

**EPIGOMPHUS WESTFALLI SPEC. NOV., A NEW DRAGONFLY FROM
NICARAGUA
(ANISOPTERA: GOMPHIDAE)**

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E. westfalli sp. n. from northern Nicaragua (♂ holotype, ♀ allotype: Matagalpa, SE of San Ramón, June 18-20, 1974) is related to *subobtusus* and occurs within the range of that species. The males are readily distinguished by their appendages, but the females are distinguished with more difficulty by the occiput and structures of the ninth abdominal segment.

INTRODUCTION

The genus *Epigomphus* in Central America and Mexico consists of a few wide ranging and several evidently local species. The most wide ranging and commonly occurring of the species in northern Central America is *E. subobtusus* SELYS (1878), which also occurs in Costa Rica. The new species was collected on a small stream in northern Nicaragua and is the only species that has been recorded from that country. Its occurrence within the range of a species (*subobtusus*) of wide range and limited variation suggests that it is a derivative of that species.

The present study includes the consideration of several other species in this genus, including at least three undescribed forms from this area. The study has shown that certain characters used generally in the Gomphidae are of questionable value in separating these species of *Epigomphus*. The color patterns, and especially the thoracic stripes, of the species in this range are highly similar. The wing venation shows no useful characters. For the males, the terminal appendages of the abdomen provide the only reliable characters known presently.

The females of these species are known from only a few specimens. Both the

head (front of occiput, rear of head) and vulvar laminae show differences, but these characters are not strikingly different and might be affected by mating; thus, they may be unreliable for specific diagnosis. Neither species shows the elaborate head structures present on some other species of the genus and discussed by CALVERT (1920).

It gives me particular pleasure to dedicate this paper to MINTER WESTFALL and to name this new species for him. Minter has been largely responsible for raising the awareness of Odonata in the United States to its present high level. His career has produced an unusually large number of students and others attracted into the field by his patient guidance and graceful inspiration.

EPIGOMPHUS WESTFALLI SPEC. NOV.

Figures 1 (partim) — 2 (partim)

Material examined: **holotype** male, **allotype** female, and 2 **paratype** males, NICARAGUA: Matagalpa, stream 10 km SE of San Ramón, 700 m, 18-20 June 1974, Coll. T. & A. Donnelly. The stream is unusual in that it occurs in a remnant forest in an area otherwise cleared for agriculture.

Deposition of the type specimens. — The holotype and allotype female are deposited in the Florida State Collection of Arthropods, Gainesville, Florida. Additional paratype material remains for the present in the collection of the author.

Holotype male. — Head: red brown, pale olive green as follows: rounded lateral spots on labrum, ventral margin of postclypeus, lightly interrupted transverse band on frons, sides of mandibles and genae; vertex dark. Crest of occiput with a shallow angular indentation; shallow indentations at sides of occiput.

Prothorax: red brown, with paired yellow spots on hind margin and obscure yellow spots on lateral margin of middle lobe.

Pterothorax: red brown above, obscurely pale below, yellow stripes as follows: two on mesepisternum, the 2nd (antehumeral) very thin and expanded posteriorly to a rounded spot; a stripe 1/5 the width of the mesepimeron, with flared posterior end; a stripe 1/2 the width of the metepisternum, with round, dorsal excavation on posterior half; a stripe 2/5 the width of the metepimeron, with expanded, rounded posterior end. Transverse isolated bars on anterior edge of mesepisternum; metasternum (pectus) pale.

Wings: Venation black, pterostigma red brown. Thickened antenodals 6/8 on fore wing, 6/6 on hind wing; 3 cells between A1, A2, and hind wing margin, and between A2, A3, and h.w. margin, 3 cells between base and A3.

Legs: Femora pale brown, slightly darkened apically; tibiae and tarsae dark.

Abdomen: dark brown dorsally, sides yellowish on 1 to 3; pale, narrow, basal rings on 4 to 6, extending to transverse carina (1/4 of segment) on 4 to 6; 7 largely yellow with small dark posterior - dorsal and smaller posterior - lateral spots; 8 obscurely mottled yellow, with dorsal spot expanded posteriorly; 9 brown, 10 red brown; thin dorsal yellow line on 1 to 4.

Appendages: (Fig. 1) red brown, tips darker: Superior sharply decurved, slightly forcipate, tapering to a rounded tip, two teeth on anterior side of tip;

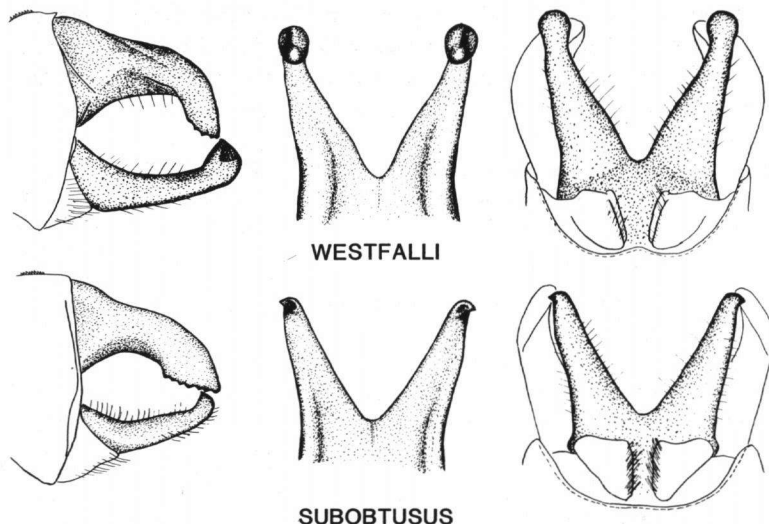


Fig. 1. Lateral view, ventral view, and dorsal view (inferior appendage only) of appendages of *Epigomphus westfalli* and *subobtusus*.

inferior longer than superior, deeply forked, ends with prominent rounded knobs with a short dorsal point.

Genitalia of second segment: Anterior hamule thin, flattened, with rounded, tapering tip; posterior hamule flattened, tapering apically to rounded tip, short black denticles on anterior surface.

Dimensions (in mm): abdomen 42; hind wing 36.

Allotype female. — Similar to male, but colors more subdued. Pale stripes on ventral margin of postclypeus and transverse band on frons broadly interrupted

Rear of head with paired transverse rounded tubercles, separated by shallow median sulcus and bordered laterally with deep sulcus. Front of occiput flattened, produced into two sub-lateral pointed projections. Lateral inflated tubercles bordered medially by shallow sulcus.

Vulvar lamina half the length of 9th tergum; forked, apices divergent.

Dimensions (in mm): abdomen 46.0, hind wing 38.5.

Variations among the paratype series. — The three males are very similar, with no range in abdominal length and a range of 36 to 36.5 mm in the hind wing. The two paratype males have mesal interruptions of the pale ventral margin of the postclypeus and a slightly greater interruption of the transverse pale band on the frons.

The single paratype female resembles the allotype but has the hind wing 39 mm.

This species is closely related to *E. subobtusus*, but has distinct appendages.

The superior appendage of *westfalli* (Fig. 1) is narrower at the tip, with only three teeth, while that of *subobtusus* is wider, less decurved, with a prominent apical — ventral truncation with seven prominent teeth. The inferior appendage of *westfalli* is terminated with prominent rounded knobs with small dorsal points, while that of *subobtusus* terminates in flattened points diverging dorsal — laterally.

The distinction between the females (Fig. 2) of the two species is made uncertain by the small number of available specimens and the likelihood that appearances of the structures of the head and the vulvar lamina may both be affected by the mating process. The front of the occiput of *westfalli* is flattened, with two sub-lateral small, sharp dorsal angulations. That of *subobtusus* has a slightly crescentic raised transverse ridge, with sharp ends. The tubercles at the rear of the head have the median sulcus deeper in *subobtusus*, and the lateral sulci deeper in *westfalli*. The vulvar lamina is more V-shaped in *westfalli*, and U-shaped in *subobtusus*. The projecting ventral margins (foliation) of the 9th terga is wider in *westfalli*. These distinctions are all minor and might not hold for a longer series.

A series of *E. subobtusus* from a wide range shows only limited variation. The occurrence of the new species from a point approximately in the middle of this range suggests that *E. westfalli* has been derived from *subobtusus*.

E. subobtusus examined: GUATEMALA: Dept. Chiquimulá; Río Lucia Sazo at Padre Miguel (800 m) 18 July 1962, Coll. T. Donnelly, 1 ♂; GUATEMALA: Dept. Baja Verapaz, Rt. 17, Los Encuentros (1300 m), 25-26 June, 1966, Coll. O.S. Flint, Jr. & M.A. Ortiz B., 2 ♂, 2 ♀; GUATEMALA: Dept. Alta Verapaz, Minas de Oxec (200 m), 5 June 1978, Coll. T. Donnelly, 1 ♂, 1 ♀; GUATEMALA, Dept. El Progreso, Finca la Cajeta nr Estancia de la Virgen (700 m), 20 Aug. 1965, Coll. T.

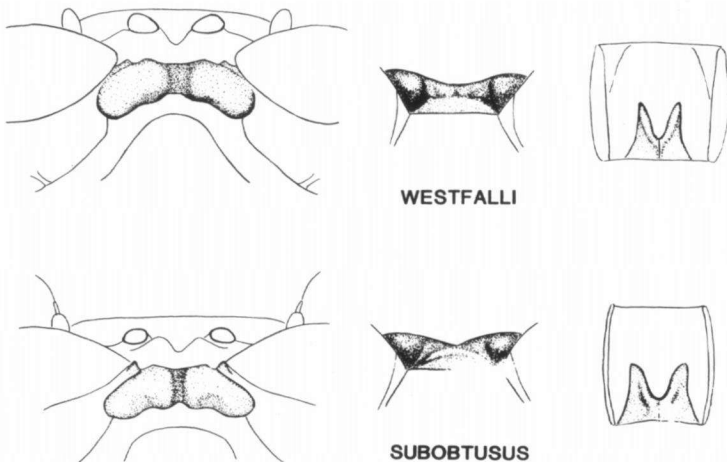


Fig. 2. Structural details of females of two species of *Epigomphus*, showing rear of head, front of occiput, and vulvar laminae.

Donnelly, 2 ♂; GUATEMALA: Dept. Izabal, Las Escobas (50 m), 24-25 Aug., 1968, Coll. T.
Donnelly, 1 ♂; GUATEMALA: Dept. Zacapa, Rosario, 2 km S of Cabañas, 16 July, 1963, Coll. T.
Donnelly, 1 ♂; HONDURAS: Dept. Cortés, Río Piedras at San Pedro Sula, 9-15 Aug., 1976, Coll. T.
& A. Donnelly, 1 ♂; COSTA RICA: Alajuela Prov., 10 mi N of Varablanca (850 m), 14 May 1967,
Coll. D. & M. Paulson, 1 ♂.

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