

A New Species of *Indialis* from India

(Ephemeroptera: Leptophlebiidae)

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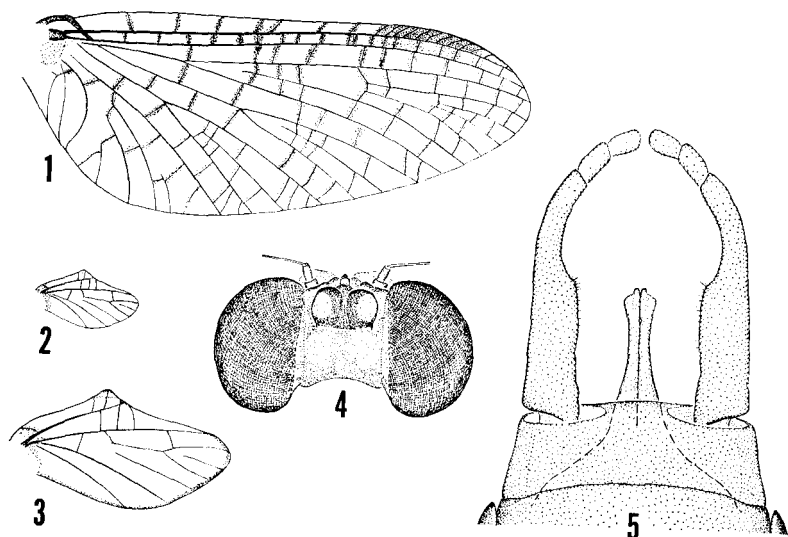
Peters and Edmunds (1970) established *Indialis* for the species *Indialis badia* Peters and Edmunds. The species description was based on one male subimago and 49 nymphs collected by me and my wife in Kerala and Andhra Pradesh States, India. Peters and Edmunds (1970) included the subimaginal description, as the one subimago was the only subadult or adult known for *Indialis*. Recently I studied a male imago from Kerala State which I describe herein as a new species of *Indialis*.

The new species is congeneric with *Indialis badia*; however, there are several differences between the species in the wings and eyes. In the fore wings of *Indialis rossi* veins R_s and MP are forked nearly equidistant from the base (Fig. 1); in *Indialis badia* vein MP is forked more basally than the fork of vein R_s . In the key to the imagos by Peters and Edmunds (1970) *Indialis* keys to the first part of couplet 17 based on the forks of veins R_s and MP. *Indialis rossi* keys to the second part of couplet 17, and will eventually key to couplet 25 and *Castanophlebia*. *Indialis* and *Castanophlebia* can be readily distinguished by the wing venation and male genitalia.

The Cu-A area (Fig. 1) of the fore wings of *Indialis rossi* is broader and more developed than that of *Indialis badia*. Also the costal projection (Figs. 2-3) of the hind wings of *Indialis rossi* is broader than that of *Indialis badia*.

The male eyes of *Indialis rossi* are separated on the meson of the head by a length $3\frac{1}{2}$ times as long as the maximum width of a lateral ocellus (Fig. 4). Peters and Edmunds (1970) stated that the male eyes of *Indialis badia* meet on the meson of the head; however, the head of the subimaginal holotype is shriveled and the eyes of *Indialis badia* might be separated on the meson of the head. Thus, the generic limits of the eye character in *Indialis* have not yet been determined definitively.

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FIGS. 1-5. *Indialis rossi*, male imago. Fig. 1. Fore wing. Fig. 2. Hind wing. Fig. 3. Hind wing enlarged. Fig. 4. Dorsal view of head. Fig. 5. Ventral view of genitalia.

Indialis rossi, New Species

(Figs. 1-5)

Male imago (in alcohol).—Length: body, 7.1 mm; fore wings, 6.5 mm. Upper portion of eyes red-brown, lower portion black. Head brown, area around ocelli washed with black. Antennae brown, flagellum paler. Basal half of ocelli black, apical half brownish-white. Thorax: brown, carinae darker, sutures paler, carinae of pleurae and pronotum blackish. Coxae brown, trochanters pale. (Remainder of legs broken off and missing.) Wings (Figs. 1-3): longitudinal veins and cross veins of fore and hind wings yellowish-brown, cross veins in basal half of cells C and Sc of fore wings darker; membrane of fore and hind wings hyaline, except base of fore and hind wings yellowish-brown, all cross veins in fore wings surrounded with narrow, yellowish-brown clouds, apical $\frac{1}{4}$ of cells C and Sc of fore wings translucent, white. Abdomen: segments 1-7 translucent, washed with brown, segments 8-10 opaque, washed with brown; terga 1-9 with a narrow, darker brown, transverse band on posterior margin of each tergum, band darker and wider on terga 7 and 8, terga 1-9 with a narrow, lighter brown, longitudinal, median line extended entire length of each tergum; spiracles dark brown, tracheae washed lightly with dark brown; sterna 1-8 with a narrow, darker brown, transverse band on posterior margin of each sternum. Genitalia (Fig. 5): brown. Caudal filaments pale; wide, dark brown annulations at articulations.

Female imago and mature nymph.—Unknown.

Holotype male imago, INDIA, KERALA STATE, KOTTAYAM DISTRICT, KITTIKANAM, NR. PEERMADE, 1000 M, 22 March 1962, E. S. Ross and D. Q. Cavagnaro. Holotype

is preserved in alcohol and deposited in the collections of California Academy of Sciences.

Etymology.—Species is named for Dr. E. S. Ross, California Academy of Sciences.

Discussion.—*Indialis rossi* can be distinguished from *Indialis badia* by the following combination of characters in the male imago, (1) all cross veins in fore wings are surrounded with narrow, yellowish-brown clouds (Fig. 1), (2) abdominal segments 1–7 are translucent and washed with brown, (3) caudal filaments are pale, with wide, dark brown annulations at articulations, and (4) the costal projection of the hind wings is well developed and broadly rounded at the apex (Figs. 2–3).

LITERATURE CITED

- PETERS, W. L. AND G. F. EDMUNDS, JR. 1970. Revision of the generic classification of the Eastern Hemisphere Leptophlebiidae (Ephemeroptera). Pac. Insects, 12: 157–240.