AN ASIATIC DRAGONFLY, *CROCOTHEMIS SERVILIA* (DRURY), ESTABLISHED IN FLORIDA (ANISOPTERA: LIBELLULIDAE)

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Abstract – As of Aug. 10, 1977 this Asiatic sp. was apparently established in a canal near Goulds, Dade County, Florida, USA. This is the first reported instance of a successful introduction of an odon. sp. to a mainland locality, but its presence is not surprising considering the high degree of ecological disturbance and establishment of introduced spp. in southeastern Florida.

Material and observations

On 10 August 1977, Susan Hills and I stopped at a canal at S.W. 224 Street and 87 Avenue, 3 miles east of Goulds, Dade County, Florida, to look for Odonata. At once I recognized a bright scarlet dragonfly as a species I had not seen before. Upon capturing one I decided it was *Crocothemis servilia* (Drury), an Asiatic species; I confirmed this identification subsequently. At least four mature males were present and appeared to be on territory, chasing each other along the banks of the canal. At the same time a number of young individuals, which probably had emerged within the previous few days, were flushed from grassy areas near the canal. Altogether, three males and three females were collected. One specimen of each sex has been deposited in the Florida State Collection of Arthropods, Gainesville, Florida; the rest are in my collection. Although breeding activities were not observed, and I could find no exuviae during a search of the canal bank, I assume the species to be an established resident because of the presence of both territorial males and post-tenerals at the same site.

Comparison with Asiatic specimens

The specimens were compared with material in my collection from several localities in Asia and found to be similar to specimens from Sumbawa (Indonesia), Taiwan and the Khasi Hills of India. They differed from specimens from Japan and South Vietnam in having less color at the wing bases and

more extensive black on the dorsal carina of the abdomen. The basal wing spots reach to the first antenodal in the hind wings and halfway to the first antenodal in the fore wings. The wings vary from hyaline to yellow tinged, independent of age or sex. The specimens measure: male hind wings 30-32 mm, male abdomen 29 mm, female hind wings 31-32.5 mm, female abdomens 25-26 mm. They are definitely *C. servilia*, the widespread species of southern Asia, and not *C. erythraea* (Brullé) from Europe and Africa, with which I also compared them.

Discussion

The canal at which the *Crocothemis* were collected is deep and steep sided, with a muddy bottom and abundant aquatic vegetation, including *Najas* and *Typha*. I had visited this site repeatedly between 1961 and 1964 (PAULSON, 1966) and again in December 1971, and it formerly supported populations of up to 21 species of Odonata. On the 1977 visit it was apparent that both the abundance and diversity of dragonflies was considerably reduced. Six species were present, in addition to *C. servilia*: *Ischnura ramburi* (Selys), *Aphylla williamsoni* (Gloyd), *Brachymesia gravida* (Calvert), *Erythrodiplax berenice* (Drury), *Orthemis ferruginea* (Fabricius) and *Perithemis tenera* (Say). Only three species of libellulids – *B. gravida, C. servilia* and *P. tenera* – were common, whereas during visits in the previous decade quite a few other species were present in substantial numbers. Likewise, the abundance and diversity of fishes apparent in the canal had decreased from earlier years, and I assume something rather drastic had happened in the interim.

Southeast Florida is becoming one of the most ecologically disturbed regions in the United States, and reductions in bird populations have been well documented (ROBERTSON & KUSHLAN, 1974). Along with ecological changes and reduction in the native avifauna, there has been a great surge of establishment of exotic birds in the region (OWRE, 1973), all of them tropical species. Exotic amphibians and reptiles are also more prevalent in southern Florida than elsewhere in North America (KING & KRAKAUER, 1966; CONANT, 1975), and the same is true for fresh-water fish and doubtless other animals and plants. Now from the same area we have the first successful introduction of a member of the Odonata to a mainland locality. Three North American zygopterans, *Enallagma civile* (Hagen), *Ischnura posita* (Hagen), and *I. ramburi* (Selys), have become established in the Hawaiian Islands (ZIMMERMAN, 1948; HARWOOD, 1976), but I know of no other introduced populations of dragonflies. It remains to be seen whether or not *C. servilia* will persist.

References – CONANT, R., 1975, *A field guide to reptiles and amphibians of eastern and central North America*, Houghton Mifflin; – HARWOOD, P.D., 1976, *Proc. Hawaii ent. Soc.* 22: 251-254; – KING, W. & T. KRAKAUER, 1966, *Quart. J. Fla Acad. Sci.* 29: 144-154; – OWRE, O.T., 1973, *Wilson Bull.* 85: 491-500; – PAULSON, D.R., 1966, *The dragonflies (Odonata: Anisoptera) of southern Florida*. PhD thesis, Univ. Miami, Coral Gables; – ROBERTSON, W.B., Jr. & J.A. KUSHLAN, 1974, *Mem. Miami geol. Soc.* 2: 414-452; – ZIMMERMAN, E.C., 1948, *Insects of Hawaii, Vol 2, Apterygota to Thysanura*, Univ. Hawaii Press, Honolulu.

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