



SHILAP Revista de Lepidopterología

ISSN: 0300-5267

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Sociedad Hispano-Luso-Americana de  
Lepidopterología  
España

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SHILAP Revista de Lepidopterología, vol. 33, núm. 130, junio, 2005, pp. 169-171

Sociedad Hispano-Luso-Americana de Lepidopterología

Madrid, España

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## *Colotis evagore* (Klug, 1829) advancing northwards in Spain (Lepidoptera: Pieridae)

Z. Fric

### Abstract

The “Desert Orange Tip”, *Colotis evagore* (Klug, 1829) is recorded for the first time from Northeast of Spain, which is about 300 km to the North of its range. Its expansion is probably caused by global climate change.

KEY WORDS: Lepidoptera, Pieridae, *Colotis evagore*, distribution, Spain.

### *Colotis evagore* (Klug, 1829) avanzando hacia el norte en España (Lepidoptera: Pieridae)

### Resumen

La “puntas naranja emigrante”, *Colotis evagore* (Klug, 1829) se cita por primera vez del nordeste de España, encontrándose cerca de 300 km. al norte de su zona. Esta expansión es probable que esté causada por el cambio climático global.

PALABRAS CLAVE: Lepidoptera, Pieridae, *Colotis evagore*, distribución, España.

### Introducción

Recent distribution of majority of butterflies in Europe is considered as relatively well known. In most countries, good distribution atlases exist, and several publications summarise the distribution over whole continent - HIGGINS & RILEY (1970), TOLMAN & LEWINGTON (1997), and, finally, the impressive work by KUDRNA (2002).

The Desert Orange Tip, *Colotis evagore* (Klug, 1829), is widely distributed throughout North Africa from Morocco in the west to Saudi Arabia to the east. It also belongs to European fauna. Every year, it regularly migrates from North Africa to southern part of Spain, especially to Andalusia, where it progressively expands and establishes temporary colonies (TOLMAN & LEWINGTON, 1997). JORDANO *et al.* (1991) found, that the butterfly has been able to survive in coastal southern Spain continually since 1983, but was limited by the presence of its primary host plant - *Capparis spinosa*. In colder regions where *Capparis* is absent, it can use alternative hosts, but cannot enter diapause and survive cold winters.

The occurrence in South of Spain is also reported in KUDRNA (2002) and in the new distribution atlas of Iberian Peninsula by GARCÍA-BARROS *et al.* (2004). Published sources indicate that the species has progressively expanded its area of distribution during past decades, from single point in HIGGINS & RILEY (1970) (although not reported for Europe at all by HIGGINS, 1975) to coast of south-eastern Andalusia in TOLMAN & LEWINGTON (1997) and almost whole Andalusia in GARCÍA-BARROS *et al.* (2004).

Here, I present new record from area about 300 km to the North of its known range.

Z. FRIC

### Material

SPAIN, Tarragona, Tortosa, 309 m., 3 ♂ ♂, 20-VIII-2002 (leg. Z. Fric). The butterflies were observed at the ruins of former fort overtopping the city. The biotop was dry ruderal herbaceous vegetation. With them, there were also numerous *Maniola jurtina* (Linnaeus, 1758), *Pyronia cecilia* (Vallantin, 1894), *Lasiommata megera* (Linnaeus, 1767), *Lampides boeticus* (Linnaeus, 1767) and *Polyommatus bellargus* (Rottemburg, 1775). It is the first record of *C. evagore* for Catalonia.

### Discussion

As reported by CROZIER (2004) for the hesperid *Atalopedes campestris* (Boisduval, 1852) in USA, the range expansion to the north might be due to the increase of winter temperatures, caused by global climate change. It is interesting, that the Desert Orange Tip, formerly limited in distribution by climatic conditions (JORDANO *et al.*, 1991), is recently advancing across the Iberian Peninsula. Similarly, warming climate was reported as the driving force behind northwards and uphill spreads of other European butterflies (WARREN *et al.*, 2003; KONVICKA *et al.* 2003).

Besides the Desert Orange Tip, the South-African blue *Cacyreus marshalli* Butler, 1898 is recently expanding in south-western Europe. It was first reported in Europe in 1989, and subsequently invaded most of cities in Iberia and in other parts of southern Europe, where its host plants, *Pelargonium* spp., are grown for ornamental purposes (SARTO I MONTEYS, 1992). The quick expansions of both species are probably facilitated by their multivoltine development. Such pattern was reported, for instance, in Map Butterfly, *Araschnia levana* (Linnaeus, 1758), whose summer generation is „designed“ for long-distance dispersion, whereas spring generation is sedentary and survives only in good conditions (FRIC & KONVICKA, 2000, 2002).

### Acknowledgements

I would like to thank to A. Faltynkova, who accompanied me in the field, to V. Hula for obtaining of literature, M. Konvicka for fruitful discussion, and especially to J. Mart n Cano, who encouraged me to write this report and discussed with me the situation in distribution of Iberian butterflies.

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(Recibido para publicación / *Received for publication* 21-XII-2004)  
(Revisado y aceptado / *Revised and accepted* 10-I-2005)