

# Checklist Birds of Wetlands in south-western Sicily (Italy): Capo Feto and Pantano Leone

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## ABSTRACT

Over the years the importance of checklists as indispensable basic knowledge instruments in the correct management of Sicily's natural heritage has been reinforced by the requests contained in international conventions on biodiversity especially by the need to implement the Habitats Directive. Today's growing interest in biodiversity makes it essential that inventories of fauna and flora are compiled and kept up to date for each individual region to serve as an initial, indispensable knowledge base. In this paper, a first detailed (and, partly, commented) checklist of the waterbirds, diurnal raptors species of two naturalistic areas in Sicily, Italy (Capo Feto and Pantano Leone) is presented. Regarding the Capo Feto (Trapani, Mazara del Vallo) wetland, the checklist includes 94 species of waterbirds and birds of prey. As far as the Pantano Leone (Trapani, Campobello di Mazara) wetland is concerned, the checklist includes 73 species of birds. Capo Feto is a nationally important site for the Kentish Plover, an endangered species (EN) on the IUCN Red List of Threatened Species that nests there. Pantano Leone is a nationally important site for the overwintering of Common snipe.

## KEY WORDS

*Asio flammeus*; *Gallinago gallinago*; *Charadrius alexandrinus*; Margi Spanò; Margi Nespolilla.

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## INTRODUCTION

The checklist is an essential cognitive tool for proper management of the natural patrimony. The importance of checklists is strengthened by the requirements of international biodiversity conventions, especially for the implementation of the Habitats Directive. Creating and updating the checklist of species present in a territory represents an important step in that direction. The checklist is also a useful tool at the local level, as it helps to spread knowledge of the great heritage of Sicilian biodiversity that we have and the great responsibility of preserving and transmitting to future gen-

erations. Each day, human activity removes space from nature. Before it is too late, a thorough knowledge of the natural heritage is necessary, which is essential for the evaluation of human impact and environmental quality. Any anthropogenic intervention with consequences for its faunal heritage cannot ignore the list of species present in this specific territory.

The objective of this work is to provide the first detailed list of waterbirds found in two important wetlands in western Sicily: Capo Feto (Trapani, Mazara del Vallo), including "Margi Spanò" and "Margi Nespolilla", and Pantano Leone (Trapani, Campobello di Mazara).

## MATERIAL AND METHODS

### Study area

The wetland of Capo Feto (Mazara del Vallo) is located along the southwestern coast of Sicily, Italy (Figs. 1–3). The area covers 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 to the adjacent wetland called “Margi Spanò” and “Margi Nespolilla”, this last wetland now almost completely interred. The extension of the Margi Spanò wetland has decreased over time due to the misappropriation of land by the owners of the neighbouring land. 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. Main threats: fire, poaching, uncontrolled access by motor vehicles, illegal landfills, stray dogs, destruction of priority habitats.

The wetland known as “Pantano Leone” was established in 1977 in the area of Campobello di Mazara (Fig. 3). 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* (Cav.) Trin. ex Steud. developed and contributed to the phyto-depuration of the waters. In 2008, a water treatment plant was built, reducing the flow of water towards the “Pantano Leone”, which became a seasonal wet-



Figure 1. Geographical position of study areas (Capo Feto and Pantano Leone, Sicily, Italy). The red and light blue lines show the limits of the SPA/SAC.





Figure 2. Panoramic view of Capo Feto (photo by A. Barbera).



Figure 3. Panoramic view of Pantano Leone (photo by M. Coco).

land. Each year, Pantano Leone dries during March/April. The 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 Gorghetti 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 were carried out using binoculars Leica 10x40 and Nikon 8x42. A Swarovski 20–60x80 telescope was employed. The photos were taken with appropriate photographic equipment: Canon EOS 7d and 150–600 mm, Nikon D7200 and Nikon 200–500mm lens. Both study areas are wetlands, so only species listed on the International Waterbird Census (IWC) are reported, they belong to families: Anatidae, Podicipedidae, Phoenicopteridae, Rallidae, Gruidae, Gaviidae, Ciconiidae, Threskiornithidae, Ardeidae, Pelecanidae, Phalacrocoracidae, Burhinidae, Haematopodidae, Recurvirostridae, Charadriidae, Scolopacidae, Glareolidae and Laridae. Six species of raptors (Pandionidae and Accipitridae) have been added: *Pandion haliaetus*, *Circus aeruginosus*, *Circus cyaneus*, *Circus macrourus*, *Circus pygargus*, *Clanga pomarina*; and a species of Strigidae: *Asio flammeus*. Species with interesting findings were commented.

The criteria used to choose the species commented were: species in low numbers, species with a few observations, rare species for which the study area is an important breeding/wintering/migratory stopover site, unusual number recorded, Species where there are no recent data. The data presented herein are acquired by the authors, unless otherwise specified.

ABBREVIATIONS. ind. = individual/s; pers. comm. = personal communication.

### RESULTS

The results of our observations on the aquatic birds and birds of prey in the wetlands of Capo Feto and Pantano Leone are summarized in Table 1. The criteria and abbreviations used to compile this Table 1 are explained below.

Status: accidental (A), breeder (B), extinct as breeder (EX), migrant (M), resident (R), winterer (W), regular (reg), irregular (irr), occasional (occ). Regular species means one that has been observed for at least nine years in the past ten years. Irregular species refers to a species observed between three and eight years during the last ten years. A species is considered occasional if it has been observed for up to two years within the past ten years.

European conservation concern (SPECs): SPEC 1 = European species of global conservation concern, i.e. classified as Critically Endangered, Endangered, Vulnerable or Near Threatened at global level;

SPEC 2 = Species whose global population is concentrated in Europe, and which is classified as Regionally Extinct, Critically Endangered, Endangered, Vulnerable, Near Threatened, Declining, Depleted or Rare at European level;

SPEC 3 = Species whose global population is not concentrated in Europe, but which is classified as Regionally Extinct, Critically Endangered, Endangered, Vulnerable, Near Threatened, Declining, Depleted or Rare at European level (Birdlife International, 2017);

Non-SPECE = Species whose global population is concentrated in Europe, but whose European population status is currently considered to be Secure and Non-SPEC = Species whose global population is not concentrated in Europe, and whose European population status is currently considered to be Secure, are not indicated.

Red List categories: Regionally Extinct (RE), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD), Not Applicable (NA), Not Evaluated (NE) (Gustin et al., 2021).

References, species sequence and nomenclature according to Baccetti et al. (2021).

Scientific name	Common name	CF	PL	SPECs, RedList Italian Breeding
ANSERIFORMES - ANATIDAE				
<i>Anser anser</i> (Linnaeus, 1758)	Greylag Goose	-	M occ	Non-SPEC, LC
<i>Anser albifron</i> (Scopoli, 1769)	Greater white-fronted Goose	A	-	Non-SPEC
<i>Mergellus albellus</i> (Linnaeus, 1758)	Smew	A	-	Spec3
<i>Mergus serrator</i> Linnaeus, 1758	Goosander	M, W reg	-	Spec3
<i>Tadorna tadorna</i> (Linnaeus, 1758)	Common Shelduck	M, W reg; B irr	M, W reg	Non-SPEC, VU
<i>Tadorna ferruginea</i> (Pallas, 1764)	Ruddy Shelduck	-	W occ	Spec3
<i>Marmaronetta angustirostris</i> (Ménétries, 1832)	Marbled Duck	A	B irr (Ex 2005)	Spec1, EN
<i>Netta rufina</i> (Pallas, 1773)	Red-crested Pochard	-	B irr (Ex 2008)	Non-SPEC, EN
<i>Aythya ferina</i> (Linnaeus, 1758)	Common Pochard	M occ	M, W reg	Spec1, EN
<i>Aythya nyroca</i> (Guldenstadt, 1770)	Ferruginous Duck	M occ	M irrW occ	Spec1, EN
<i>Aythya fuligula</i> (Linnaeus, 1758)	Tufted Duck	M, W occ	M irrW occ	Spec3, VU
<i>Anas querquedula</i> Linnaeus, 1758	Garganey	M reg	M reg	Spec3, VU
<i>Anas clypeata</i> Linnaeus, 1758	Northern Shoveler	M, W reg	M, W reg	Non-SPEC, VU
<i>Anas strepera</i> Linnaeus, 1758	Gadwall	M, W reg	M, W reg	Non-SPEC, VU
<i>Anas penelope</i> Linnaeus, 1758	Eurasian Wigeon	M, W reg	M, W reg	Non-SPECE, NA
<i>Anas platyrhynchos</i> Linnaeus, 1758	Mallard	M, W reg	M, W reg	Non-SPEC, LC
<i>Anas acuta</i> Linnaeus, 1758	Northern Pintail	M, W reg	M, W reg	Spec3, NA
<i>Anas crecca</i> Linnaeus, 1758	Eurasian Teal	M, W reg	M, W reg	Non-SPEC, EN
PODICIPEDIFORMES - PODICIPEDIDAE				
<i>Tachybaptus ruficollis</i> (Pallas, 1764)	Little Grebe	M, W reg	M, W reg	Non-SPEC, LC
<i>Podiceps cristatus</i> (Linnaeus, 1758)	Great Crested Grebe	M, W reg	M, W reg	Non-SPEC, LC



<i>Podiceps nigricollis</i> C.L. Brehm, 1831	Black-necked Grebe	M, W reg	M, W reg	Non-SPEC, NA
PHOENICOPTERIFORMES - PHOENICOPTERIDAE				
<i>Phoenicopterus roseus</i> Pallas, 1811	Greater Flamingo	M, W reg	M irrW irr	Non-SPEC, LC
GRUIFORMES - RALLIDAE				
<i>Rallus aquaticus</i> Linnaeus, 1758	Water Rail	M irrW occ	M irr	Non-SPEC, LC
<i>Crex crex</i> (Linnaeus, 1758)	Corncrake	-	M occ	Spec2, VU
<i>Porzana parva</i> (Scopoli, 1769)	Little Crake	M occ	M irr	Non-SPECE, DD
<i>Gallinula chloropus</i> (Linnaeus, 1758)	Common Moorhen	M, B, W reg	M, W reg	Non-SPEC, LC
<i>Fulica atra</i> Linnaeus, 1758	Eurasian Coot	M, W reg	M, W reg	Spec3, LC
GRUIFORMES - GRUIDAE				
<i>Grus grus</i> (Linnaeus, 1758)	Common Crane	M regW occ	M reg	Non-SPECE, RE
CICONIIFORMES - CICONIIDAE				
<i>Ciconia nigra</i> (Linnaeus, 1758)	Black Stork	M reg	M reg	Non-SPECE, VU
<i>Ciconia ciconia</i> (Linnaeus, 1758)	White Stork	M reg	M regW irr	Non-SPECE, LC
PELICANIFORMES - THRESKIORNITHIDAE				
<i>Platalea leucorodia</i> Linnaeus, 1758	Eurasian Spoonbill	M, W reg	M reg	Non-SPEC, VU
<i>Plegadis falcinellus</i> (Linnaeus, 1766)	Glossy Ibis	M, W occ	M, W occ	Non-SPEC, EN
PELICANIFORMES - ARDEIDE				
<i>Botaurus stellaris</i> (Linnaeus, 1758)	Eurasian Bittern	-	M occ	Spec3, EN
<i>Nycticorax nycticorax</i> (Linnaeus, 1758)	Black-crowned Night-Heron	-	M reg	Spec3, VU
<i>Ardeola ralloides</i> (Scopoli, 1769)	Squacco Heron	M reg	M reg	Spec3, LC
<i>Bubulcus ibis</i> (Linnaeus, 1758)	Cattle Egret	M, W reg	M, W reg	Non-SPEC, LC
<i>Ardea cinerea</i> Linnaeus, 1758	Grey Heron	M, W reg	M, W occ	Non-SPEC, LC

<i>Ardea purpurea</i> Linnaeus, 1766	Purple Heron	M reg	-	Spec3, LC
<i>Ardea alba</i> Linnaeus, 1758	Great Egret	M regW irr	M irr	Non-SPEC, NT
<i>Egretta garzetta</i> (Linnaeus, 1766)	Little Egret	M, W reg	M, W irr	Non-SPEC, LC
<i>Egretta gularis</i> (Bosc, 1792)	Western Reef-egret	A	-	-
PELICANIFORMES - PELICANIDAE				
<i>Pelecanus onocrotalus</i> Linnaeus, 1758	Great White Pelican	-	A	Spec3
PELICANIFORMES - PHALACROCORACIDAE				
<i>Phalacrocorax carbo</i> (Linnaeus, 1758)	Great Cormorant	M, W reg	M, W reg	Non-SPEC, LC
CHARADRIIFORMES - BURHINIDAE				
<i>Burhinus oedicephalus</i> (Linnaeus, 1758)	Eurasian Stone-curlew	M, W reg	M, W reg	Spec3, LC
CHARADRIIFORMES - HAEMATOPODIDAE				
<i>Haematopus ostralegus</i> Linnaeus, 1758	Eurasian Oystercatcher	M reg	-	Spec1, VU
CHARADRIIFORMES - RECURVIROSTRIDAE				
<i>Recurvirostra avosetta</i> Linnaeus, 1758	Pied Avocet	M reg	M occ	Non-SPEC, LC
<i>Himantopus himantopus</i> (Linnaeus, 1758)	Black-winged Stilt	M, B reg	M, B, W occ	Non-SPEC, LC
CHARADRIIFORMES - CHARADRIIDAE				
<i>Pluvialis squatarola</i> (Linnaeus, 1758)	Grey Plover	M, W reg	-	Non-SPEC
<i>Pluvialis apricaria</i> (Linnaeus, 1758)	European Golden-Plover	M, W reg	M, W reg	Non-SPECE
<i>Charadrius hiaticula</i> Linnaeus, 1758	Common Ringed Plover	M, W reg	M irr	Non-SPECE
<i>Charadrius dubius</i> Scopoli, 1786	Little Ringed Plover	M, B occ	M reg	Non-SPEC, LC
<i>Charadrius alexandrinus</i> Linnaeus, 1758	Kentish Plover	M, B, W reg	-	Spec3, EN
<i>Vanellus vanellus</i> (Linnaeus, 1758)	Northern Lapwing	M, W reg	M, W reg	Spec1, LC
<i>Vanellus gregarius</i> (Pallas, 1771)	Sociable Lapwing	A	-	Spec1

CHARADRIIFORMES - SCOLOPACIDAE				
<i>Numenius phaeopus</i> (Linnaeus, 1758)	Whimbrel	M, W occ	-	Non-SPECE
<i>Numenius arquata</i> (Linnaeus, 1758)	Eurasian Curlew	M, W reg	M occ	Spec1, NA
<i>Limosa lapponica</i> (Linnaeus, 1758)	Bar-tailed Godwit	M reg	-	Spec1
<i>Limosa limosa</i> (Linnaeus, 1758)	Black-tailed Godwit	M reg	M, W occ	Spec1, EN
<i>Arenaria interpres</i> (Linnaeus, 1758)	Ruddy Turnstone	M, W reg	-	Non-SPEC
<i>Calidris canutus</i> (Linnaeus, 1758)	Red Knot	M occ	-	Spec1
<i>Philomachus pugnax</i> (Linnaeus, 1758)	Ruff	M reg	M reg	Spec2
<i>Calidris ferruginea</i> (Pontoppidan, 1763)	Curlew Sandpiper	M reg	M reg	Spec1
<i>Calidris temminckii</i> (Leisler, 1812)	Temminck's Stint	M reg	M reg	Non-SPEC
<i>Calidris alba</i> (Pallas, 1764)	Sanderling	M, W occ	-	Non-SPEC
<i>Calidris alpina</i> (Linnaeus, 1758)	Dunlin	M, W reg	M, W reg	Non-SPEC
<i>Calidris minuta</i> (Leisler, 1812)	Little Stint	M reg	M reg	Non-SPEC
<i>Scolopax rusticola</i> Linnaeus, 1758	Eurasian Woodcock	M occ	-	Non-SPEC, DD
<i>Gallinago gallinago</i> (Linnaeus, 1758)	Common Snipe	M regW reg	M regW reg	Spec3, NA
<i>Lymnocyptes minimus</i> (Brunnich, 1764)	Jack Snipe	M occ	M occW occ	Non-SPEC
<i>Xenus cinereus</i> (Guldenstadt, 1775)	Terek Sandpiper	M occ	-	Non-SPEC
<i>Actitis hypoleucos</i> (Linnaeus, 1758)	Common Sandpiper	M, W reg	M, W irr	Spec3, NT
<i>Tringa ochropus</i> Linnaeus, 1758	Green Sandpiper	M reg	M reg	Non-SPEC
<i>Tringa erythropus</i> (Pallas, 1764)	Spotted Redshank	M reg	M, W irr	Spec3
<i>Tringa nebularia</i> (Gunnerus, 1767)	Common Greenshank	M, W occ	M, W Occ	Non-SPEC
<i>Tringa totanus</i> (Linnaeus, 1758)	Common Redshank	M, W reg	M, W reg	Spec2, LC
<i>Tringa glareola</i> Linnaeus, 1758	Wood Sandpiper	M reg	M, W irr	Spec3



<i>Tringa stagnatilis</i> (Bechstein, 1803)	Marsh Sandpiper	M reg	M, W occ	Non-SPEC
CHARADRIIFORMES - GLAREOLIDAE				
<i>Cursorius cursor</i> (Latham, 1787)	Cream-coloured Courser	A	-	-
<i>Glareola pratincola</i> (Linnaeus, 1766)	Collared Pratincole	M reg	-	Spec3, EN
CHARADRIIFORMES - LARIDAE				
<i>Hydrocoloeus minutus</i> (Pallas, 1776)	Little Gull	M reg	M reg	Spec3
<i>Chroicocephalus genei</i> (Breme, 1839)	Slender-billed Gull	M, W irr	-	Non-SPEC, NT
<i>Chroicocephalus ridibundus</i> (Linnaeus, 1766)	Black-headed Gull	M, W reg	M, W reg	Non-SPECE, LC
<i>Ichthyaetus melanocephalus</i> (Temminck, 1820)	Mediterranean Gull	M, W irr	-	Non-SPECE, NT
<i>Ichthyaetus audouinii</i> (Payraudeau, 1826)	Audouin's Gull	M, W occ	-	Non-SPECE, LC
<i>Larus canus</i> Linnaeus, 1758	Mew Gull	A	-	Non-SPECE
<i>Larus fuscus</i> Linnaeus, 1758	Lesser Black-backed Gull	M occ	-	Non-SPECE
<i>Larus michahellis</i> J.F. Naumann, 1840	Yellow-legged Gull	R	R	Non-SPEC, LC
<i>Sternula albifrons</i> (Pallas, 1764)	Little Tern	M, B reg	M occ	Spec3, NT
<i>Gelochelidon nilotica</i> (Gmelin, 1789)	Gull-billed Tern	M irr	M occ	Spec3, NT
<i>Hydroprogne caspia</i> (Pallas, 1770)	Caspian Tern	M occ	-	Non-SPEC, NA
<i>Chlidonias hybrida</i> (Pallas, 1811)	Whiskered Tern	M occ	M irr	Non-SPEC, VU
<i>Chlidonias leucopterus</i> (Temminck, 1815)	White-winged Tern	M occ	-	Non-SPEC, NA
<i>Chlidonias niger</i> (Linnaeus, 1758)	Black Tern	M occ	M occ	Spec3, CR
<i>Sterna hirundo</i> Linnaeus, 1758	Common Tern	M, B occ	-	Non-SPEC, LC
<i>Thalasseus sandvicensis</i> (Latham, 1787)	Sandwich Tern	M, W reg	-	Non-SPEC, VU
STRIGIFORMES - STRIGIDAE				
<i>Asio flammeus</i> (Pontoppidan, 1763)	Short-eared Owl	M, W irr	-	Spec3, NA

ACCIPITRIFORMES - PANDIONIDAE				
<i>Pandion haliaetus</i> (Linnaeus, 1758)	Osprey	M, W irr	-	Non-SPEC, CR
ACCIPITRIFORMES - ACCIPITRIDAE				
<i>Clanga pomarina</i> (C.L. Brehm, 1831)	Lesser spotted Eagle	-	M, W occ	Non-SPECE
<i>Circus aeruginosus</i> (Linnaeus, 1758)	Western Marsh Harrier	M, W reg	M, W reg	Non-SPEC, VU
<i>Circus cyaneus</i> (Linnaeus, 1766)	Hen Harrier	M, W irr	M, W irr	Spec3, NA
<i>Circus macrourus</i> (Gmelin, 1770)	Pallid Harrier	-	M, W irr	Spec1
<i>Circus pygargus</i> (Linnaeus, 1758)	Montagu's Harrier	M occ	M reg	Non-SPEC, VU

Table 1. Waterbirds and birds of prey from the wetlands of Capo Feto and Pantano Leone.

**Commented checklist****Greater white-fronted Goose** - *Anser albifrons*

Capo Feto, 3 observed in October 1970 (Sorci et al., 1973). Subsequently, no longer recorded.

**Smew** - *Mergus albellus*

In the past it was seen almost annually at Capo Feto and along the coastline (Sorci et al., 1973). Doderlein (1869–1874) reported it to overwinter regularly in Sicily, Whitaker (1920) only occasionally as winterer and subsequent authors as “accidental” (Massa et al., 2021).

**Shelduck** - *Tadorna tadorna*

This duck is present throughout the year at Capo Feto where it breeds only from 2018 with certainty with 1–2 pairs (E. Sciabica, pers. comm.), regular winterer with a small contingent of maximum 30 ind on 2.XII.2016 (N. Baccetti, pers. comm.). At Pantano Leone it is a regular migrant and winterer, until 26 ind. observed. The shelduck has started nesting in western Sicily since 1997, initially only at the Saline of Trapani (Di Maggio & Surdo, 1998), from 2013 at the Stagnone of Marsala (Surdo et al., 2017).

**Marbled Duck** - *Marmaronetta angustirostris*

Pantano Leone, 1 couple breeding from 2000 to 2003 and 2 couples from 2004 to 2005 (Sciabica, 2001; 2002; 2004a; Andreotti, 2007). Last record 6 ind. on 9.VIII.2008 at Pantano Leone. Only one record for Capo Feto: 1 ind. shot on 2.XI.1974 (Sciabica, 2004a).

**Red-crested Pochard** - *Netta rufina*

In the last checklist of Birds of Sicily (Massa et al., 2021) this species is considered an extinct breeder. The latest Sicilian breedings of the 20th century are reported for the ‘40s in the wetland of “Biviere di Lentini” (Iapichino & Massa, 1989). Subsequently, only a single ascertained breeding case was reported, relating to a female with its ducklings observed in May–June 2004 in Pantano Leone (Sciabica, 2004b); last breeding in 2008 (Sciabica, 2020). In 2021 a pair of Red-crested Pochard with a group of 4 juveniles was observed (Galasso & Romano, 2021).

**Western Reef egret** - *Egretta gularis*

Capo Feto, 1 ind. observed on 4.IX.2015 (D. D’Amico, pers. comm.) and subsequently seen at

Tonnarella lagoon on 7.IX.2015 and at RNI Lago Preola and Gorgi Tondi on 17.IX.2015 (Surdo & Barbera, 2016). As proof of the fact that the wetlands of southwestern Sicily are interconnected, they form a large macro-area, very important for the conservation of biodiversity (Capo Feto and Margi Spanò, RNI Lago Preola and Gorgi Tondi, Pantano Leone).

#### **Great White Pelican** - *Pelecanus onocrotalus*

Pantano Leone, 1 ind. photographed on 10.II.2008 (Sciabica, 2020).

#### **Black-winged Stilt** - *Himantopus Himantopus*

For Capo Feto, based on data collected from 2013 to 2022, the number of breeding couples varies from 1 to 4. There are many disturbing factors such as stray dogs, yellow-legged gulls and human disturbance. At Pantano Leone this species is an occasional breeder with 6 couples in 2022 and 1 couple in 2014. The irregular flow of water entering at Pantano Leone causes the sudden decrease of the water level, which negatively affects the reproductive success of this species.

#### **Kentish Plover** - *Charadrius alexandrinus*

Breeder, migrant and winterer scarce in Sicily (Massa et al., 2021). A regional decrease of breeding *C. alexandrinus* of about 18-28% for the period 2010–2020 is confirmed. For Sicily, the most important wintering site is represented by the beach of “Capo Feto”, where flocks up to 70 ind. were observed and with 7 couples in the years 2018–2019 (Galasso et al., 2022).

#### **Sociable Lapwing** - *Vanellus gregarius*

Capo Feto, 1 ind. shot in the 1940s (Sorci et al., 1973).

#### **Eurasian Curlew** - *Numenius arquata*

Winterer for Capo Feto with number to report, 60 ind. on 5.I.2015 (Surdo 2016), 60 ind. on 28.XII.2018, 52 ind. on 7.XII.2019 (L. Giussani & L. Nigro, pers. comm.), 28 ind. on 2.I.2022 (D. & G. Mirlocca, pers. comm.); 2 ind. on

15.XI.2022 at Pantano Leone (M. Pecoraro, pers. comm.).

#### **Red Knot** - *Calidris canutus*

Capo Feto, 1 ind. in March 1968 (Sorci et al. 1973), 3 ind. on 17.IX.2015 (D. D’Amico, pers. comm.) and 1 ind. on 23.II.2020 at Capo Feto.

#### **Common Snipe** - *Gallinago gallinago*

Pantano Leone, winter records, 103 ind. on 7.I.2007, 122 ind. on 14.I.2009, 29 ind. on 4.I.2018, 28 ind. on 20.I.2019, 66 ind on 5.I.2022. In the wetland of Capo Feto, in total only 6 ind. wintering from 2008 to 2022 (Source IWC), max 7 ind. on 25.X.2021 (G. Citino, pers. comm.). The wetlands of the Mazarese are a site of national importance for the wintering of this species in Italy.

#### **Corncrake** - *Crex crex*

Pantano Leone, 1 ind. shot on 22.X.2017.

#### **Terek Sandpiper** - *Xenus cinereus*

Capo Feto, 1 ind. from 13 to 17 .V.2016 (D. D’Amico e G. Citino, pers. comm.) and 2 ind. from 12 to 18.V.2019 (Fig. 4).

#### **Common Redshank** - *Tringa totanus*

For Sicily it is a migrant, common winterer, occasional breeder (Massa et al., 2021). Capo Feto: breeding probably in 2016, it is confirmed in 2017 (Sciabica, 2017). It winters with a small contingent (Surdo, 2016).

#### **Wood Sandpiper** - *Tringa glareola*

Regular migrant, max 20 ind. on 29.IV.2012 (Di Lucia, pers. comm.). Regular winterer (Surdo et al., 2018b; Surdo & Biondi, 2019); new records: 1 ind. from 4 to 12.I.2020 and 2 ind. on 18.XII.2021 (G. Indelicato, pers. comm.) at Pantano Leone.

#### **Cream-coloured Courser** - *Cursorius cursor*

Capo Feto, 2 ind. (one shot) in spring 1956

(Sorci et al., 1973); Capo Feto, 1 ind. in mid march 1976 (Caterini, 1977; Graffeo et al., 2024).

#### **Little Tern** - *Sternula albifrons*

No specific data exist to quantify the colony of Capo Feto. Using data collected from 2013 to 2022, it is possible to estimate a minimum of 3 to a maximum of 15 pairs. Several disturbing factors exist such as stray dogs, yellow-legged gulls, anthropogenic disturbances. For western Sicily, in addition to the “Saline of Trapani and Marsala” (AA.VV., 2008; Lo Valvo & Massa, 1999; Surdo, 2018), Capo Feto is the only other wetland in the Mazarese area together with the Tonnarella lagoon where the species is breeding (Surdo & Barbera 2016).

#### **Common Tern** - *Sterna hirundo*

Dive-bomb from a couple, suggesting presence of nearby nest or young on 1.VII.2013 at Capo Feto (Code 11 on Ornitho.it). Regular breeder since at least 2018 in the nearby “Stagnone of Marsala” (Surdo et al., 2018a).

#### **Short-eared Owl** - *Asio flammeus*

Rare migrant and irregular winterer in Sicily (Massa et al., 2021). Only seen at Capo Feto 1 ind on 15.III.2014, 2 on 10.IV.2016 and on 12.III.2017 (A. Cusmano, pers. comm.), 1 ind on 25.X.2020 and on 30.III.2021. Only one record during winter: 1 on 18.XII.2017. No records for Pantano Leone.

#### **Lesser spotted Eagle** - *Clanga pomarina*

Pantano Leone, 1 ind. photographed on 26.IX.2021, on 29.X.2022 and on 6.XI.2022. 3 ind. on 2.XI.2022.

#### **Hen Harrier** - *Circus cyaneus*

Pantano Leone, 12 observations of single ind. from 2011 to 2022, six of them in winter. Only one observation of 3 ind. on 19.XII.2021. Capo Feto: 6 observations of single ind. from 2011 to 2022. 1 ind. wintering on 2015, 2021 and 2022.

#### **Pallid Harrier** - *Circus macrourus*



Figure 4. Terek Sandpiper, 2 individuals at Capo Feto 12.V.2019 (photo by A. Barbera).



Pantano Leone, 6 observations of single ind. from 2015 to 2022; 1 ind. wintering on 29.XII.2015 (A. Cusmano, pers. comm.) and 7.I.2021.

#### Montagu's Harrier - *Circus pygargus*

Pantano Leone, 8 observations of single ind. from 2011 to 2022. Capo Feto, 1 ind. on 13.IV.2015.

#### Western Marsh Harrier - *Circus aeruginosus*

It migrates from a large area to another large area, undertaking crossings of large bodies of water using flapping flight (Cramp & Simmons, 1980; Panuccio et al., 2021). Our observations seem to suggest the importance of Capo Feto for these migrating raptors (32 ind. observed in feeding area and then from Capo Feto flying to Pantelleria on 21.IX.2020).

Further studies are needed to determine how many individuals go through each year, and it will be necessary to plan them with multiple observers and different observation points along the coast. In the Mazarese countryside, a conservative estimate is at least 20 ind. wintering. Most wintering individuals are juveniles, as indicated by the bibliography (Chiavetta, 1981; Agostini & Logozzo, 2000).

## DISCUSSION

Censuses in both wetlands were conducted on a random, unstandardized basis. Despite this, the data collection has highlighted the importance of migration, wintering and nesting of many waterbird species at Capo Feto and Pantano Leone. A more targeted and programmed data collection would likely increase the wildlife importance of these wetlands. Capo Feto and Pantano Leone are two wetlands that differ depending on the type of environment, as they represent biotopes rich in biodiversity that deserve to be valued.

In Capo Feto, with its brackish ponds and its beach, there have been recordings on species like Goosander, Eurasian Oystercatcher, Grey Plover, Kentish Plover, Whimbrel, Bar-tailed Godwit, Ruddy Turnstone, Red Knot, Sanderling, Terek Sandpiper that frequents saltmarshes, beaches, bays

and estuaries unlike Pantano Leone which has the following exclusive species observed: Greylag Goose, Red-crested Pochard, Eurasian Bittern, Black-crowned Night-Heron, Squacco Heron.

More than 25% of waterbird species found in both wetlands fall into the SPEC category (Fig. 5): to conserve these species, it is essential to protect their remaining populations and habitats.

The national importance of these two wetlands is underlined by the presence of breeding species classified as critically endangered (CR), endangered (EN) and vulnerable (VU) in the IUCN Red List of breeding birds in Italy (Gustin et al., 2021). These are the Kentish plover breeding at Capo Feto and Marbled duck, Red-crested pochard and Glossy ibis breeding at Pantano Leone, while it was a perennial marsh, until 2008. Furthermore, Capo Feto is a nationally important wintering site for Kentish Plover and a reported site for the wintering of Sandwich Tern. Pantano Leone is a nationally important wintering site for Common Snipe and a reported site for Wood Sandpiper (Zenatello et al., 2014 ). Both wetlands are important stopovers for migratory birds. One of the first stops for migratory birds in

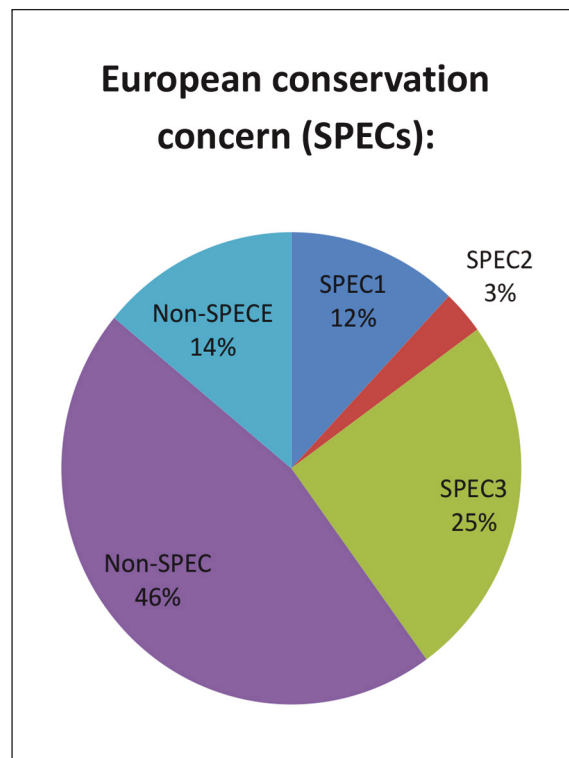


Figure 5. European conservation concern (SPECs).

the spring after crossing the Mediterranean Sea and the last stopover for migratory birds in autumn who use these areas to feed and accumulate the fat necessary to reach the African continent. These Mazarese wetlands have all the characteristics to become privileged hotspots for the observation of diurnal raptors and waterbirds. They can become the driving force of naturalistic tourism which has the advantage of being practiced in the migratory period (spring/fall and winter). It therefore responds to the need for seasonal adjustment of tourism in Sicily linked almost exclusively to the bathing season (summer).

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