



## *Helicopsyche (Feropsyche) timbira* sp. nov. (Trichoptera: Helicopsychidae), a new species from southeastern Brazil

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The family Helicopsychidae comprises only two genera, the monotypic *Rakiura* McFarlane 1973 and the diverse *Helicopsyche* von Siebold 1856. Johanson (1998) provided a phylogenetic and biogeographic analysis for *Helicopsyche*, and ranked all other previously Helicopsychidae genera as subgenera of *Helicopsyche*. Currently, *Helicopsyche* is subdivided into six subgenera: *Helicopsyche*, *Petrotrichia* Ulmer 1910, *Galeopsyche* Johanson 1998, *Saetotrichia* Brauer 1865, *Cochliopsyche* Müller 1885, and *Feropsyche* Johanson 1998. Johanson (2002, 2003) provided revisions to Neotropical species of *Helicopsyche*. These species belong to the subgenus *Cochliopsyche* (currently with 16 species) or to the subgenus *Feropsyche* (with about 100 species), both endemic to the Neotropics. According to Johanson & Malm (2006), the Neotropical fauna can be divided into three regions: One that includes the West Indies, where 33 *Helicopsyche* species are recorded, another including Central America, with 25 *Helicopsyche* species, and finally, another one that includes South America, with 41 *Helicopsyche* species. In Brazil, only 19 species are recorded, of which six are from the southeastern region (Santos et al. 2013). However, the Brazilian fauna is underestimated and possibly much richer than these numbers indicate, especially when it is compared to regions of Central America or South America, such as Venezuela (28 spp.) and Mexico (18 spp.) (Johanson & Malm 2006). In this work, a new species of *Helicopsyche (Feropsyche)* is described from southeastern Brazil. Specimens were collected at Serra dos Órgãos (Rio de Janeiro State), a mountain range that includes a large remnant of the Atlantic Forest in Brazil. Additional specimens were identified from São Paulo State, in an area that, along with the Serra dos Órgãos, is a part of the forest corridor of the mountain range named Serra do Mar.

The specimens were collected with Pennsylvania light traps (Frost 1957) and preserved in 80% ethanol. To examine the genital structures, the abdomen was removed and cleared in a hot 10% KOH solution. Pencil sketches were made under a stereomicroscope and a compound microscope, both equipped with camera lucida. The sketches were used as templates in Adobe Illustrator (v. 13.0.0, Adobe Systems Inc.) software to trace vector graphics. The terminology used here follows mainly that provided by Johanson (2002). The holotype is deposited in the Coleção Entomológica Prof. José Alfredo Pinheiro Dutra, Departamento de Zoologia, Universidade Federal do Rio de Janeiro, Rio de Janeiro (DZRJ). Paratypes and additional material are deposited in the same institution and also in the Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro (MNRJ), Coleção de Invertebrados, Instituto Nacional de Pesquisas da Amazônia (INPA).

### *Helicopsyche timbira* sp. nov.

*Helicopsyche timbira* sp. nov. and *Helicopsyche cipoensis* Johanson & Malm 2006 share similarities in general aspects of male genitalia, particularly in the features of the inferior appendages (gonocoxites according to Johanson 2002). However, the new species has the ventral process of sternum VI slightly curved and apically smooth, whereas in *H. cipoensis* it is straight and apically lamellate, with ridges. The new species also can be distinguished by the following features: (1) Segment IX has its anterior dorsal and ventral margins more shallowly excavated (more deeply excavated in *H. cipoensis*); (2) tergum X, in lateral view, is broader basally and narrowing apically, with a slightly capitate apex (more nearly parallel-sided and with a truncate apex in *H. cipoensis*); (3) tergum X, in dorsal view, has a shallow longitudinal groove and a small apical notch (absent in *H. cipoensis*); (4) the apically spinose basomesal branch of each inferior appendage is shorter than in *H. cipoensis*. *Helicopsyche timbira* sp. nov. is also similar to *Helicopsyche neblinensis*

Male genitalia. Segment IX with dorsal and ventral anterior margins excavated; posterolateral margins each slightly emarginated in lateral view; posteriorly fused with tergum X. Tergum X, in lateral view, directed posteroventrad, slightly broader at one-third its length and slightly curved dorsad apically; in dorsal view with shallow longitudinal groove, with pair of dorsolateral rows of short setae; posterior margin with a shallow U-shaped incision. Primary branch of each inferior appendage rounded and elongate, in dorsal view with inner margin irregular and covered by long setae; in lateral view directed posterodorsad and rounded apically; basomesal branch, in ventral view, short and stout, rounded apically and bearing stout spine-like setae on apical half; in lateral view directed caudad and rounded. Superior appendages club-shaped and covered by long setae. Phallus short and tubular; in lateral view with anteroventral region sclerotized and downturned, posterior region with dorsal membranous lobe with very developed folds when relaxed; phallotremal sclerite (phallic sclerite) located apically.

Male variation. Length of each forewing 5.0–6.1 mm (n=14).

**Holotype male: Brazil: Rio de Janeiro:** Parque Nacional da Serra dos Órgãos, Rio Beija Flor, 22°26'50.9"S, 43°00'19.4"W, el. 1,187 m, 11–15.xi.2011, A.P.M. Santos, B. Camisão, J.L. Nessimian leg. (DZRJ).

**Paratypes:** same data as holotype, 10 ♂, 28 ♀ (DZRJ/MNRJ/INPA)

**Additional material examined. Brazil: São Paulo:** São Miguel Arcanjo, Parque Estadual Carlos Botelho, Ribeirão das Pedras, 24°05'22.0"S, 47°59'38.7"W, el. 741 m, 05.x.2011, L.L. Dumas, G.A. Jardim leg., 3 ♂ (DZRJ).

**Etymology.** The name *timbira* refers to an indigenous people who used to live on Serra dos Órgãos Mountain, the area where the type specimens were collected.

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