

PECULIAR WING POSITION IN *DYS-  
PHEA DIMIDIATA* SELYS (ZYGOPTE-  
RA: EUPHAEIDAE)

While collecting Odonata on a series of streams north of Padawan, Sarawak, Malaysia, on 22 August 1980 I encountered several males of *D. dimidiata*. They seemed extremely wary, perching on branches of fallen trees 1-2 m above riffles, then flying rapidly over the stream to a new perch when disturbed. Only

with considerable effort was I able to collect 2 males to allow identification. One of the males, watched for several minutes, perched with wings closed much as did the related *Euphaea tricolor* Selys on the same stream. To my surprise, another of the male *Dysphaea* opened its wings and held them depressed at an angle below the horizontal, very much as in the position adopted by many libellulids at rest. It performed this action at least 3 times, each time after changing its perch. The wings were depressed with a sudden movement after it rested for 10-60 seconds with wings closed, and as I approached closer to attempt to photograph it, it would fly again. A photograph was finally taken by extending my arms at full length over an intervening branch; it is out of focus but allows measurement of the angle of the depressed wings.

This damselfly, about 45-50 mm in total length, is entirely black. The fore wings are black to the nodus, with a narrow black tip. The hind wings are black to halfway between the nodus and stigma, with a wider black tip, thus leaving a relatively narrow hyaline area. In the dried specimens, the black part of the wing is slightly iridescent, but this was not evident in sunlight in the field. The males were quite conspicuous from the side with wings folded but less so with wings open, at which time they would have been more visible from above or below. The fore wings were depressed about 40° and the hind wings about 30° below the horizontal.

A variety of zygopterans that I have observed hold their wings open, including species of the following genera (in those of which I have photographs, as indicated by an asterisk (\*), the fore wings are held slightly above the horizontal and the hind wings at or slightly below it): Amphipterygidae - *Amphipteryx* (1 species); Dicteriastidae - *Heliocharis* (1), Lestidae - *Archilestes*\* (5), *Lestes*\* (24), *Platylestes* (1); Megapodagrionidae - *Heteragrion*\* (13), *Megapodagrion*\* (2), *Philogenia*\* (7), *Podolestes* (1), and *Rhinagrion*\* (1). I have not seen any of these species resting with the wings depressed well below the horizontal as in *D. dimidiata*, and they all consistently perch with open wings rather than alternating closed and open

positions. Some coenagrionids (including *Coenagrion* and *Ischnura*) that normally perch with closed wings at times hold them partially open, but they scarcely qualify for inclusion in the "open-wing" group.

It is of interest that in all these families, with the possible exception of the Dicteriastidae, members of other genera rest with wings closed. The adaptive significance of this rather substantial bimodality remains a mystery.

The only other species of Odonata that I know regularly perches with either closed or open wings is the libellulid *Zenithoptera americana* (L.), which I have observed in Costa Rica on numerous occasions. This species, in which the wings are largely black, with morpho-blue upper surfaces, may rest with wings entirely closed over the thorax, the only libellulid that does this to my knowledge, or it may depress the wings down to as much as 40° below the horizontal. Both of these positions have been mentioned in the early literature (W.F. KIRBY, 1897, *Ann. Mag. nat. Hist.* 19: 598-617; F. RIS, 1909-1919, *Collins zool. de Selys Longchamps* 9-16: 1-1278). The open-wing position follows the closed-wing position after landing and appears to occur during more "relaxed" situations.

I suggest that the open-wing position in both of these species functions in territorial display but have no direct evidence to support this hypothesis. Both species are similar in having largely colored wings, although the *Dysphaea* wings are black above as well as below, unlike the *Zenithoptera* wings, which clearly present a very different and much brighter color when open.

These are both long-known species but with very little written about their behavior, and I suspect there are other such cases of unusual wing positions. I encourage field workers to publish observations on them or to communicate with me about them.

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