

TERING ADULT *SYMPETRUM STRIOLATUM* (CHARP.) IN WESTERN CYPRUS (ANISOPTERA: LIBELLULIDAE)

On 11th March, 1989, whilst examining a tributary of the Stavros Psokos River in western Cyprus, my wife and I were surprised to observe a single female *Sympetrum striolatum* ovipositing. The site chosen was a tiny feeder stream draining into the main tributary, situated approx. 6 km West of the village of Stavros, Troodos Massif (alt. approx. 250 m).

Upon capture, the discoloured, heavily pruinosed appearance and the torn apex of each wing, clearly indicated that the insect was of considerable age. Coupled with the early date, this very strongly suggested to us that it had probably emerged the previous season, having survived the short Cyprus winter. Despite many hours spent at the locality, this specimen was the only dragonfly seen.

Several eggs were collected at the time of capture and have subsequently hatched.

P.S. CORBET (1962, *A biology of dragonflies*, Witherby, London), identifies two kinds of dragonflies that overwinter as adults in temperate regions; those that do so during their maturation period, such as *Sympecma fusca* (Vander L.) and *S. annulata* (Sel.) in Europe, and those that overwinter during the reproductive period. In the latter kind this appears to be only an occasional occurrence, "involving a few exceptionally long-lived and cold-tolerant individuals". Corbet cites *Sympetrum danae* (Sulz.), *S. fonscolombei* (Sel.), *S. striolatum* and perhaps also *Crocothemis erythraea* (Brullé) as European examples. The record of *S. danae* is reported by E. DE SELYS LONGCHAMPS, 1888, *Annls Soc. ent. Belg.* 32:103-198), the other species by A.N. BARTENEV (1930, *Russ. zool. Zh.* 10: 65-92).

It is of interest to note that Bartenev's original suggestion that *S. striolatum* may occasionally overwinter, is based only on an observation, reported by W.G. SCHNEIDER (1845, *Stettin. ent. Ztg* 6: 338-348), of a single teneral *S. striolatum* (*Libellula sicula*) that was seen "towards the end of April" at Syracuse in Sicily. It would appear therefore, that Bartenev's suggestion is only poorly supported by the circumstantial evidence.

A PROBABLE CASE OF AN OVERWIN-

A more plausible comment on overwintering

in this species is made by G. du PLESSIS (1868, *Mitt. schweiz. ent. Ges.* 2: 313-321). In his paper dealing with the odonate fauna of the D'Orbe region of Switzerland, he refers to having taken, in spring, some old females, red-coloured and showing wings that are smoky, frayed and torn, the colour generally faded. He expressed the thought that they may have hibernated one way or another.

Recently, based upon the interesting data of P. TESTARD (1972, *Bull. Soc. ent. Fr.* 77: 118-122), C. DELIRY (1987, *Sympetrum* 1: 69-73) also raised the question of overwintering in adult *S. striolatum*. Testard had observed significant reproductive activity in this species throughout the period 13, 14, 17 & 18th December, 1971, at the north of the Marismas Guadalquivir, Spain.

Highlighting the late dates, Deliry placed the climate of Guadalquivir into a European context and identified areas in Europe and North Africa with similar climatic conditions, i.e. average January temperature $> 10^{\circ}\text{C}$, little or no frost, and > 3000 hours of sunshine annually. Although no conclusion on the subject of overwintering was reached, he implies that the likelihood of finding overwintering dragonflies is greatest in these areas.

Despite the diverse topography, large areas of Cyprus have conditions agreeing fairly well with the criteria used by Deliry. In low-lying regions, average January temperatures are usually in excess of 10°C . For example, Limasol on the coastal plain, has an average January temperature of 12°C , whilst Nicosia (alt. 189 m) has about 10°C . On the other hand, Stavros (alt. 800 m) in the Troodos system has about 8°C in January. Whilst snow lies on the upper slopes of the Khionistra (above 1300 m) for an average of ten weeks each year, in Nicosia snow is rare and seldom settles. In the lowlands frosts are only very occasional and when they do occur, may cause considerable damage to crops (e.g. bananas). With the continental influence of the Turkish land mass diverting low-pressure systems to the North of the island, Cyprus boasts on average 340 sunny days each year. (CF. also R.D. MEIKLE, 1977, *Flora of Cyprus*, Kew, London).

In conclusion, it would appear that our Cypriot record is the first good circumstantial

evidence to support the comments made by Bartenef and du Plessis and goes some way to endorse Deliry's "Strategie de prospection".

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