

**Short scientific note**Submitted: July 29<sup>th</sup>, 2017 - Accepted: November 28<sup>th</sup>, 2017 - Published: December 29<sup>th</sup>, 2017**First records of *Brachythemis impartita* in peninsular Italy (Odonata: Libellulidae)**Emanuele Guido CONDELLO<sup>1</sup>, Edoardo RAZZETTI<sup>2</sup>, Cristiano LIUZZI<sup>3</sup>,  
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**Abstract**

Two populations of *Brachythemis impartita* (Karsch, 1890) are here reported in peninsular Italy. The species was found for the first time in 2015 in Calabria in the area of the Angitola artificial lake (Maierato and Monterosso Calabro municipalities) not far from the Tyrrhenian coast. In 2016 the species was also observed in southern Apulia, along the banks of two artificial lagoons in the municipality of Ugento. Information are provided that confirm the habitat preferences of the species and a northward expansion.

**Key words:** *Brachythemis impartita*, Libellulidae, Odonata, first records, peninsular Italy.

**Introduction**

*Brachythemis impartita* (Karsch, 1890) is a dragonfly of the family Libellulidae recently separated from *B. leucosticta* (Burmeister, 1839) (Dijkstra & Matushkina 2009). The species is widely distributed in central-northern Africa, with gaps only in desert areas. It inhabits a wide range of wetlands characterized by still or, seldom, weakly running water; elective habitats are sunny basins with little or no vegetation, on the bottom and along the shores (Kalkman & De Knijf 2015).

The colonization of the European continent by *B. impartita* began from the Iberian Peninsula, where the first record (from Portugal) was dated 1957 (Reis Moura 1960). Further records came from Sardinia (Crucitti et al. 1981), Sicily (Carchini 1983) and Corsica (Duborget 2013). In recent decades, the expansion of *B. impartita* continued in available ecosystems within already colonized European countries (Kalkman & De Knijf 2015). According to some authors, the expansion of the species was favoured, especially in the Western Mediterranean area, by climate change and by the presence of numerous artificial basins (Boudot & De Knijf 2012). The phenomenon of poleward expansion seems related to global warming and has been demonstrated for several insect taxa (Hickling et al. 2006; Robinet & Roques 2010), including dragonflies (Hassall 2015; Hickling et al. 2005; Ott 2010). Furthermore, amongst Odonata species, it seems more evident for those

species which prefer still waters (Grewe et al. 2013), like *B. impartita*.

In Italy, *B. impartita* is known to inhabit the two largest islands (Riservato et al. 2014b) where, in particularly suitable environments, is the most abundant and commonly observed dragonfly species during the summer season (Hardersen & Leo 2011). For these reasons, *B. impartita*, although quite localized in Italy and Europe, is classified Least concern in the national and international red lists for Europe (Kalkman et al. 2010; Riservato et al. 2009; Riservato et al. 2014a).

**Observations of *Brachythemis impartita* from peninsular Italy**

The first record of *B. impartita* dates back to August 2015 at Lago dell'Angitola (Vibo Valentia, Calabria). The second site covers coastal lagoons with artificial shores, along the Ionian coast of the lower Salento (Ugento, Apulia).

**Italy: Calabria, Vibo Valentia province, Lago dell'Angitola**

Geographic coordinates: 38.741N - 16.236E

The Lago dell'Angitola is a large artificial basin created in 1966 through the barrage of the River Angitola below the confluence with the Reschia River. These two streams are

the major tributaries of the basin (Bevilacqua 2002). The lake occupies an area of about 1.96 km<sup>2</sup> and is located at the extreme south of the plain of Sant'Eufemia, about 4 km from the Tyrrhenian coast. The area is included in the Parco Naturale Regionale delle Serre and in the Site of Community Importance IT9340089 "Lago dell'Angitola". This area has been also declared a "wetland of international importance" in the framework of the RAMSAR Convention. The site is characterized by a large water body stretching among olive groves, Mediterranean scrub and coniferous trees, with a predominance of *Pinus halepensis*. Wet woodland is limited to the riverbanks and it is formed mainly by *Populus nigra*, *Salix alba* and *Alnus glutinosa* as well as *Phragmites australis* and *Typha latifolia*.

*B. impartita* was observed on 25<sup>th</sup> Aug 2015, 14<sup>th</sup> Aug 2016 and on 20<sup>th</sup> Aug 2016. On 25<sup>th</sup> Aug 2015 a dozen adults were observed along a service road near to the North Eastern shore of the lake in the municipality of Monterosso Calabro. Here a mature male, two immature males and one female were photographed (Fig. 1). On 14<sup>th</sup> Aug 2016, several swarms including dozens of individuals were observed, again close to the shore. On 20<sup>th</sup> Aug 2016, some females were observed on the southern shore of the lake, in an area characterized by a conifer plantation in the Maierato municipality.

During the surveys the following additional species were observed: *Calopteryx haemorrhoidalis* (Vander Linden, 1825), *Platycnemis pennipes* (Pallas, 1771), *Ischnura elegans* (Vander Linden, 1820), *Anax imperator*

Leach, 1815, *Orthetrum brunneum* (Fonscolombe, 1837), *Orthetrum cancellatum* (Linnaeus, 1758), *Orthetrum coerulescens* (Fabricius, 1798), *Crocothemis erythraea* (Brullé, 1832), *Sympetrum striolatum* (Charpentier, 1840) and *Trithemis annulata* (Palisot de Beauvais, 1805).

#### Italy: Apulia, Lecce province, Ugento coastal swamps

Geographic coordinates: 39.864N - 18.151E

The site includes numerous lagoons and channels with artificial shores that were created to reclaim the extensive marshes along the coastal strip of the southern Salento during the first half of the last century (Greco 1992; Perrone 1992). The site is located in the Municipality of Ugento and is included both in the protected area Parco Naturale Regionale Litorale di Ugento and in the Site of Community Importance IT9150009 "Litorale di Ugento". The area is characterized by still or poorly running waters (mostly brackish). The riparian vegetation varies according to the salinity of the soil and the distance from the sea, including *Phragmites australis*, *Juncus* sp. and *Salicornia* sp.

On 17<sup>th</sup> and 20<sup>th</sup> Aug 2016, few dozens of *B. impartita* individuals were observed and photographed close to the Fontanelle lagoon, located less than 100 of meters from the seashore. A further survey carried out on 22<sup>nd</sup> Aug 2016 allowed spotting many recently metamorphosed individuals and adults of both sexes (Fig. 2), mainly concentrated on the dunes between the swamp and the sea; the species appeared less abundant around the lagoon. Finally on 24<sup>th</sup>



Fig. 1 – *Brachythemis impartita* ♀. Lago dell'Angitola (photo by E.G. Condello).



**Fig. 2** – *Brachythemis impartita* ♂. Bacino Fontanelle (photo by F. Mastropasqua).

Aug 2016, a single individual was observed about 1200 meter south-east at the “Bacino degli Spunderati Nord”; this basin is similar to the previous one except for the higher salinity and the almost complete lack of any riparian or submerged vegetation.

During the survey at the Fontanelle basin, the following species were also found: *Platycnemis pennipes* (Pallas, 1771), *Ischnura elegans* (VanderLinden, 1820), *Erythromma lindenii* (Sélys, 1840), *Anax imperator* Leach, 1815, *Anax parthenope* (Sélys, 1839), *Orthetrum cancellatum* (Linnaeus, 1758), *Crocothemis erythraea* (Brullé, 1832), *Selysiothemis nigra* (VanderLinden, 1825), *Sympetrum fonscolombii* (Sélys, 1840) and *Trithemis annulata* (Palisot de Beauvais, 1805). It is relevant to add that during a sampling realized on 30<sup>th</sup> of July 2009 *Brachythemis impartita* was not detected and neither during occasional field trips in the following years.

## Discussion

The new data here reported represent the first observations of *Brachythemis impartita* in peninsular Italy (Riservato et al. 2014b); moreover, the presence of several individuals at both sites, including recently metamorphosed, confirms the local reproduction of the species. The habitat in the two sites confirms that *B. impartita* mainly colonizes

coastal artificial basins, characterized by open water surrounded by bare banks (Kalkman & De Knijf 2015). Our data suggest that the species expansion in Europe has not come to an end, probably favored by climate change as already documented for other species in Europe (De Knijf & Anselin 2010; Hassall 2015; Hickling et al. 2005; Ott 2010; Termaat et al. 2010).

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