

A new *Pintalia* species from Costa Rica (Hemiptera: Fulgoromorpha: Cixiidae)

Gernot Kunz, Werner E. Holzinger¹

Summary: A new Cixiidae species, *Pintalia hanna* nov. spec., is described from rainforests of the Cordillera Talamanca and the southern (Pacific) part of Costa Rica. The species is easily recognised by its stunning colouration: Head and thorax are bright orange, the forewing margins are broad white along the clavus, and the remaining forewings are yellowish-straw coloured with only a few darker spots.

Keywords: Auchenorrhyncha, Pintaliini, *Pintalia*, new species, Costa Rica, rainforest

1. Introduction

Pintalia Stål, 1862 is one of the most speciose genera within Auchenorrhyncha. It was erected by Carolus Stål (1862) in a monograph on Hemiptera from Rio de Janeiro for nine Cixiidae species from Brazil; type species is *Pintalia lateralis* Stål, 1862. Many authors – especially Frederic Muir (1934), John S. Caldwell (1944) and Ronald G. Fennah (1945) – added new taxa from South, Central and North America and from the Caribbean Islands. Today, the genus comprises more than 80 species (Bourgoin 2022) and is in urgent need of revision. During a field trip to Costa Rica, the first author discovered another new *Pintalia* species with an unique colour pattern. It is described below.

2. Material and Methods

The morphological terms applied here follow Löcker et al. (2006) in general, the terminology of the carinae and compartments on the head follows Löcker (2014), the terminology of the wing venation follows Bourgoin et al. (2015).

Insects were examined and measured using an Olympus SZH10 stereo microscope with an eyepiece graticule and a drawing mirror. Photographs of living specimens were taken with a digital SLR camera (Canon EOS 20D, together with the Canon MPE-65mm macro lens and the Macro Ring Lite MR-14EX II). Stacked images were made with a Keyence VHX-5000 digital microscope system. Both line drawings and photographs were then edited with Adobe Photoshop CS6 (R).

Specimens are stored in following collections:

OEKO = Oekoteam-Institute for Animal Ecology and Landscape Planning, Bergmannsgasse 22, Graz, Austria

MNCR = Museo Nacional De Costa Rica, Avenidas 0 y 2, Calle 15, Barrio Bella Vista, Catedral, 10104, San José, Costa Rica

¹Corresponding authors, emails: gernot.kunz@gmail.com, holzinger@oekoteam.at

3. Taxonomy

Pintalia Stål, 1862

The Cixiidae genus *Pintalia* contains Cixiidae of average size (5-7 mm), with laterally compressed abdomen and wings held steeply roof-shaped in resting position. According to Kramer (1983) and other authors, further characters of *Pintalia* are: Head in dorsal view smaller than the pronotum, frons much longer than wide, median ocellus present, distinct keel between frons and vertex present, vertex with a transverse keel near the middle, mesonotum tricarinate, flat in lateral view, ScP+RA and RP(+MA) with a common stem, veins with fine granulae, hind tibia with 1-3 small lateral spines, distal end of hind tibia with six spines of different size, aedeagus with long and well developed apical flagellum, ovipositor well developed. The genus lacks a modern, comprehensive review and a phylogenetic analysis. It is likely, that the species currently placed in this genus do not form a monophyletic clade. Thus, our placement of the new species in *Pintalia* is tentative.

Pintalia hanna nov. spec.

Zoobank: urn:lsid:zoobank.org:pub:774A0156-EF2C-4606-A54E-CCB3970BE32C

Material: Holotype: Male, Costa Rica: Cordillera Talamanca, Cartago province, El Copal 20 km SE Cartago, 9°47'02"N, 83°45'06"W, 1048 m a.s.l., 04.-08.03.2019, Gernot Kunz leg., in coll. OEKO. – Paratypes: One male and two females from Costa Rica: Puntarenas province, Peninsula Osa, La Tarde, 8°34'38-59"N, 83°29'11-51"W, 100-200 m a.s.l., 13.-15.03.2019, Gernot Kunz leg., one male and one female in coll. MNCR, the other female in coll. OEKO. – Further specimens: One specimen from Costa Rica, Puntarenas province, La Gamba, Tropical Field Station, secondary forest, lighttrap, 8°42'13"N, 83°12'12"W, 100 m a.s.l., 20.05.2006, Gernot Kunz leg.; one specimen from Costa Rica, Puntarenas province, San Vito, Wilson Botanical Garden, lighttrap, 8°47'6.84"N, 82°57'37"W 1192 m, 09.03.2019, Gernot Kunz leg.; one specimen from Costa Rica, San José province, Tinamaste, Villa Bella Vista, garden around house, 9°18'42"N, 83°47'15"W, 668m, 20.09.2020, photo Laurent Hesemans; one male and two females from Costa Rica, Puntarenas province, Peninsula Osa, La Tarde, trailside, sweepnet, 8°34'40"N, 83°29'10"W, 200 m a.s.l., 08.07.2021, Brian W. Bahder leg.

Description:

Colouration:

Head and for body of living specimens bright orange, eyes light blue. Dorsal margin of fore wings along Clavus (A2 vein) broad white, with wax filaments. rest of wings semitransparent-yellowish-straw-coloured, hind margin fuscous. Only few darker streaks and spots on the wing, as shown in Figs 1 and 2. Legs whitish-yellowish.

Morphology:

Body size: 5.4-6.5 mm in males, 5.9-6.6 mm in females.

Head (Fig. 3): Frons longer than wide, with distinct median keel, median ocellus present. Lateral keels moderately elevated. Vertex 1.2 times wider than long, transverse subapical carina distinct, longitudinal median carina absent.

Thorax (Fig. 3): Pronotum narrow, Mesonotum tricarinate.

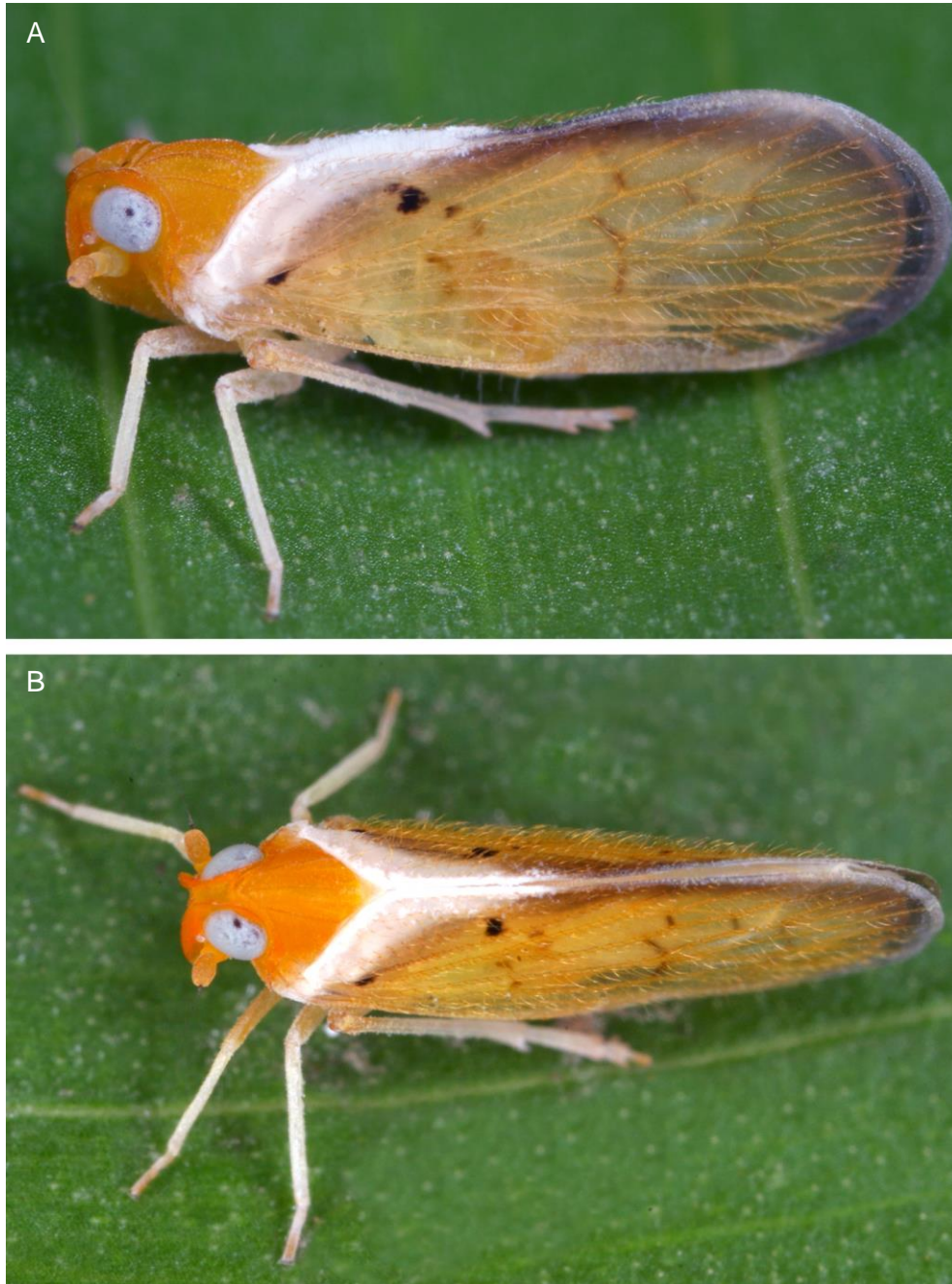


Fig. 1: *Pintalia hannaе* in the field (Peninsula Osa, La Tarde), showing its unique colour pattern. (A) lateral view, (B) dorsal view.

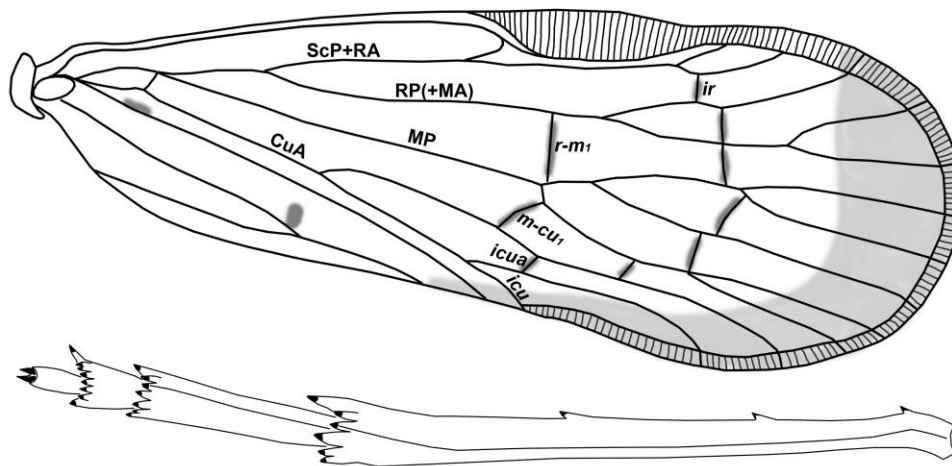


Fig. 2: *Pintalia hanna*, fore wing venation and hind leg.

Fore wings (Figs 1 and 2): Long and slender, compared to many other "*Pintalia*" species. CuP near basal cell with a dark spot with many short setae, some of which are black. RP apically trifold, MP₁₊₂ apically trifold, icu reaching wing margin distad of apex of clavus. Crossveins ir, r-m₂, im and m-cu₂ almost at the same level.

Legs (Fig. 2): Hind tibia with three small, but distinct lateral spines and 6 apical spines, arranged as in Fig. 2.

Male genitalia (Figs 4-6): Anal segment in lateral view slender, without distinct widenings or processes, ending in a blunt apex. Aedeagus with tubular phallotheca, bearing three long spines: One originating basally on the right side and curved semicircular ventrocaudad (spine 1 in Fig. 4), one originating subapically on the right side, s-shaped, pointing left-cranial ventrally of the phallotheca (spine 2 in Fig. 4), and one emanating in the middle of the phallotheca on the left side and curved dorsally of the phallotheca to the right (spine 3 in Fig. 4). Another short, "shark fin"-shaped rigid process emanates in the middle of the phallotheca on the right side. The flagellum of the aedeagus is well developed, long, and with a semicircular, blunt process on its right side (no. 4 in Fig. 4). The male genital styles are symmetrical and have a slender basal part and an elongated apical part ending in an inward curved tip (Fig 4D).

Female genitalia: Abdomen apically rounded, capsular-truncate, ovipositor well developed, straight, not adjacent to the abdomen.

Etymology

The species is dedicated to Johanna Gunczy, nickname "Hanna", enthusiastic entomologist and life partner of the first author.

Distribution

The new species was found in rainforest habitats of Costa Rica only, in the provinces Puntarenas, San José and Cartago. Its occurrence in south western parts of Panama is very probable.

Differential diagnosis

The species is easily recognisable by its unique colouration; no other Cixiidae species has this orange head and thorax in combination with the white claval border and yellowish-straw-coloured wings with only few small darker spots. Furthermore, the spinulation of the aedeagus is unique.



Fig. 3: *Pintalia hannaе*, head, pronotum and mesonotum in lateral view (top), dorsal view (center) and frontal view (bottom).

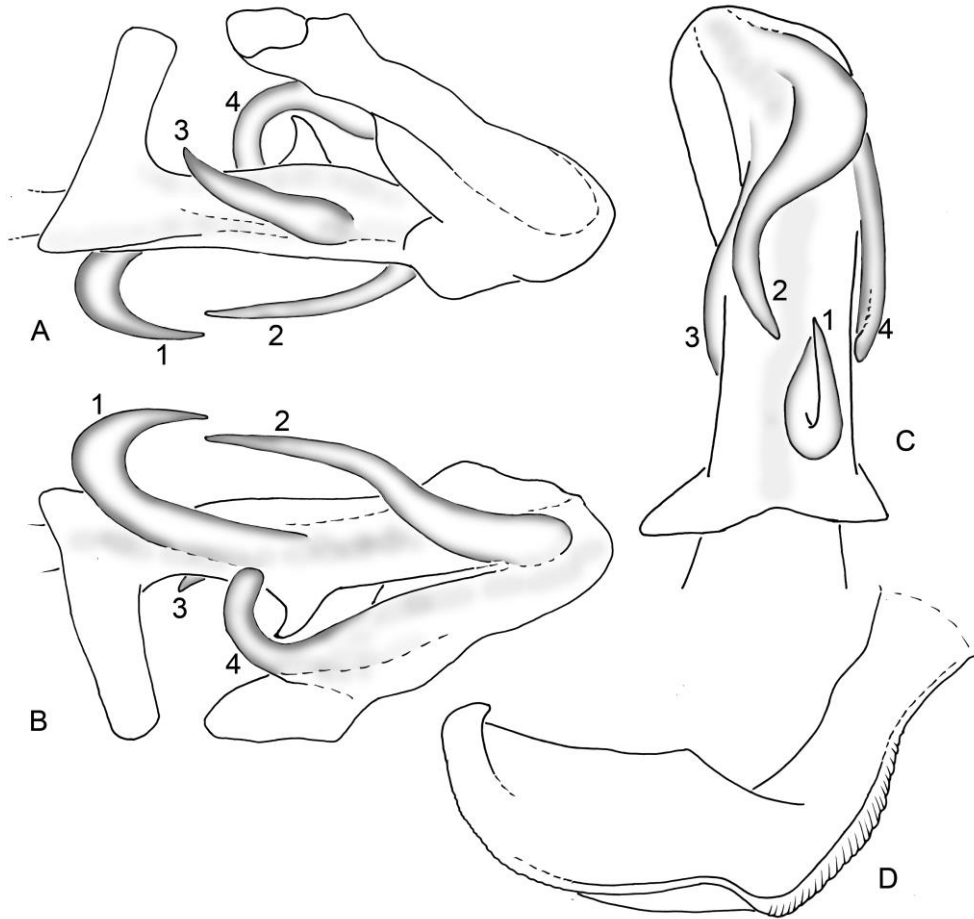


Fig. 4: *Pintalia hanna*, aedeagus in left lateral (A), right lateral (B), ventral view (C), and male genital style in inner maximum view (D).

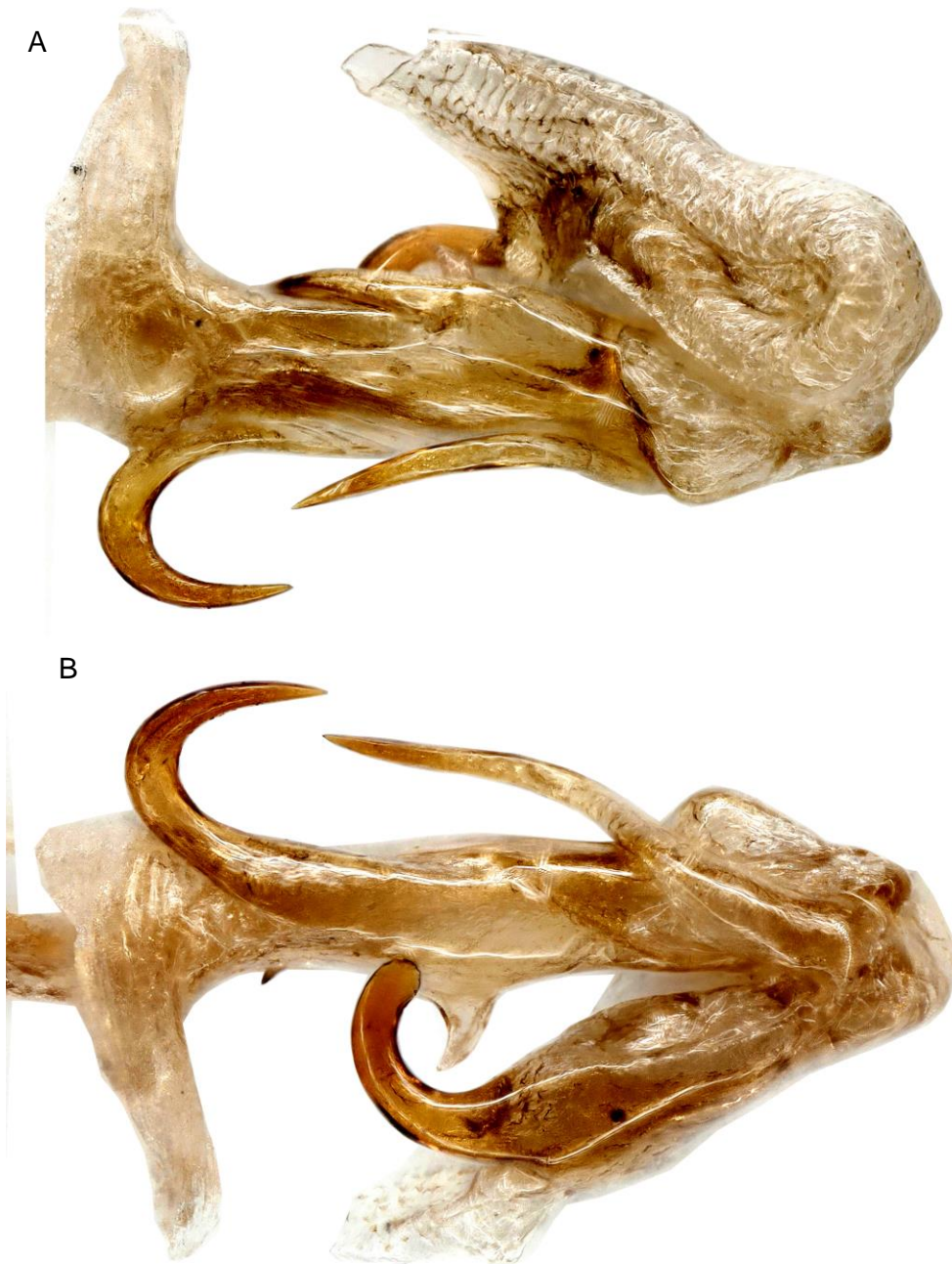


Fig. 5: *Pintalia hanna*, aedeagus in left dorsolateral view (A) and right lateral view (B).



Fig. 6: *Pintalia hanna*, male genital and anal segment in lateral view (left) and male anal segment in caudal view (right).

4. Zusammenfassung

Eine neue Cixiidae-Art, *Pintalia hanna* nov. spec., wird aus den Regenwäldern der Cordillera Talamanca und des südlichen (pazifischen) Teils von Costa Rica beschrieben. Die Art ist leicht an ihrer auffälligen Färbung zu erkennen: Kopf und Thorax sind leuchtend orange, die Vorderflügel-Ränder sind entlang des Clavus breit weiß, die übrigen Vorderflügel gelblich-strohfarben mit nur wenigen dunkleren Flecken.

5. Acknowledgements

We are grateful to Erwin Holzer (Anger, Austria) and Richard Kunz (Gratwein, Austria) for the companionship on several scientific excursions to Costa Rica and to Julio César do Carmo vaz Santos (University of Lavras, Brazil) for sharing his unpublished photos of *Pintalia lateralis* with us. We also thank Brian Bahder for sharing further distribution data. Furthermore, we want to thank SINAC (Sistema Nacional de Áreas de Conservación) for the collecting permission (permits No. M-PC-SINAC-PNI-ACLAP-006-2019 and SINAC-ACOSA-D-R-060-2021).

6. References

- Bourgoin T. (2022): FLOW (Fulgoromorpha Lists on The Web): a world knowledge base dedicated to Fulgoromorpha. Version 8. — <http://www.hemiptera-databases.org/flow/> [last access 4.4.2022].
- Bourgoin T., Wan, R.R., Asche M., Hoch H., Soulier-Perkins A., Stroiński A., Yap S., Szwedo J. (2015): From micropterism to hyperpterism: recognition strategy and standardized homology-driven terminology of the forewing venation patterns in planthoppers (Hemiptera: Fulgoromorpha). — *Zoomorphology* 134: 63-77.
- Caldwell J.S. (1944): *Pintalia* Stål, with special reference to Mexico (Homoptera: Cixiidae). — *Pan-Pacific Entomologist* 20: 154-160.
- Fennah R.G. (1945): The Fulgoroidea, or lanternflies, of Trinidad and adjacent parts of South America. — *Proceedings of the United States National Museum* 95: 411-520.
- Kramer J.P. (1983): Taxonomic study of the planthopper family Cixiidae in the United States (Homoptera: Fulgoroidea). — *Transactions of the American Entomological Society* 109: 1-57.
- Löcker B. (2014): Shedding light on Jacobi's types whilst discovering new species: a taxonomic revision of *Leptolamia* Metcalf, 1936 (Hemiptera: Fulgoromorpha: Cixiidae). — *Australian Entomology* 53 (4): 391-423.
- Löcker B., Fletcher M.J., Larivière M.-C., Gurr G.M., Holzinger W.E. & Löcker H. (2006): Taxonomic and phylogenetic revision of the Gelastocephalini (Hemiptera: Cixiidae). — *Invertebrate Systematics* 20: 59-160.
- Muir F. (1934): The genus *Pintalia* Stål (Homoptera, Cixiidae). — *Transactions of the Royal Entomological Society of London* 82(2): 421-441.
- Stål C. (1862): Bidrag till Rio de Janeiro-traktens Hemipter-Fauna II. — *Kongliga Svenska Vetenskaps Akademiens Handlingar* 3(6): 1-75.

Addresses of the authors:

Gernot Kunz: Karl-Franzens-Universität Graz, Institut für Biologie, FB Zoologie, Universitätsplatz 2, A-8010 Graz. Email: gernot.kunz@gmail.com

Werner E. Holzinger: Ökoteam - Institute for Animal Ecology and Landscape Planning, Bergmannsgasse 22, A-8010 Graz. Email: holzinger@oekoteam.at