

THE ENIGMATIC ANTILLEAN DAMSELFLY GENUS *HYPOLESTES* (ZYGOPTERA: MEGAPODAGRIONIDAE)

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Abstract — 3 taxa of *Hypolestes* can be recognized by penis morphology: *trinitatis* Gundlach, 1888 occurring on Cuba, *clara* (Calvert, 1891) on Jamaica, and possibly both of these taxa plus another unnamed one on Hispaniola. These taxa might represent 3 spp., 3 ssp., or 2 spp, one of them with 2 ssp. More specimens from Haiti are needed to solve the problem.

Introduction

After collecting a number of *Hypolestes* in the Dominican Republic, and attempting to identify them, I discovered that the described taxa were remarkably similar and that characters used in the literature were inadequate to separate them. *Hypolestes* is restricted to 3 of the Greater Antilles: Cuba, Jamaica, and Hispaniola.

Results

The penes of *Hypolestes* from each of the three islands of its occurrence are distinct, with a basic plan of 4 projecting fingers, a terminal pair and a lateral pair. Cuban males (*trinitatis*) show nearly straight terminal processes, and recurved lateral processes. Jamaican males (*clara*) show decurved terminal processes and lateral processes curled anteriorly at their tips. Most males from Hispaniola (Taxon X) have decurved terminal processes and short straight lateral processes with flattened abruptly expanded tips. KENNEDY (1920) illustrated the penes of *clara* from Jamaica and *trinitatis* from Cuba. The abdominal appendages of 176 males I studied were so variable that I could not be certain which island a male came from by examining only those.

Among the males studied was the holotype of

clara from Jamaica, and the holotype of *abbotti* (Calvert, 1893), described from one male from Haiti. *H. abbotti* was synonymized by CALVERT (1919), I think correctly, with *trinitatis* from Cuba. Was the holotype of *abbotti* really collected from Haiti?

Another male studied, from near Furcy on the SW peninsula of Haiti, has a penis like Jamaican *clara*. This male in the Florida State Collection of Arthropods was collected by M.J. Westfall, Jr who remembers catching one male at that locality (pers. comm.), which is now in alcohol with its separated penis. Could this male be mislabelled? Could its penis have been switched with a Jamaican males's? I believe the answer is no to both questions, but can not be certain. *H. clara* on the SW peninsula of Haiti makes some sense because that land was a separate island located closer to Jamaica until it drifted into contact with the rest of Hispaniola 10 million years ago or less (BURGESS & FRANZ, 1989). NEEDHAM (1941) collected *Hypolestes* in Palomino canyon on the east end of the old southern Hispaniola island. I studied 9 of those males and found that they were Taxon X, which occurs widely in northern Hispaniola, not *clara* as stated by Needham, or intergrades with *clara*. McLACHLAN (1895) also recorded *clara* from Hispaniola. He gave 2 males to CALVERT (1909) who agreed that they were *clara*, but I examined the penes of the same 2 males and found that they were Taxon X. Thus, although male *Hypolestes* with 3 types of penes have supposedly been taken on Hispaniola, only Taxon X is widespread and common. The Hispaniolan record for *clara* comes only from the Furcy male, the record for *trinitatis* is derived only from the holotype of *abbotti*.

Study of the large series of male *Hypolestes* above showed how the teneral pattern of yellow markings almost entirely disappears with maturation. The last areas to darken are, in sequence, the pale streak above the metaspiracle, a spot on the metepimeron, the mandibles, and the lateral streak on abdominal segment 3. The pale orange spot lateral to each lateral ocellus does not darken. Gray pruinosity first appears on the head and abdominal segments 9-10, then on the thorax. The pruinosity of *clara* is somewhat thicker and whiter than in the other taxa. The

eyes in life of both sexes are black dorsally, pale green ventrally.

Discussion

Females and larvae from the three islands of occurrence appear morphologically identical, and thus are no help at present in delimiting species of *Hypolestes*. Is Taxon X a species or is it a subspecies of *trinitatis*? If both *clara* and *trinitatis* are confirmed to occur on Hispaniola, then all 3 taxa are probably species. If *trinitatis* but not *clara* is confirmed on Hispaniola, this would also indicate that probably all 3 are species (because the penis of *clara* is the most different of all the taxa). If *clara* but not *trinitatis* is confirmed on Hispaniola, then *clara* is probably a species, but Taxon X might be a subspecies of *trinitatis*. For the present, it seems best to regard Taxon X as a form of *trinitatis*, and *clara* as a species which occurs allopatrically on Hispaniola with *trinitatis*.

Besides the above, *Hypolestes* is enigmatic in its familial classification. Various authors have placed it in Lestidae, Amphipterygidae, Pseudolestidae, Hypolestidae, and Megapodagrionidae! The last placement was by DAVIES & TOBIN (1984). This is substantiated by the close similarity between the larvae of *Hypolestes* and of *Oxystigma petiolatum* (Selys), the latter a typical megapodagrionid. Larvae of *Hypolestes* were described by NEEDHAM (1911, 1941) and ALAYO (1985), while that of *O. petiolatum* was described by GEIJSKES (1943).

The biology of *Hypolestes* is not well known. NEEDHAM (1941) noted (of Taxon X): "The adult *Hypolestes* is easy to catch; the easiest of all the Odonata that I have ever taken. It sits quietly in the shade with wings outspread, and when flushed from one resting place it flies quickly to another near by; and instead of seeking the shelter of denser vegetation, it perches again, apparently by preference on the most exposed leaf. . . ." I concur with Needham's observations, and can add that I saw (also Taxon X) a pair in copulation on streamside vegetation, and a pair in tandem ovipositing at the water surface in leafy debris among the rocks of a small shady mountain stream, the usual habitat of *Hypolestes*.

Solving some of the problems outlined above involves more collecting in Haiti while there still

may be *Hypolestes* habitat there, and a DNA or protein study relating the taxa of the genus to each other and to other genera. Behavioral studies look as if they would be relatively easy to do, and would be well warranted on this apparently primitive relict insect.

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