

***Teinobasis budeni* sp. nov. from Pohnpei,  
Eastern Caroline Islands, Micronesia  
(Odonata: Coenagrionidae)**

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**Abstract**

*Teinobasis budeni* sp. nov. is described from Pohnpei, Federated States of Micronesia. Holotype ♂: Micronesia, Pohnpei, Sokehs, Nanpil River headwaters, 01 July 2001; allotype ♀: same locality, 03 February 2001, both leg. D.W. Buden; to be deposited in FSCA, Gainesville, FL, USA. The new species belongs in the Fortis-group and differs from all species in that group by characters of the male appendages, female ovipositor, hind prothoracic lobe, and coloration of immatures.

**Introduction**

Five species of the genus *Teinobasis* are known only from the island of Pohnpei, Micronesia (Lieftinck 1962). During an intensive survey of the Odonata fauna of the island in 2001 by Donald W. Buden of the College of Micronesia-FSM (Paulson & Buden 2003), a sixth species was discovered.

***Teinobasis budeni* sp. nov.**  
(Figs 1, 2)

*Specimens studied, all from Pohnpei*

Holotype ♂: Pohnpei, Sokehs, Nanpil River headwaters area, 1.5-2.0 km SSW weir, 201-213 m, 1 July 2001, leg. D.W. Buden (DWB 114). Allotype ♀: same locality as holotype, 205 m, 3 February 2001, leg. D.W. Buden (DWB 007). Paratypes (3 ♂, 1 ♀): ♂ Kitti, Nihpit, 475 m, 19 June 2001 (DWB 047); ♂ same locality and date as holotype (DWB 102); ♂ and ♀, Sokehs, Nanpil River headwaters, ca 2.0 km SSW weir, 213 m, 28 June 2001 (DWB 094, 093). Additional material (5 immature ♂): ♂, Sokehs, Nanpil River headwaters, 2.0-2.5 km SSW weir, 244 m, 8 September 2001; ♂, Nett, Meitik

River, 2.0-2.5 km S upper bridge at Lehle Mwahu, 107 m, 16 September 2001; 3 ♂, Nett, Kiepw River, 1.5 km S Nanpil Power Station, 76 m, 27 October 2001. All leg. D.W. Buden.

The holotype and allotype are to be deposited in the Florida State Collection of Arthropods, Gainesville, Florida. Paratype 047 is to be deposited in the National Museum of Natural History, Washington, D.C., paratype 102 in the University of Michigan Museum of Zoology, Ann Arbor, Michigan. The remainder of the specimens are in the author's collection.

### *Etymology*

I take pleasure in naming this species after its discoverer, who backpacked across the island numerous times, often under adverse weather conditions, to survey its Odonata fauna.

### *Diagnosis*

A small *Teinobasis* of the Fortis-group (Fig. 1), colored much like *T. fortis* and *T. ponapensis* but with the lower branch of the cerci very short, the paraproct prolonged into a slender tip (Fig. 2), the hind lobe of the male prothorax elevated sharply (Fig. 1), and the female ovipositor very short.

### *Description*

#### *Holotype* ♂

**Head:** Glossy black, except anterior half of labrum yellowish-tan, genae and labium pale yellow.

**Thorax:** Prothorax glossy black, entirely overlain with blue-gray pruinosity. Pterothorax glossy black with strong green iridescence on mesothorax, changing to dark brown on metathorax, entirely overlain with blue-gray pruinosity. Lower third of metepisternum

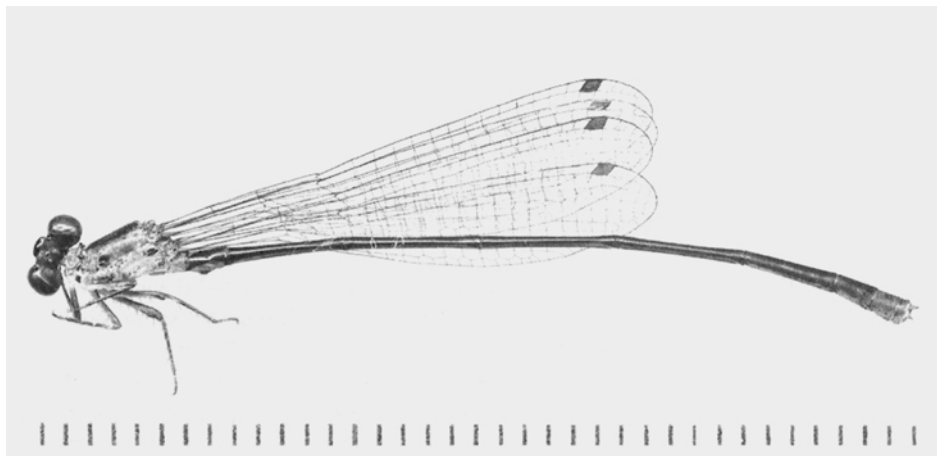


Figure 1. *Teinobasis budeni* sp. nov., holotype scanned. Scale in mm.

and venter of metathorax dull yellow, not pruinose. Coxae mottled brown and yellowish; legs brown, dull yellowish on flexor surfaces of femora. Wing veins and Pt dark brown, almost black.

**Abdomen:** Glossy black with green iridescence on dorsum of S1-3, dull yellowish on lower third of S1-2, and tip of S10 and appendages brown.

**Measurements (mm):** Total length 37.5, Hw length 20.0, abdomen length 31.0.

#### *Allotype* ♀

**Head:** Glossy black except labrum tan, a black median spot and brown lateral spots occupying basal half; labium light yellow.

**Thorax:** Prothorax glossy black, heavily overlain with blue-gray pruinosity. Pterothorax glossy greenish black, ventral 2/3 of metepisternum and all of metepimeron dull brown, these areas overlain with blue-gray pruinosity; venter of metathorax pale yellowish, mostly overlain with whitish pruinosity. Coxae dull yellowish with diffuse brown markings, scattered pruinosity. Femora and tibiae dark brown outside, yellowish inside, with scattered pruinosity on femora; tarsi irregularly brown and tan. Wing veins and Pt dark brown, the latter slightly paler at veins.

**Abdomen:** Black, the following light brown to yellowish brown: underside of S1, patch from 0.4-0.8 length on side of S2, triangle starting at 0.6 on side of S8 and expanding toward rear, lower half of S9-10, and ovipositor valves.

**Measurements (mm):** Total length 33.5, Hw length 20.0, abdomen length 28.0.

#### *Variation*

The four paratype males look essentially identical to the holotype. The paratype female was probably slightly younger than the allotype, with pruinosity only on the dorsum of the prothorax and the mesothoracic coxae. The sides and venter of the metathorax are bright yellow with a dusky wash on the metepisternum; otherwise the coloration is like that of the allotype. The eyes of the paratype female were described as blue above and green below in life. The five immature and teneral males have metallic blue head and thoracic dorsum, bright yellow thoracic sides and venter, and dark brown abdomen with the lower sides of S8-9, all of S10, and the terminal appendages yellow.

**Measurements (mm):** ♂ Hw length 20.1 (20-21,  $n = 8$ ), abdomen length 30.3 (30-31,  $n = 5$ ); ♀ Hw length 20.5 (20-21,  $n = 2$ ), abdomen length 28.5 (28-29,  $n = 2$ ).

#### *Comparisons*

*T. budeni* appears closely related to its congeners on Pohnpei that all have been originally described by Lieftinck (1962). It belongs to the Fortis-group as discussed by Paulson & Buden (2003), a group of species restricted to Pohnpei and comprising *T. fortis*, *T. ponapensis*, *T. budeni*, and *T. nigrolutea*. This group is distinguished by its coloration, metallic blue-black and yellow in immatures, the yellow covered by whitish pruinosity at maturity except in *T. nigrolutea*. All members of this group are easily distinguished from the other two *Teinobasis* on Pohnpei (*T. ariel* and *T. aerides*), which have ground colors of bronze and gray.

The male appendages of all the species in the group, as well as the two species in the Ariel-group, are quite comparable, each cercus with a pointed, slightly incurved dorsal branch and a shorter, fairly straight ventral branch; the paraprocts are very broad and touching or almost touching at the bases, tapering to a broad or narrow point and overall shorter than the cerci. All six of these pointed structures are dark at the tips, apparently more heavily sclerotized there. A shelf extends between the cerci, down and back from the posterior lip of S10, and this shelf is notched in the Fortis-group and pointed in the Ariel-group. The entire arrangement of the terminal appendages is remarkably like that in the Neotropical protonneurid genus *Epipleoneura* (R.W. Garrison pers. comm.), and the way by which these appendages interact with the female thorax would be of great interest to determine.

*T. budeni* differs from its nearest relatives in having the lower branch of the cerci very short, barely extending beyond the rear edge of S10 (Fig. 2). In *nigrolutea*, the branch extends about two-thirds the length of the upper branch, in *fortis* about half the length, and in *ponapensis* about one-third the length. The paraprocts of *budeni* have relatively long and very slender tips in lateral view, while those of the other species have a shorter slender section or a broad tip. The shelf on S10 is narrow and moderately notched in *budeni* and *nigrolutea*, wide and very shallowly notched in *ponapensis*, and wide and very deeply notched in *fortis*. The hind lobe of the prothorax in *budeni* is elevated to an almost upright position, while that lobe in the other species is horizontal (*nigrolutea* and *ponapensis*) or less elevated (*fortis*). The legs of mature *budeni* are striped as in *ponapensis* and *nigrolutea*, in contrast to the solid black legs of *fortis*. Females also differ in the shape of the hind lobe of the prothorax: deeply concave in *fortis*, slightly concave in *budeni*, and straight across in *nigrolutea*; females of *ponapensis* are not known. Females also differ in ovipositor length, *budeni* with the shortest ovipositor (Paulson & Buden 2003). I could find no differences in the female mesostigmal plates, which are species-specific in many coenagrionid genera.

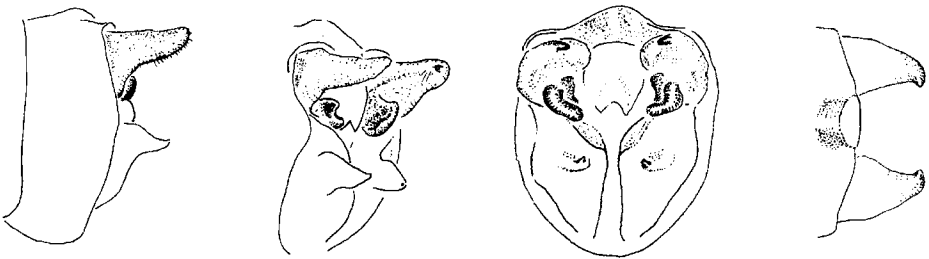


Figure 2. *Teinobasis budeni* sp. nov., holotype, four views of terminal appendages.

#### *Distribution and habitat*

*T. budeni* is restricted to the island of Pohnpei, Federated States of Micronesia. It probably occurs island wide, as it was collected in three municipalities. Specimens of both

sexes were collected among streamside boulders and vegetation along several lowland rivers – the Nanpil, Meitik, and Kiepw, all below 250 m in elevation – and one male was taken at a swampy stream where it exited a marsh at Nihpit, 472 m elevation. The species was found with all other *Teinobasis* that occur on Pohnpei except the most superficially similar one, *T. ponapensis*, a stream species that was taken only above 600 m, and the very dissimilar *T. aerides*, mostly restricted to marshes at higher elevations. Further field work will be necessary to determine whether *budeni* occurs widely above the lowlands.

### Seasonality

Specimens of *T. budeni* were collected in February and from June to October, and the species probably has an all-year flight season. It may be only coincidence that the six mature adult *budeni* were collected 3 February to 1 July and the five teneral 8 September to 27 October. Buden made a special attempt to collect teneral *Teinobasis* on lowland rivers during September to November and took 22 *fortis*, five *budeni*, five *ariel*, and one *nigrolutea*, perhaps an indication of the relative abundance of the four species in this habitat.

### Discussion

*Teinobasis budeni* brings to six the number of species in its genus on Pohnpei, an unusually high diversity of congeneric dragonflies on such a small island. This phenomenon is discussed further by Paulson & Buden (2003). In the field, mature male *budeni* look identical to mature male *fortis* and *ponapensis*, and mature females look identical to mature female *fortis*; the female of *ponapensis* is not known. Immatures of all the species in the group look remarkably similar. Only by Buden's persistent collecting of adults and teneral wherever they were seen were we able to have a reasonably good idea of the distribution and abundance of these similar species.

### Acknowledgements

I thank Rosser Garrison for his carefully executed drawings of the holotype and Donald Buden for the impressive amount of energy he expended to attempt a thorough survey of the dragonflies of Pohnpei.

### References

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