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NEW RECORDS OF *LIBELLULA FULVA* (MÜLL.) FOR PORTUGAL (ANISOPTERA: LIBELLULIDAE)

On 25 March 1995, a female was captured and photographed in an orchard near the hamlet Ludo, about 4 km W of Faro, Algarve. Though not absolutely teneral, the individual had clearly emerged recently. Ludo is fringed by saltmarshes, but there is a fresh creek with reeds nearby. From 29 April to 4 May 1997, up to 20 males and a copula were seen and photographed in ditches between fishponds S of the coastal village of Praia de Mira, 25 km S of Aveiro, Beira Litoral. The above constitute the first records of *L. fulva* from Portugal since A.F. DE SEABRA (1939, *Direcc. geral Servc. florest. agricul.* 6: 194-196), who mentioned the species from Soure, 25 km SW of Coimbra, Beira Litoral, in 1937. This is only 45 km away from the 1997 location.

According to the known records, *L. fulva* is very local and scarce in Iberia (see Fig. 1). It is widespread in France, excluding much of the Massif Central (J.-L. DOMMANGET, 1987, *Etude faunistique et bibliographique des odonates de France*, Mus. natn. Hist. nat., Paris; 1994, *Atlas préliminaire des odonates de France*, Mus. natn. Hist. nat., Paris), but is absent from North Africa (D. ASKEW, 1988, *The dragonflies of Europe*, Harley, Colchester). The scarcity of Iberian records can perhaps be explained by the species's relatively early flight period and low densities, which can make it underrecorded. O.-P. WENGER (1963, *Mitt. schweiz. ent. Ges.* 35: 255-269) mentioned it to be plentiful in Girona province in July 1954, but much scarcer in later years. Other records are of one or only several individuals (C. DUFOUR, 1978, *Cah. Nat.* 32: 41-43; R. JÖDICKE, 1996, *Adv. Odonatol.*, Suppl. 1: 155-189). The 1995 record, along with that from Huelva, Spain (C. DUFOUR, 1968, *l.c.*), proofs its occurrence in the most arid parts of southwestern Europe.

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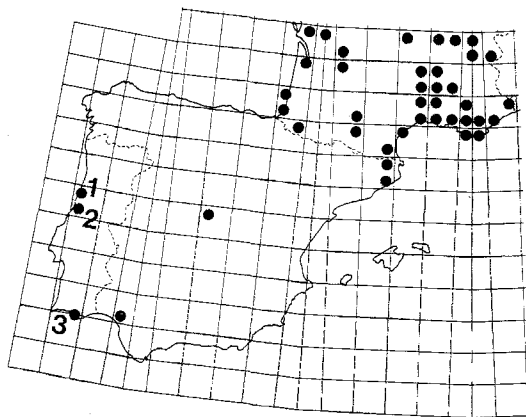


Fig. 1. The distribution of *Libellula fulva* in southwestern Europe, after C. BONET BETORET (1992, *Navasia* 1: 4), A.F. DE SEABRA (1939, *l.c.*), J.-L. DOMMANGET (1987, 1994, *l.c.*), C. DUFOUR (1978, *l.c.*), R. JÖDICKE (1996, *l.c.*) and O.-P. WENGER (1963, *l.c.*). The Portuguese locations are: (1) Praia de Mira, - (2) Soure, - (3) Ludo.

records.

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A PRELIMINARY LIST OF DRAGONFLIES OF THE ISLAND OF CRES, CROATIA

The island of Cres is the place of venue of the 3rd Odonatological Symposium of the Alps-Adriatic Regional Community (18-24 July 1998), therefore it is considered opportune to present here a preliminary checklist of its known odonate fauna. It is the objective, the list will be completed during the Symposium Field Trips and during the Post-Symposium Field Workshop, whereupon a full-fledged fauna will be published.

The island of Cres (surface 404.33 km<sup>2</sup>) is a part of the Cres-Lošinj Archipelago (514 km<sup>2</sup>, coastlines 482 km, length 85 km, width 30 km), situated between 14°17'-14°40'E and 44°78'-45°70'N. The latter is the largest archipelago in the Adriatic, consisting of a group of smaller, inhabited islands, a number of uninhabited islets, and of 28 rocks and reefs.

By the 45th parallel, the Archipelago is divided into a submediterranean and an eumediterranean part. The mild Mediterranean climate is characterised by warm and dry summers and rainy winters, with ca 2500 sunshine hours and ca 200 clear days

per year. At Cres, the mean temperatures are 6.6°C in winter, and 22.6°C in summer; the mean annual precipitation amounts to 900 mm.

Due to the karstic character of the island, it has but one (and very short) permanent stream (in the Jadrišćica cove, highly influenced by the tide). There are several minor springs and temporary torrents. The numerous lentic habitats include the oligotrophic freshwater Lake Vrana (length 5.5 km, width 1.5 km), various natural, seminatural and man-made, mostly eutrophic pools and ponds, marshes, coastal (mostly brackish) lagoons and some watertanks in the abandoned settlements.

The odonate fauna of the 1186 Croatian islands is only fragmentarily known. This certainly is true of the island of Cres as well. So far, 14 species were recorded by D. ST. QUENTIN (1944, *Verh. zool.-bot. Ges. Wien* 90/91: 66-67), M.E. FRANCISCOLO (1978, *Acta ent. jugosl.* 14: 35-47), M. FRANKOVIĆ (1966, in: A. Randić, [Ed.], *Plan gospodarenja okolišem Cresko-Lošinskog otočja*, p. 31, St. Direct. Envir., Rijeka) and G. SUŠIĆ & V. TUTIŠ (1996, *Lokve, ekološki dragulji otoka Cres*, Svanimir, Zagreb & Caput insulae, Rijeka). In the following list, 3 species (asterisked, \*) are added:

*Chalcolestes viridis* (Vander L.)\*, – *Sympetma fusca* (Vander L.)\*, – *Coenagrion puella* (L.), – *C. scitulum* (Ramb.), – *Erythromma viridulum* (Charp.), – *Ischnura elegans* (Vander L.), – *Aeshna affinis* Vander L., – *A. cyanea* (Müll.), – *Anax imperator* Leach, – *Cordulia aenea* (L.), – *Crocothemis erythraea* (Brullé), – *Libellula depressa* L., – *Orthemtrum cancellatum* (L.), – *Sympetrum meridionale* (Sel.)\*, – *S. sanguineum* (Müll.), and *S. striolatum* (Charp.).

In view of the pronounced habitat diversity, several additional species are with certainty expected. Thorough surveys are particularly needed of Vrana Lake and of various brackish marshes and lagoons.

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#### THE EXISTENCE OF DARK COLOUR FORM OF MALE IN *SYMPETRUM MERIDIONALE* (SEL.) (ANISOPTERA: LIBELLULIDAE)

According to the extent of black on the thorax and legs it is possible to identify several groups within *Sympetrum* species. *S. meridionale* belongs to the group where the black on the thoracic sutures is

much reduced and limited only to certain parts on the legs. In typically coloured specimens (Fig. 1, according to caught specimens) there is a black spot along the superior third of the humeral suture and also on the inferior of the mesepimeron, where the black spot protracts toward spiracle, although the spot projection does not reach the mesometapleural suture. Only the inferior part of mesinfraepisternum is black. There is a smaller spot on the inferior of mesometapleural suture with a well marked little spot at the level of the spiracle and also on the end of this suture. The spiracle is less intensively dark edged. The black spot on the metapleural suture is limited only to the superior third of this suture, the inferior third is less intensively dark. The coxa of all legs are spotless. General thorax colour in mature specimens is brownish-ochre, sporadically with an orange or greenish-yellow tinge. Well-marked antehumeral stripes are on the front of the thorax edged with brown. Frons and clypeus light-ochre, in the centre orange-red. Abdomen ochre-reddish with dark brown colour on 1st sternite and on the first half of the dorsal side of the 2nd sternite. In immature specimens frons and thorax are light greenish-yellow, abdomen is light-ochre. Legs (Fig. 2) well marked with black on inner sides of femur and tibia, black-brown tarsus. The rest of the legs are ochre-yellow with a less expressive brown stripe on dorsal side of the femur.

On 20th August 1996 at Klokocov near Zemplínska Sirava reservoir (eastern Slovakia, 110 m above sea level) I managed to catch both a male and female of this species in tandem. In the female the colour was typical, but the male was different mainly in the extent of the black spots on the thoracic sides (Fig. 3). The black spot on the superior part of the humeral suture elongates downward, thus the suture is margined lengthwise with a thin black line. The black spot on the inferior part of the mesepimeron protracts up to the mesometapleural suture. Similarly the black spot on the inferior side of the mesinfraepisternum protracts to the front and to the mesopleural suture as well. The spot on the inferior side of the metepisternum is more extensive. Mesometapleural suture is edged with a thin line, a similar line is also on the suture leading from the metapleural suture to the spiracle. Spiracle is dark edged. The spot on the inferior side of the metepimeron reaching the