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The Ornithological Collection of the Agricultural Sciences Museum housed in the Bourbon Palace of Portici (Italy)

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Abstract

The ornithological collection of the Agricultural Sciences Museum, hosted at the Department of Agricultural Sciences at the Bourbon Palace of Portici, was started in 1889. In 1920, under the direction of Filippo Silvestri, there was a notable increase in the number of specimens. This increase continued in the following years, until the collection reached around 400 specimens in 1976. In the same year, Professors Domenico Scaramella and Luigi Filippo Russo published the first and, until now, only complete analysis of the single specimens, classifying them with the systematic criteria of the time. After 45 years, the Agricultural Sciences Museum Direction felt it was appropriate to review the status of the collection, both to ascertain the presence of the specimens mentioned in previous works, and to verify the preservation status of such specimens. A species check-list was compiled, of the 437 specimens found, belonging to 271 species, 70 families, and 25 orders. It is worth noting the presence of some extinct species - Moloka'i Creeper (*Paroreomyza flammea*) and Leysan Rail (*Zapornia palmeri*) - and probably extinct species: Ou (*Psittirostra psittacea*) and Slender-billed Curlew (*Numenius tenuirostris*).

Keywords: Ornithological collection, Agricultural Science Museum, extinct species.

Riassunto

La collezione ornitologica del Museo delle Scienze Agrarie, ospitata nel Dipartimento di Agraria presso la Reggia borbonica di Portici, è stata avviata a partire dal 1889. Nel 1920, sotto la direzione di Filippo Silvestri, ebbe un notevole incremento nel numero degli esemplari. Incremento continuato nel tempo, fino a raggiungere i circa 400 esemplari nel 1976, anno in cui i professori Domenico Scaramella e Luigi Filippo Russo pubblicarono la prima, e finora unica, analisi completa dei singoli reperti classificandoli con i criteri sistematici del periodo. A distanza di circa 45 anni la Direzione del Museo delle Scienze Agrarie ha ritenuto opportuno operare una revisione dello stato della collezione sia per constatare la presenza o meno degli esemplari citati nei precedenti lavori, sia per verificare lo stato di conservazione degli stessi. Sono stati rinvenuti 437 esemplari relativi a 271 specie, 70 famiglie e 25 ordini e compilata la check-list delle specie presenti. Spiccano le presenze di alcune specie estinte - Fringuello rampichino di Molokai (*Paroreomyza flammea*) e Schiribilla di Layson (*Zapornia palmeri*) - e probabilmente estinte: Ou (*Psittirostra psittacea*) e Chiurlottello (*Numenius tenuirostris*).

Parole chiave: Collezione ornitologica, Museo delle Scienze Agrarie, Specie estinte.

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Introduction

In recent years, antique ornithological collections present in our country have become subject of attention and study by ornithologists, because of the amount of information they can provide, contributing to creating a knowledge framework, as precise as possible, on Italian birdlife from late XIX century and the first decades of XX century. In this period, ornithological publications were limited to massive, fundamental works,

usually at a national scale, with a corresponding lack of studies on local birdlife which would allow the collection of point data for single territories.

This shortage is even more pronounced in the Campania region where, after the faunal studies of Costa during the Bourbon period, there has been a lack of continuation in the late 1800s and early 1900s (Fraissinet, 2015). This knowledge vacuum can be, in part, remedied by antique ornithological collections present in the Region.



The ornithological collection of the Agricultural Sciences Museum, hosted at the Department of Agricultural Sciences at the Bourbon Palace of Portici, was started in 1889, when Prof. Antonio Berlese, a passionate hunter, came to Portici. It was in 1920, however, under the direction of Filippo Silvestri, that there was a notable increase in the number of specimens. This increase continued in the following years, until the collection reached around 400 specimens in 1976. In the same year, Professors Domenico Scaramella and Luigi Filippo Russo published the first and, until now, only complete analysis of the single specimens, classifying them with the systematic criteria of the time (Scaramella & Russo, 1976) and, at the

same time, an analysis of the most important species found in the collection (Russo & Scaramella, 1976). Afterwards, these two authors published a follow-up work, reporting some new additions to the collection (Scaramella & Russo, 1979). Since then, no other revisions or updates have been made. In the 1976 revision, Scaramella and Russo reported around 400 specimens belonging to 251 forms, 16 orders and 53 families (Scaramella & Russo, 1976). In the following years, the collection was enriched with 18 more specimens (Scaramella & Russo, 1979).

After 45 years, the Agricultural Sciences Museum Direction of the Department of Agricultural Sciences felt it was appropriate to review the status of the

collection, assigning the task to the Authors, both to ascertain the presence of the specimens mentioned in previous works, and to verify the preservation status of such specimens.

At the same time, species nomenclature and classification was updated, moving the specimens between cabinets to reassemble a systematic order.

primarily with the last version of the regional checklist (Fraissinet & Usai, 2021).

English names of birds reported in the list follow the recommended bird names present in IOC World Bird List (Gill et al., 2021). The Italian name of species primarily refers to the national checklist (Brichetti & Fracasso 2015), excluding *Columba livia* var. *domestica* that we



Materials and Methods

Taxonomic assignment

For the taxonomy we followed the IOC World Bird List, using the latest version 11.1 (Gill et al., 2021). The choice to follow this taxonomy is determined by the decision to use same taxonomy present in previous checklists in order to carry out assessments and comparisons,

named "Colombo domestico", according to Boano et al. (2018).

Assessment of the state of preservation

For the preservation status, we adopted 5 levels of rating: Poor, Inadequate, Barely Acceptable, Adequate, Satisfactory. "Poor" status was attributed to specimens with structural damage and

grave alterations of plumage. "Inadequate" status was attributed to specimens with plumage alterations due to neglect in the past decades. Some of these can probably be salvaged with cleaning and restoration operations. "Barely Acceptable" status was attributed to specimens with light plumage alterations due to neglect, that can be recovered through cleaning and restoration. "Acceptable" status was assigned to specimens whose plumage has retained original colors, which can be certainly be restored with a thorough cleaning. "Satisfactory" status was assigned to specimens with fully preserved plumage, which only require a light cleaning to be completely restored.

Results and Discussion

Check-list

437 specimens relating to 271 species, 70 families and 25 orders were found in the collection. The check-list of species and of the number of specimens for each species is reported in Table S1.

The number of specimens is more or less consistent with that reported in previous lists by Scaramella and Russo (1976, 1979). Differences in order and family numbers are ascribable both to the presence of specimens belonging to families not reported in the original lists, both to new systematic attributions.

In particular, compared to the previous lists, we did not retrieve a Teal (*Anas crecca*) and one specimen of Northern Raven (*Corvux corax*), as Scaramella and



Russo (1976) reported at least 2 individuals for this species, with one referring to the subspecies *Corvus corax tingitanus*, distributed in Northern Africa and vagrant in Sicily and Sardinia. Preservation status does not currently allow to determine which of the two subspecies remains in the collection.

Similar considerations apply to the Hooded Crow (*Corvus cornix*). At present, only one specimen belonging to this species was found, whereas the previous authors reported at least two, specifying that one belongs to the subspecies *sardonius*, typical of Sardinia. Currently, Sardinian and Southern Italian populations are considered to belong to the same subspecies: *C.c. sharpii*. The same is true for the Western Jackdaw (*Coloeus monedula*), currently represented by one specimen, and previously reported as at least two specimens, one of which belonging to the nominal subspecies, distributed in Scandinavia (*C.monedula monedula*). In this case also, the current preservation status is not good enough to understand which of the two species remains in the collection.

A similar case concerns the Eurasian Jay (*Garrulus glandarius*), currently represented by one specimen, compared to the two reported by Scaramella and Russo and classified as two different subspecies - *G. g. glandarius*, present in Northern and Central Europe, and *G. g. albipectus*, present in the Italian peninsula. Preservation status does not allow a

correct identification of the subspecies remaining in the collection.

A different situation concerns the two specimens of Eurasian Magpie (*Pica pica*) previously reported of which only one remains today, as the subspecies *P. p. galliae* is no longer distinct from the nominal subspecies.

New species not previously reported were found: European Nightjar (*Caprimulgus europaeus*), Squacco Heron (*Ardeola ralloides*), Marsh Sandpiper (*Tringa stagnatilis*), Pied Avocet (*Recurvirostra avosetta*), Collared Pratincole (*Glareola pratincola*), Orange-winged Amazon (*Amazona amazonica*) along with some specimens of the Drepanididae family, endemic to Hawaii and one specimen of the Rallidae family, also endemic to Hawaii: the Laysan Rail (*Zapornia palmeri*).

In particular, the collection hosts 5 specimens of the Drepanididae family, referring to 4 species: Hawaii Creeper (*Manucerthia mana*), Ou (*Psittirostra psittacea*), Apapane (*Himatione sanguinea*), Moloka'i Creeper (*Paroreomyza flammea*).

It is worth noting that the Moloka'i Creeper and the Laysan Rail are declared extinct and that the Ou is also probably extinct, with the latest sighting dating back to 1975. The latter species is considered by IUCN (International Union for the Conservation of Nature) as "Critically endangered", as it has not yet been 50 years since the latest sighting.

From the interpretation of the calligraphy present on the specimen tags, not easy

to decipher, which also report the places of origin, it is believed that these belonged to or originated from a Perkins collection.

the Campania region, at the Volturno river mouth, and which represents one of the 5 known sightings for Campania (Fraissinet, 2015).



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Our research lead us to believe it refers to Robert Cyril Layton Perkins (1866-1955), an illustrious British entomologist and naturalist, known for his work on the fauna of Hawaii. His numerous works are collected in the volumes "FAUNA HAWAIIENSIS" and in different publications.

It is not known why these specimens are not reported in the lists of Scaramella and Russo (1976, 1979).

Also worth noting is the presence of a Slender-billed Curlew (*Numenius tenuirostris*), species considered as probably extinct, found in the 1970s in

Furthermore, a specimen of Pallas's Sandgrouse (*Syrhaptus paradoxus*) is also very interesting, although sadly in a terrible preservation status. Scaramella and Russo (1979) state that it originates from a farmhouse in the Abruzzo region, probably 50 years before, they consider it captured in Italy but have doubts about the statement. The interest is rooted in the fact that this species is considered vagrant in Italy, with four sightings considered valid for the XX century (Brichetti & Fracasso, 2015), with the only Abruzzo sighting referring to a specimen captured in the Teramo municipality in

1971 (Santone and Di Carlo, 1994), subsequently discredited by Bricchetti and Fracasso (2006). If the attribution was correct, dating back to 1929, it would be new to the literature, otherwise we would be dealing with a specimen known to Santone and Di Carlo and later not considered as Italian.

Preservation status

Figure 1 reports the percentage of the 5 categories used to verify the preservation status, calculated on the total of the collection specimens. Sadly, only 3% of the specimens is in a "Satisfactory" condition and 28% in an

"Adequate" and "Barely Acceptable" status. The majority of specimens is in a "Poor" or "Inadequate" condition, for a total of 69%. Fortunately, some of the specimens in an "Inadequate" status could be recoverable, with a careful operation of restoration and cleaning. The species in good condition have been selected for the new museum layout that is preparing the Museum of Agricultural Sciences. To these could also be added a part of the species with adequate conservation status after a recovery intervention. For the other species, a new relocation and specific

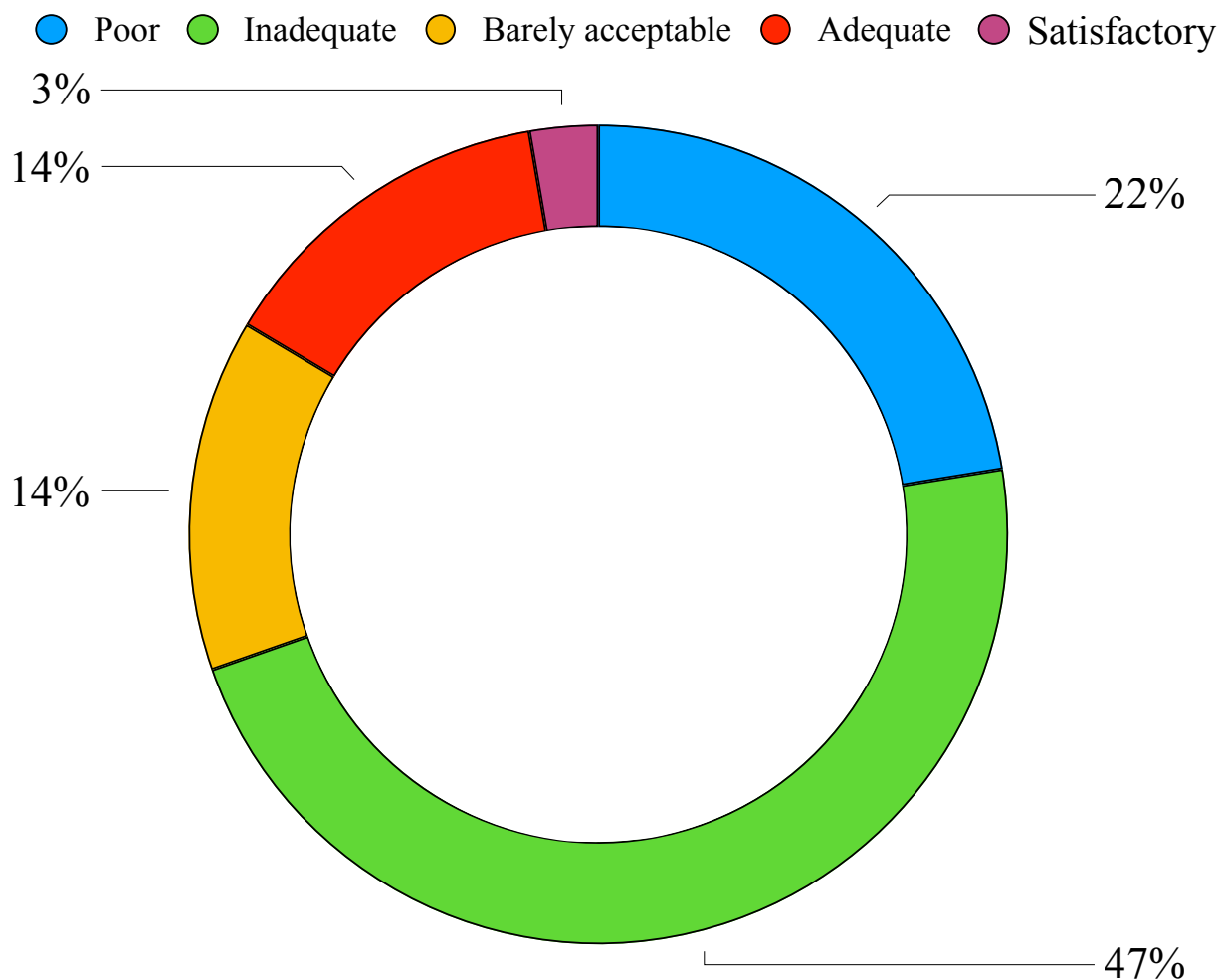


Figure 1: State of preservation of the specimens.

recovery interventions will have to be provided.

Author contributions

Maurizio Fraissinet and Claudio Labriola cured all steps for the composition of the manuscript

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Table S1: Check-list of species and number of specimens for each species. N: number; (*), extinct; (**), probably extinct.

Scientific name	English common name	Italian common name	N. of specimens
ANSERIFORMES			
Anatidae			
<i>Anser fabalis</i>	Taiga Bean Goose	Oca granaiola	2
<i>Cygnus cygnus</i>	Whooper Swan	Cigno selvatico	1
<i>Tadorna tadorna</i>	Common Shelduck	Volpoca	1
<i>Tadorna ferruginea</i>	Ruddy Shelduck	Casarca	1
<i>Spatula querquedula</i>	Garganey	Marzaiola	1
<i>Spatula clypeata</i>	Northern Shoveler	Mestolone	1
<i>Mareca strepera</i>	Gadwall	Canapiglia	1
<i>Mareca penelope</i>	Eurasian Wigeon	Fischione	1
<i>Anas platyrhynchos</i>	Mallard	Germano reale	3
<i>Anas acuta</i>	Northern Pintail	Codone	1
<i>Aythya ferina</i>	Common Pochard	Moriglione	3
<i>Aythya nyroca</i>	Ferruginous Duck	Moretta tabaccata	1
<i>Melanitta fusca</i>	Velvet Scoter	Orco marino	1
<i>Bucephala clangula</i>	Common Goldeneye	Quattrocchi	1
<i>Mergellus albellus</i>	Smew	Pesciaiola	2
<i>Mergus serrator</i>	Red-breasted Merganser	Smergo minore	2
<i>Mergus merganser</i>	Goosander	Smergo maggiore	1
GALLIFORMES			
Phasianidae			
<i>Tetrastes bonasia</i>	Hazel Grouse	Francolino di monte	3
<i>Lagopus muta</i>	Ptarmigan	Pernice bianca	1
<i>Lyrurus tetrrix</i>	Black Grouse	Fagiano di monte	2
<i>Tetrao urogallus</i>	Capercaillie	Gallo cedrone	3
<i>Alectoris graeca</i>	Rock Partridge	Coturnice	2
<i>Alectoris rufa</i>	Red-legged Partridge	Pernice rossa	1
<i>Alectoris barbara</i>	Barbary Partridge	Pernice sarda	1
<i>Perdix perdix</i>	Grey Partridge	Starna	3
<i>Coturnix coturnix</i>	Common Quail	Quaglia	5
CAPRIMULGIFORMES			
Caprimulgidae			
<i>Caprimulgus europaeus</i>	European Nightjar	Succiacapre	2
APODIFORMES			
Apodidae			
<i>Tachymarptis melba</i>	Alpine Swift	Rondone maggiore	1
<i>Apus apus</i>	Common Swift	Rondone comune	1
OTIDIFORMES			
Otididae			
<i>Tetrax tetrax</i>	Little Bustard	Gallina prataiola	1
CUCULIFORMES			
Cuculidae			
<i>Clamator glandarius</i>	Great Spotted Cuckoo	Cuculo dal ciuffo	1

<i>Cuculus canorus</i>	Common Cuckoo	Cuculo	2
COLUMBIFORMES			
Columbidae			
<i>Columba livia</i> var. <i>domestica</i>	Rock Dove	Colombo domestico	2
<i>Columba oenas</i>	Stock Dove	Colombella	1
<i>Columba palumbus</i>	Common Wood Pigeon	Colombaccio	1
<i>Streptopelia turtur</i>	European Turtle Dove	Tortora selvatica	2
<i>Streptopelia decaocto</i>	Eurasian Collared Dove	Tortora dal collare	1
GRUIFORMES			
Rallidae			
<i>Rallus aquaticus</i>	Water Rail	Porciglione	2
<i>Crex crex</i>	Corn Crake	Re di quaglie	1
<i>Porzana porzana</i>	Spotted Crake	Voltolino	1
<i>Gallinula chloropus</i>	Common Moorhen	Gallinella d'acqua	3
<i>Fulica atra</i>	Eurasian Coot	Folaga	1
<i>Porphyrio porphyrio</i>	Western Swamphen	Pollo sultano	1
<i>Zapornia pusilla</i>	Baillon's Crake	Schiribilla grigiata	1
<i>Zapornia parva</i>	Little Crake	Schiribilla	1
<i>Zapornia palmeri</i> (*)	Laysan Rail	Schiribilla di Layson	1
Gruidae			
<i>Grus grus</i>	Common Crane	Gru	1
PODICIPEDIFORMES			
Podicipedidae			
<i>Tachybaptus ruficollis</i>	Little Grebe	Tuffetto	2
<i>Podiceps cristatus</i>	Great Crested Grebe	Svasso maggiore	2
<i>Podiceps nigricollis</i>	Black-necked Grebe	Svasso piccolo	3
PHOENICOPTERIFORMES			
Phoenicopteridae			
<i>Phoenicopus roseus</i>	Greater Flamingo	Fenicottero	2
CHARADRIIFORMES			
Burhinidae			
<i>Burhinus oedicnemus</i>	Eurasian Stone-curlew	Occhione	1
Haematopodidae			
<i>Haematopus ostralegus</i>	Eurasian Oystercatcher	Beccaccia di mare	1
Recurvirostridae			
<i>Himantopus himantopus</i>	Black-winged Stilt	Cavaliere d'Italia	2
<i>Recurvirostra avosetta</i>	Pied Avocet	Avocetta	1
Charadriidae			
<i>Vanellus vanellus</i>	Northern Lapwing	Pavoncella	2
<i>Pluvialis apricaria</i>	European Golden Plover	Piviere dorato	2
<i>Pluvialis squatarola</i>	Grey Plover	Pivieressa	2
<i>Charadrius hiaticula</i>	Common Ringed Plover	Corriere grosso	1
<i>Charadrius dubius</i>	Little Ringed Plover	Corriere piccolo	1
<i>Charadrius alexandrinus</i>	Kentish Plover	Fratino	1
<i>Charadrius morinellus</i>	Eurasian Dotterel	Piviere tortolino	1
Scolopacidae			
<i>Numenius phaeopus</i>	Eurasian Whimbrel	Chiurlo piccolo	1

<i>Numenius tenuirostris</i> (**)	Slender-billed Curlew	Chiurlottello	1
<i>Numenius arquata</i>	Eurasian Curlew	Chiurlo maggiore	3
<i>Limosa lapponica</i>	Bar-tailed Godwit	Pittima minore	1
<i>Limosa limosa</i>	Black-tailed Godwit	Pittima reale	1
<i>Arenaria interpres</i>	Ruddy Turnstone	Voltapietre	1
<i>Calidris pugnax</i>	Ruff	Combattente	5
<i>Calidris ferruginea</i>	Curlew Sandpiper	Piovanello comune	2
<i>Calidris temminckii</i>	Temminck's Stint	Gambecchio nano	1
<i>Calidris alpina</i>	Dunlin	Piovanello pancianera	1
<i>Calidris minuta</i>	Little Stint	Gambecchio comune	4
<i>Scolopax rusticola</i>	Eurasian Woodcock	Beccaccia	2
<i>Lymnocyptes minimus</i>	Jack Snipe	Frullino	1
<i>Gallinago media</i>	Great Snipe	Crocolone	1
<i>Gallinago gallinago</i>	Common Snipe	Beccaccino	1
<i>Actitis hypoleucos</i>	Common Sandpiper	Piro piro piccolo	2
<i>Tringa ochropus</i>	Green Sandpiper	Piro piro culbianco	1
<i>Tringa totanus</i>	Common Redshank	Pettegola	1
<i>Tringa stagnatilis</i>	Marsh Sandpiper	Albastrello	1
<i>Tringa glareola</i>	Wood Sandpiper	Piro piro boschereccio	2
<i>Tringa erythropus</i>	Spotted Redshank	Totano moro	1
<i>Tringa nebularia</i>	Common Greenshank	Pantana	1
Glareolidae			
<i>Glareola pratincola</i>	Collared Pratincole	Pernice di mare	2
Laridae			
<i>Chroicocephalus ridibundus</i>	Black-headed Gull	Gabbiano comune	3
<i>Hydrocoloeus minutus</i>	Little Gull	Gabbianello	1
<i>Ichthyaetus melanocephalus</i>	Mediterranean Gull	Gabbiano corallino	1
<i>Larus canus</i>	Mew Gull	Gavina	1
<i>Larus cachinnans</i>	Caspian Gull	Gabbiano reale pontico	1
<i>Larus michahellis</i>	Yellow-legged Gull	Gabbiano reale	2
<i>Larus fuscus</i>	Lesser Black-backed Gull	Zafferano	1
<i>Gelochelidon nilotica</i>	Gull-billed Tern	Sterna zampanere	1
<i>Hydroprogne caspia</i>	Caspian Tern	Sterna maggiore	1
<i>Thalasseus sandvicensis</i>	Sandwich Tern	Beccapesci	1
<i>Sternula albifrons</i>	Little Tern	Fratichello	2
<i>Sterna hirundo</i>	Common Tern	Sterna comune	3
<i>Chlidonias leucopterus</i>	White-winged Tern	Mignattino alibianche	2
<i>Chlidonias niger</i>	Black Tern	Mignattino comune	3
Stercorariidae			
<i>Stercorarius pomarinus</i>	Pomarine Jaeger	Stercorario mezzano	1
<i>Stercorarius parasiticus</i>	Parasitic Jaeger	Labbo	1
Alcidae			
<i>Alca torda</i>	Razorbill	Gazza marina	2
PTEROCLIFORMES			
Pteroclididae			
<i>Syrhaptes paradoxus</i>	Pallas's Sandgrouse	Sirratte	1
GAVIIFORMES			

Gaviidae

<i>Gavia arctica</i>	Black-throated Loon	Strolaga mezzana	1
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PROCELLARIIFORMES**Procellariidae**

<i>Calonectris diomedea</i>	Scopoli's Shearwater	Berta maggiore	1
<i>Puffinus yelkouan</i>	Yelkouan Shearwater	Berta minore	1

CICONIIFORMES**Ciconiidae**

<i>Ciconia ciconia</i>	White Stork	Cicogna bianca	1
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SULIFORMES**Sulidae**

<i>Morus bassanus</i>	Northern Gannet	Sula	2
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Phalacrocoracidae

<i>Phalacrocorax carbo</i>	Great Cormorant	Cormorano	2
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PELECANIFORMES**Threskiornithidae**

<i>Plegadis falcinellus</i>	Glossy Ibis	Mignattaio	1
<i>Platalea leucorodia</i>	Eurasian Spoonbill	Spatola	2

Ardeidae

<i>Botaurus stellaris</i>	Eurasian Bittern	Tarabuso	1
<i>Ixobrychus minutus</i>	Little Bittern	Tarabusino	3
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	Nitticora	2
<i>Ardeola ralloides</i>	Squacco Heron	Sgarza ciuffetto	1
<i>Ardea cinerea</i>	Grey Heron	Airone cenerino	1
<i>Ardea purpurea</i>	Purple Heron	Airone rosso	2
<i>Ardea alba</i>	Great Egret	Airone bianco maggiore	1
<i>Egretta garzetta</i>	Little Egret	Garzetta	1

ACCIPITRIFORMES**Pandionidae**

<i>Pandion haliaetus</i>	Western Osprey	Falco pescatore	1
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Accipitridae

<i>Pernis apivorus</i>	European Honey Buzzard	Falco pecchiaiolo	1
<i>Gyps fulvus</i>	Griffon Vulture	Grifone	1
<i>Circaetus gallicus</i>	Short-toed Snake Eagle	Biancone	1
<i>Clanga clanga</i>	Greater Spotted Eagle	Aquila anatraia maggiore	1
<i>Aquila chrysaetos</i>	Golden Eagle	Aquila reale	2
<i>Aquila fasciata</i>	Bonelli's Eagle	Aquila di Bonelli	1
<i>Accipiter nisus</i>	Eurasian Sparrowhawk	Sparviere	4
<i>Accipiter gentilis</i>	Northern Goshawk	Astore	2
<i>Circus aeruginosus</i>	Western Marsh Harrier	Falco di palude	1
<i>Circus cyaneus</i>	Hen Harrier	Albanella reale	2
<i>Milvus milvus</i>	Red Kite	Nibbio reale	1
<i>Buteto lagopus</i>	Long-Legged Buzzard	Poiana calzata	1
<i>Buteo buteo</i>	Common Buzzard	Poiana	1

STRIGIFORMES**Tytonidae**

<i>Tyto alba</i>	Western Barn Owl	Barbagianni	2
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Strigidae

<i>Athene noctua</i>	Little Owl	Civetta	1
<i>Otus scops</i>	Eurasian Scops Owl	Assiolo	1
<i>Asio otus</i>	Long-eared Owl	Gufo comune	2
<i>Asio flammeus</i>	Short-eared Owl	Gufo di palude	1
<i>Bubo bubo</i>	Eurasian Eagle-Owl	Gufo reale	1
<i>Strix aluco</i>	Tawny Owl	Allocco	2

BUCEROTIFORMES**Upupidae**

<i>Upupa epops</i>	Eurasian Hoopoe	Upupa	1
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CORACIIFORMES**Alcedinidae**

<i>Alcedo atthis</i>	Common Kingfisher	Martin pescatore	2
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Meropidae

<i>Merops apiaster</i>	European Bee-eater	Gruccione	1
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PICIFORMES**Picidae**

<i>Jynx torquilla</i>	Eurasian Wryneck	Torcicollo	2
<i>Dendrocoptes medius</i>	Middle Spotted Woodpecker	Picchio rosso mezzano	1
<i>Dryobates minor</i>	Lesser Spotted Woodpecker	Picchio rosso minore	2
<i>Dendrocopos major</i>	Great Spotted Woodpecker	Picchio rosso maggiore	3
<i>Dryocopus martius</i>	Black Woodpecker	Picchio nero	2
<i>Picus viridis</i>	European Green Woodpecker	Picchio verde	2
<i>Picus canus</i>	Grey-Headed Woodpecker	Picchio cenerino	2

FALCONIFORMES**Falconidae**

<i>Falco tinnunculus</i>	Common Kestrel	Gheppio	3
<i>Falco vespertinus</i>	Red-footed Falcon	Falco cuculo	3
<i>Falco columbarius</i>	Merlin	Smeriglio	1
<i>Falco subbuteo</i>	Eurasian Hobby	Lodolaia	2
<i>Falco peregrinus</i>	Peregrine Falcon	Falco pellegrino	1

PSITTACIFORMES**Psittacidae**

<i>Amazona amazonica</i>	Orange-winged Amazon	Amazzona dell'Amazzonia	1
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PASSERIFORMES**Laniidae**

<i>Lanius collurio</i>	Red-backed Shrike	Averla piccola	1
<i>Lanius minor</i>	Lesser Grey Shrike	Averla cenerina	2
<i>Lanius excubitor</i>	Great Grey Shrike	Averla maggiore	1
<i>Lanius senator</i>	Woodchat Shrike	Averla capirosa	2

Oriolidae

<i>Oriolus oriolus</i>	Eurasian Golden Oriole	Rigogolo	3
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Corvidae

<i>Garrulus glandarius</i>	Eurasian Jay	Ghiandaia	1
<i>Pica pica</i>	Eurasian Magpie	Gazza	1
<i>Nucifraga caryocatactes</i>	Spotted Nutcracker	Nocciolaia	1
<i>Pyrrhocorax graculus</i>	Alpine chough	Gracchio alpino	1

<i>Pyrrhocorax pyrrhocorax</i>	Red-billed Chough	Gracchio corallino	3
<i>Coloeus monedula</i>	Western Jackdaw	Taccola	1
<i>Corvus frugilegus</i>	Rook	Corvo comune	3
<i>Corvus cornix</i>	Hooded Crow	Cornacchia grigia	1
<i>Corvus corone</i>	Black Crow	Cornachia nera	1
<i>Corvus corax</i>	Northern Raven	Corvo imperiale	1
Bombycillidae			
<i>Bombycilla garrulus</i>	Bohemian Waxwing	Beccofrusone	1
Paridae			
<i>Parus ater</i>	Coal Tit	Cincia mora	1
<i>Lophophanes cristatus</i>	European Crested Tit	Cincia dal ciuffo	1
<i>Poecile palustris</i>	Marsh Tit	Cincia bigia	1
<i>Cyanistes caeruleus</i>	Eurasian Blue Tit	Cinciarella	3
<i>Parus major</i>	Great Tit	Cinciallegra	3
Remizidae			
<i>Remiz pendulinus</i>	Eurasian Penduline Tit	Pendolino	1
Panuridae			
<i>Panurus biarmicus</i>	Bearded Reedling	Basettino	1
Alaudidae			
<i>Lullula arborea</i>	Woodlark	Tottavilla	1
<i>Alauda arvensis</i>	Eurasian Skylark	Allodola	3
<i>Galerida cristata</i>	Crested Lark	Cappellaccia	2
<i>Calandrella brachydactyla</i>	Greater Short-toed Lark	Calandrella	1
<i>Melanocorypha calandra</i>	Calandra Lark	Calandra	1
Hirundinidae			
<i>Riparia riparia</i>	Sand Martin	Topino	1
<i>Hirundo rustica</i>	Barn Swallow	Rondine	1
<i>Delichon urbicum</i>	Common House Martin	Balestruccio	1
Cettiidae			
<i>Cettia cetti</i>	Cetti's Warbler	Usignolo di fiume	1
Aegithalidae			
<i>Aegithalos caudatus</i>	Long-tailed Tit	Codibugnolo	2
Phylloscopidae			
<i>Phylloscopus sibilatrix</i>	Wood Warbler	Lui verde	1
<i>Phylloscopus trochilus</i>	Willow Warbler	Lui grosso	2
<i>Phylloscopus collybita</i>	Common Chiffchaff	Lui piccolo	1
Acrocephalidae			
<i>Acrocephalus arundinaceus</i>	Great Reed Warbler	Cannareccione	1
<i>Acrocephalus scirpaceus</i>	Eurasian Reed Warbler	Cannaiola comune	1
<i>Hippolais polyglotta</i>	Melodious Warbler	Canapino comune	2
Cisticolidae			
<i>Cisticola juncidis</i>	Zitting Cisticola	Beccamoschino	1
Sylviidae			
<i>Sylvia atricapilla</i>	Eurasian Blackcap	Capinera	3
<i>Sylvia borin</i>	Garden Warbler	Beccafico	1
<i>Sylvia nisoria</i>	Barred Warbler	Bigia padovana	1
<i>Curruca hortensis</i>	Western Orphean Warbler	Bigia grossa occidentale	1

<i>Curruca melanocephala</i>	Sardinian Warbler	Occhiocotto	2
<i>Curruca cantillans</i>	Eastern Subalpine Warbler	Sterpazzolina comune	1
<i>Curruca communis</i>	Common Whitethroat	Sterpazzola	2
<i>Curruca conspicillata</i>	Spectacled Warbler	Sterpazzola della Sardegna	1
<i>Curruca undata</i>	Dartford Warbler	Magnanina comune	1
Regulidae			
<i>Regulus ignicapilla</i>	Common Firecrest	Fiorrancino	1
<i>Regulus regulus</i>	Goldcrest	Regolo	2
Troglodytidae			
<i>Troglodytes troglodytes</i>	Eurasian Wren	Scricciolo	3
Sittidae			
<i>Sitta europaea</i>	Eurasian Nuthatch	Picchio muratore	2
Tichodromidae			
<i>Tichodroma muraria</i>	Wallcreeper	Picchio muraiolo	1
Certhiidae			
<i>Certhia familiaris</i>	Eurasian Treecreeper	Rampichino alpestre	1
Sturnidae			
<i>Pastor roseus</i>	Rosy Starling	Storno roseo	3
<i>Sturnus vulgaris</i>	Common Starling	Storno	3
<i>Sturnus unicolor</i>	Spotless Starling	Storno nero	2
Turdidae			
<i>Turdus torquatus</i>	Ring Ouzel	Merlo dal collare	2
<i>Turdus merula</i>	Common Blackbird	Merlo	5
<i>Turdus pilaris</i>	Fieldfare	Cesena	2
<i>Turdus philomelos</i>	Song Thrush	Tordo bottaccio	1
<i>Turdus viscivorus</i>	Mistle Thrush	Tordela	3
Muscicapidae			
<i>Muscicapa striata</i>	Spotted Flycatcher	Pigliamosche	2
<i>Erithacus rubecula</i>	European Robin	Pettirosso	2
<i>Luscinia megarhynchos</i>	Spotted Flycatcher	Usignolo	1
<i>Ficedula albicollis</i>	Collared Flycatcher	Balia dal collare	1
<i>Phoenicurus ochruros</i>	Black Redstart	Codiroso spazzacamino	3
<i>Phoenicurus phoenicurus</i>	Common Redstart	Codiroso comune	2
<i>Monticola saxatilis</i>	Common Rock Thrush	Codirossone	1
<i>Monticola solitarius</i>	Blue Rock Thrush	Passero solitario	1
<i>Saxicola rubetra</i>	Whinchat	Stiaccino	1
<i>Saxicola rubicola</i>	European Stonechat	Saltimpalo	1
<i>Oenanthe oenanthe</i>	Northern Wheatear	Culbianco	2
<i>Oenanthe hispanica</i>	Western Black-eared Wheatear	Monachella	3
Cinclidae			
<i>Cinclus cinclus</i>	White-throated Dipper	Merlo acquaiolo	1
Passeridae			
<i>Passer domesticus</i>	House Sparrow	Passera oltremontana	1
<i>Passer italiae</i>	Italian Sparrow	Passera d'Italia	4
<i>Passer hispaniolensis</i>	Spanish Sparrow	Passera sarda	1
<i>Passer montanus</i>	Eurasian Tree Sparrow	Passera mattugia	3
<i>Petronia petronia</i>	Rock Sparrow	Passera lagia	1

<i>Montifringilla nivalis</i>	White-winged Snowfinch	Fringuello alpino	1
Ploceidae			
<i>Ploceus sp.</i>			1
Prunellidae			
<i>Prunella collaris</i>	Alpine Accentor	Sordone	1
<i>Prunella modularis</i>	Dunnock	Passera scopaiola	1
Motacillidae			
<i>Motacilla flava</i>	Western Yellow Wagtail	Cutrettola	3
<i>Motacilla cinerea</i>	Grey Wagtail	Ballerina gialla	1
<i>Motacilla alba</i>	White Wagtail	Ballerina bianca	1
<i>Anthus richardi</i>	Richard's Pipit	Calandro maggiore	1
<i>Anthus campestris</i>	Tawny Pipit	Calandro	1
<i>Anthus pratensis</i>	Meadow Pipit	Pispola	1
<i>Anthus spinoletta</i>	Water Pipit	Spioncello	1
Fringillidae			
<i>Fringilla coelebs</i>	Common Chaffinch	Fringuello	4
<i>Fringilla montifringilla</i>	Brambling	Peppola	1
<i>Coccothraustes coccothraustes</i>	Hawfinch	Frosone	2
<i>Pyrhula pyrrhula</i>	Eurasian Bullfinch	Ciuffolotto	2
<i>Chloris chloris</i>	European Greenfinch	Verdone	4
<i>Linaria cannabina</i>	Common Linnet	Fanello	2
<i>Acanthis flammea</i>	Common Redpoll	Organetto	2
<i>Loxia curvirostra</i>	Red Crossbill	Crociere	4
<i>Carduelis carduelis</i>	European Goldfinch	Cardellino	3
<i>Carduelis citrinella</i>	Citril Finch	Venturone alpino	1
<i>Serinus serinus</i>	European Serin	Verzellino	2
<i>Spinus spinus</i>	Eurasian Siskin	Lucherino	1
Drepanididae			
<i>Manuceria mana</i>	Hawaii Creeper	Fringuello rampichino delle Hawaii	2
<i>Psittirostra pistacea (**)</i>	Ou	Ou	1
<i>Himatione sanguinea</i>	Apapane	Apapane	1
<i>Paroreomyza flammea (*)</i>	Moloka'i Creeper	Fringuello rampichino di Molokai	1
Calcariidae			
<i>Plectrophenax nivalis</i>	Snow Bunting	Zigolo delle nevi	1
Emberizidae			
<i>Emberiza calandra</i>	Corn Bunting	Strillozzo	1
<i>Emberiza citrinella</i>	Yellowhammer	Zigolo giallo	2
<i>Emberiza cia</i>	Rock Bunting	Zigolo muciatto	1
<i>Emberiza hortulana</i>	Ortolan Bunting	Ortolano	2
<i>Emberiza cirlus</i>	Cirl Bunting	Zigolo nero	1
<i>Emberiza schoeniclus</i>	Common Reed Bunting	Migliarino di palude	3