

***Diplacodes lefebvrii* (Rambur, 1842) in the province of Malaga**

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ABSTRACT

Recent findings of *Diplacodes lefebvrii* (Rambur, 1842) in the province of Malaga (Spain, Andalusia) are summarized, along with the description of the habitat of some potential breeding populations.

RESUMEN

Se relacionan observaciones recientes de *Diplacodes lefebvrii* (Rambur, 1842) en la provincia de Málaga (Andalucía), junto con la descripción del hábitat de varias poblaciones potencialmente reproductoras.

INTRODUCTION

The Black Percher *Diplacodes lefebvrii* (Rambur, 1842) is the only species of the genus to be found in Europe. It is quite distinctive from many other *Anisoptera* species as adult males are mostly black, while females are much smaller and have brown, yellow and black marks. In its range, it can be confused with *Selysiotthemis nigra* (van der Linden, 1825), but the wing pattern is quite distinctive (black venation instead of whitish venation, etc). *Diplacodes lefebvrii* is common in Africa and occurs eastwards up to western India and the south of Central Asia. In Europe, however, it is mainly restricted to the southwesternmost quarter of the Iberian Peninsula (BOUDOT *et al.* 2009)¹. In Morocco, the species seems scarce and clustered in the north-western coastal region, although its habits make it difficult to record (BOUDOT & JACQUEMIN 1999)². In the Iberian Peninsula, it is known from the south and southwest of Portugal and from southern Spain, mostly in Andalusia. Nevertheless, it has been recently recorded in numerous ponds and small reservoirs in the two main river valleys of Extremadura

(1) BOUDOT J.-P., V.J. KALKMAN, M. AZPILICUETA AMORIN, T. BOGDANOVIC, A. CORDERO RIVERA, G. DEGABRIELE, J.-L. DOMMANGET, S. FERREIRA, B. GARRIGOS, M. JOVIC, M. KOTARAC, W. LOPAU, M. MARINOV, N. MIHOKOVIC, E. RISERVATO, B. SAMRAOUI AND W. SCHNEIDER, 2009. Atlas of the Odonata of the Mediterranean and North Africa. *Libellula Supplement* 9: 1-256.

(2) BOUDOT, J.P. & JACQUEMIN, G. (1999) *Les Libellules (Odonates) du Maroc*. Société Française d'Odonatologie, Bois d'Arcy.

(SÁNCHEZ *et al.* 2009)³. Only a handful of records are known from the province of Malaga, where it was found at the marshes of the Guadalhorce river in 1983 (CONESA GARCÍA 1985)⁴ and 1989 (JÖDICKE 1996)⁵, and observed recently at Campanillas (CONESA GARCÍA *et al.* 2013)⁶.

RESULTS

Recent observations of *Diplacodes lefebvrii* in the Malaga province (Fig. 2):

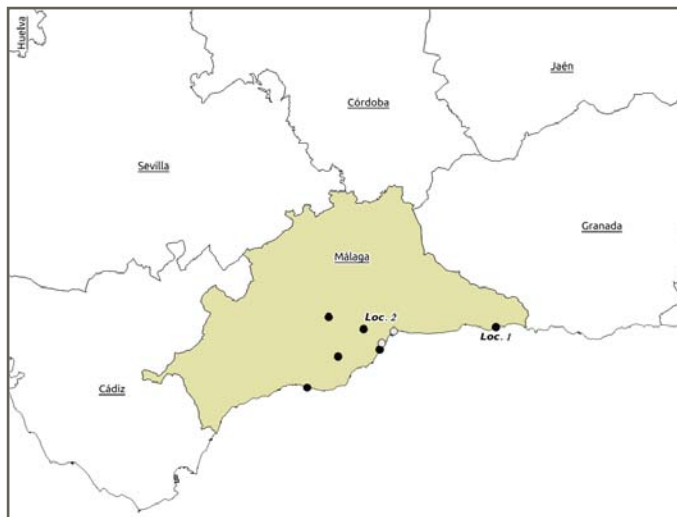


Figura 2: Distribution of *D. lefebvrii* in Malaga. Solid dot: new locality. Open dot: bibliography.

(3) SÁNCHEZ, Á., PÉREZ, J., JIMÉNEZ, E., & TOVAR, C. (2009) *Los Odonatos de Extremadura*. Merida: Consejería de Industria, Energía y Medio Ambiente.

(4) CONESA-GARCÍA, M.A. (1985); Aportaciones a la biología de *Diplacodes lefebvrii* (Rambur, 1842) (Odón., Anisop., Libellulidae) en la Península Iberica. *Boletín Asoc. esp. Entom.*, 9: 321-330.

(5) JÖDICKE, R., (1996) Faunistic data of dragonflies from Spain R. Jödicke, ed. *Advances in Odonatology*, Suppl. 1: 155-189.

(6) CONESA-GARCÍA, M.A., CAMACHO, P., & CANO-VILLEGAS, F.J. (2013) Sobre la distribución de *Selysiothemis nigra* (Van der Linden, 1825) en la provincia de Málaga, Andalucía, España. *Boletín de la Sociedad odonatológica de Andalucía*, 1: 11-13.

Locality 1: Punta Lara

MÁLAGA, Torrox, Punta Lara, Torre de Calaceite, permanent flooded terrain [30S.VF.17.66], 26/07/2011, c. 100 adults; 19/06/2012: 5 males and 5 females. Observers: C. Venhuis & S. Venhuis.

This population of *Diplacodes lefebvrii* was first found on July 26, 2011 and was revisited on June 19, 2012. The location presents a formal gravel depot with a rectangular surface of about 80 x 150 m. Only a few gravel piles are still remaining along the northern borders of the area. The majority of the terrain is more or less flat with a thin upper layer of ditched gravel. At the north-eastern end of the area, a small water source is present which causes

the lower parts of the terrain to flood with a shallow layer of surface water. In 2011, about 50% of the terrain was flooded, but in 2012 just a fraction of the surface was flooded as a spring seepage near the source, probably due to the limited rainfall during the prior rain season. In 2011, riparian vegetation grew at the flooded parts of the terrain and at the slightly dryer parts, low shrubs were present and reed-like vegetation grew near the source. In 2012, the majority of the terrain was found barren with only



Figura 3: *Diplacodes lefebvrei*, male. (Photo: CV)

some low shrubs. Only near the source where water was present, riparian plants and reed were found.

In 2011, we found about 100 individuals of *D. lefebvrei* scattered along the flooded parts of the terrain. Predominantly black males (Fig. 3) were found, at rest on the riparian vegetation alternated with short flights to fight and exclude other males from their territory, and to catch insects. In 2012, we found about 10 individuals only, predominantly near the source, with about 50% males and 50% females (Fig. 1). As we visited the location in June in 2012, against July in 2011, and as several individuals were freshly emerged (Fig. 4), we expected that more individuals still had to emerge.

In both years, we found two co-occurring species only: *Anax imperator* (Leach, 1815) and *Ischnura graellsii* (Rambur, 1842), but both in low numbers.

Figura 4: *D. lefebvrii*, immature. (Photo: CV)



Locality 2: Parque Tecnológico de Andalucía

MÁLAGA, Málaga, Lagunas del Parque Tecnológico (Campanillas) artificial lagoon [30S.UF.61.67], 30/06/2011, 1 male; observers: F.J. Cano-Villegas & J. Ripoll. 26/08/2011, 2 males; 06/09/2011, 5 males and 1 female; observers: J. Ramírez-López, & F. Vázquez; artificial pool by entrance gate [30S.UF.61.66], 22/09/2012, 8 males; observer: P. Winter. Both sites are located within the boundaries of the Technology Park of Andalusia. The artificial pool at the entrance gate is a small permanent pond. The lagoon is larger with a surface of less than 200 m², located in a green area of various introduced grasses and tree species (e.g. *Eucalyptus spp*, *Acacia spp* etc). These habitats are characterized by permanent water, a bottom of rock and gravel and are surrounded by a small fringe of emergent vegetation of reeds (*Phragmites australis*), rushes (*Juncus spp*) and cattails (*Typha dominguensis*). This habitat is also the only location with recent observations of the Irano-Turanian species *Selysiotthemis nigra* in Andalusia (Conesa García et al. 2013)⁶.

Other localities:

- MÁLAGA, Málaga, golf course in Guadalmar, drainage channel [30S.UF.68.57], 22/09/2011, 1 female; 24/09/2011, 2 males and 2 females. Observer: P. Winter. Site visited again in September 2012 without sighting, but there was much less water and much more vegetation.

- MÁLAGA, Málaga, La Cizaña (Churriana) permanent pond [30S.UF.67.57], 21/06/2011: 30 adults. Observer: J. Ramírez-López. A 3 x 3 m permanent pond, located in a coastal sandy grassland, filled with reeds and cattails strands and surrounded by acacias.
- MÁLAGA, Alhaurín El Grande, north face of Cerro Barretos (S^a Mijas), terrestrial habitat, [30S.UF.50.54]. 15/08/2011: 1 male. Observer: J.M. Moreno-Benítez.
- MÁLAGA, Marbella, Arroyo de las Revueltas, upper stream [30S.UF.37.41], 21/09/2011: 1 male. Observers: J.M. Moreno-Benítez & J.A. Ríos-Bosquet.
- MÁLAGA, Pizarra, Pigfarm's ponds at Rivera [30S.UF.46.71], 22/09/2012, 5 adults; 23/09/2012, 4 adults. Observer: P. Winter.

DISCUSSION

Diplacodes lefebvrei is rarely found in the province of Malaga, where it has been observed at ten locations since 1985, and is scattered predominantly along the coastal regions of the province. Adults can be found in marsh-like habitats, shallow open waters with riparian vegetation in and along the water, including reeds. As for Morocco, where the species was only found abundant in one out of four localities (BOUDOT & JACQUEMIN 1999)², most findings in the Malaga province are sightings of a single or few males. At one location exuviae were found (Guadalhorce estuary), implying that reproduction has certainly taken place, although detailed records of the Guadalhorce estuary date back to 1983 (CONESA-GARCIA, 1985)⁴. The Guadalhorce estuary and marshes have changed since the early 80s'. Especially the pioneer habitats disappeared through ecological succession and large scale transformation. This process lead to an impoverishment of the bird community and of its ornithological conservation values (GARRIDO SÁNCHEZ & ALBA PADILLA 2008)⁷. The Guadalhorce site is a reasonably well recorded one for dragonflies (over 85 visits after 01/01/2000 in the ROLA database), but the species was only recorded recently in 2011 and 2012 (CONESA GARCÍA *et al.* 2013)⁶. It is not known if this site is

(7) GARRIDO SÁNCHEZ, M. & ALBA PADILLA, E. (2008) El presente agrídulce de la avifauna en el paraje natural de la desembocadura del río Guadalhorce. *Jábega*, 98: 55-71.

currently suitable for successful reproduction.

Habitats with freshly emerged individuals (Punta Lara) and females (Punta Lara, Parque Tecnológico de Andalucía) are considered as potential breeding sites since they also present suitable conditions in depth and permanence of a water body. The characteristics of the other locations made them hardly suitable for reproduction. In any case, the reproduction needs to be confirmed because the species is a well-known migrant and nomadic taxon, including general individuals (CORBET 1999)⁸. It is able to exploit recently created man-made large lakes (BALINSKY & JAMES 1960)⁹.

In a previous ecological study, the species was found to be strictly associated with brackish water in the Guadalhorce (CONESA-GARCÍA 1985)⁴. This statement should be reassessed given the numerous records of adults in Iberian and Moroccan freshwater habitats. If the species is able to breed in freshwaters, suitable habitat should depend on a plentiful rain season and other permanent water sources that, however, are rare.

Flight season spreads from April to November in the Mediterranean basin (BOUDOT & JACQUEMIN 1999, DIJKSTRA & LEWINGTON 2006)^{2,10}, that fit the Malaga observations, with the maximum number of records in September.

Like many afrotropical "desert" species, *D. lefebvrii* has a good dispersal ability and may be expected to expand northwards in the region (DIJKSTRA & LEWINGTON 2006)¹⁰ as the recent Extremaduran records seem to indicate (SANCHEZ *et al.* 2009)³, particularly if man-made new pools will be created for livestock to fight the decrease in rainfall.

(8) CORBET, P.S. (1999) *Dragonflies: behaviour and ecology of Odonata*. Harley Books, Colchester.

(9) BALINSKY, B.I. & JAMES, G.V. (1960) Explosive reproduction of organisms in the Kariba Lake. *South African Journal of Science*, 56: 101-104.

(10) DIJKSTRA, K-D.B. & LEWINGTON, R. (2006) *Field guide to the dragonflies of Britain and Europe*. British Wildlife Publishing, Gillingham.

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