

Description of the imagos of *Cloeodes jaragua* Salles & Lugo-Ortiz, 2003 (Ephemeroptera, Baetidae)

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Cloeodes Traver, 1938 (Ephemeroptera, Baetidae) was established to include Baetidae specimens from Puerto Rico. Of the three species described by Traver (1938), only the type-species *C. maculipes* remains in this genus (Domínguez *et al.* 2006). A revision of *Cloeodes* by Waltz & McCafferty (1987) redefined its distinct characteristics and revealed the genus to be a widespread group of Neotropical origin with several species from South and Central America as well as from Southwestern North America and Southeast Asia.

Despite the vast range of the genus, with 15 species known from South America (Nieto & Richard 2008; Salles & Nascimento 2009), only four species have been reported from Brazil: *Cloeodes auwe* Salles & Batista, 2004, from Mato Grosso state; *C. hydation* McCafferty & Lugo-Ortiz, 1995 from Minas Gerais and Mato Grosso states; *C. irvingi* Waltz & McCafferty, 1987, the most widely distributed, recorded from Espírito Santo, Minas Gerais, Rio de Janeiro and São Paulo states; and *C. jaragua* Salles & Lugo-Ortiz, 2003, from Rio de Janeiro state (Salles 2010). Among these species, only *C. hydation* is also known from the imago. The present work describes the imagos of *C. jaragua*, a species described based on nymphs from Serra dos Órgãos, a mountain range covered by Atlantic rainforest at the municipalities of Nova Friburgo and Petrópolis.

Nymphs were reared to adult stage and preserved in 80% ethanol. Specimens were collected in Beija-Flor river dam at Parque Nacional da Serra dos Órgãos (PARNASO), municipality of Teresópolis, Brazil (22°26'56.0"S/ 43°00'03.4"W). The biological material is deposited at Coleção Entomológica Prof. José Alfredo Pinheiro Dutra (DZRJ), Departamento de Zoologia, Universidade Federal do Rio de Janeiro.

Cloeodes jaragua Salles & Lugo-Ortiz, 2003

Salles & Lugo-Ortiz 2003: 449; Domínguez *et al.* 2006: 149.

Material examined: Brazil, RJ: Teresópolis, PARNASO, Rio Beija-Flor, 1.078m, 22°26'56.0"S/43°00'03.4"W, 12.viii.2009, Clarkson, B., De-Souza, M.R. & Gonçalves, I.C. *leg.* 1 male imago (DZRJ – Ephemeroptera 616); same data, 1 male imago (DZRJ – Ephemeroptera 621); same data, 1 female imago (DZRJ – Ephemeroptera 623); same data, 1 female imago (DZRJ – Ephemeroptera 624). All specimens were reared from nymphs.

Male imago: Length: body 6.2-6.6 mm; fore wing 7.1-7.3 mm; hind wing 1.1-1.2 mm. Overall body coloration dark brown.

Head (Figs. 1–2): Generally brown, area between ocelli whitish. Area immediately anterior to eyes possessing whitish marking. Ocelli whitish surrounded by black ring. Eyes black with turbinate portion orange brown, oval in shape. Stalks short (0.2mm), about a third of the eyes length, color orange brown with sub-apical whitish ring. In dorsal view, turbinate portion of eyes 1.4 times longer than wide. Antennae uniformly brown.

Thorax: Pronotum and mesonotum dark brown. Anteronotal protuberance rounded. Prosternum dark brown with posterior half grayish. Lateral margins of mesonotum and mesoscutellar hump whitish. Metanotum dark brown. Mesosternum and metasternum dark brown. Metascutellar hump projected dorsoposteriorly.

Wings: Wing venation brown, membrane translucent brown. Fore wings (Figs 5–7): basal two thirds of costal margin with intermittent small sharp spines (Fig. 5). Spines more densely distributed at base of wings becoming scattered toward apex. Marginal intercalaries beginning between R₁-R₂ veins, first and last two intercalaries single, remaining intercalaries

paired and sequenced in each cell as short-long/long-short/short-long/ etc (Figs. 6–7). Hind wings bearing two longitudinal veins. Costal projection hook-like, placed at basal third of hind wings (Fig. 8).



FIGURES 1–4. *Cloeodes jaragua*. Male imago: (1) Head, lateral view; (2) Head, dorsal view. Female imago: (3) Abdomen, dorsal view; (4) Abdomen, ventral view. Scales bars: 1.0 mm.

Legs: Fore femora brown with distal orange brown band. Tibiae brown, grayish at apex. Tarsi and claws whitish. First two tarsal segments and basal half of third washed with gray. Mid and hind legs whitish.

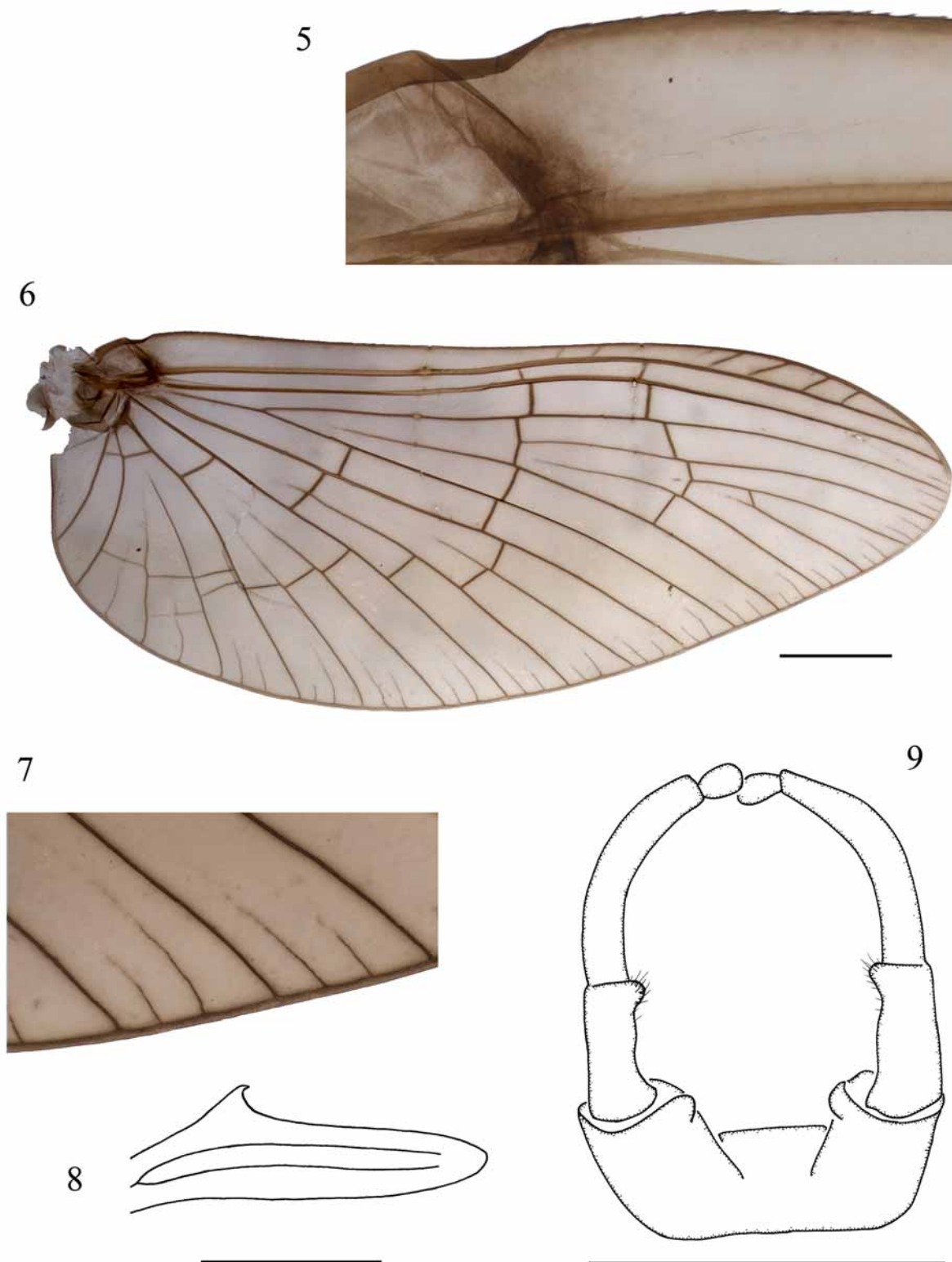
Abdomen (Fig. 3–4): Tergum I dark brown. Terga II–VI with lateral and posterior margins dark brown. Terga II–V light brown. Terga II and III suffused with dark brown. Tergum VI dark brown bearing two median light brown markings. Terga VII–IX reddish dark brown with a pair of median light brown spots. Tergum X dark brown, posterior margin whitish. Sterna I and II washed with dark brown. Sterna III–VI light brown, lateral and posterior margins dark brown. Sterna V–VIII with pair of apical dark brown spots. Sterna VII–IX whitish. Caudal filaments light brown with reddish brown annulations at joints.

Genitalia (Fig. 9): Forceps brown. First segment of forceps with distolateral projection on inner margin. Second segment medially with constriction and inner distolateral projection. Projection bearing fine setae. Third segment short and rounded.

Female imago: Length: body 7.4–7.8 mm; fore wing 7.3–8.4 mm; hind wing 1.1–1.2 mm. Females similar to male except dorsoposterior projection of metascutellar hump somewhat more pointed.

Four species of *Cloeodes* present a constriction at the second segment of forceps (as in Fig.9): *Cloeodes jaragua*, *C. maculipes*, *C. anduzei* and *C. hydatation*. As in *C. maculipes*, the first segment of the forceps of *C. jaragua* also possesses a distolateral projection. Although this projection is not described by Traver (1938), it is illustrated on the drawing of *C. maculipes* genitalia (see Traver 1938, fig. 13). Additionally, of the species mentioned above, the imagos of *C. jaragua* and *C. hydatation* are the only ones to possess hind wing, sharing several wings characteristics, as follows: fore wings bearing small spines on costal margin; marginal intercalaries beginning between R_1 - R_2 , following the pattern short-long/long-short/short-long (Figs. 6 – 7); hind wings with two longitudinal veins; costal projection at basal third of the wing (Fig. 8). The presence of a distolateral projection adjacent to the constriction at the second segment of the forceps is a diagnostic character of *C. jaragua*.

Diagnose. Males of *C. jaragua* can be distinguish from other species of *Cloeodes* by the following combination of characters: (1) hind wings present, costal projection hook-like placed at basal third; (2) abdominal color pattern as in figures 3–4; (3) first segment of forceps with distolateral projection on inner margin; (4) second segment of the forceps bearing distolateral projection immediately adjacent to constriction (Fig. 7).



FIGURES 5–9. *Cloeodes jaragua*. Female imago: (5) Fore wing – detail of spines on costal margin; (6) Fore wing; (7) Fore wing – detail of intercalaries; (8) Hind wing. Male imago: (9) genitalia. Scales bars: fore wing – 1.0 mm; hind wing and genitalia – 0.5 mm.

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