

**SOMATOCHLORA ARCTICA (ZETT.)  
NEW FOR THE FRENCH PYRENEES  
AND FOR THE SOUTHERN FRENCH  
ALPS, WITH FURTHER RECORDS OF  
SOME RARE ODONATA IN FRANCE**

The Eurosiberian *S. arctica* is extensively distributed throughout the palaeartic Eurasia, from Kamtchatka and northern Siberia to central and western Europe (cf. B. KIAUTA, *Ent. Ber., Amst.* 24: 235-238). Nevertheless, its density is often low. In France, this species is known from the Vosges (L. DÖDERLEIN, 1897, in "Naturgeschichtliche Bilder aus Elsass-Lothringen": *Die Thierwelt von Elsass-Lothringen*, pp. 11-22. Philomatische Gesell., Strasbourg; J. BARRA, 1963, *Bull. Soc. zool. Fr.* 88(1): 108-124 (doubtful records, cf. K. ANDER, 1950, *Opusc. ent.* 15: 53-71); H. LOHMANN, 1981, *Notul. odonatol.* 1(7): 123; J.-P. BOUDOT et al., 1985, *Bull. Soc. Hist. nat. Moselle* 44: 217-228), the Jura (H.-J. DUMONT, 1969, *Bull. Anns Soc. r. ent. Belg.* 105, 261-263; F. BOILLOT, 1977, *Anns scient. Univ. Besançon* (111) 14: 39-40), and the northern Alps (Savoie and Dauphiné) (C. DEGRANGE & M.-D. SEASSAU, 1970,

1974, *Trav. Lab. Hydrobiol. Grenoble* 61: 89-106 and 64/65: 289-308). More recently, it was reported from the Ardennes (G. COPPA & A. GRAFTEAUX, 1985, *Bull. Soc. Hist. nat. Ardennes* 75: 30-32) and from many parts of the Massif Central (A.-J. FRANCEZ & E. KREIJCI, 1983, *Cah. Naturalistes, Paris* (N.S.) 39: 13-14; J.-L. DOMMANGET, 1984, *Bull. Soc. versaillaise Sci. nat.* 11(2): 40-46, and *Notul. odonatol.* 2(3): 46-48; D. BRUGIERE, 1984, *Le Grand Duc* 24: 35; A.-J. FRANCEZ, 1985, *Entomologiste* 41(3): 101-111; BRUNHES et al., 1986, *Revue Sci. nat. Auvergne* 52: 10-14). Until now, its western limit was the locality reported by Dommanget near Limoges, the southern limit being the one reported by Brugière from Lozère.

Surprisingly, we found *S. arctica* in the Southern Alps and eastern Pyrenees. On August 21st 1985, we noticed a male and a female in copula, plus four males patrolling, over a large flooded Sphagnum peat-bog in the department of Alpes-de-Haute-Provence (alt. 2010 m). Other Odonata observed were *Libellula quadrimaculata* L., *Aeshna juncea* (L.) and *Symp-*

*trum flaveolum* (L.). On July 15th and 17th 1986, we observed the same species in two localities of the eastern Pyrenees. The first one (alt. 1380 m), in the department of Aude, a hanging Sphagnum bog with *Narthecium ossifragum* (L.) and *Molinia coerulea* (L.) Moench. Small water pockets accumulating between *Molinia* clumps constituted places where three males patrolled and one female oviposited. Other Odonata were *Orthetrum coerulescens* (Fabr.), *Libellula depressa* L., *Pyrhosoma nymphula* (Sulz.); *Cordulegaster b. boltoni* (Don.) was observed along small rivulets. The other site, in the department of Ariège (alt. 1515 m), is an old peat-bog with *Calluna vulgaris* (Salisb.) heath, and several small water bodies, with *Comarum palustre* (L.) and *Menyanthes trifoliata* (L.). Two or three males and an ovipositing female were observed patrolling over these water points, with a single male of *Pyrhosoma nymphula* and another of *Enallagma cyathigerum* (Charp.). These localities now constitute the southern limit of the area inhabited by *Somatochlora arctica* in western Europe. We cannot speculate on the established nature of this species in the southern Alps and Pyrenees, since the localities are difficult of access or unobscured, and probably unvisited.

Most of the records of *S. arctica* gave Sphagnum peat-bogs as the reproductive habitat for this species. Nevertheless, S. ZIEBELL & P.U. KLINGER (1980, *Drosera* 80(1): 17-24) showed that it also occurs in habitats lacking Sphagnum. Furthermore, H. WILDERMUTH, (1986, *Odonatologica* 15(2): 185-202) reported evidence on its reproduction in slightly alkaline waters of several swamps in Switzerland. We are able to partly confirm these findings with a record from the Chablais mountains (Haute-Savoie), where, at an elevation of almost 1350 m, three patrolling males and one ovipositing female were seen (with *Aeshna juncea*) over a large, partly flooded swamp with *Carex*, *Equisetum*, and *Menyanthes trifoliata*. We could not find Sphagnum in this marsh, and pH was not measured.

Most records relate to mountainous regions, but recently habitats have been found at lower elevations. Thus, G. COPPA & A. GRAF-TEAUX (op. cit.) reported on a locality in the Ardennes (alt. 308 m), and A. ANSELIN (1985,

*Notul. odonatol.* 2(6): 97-98) evidenced a reproductive habitat at 60 m above sea level. This wide range is confirmed by numerous new records in eastern France. During an exhaustive survey of the peat-bogs in the Vosges highland region, we have noticed *S. arctica* in twenty-three localities, ranging from 1105 to 328 m in altitude.

This distribution contrasts with that of the true boreo-alpine *Somatochlora alpestris* (Sel.), which occurs in central Europe only above the 800 m elevation. After the records of C. DEGRANGE & M.-D. SEASSAU (1970 & 1974, op. cit.) and J.-P. BOUDOT et al. (1985, op. cit.), the following are additions to the French distribution of *S. alpestris* (all from Sphagnum bogs):

- Vosges: six new localities (alt. 850-1250 m) in the departments of Haut-Rhin, Haute-Saône and Vosges.
- Northern Alps: Isère: 1 ♂ (24-VIII-1985), Massif des Petites Rousses (alt. 2050 m) with *Aeshna juncea*; — Haute-Savoie: two localities in the Massif des Aiguilles Rouges (alt. 1900 and 2080 m), 1 ♂ at each (31-VIII-1985), accompanied by *A. juncea*.
- Southern Alps: Alpes-Maritimes: 5 ♂, 2 ♀ (7-VIII-1980, 17-VIII-1985); Mercantour National Park (alt. 2215 m), with *A. juncea*; Alpes-de-Haute-Provence: 1 ♂ (21-VIII-1985), over a peat-bog (alt. 2095 m approx.), with *A. juncea*, *Sympetrum flaveolum*, *Libellula depressa*, *Cordulegaster boltoni immaculifrons* (erratic from the valley!).

This species is assumed to inhabit the Jura (P. AGUESSE, 1968, *Les Odonates*, Masson, Paris), but it is still unknown in the Massif Central and in the Pyrenees.

Another interesting species of the French Odonata fauna is *Cordulegaster bidentatus* Selys. It was reported from the Vosges by R. McLACHLAN (1884, *Revue Ent.*, *Caen* 3: 9-20), L. DÖDERLEIN (1897, op. cit.), and G. JACQUEMIN et al. (in press), from the Jura by P.-A. ROBERT (1958, *Les Libellules*, Delachaux & Niestlé, Neuchâtel), from the Massif Central by J. BELLE (1983, *Ent. Ber.*, *Amst.* 43: 93-95), from the Pyrenees by E. de SELYS-LONGCHAMPS (1858, *Mém. Soc. r. Sci. Liège* 11: 257-720) and H. GELIN (1916, *Bull. Soc. ent. Fr.* 12: 54-57), from the Alps by R.

L'HOSTE (1971, *Entomologiste* 27: 104-112), C. DEGRANGE & M.-D. SEASSAU (1970, op. cit.), and K.J. MORTON (1915, *Trans. ent. Soc. Lond.* 3/4: 273-290).

In southern Alps we found one male of *C. b. bidentatus* on July 24th 1986 in the Massif des Baronnies (Drôme), at 1150 m, with *C. boltoni immaculifrons*. Most surprisingly, another male of this species was noticed on July 15th 1986 with *C. b. boltoni*, *Onychogomphus uncatas*, and *Calopteryx virgo meridionalis*, in the Minervois country, over a foothill rivulet of the Montagne noire (Aude), at 275 m altitude, in sub-mediterranean climate. This locality links the site of the Tarn Valley with those of the Pyrenees.

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