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# Avifauna of “Sicilian southeast swamp lakes” and surroundings areas (Ragusa and Syracuse, Sicily) with commented records of interest

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## ABSTRACT

The complex of “Sicilian southeast swamp lakes” represents one of the most important wetland of Sicily and south of Italy for many species of birds. A specific, detailed and complete bird checklist of such an important area was never published, so, data were collected on the field from January 2015 to May 2021 and 226 different species were recorded, thanks to weekly bird census funded and promoted by the German foundation Stiftung Pro Artenvielfalt, owner of the two biggest swamp lakes. In addition, data related to 18 additional species recorded in the same area were collected from bibliographic sources and personal communications from other ornithologists and birdwatchers, for a total of 244 species, of which 74 breeding in the area. A first complete checklist is presented in this paper, as well as the remarks of 44 of the most interesting, relevant or unusual bird records, including the most accurate and up-to-date estimates of breeding pairs of *Marmaronetta angustirostris*, *Aythya nyroca* and *Porphyrio porphyrio* in the study area.

## KEY WORDS

Checklist; *Marmaronetta angustirostris*; Pantano Cuba; Pantano Longarini; Stiftung Pro Artenvielfalt.

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## INTRODUCTION

The Sicilian southeast swamp lakes area, located in the southeast coast of Sicily, represents the southernmost Italian wetland-complex and one of the most important coastal wetlands of southern Europe. The swamp lakes (locally called “Pantani”), are located along the coast, involving the provinces of Ragusa and Syracuse, and the municipalities of Ispica, Pachino, Noto and Portopalo di Capo Passero. There are more than ten different swamp lakes (Fig. 1) with different features and extension, depth and salinity. From East to West, the most important are:

Pantano Marzamemi - Pachino, Syracuse (36°44'32.01"N; 15° 6'56.64"E);

Salina Morghella - Portopalo di Capo Passero, Syracuse (36°42'7.91"N; 15° 6'48.62"E);

Pantano Ponterio - Porto Palo di Capo Passero, Syracuse (36°39'46.48"N; 15° 4'9.09"E);

Pantano Ciaramiraro - Porto Palo di Capo Passero, Syracuse (36°40'6.58"N; 15° 4'7.05"E);

Pantano Baronello - Pachino, Syracuse (36°40'29.54"N; 15° 3'31.87"E);

Pantano Auruca - Pachino, Syracuse (36°41'4.30"N; 15° 3'4.94"E);

Pantano Cuba - Pachino, Syracuse (36°42'27.55"N; 15° 1'38.77"E);

Pantano Longarini - Ispica, Ragusa (36°42'36.78"N; 14°59'59.23"E) / Pachino, Syracuse (36°42'41.27"N; 15° 0'42.34"E);

Pantano Bruno - Ispica, Ragusa (36°41'56.72"N; 14°58'55.58"E);

Gorgo Salato - Ispica, Ragusa (36°41'43.29"N; 14°58'30.89"E).

The whole wetland-complex extends for about 1600 hectares and is included in Natura 2000 as Special Areas of Conservation (SACs ITA090003) and Special Protection Areas (SPAs ITA090029), designated respectively under the Habitats Directive (Directive 92/43/EEC of 21 May 1992) and the Birds Directive (Directive 79/409/EEC of 2 April 1979 and 2009/147/EC of 30 November 2009). Since the wetland is located along the Central Mediterranean migratory route, it is interested by the migration of millions of birds every year, and, due to the local climatic conditions, during the winter it represents a very important wintering site for many species of water birds raptors and passerines. Despite its importance and protection, the whole area has been affected for decades by poaching, illegal fishing and many other illegal activities. In order to definitively stop these serious threats, Pantano Cuba and Pantano Longarini (Fig. 2) were bought, starting from 2013, by the German foundation "Stiftung Pro Artenvielfalt ®" - Foundation Pro Biodiversity, for a total, up to date, of about 360 hectares. The foundation is specialized on biodiversity conservation, protection and habitat management. The same foundation has promoted and funded weekly bird census in the area, allowing to obtain the most of results published in this paper.

## MATERIAL AND METHODS

Starting from January 2015 up to May 2021, weekly bird census have been carried out in the study area, mostly focused on Gorgo Salato, Pantano Bruno, Pantano Cuba and Pantano Longarini, but occasionally also extended to nearby areas of interest, as the other swamp lakes, fields, meadows, orchards and along the coastline, including the small harbour of Portopalo di Capo Passero (Syracuse) and the bay of Porto Ulisse (Ragusa). Please notice that, despite it is included in the same SPAs, the area of the nature reserve of Vendicari (Noto, Syracuse)

has not been considered for this survey, since a recent updated checklist and surveys are available (Ientile & Iapichino, 2010; Ientile et al., 2011).

The bird census have been performed by the authors once for week, for each season and throughout the years, using telescopes and binoculars and watching from fixed observation points, in presence of good weather conditions. To the data directly collected from the authors, additional data have been added by means of bibliographical research or from personal communications of birdwatchers and ornithologists. In this paper, a first detailed and complete checklist of the bird species of this area is presented, but only records considered "of interest" have been commented. The criteria used for the selection of commented species have been:

- Species with low numbers and records for Sicily, generally or during the winter/migration;

- Uncommon/rare species for which the study area represents an important breeding/wintering/migratory site;

- Unusual number recorded;

- Species with lack of recent published data.

Taxonomy follow the last Italian bird checklist (Baccetti et al., 2020) and English names follow the last World Bird List (Gill et al., 2020). The bird phenology utilised follow Brichetti & Fracasso (2015) using the codes: SB = Sedentary breeder; B = Breeder; M = migratory; W = Wintering; A = Accidental; reg = regular; irr = irregular.

IUCN categories follow the IUCN guidelines (2017) and the Red List of Italian breeding birds (Gustin et al., 2019).

## RESULTS

From January 2015 to May 2021, 226 different species of birds were recorded in the study area. In addition, 18 species were added after consulting available bibliographic sources and sharing data with other birdwatchers and ornithologists, for a total of 244 species.

All the species are listed in the Table 1. Please note that the phenology reported is exclusively related to the study area and collected data.

Hereafter, we also report short remarks related to the more interesting and important observations. If data have not been collected by authors, observer is always specified in brackets.

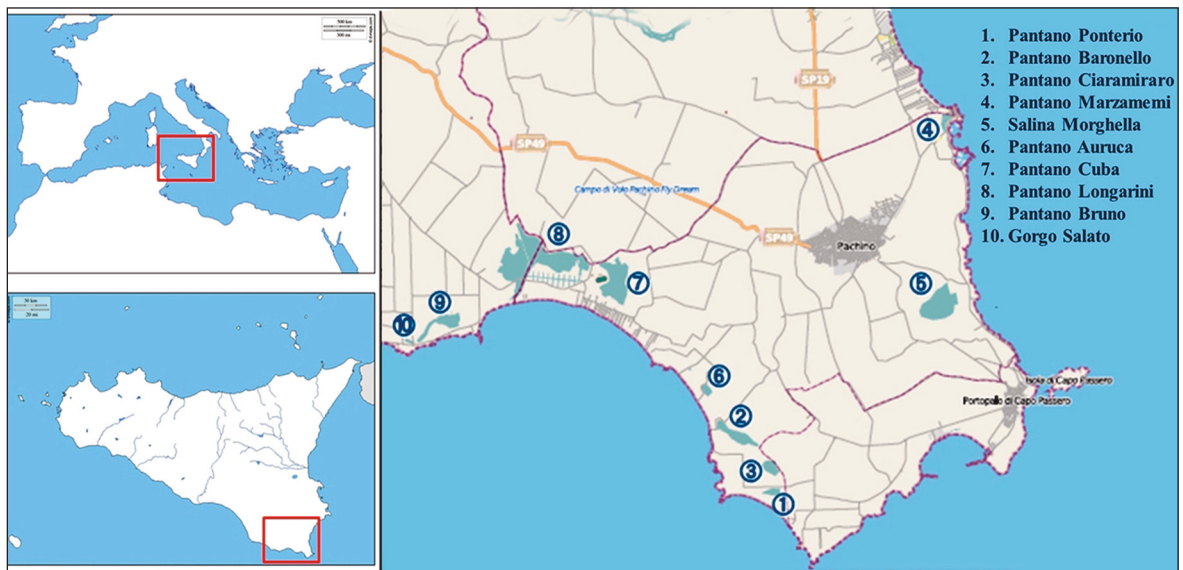


Figure 1. Geographical location of the study area and of main Sicilian southeast swamp lakes along the coast (modified from: Guglielmo et al., 2013).



Figure 2. Panoramic view of Pantano Longarini (above) and Pantano Cuba (below), the two biggest swamp lakes of the study area (Photo: ©SPA\_DE).

| N.                         | EURING CODE | ENGLISH NAME            | SCIENTIFIC NAME                    | AUTHOR              | PHENOLOGY    | IUCN |
|----------------------------|-------------|-------------------------|------------------------------------|---------------------|--------------|------|
| <b>Galliformes</b>         |             |                         |                                    |                     |              |      |
| <b>Phasianidae</b>         |             |                         |                                    |                     |              |      |
| 1                          | 3700        | Common Quail            | <i>Coturnix coturnix</i>           | (Linnaeus, 1758)    | M, W irr     | DD   |
| <b>Anseriformes</b>        |             |                         |                                    |                     |              |      |
| <b>Anatidae</b>            |             |                         |                                    |                     |              |      |
| 2                          | 1520        | Mute swan*              | <i>Cygnus olor*</i>                | (J.F. Gmelin, 1789) | A            | LC   |
| 3                          | 1610        | Greylag Goose           | <i>Anser anser</i>                 | (Linnaeus, 1758)    | M irr, W irr | LC   |
| 4                          | 2210        | Red-breasted Merganser* | <i>Mergus serrator*</i>            | Linnaeus, 1758      | M irr, W irr |      |
| 5                          | 1730        | Common Shelduck         | <i>Tadorna tadorna</i>             | (Linnaeus, 1758)    | M, W, B      | VU   |
| 6                          | 1710        | Ruddy Shelduck          | <i>Tadorna ferruginea</i>          | (Pallas, 1764)      | M irr, W irr |      |
| 7                          | 1950        | Marbled Duck            | <i>Marmaronetta angustirostris</i> | (Ménétries, 1832)   | M, B, W irr  | EN   |
| 8                          | 1960        | Red-crested Pochard     | <i>Netta rufina</i>                | (Pallas, 1773)      | M irr, W irr | VU   |
| 9                          | 1980        | Common Pochard          | <i>Aythya ferina</i>               | (Linnaeus, 1758)    | M, W, B irr  | VU   |
| 10                         | 2020        | Ferruginous Duck        | <i>Aythya nyroca</i>               | (Güldenstädt, 1770) | M, W, SB     | EN   |
| 11                         | 2030        | Tufted Duck             | <i>Aythya fuligula</i>             | (Linnaeus, 1758)    | W            | VU   |
| 12                         | 2040        | Greater Scaup           | <i>Aythya marila</i>               | (Linnaeus, 1761)    | A            |      |
| 13                         | 1910        | Garganey                | <i>Spatula querquedula</i>         | (Linnaeus, 1758)    | M            | VU   |
| 14                         | 1940        | Northern Shoveler       | <i>Spatula clypeata</i>            | (Linnaeus, 1758)    | M, W, B irr  | VU   |
| 15                         | 1820        | Gadwall                 | <i>Mareca strepera</i>             | (Linnaeus, 1758)    | M, W, B irr  | NT   |
| 16                         | 1790        | Wigeon                  | <i>Mareca penelope</i>             | (Linnaeus, 1758)    | M, W         | NA   |
| 17                         | 1860        | Mallard                 | <i>Anas platyrhynchos</i>          | Linnaeus, 1758      | M, W, SB     | LC   |
| 18                         | 1890        | Northern Pintail        | <i>Anas acuta</i>                  | Linnaeus, 1758      | M, W         | NA   |
| 19                         | 1840        | Eurasian Teal           | <i>Anas crecca</i>                 | Linnaeus, 1758      | M, W         | EN   |
| <b>Podicipediformes</b>    |             |                         |                                    |                     |              |      |
| <b>Podicipedidae</b>       |             |                         |                                    |                     |              |      |
| 20                         | 70          | Little Grebe            | <i>Tachybaptus ruficollis</i>      | (Pallas, 1764)      | M, W, SB     | LC   |
| 21                         | 90          | Great Crested Grebe     | <i>Podiceps cristatus</i>          | (Linnaeus, 1758)    | B, M, W      | LC   |
| 22                         | 110         | Horned Grebe            | <i>Podiceps auritus</i>            | (Linnaeus, 1758)    | A            |      |
| 23                         | 120         | Eared Grebe             | <i>Podiceps nigricollis</i>        | C. L. Brehm, 1831   | M, W         | NA   |
| <b>Phoenicopteriformes</b> |             |                         |                                    |                     |              |      |
| <b>Phoenicopteridae</b>    |             |                         |                                    |                     |              |      |
| 24                         | 1472        | Greater Flamingo        | <i>Phoenicopterus roseus</i>       | Pallas, 1811        | M, W         | LC   |
| <b>Columbiformes</b>       |             |                         |                                    |                     |              |      |
| <b>Columbidae</b>          |             |                         |                                    |                     |              |      |
| 25                         | 6650        | Feral Pigeon            | <i>Columba livia f. domestica</i>  | J. F. Gmelin, 1789  | SB           |      |
| 26                         | 6700        | Woodpigeon              | <i>Columba palumbus</i>            | Linnaeus, 1758      | SB           | LC   |
| 27                         | 6870        | Eurasian Turtle Dove    | <i>Streptopelia turtur</i>         | (Linnaeus, 1758)    | M, B         | LC   |
| 28                         | 6840        | Eurasian Collared Dove  | <i>Streptopelia decaocto</i>       | (Frivaldszky, 1838) | SB           | LC   |
| 29                         | 6900        | Laughing Dove*          | <i>Spilopelia senegalensis*</i>    | (Linnaeus, 1766)    | A            | NT   |
| <b>Caprimulgiformes</b>    |             |                         |                                    |                     |              |      |
| <b>Caprimulgidae</b>       |             |                         |                                    |                     |              |      |
| 30                         | 7780        | Nightjar                | <i>Caprimulgus europaeus</i>       | Linnaeus, 1758      | M            | LC   |

| <b>Apodidae</b>          |      |                           |                              |                  |                 |    |
|--------------------------|------|---------------------------|------------------------------|------------------|-----------------|----|
| 31                       | 7980 | Alpine Swift              | <i>Tachymarptis melba</i>    | (Linnaeus, 1758) | M               | LC |
| 32                       | 7960 | Pallid Swift              | <i>Apus pallidus</i>         | (Shelley, 1870)  | M               | LC |
| 33                       | 7950 | Common Swift              | <i>Apus apus</i>             | (Linnaeus, 1758) | M, B            | LC |
| <b>Cuculiformes</b>      |      |                           |                              |                  |                 |    |
| <b>Cuculidae</b>         |      |                           |                              |                  |                 |    |
| 34                       | 7160 | Great Spotted Cuckoo      | <i>Clamator glandarius</i>   | (Linnaeus, 1758) | M, B irr        | EN |
| 35                       | 7240 | Common Cuckoo             | <i>Cuculus canorus</i>       | Linnaeus, 1758   | M               | LC |
| <b>Gruiformes</b>        |      |                           |                              |                  |                 |    |
| <b>Rallidae</b>          |      |                           |                              |                  |                 |    |
| 36                       | 4070 | Water Rail                | <i>Rallus aquaticus</i>      | Linnaeus, 1758   | SB, M, W        | LC |
| 37                       | 4080 | Spotted Crake             | <i>Porzana porzana</i>       | (Linnaeus, 1766) | M               | CR |
| 38                       | 4100 | Little Crake              | <i>Zapornia parva</i>        | (Scopoli, 1769)  | M               | CR |
| 39                       | 4270 | Purple Swamphen           | <i>Porphyrio porphyrio</i>   | (Linnaeus, 1758) | SB              | NT |
| 40                       | 4240 | Common Moorhen            | <i>Gallinula chloropus</i>   | (Linnaeus, 1758) | SB, M, W        | LC |
| 41                       | 4290 | Eurasian Coot             | <i>Fulica atra</i>           | Linnaeus, 1758   | SB, M, W        | LC |
| <b>Gruidae</b>           |      |                           |                              |                  |                 |    |
| 42                       | 4330 | Common Crane              | <i>Grus grus</i>             | (Linnaeus, 1758) | M, W irr        | RE |
| <b>Procellariiformes</b> |      |                           |                              |                  |                 |    |
| <b>Procellariidae</b>    |      |                           |                              |                  |                 |    |
| 43                       | 0360 | Scopoli's Shearwater      | <i>Calonectris diomedea</i>  | (Scopoli, 1769)  | M               | LC |
| 44                       | 0462 | Yelkouan Shearwater       | <i>Puffinus yelkouan</i>     | (Acerbi, 1827)   | M               | VU |
| <b>Ciconiiformes</b>     |      |                           |                              |                  |                 |    |
| <b>Ciconiidae</b>        |      |                           |                              |                  |                 |    |
| 45                       | 1310 | Black Stork               | <i>Ciconia nigra</i>         | (Linnaeus, 1758) | M               | EN |
| 46                       | 1340 | White Stork               | <i>Ciconia ciconia</i>       | (Linnaeus, 1758) | M, W irr        | LC |
| <b>Pelecaniformes</b>    |      |                           |                              |                  |                 |    |
| <b>Threskiornithidae</b> |      |                           |                              |                  |                 |    |
| 47                       | 1440 | Eurasian Spoonbill        | <i>Platalea leucorodia</i>   | Linnaeus, 1758   | M, W            | NT |
| 48                       | 1360 | Glossy Ibis               | <i>Plegadis falcinellus</i>  | (Linnaeus, 1766) | M, W irr        | VU |
| <b>Ardeidae</b>          |      |                           |                              |                  |                 |    |
| 49                       | 950  | Bittern                   | <i>Botaurus stellaris</i>    | (Linnaeus, 1758) | M, W            | EN |
| 50                       | 980  | Little Bittern            | <i>Ixobrychus minutus</i>    | (Linnaeus, 1766) | M, B, W irr     | VU |
| 51                       | 1040 | Black-crowned Night Heron | <i>Nycticorax nycticorax</i> | (Linnaeus, 1758) | M, B irr, W     | LC |
| 52                       | 1080 | Squacco Heron             | <i>Ardeola ralloides</i>     | (Scopoli, 1769)  | M, B irr, W irr | NT |
| 53                       | 1110 | Cattle Egret              | <i>Bubulcus ibis</i>         | (Linnaeus, 1758) | M, W irr        | LC |
| 54                       | 1220 | Grey Heron                | <i>Ardea cinerea</i>         | Linnaeus, 1758   | M, W            | LC |
| 55                       | 1240 | Purple Heron              | <i>Ardea purpurea</i>        | Linnaeus, 1766   | M, B irr        | LC |
| 56                       | 1210 | Great Egret               | <i>Ardea alba</i>            | Linnaeus, 1758   | M, W            | NT |
| 57                       | 1190 | Little Egret              | <i>Egretta garzetta</i>      | (Linnaeus, 1766) | M, B irr, W     | LC |
| 58                       | 1180 | Western Reef Heron        | <i>Egretta gularis</i>       | (Bosc, 1792)     | M irr           |    |
| <b>Pelecanidae</b>       |      |                           |                              |                  |                 |    |
| 59                       | 880  | Great White Pelican       | <i>Pelecanus onocrotalus</i> | Linnaeus, 1758   | A               |    |
| <b>Suliformes</b>        |      |                           |                              |                  |                 |    |
| <b>Sulidae</b>           |      |                           |                              |                  |                 |    |

|                          |      |                          |                                |                      |                 |    |
|--------------------------|------|--------------------------|--------------------------------|----------------------|-----------------|----|
| 60                       | 710  | Northern Gannet          | <i>Morus bassanus</i>          | (Linnaeus, 1758)     | M, W irr        | NA |
| <b>Phalacrocoracidae</b> |      |                          |                                |                      |                 |    |
| 61                       | 720  | Great Cormorant          | <i>Phalacrocorax carbo</i>     | (Linnaeus, 1758)     | M, W            | LC |
| <b>Charadriiformes</b>   |      |                          |                                |                      |                 |    |
| <b>Burhinidae</b>        |      |                          |                                |                      |                 |    |
| 62                       | 4590 | Stone-curlew             | <i>Burhinus oediconemus</i>    | (Linnaeus, 1758)     | SB, M, W        | LC |
| <b>Haematopodidae</b>    |      |                          |                                |                      |                 |    |
| 63                       | 4500 | Eurasian Oystercatcher   | <i>Haematopus ostralegus</i>   | Linnaeus, 1758       | M               | VU |
| <b>Recurvirostridae</b>  |      |                          |                                |                      |                 |    |
| 64                       | 4560 | Pied Avocet              | <i>Recurvirostra avosetta</i>  | Linnaeus, 1758       | M, B irr, W irr | LC |
| 65                       | 4550 | Black-winged Stilt       | <i>Himantopus himantopus</i>   | (Linnaeus, 1758)     | M, B, W irr     | LC |
| <b>Charadriidae</b>      |      |                          |                                |                      |                 |    |
| 66                       | 4860 | Grey Plover              | <i>Pluvialis squatarola</i>    | (Linnaeus, 1758)     | M, W            |    |
| 67                       | 4850 | European Golden Plover   | <i>Pluvialis apricaria</i>     | (Linnaeus, 1758)     | M, W            |    |
| 68                       | 4820 | Eurasian Dotterel        | <i>Eudromias morinellus</i>    | (Linnaeus, 1758)     | A               | NA |
| 69                       | 4700 | Common Ringed Plover     | <i>Charadrius hiaticula</i>    | Linnaeus, 1758       | M, W irr        |    |
| 70                       | 4690 | Little Ringed Plover     | <i>Charadrius dubius</i>       | Scopoli, 1786        | M, B irr, W irr | NT |
| 71                       | 4770 | Kentish Plover           | <i>Charadrius alexandrinus</i> | Linnaeus, 1758       | M, B, W         | EN |
| 72                       | 4930 | Northern Lapwing         | <i>Vanellus vanellus</i>       | (Linnaeus, 1758)     | M, W            | LC |
| 73                       | 4920 | White-tailed Lapwing*    | <i>Vanellus leucurus*</i>      | (Lichtenstein, 1823) | A               |    |
| <b>Scolopacidae</b>      |      |                          |                                |                      |                 |    |
| 74                       | 5380 | Whimbrel                 | <i>Numenius phaeopus</i>       | (Linnaeus, 1758)     | M irr           |    |
| 75                       | 5410 | Eurasian Curlew          | <i>Numenius arquata</i>        | (Linnaeus, 1758)     | M, W            | NA |
| 76                       | 5340 | Bar-tailed Godwit        | <i>Limosa lapponica</i>        | (Linnaeus, 1758)     | M               |    |
| 77                       | 5320 | Black-tailed Godwit      | <i>Limosa limosa</i>           | (Linnaeus, 1758)     | M               | EN |
| 78                       | 5610 | Ruddy Turnstone          | <i>Arenaria interpres</i>      | (Linnaeus, 1758)     | M, W irr        |    |
| 79                       | 4960 | Red Knot                 | <i>Calidris canutus</i>        | (Linnaeus, 1758)     | M               |    |
| 80                       | 5170 | Ruff                     | <i>Calidris pugnax</i>         | (Linnaeus, 1758)     | M, W irr        |    |
| 81                       | 5140 | Broad-billed Sandpiper   | <i>Calidris falcinellus</i>    | (Pontoppidan, 1763)  | M irr           |    |
| 82                       | 5090 | Curlew Sandpiper         | <i>Calidris ferruginea</i>     | (Pontoppidan, 1763)  | M               |    |
| 83                       | 5020 | Temminck's Stint         | <i>Calidris temminckii</i>     | (Leisler, 1812)      | M, W irr        |    |
| 84                       | 5000 | Red-necked Stint*        | <i>Calidris ruficollis*</i>    | (Pallas, 1776)       | A               |    |
| 85                       | 4970 | Sanderling               | <i>Calidris alba</i>           | (Pallas, 1764)       | M, W            |    |
| 86                       | 5120 | Dunlin                   | <i>Calidris alpina</i>         | (Linnaeus, 1758)     | M, W            |    |
| 87                       | 5010 | Little Stint             | <i>Calidris minuta</i>         | (Leisler, 1812)      | M, W irr        |    |
| 88                       | 5160 | Buff-breasted Sandpiper* | <i>Calidris subruficollis*</i> | (Vieillot, 1819)     | A               |    |
| 89                       | 5070 | Pectoral Sandpiper*      | <i>Calidris melanotos*</i>     | (Vieillot, 1819)     | A               |    |
| 90                       | 5290 | Eurasian Woodcock        | <i>Scolopax rusticola</i>      | Linnaeus, 1758       | M, W irr        | DD |
| 91                       | 5200 | Great Snipe              | <i>Gallinago media</i>         | (Latham, 1787)       | M irr           |    |
| 92                       | 5190 | Common Snipe             | <i>Gallinago gallinago</i>     | (Linnaeus, 1758)     | M, W            | NA |
| 93                       | 5180 | Jack Snipe               | <i>Lymnocyptes minimus</i>     | (Brünnich, 1764)     | M, W irr        |    |
| 94                       | 5640 | Red-necked Phalarope*    | <i>Phalaropus lobatus*</i>     | (Linnaeus, 1758)     | M irr           |    |
| 95                       | 5550 | Terek Sandpiper          | <i>Xenus cinereus</i>          | (Güldenstädt, 1775)  | M irr           |    |
| 96                       | 5560 | Common Sandpiper         | <i>Actitis hypoleucos</i>      | (Linnaeus, 1758)     | M, W            | NT |
| 97                       | 5530 | Green Sandpiper          | <i>Tringa ochropus</i>         | Linnaeus, 1758       | M, W irr        |    |

|                        |      |                          |                                 |                      |              |    |
|------------------------|------|--------------------------|---------------------------------|----------------------|--------------|----|
| 98                     | 5450 | Spotted Redshank         | <i>Tringa erythropus</i>        | (Pallas, 1764)       | M, W irr     |    |
| 99                     | 5480 | Common Greenshank        | <i>Tringa nebularia</i>         | (Gunnerus, 1767)     | M, W irr     |    |
| 100                    | 5460 | Common Redshank          | <i>Tringa totanus</i>           | (Linnaeus, 1758)     | M, W         | LC |
| 101                    | 5540 | Wood Sandpiper           | <i>Tringa glareola</i>          | Linnaeus, 1758       | M, W irr     |    |
| 102                    | 5470 | Marsh Sandpiper          | <i>Tringa stagnatilis</i>       | (Bechstein, 1803)    | M            |    |
| 103                    | 4650 | Collared Pratincole      | <i>Glareola pratincola</i>      | (Linnaeus, 1766)     | M            | EN |
| <b>Laridae</b>         |      |                          |                                 |                      |              |    |
| 104                    | 5780 | Little Gull              | <i>Hydrocoloeus minutus</i>     | (Pallas, 1776)       | M, W         |    |
| 105                    | 5850 | Slender-billed Gull      | <i>Larus genei</i>              | (Brème, 1839)        | M, W         | NT |
| 106                    | 5820 | Black-headed Gull        | <i>Larus ridibundus</i>         | (Linnaeus, 1766)     | M, W         | LC |
| 107                    | 5750 | Mediterranean Gull       | <i>Larus melanocephalus</i>     | (Temminck, 1820)     | M, W         | NT |
| 108                    | 5880 | Audouin's Gull           | <i>Larus audouinii</i>          | Payraudeau, 1826     | M, W         | LC |
| 109                    | 5910 | Lesser Black-backed Gull | <i>Larus fuscus</i>             | Linnaeus, 1758       | M, W         |    |
| 110                    | 5926 | Yellow-legged Gull       | <i>Larus michahellis</i>        | Naumann, 1840        | SB, M, W     | LC |
| 111                    | 5927 | Caspian Gull             | <i>Larus cachinnans</i>         | Pallas, 1811         | M irr, W irr |    |
| 112                    | 6240 | Little Tern              | <i>Sternula albifrons</i>       | (Pallas, 1764)       | M, B         | NT |
| 113                    | 6050 | Gull-billed Tern         | <i>Gelochelidon nilotica</i>    | (J. F. Gmelin, 1789) | M            | NT |
| 114                    | 6060 | Caspian Tern             | <i>Hydroprogne caspia</i>       | (Pallas, 1770)       | M            | NA |
| 115                    | 6260 | Whiskered Tern           | <i>Chlidonias hybrida</i>       | (Pallas, 1811)       | M            | VU |
| 116                    | 6280 | White-winged Tern        | <i>Chlidonias leucopterus</i>   | (Temminck, 1815)     | M            | NA |
| 117                    | 6270 | Black Tern               | <i>Chlidonias niger</i>         | (Linnaeus, 1758)     | M            | CR |
| 118                    | 6150 | Common Tern              | <i>Sterna hirundo</i>           | Linnaeus, 1758       | M irr        | LC |
| 119                    | 6090 | Lesser Crested Tern*     | <i>Thalasseus bengalensis*</i>  | (Lesson, 1831)       | A            | NA |
| 120                    | 6110 | Sandwich Tern            | <i>Thalasseus sandvicensis</i>  | (Latham, 1787)       | M, W         | VU |
| <b>Stercorariidae</b>  |      |                          |                                 |                      |              |    |
| 121                    | 5670 | Arctic Jaeger            | <i>Stercorarius parasiticus</i> | (Linnaeus, 1758)     | W irr        |    |
| 122                    | 5660 | Pomarine Jaeger          | <i>Stercorarius pomarinus</i>   | (Temminck, 1815)     | W irr        |    |
| 123                    | 5690 | Great Skua               | <i>Catharacta skua</i>          | (Brünnich, 1764)     | W irr        |    |
| <b>Strigiformes</b>    |      |                          |                                 |                      |              |    |
| <b>Tytonidae</b>       |      |                          |                                 |                      |              |    |
| 124                    | 7350 | Barn Owl                 | <i>Tyto alba</i>                | (Scopoli, 1769)      | SB, M, W     |    |
| <b>Strigidae</b>       |      |                          |                                 |                      |              |    |
| 125                    | 7570 | Little Owl               | <i>Athene noctua</i>            | (Scopoli, 1769)      | SB           |    |
| 126                    | 7390 | Eurasian Scops Owl       | <i>Otus scops</i>               | (Linnaeus, 1758)     | M, B         | LC |
| 127                    | 7670 | Northern Long-eared Owl  | <i>Asio otus</i>                | (Linnaeus, 1758)     | M, W irr     | LC |
| 128                    | 7680 | Short-eared Owl          | <i>Asio flammeus</i>            | (Pontoppidan, 1763)  | M, W irr     | NA |
| 129                    | 7610 | Tawny Owl                | <i>Strix aluco</i>              | Linnaeus, 1758       | SB           | LC |
| <b>Accipitriformes</b> |      |                          |                                 |                      |              |    |
| <b>Pandionidae</b>     |      |                          |                                 |                      |              |    |
| 130                    | 3010 | Osprey                   | <i>Pandion haliaetus</i>        | (Linnaeus, 1758)     | M, W         | CR |
| <b>Accipitridae</b>    |      |                          |                                 |                      |              |    |
| 131                    | 2310 | Honey Buzzard            | <i>Pernis apivorus</i>          | (Linnaeus, 1758)     | M            | LC |
| 132                    | 2470 | Egyptian vulture         | <i>Neophron percnopterus</i>    | (Linnaeus, 1758)     | M irr        | CR |
| 133                    | 2560 | Short-toed Eagle         | <i>Circaetus gallicus</i>       | (J.F. Gmelin, 1788)  | M, W irr     | LC |
| 134                    | 2920 | Lesser Spotted Eagle     | <i>Clanga pomarina</i>          | (C.L. Brehm, 1831)   | M, W irr     |    |



|                       |       |                        |                                     |                     |          |    |
|-----------------------|-------|------------------------|-------------------------------------|---------------------|----------|----|
| 135                   | 2990  | Bonelli's Eagle        | <i>Aquila fasciata</i>              | Vieillot, 1823      | W irr    | EN |
| 136                   | 2980  | Booted Eagle           | <i>Hieraaetus pennatus</i>          | (J.F. Gmelin, 1788) | M, W     | NA |
| 137                   | 2600  | Western Marsh Harrier  | <i>Circus aeruginosus</i>           | (Linnaeus, 1758)    | M, W     | VU |
| 138                   | 2610  | Hen Harrier            | <i>Circus cyaneus</i>               | (Linnaeus, 1766)    | M, W     | NA |
| 139                   | 2620  | Pallid Harrier         | <i>Circus macrourus</i>             | (S.G. Gmelin, 1770) | M, W irr |    |
| 140                   | 2630  | Montagu's Harrier      | <i>Circus pygargus</i>              | (Linnaeus, 1758)    | M        | VU |
| 141                   | 2690  | Eurasian Sparrowhawk   | <i>Accipiter nisus</i>              | (Linnaeus, 1758)    | M, W     | LC |
| 142                   | 2380  | Black Kite             | <i>Milvus migrans</i>               | (Boddaert, 1783)    | M        | LC |
| 143                   | 2870  | Common Buzzard         | <i>Buteo buteo</i>                  | (Linnaeus, 1758)    | SB, M, W | LC |
| 144                   | 2880  | Long-legged Buzzard    | <i>Buteo rufinus</i>                | (Cretzschmar, 1829) | M        |    |
| <b>Bucerotiformes</b> |       |                        |                                     |                     |          |    |
| <b>Upupidae</b>       |       |                        |                                     |                     |          |    |
| 145                   | 8460  | Hoopoe                 | <i>Upupa epops</i>                  | Linnaeus, 1758      | B, M, W  | LC |
| <b>Coraciiformes</b>  |       |                        |                                     |                     |          |    |
| <b>Meropidae</b>      |       |                        |                                     |                     |          |    |
| 146                   | 8390  | European Bee-eater     | <i>Merops apiaster</i>              | Pallas, 1773        | M, B     | LC |
| <b>Coraciidae</b>     |       |                        |                                     |                     |          |    |
| 147                   | 8410  | European Roller        | <i>Coracias garrulus</i>            | Linnaeus, 1758      | M, B irr | LC |
| <b>Alcedinidae</b>    |       |                        |                                     |                     |          |    |
| 148                   | 8310  | Common Kingfisher      | <i>Alcedo atthis</i>                | (Linnaeus, 1758)    | M, W     | LC |
| <b>Piciformes</b>     |       |                        |                                     |                     |          |    |
| <b>Picidae</b>        |       |                        |                                     |                     |          |    |
| 149                   | 8480  | Eurasian Wryneck       | <i>Jynx torquilla</i>               | Linnaeus, 1758      | M, W irr | EN |
| <b>Falconiformes</b>  |       |                        |                                     |                     |          |    |
| <b>Falconidae</b>     |       |                        |                                     |                     |          |    |
| 150                   | 3030  | Lesser Kestrel         | <i>Falco naumanni</i>               | Fleischer, 1818     | M        | LC |
| 151                   | 3040  | Eurasian Kestrel       | <i>Falco tinnunculus</i>            | Linnaeus, 1758      | SB, M, W | LC |
| 152                   | 3070  | Red-footed Falcon      | <i>Falco vespertinus</i>            | Linnaeus, 1766      | M        | VU |
| 153                   | 3110  | Eleonora's Falcon      | <i>Falco eleonorae</i>              | Gené, 1839          | M irr    | VU |
| 154                   | 3090  | Merlin                 | <i>Falco columbarius</i>            | Linnaeus, 1758      | M, W     |    |
| 155                   | 3100  | Eurasian Hobby         | <i>Falco subbuteo</i>               | Linnaeus, 1758      | M        | LC |
| 156                   | 3140  | Lanner                 | <i>Falco biarmicus</i>              | Temminck, 1825      | A        | EN |
| 157                   | 3160  | Saker Falcon           | <i>Falco cherrug</i>                | J. E. Gray, 1834    | A        |    |
| 158                   | 3200  | Peregrine              | <i>Falco peregrinus</i>             | Tunstall, 1771      | M, W     | LC |
| <b>Passeriformes</b>  |       |                        |                                     |                     |          |    |
| <b>Oriolidae</b>      |       |                        |                                     |                     |          |    |
| 159                   | 15080 | Eurasian Golden Oriole | <i>Oriolus oriolus</i>              | (Linnaeus, 1758)    | M        | LC |
| <b>Laniidae</b>       |       |                        |                                     |                     |          |    |
| 160                   | 15150 | Red-backed Shrike      | <i>Lanius collurio</i>              | Linnaeus, 1758      | M        | VU |
| 161                   | 15200 | Desert Grey Shrike     | <i>Lanius excubitor algeriensis</i> | Lesson, 1839        | A        |    |
| 162                   | 15230 | Woodchat Shrike        | <i>Lanius senator</i>               | Linnaeus, 1758      | M, B     | EN |
| <b>Corvidae</b>       |       |                        |                                     |                     |          |    |
| 163                   | 15390 | Eurasian Jay           | <i>Garrulus glandarius</i>          | (Linnaeus, 1758)    | SB       | LC |
| 164                   | 15490 | Eurasian Magpie        | <i>Pica pica</i>                    | (Linnaeus, 1758)    | SB       | LC |
| 165                   | 15600 | Eurasian Jackdaw       | <i>Corvus monedula</i>              | Linnaeus, 1758      | W irr    | LC |

|                       |       |                         |                                   |                      |             |    |
|-----------------------|-------|-------------------------|-----------------------------------|----------------------|-------------|----|
| 166                   | 15720 | Raven                   | <i>Corvus corax</i>               | Linnaeus, 1758       | W irr       | LC |
| 167                   | 15673 | Hooded Crow             | <i>Corvus corone</i>              | Linnaeus, 1758       | SB          | LC |
| <b>Paridae</b>        |       |                         |                                   |                      |             |    |
| 168                   | 14620 | Blue Tit                | <i>Cyanistes caeruleus</i>        | (Linnaeus, 1758)     | SB          | LC |
| 169                   | 14640 | Great Tit               | <i>Parus major</i>                | Linnaeus, 1758       | SB          | LC |
| <b>Remizidae</b>      |       |                         |                                   |                      |             |    |
| 170                   | 14900 | Penduline-Tit           | <i>Remiz pendulinus</i>           | (Linnaeus, 1758)     | SB, M, W    | VU |
| <b>Panuridae</b>      |       |                         |                                   |                      |             |    |
| 171                   | 13640 | Bearded Reedling*       | <i>Panurus biarmicus*</i>         | (Linnaeus, 1758)     | A           | EN |
| <b>Alaudidae</b>      |       |                         |                                   |                      |             |    |
| 172                   | 9700  | Lesser Short-toed Lark* | <i>Alaudala rufescens*</i>        | (Vieillot, 1819)     | A           |    |
| 173                   | 9610  | Calandra Lark           | <i>Melanocorypha calandra</i>     | (Linnaeus, 1766)     | A           | VU |
| 174                   | 9680  | Greater Short-toed Lark | <i>Calandrella brachydactyla</i>  | (Leisler, 1814)      | M           | NT |
| 175                   | 9760  | Skylark                 | <i>Alauda arvensis</i>            | Linnaeus, 1758       | M, W        | NT |
| 176                   | 9720  | Crested Lark            | <i>Galerida cristata</i>          | (Linnaeus, 1758)     | SB          | LC |
| <b>Cisticolidae</b>   |       |                         |                                   |                      |             |    |
| 177                   | 12260 | Fan-tailed Warbler      | <i>Cisticola juncidis</i>         | (Rafinesque, 1810)   | SB          | LC |
| <b>Acrocephalidae</b> |       |                         |                                   |                      |             |    |
| 178                   | 12600 | Melodious Warbler       | <i>Hippolais polyglotta</i>       | (Vieillot, 1817)     | M irr       | LC |
| 179                   | 12590 | Icterine Warbler        | <i>Hippolais icterina</i>         | (Vieillot, 1817)     | M           |    |
| 180                   | 12410 | Moustached Warbler      | <i>Acrocephalus melanopogon</i>   | (Temminck, 1823)     | M, W irr    | EN |
| 181                   | 12430 | Sedge Warbler           | <i>Acrocephalus schoenobaenus</i> | (Linnaeus, 1758)     | M           | CR |
| 182                   | 12510 | Reed Warbler            | <i>Acrocephalus scirpaceus</i>    | (Hermann, 1804)      | M, B, W irr | LC |
| 183                   | 12530 | Great Reed Warbler      | <i>Acrocephalus arundinaceus</i>  | (Linnaeus, 1758)     | M, B        | NT |
| <b>Locustellidae</b>  |       |                         |                                   |                      |             |    |
| 184                   | 12380 | Savi's Warbler          | <i>Locustella luscinioides*</i>   | (Savi, 1824)         | A           | EN |
| <b>Hirundinidae</b>   |       |                         |                                   |                      |             |    |
| 185                   | 10010 | Common House Martin     | <i>Delichon urbicum</i>           | (Linnaeus, 1758)     | M, B        | NT |
| 186                   | 9950  | Red-rumped Swallow      | <i>Cecropis daurica</i>           | Laxmann, 1769        | M, B irr    | VU |
| 187                   | 9920  | Barn Swallow            | <i>Hirundo rustica</i>            | Linnaeus, 1758       | M, B, W irr | NT |
| 188                   | 9910  | Eurasian Crag Martin    | <i>Ptyonoprogne rupestris</i>     | Scopoli, 1769        | M           | LC |
| 189                   | 9810  | Sand Martin             | <i>Riparia riparia</i>            | (Linnaeus, 1758)     | M, W irr    | VU |
| <b>Phylloscopidae</b> |       |                         |                                   |                      |             |    |
| 190                   | 13080 | Wood Warbler            | <i>Phylloscopus sibilatrix</i>    | (Bechstein, 1793)    | M           | LC |
| 191                   | 13120 | Willow Warbler          | <i>Phylloscopus trochilus</i>     | (Linnaeus, 1758)     | M           |    |
| 192                   | 13110 | Common Chiffchaff       | <i>Phylloscopus collybita</i>     | (Vieillot, 1817)     | M, W        | LC |
| <b>Scotocercidae</b>  |       |                         |                                   |                      |             |    |
| 193                   | 12200 | Cetti's Warbler         | <i>Cettia cetti</i>               | (Temminck, 1820)     | SB          | LC |
| <b>Sylviidae</b>      |       |                         |                                   |                      |             |    |
| 194                   | 12770 | Blackcap                | <i>Sylvia atricapilla</i>         | (Linnaeus, 1758)     | SB, M, W    | LC |
| 195                   | 12760 | Garden Warbler          | <i>Sylvia borin</i>               | (Boddaert, 1783)     | M           | VU |
| 196                   | 12700 | Desert Warbler          | <i>Sylvia deserti</i>             | (Loche, 1858)        | A           |    |
| 197                   | 12740 | Lesser Whitethroat *    | <i>Sylvia curruca*</i>            | (Linnaeus, 1758)     | A           | LC |
| 198                   | 12670 | Sardinian Warbler       | <i>Sylvia melanocephala</i>       | (J. F. Gmelin, 1789) | SB          | LC |
| 199                   | 12650 | Subalpine Warbler       | <i>Sylvia cantillans</i>          | (Pallas, 1764)       | M, B        | LC |
| 200                   | 12750 | Common Whitethroat      | <i>Sylvia communis</i>            | Latham, 1787         | M           | LC |
| 201                   | 12640 | Spectacled Warbler      | <i>Sylvia conspicillata</i>       | Temminck, 1820       | M           | LC |
| <b>Troglodytidae</b>  |       |                         |                                   |                      |             |    |
| 202                   | 10660 | Northern Wren           | <i>Troglodytes troglodytes</i>    | (Linnaeus, 1758)     | SB          | LC |

| <b>Sturnidae</b>    |       |                          |                                |                      |                 |    |
|---------------------|-------|--------------------------|--------------------------------|----------------------|-----------------|----|
| 203                 | 15820 | Starling                 | <i>Sturnus vulgaris</i>        | Linnaeus, 1758       | M, W            |    |
| 204                 | 15830 | Spotless Starling        | <i>Sturnus unicolor</i>        | Temminck, 1820       | SB              |    |
| 205                 | 15840 | Rosy Starling            | <i>Pastor roseus</i>           | (Linnaeus, 1758)     | A               |    |
| <b>Turdidae</b>     |       |                          |                                |                      |                 |    |
| 206                 | 12000 | Song Thrush              | <i>Turdus philomelos</i>       | C. L. Brehm, 1831    | M, W            |    |
| 207                 | 11870 | Blackbird                | <i>Turdus merula</i>           | Linnaeus, 1758       | SB, M, W        |    |
| <b>Muscicapidae</b> |       |                          |                                |                      |                 |    |
| 208                 | 13350 | Spotted Flycatcher       | <i>Muscicapa striata</i>       | (Pallas, 1764)       | M, B irr        | LC |
| 209                 | 10990 | European Robin           | <i>Erithacus rubecula</i>      | (Linnaeus, 1758)     | M, W            | LC |
| 210                 | 11060 | Bluethroat               | <i>Cyanecula svecica</i>       | (Linnaeus, 1758)     | M, W            | NA |
| 211                 | 11040 | Common Nightingale       | <i>Luscinia megarhynchos</i>   | C. L. Brehm, 1831    | M, B irr        | LC |
| 212                 | 13490 | European Pied Flycatcher | <i>Ficedula hypoleuca</i>      | (Pallas, 1764)       | M               | NA |
| 213                 | 13480 | Collared Flycatcher      | <i>Ficedula albicollis</i>     | (Temminck, 1815)     | M               | LC |
| 214                 | 11210 | Black Redstart           | <i>Phoenicurus ochruros</i>    | (S. G. Gmelin, 1774) | M, W            | LC |
| 215                 | 11220 | Redstart                 | <i>Phoenicurus phoenicurus</i> | (Linnaeus, 1758)     | M               | LC |
| 216                 | 11660 | Blue rock thrush         | <i>Monticola solitarius</i>    | (Linnaeus, 1758)     | SB              | LC |
| 217                 | 11370 | Whinchat                 | <i>Saxicola rubetra</i>        | (Linnaeus, 1758)     | M               | VU |
| 218                 | 11390 | European Stonechat       | <i>Saxicola torquatus</i>      | (Linnaeus, 1766)     | M, W            | EN |
| 219                 | 11460 | Northern Wheatear        | <i>Oenanthe oenanthe</i>       | (Linnaeus, 1758)     | M               | LC |
| 220                 | 11440 | Isabelline Wheatear      | <i>Oenanthe isabellina</i>     | (Temminck, 1829)     | M               |    |
| 221                 | 11500 | Desert Wheatear*         | <i>Oenanthe deserti*</i>       | (Temminck, 1825)     | A               |    |
| 222                 | 11480 | Black-eared Wheatear     | <i>Oenanthe hispanica</i>      | (Linnaeus, 1758)     | M               | DD |
| <b>Prunellidae</b>  |       |                          |                                |                      |                 |    |
| 223                 | 10840 | Dunnock                  | <i>Prunella modularis</i>      | (Linnaeus, 1758)     | W               | NT |
| <b>Passeridae</b>   |       |                          |                                |                      |                 |    |
| 224                 | 15912 | Italian Sparrow          | <i>Passer italiae</i>          | (Vieillot, 1817)     | SB              | NT |
| 225                 | 15980 | Eurasian Tree Sparrow    | <i>Passer montanus</i>         | (Linnaeus, 1758)     | SB              | LC |
| <b>Motacillidae</b> |       |                          |                                |                      |                 |    |
| 226                 | 10090 | Tree Pipit               | <i>Anthus trivialis</i>        | (Linnaeus, 1758)     | M               | LC |
| 227                 | 10120 | Red-throated Pipit       | <i>Anthus cervinus</i>         | (Pallas, 1811)       | M, W            |    |
| 228                 | 10110 | Meadow Pipit             | <i>Anthus pratensis</i>        | (Linnaeus, 1758)     | M, W            | NA |
| 229                 | 10140 | Water Pipit              | <i>Anthus spinoletta</i>       | (Linnaeus, 1758)     | M, W irr        | LC |
| 230                 | 10020 | Richard's Pipit          | <i>Anthus richardi</i>         | Vieillot, 1818       | M, W            |    |
| 231                 | 10050 | Tawny Pipit              | <i>Anthus campestris</i>       | (Linnaeus, 1758)     | M               | VU |
| 232                 | 10170 | Yellow Wagtail           | <i>Motacilla flava</i>         | Linnaeus, 1758       | M, B irr, W irr | LC |
| 233                 | 10190 | Grey Wagtail             | <i>Motacilla cinerea</i>       | Tunstall, 1771       | M, W            | LC |
| 234                 | 10180 | Citrine Wagtail          | <i>Motacilla citreola</i>      | Pallas, 1776         | A               |    |
| 235                 | 10200 | White Wagtail            | <i>Motacilla alba</i>          | Linnaeus, 1758       | SB, M irr, W    | LC |
| <b>Fringillidae</b> |       |                          |                                |                      |                 |    |
| 236                 | 16360 | Common Chaffinch         | <i>Fringilla coelebs</i>       | Linnaeus, 1758       | W               | LC |
| 237                 | 16490 | European Greenfinch      | <i>Chloris chloris</i>         | (Linnaeus, 1758)     | SB, M, W irr    | NT |
| 238                 | 16600 | Linnet                   | <i>Linaria cannabina</i>       | (Linnaeus, 1758)     | SB, M, W        | LC |
| 239                 | 16530 | European Goldfinch       | <i>Carduelis carduelis</i>     | (Linnaeus, 1758)     | SB, M, W        | LC |
| 240                 | 16400 | European Serin           | <i>Serinus serinus</i>         | (Linnaeus, 1766)     | SB, M, W        | LC |

|                     |       |                 |                             |                  |          |    |
|---------------------|-------|-----------------|-----------------------------|------------------|----------|----|
| 241                 | 16540 | Eurasian Siskin | <i>Spinus spinus</i>        | (Linnaeus, 1758) | M, W irr | LC |
| <b>Fringillidae</b> |       |                 |                             |                  |          |    |
| 242                 | 18820 | Corn Bunting    | <i>Emberiza calandra</i>    | Linnaeus, 1758   | SB, M, W | LC |
| 243                 | 18580 | Cirl Bunting    | <i>Emberiza cirlus</i>      | Linnaeus, 1766   | SB       | LC |
| 244                 | 18770 | Reed Bunting    | <i>Emberiza schoeniclus</i> | (Linnaeus, 1758) | M, W     | CR |

Table 1. Bird checklist of Sicilian southeast swamp lakes. Species marked with \* were observed before the survey period 2015-2021.

Classis AVES

Ordo ANSERIFORMES

Familia ANATIDAE

***Cygnus olor*** (J.F. Gmelin, 1789) - Mute Swan

STATUS IN SICILY. Rare migratory and irregular wintering (Massa et al., 2021).

DATA COLLECTED. 28 ind. between December 1992 and January 1993 (Corso, 2005) and 8 ind. on 7.II.1993 in Pantano Longarini; about 120 ind. in Salina Morghella from December 1993 to January 1994 and 40 ind. again in Pantano Longarini from December 1994 to January 1995 (Corso, 2005).

REASONS OF INTEREST. Low numbers/records for Sicily.

***Anser anser*** (Linnaeus, 1758) - Greylag Goose

STATUS IN SICILY. Rare migratory and irregular wintering (Massa et al., 2021).

DATA COLLECTED. 4 ind. together observed from 4.XII.2016 to 16.XII.2016 in Pantano Longarini; 1 on 10.III.2017 in Pantano Longarini; 1 on 19.XII.2017 in Salina Morghella; 1 from 4.XII.2020 to 21.XII.2020 in Pantano Cuba.

REASONS OF INTEREST. Low numbers/records for Sicily; lack of recent published data.

***Tadorna ferruginea*** (Pallas, 1764) - Ruddy Shelduck

STATUS IN SICILY: migratory, irregular wintering and dubious breeding (Massa et al., 2021).

DATA COLLECTED. 5 ind. together in Pantano Baronello on 9.XII.2011 and 1 in Pantano Ponterio on 14.III.2012 (Ientile, pers. comm.); 1 on 23.XI.2014 in Pantano Longarini (Scuderi, pers.

comm.); 1 on 25.XI.2016 in Pantano Cuba and 1 from 10.XI.2017 to 30.XI.2017 in Pantano Longarini; 1 on 16.XII.2019 in Pantano Garifi - Ispica, Ragusa (36°44'7.86"N; 14°55'56.00"E).

REASONS OF INTEREST. Low numbers/records for Sicily; the study area represents an important wintering and migratory site for the species.

***Marmaronetta angustirostris*** (Ménétries, 1832) - Marbled Duck

STATUS IN SICILY. Migratory and rare breeding (Massa et al., 2021).

DATA COLLECTED. Regularly breeding in the study area from 2006 (Andreotti, 2007); 3–5 pairs in 2015–2020 for the whole area, mostly recorded in Pantano Bruno, Pantano Cuba, Pantano Longarini. 2–4 ind. observed from April to June 2016 in Pantano Longarini, with at least 1 pair; 2–6 ind. together (2 juvs) observed from June to August 2017 in Pantano Cuba and 7 ind. on 16.IX.2017 in Pantano Bruno; 2–5 ind. (2 juvs) observed from May to August 2018 in Pantano Cuba; ≥ 7 ind. (6 juvs) on 9.VIII.2018 (Cusmano, pers. comm.) in Pantano Auruca; 6 ind. in Pantano Baronello on 17.III.2019; 5–7 ind. (4 juvs) in Pantano Bruno observed from 23 up to 30.VIII.2019; 7–9 (4 juvs) observed from 10.VII.2020 to 6.IX.2020 in Pantano Cuba (Fig. 3).

Wintering: 8 ind. on 30.XI.2017 in Pantano Bruno; 6 ind. on 15.XII.2017 and 2 on 19.I.2018 in Pantano Cuba; 1 on 1.I.2020 in Pantano Longarini.

REASONS OF INTEREST. The study area represents the most important breeding site for the species in Sicily and Italy; lack of recent published data.

***Netta rufina*** (Pallas, 1773) - Red-crested Pochard

STATUS IN SICILY. Rare migratory and irregular wintering, extinct breeder (Massa et al., 2021).

DATA COLLECTED. 1 adult male on 8.I.2018 (Assandri & Bazzi, pers. comm.) and on 21.I.2018 in Salina Morghella; 1 adult female on 14.II.2019 in Pantano Cuba; 1 pair observed from late March to late April 2021 both in Pantano Cuba and Pantano Longarini showing courtship displays (Gariboldi & Ambrogio, 2006).

REASONS OF INTEREST. Low numbers/records for Sicily.

*Aythya nyroca* (Güldenstädt, 1770) - Ferruginous Duck

STATUS IN SICILY. Migratory, scarce wintering and rare resident breeder (Massa et al., 2021).

DATA COLLECTED. Regularly breeding and wintering in the study area with an estimation of 11–24 pairs for the period 2015–2020, depending on annual water levels: 2–3 pairs for Pantano Bruno; 4–8 pairs in Pantano Longarini; 3–5 pairs for Pantano Cuba, 0–2 for Pantano Auruca, 2–4 for Pantano Baronello and Ciaramiraro, 0–1 both for Pantano Ponterio and Morghella. No pairs recorded for Pantano Marzamemi (Ientile, pers. comm.). Interesting records: 32 ind. in Pantano Cuba and 28 ind. in Pantano Longarini on 19.V.2016;  $\geq 60$  ind. in Pantano Cuba on 24.VI.2016; 40 ind. on 1.VI.2017 in Pantano Cuba; 37 ind. on 15.VI.2018 in Pantano Bruno.

Wintering: a total of 142 ind. observed in Pantano Bruno, Cuba and Longarini on 8.I.2011; groups of 20–50 ind. regularly observed in December and January 2015–2017 and lower groups of 20–30 ind. in December and January 2018–2020 in Pantano Cuba and Pantano Bruno, which represent the most important swamp lakes for the species.

REASONS OF INTEREST. The study area represents an important breeding and wintering site for the species; lack of recent published data.

*Aythya marila* (Linnaeus, 1761) - Greater Scaup

STATUS IN SICILY. Migratory and occasional wintering (Massa et al., 2021).

DATA COLLECTED. 1 adult female observed on 20.XI.2016 and again together to 1 juv. on 25.XI.2016 and on 26.I.2017 in Pantano Longarini.

REASONS OF INTEREST. low numbers/records for Sicily; lack of recent published data.

Ordo PODICIPEDIFORMES

Familia PODICIPEDIDAE

*Podiceps auritus* (Linnaeus, 1758) - Horned Grebe

STATUS IN SICILY. Accidental (Massa et al., 2021).

DATA COLLECTED. 2 ind. observed in the harbour of Portopalo di Capo Passero on 3.I.2020 (Nicoli, Sozzi, Nova & La Grua, pers. comm.) and 24.II.2020.

REASONS OF INTEREST. Low numbers/records for Sicily.

Ordo COLUMBIFORMES

Familia COLUMBIDAE

*Spilopelia senegalensis* (Linnaeus, 1766) - Laughing Dove

STATUS IN SICILY. Very rare breeding; common resident breeding in Pantelleria (Massa et al., 2021).

DATA COLLECTED. 1 ind. on 13.IV.2014 near to Isola delle Correnti, in Portopalo di Capo Passero (Ientile, pers. comm.).

REASONS OF INTEREST. Low numbers/records for Sicily.

Ordo GRUIFORMES

Familia RALLIDAE

*Porzana porzana* (Linnaeus, 1766) - Spotted Crake

STATUS IN SICILY. Scarce migratory and occasional wintering (Massa et al., 2021).

DATA COLLECTED. 1 female on 7.IV.2017 in Pantano Cuba; 2 adult females found dead, 1 on 9.X.2019 and 1 on 5.XI.2020, in Pantano Cuba.

REASONS OF INTEREST. Low numbers/records for Sicily; lack of recent published data.

*Porphyrio porphyrio* (Linnaeus, 1758) - Purple Swamphen



Figure 3. Group of 8 Marbled ducks in Pantano Cuba (photo by C. Cappuzzello).



Figure 4. Little Egret's heronry with nests and chicks in Pantano Longarini (photo by F. La Spina).

STATUS IN SICILY. Reintroduced resident breeder (Ientile & Andreotti, 2003; Massa et al., 2021).

DATA COLLECTED. Regularly breeding in the study area with 16–34 pairs in 2015–2020, depending on annual water levels: 3–5 pairs for Pantano Bruno; 5–8 pairs in Pantano Longarini; 5–9 pairs for Pantano Cuba, 1–3 for Pantano Auruca, 2–6 for Pantano Baronello and Ciaramiraro, 0–1 for Pantano Ponterio; 0–2 for Salina Morghella as well as for Pantano Marzamemi.

REASONS OF INTEREST. The study area represents an important breeding site for the species; lack of recent published data.

Familia THRESKIORNITHIDAE

*Plegadis falcinellus* (Linnaeus, 1766) - Glossy Ibis

STATUS IN SICILY. Scarce migratory, irregular wintering and occasional breeding (Massa et al., 2021).

DATA COLLECTED. Regular migratory species in the area, usually with groups of 10–30 ind.; 118 ind. observed in migration in Pantano Cuba on 26.III.2016; 1 on 16.XII.2017 in Pantano Longarini; 90 ind. on 26.IV.2019 in Pantano Cuba.

REASONS OF INTEREST: unusual number recorded; low wintering records for Sicily.

Familia ARDEIDAE

*Botaurus stellaris* (Linnaeus, 1758) - Eurasian Bittern

STATUS IN SICILY. Scarce migratory and irregular wintering (Massa et al., 2021).

DATA COLLECTED. Regularly migratory and wintering in the area with 2–4 ind. per winter, mainly in Pantano Longarini, which represents a very important wintering site for the species in the southeast of Sicily. 1 in December 2015/January 2016 in Pantano Cuba; 2 ind. in December 2016/January 2017 in Pantano Longarini; 1 in Pantano Longarini and 1 in Pantano Bruno in January 2018; 1 in Pantano Longarini in December 2018/January 2019; 1 in February 2020 and 2–3 ind. in December 2020 and January 2021, all of them in Pantano Longarini. Unusually, 1 observed in Pantano Longarini on 12.VI.2020.

REASONS OF INTEREST. The study area represents an important wintering site for the species.

*Egretta garzetta* (Linnaeus, 1766) - Little Egret

STATUS IN SICILY. Migratory, common wintering and scarce breeder (Massa et al., 2021).

DATA COLLECTED. Irregular breeder in the area with variables pairs; no less than 30 pairs with nests and chicks counted on 28.VI.2019 (Cusmano & La Spina, pers. comm., Fig.4), nesting on *Eucalyptus camaldulensis* in Pantano Longarini, which represents the most important breeding site of the study area.

REASONS OF INTEREST: the study area represents an important breeding site for the species.

***Egretta gularis*** (Bosc, 1792) - Western Reef-egret

STATUS IN SICILY. Accidental (Massa et al., 2021).

DATA COLLECTED. 1 adult regularly observed in June 2016 and from April up to August 2017–19 in Gorgo Salato, Pantano Bruno, Pantano Longarini and Pantano Cuba; it was probably a hybrid of *Egretta garzetta* x *Egretta gularis schistacea*, due to the extended white on primaries, secondaries, primary coverts and tertials (Fig. 5).

REASONS OF INTEREST. Low number/records for Sicily.

Ordo PELECANIFORMES  
 Familia PELECANIDAE

***Pelecanus onocrotalus*** Linnaeus, 1758 - Great White Pelican

STATUS IN SICILY. Irregular migratory (Massa et al., 2021).

DATA COLLECTED. 1 in Pantano Cuba on 27.VIII.2015 (Fig. 6).

REASONS OF INTEREST. Low numbers/records for Sicily; lack of recent published data.

Ordo CHARADRIIFORMES

***Vanellus leucurus*** (Lichtenstein, 1823) - White-tailed Lapwing

STATUS IN SICILY. Accidental (Massa et al., 2021).

DATA COLLECTED. 1 individual captured in Pantano Longarini on 19.IV.1975 (Iapichino & Massa, 1989) and now preserved in the Zoology Museum of Catania University (Corso, 2005).

REASONS OF INTEREST. Only 2 records for Sicily.

Familia SCOLOPACIDAE

***Limosa lapponica*** (Linnaeus, 1758) - Bar-tailed Godwit

STATUS IN SICILY. Scarce migratory and irregular

wintering (Massa et al., 2021) with most of the records in Saline di Trapani (Surdo, 2016a; 2018).

DATA COLLECTED. 4 ind. on 24.IX.2015 in Pantano Cuba; 1 on 29.III.2019 and 1 on 5.IV.2019 in Pantano Longarini; 1 juv. observed from 12 up to 25.IX.2020 in Pantano Longarini.

REASONS OF INTEREST. Low numbers/records for Sicily; the study area represents an important migratory site for the species.

***Calidris canutus*** (Linnaeus, 1758) - Red Knot

STATUS IN SICILY. Rare migratory and irregular wintering (Massa et al., 2021).

DATA COLLECTED. Regularly observed in migration, usually with 1–2 ind.: 2–3 observed in late October 2016 in Pantano Cuba; 17 ind. on 29.VII.2017 in Pantano Bruno; 5 ind. on 20.VII.2018 in Pantano Longarini; 3 ind. on 12.IX.2020 in Pantano Longarini.

REASONS OF INTEREST. Low numbers/records for Sicily; the study area represents an important migratory site for the species.

***Calidris falcinellus*** (Pontoppidan, 1763) - Broad-billed Sandpiper

STATUS IN SICILY. Irregular migratory (Massa et al., 2021).

DATA COLLECTED. 1 ind. in Pantano Cuba on 4.VIII.2016 and 1 in Pantano Longarini on 12.IX.2020 and 20.IX.2020.

REASONS OF INTEREST. Low numbers/records for Sicily.

***Calidris ruficollis*** (Pallas, 1776) - Red-necked Stint

STATUS IN SICILY. Accidental (Massa et al., 2021).

DATA COLLECTED: 1 adult in Pantano Longarini on 29.VII.2012. Observation approved by COI (Commissione Ornitologica Italiana) (Fracasso et al., 2018).

REASONS OF INTEREST. Low numbers/records for Sicily.



Figure 5. *Egretta gularis* in Pantano Longarini in May 2018 (photo by P. Galasso).



Figure 6. *Pelecanus onocrotalus* photographed on 27.VIII.2015 in Pantano Cuba (photo by C. Cappuzello).

***Calidris subruficollis*** (Viellot, 1819) - Buff-breasted Sandpiper

STATUS IN SICILY. Accidental (Massa *et al.*, 2021).

DATA COLLECTED. 1 juv. captured in Pantano Longarini on 21.IX.1976 (Iapichino & Massa, 1989).

REASONS OF INTEREST. Low numbers/records for Sicily.

***Calidris melanotos*** (Viellot, 1819) - Pectoral Sandpiper

STATUS IN SICILY. Accidental (Massa *et al.*, 2021).

DATA COLLECTED. 1 juv. in Pantano Longarini on 19.VII.1998 (Corso in Janni, 2001).

REASONS OF INTEREST. Low numbers/records for Sicily.

***Phalaropus lobatus*** (Linnaeus, 1758) - Red-necked Phalarope

STATUS IN SICILY. Irregular migratory (Massa *et al.*, 2021).

DATA COLLECTED. 1 individual on 26.VIII.1974 and 1 on 26.VIII.1996, both of them in Pantano Longarini (Corso, 2005); 1 in Pantano Cuba on 9.IX.2006 and 1 on 6/14.IX.2007 (Ientile, pers. comm.) in Salina Morghella.

REASONS OF INTEREST. Low numbers/records for Sicily.

***Xenus cinereus*** (Güldenstädt, 1775) - Terek Sandpiper

STATUS IN SICILY. Irregular migratory and irregular wintering (Massa *et al.*, 2021).

DATA COLLECTED. 1 ind. observed several times in Pantano Baronello on August 2008; 1 on 30.IX.2012 and 1 on August 2016, both of them in Pantano Cuba.

REASONS OF INTEREST. Low numbers/records for Sicily; the study area represents an important migratory site for the species.

***Tringa glareola*** Linnaeus, 1758 - Wood Sandpiper

STATUS IN SICILY. Common migratory and rare wintering (Surdo *et al.*, 2018; Massa *et al.*, 2021).

DATA COLLECTED. 1 observed from 11.I.2019 up to 25.I.2019 and 3 ind. observed from 21 up to 27.XI.2020, all of them in Pantano Longarini.

REASONS OF INTEREST. Low wintering records for Sicily.

Familia LARIDAE

***Larus cachinnans*** Pallas, 1811 - Caspian Gull

STATUS IN SICILY. Migratory and irregular wintering (Massa *et al.*, 2021).

DATA COLLECTED. 1 adult on 28.III.2020 in Pantano Longarini.



REASONS OF INTEREST. Low numbers/records for Sicily.

*Gelochelidon nilotica* (G.F. Gmelin, 1789) - Common Gull-billed Tern

STATUS IN SICILY. Migratory and occasional wintering (Massa et al., 2021).

DATA COLLECTED: regularly record in the area, usually with groups of 2–10 individuals and max of 30–40 ind. reported during the spring migration (Corso, 2005); 40 ind. in Pantano Longarini on 24.IV.2015; 34 ind. on 7.IV.2017 and about 50 ind. on 29.V.2020 in Pantano Cuba; no less than 150 ind. on 11.IV.2021 in Pantano Longarini.

REASONS OF INTEREST. Unusual number recorded; the study area represents an important migratory site for the species.

*Thalasseus bengalensis emigratus* (Neumann, 1934) - Lesser Crested Tern

STATUS IN SICILY. Vagrant (Massa et al., 2021).

DATA COLLECTED. 1 in Pantano Longarini on 26.VII.2006 (Testolino, pers. comm.).

REASONS OF INTEREST. Low numbers/records for Sicily.

Ordo STRIGIFORMES  
Familia STRIGIDAE

*Asio flammeus* (Pontoppidan, 1763) - Short-eared Owl

STATUS IN SICILY. Scarce migratory and irregular wintering (Massa et al., 2021).

DATA COLLECTED: 1 observed in Pantano Cuba several times in December 2015 and 1 on 1.XI.2015 in Salina Morghella (Ientile, pers. comm.); 1 on 6.IV.2016 and 1 on 7.IV.2017 for the same location; 1 on 24.XI.2017 in Pantano Longarini; 1 observed several times in April 2018, both in Pantano Cuba and Longarini; 1 on 5.XI.2020 in Pantano Cuba.

REASONS OF INTEREST. The study area represents an important wintering site for the species.

Ordo ACCIPITRIFORMES  
Familia ACCIPITRIDAE

*Clanga pomarina* (C.L. Brehm, 1831) - Lesser Spotted Eagle

STATUS IN SICILY: irregular migratory and irregular wintering (Massa et al., 2021).

DATA COLLECTED: 1 on 22.I.2011 (Scuderi, pers. comm.); 1 juv. observed several times on October 2015 in Pantano Cuba and Longarini; 1 adult in January 2016, in the same area; 2 adults observed from 14.X.2017 up to 27.X.2017 in Pantano Cuba; 2 ind. in Pantano Longarini in November 2020: 1 of them was probably a hybrid of *C. pomarina* x *C. clanga*.

REASONS OF INTEREST: the study area represents an important wintering and migratory site for the species.

*Circus cyaneus* (Linnaeus, 1766) - Pallid Harrier

STATUS IN SICILY. Scarce migratory and rare wintering (Massa et al., 2021).

DATA COLLECTED. 1–4 ind. regularly observed during March–April and usually 1 in September–October for 2016–2020. Wintering: 1 (2° cy) observed from 13.I.2017 up to 17.II.2017 in Pantano Longarini; 1 adult male on 26.I.2018 and 1 on 19.XII.2019 in the same location.

REASONS OF INTEREST. Low wintering records for Sicily; the study area represents an important wintering and migratory site for the species.

Ordo CORACIFORMES  
Familia CORACIIDAE

*Coracias garrulous* Linnaeus, 1758 - European Roller

STATUS IN SICILY. Migratory and summer breeder (Massa et al., 2021).

DATA COLLECTED. 1 pair regularly breeding in a ruin in the north side of Pantano Longarini from 2007 to 2011.

REASONS OF INTEREST. Low numbers/records for Sicily; lack of recent published data.



Figure 7. *Sylvia deserti* photographed in Pantano Cuba (photo by P. Galasso).



Figure 8. Rosy Starling photographed in Pantano Cuba (photo by N. Patti).

Ordo PASSERIFORMES  
 Familia LANIIDAE

***Lanius excubitor algeriensis*** Lesson, 1839 -  
 Desert Grey Shrike

STATUS IN SICILY. Accidental (Massa et al., 2021).

DATA COLLECTED: 1 adult observed near Pantano Cuba from 4 to 9.I.2017 (Corso, Penna & Riddington in Nicoli et al., 2018; Arena et al., 2019).

REASONS OF INTEREST. Low numbers/records for Sicily.

Familia ALAUDIDAE

***Alaudala rufescens*** (Veillot, 1819) - Lesser Short-toed Lark

STATUS IN SICILY. Accidental (Massa et al., 2021).

DATA COLLECTED. 1 on 19.XII.2010 at the mouth of Pantano Longarini.

REASONS OF INTEREST. Low numbers/records for Sicily.

***Melanocorypha calandra*** (Linnaeus, 1766) - Calandra Lark

STATUS IN SICILY. Resident breeder, rare migratory and rare wintering (Massa et al., 2021).

DATA COLLECTED: 1 observed on 15.XI.2018, in a cultivated field in Pantano Longarini.

REASONS OF INTEREST. Lack of recent published data.

Familia PANURIDAE

***Panurus biarmicus*** (Linnaeus, 1758) - Bearded Reedling

STATUS IN SICILY. Accidental (Massa et al., 2021).

DATA COLLECTED. 2–3 ind. reported for Pantano Longarini on 6.II.1980 (Iapichino & Massa, 1989).

REASONS OF INTEREST. Low numbers/records for Sicily.

Familia ACROCEPHALIDAE

***Acrocephalus scirpaceus*** (Hermann, 1804) - Reed Warbler

STATUS IN SICILY. Summer breeder and regular migratory (Massa et al., 2021).

DATA COLLECTED. 1 on 26.II.2016; 1 ind. in singing on 8.II.2019 (Viganò, pers. comm.) and 2 ind. (1 in singing) on 15.II.2020, all of them in Pantano Cuba; 1 on 22.XII.2020 in Pantano Longarini.

REASONS OF INTEREST. Low wintering records for Sicily.

Familia LOCUSTELLIDAE

***Locustella luscinioides*** (Savi, 1824) - Savi's Warbler

STATUS IN SICILY. Irregular migratory (Massa et al., 2021).

DATA COLLECTED. A singing individual heard in Pantano Baronello on 5.V.1995 (Corso, 2005).

REASONS OF INTEREST. Low numbers/records for Sicily.

Familia SYLVIIDAE

*Sylvia deserti* (Loche, 1858) - African Desert Warbler

STATUS IN SICILY. Accidental (Massa et al., 2021).

DATA COLLECTED. 1 adult in Pantano Cuba on 25/26.IV.2016 (Fig. 7), hunting small insects between wild fennels *Foeniculum vulgare*. Observation approved by COI (Commissione Ornitologica Italiana) (Fracasso et al., 2018).

REASONS OF INTEREST. Low numbers/records for Sicily; first ascertained record for Sicily (with exclusion of minor islands).

Familia STURNIDAE

*Pastor roseus* (Linnaeus, 1758) - Rosy Starling

STATUS IN SICILY. Irregular migratory (Massa et al., 2021).

DATA COLLECTED. 1 immature on 14/25.II.2017 (Fig. 8) and 1 on 1.XII.2017 (together in a flock with about 1500 *Sturnus vulgaris*), all of them in Pantano Cuba.

REASONS OF INTEREST. Low numbers/records for Sicily; never reported before for the study area; lack of recent published data.

Familia MUSCICAPIDAE

*Oenanthe deserti* (Temminck, 1825) - Desert Wheatear

STATUS IN SICILY. Irregular migratory (Massa et al., 2021).

DATA COLLECTED. 1 male observed near to Pantano Ponterio on 14–16.III.2012 (Ientile, pers. comm.); 1 male on 11.XII.2016 (Ientile, pers. comm.) in Salina Morghella.

REASONS OF INTEREST. Low numbers/records for Sicily; never reported before for the study area.

Familia MOTACILLIDAE

*Anthus richardi* Vieillot, 1818 - Richard's Pipit

STATUS IN SICILY. Migratory and rare wintering (Massa et al., 2021).

DATA COLLECTED. Regular migratory and wintering species in the area, observed frequently every year.

Wintering:  $\geq 12$  on 25.XI.2016 in Pantano Longarini;  $\geq 10$  on 10.III.2017, 8 on 1.XII.2018 and  $\geq 12$  on 4.XII.2020, all of them recorded in Pantano Cuba.

REASONS OF INTEREST. The study area represents an important wintering site for the species.

*Motacilla citreola citreola* Pallas, 1776 - Citrine Wagtail

STATUS IN SICILY. Irregular migratory and occasional wintering (Massa et al., 2021).

DATA COLLECTED. 1 juv. on 18.VIII.2010 in Pantano Longarini (Corso & Penna in Nicoli et al., 2011) and 1 juv. on 16.VIII.2011 in Salina Morghella; 1 adult male on 23.III.2013 in Pantano Baronello; 1 juv. on 27.VIII.2014 in Pantano Cuba; 1 in Pantano Longarini on 2.XII.2020 (Cortese & Arena, pers. comm.) and again on 3.XII.2020.

REASONS OF INTEREST. Low numbers/records for Sicily; the study area represents an important migratory site for the species.

In addition to the listed 244 bird species, we also want to report:

- Bald Ibis *Geronticus eremita* (Linnaeus, 1758) - 4 ind. of Northern in Pantano Longarini on 21.XI.2017, certainly escaped from captivity.

- *Oxyura jamaicensis* (Gmelin, 1789) - 1 adult male of Ruddy Duck observed in Pantano Bruno several times in May 2021; it represents the first record of this alien species for Sicily.

**DISCUSSION**

The constant weekly monitoring carried out by the authors permitted to properly understand the local phenology of most of the species recorded and updating the knowledge about breeding pairs of *Marmaronetta angustirostris*, *Aythya nyroca* and *Porphyrio porphyrio* in the study area. For 74 species the breeding was ascertained, more or less regularly; 147 species are exclusively migratory and/or wintering (in some cases with dubious breeding) and 23 species are accidentals. Standing to the last Red List of Italian breeding birds (Gustin et al., 2019), on the total of 244 species here reported, 189 can be categorized following the IUCN criteria as reported in the Table 2.

On a total of 17 species recorded and considered as “Endangered”, *Marmaronetta angustirostris*, *Aythya nyroca*, *Clamator glandarius*, *Charadrius alexandrinus* and *Lanius senator* are breeding in the area, as well *Tadorna tadorna*, *Spatula clypeata*, *Aythya farina*, *Ixobrychus minutus*, *Remiz pendulinus*, *Cecropis daurica* that are instead considered as “Vulnerable”.

The local breeding population of *Marmaronetta angustirostris*, actually represented by 3–5 pairs, have been slowly increasing in the last years if compared to the last estimation reported for the area (Corso; 2005; Andreotti, 2007). Since the population of Mazara del Vallo and surroundings (Trapani) is represented by 1–3 regular breeding pairs (Sciabica, 2004; Spagnesi & Serra, 2005; Andreotti, 2007) and only 1 pair is reported for Sar-

dinian (Grussu et al., 2014; Grussu & Podda, 2017), the breeding population of Sicilian south-east swamp lakes is actually the most important and abundant of Italy. Likewise, also the population of *Aythya nyroca* results one of the most important of Sicily for its regular number of pairs recorded, together to the locations of Pantano Leone (TP) and Vecchia Ansa del Simeto (CT) (Melega, 2007).

The current breeding population of *Porphyrio porphyrio* is the consequence of a spontaneous colonisation by the species in the area, following the reintroduction project (Andreotti, 2001): considering the last regional estimation of 108–125 pairs for 2007 (Ientile, 2008), the study area, with 16–34 pairs, hosts about the 15–27% of total Sicilian pairs. The heronry of Pantano Longarini consists of no less than 30 pairs of *Egretta garzetta*, a considerable number also if compared with the other important Sicilian heronries of Lentini and Fiume Simeto, for which 15–20 pairs are reported for 2004–2005 (Fasola et al., 2007) and 2017–2020 (Rannisi, pers. comm). The highest number of pairs in Sicily is reported for Saline di Trapani with 30–50 pairs for 2013–2016 (Surdo, 2016b).

For some species, as *Glareola pratincola* and *Melanocorypha calandra*, breeding in the area is reported for the recent past years (Corso, 2005; Ientile & Massa, 2008) but it has never been ascertained during the study, probably due to the changes on land-use and sericulture (Massa & La Mantia, 2010). Only one ascertained breeding case of *Larus*

| IUCN Categories            | Red List of Italian Breeding birds | Species recorded in the study area | Species breeding in the study area |
|----------------------------|------------------------------------|------------------------------------|------------------------------------|
| Extint in the Region (RE)  | 5                                  | 1                                  | 0                                  |
| Critically Endangered (CR) | 10                                 | 7                                  | 0                                  |
| Endangered (EN)            | 22                                 | 17                                 | 5                                  |
| Vulnerable (VU)            | 35                                 | 24                                 | 6                                  |
| Near Threatened (NT)       | 30                                 | 20                                 | 10                                 |
| Least Concern (LC)         | 142                                | 100                                | 53                                 |
| Data Deficient (DD)        | 13                                 | 3                                  | 0                                  |
| Not Applicable (NA)        | 21                                 | 17                                 | 0                                  |
| <b>Total</b>               | <b>278</b>                         | <b>189</b>                         | <b>74</b>                          |

Table 2. IUCN categories for the 189 species recorded in the study area. The remaining 55 species are not reported in the Italian Red List since they are exclusively migratory or wintering for Italy.

*genei* is reported, for 7.VII.2004 in Pantano Longarini (Corso, 2005), but it has been no more recorded.

The data collected confirmed, once again, the richness and the great importance of this area for breeding, migration and wintering of many species of birds. The 244 species listed represent about the 44% of the Italian bird species, 549 in total, officially reported up to date (Fulco & Liuzzi, 2019) and the 56% of Sicilian bird species, 437 in total, reported from Massa et al. (2021).

## CONCLUSIONS

Despite the widespread degradation and illegal hunting deeply rooted in the whole area, the protection strategies (e.g. habitat restoring, land recovery, anti-poaching actions, fencing, garbage removal, etc...) applied starting from 2013 in Pantano Cuba and Pantano Longarini by the German foundation Stiftung Pro Artenvielfalt, have been giving an essential and important contribution to the improvement and enrichment of the already rich and valuable local bird community.

These two swamp lakes, indeed, represent one of the most important Italian site for the breeding of *Marmaronetta angustirostris*, *Aythya nyroca* and *Porphyrio porphyrio*. They are also important site for uncommon wintering species as *Tadorna ferruginea*, *Botaurus stellaris*, *Clanga pomarina*, *Cyrus cyaneus*, *Asio flammeus*, *Upupa epops*, *Hirundo rustica* and *Anthus richardii* and migration site of many species of birds, including *Plegadis falcinellus*, *Calidris canutus* and *Buteo rufinus*.

Additional survey on the field, if carried out in the next years, will certainly highlight the positive consequences of conservation strategies applied by the Stiftung Pro Artenvielfalt on the whole wetland of Sicilian southeast swamp lakes.

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