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PROGOMPHUS ZEPHYRUS NEEDHAM FROM THE DOMINICAN REPUBLIC, WEST INDIES: DESCRIPTION OF ADULT MALE (ANISOPTERA: GOMPHIDAE)

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The sp. was hitherto known from the larva only. A detailed description and figs of the adult male are presented, and some field notes are provided. The adult female still remains unknown.

INTRODUCTION

In 1941, NEEDHAM described *Progomphus zephyrus* from larvae he collected in the Dominican Republic. No larvae were reared to adults during his trip and he did not collect any adults. Recently, four adult males suspected to be *P. zephyrus* were collected there by Dr S.W. Dunkle and myself. Two adult males identified as *P. serenus* Hagen were kindly sent to me by Dr O.S. Flint, United States National Museum and Dr M.J. Westfall, Florida State Collection of Arthropods. Upon examination these specimens proved identical to the four suspected *P. zephyrus*. I believe the specimens described here are *P. zephyrus* because it is very likely there are only two species of *Progomphus* on Hispaniola, and *P. zephyrus* is the best available name.

BELLE (1992) described a teneral female and an exuviae from the Dominican Republic as *Progomphus zephyrus*. With the permission of the collector, R.W. Garrison, I examined that teneral female and the exuviae, plus two other teneral females and one male. All the material was collected from the Rio Inoa on June 5, 1987. I have determined the four adults to be *P. serenus*.

I compared the Rio Inoa teneral females with both a mature and a teneral *P. serenus* sent to me by Sidney W. Dunkle from two other Dominican Republic

localities. The thoracic patterns of all the examined females are similiar to each other. They are consistent with the thoracic pattern of male *P. serenus*. I believe the female *P. zephyrus* thoracic pattern will resemble that of the male. Also, all the examined females had an elevation or tubercle between the lateral ocellus and the eye border.

The exuviae was collected several inches away from the teneral female. However, the exuviae is not *P. serenus*! The shape of the slender third antennae segment resembles that of *P. zephyrus*. I have a larva of *P. serenus* taken from the wide, shallow Rio Camu in the Dominican Republic. This larva has the unique globose, inflated third antennae segment of *P. serenus*. *P. serenus* adult males were very abundant on the Rio Camu, perching on the sand bars or nearby rocks. However, I did not collect any *P. zephyrus* on the Rio Camu.

I suspect that the emergence of the *P. zephyrus* occurred before the three teneral *P. serenus*, possibly the day before. No other exuviae were found near them at that Rio Inoa site. I have collected both species together at the Arroyo Bermejo. Therefore, I believe the teneral female and its suspected exuviae are not associated.

Progomphus zephyrus appears to be restricted to the Dominican Republic and possibly Haiti. *P. serenus* is also known only from these countries. A closely related species, *P. integer* Hagen is known only from Cuba and Jamaica.

PROGOMPHUS ZEPHYRUS NEEDHAM, 1941

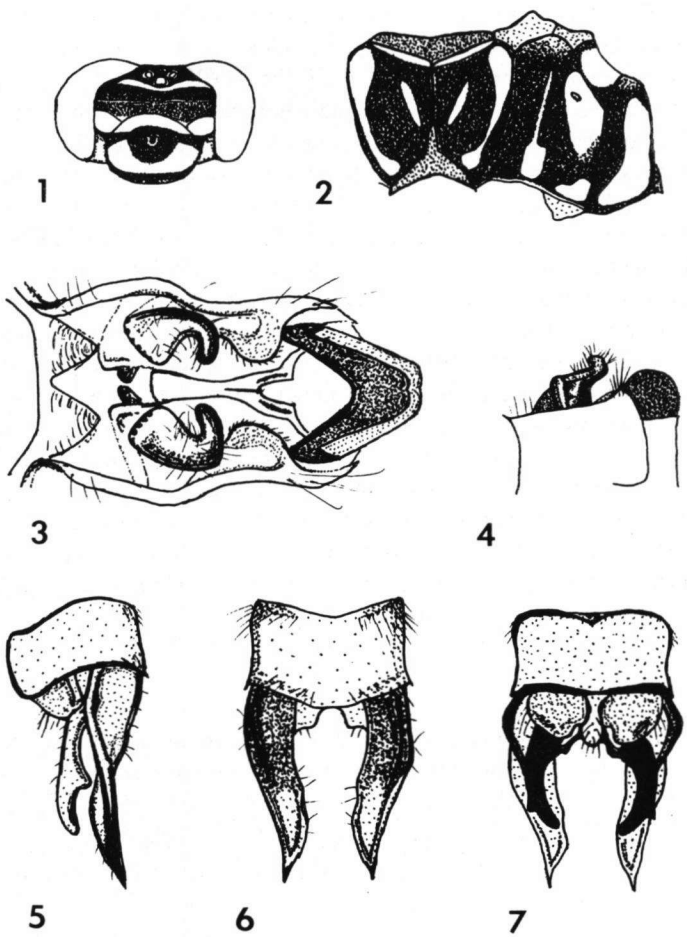
Figures 1-7

Material. – DOMINICAN REPUBLIC, Distrito Nacional, Arroyo Bermejo, 4 km NNE of Hatillo, 3-VI-1989, J.J. Daigle leg., 2 ♂, (JJD and SWD collections); – same location, 29-V-1991, S.W. Dunkle leg., 1 ♂, (SWD coll.); – La Vega prov., Arroyo Ana Marie, 10.9 km SW of Autopista Duarte on road to Jarabacoa, on grounds of "Centro Vacational Turisto Racquet Club" about 0.7 km N of entrance, 9-VI-1989, JJD leg., 1 ♂, (JJD coll.); – La Vega prov., nr Jarabacoa, 4-VI-1969, O.S. Flint, & J. Gomez leg., 1 ♂, (USNM coll.); – San Cristobal prov., La Toma N of San Cristobal, 9-VI-1969, OSF & JG leg., 1 ♂, (FSCA coll.).

Dimensions (mm). – Total length including cerci 40-42, abdomen 30-32, and hindwing 23-24.

Head. – Eyes in life dark blue above, grayish blue below; antennae black. Labrum grayish white with black basal median spot widened basally; anteclypeus grayish white, postclypeus black, facial lobes extensively white (Fig. 1). Antefrons black, postfrons grayish white, frontal furrow black basally. Vertex black, grayish or grayish-brown posteriorly; occiput gray margined with black. Occipital ridge black; rear of head black with dark yellow spot below occipital ridge.

Thorax. – Prothorax black except middle lobe cream-white with black median furrow. Pterothorax black with cream-white stripes; middorsal carina white, antealar crest black. First pale antehumeral stripe much reduced and not connected to pale mesothoracic collar; second pale antehumeral stripe nearly



Figs 1-7. *Progomphus zephyrus* Needham, ♂: (1) face, frontal view; – (2) thoracic pattern; – (3) posterior hamules, ventral view; – (4) posterior hamule, lateral view; – (5) appendages, dorsal view; – (6) appendages, lateral view; – (7) appendages, ventral view.

full-length and not joined with other pale stripes (Fig. 2). First pale lateral stripe very thin anteriorly, then widened dorsally. Wide second pale lateral stripe interrupted dorsally, third pale lateral stripe complete; sternum light brown.

L e g s. – Femora brown with pale flexor area, knees black. Tibiae, tarsi, and claws black.

W i n g s. – Hyaline, some brown in extreme base; costa blackish-brown. Forewing with 14-16 antenodal crossveins, 9-12 postnodals; hindwing with 10-

-12 antenodals, 10-13 postnodals. Basal subcostal crossvein present (rarely 2). Triangles 3-celled (rarely 2), subtriangles 2-celled in all wings. Blackish-brown pterostigma surmounting 5-7 cells.

A b d o m e n. – Black with thin, white basal rings. Segment 1 with a finger-like ventral projection, tergite blackish brown with mid-apical brown spot and dull yellow ventral areas basally. Segment 2 blackish-brown with pale dorsal stripe; auricle and posterior lateral spot obscure yellow, genital fold white. Posterior hamules stout with 5-6 black basoventral tubercles, dark brown basally, pale mid-ventrally, then black with hook glossy black (figs 3-4). Anterior hamules brown, about as high as shoulder of posterior hamules. Hood of penis dark brown, cupped anteriorly to receive penis flagellae. Segment 3 black with thin, interrupted dorsal stripe; small white basal triangle laterally. Segments 4-6 black with thin, white basal rings, occasional white mid-dorsal dot and lateroventral white dot. Segment 7 black with thin white basal ring widening laterally, pale mid-lateroventral spot. Segment 8 with large yellowish mid-lateroventral spot. Segment 9 black with small mid-lateral brown spot. Segment 10 black.

A p p e n d a g e s. – Superior appendages black, occasionally pale at apical third with sharp acuminate point (Figs 5-6). Inferior appendages curved inward when viewed ventrally (Fig. 7), tips bluntly bilobed without any sharp teeth; supero-external tooth broadly blunt with two rounded tubercles.

FIELD NOTES

In the field, the darker male *Progomphus zephyrus* can be separated from the paler *P. serenus* by the reduced first pale antehumeral stripe which does not reach the pale stripe on the collar. The anterior portion of the first pale lateral stripe is very thin, almost invisible in *P. zephyrus*. In contrast, this stripe is much wider throughout its length in *P. serenus*. The black postclypeus areas are more reduced in *P. zephyrus* and do not resemble the black "goggle-eyes" look of *P. serenus*. *P. integer* has a white-spotted thoracic pattern instead of the pale striped pattern found in *P. serenus* and *P. zephyrus*. Also, *P. integer* has a distinctive pale crescent on the metepimeron.

NEEDHAM's (1941) description of *P. integer* larvae from the Dominican Republic is so similiar to *P. zephyrus* larvae, I believe them to be the same; so only *serenus* and *zephyrus* occur on Hispaniola.

The habitat appears to be the headwaters of small, forested montane streams. All the observed males perched inconspicuously on streamside shrubs or rocks back in the shade, never on rocks in the middle of sunny, open streams or rivers like *P. serenus*. Companion odonates were *Hypolestes trinitatis* Gundlach, *Protoneura viridis* Westfall, *Telebasis vulnerata* Hagen, and an occasional *Aeshna psilus* Calvert and *Protoneura dunklei* Daigle at the Arroyo Ana Marie site.

A female *Progomphus* was observed ovipositing over a shallow gravel riffle

area in the Arroyo Ana Marie before escaping into the trees. No larvae were found despite extensive sifting there and elsewhere in the seepage stream. The *P. zephyrus* exuviae site (BELLE, 1992) was a 50-60 foot wide shallow stream at 480 meters elevation, according to the collector, Dr R.W. Garrison (pers. comm.). Further collecting in the hills of Hispaniola should reveal more exuviae, larvae and adults of this elusive Caribbean gomphid.

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REFERENCES

BELLE, J., 1992. Studies on ultimate instar larvae of neotropical Gomphidae, with the description of Tibiagomphus gen. nov. (Anisoptera). *Odonatologica* 21(1): 1-24.

NEEDHAM, J.G., 1941. Life history studies on Progomphus and its nearest allies (Odonata: Aeshnidae). *Trans. Am. ent. Soc.* 67: 221-245.