complicated) given in connection with the complicated shape of the male cerci.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., Rio Tambo Distr., 6 km N of Pichiguia Vill., protected area “Reserva Comunal Ashaninka”, “11.358244°S, 74.0320473°W”, ~500 m, primary forest, at light, 14–23 November 2017, A. Gorochov, G. Irisov. *Paratypes*: 1 male, same data as for holotype; 1 male, same province, ~18 km N of

Satipo Town, environs of waterfall Sinco Cascadas near Paratushali Vill., "11.283812°S, 74.713915°W", ~800 m, primary forest, at light, 28–30 November 2017, A. Gorochov, G. Irisov; 1 male, same province, ~25 km SE of Satipo Town, environs of Rio Venado Vill., 1000–1200 m, primary/secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky; 2 males, PERU, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Ucayali River, environs of Sapani Vill., ~300 m, primary/secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky.

Description. *Male* (holotype). Size, coloration and structure of body similar to those of previously considered congeners but with following characteristic features: upper rostral tubercle practically as in holotype of *A. (C.) superapex* sp. nov. but with a pair of more distinct reddish lateral lines on dorsum of this tubercle; tegmina yellowish-greenish with left tegmen having brown stridulatory vein and one of chords as well as light brown parts of venation in basal area and near distal edge of mirror, with right tegmen having whitish stridulatory vein and brown short stripe along medial edge of stridulatory apparatus as well as light brown chord and part of venation in rest of basal area, and with both tegmina having almost transparent mirror and membranes near it (Fig. 15); last tergite with moderately short and rounded posteromedian lobe; epiproct rather large (wide), triangularly oval, with small distinct concavity near middle (Fig. 85); cercus complicated, with distal process probably divided into two lobes (dorsal lobe having two small angular projections at apex, and ventral lobe angular at apex), with one dorsal spine directed upwards/backwards and located at base of above-mentioned dorsal lobe, with two possibly ventral spines located near this base but medially and laterally as well as directed more or less backwards (Figs 82, 83), with ventroproximal process typical of this subgenus but having very narrow notch between apical and subapical lobes (Fig. 84), and with very large (long) additional process located near base of latter process but more laterally as well as having slightly thickened distal part and rounded apex (Figs 82, 83); genital plate with almost parallel lateral edges, barely widened subapical part, and moderately large (rather wide and deep) and more or less roundly angular posteromedian notch having a pair of narrowly angular and slightly hooked apical

lobules around it (Fig. 86); genitalia similar to those of Superapex, Schunkei and Cercalis Species Groups but with a pair of longer oblique semimembranous plates in middle part having a few small (almost denticle-like) projections in distal part (Fig. 168).

Variations. Sometimes upper rostral tubercle almost without reddish marks, tegmina with all darkened structures light brown, genital plate somewhat narrower (more bent longitudinally) and with distinctly narrower posteromedian notch (Fig. 87).

Female unknown.

Length (mm). Body 14.0–15.0; body with wings 32.0–34.0; pronotum 3.1–3.3; tegmina 24.0–25.5; hind femora 15.0–16.0.

Comparison. The new species differs from all the species of this subgenus in the same characters as *Daedala* Species Group, because there is only one species in this group.

Mariposa Species Group of *Cervicercora* subgen. nov.

Note. This new group has the following characters of male cercus: its ventroproximal process is less widened than in all the previous groups of this subgenus and with somewhat different (less flattened or less bilobate) distal part (Figs 88–90, 93, 95, 99–101); dorsal cercal edge is with one large lobule usually having denticulate dorsal edge; ventral cercal edge is with one small lobule between the distal and ventroproximal processes; additional large (lateral) process near ventroproximal process is absent (Figs 88, 89, 93, 95, 99, 100).

Composition: *A. (C.) mariposa* sp. nov.; possibly *A. (C.) rectiapex* sp. nov. and *A. (C.) aenigma* sp. nov.

***Anaulacomera (Cervicercora) mariposa* sp. nov.** (Figs 16, 88–92, 172)

Etymology. This new species is named after Mariposa Village located near its type locality.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., environs of Mariposa Vill., "11°24,9'S, 74°43,7'W", 1637 m, at light, 14–16 December 2010, V. Sinyaev, S. Sinyaeva, V. Izersky.

Description. *Male* (holotype). General appearance as in holotype of *A. (C.) daedala* sp. nov., but following differences developed: upper rostral tubercle with slightly narrower anterior half, practically

without narrowing between anterior and posterior halves, with less distinct dorsal median groove not reaching apex of this tubercle, and with a pair of small rose marks on dorsolateral parts of only posterior half (rest of this tubercle yellowish-greenish); lateral pronotal lobes slightly less high than in all previous congeners (these lobes practically as long as high; *vs.* they slightly or barely higher than long); tegmina with light brown venation around semitransparent membranes in mirror and in nearest cells as well as with almost brown cell membranes in proximal part of M-Cu area and after stridulatory apparatus along anal edge of tegmen (Fig. 16); last tergite with almost straight posterior edge of dorsal part; epiproct not large, elongately oval, narrower in proximal part and with distinct longitudinal (median) concavity (Fig. 91); cercus with distal half somewhat curved upwards, with dorsal spine large and widened in profile but having thin and acute apical part (slightly curved backwards) as well as a few small dorsal denticles on base of this part, with distal process rather long and medially curved as well as having acute and almost hook-like apical part, with rather small and simple ventral (ventrodiscal?) lobule, and with ventroproximal process somewhat similar to that of previous congeners but clearly not flattened and with smaller distal notch (Figs 88–90); genital plate moderately elongate, slightly narrowing to apex, with wide and moderately shallow posteromedian notch having weakly concave anterior part, and with a pair of small (rather thin and short) lobules around this notch (Fig. 92); genitalia almost as in Superapex, Schunkei and Cercalis Species Groups but with additional semisclerotized area located between a pair of moderately small semisclerotized distal lobes (Fig. 172).

Female unknown.

Length (mm). Body 15.2; body with wings 34.0; pronotum 3.3; tegmina 25.0; hind femora 14.9.

Comparison. The new species is distinguished from all the other congeners by the characters given in the subgeneric key for *Anaulacomera* s. l. and in the note about Mariposa Species Group.

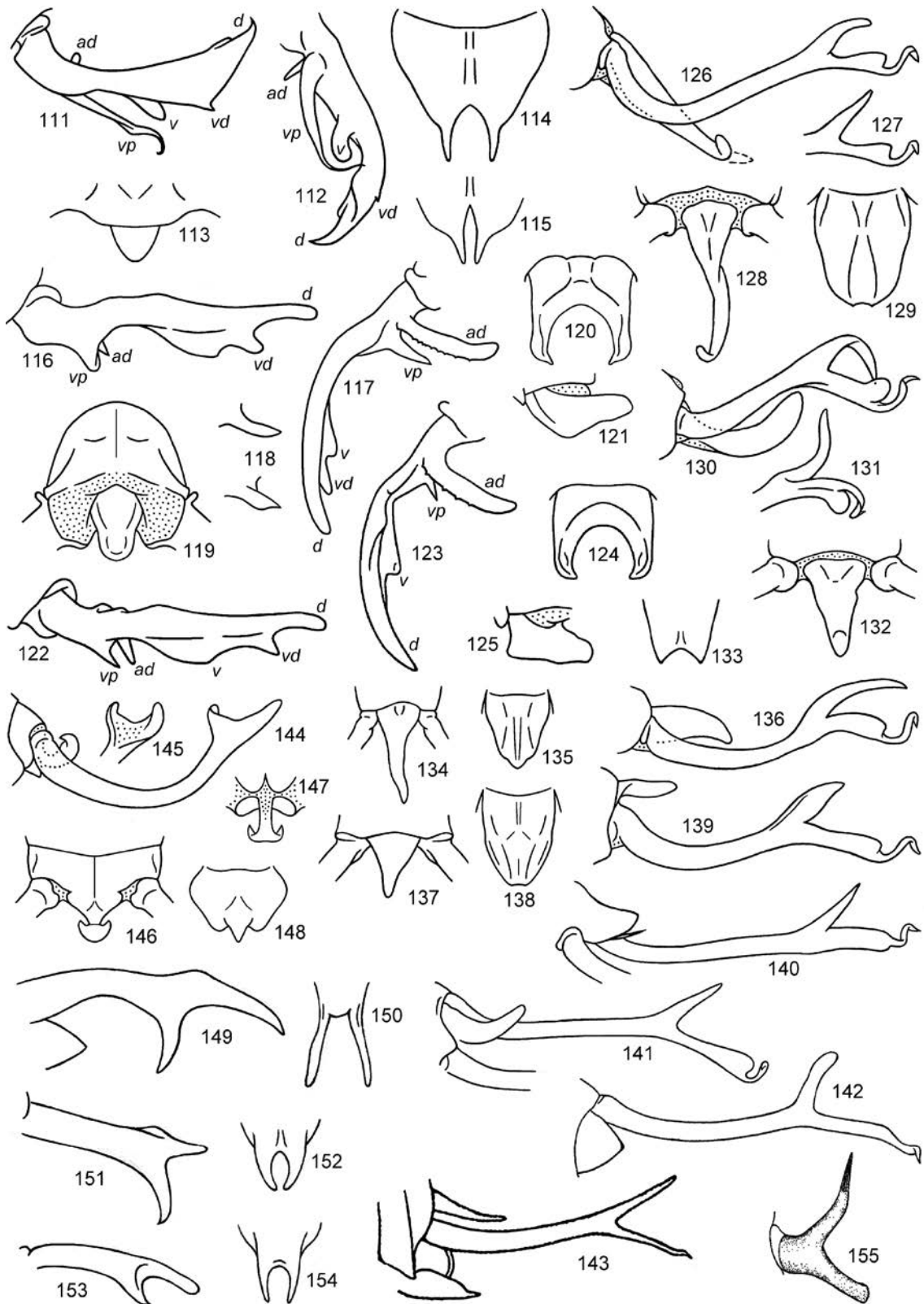
***Anaulacomera (Cervicercora) rectiapex* sp. nov.**
(Figs 17, 93–97)

Etymology. This species name originates from the Latin word “apex” (top, end) with the Latin prefix “recti-“ [from “rectus” (straight)] in connection with the shape of male cercal distal process.

Type material. *Holotype* – male, PERU: Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Ucayali River, environs of Sapani Vill., ~300 m, primary/secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. *Paratype* – male, same data as for holotype.

Description. *Male* (holotype). General appearance as in *A. (C.) mariposa* sp. nov. but with following differences: upper rostral tubercle without darkened marks; pronotum with lateral lobes more similar to those of other previous congeners (i.e. height of these lobes barely greater than their length); tegmina with rather small light brown spots in basal part and in M-Cu area as well as with light brown stripe along anal tegminal edge (rest of tegmina yellowish with semitransparent mirror and nearest membranes; Fig. 17); epiproct with slightly narrower distal part (Fig. 96); cercus somewhat longer and less curved upwards, with dorsal spine shorter and much wider in profile as well as having widely angular apex (this

Figs 111–155. *Anaulacomera* (*Cervicercora* subgen. nov.), *A. (Ocella)* and *A. (Anallomes)*, stat. nov., males: 111–115 – *A. (C.) virgula* sp. nov.; 116–121 – *A. (C.) grandiramus* sp. nov.; 122–125 – *A. (C.) parviramus* sp. nov.; 126–129 – *A. (O.) appendiculosa* sp. nov.; 130–133 – *A. (O.) tuberculosa* sp. nov.; 134–136 – *A. (O.) lobulosa* sp. nov.; 137–139 – *A. (O.) darwini* Scud.; 140 – *A. (O.) furcata* Br.-W. (probable lectotype of synonymous *A. darwini darienica* Griff.); 141 – *A. (O.)* sp. from Colombia; 142 – *A. (O.) harpago* Br.-W. (holotype of synonymous *A. furcifera* Kirby); 143 – *A. (O.) rusa* Rehn; 144–148 – *A. (O.?) reduunca* sp. nov.; 149, 150 – *A. (O.) confusa* Piza (holotype); 151, 152 – *A. (O.) lingulata* Piza (holotype); 153, 154 – *A. (O.) maculifemora* (Piza) (holotype); 155 – *A. (A.?) intermedia* Br.-W. Left (111, 112, 116, 117, 122, 123) and reversed right (151, 153, 155) cerci from side (111, 116, 122, 151, 153, 155), from below (112) and from above (117, 123); posteromedian part of last tergite with epiproct from behind (113); genital plate (114, 120, 121, 124, 125, 129, 135, 138, 148) and its distal part (115, 133, 150, 152, 154) from below (114, 115, 120, 124, 129, 133, 135, 138, 148, 150, 152, 154) and from side (121, 125); ventroproximal cercal process of different males from above (118); last tergite (or its posterior part) with epiproct and cercal bases from behind (119) and from above (128, 132, 134, 137, 146); left (126, 130, 136, 139, 143, 144) and right (140, 141, 142, 149) cerci with epiproct, lateral (126, 130, 136, 139, 143, 144) and medial (140, 141, 142) views (but 142 with epiproct in dorsal view, because cercus twisted at base) as well as ventrolateral (reversed) view (149); distal portion of right cercus, medial view (127, 131, 145) (but 131 with ventral cercal process twisted in relation to dorsal cercal process); epiproct and distal parts of paraprocts from below (147). [140–142, 149–154 – after photographs from OSF; 143, 155 – after Rehn (1917, 1920), modified.]. *Abbreviations:* as in Figs 20–51.



apical part not curved backwards and having a few denticles; smaller denticles also developed on posterior margin of dorsal spine, but they directed medially and almost invisible in profile), with distal process rather long and straight as well as narrow and having a few very small apical denticles, with ventral (ventrodistal?) lobule slightly larger than in *A. (C.) mariposa* sp. nov., and with ventroproximal process somewhat longer and narrower than in this species as well as slightly arcuate in profile and having a pair of small apical lobules (one spinule-like and one shortly rounded) (Figs 93–95); genital plate distinguished from that of *A. (C.) mariposa* sp. nov. by posteromedian notch slightly wider, and posterolateral lobules thinner and directed somewhat medially (Fig. 97). Genitalia almost as in *A. (C.) mariposa* sp. nov.

Variations. Tegmina of paratype with proximal part of M-Cu area and stripe along anal edge somewhat darker (almost brown), and paratype cerci with ventral lobule and ventroproximal process having greyish (darkish) tinge.

Female unknown.

Length (mm). Body 14.5–15.5; body with wings 31.5–33.0; pronotum 3.2–3.4; tegmina 22.5–23.5; hind femora 16.2–16.8.

Comparison. The new species clearly differs from *A. (C.) mariposa* sp. nov. in the above-mentioned characters of upper rostral tubercle, pronotum and male cercus. From the other congeners, it is distinguished by the same characters as the subgenus *Cervicercora* subgen. nov. and Mariposa Species Group. Possibly, this species belongs to another (new) species group related to Mariposa Species Group, but this question is in need of additional data.

***Anaulacomera (Cervicercora) aenigma* sp. nov.**
(Figs 19, 98–102)

Etymology. This species name is the Latin word “aenigma” (a riddle) in connection with a problematic position of the new species inside the subgenus *Cervicercora* subgen. nov.

Type material. *Holotype* – male, BOLIVIA: northern part of Santa Cruz Department, Noel Kempff Mercado National Park (near border with Brazil), Los Fierros Camp, ~300 m, primary forest, at light, 23–28 January 2014, A. Gorochov.

Description. *Male* (holotype). Size, coloration and structure of body similar to those of *A. (C.) mariposa* sp. nov. and *A. (C.) rectiapex* sp. nov., but

upper rostral tubercle with dorsomedian groove reaching its apex, and with a pair of dorsolateral lines running from apical part of this tubercle to its base; pronotum as in *A. (C.) rectiapex* sp. nov. but with numerous and very small reddish dots; tegmina with dark brown stridulatory vein of left tegmen as well as brown chord and small areas near these structures (along proximal edge of stridulatory vein and around chord), and with brown spots located along medial edge of stridulatory apparatus in right tegmen (its chord also brown, but stridulatory vein yellowish; Fig. 19); last tergite barely concave in posteromedian part; epiproct elongately rounded (Fig. 102); cercus slightly curved downwards, with possible dorsal spine long and thin as well as arcuate in profile and almost S-shaped in dorsal view but lacking distinct denticles, with distal process also long and almost S-shaped in dorsal view but slightly thicker than dorsal spine as well as more or less straight in profile and having two apical spinules (one directed backwards/downwards and one directed more medially), with possible ventral (ventrodistal?) lobule almost angular and not separated from base of dorsal spine, and with ventroproximal process as in Figs 99–101; genital plate with distal part distinctly narrowing to a pair of rather short and widely angular apical lobules, and with rather small and roundly angular notch between these lobules (Fig. 98).

Female unknown.

Length (mm). Body 13.0; body with wings 28.0; pronotum 3.3; tegmina 20.5; hind femora 15.0.

Comparison. The new species differs from *A. (C.) mariposa* sp. nov. and *A. (C.) rectiapex* sp. nov. in the male cercus curved downwards (not upwards) and having a thinner dorsal spine without denticles as well as in a very different shape of the distal and ventroproximal processes. From the other congeners, *A. (C.) aenigma* sp. nov. differs in the same characters as Mariposa Species Group. This new species may also belong to a new species group of *Cervicercora* subgen. nov.

Virgula Species Group of *Cervicercora* subgen. nov.

Note. This new group has the following characters of male cercus: its ventroproximal process is approximately spine-like or thin and long; dorsal cercal edge is without distinct spines; ventral cercal edge is with two rather short lobules or spinules; additional large

lateral process near ventroproximal process is absent, but there is an additional lobule (process) on the dorsal part of the cercal base which is directed more or less medially (Figs 111, 112, 116, 117, 122, 123).

Composition: *A. (C.) virgula* sp. nov.; possibly *A. (C.) grandiramus* sp. nov., *A. (C.) parviramus* sp. nov. and *A. longicercata* Caudell, 1918 [this name may be a secondary homonym of *A. longicercata* (Brunner-Wattenwyl, 1891) and also a synonym of *A. grandiramus* sp. nov. or *A. parviramus* sp. nov., because the male cercus of this Caudell's species is very similar to that of the latter congeners but somewhat intermediate in shape of the distal cercal half (see photographs of Caudell's holotype in OSF)].

***Anaulacomera (Cervicercora) virgula* sp. nov.**
(Figs 18, 111–115, 173)

Etymology. This species name is the Latin word “virgula” (small or thin stick) given in connection with the shape of the male cercal ventroproximal process.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., 1000–1200 m, primary/secondary forest, at light, 20–23 October 2008, A. Gorochoy, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. *Paratypes*: 11 males, same data as for holotype.

Description. *Male* (holotype). General appearance similar to that of Mariposa Species Group, but following characteristic features developed: body coloration almost uniformly yellowish, i.e. without marks on head rostrum and dots on pronotum but with light brown stridulatory vein of left tegmen and stripes around stridulatory apparatus (along proximomedial edge of basal area, along M-Cu area and along anal edge of tegmen; latter stripe with barely lighter proximal portion separated from its longer distal portion by rather small and very light reticular area behind mirror) as well as with transparent mirror and membranes near it and in hind wing (Fig. 18); structure of upper rostral tubercle almost as in *A. (C.) mariposa* sp. nov. and *A. (C.) rectiapex* sp. nov.; pronotum approximately as in *A. (C.) rectiapex* sp. nov., i.e. with lateral lobes slightly higher than long; last tergite with short and widely rounded posteromedian lobe; epiproct more or less elongately oval (Fig. 113); cercus (in profile) somewhat narrower in middle part and widened in distal half, with distal

process narrowing to almost hook-like (and acute) apical part and having low keel-like lobule on dorsal surface, with two ventral lobules located not near each other (one small, almost spinule-like and located at base of distal process; one somewhat larger, having rounded apex and located almost mid-distance between previous ventral lobule and ventroproximal process), with ventroproximal process long and sinuous as well as having distal part thin (virga-like) and clearly curved, and with rather small elongately rounded additional lobule located on medial surface of cercal base near base of ventroproximal process but more dorsally (this lobule directed upwards and medially) (Figs 111, 112); genital plate moderately wide, narrowing to apical part having a pair of thin and rather long lateroapical lobules as well as rather large and roundly angular notch between them (Fig. 114); genitalia with a rather large semimembranous area having a pair of short distal lobes and narrow notch between them (Fig. 173).

Variations. Light brown stripe along anal tegmental edge sometimes with indistinct lighter part separating its short proximal portion from remaining part; genital plate often with narrow posteromedian notch (probable result of stronger longitudinal bent of this plate; Fig. 115).

Female unknown.

Length (mm). Body 10.5–15.0; body with wings 27.0–31.0; pronotum 2.7–3.0; tegmina 21.0–23.0; hind femora 15.0–16.5.

Comparison. Differences of the new species from all the previous species of *Cervicercora* subgen. nov. are given above, in the note about *Virgula* Species Group. But from the possibly homonymic *A. longicercata* Caud., it differs in the male cercus having its distal process wider at the base and almost hook-like in the apical part, its ventrodorsal lobule spinule-like (not roundly lobe-like), and its more proximal ventral lobule (located almost in middle of this cercus) more or less finger-like but not almost keel-like.

***Anaulacomera (Cervicercora) grandiramus* sp. nov.**
(Figs 116–121, 156, 174)

Etymology. This species name originates from the Latin word “ramus” (branch, process) with the Latin prefix “grandi-” [from “grandis” (large)] due to the large size of the male cercal ventroproximal process.

Type material. *Holotype* – male, PERU: Rio Tambo Distr., 6 km N of Pichiguia Vill., protected area “Reserva Comunal Ashaninka”, “11.358244°S, 74.0320473°W”, ~500 m, primary forest, at light, 14–23 November 2017, A. Gorochov, G. Irisov. *Paratypes*: 7 males, same data as for holotype; 15 males, same data, but 14–19 December 2018, A. Gorochov; 13 males, same province, ~25 km SE of Satipo Town, environs of Rio Venado Vill., 1000–1200 m, primary/secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky; 2 males, same province, forest garden in outskirts of Satipo Town, ~600 m, at light, 15 October – 6 November 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky; 1 male, same locality, but 12 November – 4 December 2017, A. Gorochov, G. Irisov, V. Izersky; 1 male, same province, ~18 km N of Satipo Town, environs of waterfall Sinco Cascadas near Paratushali Vill., “11.283812°S, 74.713915°W”, ~800 m, primary forest, at light, 28–30 November 2017, A. Gorochov, G. Irisov; 5 males, PERU, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Ucayali River, environs of Sapani Vill., ~300 m, primary/secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky.

Description. *Male* (holotype). Size, coloration and structure of body more or less similar to those of *A. (C.) virgula* sp. nov. but with following differences: head yellowish with two pairs of sinuate and interrupted reddish longitudinal lines running from reddish brown lateral parts of apical portion of upper rostral tubercle to hind edge of epicranial dorsum (Fig. 156); pronotum yellowish-greenish with light yellowish median line on disc and without other marks; tegmina yellowish with greenish tinge, transparent mirror and membranes near it, dark brown two veins in basal area, brown chord and a few nearest veinlets, brown stridulatory vein in left tegmen (in right tegmen, this vein almost whitish; Fig. 156); coloration of rest of body as in *A. (C.) virgula* sp. nov. and previous congeners, but spines of hind tibia almost blackish; last tergite with posterior edge of dorsal part almost straight (barely concave); epiproct elongately oval, but with distal portion hardly narrower than more proximal part (Fig. 119); cercus with distal process rather long, moderately thin, almost straight and rounded apically, with ventrodiscal lobule distinctly shorter than this process but similar in shape, with more proximal ventral lobule keel-like

as well as located almost near ventrodiscal lobule, with ventroproximal process strong and rather large (long) but almost spine-like and curved medially, and with additional lobule (located on medial surface of basal cercal part and directed medially) long, flattened, slightly arcuate and partly denticulate (Figs 116, 117); genital plate almost rectangular but with rounded and very large (deep and wide) posteromedian notch as well as with characteristic long lobes around this notch (Figs 120, 121); genitalia with a pair of moderately small semisclerotized areas (lobes) having distinct but very small and numerous denticles (Fig. 174).

Variations. Head dorsum often with distinct and more or less wide whitish median area (reddish lines located on this area or more laterally than this area); ventroproximal cercal process somewhat varied in shape but almost identical in general size (Fig. 118); ventral part of keel-like ventral cercal lobules sometimes curved medially.

Female unknown.

Length (mm). Body 15.5–18.0; body with wings 31.0–35.0; pronotum 3.0–3.4; tegmina 22.0–24.0; hind femora 16.0–17.5.

Comparison. The new species differs from all the previous congeners (including *A. virgula* sp. nov.) in the presence of characteristic reddish lines on the head dorsum as well as in the presence of long, flattened, denticulate and arcuate additional lobules on the medial surfaces of male cercal proximal parts. From the possibly homonymic *A. longicercata* Caud., the new species is distinguished by the interspace between the ventral lobules of male cercus clearly shorter.

***Anaulacomera (Cervicercora) parviramus* sp. nov.**

(Figs 122–125, 157, 175)

Etymology. This species name originates from the Latin word “ramus” (branch, process) with the Latin prefix “parvi-” [from “parvus” (small)] due to the small size of the male cercal ventroproximal process.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov. ~25 km SE of Satipo Town, environs of Rio Venado Vill., 1000–1200 m, primary/secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. *Paratypes*: 15 males, same data as for holotype; 3 males, PERU, Ucayali Department,

Atalaya Prov., ~35 km NWW of Atalaya Town on Ucayali River, environs of Sapani Vill., ~300 m, primary/secondary forest, at light, 26–31 October 2008, A. Gorochoy, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky; 1 male, PERU, bank of Rio Morona approximately mid-distance between its mouth and its Ecuadorian part, 200–300 m, primary forest, at light, 24–27 January 2010, A. Gorochoy.

Description. *Male* (holotype). General appearance (including coloration and structure of body) very similar to that of holotype of *A. (C.) grandiramus* sp. nov. but with following differences: head dorsum with whitish median area located between medial reddish lines; tegmina with spot consisting of whitish crossveins in basal area, with almost dark brown and slightly thinner as well as more arcuate stridulatory vein in left tegmen (Fig. 157); cercus with slightly shorter distal process, distinctly longer distance between ventral lobules, shorter distance between one (proximal) of these lobules and ventroproximal process, and clearly smaller ventroproximal process (this process thinner, shorter and more spine-like than in *A. grandiramus* sp. nov.) (Figs 122, 123); genital plate very similar to that of this species but slightly more transverse (Figs 124, 125). Genitalia (Fig. 175) practically indistinguishable from those of *A. (C.) grandiramus* sp. nov.

Variations. Paratype from bank of Rio Morona almost without whitish and reddish marks on head dorsum as well as with slightly lighter (brown) darkened parts in tegmina; other paratypes sometimes with less distinct (than in holotype) reddish and whitish marks on head and barely variable ornament on dorsal tegminal fields.

Female unknown.

Length (mm). Body 13.5–15.5; body with wings 31.0–34.0; pronotum 3.0–3.3; tegmina 23.0–25.0; hind femora 17.0–18.0.

Comparison. The new species is very similar to *A. (C.) grandiramus* sp. nov., but it is sympatric with the latter species (distributed in the same localities of two Peruvian departments) and everywhere distinguished from *A. (C.) grandiramus* sp. nov. by the above-listed male cercal characters. From all the other congeners, it differs in the same characters as *A. (C.) grandiramus* sp. nov., and from the possibly homonymic *A. longicercata* Caud., in the male cercus with its distal process somewhat shorter, and in the distance between the ventral lobules of this cercus slightly longer.

Bellator Species Group of (?) *Cervicercora* subgen. nov.

Note. Belonging of this new group to *Cervicercora* subgen. nov. is problematic, because its male cercal structure is insufficiently understandable (the distal and medial parts of the male cercus are practically unclear; Fig. 110). However, this cercus has three processes as minimum and, thus, may belong to a species of *Cervicercora* subgen. nov. or *Munticercora* subgen. nov., but it differs from them in the presence of a strong spine at the cercal base, which is directed almost vertically upwards.

Composition: *A. bellator* Rehn, 1920.

Furcata Species Group of *Ocella*

Note. This group has the following characters: male cercus is long and thin, having a pair of thin and much shorter distal processes, one of which (ventrodistal process) is with very thin and more or less spiral-like apical part (Figs 126, 127, 130, 131, 136, 139–143); male genitalia with V-shaped sclerite having the distal part unpaired and directed backwards, and the proximal part consisting of two somewhat asymmetrical rami (Figs 177–184).

Composition: *A. (O.) furcata* Brunner-Wattenwyl, 1878; *A. (O.) harpago* Brunner-Wattenwyl, 1878; *A. (O.) darwini* Scudder, 1893; *A. (O.) rusa* Rehn, 1917; *A. (O.) appendiculosa* sp. nov., *A. (O.) tuberculosa* sp. nov.; *A. (O.) lobulosa* sp. nov.; possibly *A. (O.) biloba* Brunner-Wattenwyl, 1878.

***Anaulacomera (Ocella) appendiculosa* sp. nov.**

(Figs 126–129, 158, 177, 178)

Etymology. This species name originate from the Latin word “appendiculatus” (with appendix), because the new species has its male epiproct with a long and soft process.

Type material. *Holotype* – male, PERU, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Ucayali River, environs of Sapani Vill., ~300 m, primary/secondary forest, at light, 26–31 October 2008, A. Gorochoy, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky.

Description. *Male* (holotype). Body small, slender, uniformly yellowish but with greenish tinge, a pair of narrow rose stripes on head dorsum running

along dorsal edges of eyes from lateral ocelli to occiput, brown stridulatory vein in left tegmen as well as small areas around this vein and smaller spot in medial part of basal area of right tegmen (Fig. 158), light brown cell membranes along anal edge of post-stridulatory part of tegmina, and transparent tegminal mirror as well as membrane along its lateral edge and practically all membranes of hind wings. Structure of body similar to that of *Cervicercora* subgen. nov., but anterior half of rostral tubercle narrower, without median groove on dorsum, barely projected upwards and separated from its posterior half by small rounded notch well distinct in profile; posterior half of this tubercle strongly widening backwards, with dorsomedian groove and rather high lateral parts occupied by large and almost round lateral ocelli; pronotum with lateral lobes almost as long as high and partly round in ventral and posterior parts, with humeral notch distinct but not deep and more or less angular, and with hind lobe short and truncately convex; tegmina long and narrow, only slightly shorter than hind wings, with stridulatory apparatus as in Figs 158; last tergite simple, without posterior lobes but with concave posterior edge; epiproct triangular, separated from last tergite by distinct membranous area, with long and thin but rather soft and straight appendix at apex (in dry specimen, this appendix with curved apical part, but in living condition, it probably without such deformation; Figs 126, 128); paraprocts small and more or less rounded; cercus long (~10 mm in length), strongly arcuate in proximal half, with thin dorsodistal process, with longer ventrodiscal process distinctly (but not strongly) inflated before very thin and spiral-like apical part (Figs 126, 127); genital plate almost oval but with truncately concave apical part (Fig. 129); genitalia having characteristic V-shaped sclerite with unpaired (distal) part long, vertically flattened and apically widened (in profile), and with proximal part consisting of a pair of long, thin and slightly asymmetrical rami (Figs 177, 178).

Female unknown.

Length (mm). Body 13.5; body with wings 25.0; pronotum 2.5 (its hind lobe deformed); tegmina 20.0; hind femora 12.0.

Comparison. The new species is most similar to *A. (O.) furcata*, *A. (O.) harpago*, *A. (O.) darwini* and *A. (O.) rusa*, but it is distinguished from them by a distinctly longer male epiproctal process, which is longer than half of cercal length (in these four species, the process is clearly shorter than this half), by the

proximal half of male cercus distinctly more curved (compare Figs 126 and 139, 140, 141, 142, 143), by the ventrodiscal process of male cercus having a more developed inflation before the thin and spiral-like apical part (from *A. harpago* and *A. rusa* only; see Figs 126, 142, 143), and by the dorsodistal process of male cercus clearly narrower in profile (from only *A. darwini*; see Figs 126 and 139). From the other species, included here in *Oecella*, stat. nov. and having more or less understandable cercal structure, the new species differs in the male cerci longer and thinner as well as having a specialized (spiral-like) structure of the ventrodiscal process, and in the male genital plate without a deep posteromedian notch (see Figs 126, 129 and 149–154). Moreover, the latter congeners must be included in a new group of *Oecella*, stat. nov. (Confusa Species Group), which also may have the male genitalia different in structure.

***Anaulacomera (Oecella) tuberculosa* sp. nov.**

(Figs 130–133, 159, 179, 180)

Etymology. This species name originates from the Latin word “tuberculatus” (with tubercles), because the new species has a rather large tubercle-like inflation in the subapical part of male cercal ventrodiscal process.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., ~40 km NE of Satipo Town, environs of Calabaza Vill., ~2000 m, primary forest, at light, 16–17 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izer-skiy. *Paratypes*: 1 male, same country, “Ucayali, 11 km on 230° from Puerto Bermudes”, 730 m, “10°29.9’S, 75°03.1’W”, 10–12 March 2011, V. Sinyayev, A. Poleschuk; 1 male, same country, “Uchiza, San Martin”, 542 m, “08°26.6’S, 76°26.6’W”, V. Sinyayev, A. Poleschuk.

Description. *Male* (holotype). General appearance very similar to that of *A. (O.) appendiculosa* sp. nov. but with following differences: dorsum of head uniformly yellowish with light brown tinge; tegmina with yellowish stridulatory veins and light brown basal areas (Fig. 159); epiproct with shorter and thicker apical process arcuately curved upwards (Figs 130, 132); cercus significantly shorter (cercal length ~8 mm), with less arcuate proximal half, with comparatively longer distal processes, and with sub-apical inflation on ventrodiscal process tubercle-like, i.e. more separated from proximal half of this process

(Figs 130, 131); genital plate with clearly more concave (notched) posteromedian edge (as in Fig. 133); sclerite of genitalia with much shorter distal (unpaired) part having clearly lower apical portion, and with slightly shorter proximal (paired) parts (Figs 179, 180).

Variations. Other males with more green coloration (they collected not in alcohol, but all other *Anaulacomera* representatives from this material originally collected in alcohol) having small whitish spots behind lateral ocelli, light brown or almost brown dorsal stripes along lateral edges of upper rostral tubercle, yellowish stripes on pronotum along lateral edges of disc, numerous very small rose dots on all tergites and legs, and light brown stridulatory vein in left tegmen; cerci and epiproct in male from "Ucayali" with dark parts (possibly rotten); epiproct in male from "Uchiza" insignificantly shorter and narrower than in holotype.

Female unknown.

Length (mm). Body 12.5–13.0; body with wings 26.0–28.5; pronotum 2.9–3.1; tegmina 21.0–23.0; hind femora 12.0–12.5.

Comparison. The new species differs from *A. (O.) appendiculosa* sp. nov., *A. (O.) furcata*, *A. (O.) harpago*, *A. (O.) rusa* and *A. (O.) darwini* in the male cerci shorter and having a very separated (tubercle-like) inflation in the subapical part of ventrodorsal process, in the male epiproct distinctly shorter or longer and curved upwards, and in the male cercal dorsodorsal process narrow (this character allows us to separate *A. tuberculosa* sp. nov. only from *A. darwini*). A short and vertically lamellar distal part of the male genital sclerite distinguishes the new species from *A. (O.) appendiculosa* sp. nov. and *A. (O.) darwini*, but the male genitalia of other species of this species group are unstudied. From other possible species of this subgenus, the new species is distinguished by the same characters as *A. (O.) appendiculosa* sp. nov.

***Anaulacomera (Ocella) lobulosa* sp. nov.**

(Figs 134–136, 160, 181, 182)

Etymology. This species name originates from the Latin word "lobulatus" (with lobules), because the new species has the male cercal dorsodorsal process (lobule) rather long.

Type material. *Holotype* – male, ECUADOR: eastern part, 60–70 km E of Lago Agrio Town, environs of Lago Grande (lake) on Rio Cuyabeno, very

low-lying primary forest, on bush at night, 2–9 November 2005, A. Gorochoy, A. Ovtshinnikov.

Description. *Male* (holotype). General appearance very similar to that of *A. (O.) appendiculosa* sp. nov. but with following characters: head dorsum uniformly yellowish; tegmina with light brown stridulatory vein in left tegmen, small spot in lateral part of basal area of this tegmen and two similar spots (lateral and medial ones) on basal area of right tegmen (these two spots partly fused with each other; Fig. 160); epiproct with apical appendix similar to that of *A. (O.) tuberculosa* sp. nov. in size (especially to that of its paratype from "Uchiza") but somewhat narrower and slightly curved downwards (not upwards) (Figs 134, 136); cercus intermediate between those of *A. (O.) appendiculosa* sp. nov. and *A. (O.) tuberculosa* sp. nov. in cercal length and in size of its distal processes, but proximal half of cercus less strongly curved than in *A. appendiculosa* sp. nov., inflation on ventrodorsal cercal process less tubercle-like than in *A. tuberculosa* sp. nov. (i.e. less separated from more proximal part of this process and more similar to that of *A. appendiculosa* sp. nov.; Fig. 136), and dorsodorsal cercal process long (almost reaching apex of ventrodorsal process, i.e. approximately as in *A. tuberculosa* sp. nov. and clearly longer than in *A. appendiculosa* sp. nov.; in latter species, dorsodorsal process reaching only subapical inflation of ventrodorsal process); genital plate with almost roundly angular apex (Fig. 135); sclerite of genitalia with distal (unpaired) part clearly longer than in both previous species and apically less high than in *A. (O.) appendiculosa* sp. nov., and with proximal (paired) parts somewhat shorter than in these two species (Figs 181, 182).

Female unknown.

Length (mm). Body 11.5; body with wings 24.0; pronotum 2.7; tegmina 18.0; hind femora 12.0.

Comparison. The new species differs from *A. (O.) rusa* and *A. (O.) harpago* in the presence of a distinct subapical inflation on the male cercal ventrodorsal process; from *A. (O.) furcata* and *A. (O.) tuberculosa* sp. nov., in the male epiproctal appendix slightly curved downwards (not upwards) or longer, male cercal dorsodorsal process longer than in *A. furcata*, and male cercal ventrodorsal process with a less tubercle-like subapical inflation than in *A. tuberculosa* sp. nov.; and from *A. (O.) appendiculosa* sp. nov. and *A. (O.) darwini*, in the male epiproctal appendix distinctly shorter or clearly longer, as well as in the male cercal dorsodorsal process longer and not widened.

From the other congeners of *Oecella*, stat. nov., the new species is distinguished by the same features as *A. (O.) appendiculosa* sp. nov. and *A. (O.) tuberculosa* sp. nov.

***Anaulacomera (Oecella) darwini* Scudder, 1893**
(Figs 137–139, 183, 184)

Material examined. ECUADOR, western part, environs of Puerto Lopes Town not far from sea coast, dry forest on low hills near Agua Blanca Vill., on bush at night, 24–26 October 2005, 1 male, A. Gorochov, A. Ovtshinnikov.

Note. This specimen is almost identical to the photograph of holotype of this species described from Galapagos Islands (see OSF). Both males have the epiproctal appendix small (Fig. 137), cercus with a somewhat widened and not long dorsodistal process (Fig. 139), and distal part of the male genital sclerite almost as long as in *A. (O.) lobulosa* sp. nov. but cylindrically spine-like, i.e. not flattened and not widened in profile (proximal parts of this sclerite in my specimen are shorter than in all the congeners of Furcata Species Group considered here; Figs 183, 184).

Juanchoi Species Group of (?) *Oecella*

Note. I did not have the opportunity to study the only species included in “Grupo Juanchoi” by Cadena-Castañeda (2015), and my opinion is based on a similar new species. Its male epiproct has a hook-like specialization at the apex (Figs 144, 146, 147), but the base of this epiproct is fused with the last tergite posterior edge (Fig. 146); the male cercus in this group is rather long, thin, arcuate and having a lamellar widening in the apical part (in *A. juanchoi*, this widening is more or less triangular, but in a new species, this widening may be interpreted as consisting of two lobes identical to the dorsodistal and ventrodistal processes of Furcata Species Group; Figs 144, 145); the male genitalia are completely membranous (Fig. 176).

Composition: *A. juanchoi* Cadena-Castañeda, 2012; probably *A. (O.?) redunca* sp. nov.

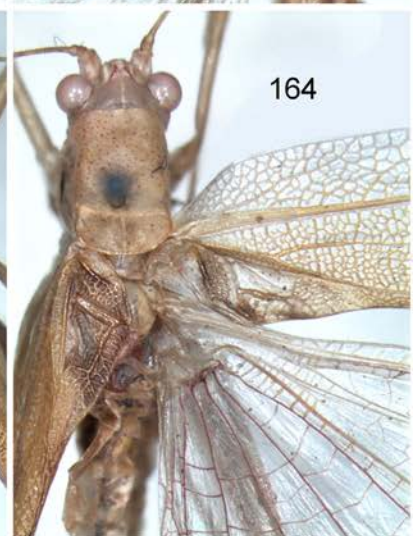
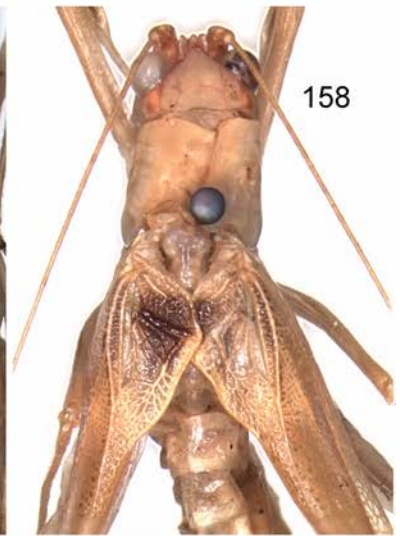
***Anaulacomera (Oecella?) redunca* sp. nov.**
(Figs 144–148, 161, 176)

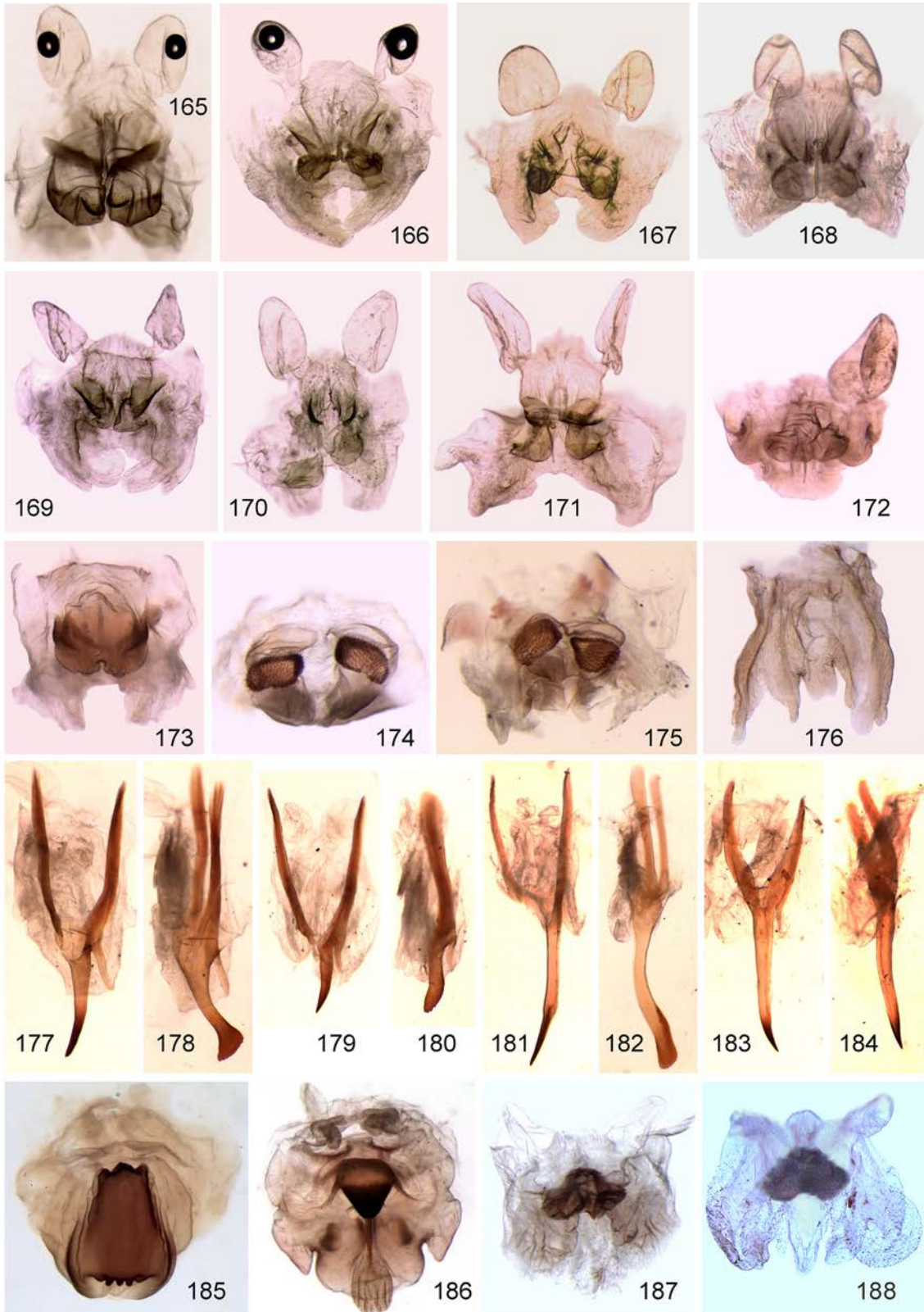
Etymology. This species name is the Latin word “redunca” (hooked) in connection with the male epiproct having a hook-like apical structure.

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., 1000–1200 m, primary/secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izerskiy. *Paratype* – male, same data as for holotype.

Description. Male (holotype). General appearance similar to that of all previous species of *Oecella*, stat. nov. described here, but body slightly larger and with following characteristic features: coloration uniformly yellowish with light brown eyes and small spots in stridulatory apparatus region (one at base of M-Cu area, and one on medial part of stridulatory vein; but latter spot in right tegmen almost indistinct) as well as almost brown cell membranes along anal tegminal edge behind above-mentioned region; head rostrum with almost semiglobular apical half separated from proximal half by distinct narrowing and by rounded concavity in profile; stridulatory apparatus of tegmina as in Fig. 161 (stridulatory vein of left tegmen more strongly convex than in congeners considered above and with low transverse keel-like fold running along its dorsodistal edge; proximal half of chord in both tegmina slightly thickened); last tergite with median groove, and its posterior edge fused with base of epiproct (Fig. 146); epiproct almost triangular and also with median groove in proximal part, but its narrow apical part curved upwards and forming rather short hook (this hook slightly widened at apex and with a pair of apical denticles directed forward; Figs 144, 146, 147); cercus long, thin, arcuately curved upwards and with two apical lamellar lobes (dorsal and distal) having almost roundly concave dorsal edge between them (see in profile; Figs 144, 145); genital plate short (more or less transverse), with distinct angular apical projection and a pair of rounded but shorter lobes around it (Fig. 148); genitalia completely membranous (Fig. 176).

Figs 156–164. *Anaulacomera* (*Cervicercora* subgen. nov.), *A. (Oecella)* and *A. (Munticercora* subgen. nov.), males: 156 – *A. (C.) grandiramus* sp. nov.; 157 – *A. (C.) parviramus* sp. nov.; 158 – *A. (O.) appendiculosa* sp. nov.; 159 – *A. (O.) tuberculosa* sp. nov.; 160 – *A. (O.) lobulosa* sp. nov.; 161 – *A. (O.) redunca* sp. nov.; 162 – *A. (M.) pseudoepiproctalis* sp. nov.; 163 – *A. (M.) spinolobata* sp. nov.; 164 – *A. (M.) sclerogenitalis* sp. nov. Head, pronotum and stridulatory apparatus of both tegmina from above.





Variations. Paratype with small rose dots on head dorsum, pronotum and middle femora as well as with left tegmen having small light brown areas in distal part of mirror and very closely to this part; denticles of epiproctal hook and a pair of posterolateral lobes of genital plate in this male poorly developed.

Female unknown.

Length (mm). Body 14.0–14.5; body with wings 33.0–35.0; pronotum 3.4–3.7; tegmina 25.0–27.0; hind femora 14.0–14.7.

Comparison. The new species is similar to *A. (O.) juanchoi*, but the apical part of its male cercus is with two lobes (*vs.* this part is more or less triangularly widened).

Poculigera Species Group of *Munticercora* subgen. nov.

Note. This group was established as “Grupo Poculigera” by Cadena-Castañeda (2012, 2015) for two species, one of which probably belongs to another subgenus (see my remarks above, in the subgeneric key for *Anaulacomera* s. l.). The group is characterized by the presence of two posterior lobes on the male last tergite, the male cercus rather long and having a small dorsal or medial process in its basal part (sometimes, an additional more distal process may be developed; Figs 189, 191, 192), the male genital plate with a deep posteromedian notch (Figs 190, 202), and the male genitalia with a rather large and convex sclerotized median (unpaired) lobe (Figs 185, 186).

Composition: *Anaulacomera poculigera* Hebard, 1924; possibly *A. (M.) sclerogenitalis* sp. nov.

***Anaulacomera (Munticercora) poculigera* Hebard, 1924** (Figs 185, 189–193)

Material examined. ECUADOR, Pichincha Prov., “Camping Tambo Tanda”, “0°01'22”S, 78°38'48”W”, 1969 m, 25 October 2011, 1 male, V. Sinyaev, O. Romanov.

Note. This large (for the genus) male is almost identical to the holotype of this species described also from Ecuador, but it has very small differences in general shape of its cerci and in length of their proximal parts (compare Figs 189, 191–193). However, these differences are most probably a result of variability of the same species.

***Anaulacomera (Munticercora) sclerogenitalis* sp. nov.**

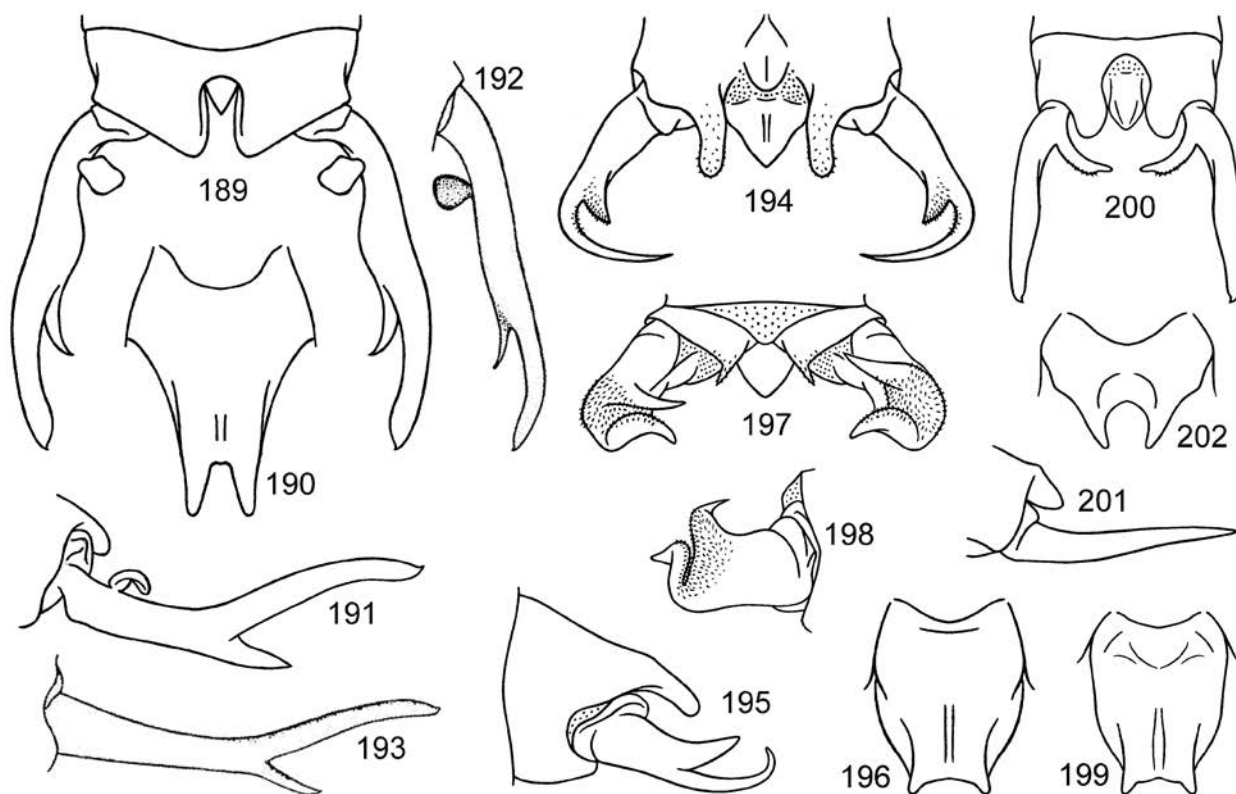
(Figs 164, 186, 200–202)

Etymology. This species name originates from the Latin morphological terms “genitalia” (genitalia, external sex organs) with the Latinized Greek prefix “sclero-” (sclerotized, firm).

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., ~40 km NE of Satipo Town, environs of Calabaza Vill., ~2000 m, primary forest, at light, 16–17 October 2008, A. Gorochoy, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izerskiy.

Description. *Male* (holotype). General appearance including body size as in *A. (O.) redunca* sp. nov. but with following differences: tegmina with region of stridulatory apparatus having light brown parts in basal area, near plectrum and in distal half of this region (latter darkened area developed only in left tegmen; Fig. 164); last tergite with a pair of rather large posterior lobes and very deep but not very narrow notch between them (Figs 200, 201); epiproct small, oval, visible between these lobes in dorsal view (Fig. 200); cercus with one proximodorsal process, which much shorter than other part of cercus, slightly curved medially and having narrower apical portion (Figs 200, 201); genital plate short (more or less transverse), narrowing to deeply but not narrowly notched apex having a pair of rather long and narrow lobules around this rounded notch (Fig. 202). Genitalia very characteristic: their apical part with semimembranous unpaired (median) lobe having longitudinally wrinkled surface; their middle part with large and strongly convex (almost semiglobular)

Figs 165–188. *Anaulacomera (Cervicercora* subgen. nov.), *A. (Oecella)* and *A. (Munticercora* subgen. nov.), males: 165 – *A. (C.) bispinosa* sp. nov.; 166 – *A. (C.) superapex* sp. nov.; 167 – *A. (C.) schunkei* Caud.; 168 – *A. (C.) daedala* sp. nov.; 169 – *A. (C.) paracercalis* sp. nov.; 170 – *A. (C.) abbreviata* sp. nov.; 171 – *A. (C.) apicalis* sp. nov.; 172 – *A. (C.) mariposa* s. nov.; 173 – *A. (C.) virgula* sp. nov.; 174 – *A. (C.) grandiramus* sp. nov.; 175 – *A. (C.) parviramus* sp. nov.; 176 – *A. (O.) redunca* sp. nov.; 177, 178 – *A. (O.) appendiculosa* sp. nov.; 179, 180 – *A. (O.) tuberculosa* sp. nov.; 181, 182 – *A. (O.) lobulosa* sp. nov.; 183, 184 – *A. (O.) darwini* Scudd.; 185 – *A. (M.) poculigera* Heb.; 186 – *A. (M.) sclerogenitalis* sp. nov.; 187 – *A. (M.) pseudoepiproctalis* sp. nov.; 188 – *A. (M.) spinolobata* sp. nov. Genitalia from above (165–177, 179, 181, 183, 185–188) and from side (178, 180, 182, 184).



Figs 189–202. *Anaulacomera* (*Munticercora* subgen. nov.), males: 189–193 – *A. (M.) poculigera* Heb. (189–191 – from Pichincha Prov.; 192, 193 – holotype); 194–196 – *A. (M.) pseudoepiproctalis* sp. nov.; 197–199 – *A. (M.) spinolobata* sp. nov.; 200–202 – *A. (M.) sclerogenitalis* sp. nov. Abdominal apex without lower part from above (189, 194, 197, 200) and from side (195, 201); left (191, 193) and right (192, 198) cerci from side (191, 193, 198) and from above (192); genital plate from below (190, 196, 199, 202). [192, 193 – after Hebard (1924).]

sclerotized lobe which comparatively smaller than this lobe in *A. (M.) poculigera* (Fig. 186).

Female unknown.

Length (mm). Body 13.0; body with wings 35.0; pronotum 3.5; tegmina 25.5; hind femora 15.0.

Comparison. The new species is distinctly distinguished from the other species of this group in the presence of two (but not three) processes in the male cercus as well as a characteristic shape of these processes and of the sclerotized lobe in the male genitalia (some comparisons in these structures are given in the above description).

Hebard Species Group of *Munticercora* subgen. nov.

Note. This group of species was also established by Cadena-Castañeda (2015) for one species only. It is characterized by the presence of a pair of large

finger-like posterior lobes on the male last tergite, by the male cercus with one dorsomedial lobe-like process in the middle part and long and thin hook-like distal part directed upwards and/or medially, and by the male genital plate with a very shallow posteromedian notch (Figs 194, 195, 196).

Composition: *A. (M.) hebardii* Cadena-Castañeda, 2015; *A. (M.) pseudoepiproctalis* sp. nov.

Anaulacomera (*Munticercora*) *pseudoepiproctalis* sp. nov. (Figs 162, 187, 194–196)

Etymology. This species name originates from the Latinized Greek term “epiproctum” (epiproct) and prefix “pseudo-” (false).

Type material. *Holotype* – male, PERU: Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., 1000–1200 m,

primary/secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky.

Description. *Male* (holotype). Size, coloration and structure of body very similar to those of *A. (C.) sclerogenitalis* sp. nov. but with following characteristic features: region of tegminal stridulatory apparatus light greyish with brown basal part of basal area and light brown to brown distal half of this region (Fig. 162); last tergite with moderately large but finger-like posterior lobes and rather wide notch between them as well as with smaller posteromedian lobule looking almost as epiproct (Figs 194, 195); epiproct located under this lobule, almost triangular and directed downwards (Fig. 194); cercus with rather long lobe-like dorsomedial process located in middle part of cercus, and with longer but hook-like distal part directed mainly medially and acute at apex (Figs 194, 195); genital plate elongately oval but with widely and shallowly notched (almost concave) posterior edge and with small (short) lobules around this posteromedian notch (Fig. 196); genitalia with a pair of rather small semisclerotized lobes and semimembranous area between them (Fig. 187).

Female unknown.

Length (mm). Body 14.0; body with wings 30.0; pronotum 3.3; tegmina 26.0; hind femora 14.5.

Comparison. The new species clearly differs from *A. (M.) hebardii* in the male last tergite with longer posterolateral lobes and with an additional median lobule (absent in this species), and in the male cercus having a distinctly longer dorsomedial lobe-like process.

Rosea Species Group of *Munticercora* subgen. nov.

Note. This group was also established by Cadena-Castañeda (2015) for two species, but belonging of one of them [*A. parvula* (Giglio-Tos, 1898)] to this group and this subgenus is doubtful. Thus, this group may be characterized by the following features: the male last tergite has a pair of rather short, narrow and acute posterior lobes (almost spines; Fig. 197); the male cercus is short and with two rather short distal processes (Figs 197, 198); the male genital plate is more or less similar to that of Hebardii Species Group (Fig. 199).

Composition: *Anaulacomera rosea* (Giglio Tos, 1898); *A. (M.) spinolobata* sp. nov.

***Anaulacomera (Munticercora) spinolobata* sp. nov.**

(Figs 163, 188, 197–199)

Etymology. This species name originates from the Latin morphological terms “spina” (spine) and “lobus” (lobe) in connection with the spine-like shape of the male last tergite posterior lobes.

Type material. *Holotype* – male: PERU, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Ucayali River, environs of Sapani Vill., ~300 m, primary/secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky.

Description. *Male* (holotype). General appearance as in *A. (M.) sclerogenitalis* sp. nov. but with following differences: stridulatory vein and chord light brown in right tegmen and whitish in left one; tegminal M-Cu area brown (Fig. 163); last tergite with triangular membranous median area having small convexity between rather short and sclerotized spine-like posterior lobes; these lobes with additional denticles and directed slightly laterally (Fig. 197); epiproct roundly triangular with almost angular apex (Fig. 197); cercus short and thick, with two strong distal processes located very close to each other and directed medially; ventral process partly lamellar and with acute apical part slightly curved downwards/backwards; dorsal process spine-like and also with acute apical part, but this part slightly curved upwards/forward (Figs 197, 198); genital plate similar to that of *A. (M.) pseudoepiproctalis* sp. nov. but with somewhat sinuate edge of posteromedian notch (Fig. 199). Genitalia very similar to those of latter species (Fig. 188).

Female unknown.

Length (mm). Body 12.0; body with wings 31.0; pronotum 3.2; tegmina 24.0; hind femora 13.5.

Comparison. The new species is clearly distinguished from *A. (M.) rosea* by the male cercus having its distal processes located very close to each other and directed to the same side (there is a narrow slit between these processes, but in *A. rosea*, they are directed in somewhat different sides, and the space between them is rather wide).

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