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Abstract. *Oncotophasma aurantiaviridiata* Murcia, Cadena-Castañeda, and Silva **new species** (Phasmida: Diapheromeridae) from the Colombian Andes is described. The new species is distinguished by its peculiar coloration, which highlights greenish and orange tones. It is also the first record of the genus for the eastern slope of the Colombian Andes. The previous distribution recorded for the genus is the Chocó biogeographic region from Costa Rica to Colombia, with species being found in the Colombian areas of influence of this biogeographic region, such as the western and central slopes of the Andes.

Key words. Andes, Biogeographic Chocó, defensive behavior, aposematism, stick insects.

Resumen. Se describe a *Oncotophasma aurantiaviridiata* Murcia, Cadena-Castañeda y Silva **nueva especie** proveniente de los Andes de Colombia. La nueva especie se distingue por su peculiar coloración de la cual resalta tonalidades verdosas y naranjas, además es el primer reporte del género para la vertiente oriental de los Andes Colombianos, ya que la distribución principal registrada hasta el momento para el género es la región del Chocó biogeográfico desde Costa Rica a Colombia, hallándose especies en áreas colombianas con influencia de esta región biogeográfica, como la vertiente occidental y central de los Andes.

Palabras clave. Andes, Chocó biogeográfico, comportamiento de defensa, aposematismo, insecto palo.

Resumo. Descrevemos aqui uma nova espécie *Oncotophasma aurantiaviridiata* Murcia, Cadena-Castañeda e Silva **nova especie** oriunda dos Andes Colombianos. A nova espécie se distingue por sua peculiar coloração que destaca tons esverdeados e laranja. Este também é o primeiro registro do gênero na encosta oriental dos Andes colombianos, uma vez que a distribuição registrada até agora para o gênero é a região do Chocó biogeográfico da Costa Rica à Colômbia, com espécies sendo encontradas em áreas de influência da Colômbia, como as encostas oeste e central dos Andes.

Palavras-chave. Cordilheira dos Andes, Chocó biogeográfico, comportamento de defesa, aposematismo, bicho-pau.

ZooBank Registration. urn:lsid:zoobank.org:pub:BA372575-CE3D-4F99-B49A-8FC3990E1137

Introduction

The family Diapheromeridae is well represented in Colombia in terms of species richness, being the second in number of species after Pseudophasmatidae, with 62 species and 19 genera (Conle et al. 2011; Brock et al. 2020). Diapheromerids are often unnoticed by collectors, as they are commonly mistaken by branches of the environment they inhabit. Few species have striking colors, like some species of the genera *Oreophoetes* Rehn, 1904 and *Oncotophasma* Rehn, 1904. (Conle et al. 2009; Murcia et al. 2017). The latter genus has nine species occurring from Costa Rica to Colombia (Zompro 2007; Brock et al. 2020).

Four out of the nine species included in *Oncotophasma* are recorded in Colombia: *O. coxatum* (Brunner von Wattenwyl, 1907); *O. limonense* Zompro, 2007; *O. martini* (Griffini, 1896) and *O. podagricum* (Stål, 1875). These species are mainly found in the central and western slopes of the Colombian Andes (Conle et al. 2011; Brock et al. 2020). In this contribution, we describe a new species of *Oncotophasma*, from Santa Helena del Opón, within the Department of Santander, the first species of the genus to be recorded for the eastern slope of the Colombian Andes.

This is the third contribution in a series of publications of stick insects of Colombia; previous contributions by the authors were studies of the species of the foothills of Cubarral, Meta (Murcia et al. 2017), and the genus *Pachyphloea* Redtenbacher, 1906 (Murcia et al. 2019).

Materials and Methods

The specimen studied is deposited in the National Taxonomic Insect Collection "Luis María Murillo" (CTNI), located in the Agrosavia Research Center, Bogotá-Mosquera. Morphological characters were photographed with a Canon T5 and a 60 mm macro-lens and Carl Zeiss Stemi 2000–C stereomicroscope. The map was elaborated with Simplemappr (Shorthouse, 2010), with data published by Zompro (2007), Conle et al. (2011), and Bellanger (2016).

Specimens were measured using a Vernier caliper. The measurements taken include: Total length (TL), measured from the frons to the border of the last abdominal segment, excluding antennae, Pronotum length (Pr), Mesonotum length (Ms), Metanotum length (Mt), Middle segment length (MSeg), measured from its anterior border to its posterior border, Profemur length (Pf), Mesofemur length (Mf), Metafemur length (Hf), Protibia length (Pt), Mesotibia length (Mt), Metatibia length (Ht), all measured from their base to their tip, and antenna length (Ant), measured from the base of the scapus to the tip of the last antennal segment.

Results

Oncontophasma Rehn, 1904

Comments. The new species is placed in *Oncotophasma* based on the following diagnostic characters provided by Zompro (2007): the males' lack of lateral nodes on tergite X, and by a metanotum which often has a different structure on the anterior and posterior parts. Meso- and metafemora four-edged, with at least one apical spine in the meso- and at least two spines in the metafemora.

Oncotophasma aurantiaviridiata Murcia, Cadena-Castañeda and Silva, new species

(Fig. 1–3)

http://lsid.speciesfile.org/urn:lsid:Phasmida.speciesfile.org:TaxonName:510732

Diagnosis. Body coloration green, orange and brown and without minute rudiments of tegmina (Fig. 1). Mesofemur is distinctly wider than the metafemur and has eleven ventral spines with two very prominent ventroapical spines (Fig. 2C). Cerci as long as tergite X with several hairs, round, with a curved apex and abruptly widened (Fig. 2E).

This new species is distinguished from other congeneric species by its green, orange, and brown coloration (Fig. 1); in contrast to the other species, the mesofemur is noticeably wider than the metafemur and has eleven

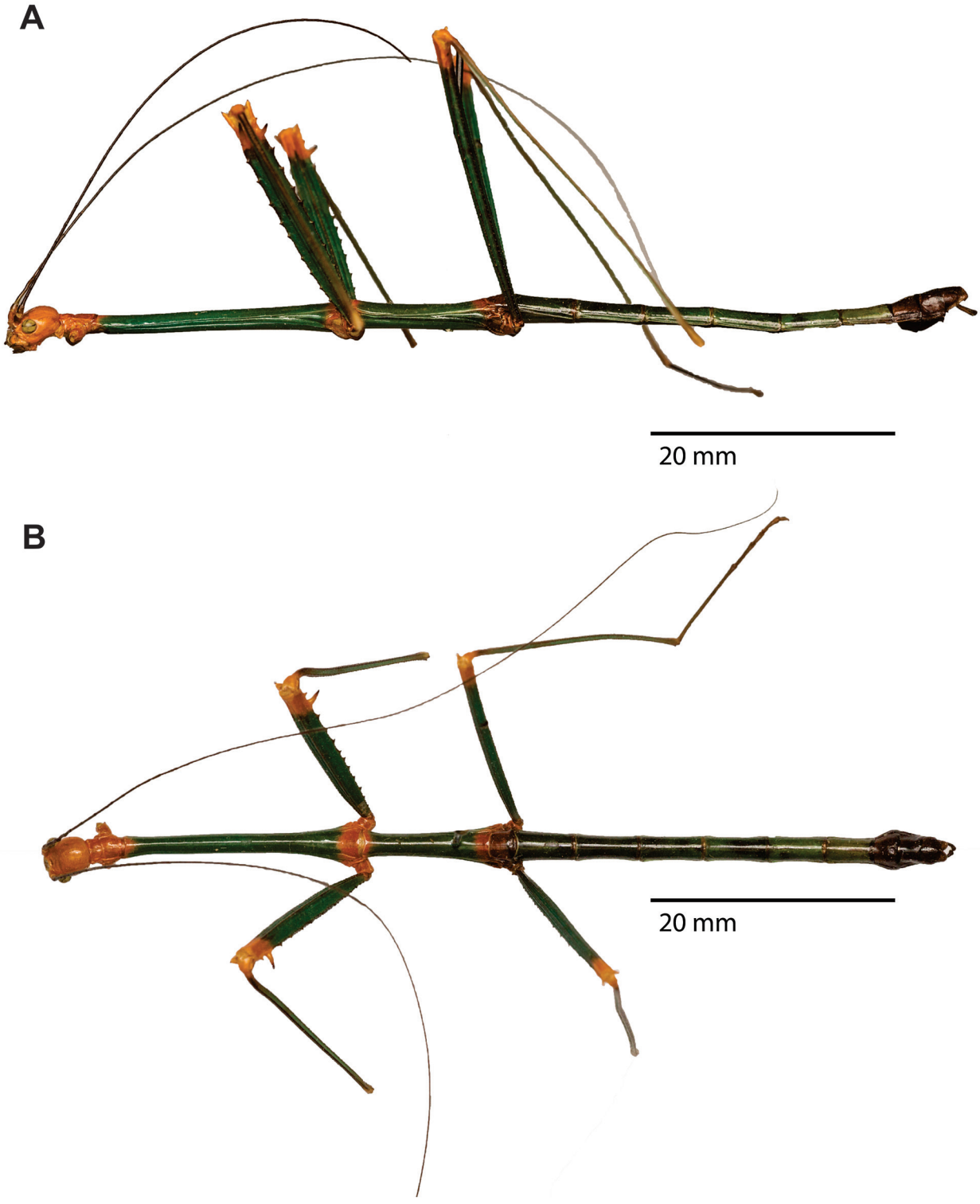

Figure 1. *Oncotophasma aurantiaviridiata* **new species**, male habitus. **A)** Lateral view. **B)** Dorsal view.

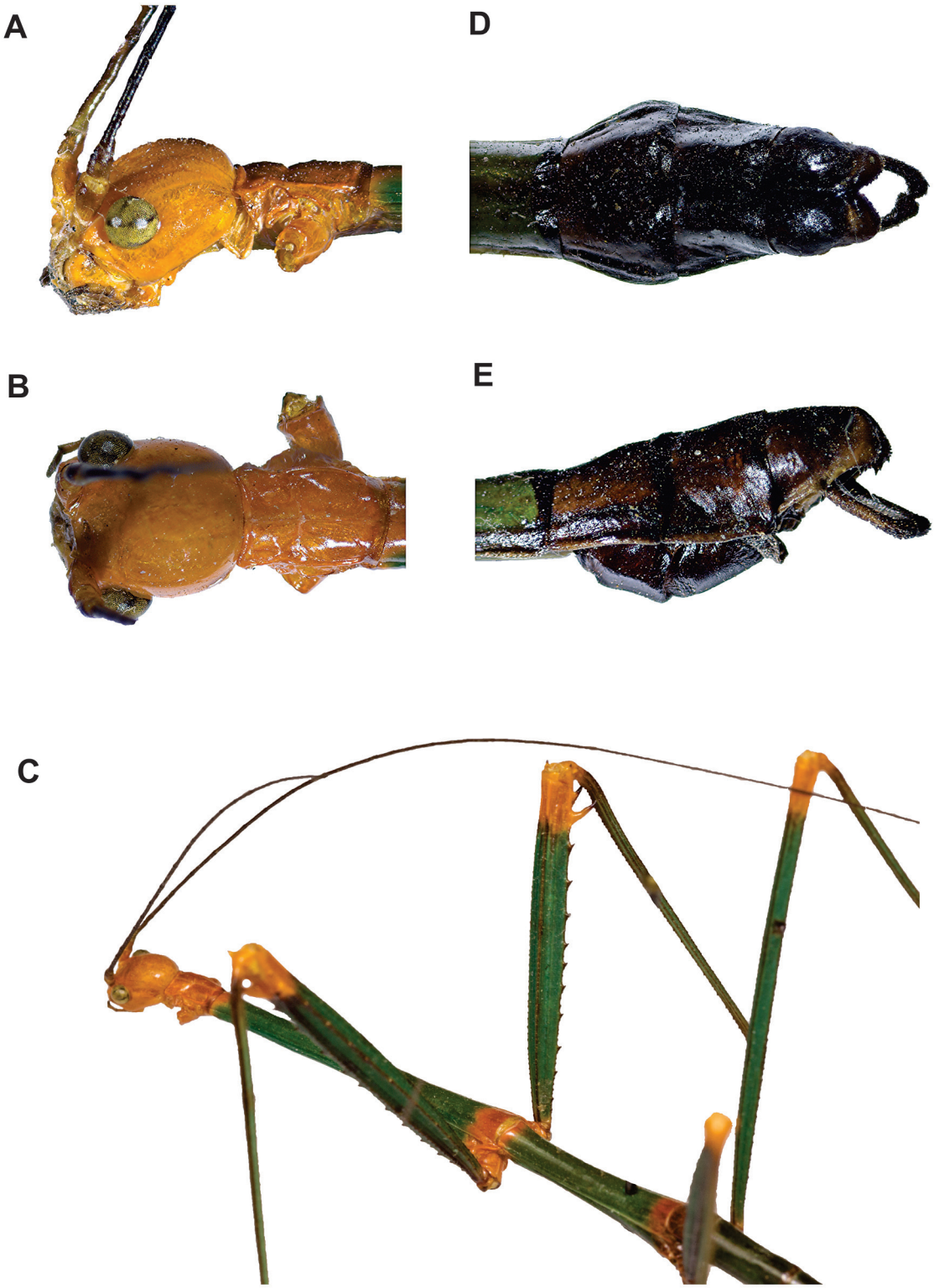

Figure 2. *Oncotophasma aurantiaviridiata* **new species**. **A)** Head, lateral view. **B)** Pronotum, dorsal view. **C)** Body in laterodorsal view, note the spines on mesofemur. **D)** Male terminalia, dorsal view. **E)** Male terminalia, lateral view.

ventral spines with two very prominent ventroapical spines. The metafemur has several less conspicuous ventral spines, which are present in other species of the same genus. Unlike similar species, such as *O. martini* and *O. limonense*, the new species does not have the posterior region of the metanotum abruptly widened, like a hump (Fig. 2C).

Oncotophasma coxatum is the closest species in terms of morphology, sharing with *O. aurantiaviridiata* **new species** the posterior region of the metanotum without humps or tubercles, and with parallel lateral margins (Fig. 1, 2C). Furthermore, despite being similar, their body coloration still has a different color pattern. The ventral spines of the legs of *O. coxatum* are not as large as in the new species (Fig. 2C).

Holotype. ♂. Colombia, Santander, Santa Helena del Opón. 6.342511, -73.610764 (CTNI).

Description. ♂. The general coloration of body is bright-green, orange, and brown. Head, prothorax, anterior and posterior margins of meso- and metathorax, coxae, apical area of the femora are orange, as is the proximal area of tibiae. Antenna with orange scape, remainder dark brown. Completely smooth body, without tubercles or granules (Fig. 1, 2). **Head.** Globose, longer than wide, with an oval-shaped impression at base of antennae, antennae projected beyond last abdominal tergite. Scape dorsally broad and rectangular, dorsoventrally compressed; pedicel cylindrical, as long as scape, third antennal segment slightly longer than the scape, the rest of the antennal segments irregular in length. Spherical and prominent eyes (Fig. 1A, B). **Thorax.** Pronotum rectangular, longer than wide, shorter and narrower than head, with longitudinal midline and with u-shaped suture at middle of pronotal disc (Fig. 2B). Mesonotum elongated, approximately 6.5 times longer than pronotum, slightly widening towards posterior margin. Metanotum with half-length of mesonotum (Fig. 2C). Prosternum approximately two times wider than long and very small compared to other sternal segments of the thorax; mesosternum smooth and elongated; metasternum short with half-length of mesosternum. **Legs.** Forelegs longer and thinner than remaining. Profemur basally slightly compressed, having four edges and with soft ventromedial carina. Mesofemora very wide, having four thorny and trapezoidal edges in cross section, bearing elevated ventromedial carina armed with 11 spines, with two prominent ventroapical spines (Fig. 2C). Metathoracic legs slightly shorter than mesothoracic legs. Metafemur with smoothly serrated edges and multiple spines on its margins, with a single conspicuous ventroapical spine. All tibiae longer than femora, with four serrated edges and with an elevated ventromedial carina. First tarsomere elongated, longer than the other combined tarsomeres; remaining tarsomeres reducing in size from first to fourth. **Abdomen.** Mid-segment quadrangular in dorsal view and with half-length of abdominal tergite II; abdominal segments longer than wide and smooth; tergites II - VI similar in length, tergite VII shorter than VI, tergite VIII brown abruptly, widening from anterior to posterior border; tergite IX laterally slightly compressed, tergite X with soft suture from anterior to posterior margin, shorter and narrower than other abdominal tergites. Cerci gradually widens from base to apex and the apex is conspicuously wider and globose compared to the base (Fig. 2D, E). Sternites II-VII smooth with similar length, sternite VIII convex, smooth, half the length of sternite VII. Poculum convex slightly longer than sternite VIII, posterior margin extending to anterior border of tergite X. Vomer wide, triangular shaped and exposed in ventral view.

Female. Unknown.

Measurements (mm). ♂ TL: 73, Pr: 3, Ms: 20, Mt: 10, MSeg: 2, Pf: 28, Mf: 19, Hf: 26, Pt: 34, Mt: 21, Ht: 30, Ant: 85.

Etymology. The name refers to the specimen's characteristic coloration, which highlights orange (*aurantia*) and green (*viridis*), mixing the two Latin words and adjusting suffix to feminine to agree with the genus name.

Comment. The prothoracic legs described belong to the holotype. The legs are separated from the body of the specimen, but they have been attached on a paper under the specimen.

Additional specimen studied. A second specimen of this new species found in the Amazon foothills of Colombia, from the Department of Caquetá, Yurayaco inspection, San José de Fragua municipality, at about 535 masl above the transition of the eastern slope of the eastern Andes range and the Amazon plains. Unfortunately, the second specimen is not included in the type series due to its poor state of preservation as it is fragmented in its joints, however, its extremities, thoracic and abdominal regions, including the terminalia, are complete and in good condition; its coloration was also preserved, all the diagnostic characters being visible to identify it as

O. aurantiaviridiata **new species**. Therefore, it is included in the distribution map for the genus provided here (Fig. 3).

Discussion

The previously recorded *Oncotophasma* species are from the northern Andean region of Colombia. With the new species, the distribution range is extended to the central-eastern part of the country, as well as to the eastern slope of the Colombian Andes. Furthermore, the new species has an arguably wide distribution, indicating that *O. aurantiaviridiata* **new species** has a high dispersing potential, as observed in other congeneric species (Fig. 3).

Stick insects have different defense mechanisms, such as cryptic coloration, thanatosis, autotomy (freeing themselves from a limb to escape predators) (Bedford 1978; Murcia et al. 2017), and defensive chemicals from prothoracic glands in the form of a spray, which can be shot several centimeters away (Zompro 2002). Robinson (1968) described a defensive behavior of *O. martini*, which consists of repeatedly moving the mesofemur to allow the spines present on it to touch and pierce the predator which is trying to hinder the phasmid movement. Thus, it is likely that *O. aurantiaviridiata* **new species** has the same defensive pattern as their spines in the mesofemur are noticeably larger when compared to *O. martini*. The same pattern is observed in the Australian *Eurycantha* Boisduval, 1835. Furthermore, the intense coloration of the new species may indicate a possible aposematism relation with local predators and mimicry of some tropical plants.

Figure 3. *Oncotophasma* species distribution, referenced from the northernmost to the southernmost species: *O. weitschati* Zompro, 2007; *O. martini* (Griffini, 1896); *O. modestum* Zompro, 2007; *O. laetitiae* Bellanger, 2016; *O. coxatum* (Brunner von Wattenwyl, 1907); *O. limonense* Zompro, 2007; *O. maculosum* Zompro, 2007; *O. armatum* (Brunner von Wattenwyl, 1907); *O. podagricum* (Stål, 1875) and *O. aurantiaviridiata* Murcia, Cadena-Castañeda and Silva **new species**.

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