

# Checklist Odonata of Wetlands in south-western Sicily (Italy): Pantano Leone, Capo Feto, Margi Spanò, Nespollilla and Milo

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## ABSTRACT

Over time, the significance of checklists as essential tools for managing Sicily's natural heritage has been underscored by the requirements outlined in international biodiversity conventions, particularly in relation to implementing the Habitats Directive. Compiling and updating checklists of fauna and flora for each specific region is necessary due to the growing interest in biodiversity today, which serves as a foundational and indispensable knowledge base. In this paper, a first detailed and complete checklist of the 17 Odonata species of these areas of Sicily (Italy) is presented. Regarding the Capo Feto and Margi Spanò wetland (Trapani, Mazara del Vallo, Italy), the checklist includes 10 species of dragonflies, 13 species for Margi Milo (Trapani, Mazara del Vallo, Italy). As far as the Pantano Leone wetland (Trapani, Campobello di Mazara, Italy) is concerned 13 species of dragonflies are listed.

## KEY WORDS

Damselflies; Mazara del Vallo; dragonflies; *Orthetrum trinacria*; endemic.

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## INTRODUCTION

As in many other European countries, Italian odonatological knowledge and research have greatly benefited from the implementation of citizen science databases which have occurred over the past decade, leading to the publication of a national preliminary Atlas describing 93 different species recorded at least once (Riservato et al., 2014). Despite these advances, knowledge on the distribution of many Odonata species is still scarce and fragmented in large parts of the country. South-western Sicily is one of them. In this study we present the new data on dragonflies from some of these naturalistic areas to compile the first checklist of drag-

onflies from Pantano Leone (Trapani, Campobello di Mazara), Capo Feto, Margi Spanò, Nespollilla and Milo (Trapani, Mazara del Vallo).

The aim of this work is also to update the knowledge of the area so that we can evaluate and interpret future changes. In fact, biodiversity loss is one of the most pressing issues the planet is facing.

## MATERIAL AND METHODS

### Study area

The wetland of Capo Feto is located along the southwestern coast of Sicily (Fig. 1). The area cov-

ers about 150 hectares and is characterised by the presence of backdunal wetlands, now rather rare in Sicily. A narrow and low sand bar separates the wetland from the sea. This wetland and the complex system of canals are characterised by the presence of brackish water. The water level changes during the year, the area is flooded abundantly in winter to dry during the summer, except along the canal system and the deepest marshes. Capo Feto is associated with the adjacent three coastal wetland complexes, called “Margi” with a widespread term throughout the region, to indicate precisely areas with stagnant water: proceeding from north-west to south-east, they are Margi Spanò, Nespollilla and Milo. The peculiarity of these “Margi” is that each has its own characteristics, both physical-chemical and hydroperiod, linked to their topography (Cosentino et al., 2003): from the Margi Milo, with waters only weakly brackish, to the Margi Spanò, in which the frankly brackish aspects predominate. The extent of the wetlands of Margi Spanò and Margi Nespollilla has been reduced over time due to the misappropriation of land by the owners of the neighboring lands.

Oasis of protection and refuge since 1976, the wetland of Capo Feto is part of the SPA/SAC ITA010006 (Special Protection Area / Special Area of Conservation) “Paludi di Capo Feto and Margi Spanò”, is listed in the IBA (Important Bird Area n. 162 “Wetlands of Mazarese”) and is included among the wetlands of international importance recognised under the Ramsar Convention. Troia & Napolitano (2017) highlighted the importance of these zones for rare angiosperm species. Unfortunately, many threats hang over these wetlands: fire, poaching, uncontrolled access by cars, illegal dumps, stray dogs, destruction of priority habitats.

The wetland known as “Pantano Leone” was established in 1977 in the area of Campobello di Mazara (Fig. 2). Originally, it was a perennial freshwater mirror derived from the contribution of rainwater and wastewater. It extends over approximately 6 hectares and the depth of the water varies from a few centimetres to a maximum of 2 meters. Over the years, a flourishing population of *Phragmites australis* developed and contributed to the phyto-depuration of the waters. In 2008, a

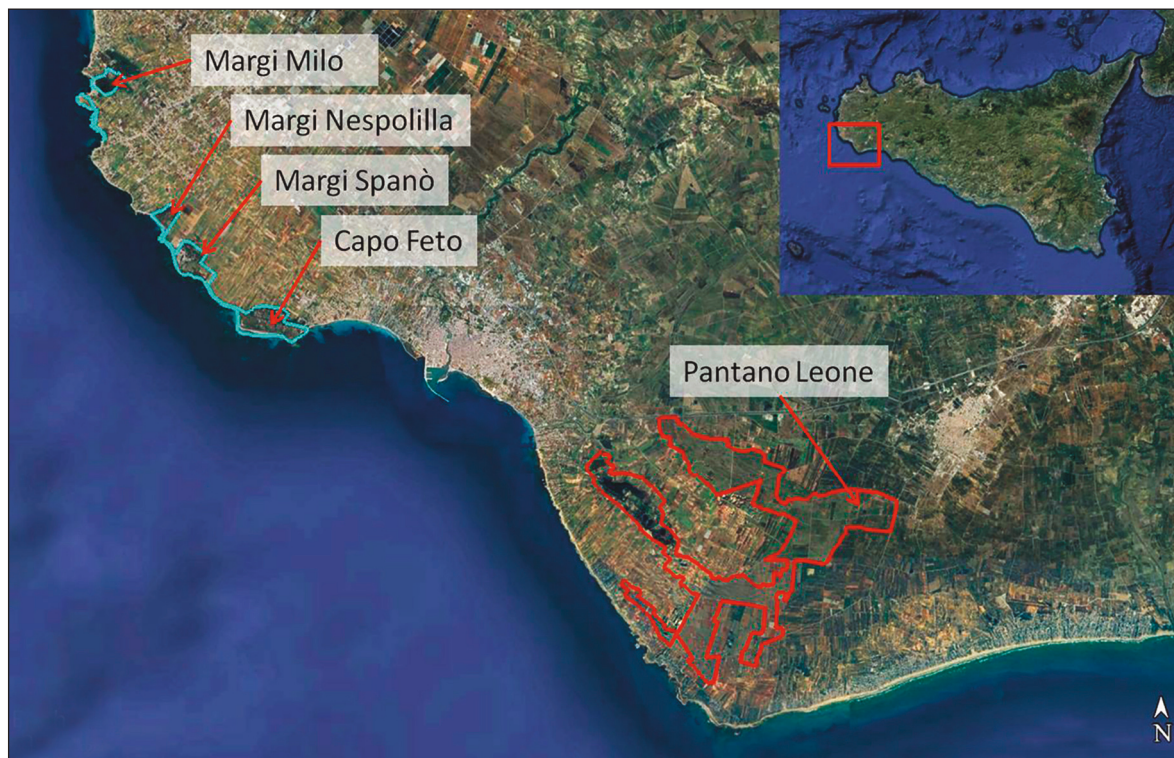


Figure 1. Geographical position of study area in south-western Sicily (Italy). The red and light blue lines show the limits of the SPA/SAC.



Figure 2. Panoramic view of Pantano Leone, Sicily, Italy (photo by A. Barbera).

water treatment plant was built, reducing the flow of water towards the “Pantano Leone”, which became a seasonal wetland. Each year, Pantano Leone dries during March/April. This wetland is next to the archaeological park “Cave di Cusa”. The surrounding area is characterized by the so-called “sciare”, a habitat characterized by the presence of garrigue with *Chamaerops humilis* L. associated with thorny oak (*Quercus coccifera* L.). Pantano Leone is part of the SPA ITA010031 (Special Protection Area) “Laghetti di Preola and Gorgi Tondi, Sciare di Mazara and Pantano Leone”, is listed in the IBA (Important Bird Area n. 162 “Wetlands of the Mazarese”) and is included among the wetlands of international importance recognised under the Ramsar Convention. Major threats: fire, poaching, uncontrolled access by motor vehicles, illegal landfills, stray dogs, destruction of priority habitats.

### Methods

The observations concerning Odonata were carried in the years 2015–2022. Adult individuals

were monitored through visual counts, using 10x40 binoculars and Nikon 8x42. The photos were taken with appropriate photographic equipment: Canon EOS 7d and 150–600 mm, Nikon D7200 and Nikon 200–500 mm lens were used to capture the photos, along with entomological hand nets (Ketelar & Plate, 2001); some of them were counted and identified in the field by observing diagnostic characteristics (Dijkstra et al., 2020); taxonomic uncertainties were resolved using digital images and later examination. All the samples were released immediately after the identification.

The authors’s observations were utilized to implement a national citizen science odonate database ([www.ornitho.it](http://www.ornitho.it)).

### RESULTS

The results of our observations on the Odonata in the wetlands of Pantano Leone, Capo Feto, Margi Spanò, Nespollilla and Milo (south-western Sicily, Italy) are summarized in Table 1.

ZYGOPTERA	Capo Feto, Margi Spanò and Nespollilla	Margi Milo	Pantano Leone
<b>LESTIDAE</b>			
<i>Sympecma fusca</i> Vander Linden, 1820			X
<i>Lestes barbarus</i> (Fabricius, 1798)	XI	X	X
<i>Lestes virens</i> (Charpentier, 1825)	-		X
<b>COENAGRIONIDAE</b>			
<i>Ischnura genei</i> (Rambur, 1842)	X - XI	II – VII; IX-XI	X
<i>Ceriatron tenellum</i> (de Villers, 1789)		V	
<b>ANISOPTERA</b>			
<b>AESHNIDAE</b>			
<i>Aeshna mixta</i> Latreille, 1805	XI		XI
<i>Anax imperator</i> Leach, 1815	IX- XI	IX -X	X
<i>Anax parthenope</i> (Sélys-Longchamps, 1839)	IX - X	V; IX- X	X
<i>Anax ephippiger</i> (Burmeister, 1839)	XI	X	X
<b>LIBELLULIDAE</b>			
<i>Orthetrum coerulescens</i> (Fabricius, 1798)		VII	
<i>Orthetrum trinacria</i> (Sélys-Longchamps, 1841)	VI; X	X	X
<i>Crocothemis erythraea</i> (Brullé, 1832)	X	V; IX- X	X
<i>Sympetrum fonscolombii</i> (Sélys-Longchamps, 1840)	VII - XI	II – III; V; X - XI	X - XI
<i>Sympetrum meridionale</i> (Sélys-Longchamps, 1841)		V	
<i>Sympetrum striolatum</i> (Charpentier, 1840)	XII	XI	X – XII
<i>Trithemis annulata</i> (Palisot de Beauvais, 1805)		V; VII; IX- XI	
<i>Selysiothemis nigra</i> (Vander Linden, 1825)			VII

Table 1. Odonata reported to Capo Feto, Margi Spanò, Margi Milo and Pantano Leone. The “location” column indicates the months of the year when the species was observed.

## DISCUSSION

Widespread and rather easy to detect and identify, damselflies and dragonflies (Odonata) are

amongst the most studied insect taxa (Kalkman et al., 2010). Both terrestrial and aquatic ecosystems are connected to dragonflies throughout their life cycle. However, in order for them to survive, the

aqueous medium is indispensable, since the larvae develop, feed and grow in it. Nowadays, aquatic ecosystems are among the most endangered habitats on Earth, and all factors (e.g. land reclamation, pollution by heavy metals, use of pesticides) that negatively affect them also represent a major threat to the survival of dragonflies (Kalkman et al., 2010). Censuses in these wetlands were conducted on a random, unstandardized basis. Despite this, the data collection has highlighted the importance of these zones not only for rare angiosperm species (Troia & Napolitano, 2017), but also for the odonato fauna at Pantano Leone, Capo Feto, Margi Spanò, Nespolilla and Milo. A more targeted and programmed data collection would likely increase the wildlife importance of these wetlands. Capo Feto, Margi Spanò, Nespolilla, Milo, and Pantano Leone are wetlands that differ depending on the type of environment. They represent biotopes rich in biodiversity that deserve to be valued.

Unfortunately, in the last few years, we have also witnessed the negative aspects of human activity on the environment. We noticed frequent garbage disposal near the marshes, which may have a negative impact on water quality and the development of dragonflies. Some parts of the marshes were interred and accordingly were no longer a suitable habitat for dragonflies.

Odonatological knowledge in Italy is fairly good, except for a few areas, one of which is western Sicily (Riservato et al., 2014). Historically, the collection of odonatologic data has always been limited to the central and eastern part of Sicily (Capra, 1934; 1963; Bucciarelli, 1977; Carfi et al., 1980; Carfi & Terzani, 1993). Only a few research works related to the eastern sector of Sicily have been published (Galasso et al., 2016; 2020a; 2020b; Galasso & Ientile, 2020), including those on its neighboring islands (Ragusa, 1875; Pavese & Utzeri, 1995; Corso et al., 2012). There are very few published data concerning dragonflies in the province of Trapani (Bucciarelli, 1971; Surdo 2015; 2017; 2019). The wetlands of western Sicily are characterized by wet environments with brackish waters (Capo Feto and Margi Spanò) or temporary freshwaters (Pantano Leone and Margi Milo) generally flooded from autumn to late spring. These environmental conditions do not permit the development of a rich and diversified odonatological fauna but it was still possible to make numerous observations.



Figure 3. *Ischnura genei* (photo by S. Surdo).

Other important protected species also live in these environments, which we mention below.

***Species included under Annex II and IV to the Habitats Directive (92/43/EEC) and endemic species***

*Emys trinacris* Fritz, Fattizzo, Guicking, Tripepi, Pennisi, Lenk, Joger et Wink, 2005  
Sicilian pond turtle (Testudines Emydidae)

In the past, Sicilian populations have been attributed to *Emys orbicularis* and in particular to the subspecies *E. orbicularis galloitalica*. Recent molecular studies have brought to light its status as a distinct species (Fritz et al., 2005). Because turtles are highly charismatic animals, *E. trinacris* may become a flagship species for wetland conservation in Sicily. This species is known from Capo Feto and the nearby Margi Milo wetland.

*Brachytrupes megacephalus* (Lefebvre 1827)  
(Orthoptera Gryllidae)



Figure 4. *Sympetrum fonscolombii* (photo by A. Barbera).

It is a south Mediterranean species living in the sandy environments of Sicily, Aeolian Islands, Maltese islands, south Sardinia and North Africa. Because of its rarity in Europe, it has been included in Annexes II and IV of the Habitats Directive as a taxon requiring strict protection. This species is recorded at Capo Feto (B. Massa, personal communication; Massa, 2011).

*Pterolepis elymica* Galvagni et Massa, 1980  
(Orthoptera Tettigonidae)

This species is an endemic species in western Sicily that lives in the halophytic grasslands adjacent to the wetlands of Trapani. *Pterolepis elymica* is recorded at Capo Feto (La Greca, 1981; Massa, 2011).

*Hoplia attilioi* Massa, 1979  
(Coleoptera Scarabeidae)

A local endemic species, at Capo Feto was collected the first male specimen by Attilio Carapezza on 28.V.1978. The female has been unknown for

many years and was collected from just two specimens and described only in 2002 (Pernice, 2002).

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