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Andecladodes aguilerai sp. nov., a new lampyrid species (Coleoptera: Lampyridae: Cladodinae) from the Cuyas cloud forest, Peru

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Abstract. A new species of *Andecladodes* Bocáková, Campello-Goncalves & Silveira, 2022 from Peru is described and illustrated: *Andecladodes aguilerai* sp. nov. This new species represents the third described species of the genus and the first recorded from the Peruvian Andes.

INTRODUCTION

Lampyridae Rafinesque, 1815 is a cosmopolitan family of beetles with more than 2500 described species (Martin et al. 2019; Zaragoza-Caballero et al. 2023). Currently, Lampyridae are classified as 11 subfamilies: Luciolinae Lacordaire, 1857, Pterotinae LeConte 1861, Ototretinae McDermott, 1964, Lamprohizinae Kazantsev, 2010, Cyphonocerinae Crowson, 1972, Psilocladinae McDermott, 1964, Amydetinae Olivier in Wytsman, 1907, Cheguevariinae Kazantsev, 2006, Photurinae Lacordaire, 1857, Lampyrinae Rafinesque, 1815 and Cladodinae Bocáková, Campello-Goncalves & Silveira, 2022 (Martin et al. 2019; Bocáková et al. 2022). In Peru, Lampyridae comprises 91 species distributed in 24 genera and four subfamilies (Branham 2015; Bocáková et al. 2022).

The subfamily Cladodinae was recently proposed to include seven genera: *Cladodes* Solier, 1849, *Dodacles* Olivier, 1885, *Dryptelytra* Laporte, 1833, *Ledocas* Olivier, 1885, *Nyctocrepis* Motschulsky, 1853, *Brasilocladodes* Bocáková, Campello-Goncalves & Silveira, 2022 and *Andecladodes* Bocáková, Campello-Goncalves & Silveira, 2022. This subfamily is restricted to Central and South America and their species are generally diurnal and particularly abundant in moist broadleaf rainforests and cloud forests (Bocáková et al. 2022). The genus *Andecladodes* is restricted to northwestern South America, comprises only two species, *Andecladodes cosangensis* Bocáková, Campello-Goncalves & Silveira, 2022 and *Andecladodes ovalis* Bocáková, Campello-Goncalves & Silveira, 2022, and both recorded from Ecuador (Bocáková et al. 2022).

The Cuyas cloud forest, located in the Ayabaca province, in the Piura region, it is one of the main relicts of mountain rainforest of the Peruvian Andes, and is considered as an important conservation area, preserving several endemic species of flora and fauna. Herein, we describe and illustrate a new species of *Andecladodes* from the Cuyas cloud forest..

MATERIAL AND METHODS

The specimen and internal body structures were examined using a Nikon SMZ445 stereomicroscope; measurements were made using a vernier caliper with 0.05 mm precision.

Terminology of genitalia followed previous studies (Janisová & Bocáková 2013; Bocáková et al. 2022). Digital photographs were taken with a Nikon Coolpix L320 camera of 16.1 mega pixels and stacked by CombineZP.

The following abbreviations are used in the description of the holotype: TBL = Total Body Length, PL = Prothoracic Length, EL = Elytral Length, PW = Pronotum Width.

Type material is deposited at Museo de Historia Natural "Víctor Francisco Baca Aguinaga" de la Universidad Nacional Pedro Ruiz Gallo, Lambayeque, Peru (MUPRG).

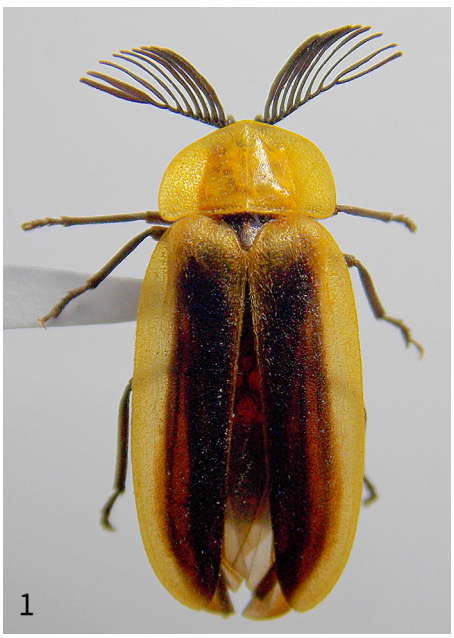
TAXONOMY

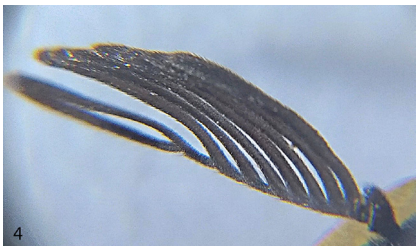
Andecladodes aguilerai sp. nov.

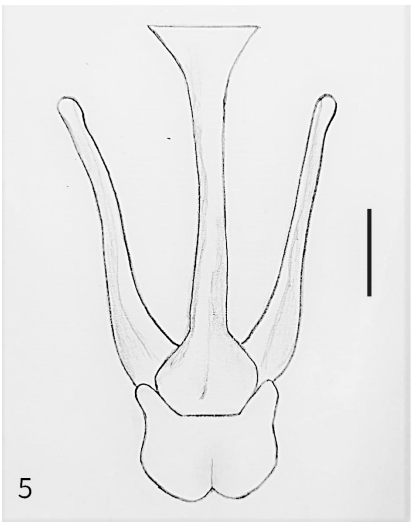
(Figs. 1-7)

Type material. Holotype (♂): PERU, Piura region, Ayabaca province, Cuyas cloud forest, 04º36'51"S, 79º42'68"W, 2640 m, 04.VI.2014, G. Juárez & U. González leg., (MUPRG).

Description. Holotype male. TBL 15.10 mm, PL 3.00 mm, EL 12.10, PW 5.00 mm. Head, mouth parts, antennae, wide longitudinal stripes on elytra from basal one third to near apex, pro-meso-metasternum, sterna VI-VII, pygidium and legs black; pronotum, basal fourth, lateral margins and apex on elytra, terga and sterna I-V, claws yellowish-orange.







Figs. 1-7. *Andecladodes aguilerai* sp. nov. (male holotype): 1- habitus, dorsal view; 2- habitus, ventral view; 3- habitus, lateral view; 4- antenna; 5- drawing ofaedeagus; 6-7- photograph of live holotype, dorsal view. Scale: 0.5 mm.

Head. Covered by pronotum, medium eyes, interocular distance 1.8 times longer than eye diameter. Antennae flabellate, short, reaching humeral area; antennal sockets elliptic,

antennomere I stout, triangular, with apex prolonged in a short blunt horn, as long as half of antennomere width, lamellae long and slender, length of antennomeres III–X gradually increasing, while length of their lamellae decreasing apically (Fig. 4). Mandibles reddish-brown, falcate, clypeus and genae protruding anteriorly, labrum connate to frontoclypeus, clypeolabral suture indistinct. Maxillary palps with terminal palpomere broad and apex truncate, labial palps three-segmented, minute, with terminal palpomere slightly elongate, broaded apically, both palps setose.

Thorax. Pronotum semicircular, almost two times wider than long, expanded sides, median area of anterior margin slightly produced forwards, posterior edge bisinuate, posterior angles rounded, anterior and lateral edges strongly punctured, posterior edge with deep punctures; discal area trapezoidal, elevated, covered with fine and white short pubescence, finely punctured, lateral edges deeply punctured. Hypomeron two times longer than high, with lateral margin sinuate. Scutellum black, triangular, covered with fine and white short pubescence, apex rounded.

Elytra. About three times longer than humeral width, widest in basal half, surface rugose and covered with fine and white short pubescence, sutural margins slightly dehiscent. Longitudinal costae largely obsolete, costa 1 present only in basal half, costa 2 and marginal costa developed, costa 2 present to posterior third, costa 4 indistinct. Pro-meso-metasternum slightly punctured with sparse white short pubescence, metasternum with medial longitudinal carina extending from half to posterior margin.

Legs. Covered with sparse white short pubescence, profemora and protibiae as long as mesofemora and mesotibiae, metatibiae slightly longer and slender than metafemora, tarsomeres covered with short recumbent setae, metatarsomere I > II+III, claws simple.

Abdomen. Sterna II-IX visible, lateral sides covered with sparse white short pubescence, terga II-VII with acute and arcuate posterior angles projected posteriorly, posterior margin sternum VII semicircularly emarginated, sternum VIII with median point long and broad, apex of sternum IX acuminate, pygidium densely punctured, lateral margins slightly rounded, posterior angles acute, median extension as long as the lateral (Fig. 2). Aedeagus. Phallus long, one-sixth longer than parameres, basal fourth and apical fourth widened, apex straight, parameres simply straight and subcylindrical (Fig. 5).

Female. Unknown.

Differential diagnosis. *Andecladodes aguilerai* sp. nov. externally resembles some species of genera *Cladodes* Solier, 1849 and *Ledocas* Olivier, 1885. However, the structure of the antennae (antennomere I shortly horned), falcate mandibles and the shape of male genitalia, demonstrated that this new species is closely related to the characters of the genus *Andecladodes*.

The males of *A. aguilerai* sp. nov. can be separated from males of *A. cosangensis* and *A. ovalis* mainly by differences on the structure of the antennae, pygidium and the shape of genitalia. *A. aguilerai* sp. nov. has antennomere I with apex prolonged in a short blunt horn (with a short horn-like in *A. cosangensis*), sternum VIII with median point long and wide (with median point short and slender in *A. cosangensis*; with median point broad in

A. ovalis), pygidium with lateral margins slightly rounded and median extension as long as the lateral (pygidium with lateral margins parallel-sided in distal half and median extension longer than the lateral in *A. cosangensis*; pygidium widened apically in *A. ovalis*), phallus long, widened in basal fourth and apical fourth, apex straight (phallus long broad in basal half, apex bulbous in *A. cosangensis*; phallus broadly widened in basal third, apex cleft in *A. ovalis*).

Etymology. The species is named for Esteban Aguilera, for being our guide in the forest, for his friendship and for his constant protection to The Cuyas cloud forest.

Distribution. The genus *Andecladodes* is represented by two species: *A. cosangensis* and *A. ovalis*, both are distributed in the Amazonian and Andean Ecuadorian between 1900 and 2200 m. *A. aguilerai* sp. nov. represents the third species of this genus and the first recorded from the Peruvian Andes.

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