

Pteroceraphron Dessart new to the USA (Hymenoptera: Ceraphronoidea)

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Abstract

Background

Pteroceraphron is a monotypic genus that can be recognized by its unique, lanceolate wing shape. Until now the only described species, *Pteroceraphron mirabilipennis* Dessart 1981, was known only from specimens collected in Canada.

New information

Here, for the first time, we report *Pteroceraphron mirabilipennis* Dessart 1981 specimens collected in the USA. We also provide an extended diagnosis.

Keywords

Ceraphronidae, marginal cilia, club, USA

Introduction

The superfamily Ceraphronoidea represents more than 600 described species in 32 genera worldwide (Johnson and Musetti 2004). These wasps are minute, measuring 0.5–4.3 mm in body length, and can be easily diagnosed by their reduced wing venation. The fore wing has only one relatively thick and distally interrupted marginal vein and a curved stigmal vein (Fig. 1). Ceraphronoids are mostly parasitoids of entomophagous insects with an exceptionally large host range that encompasses at least eight insect orders: Coleoptera, Diptera, Hemiptera, Hymenoptera, Mecoptera, Neuroptera, Thysanoptera, and Trichoptera (Mikó et al. 2013). The family Ceraphronidae is one of the most commonly collected microhymenopterans (

Martínez de Murgía et al. 2001, Schmitt 2004). External somatic morphology is relatively monotonous and the morphological diversity of the male genitalia is extraordinary (Mikó et al. 2013, Ernst et al. 2013). *Pteroceraphron* stands apart from other ceraphronid genera by having lanceolate fore wings ornamented with elongate marginal setae (Fig. 1). The genus is represented by only one Nearctic species, *Pteroceraphron mirabilipennis*, described by Paul Dessart (Dessart 1981) based on two female specimens collected in Ontario, Canada. Here we report on specimens collected in the United States that extend the range of *Pteroceraphron mirabilipennis* approximately 1,500 km southwards.

Materials and methods

Specimens were borrowed from the Canadian National Collection of Insects and Arachnids (CNC). Images were taken with an Olympus CX41 compound microscope and DP71 digital camera. Images were stacked with a Combine Z4 software Hadley 2016) and modified with Adobe Photoshop CS4® using the "auto level" and "unsharp mask" tools. Taxonomic nomenclature, specimen information, OTU concepts were compiled in mx (<http://purl.org/NET/mx-database>). Figures were deposited in Figshare (doi:[10.6084/m9.figshare.3846591](https://doi.org/10.6084/m9.figshare.3846591)).

Taxon treatment

Pteroceraphron mirabilipennis Dessart 1981

Nomenclature

Pteroceraphron mirabilipennis Dessart 1981

Materials

Other materials:

- a. family: Ceraphronidae; genus: *Pteroceraphron*; specificEpithet: mirabilipennis; country: USA; stateProvince: Virginia; county: Northampton; verbatimLocality: Northampton Co. 7km S Jackson; eventDate: VIII-IX, 1987; individualID: NCSU 0028995; sex: female; recordedBy: BRC HYM. TEAM; identifiedBy: István Mikó; dateIdentified: 2010; institutionCode: CNC; occurrenceID: D208624B-9B82-5925-8427-8E11BF66D80B
- b. family: Ceraphronidae; genus: *Pteroceraphron*; country: USA; locality: Georgia, McIntosh Co. Sapelo Island; verbatimLatitude: 31.38N; verbatimLongitude: -81.28W; verbatimEventDate: VI-VII. 1987; individualID: NCSU 228994; sex: female; recordedBy: BRC HYM. TEAM; identifiedBy: István Mikó; dateIdentified: 2015; institutionID: CNC; occurrenceID: E383370F-B1AF-5FCC-89EF-73982417D295
- c. family: Ceraphronidae; genus: *Pteroceraphron*; country: USA; locality: IN, Porter, Cowles Bog; verbatimLatitude: 41.65N; verbatimLongitude: -87.1W; verbatimEventDate: 04.VIII. 1981; individualID: NCSU 28992; sex: female; recordedBy: D.C. Darling; identifiedBy: Dessart Paul; institutionCode: CNC; occurrenceID: 2E373AC3-7A88-5BFD-925D-3178DEA3E019

- d. family: Ceraphronidae; genus: *Pteroceraphron*; country: USA; stateProvince: KY; verbatimLocality: KY: Lexington Co.; verbatimLatitude: 37°58'39"N; verbatimLongitude: 84°24'59"W; verbatimEventDate: 04-11.vii.2004; individualID: PSUC_FEM 000096175; sex: female; recordedBy: M. Sharkey; identifiedBy: István Mikó; dateIdentified: 2015; institutionID: CNC; occurrenceID: 15107277-2D8F-57CB-B241-4F0D529A26E7
- e. family: Ceraphronidae; genus: *Pteroceraphron*; country: USA; locality: Georgia, McIntosh Co. Sapelo Island; verbatimLatitude: 31.38N; verbatimLongitude: -81.28W; verbatimEventDate: VI-VII. 1987; individualID: NCSU 28901; sex: female; recordedBy: BRC HYM. TEAM; identifiedBy: István Mikó; institutionID: CNC; occurrenceID: 93EF4BE7-99BF-5181-87A9-AEA7D7D1A4CD
- f. family: Ceraphronidae; genus: *Pteroceraphron*; country: USA; locality: Georgia, McIntosh Co. Sapelo Island; verbatimLatitude: 31.38N; verbatimLongitude: -81.28W; verbatimEventDate: VI-VII. 1987; individualID: NCSU 28900; sex: female; recordedBy: BRC HYM. TEAM; identifiedBy: István Mikó; dateIdentified: 2015; institutionID: CNC; occurrenceID: 6D8F003E-6711-58CA-986E-ABDC944C3964
- g. country: USA; county: Franklin; verbatimLocality: USA: Ohio, Franklin Co. patch of prairie on Kinnear Rd. across the street from the OSU Museum of Biol. Div.; samplingProtocol: YPT; eventDate: 02.vii.1999; individualID: PSUFEM_13529; recordedBy: N.F. Johnson; institutionID: Ohio State University Insect Collection; collectionID: OSU; occurrenceID: 7950EB24-B06F-5920-AF09-6F80AE546999
- h. country: USA; county: Franklin; verbatimLocality: USA: Ohio, Franklin Co. patch of prairie on Kinnear Rd. across the street from the OSU Museum of Biol. Div.; samplingProtocol: YPT; eventDate: 02.vii.1999; individualID: PSUFEM_13459; recordedBy: N.F. Johnson; institutionID: Ohio State University Insect Collection; collectionID: OSU; occurrenceID: 4F54DCBA-6D11-504D-9C89-873FAAFE2C41
- i. country: USA; stateProvince: Missouri; locality: Williamsville; samplingProtocol: Malaise Trap; eventTime: vi.1987; recordedBy: J. T. Becker; institutionID: CAS (California Academy of Sciences); occurrenceID: 972A3C09-1983-5D75-A936-C14D37412CB8

Paratype:

- a. family: Ceraphronidae; genus: *Pteroceraphron*; country: Canada; locality: Ontario, St. Lawrence national Park; identifiedBy: P. Dessart; modified: 2010-09-24 10:27:52; occurrenceID: B61AD4DC-1185-5B29-AFD1-3A88DCB3A3C1

Holotype:

- a. scientificName: *Pteroceraphron mirabilipennis* Dessart 1981; country: Canada; locality: Ontario, St. Lawrence national Park; occurrenceID: 00C4BA57-07CA-5678-81AA-15DCA6410EE9

Diagnosis

Pteroceraphron mirabilipennis differs from all other ceraphronoid wasps in the presence of elongate [marginal setae](#) (Fig. 1) on the posterior margin of the lanceolate fore wing (Fig. 1). Beside the diagnostic wing characters, the combination of the enlarged last flagellomere (Figs 2, 3), the bifurcated [anteromedian process of the propodeum-metanotum complex](#) (Fig. 4), and the presence of three longitudinal [carinae](#) on the first metasomal tergum (Fig. 4) make this species easy to separate from other ceraphronids, even if the wings are absent.

Discussion

These records indicate that *Pteroceraphron*, a distinctive and easily diagnosed taxon, is widespread across eastern North America. Yet virtually nothing about their range, hosts, morphology, or other aspects of their biology has been published. This situation underscores the lack of research on Ceraphronoidea in the Nearctic, a region that was deliberately ignored by past researchers (see Dessart 1997, Dessart 2001).

Acknowledgements

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Figure 1.

Brightfield image showing the fore wing of *Pteroceraphron mirabilipennis* Dessart 1981. Arrows point to elongate marginal cilia.



Figure 2.
Brightfield image showing the lateral habitus of *Pteroceraphron mirabilipennis* Dessart 1981.



Figure 3.
Brightfield image showing the female antenna of *Pteroceraphron mirabilipennis* Dessart 1981.

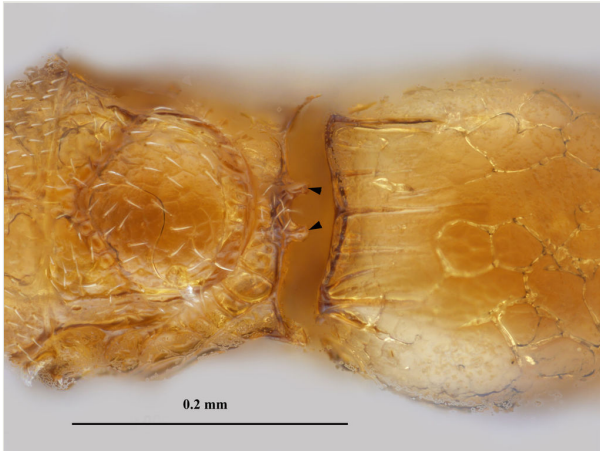


Figure 4.

Brightfield image showing the posterior mesosoma and anterior metasoma of *Pteroceraphron mirabilipennis* Dessart 1981. Arrows point to bifurcated anteromedian process of the propodeum-metanotum complex.