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An Operational Checklist of the Birds of Northwestern Italy (Piedmont and Aosta Valley)

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Abstract: This paper provides the fourth edition of the checklist of birds recorded in northwestern Italy (the Piedmont and Aosta Valley regions) and covers more than 300 years of ornithological data, including subspecies. This work updates the previous works published in 1981, 2003, and 2009, with the revision of the AERC codes and the addition of special annotations for several species. We also provide some new settings to make the bird checklist a more useful tool for all users, particularly scholars and professionals interested in biodiversity assessment and conservation reports. To this end, (a) new coding concerning population estimates and trends, as well as risk categories (Red List), is introduced; (b) bird lists are structured for analysis at two temporal levels: the General Checklist (GCL), covering the period from 1685 to 2022, and the Operational Checklist (OCL), covering the decade 2010–2019, providing periods of reference for comparison and analysis; and (c) an electronic spreadsheet is provided as part of the online Supplementary Materials to allow for further data analysis by readers, if necessary. The list presently contains 408 species and 444 taxonomic units, which consist of both subspecies and monotypic species. Each of them has been allocated to one of the AERC categories A, B, C, or D, while category E has been excluded. Since the publication of the previous list (2009), 19 species have been added. The avifauna currently breeding in the Piedmont and Aosta Valley regions comprises 197 species, with an additional 9 species that were once breeders but are now considered regionally extinct.

Keywords: birds; checklist; Italy; red list; Piedmont; Aosta Valley

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1. Introduction

Checklists are a complete count (inventory) of all species identified in a defined time within a given area or biota [1]. As a general rule, this metric, which is referred to as species richness, is the "most frequently and widely applied measure of biodiversity" [2].

This is the reason the species-level approach "will continue to be important foci of inventory, monitoring, and assessment efforts" [3], despite the "lack of an agreed and universally applied definition" [2]. Recently, molecular techniques of species discrimination have revolutionized the taxonomy of various animal groups, including birds [4], which has replaced phenotypic approaches [5,6].

Nevertheless, checklists remain essential tools for providing basic knowledge for biogeographical studies, biodiversity assessments, conservation reports, and citizen science programs. It is worth noting that checklists can be useful for comparisons over time and/or between areas/regions if (i) categories of phenology, population sizes and ranges, and conservation status of each species are precisely and consistently coded; and (ii) space and time, the two main variables related to species diversity [2], are clearly defined and of similar amplitude.

Due to their high mobility, birds require special assessments of species/population movements (resident vs. migratory), status (breeding vs. non-breeding), and temporal occurrence (regular vs. irregular/vagrants). This type of coding is almost unheard of among other terrestrial vertebrates. However, this same distinctive feature makes birds quickly responsive to environmental changes, combined with other biological and ecological traits. For this reason, birds are considered, on a large scale, "very useful (although still imperfect) indicators of species richness" and biodiversity [7].

As a matter of fact, among animals, birds are the taxonomic group where checklists are most commonly carried out and regularly updated at any spatial scale (from local to continental or worldwide scales, e.g., [8–10]).

In Italy, the first "modern" checklist of national birds was published by Arrigoni degli Oddi [11], followed by various updated versions [12–17]. Checklists of birds have been published since the early 1980s for each of the 20 Italian regions (some of which are listed in [18]).

In NW Italy, specifically the Piedmont and the Aosta Valley regions (hereafter, PAV), the first modern checklist was published more than forty years ago [19]. Since then, two other versions have been published, an update in 2000 [20] and an update in 2009 [21]. During the last decade, data collection has increased significantly due to the development and implementation of various citizen science repositories of ornithological data (Aves.Piemonte, eBird, iNaturalist, and Ornitho.it), which both ornithologists and birdwatchers are populating with thousands of data per year. In addition, regional avifauna has undergone important changes (decrease/increase or arrival/disappearance of some species/populations), as a likely consequence of the ongoing environmental and climatic changes.

Consequently, the aim of this study is primarily to provide an updated version of the birds of PAV that is based on information from available sources (published or not). Moreover, we developed some new settings to make the checklist a more useful tool (i.e., "responsive to real-life management and regulatory questions" [3]) for all users, in particular, scholars and professionals interested in biodiversity assessment and conservation reports.

To this end, (a) new code concerning population estimates and trends, as well as the risk categories (Red List), is introduced; (b) the bird list is structured for analysis at two temporal levels: the General Checklist (GCL), covering from 1685 [22,23] to 2022, and the Operational Checklist (OCL), covering the decade 2010–2019, providing periods of reference for comparison and analysis with the previous checklist; and (c) an electronic spreadsheet is provided as online Supplementary Materials to allow for further data analysis by readers, if necessary.

2. Materials and Methods

2.1. Study Area

Piedmont and Aosta Valley (25,387 km^2 and 3261 km^2, respectively) are two administrative regions in northwestern Italy, a sector of the country that also includes the Ligurian region (5418 km^2), which is not considered in this study (Figure 1). The PAV region is divided into nine provinces, as shown in Figure 1, which are often referred to in the discussions in this paper. Overall, the PAV region covers 28,648 km^2, an extension equal to 9.5% of the total national area (n = 302,068 km^2). The average population density is 152.4 inhabitant/km^2.

The geography of the PAV region is mountainous for about half (49.7%) of its extension, whereas the remaining part includes hills (26.9%) and plains (23.4%). From a biogeographical point of view, the PAV region encompasses two main biogeographical regions, Alpine and Continental, with a limited extension of the Mediterranean region in the Southeastern part along the Apennines, and the Aosta Valley region falling entirely in the Alpine region [24–26].

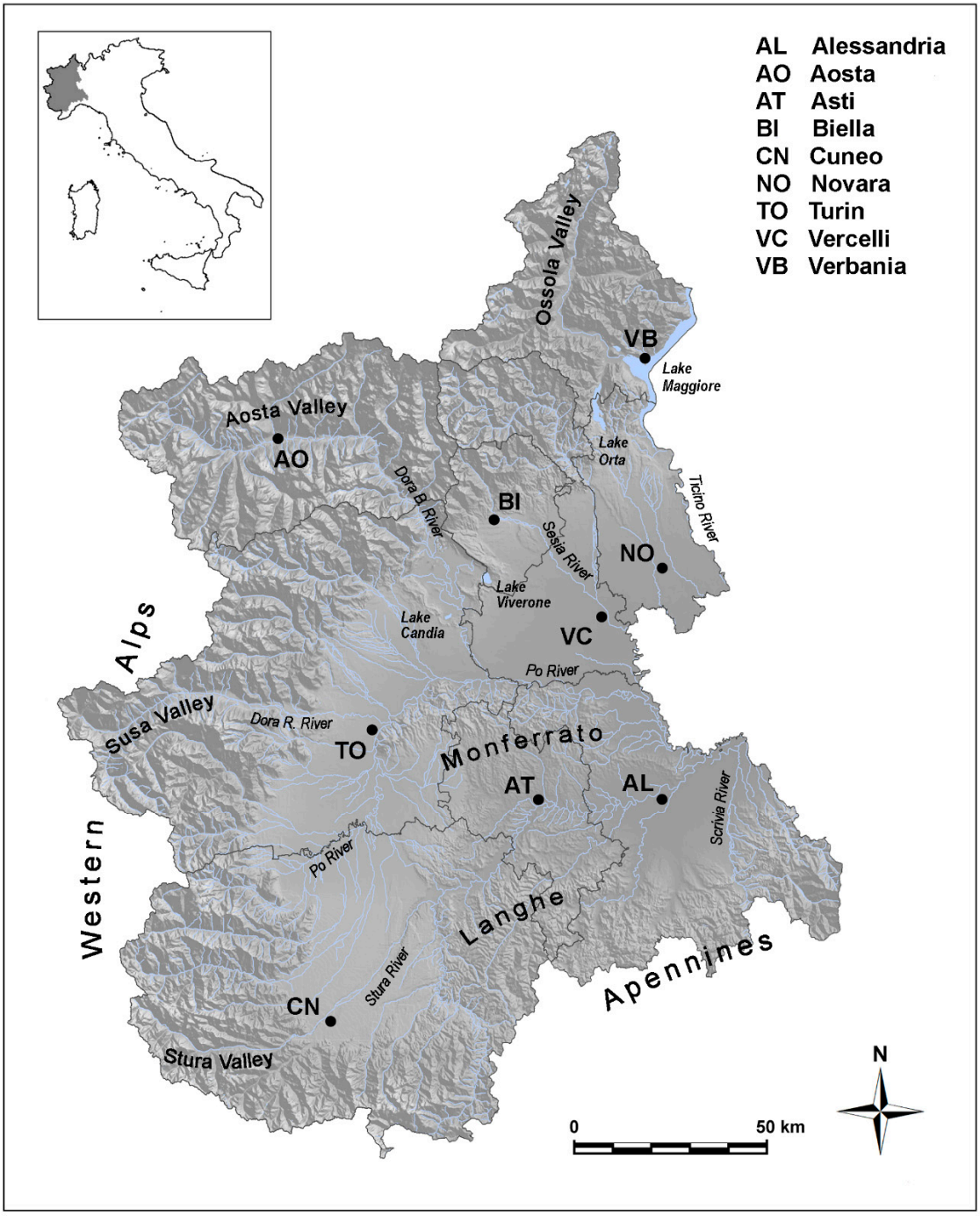

Figure 1. Map of northwestern Italy (Piedmont and Aosta Valley, PAV). The nine provinces (the capital cities and administrative areas) are indicated on the map; the most important geographical sectors, lakes, and rivers are also indicated.

2.2. Main Sources of Ornithological Information

The main sources of information included previous checklists ranging from the historical [27,28] to the most recent, both regional [19–21] and local [29–31], including three recent and in-depth ornithological studies concerning large administrative sectors in the region [32–34]. Other information was sourced from the atlases of breeding [25,35,36], wintering [37], and migrating birds [38–41], as well as from the regional analysis of vagrant birds [42–44]. Other important sources of information were the "Resoconti Ornitologici Annuali" (Regional Ornithological Reports), published annually for 36 years (1979–2015) by the Gruppo Piemontese Studi Ornitologici F. A. Bonelli (GPSO) [45], as well as local

and recent reports published between 2007 and the present by the Torino Birdwatching ornithological group [46].

The population estimates (in size classes) were based on previous data [20] and upgraded with species maps from the Italian Atlas of Breeding Birds [36]. Other sources used for the population estimates were the Italian Breeding Bird Monitoring Program (MITO2000) [47], the Farmland Bird Index (FBI) project [48,49], 30 years (1979–2008) of census data of wintering waterfowl [50], and census data on the migration of raptors through the Alps [51].

The results of the Farmland Bird Index (FBI) project have also been used to estimate the population trends of many species, for example, Passeriformes [48,49].

When available, actual census data or specific estimates were used [52–62].

2.3. Taxonomy

The classification, taxonomy, and English names are based on the HBW-Birdlife Checklist [63], which is also used by the CISO-COI Checklist of Italian birds [17]. The Italian bird names listed in the online spreadsheet are consistent with the most recent Italian bird checklist [17].

2.4. Coding System

Two different coding systems were applied. The first one (Table 1) refers to the General Checklist (GCL) (1685–2022) and is compatible with the coding system used by many national lists, in particular, the Italian checklist [17]. The alpha-numeric code comprises the AERC (alphabetical) category [64] followed by two numbers that represent (i) the general status (four classes, 1 to 4), and (ii) the breeding status (five classes, 0 to 4), as defined by the Swiss Bird Commission (CAvS) for the national checklist [65,66].

Table 1. Alpha-numeric codes were adopted for each taxon belonging to the GCL (1685–2022) (see text for details).

Category	Class	Code
AERC Categories	A	Taxon that has been recorded in a wild state at least once since 1 January 1950.
	B	Taxon that has been recorded in a wild state between 1800 and 1949.
	C	Taxon that has been released or escaped; species that have established self-supporting breeding populations in their own countries; birds coming from a category C population in another country (with the species not breeding in their own country).
	D	Every taxon, unless it is almost certainly a genuine vagrant (in which case it enters cat. A) or an escape from captivity (cat. E).
	E	Taxon recorded as introductions, human-assisted transportees, or escapees from captivity whose breeding populations (if any) are thought not to be self-sustaining.
General status	1	Regular: taxon recorded in at least 9 out of the last 10 years.
	2	Irregular: taxon recorded more than 10 times and in more than 5 years since 1950 but in fewer than 9 out of the last 10 years.
	3	Vagrant: taxon recorded 1–10 times or in 1–5 years since 1950.
	4	Taxon recorded at least once but not since 1950.
Breeding status	1	Regular breeder: recorded breeding in at least 9 out of the last 10 years.
	2	Irregular breeder: recorded breeding more than 3 times overall but in less than 9 out of the last 10 years.
	3	Occasional breeder: recorded breeding 1–3 times.
	4	Former breeder: taxa that regularly bred during an earlier period but have not been recorded breeding in the last 10 years.
	0	Taxon never recorded breeding.

The second coding system (Table 2) was defined specifically for the Operational Checklist (OCL) (2010–2019). It comprised two categories, with one option indicating inclusion and the other exclusion of each taxon in the GCL or OCL. These categories are represented by alpha mnemonic symbols that code for breeding status (three classes) and occurrence (phenology) (seven classes). It should be noted that for the OCL, we only considered species as breeding if they were defined as "Confirmed Breeding" according to the EBCC Categories [67]. However, we also considered species that have bred regularly according to the AERC (breeding in almost 9 of the 10 last years), even if there was only evidence of probable breeding [67] in some of the years in the last decade.

Table 2. Alphabetical codes defined for each taxon belonging to the OCL (2010–2019) (see text for details). In the Operational Checklist, the breeding status and occurrence codes are followed, where appropriate, by an "r" (taxon regularly present in at least nine of the ten years from 2010 to 2019) or an "i" (taxon irregularly present in less than nine of the ten years from 2010 to 2019).

Category	Class	Code
Occurrence	YR	Year-round/Resident: taxon present in all months of the year.
	YM	Year-round/Migrant/: migratory taxon, present in the region with a population partially resident.
	MS	Migrant/Summer: taxon present mainly from March/April to September/October.
	MW	Migrant/Winter: taxon present mainly from September/October to March/April.
	MT	Migrant/Strictly Transient: migratory taxon present in pre- and/or post-nuptial periods.
	VA	Vagrant: taxon recorded in total 1–10 times or in 1–5 years from 1950 and recorded almost once in the decade.
	VE	Former Vagrant, now Escaped: taxon recorded 1–10 times or in 1–5 years from 1950 but recorded only as escaped in the last decade.
Breeding Status	BC	Breeder/Confirmed
	BN	Breeder/New: not nesting in the previous decade, whether regular or irregular.
	BP	Breeder/Past: breeding in the previous but not in the present decade.

Three more criteria (range extension, population abundance, and population trend) were specifically applied to define the Red List (breeding species only) (see Table 3):

(a) Range Extension: This value is measured with reference to the UTM 10 × 10 km squares that comprise the regional area (n = 343). The number of squares occupied by each species was extracted from the Italian Atlas of Breeding Birds [36]. This criterion includes four classes ranging from the more (with 10% of occupied squares or less) to the less vulnerable conditions (with more than 60% of occupied squares).

(b) Population Abundance: This value represents the number of pairs occurring in the PAV region. The figure was based on previous estimates [20] and includes updated data collected through the Italian Breeding Bird Monitoring Program (MITO2000) [47] and the Farmland Bird Index (FBI) project [48,49]. This criterion includes seven size classes ranging from the most vulnerable (no more than 1–9 breeding pairs) to the class with the lowest risk (hundreds of thousands of breeding pairs). An additional class "0" was reserved for species not confirmed to be breeding.

(c) Population Trend: The results of the Farmland Bird Index (FBI) project were used to estimate the population trends of many species, especially Passeriformes [48,49]. When available, actual census data or specific estimates were used [52–63]. Another source of information was the variation in the number of occupied squares between the Regional Atlas of Breeding Birds [25] and the Italian Atlas of Breeding Birds [36].

Table 3. Criteria, classes, and codes applied to define the Red List (conservation status) for each breeding taxon (See text for details).

Category	Class	Code
Range Extension	1	<10% of occupied UTM 10 × 10 km squares
	2	>10–<40% of occupied UTM 10 × 10 km squares
	3	>40–<60% of occupied UTM 10 × 10 km squares
	4	>60% of occupied UTM 10 × 10 km squares
Population abundance	0	Breeding not ascertained: only one or a few singing or territorial males.
	1	unit (1–9 pairs)
	2	tens (10–99 pairs)
	3	hundreds (100–999 pairs)
	4	thousands (1000–9999 pairs)
	5	tens of thousands (pairs)
	6	hundreds of thousands (pairs)
Population Trend	+	Increasing
	−	Decreasing
	=	Stable
		Unknown/Insufficiently known

Consequently, the conservation status of each breeding species was calculated by combining the different classes of each criterion. As shown in Table 4, five risk levels were defined, ranging from an "Acceptable Conservation status" (AC) to a taxon "Vanished in the last ten Years" as a local breeder in PAV, i.e., no longer reported as breeding in the decade 2010–2019. We named the five classes established here differently from the IUCN categories [68], taking into account the regional scale of our OCL. This is because the IUCN categories are based on different criteria and are applied to the species as a whole, whereas our analysis focuses on a local subset.

Table 4. Red List: risk levels expressed for each taxon belonging to the OCL (2010–2019) (see text for details).

Risk Level	Code
AC	Acceptable: taxon with range extension ≥ 2, abundance ≥ 3, and no clear sign of decreasing population trend in the last 10 years.
PA	Pay Attention: taxon with range extension ≤ 3 and population abundance > 2; taxon with range extension > 1 is included here if its population trend is decreasing.
UN	Unsafe: taxon with range extension = 1 and population abundance = 2, but no clear sign of decreasing population trend in the decade 2010–2019; taxon with range extension = 2 is included here if its population trend is decreasing.
VP	Vanishing Prone: taxon with range extension = 1 and population abundance = 1; taxon with population trend = 2 is included here if its population trend is decreasing. We also include here taxa that are almost extinct as breeders but with probable breeding records in the current decade.
VY	Vanished in the last ten years: taxon ascertained as breeding in the previous decade (2000–2009) but no longer reported as certain or probable breeders [67] in the following decade (2010–2019).

The Red List categories were not applied to breeding species that escaped from captivity (AERC, category E).

3. Results

3.1. General Results

All the taxa recorded in PAV from 1 January 1685 to 31 December 2022 (338 years) are shown in Table 5. Each taxon (species and, where appropriate, subspecies) is listed in taxonomic order, together with its scientific and English name. The AERC category identifies the species belonging to the GCL, whereas the columns OC (occurrence), BR (breeding status), POP (population abundance), and RL (Red List) (see Tables 2–4) are reserved for species belonging to the OCL in 2010–2019. Numbered notes were added for n = 104 species (both for GCL and OCL) to illustrate any relevant points about their regional status. We also provide an open access spreadsheet in the Supplementary Materials, which includes all the information in Table 5, the Italian names for each taxon, and the scores we used to assess the Red List risk level for each breeding species in the decade 2010–2019. We also include all the records for the vagrant species, as well as notes, which are presented here following Table 5. The spreadsheet can be filtered in order to facilitate the analysis of the various categories presented in both the General and Operational Checklists, as well as the relevant information about each taxon.

Table 5. The General Checklist (GCL), 1685–2022, and Operational Checklist (OCL), 2010–2019, for the birds of Piedmont and Aosta Valley (PAV). Additional information on the status of some species is reported in Section 3.1.1. Both the complete GCL and complete OCL can be found in the spreadsheet in the Supplementary Materials.

GCL Updated to December 2022			**OCL 2010–2019**				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Galliformes Odontophoridae							
Colinus virginianus (Linnaeus, 1758)	Northern Bobwhite	C11	**YR**	**BCr**	**3—**	**AC**	
C. v. virginianus (Linnaeus, 1758)							
Phasianidae							
Coturnix coturnix (Linnaeus, 1758)	Common Quail	A11	**MSr**	**BCr**	**4**	**PA**	
C. c. coturnix (Linnaeus, 1758)							
Coturnix japonica Temminck and Schlegel, 1848	Japanese Quail	E10	**YR**				1
Alectoris graeca (Meisner, 1804)	Rock Partridge	A11	**YR**	**BCr**	**4—**	**PA**	
A. g. saxatilis (Bechstein, 1805)							
Alectoris rufa (Linnaeus, 1758)	Red-legged Partridge	AC11	**YR**	**BCr**	**3—**	**PA**	2
A. r. rufa (Linnaeus, 1758)							
Phasianus colchicus Linnaeus, 1758	Common Pheasant	C11	**YR**	**BCr**	**4—**	**AC**	3
Perdix perdix (Linnaeus, 1758)	Gray Partridge	AC11	**YR**	**BCr**	**2—**	**VP**	
P. p. perdix (Linnaeus, 1758)							
Bonasa bonasia (Linnaeus, 1758)	Hazel Grouse	A11	**YR**	**BCr**	**2+**	**UN**	4
B. b. styriaca (von Jordans and Schiebel, 1944)							
Lagopus muta (Montin, 1781)	Rock Ptarmigan	A11	**YR**	**BCr**	**4—**	**PA**	
L. m. helvetica (Thienemann, 1829)							
Tetrao urogallus Linnaeus, 1758	Western Capercaillie	A34					5
T. u. crassirostris C. L. Brehm, 1831							
Lyrurus tetrix (Linnaeus, 1758)	Black Grouse	A11	**YR**	**BCr**	**4—**	**PA**	
L. t. tetrix (Linnaeus, 1758)							
Anseriformes Anatidae							

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Oxyura leucocephala (Scopoli, 1769)	White-headed Duck	B40					6
Cygnus olor (J. F. Gmelin, 1789)	Mute Swan	AC11	**YR**	**BCr**	**2+**	**AC**	
Cygnus cygnus (Linnaeus, 1758)	Whooper Swan	AE30	**VE**				7
Cygnus columbianus (Ord, 1815)	Tundra Swan	A30	**VA**				
C. c. bewickii Yarrell, 1830							
Branta bernicla (Linnaeus, 1758)	Brent Goose	AE30					
B. b. bernicla (Linnaeus, 1758)							
Branta leucopsis (Bechstein, 1803)	Barnacle Goose	DE10	**YR**				8
Branta ruficollis (Pallas, 1769)	Red-breasted Goose	A30	**VA**				
Branta canadensis (Linnaeus, 1758)	Canada Goose	DE10	**YR**				
Anser anser (Linnaeus, 1758)	Greylag Goose	AE12	**YR**	**BN**	**1**	**AC**	9
A. a. anser (Linnaeus, 1758)		AE12	**YR**	**BN**	**1**	**AC**	
A. a. rubrirostris Swinhoe, 1871		A10	**MWr**				
Anser fabalis (Latham, 1787)	Bean Goose	A20	**MWi**				
A. a. rossicus Buturlin, 1933							
Anser albifrons (Scopoli, 1769)	Great White-fronted Goose	A20	**MWi**				
A. a. albifrons (Scopoli, 1769)							
Anser erythropus (Linnaeus, 1758)	Lesser White-fronted Goose	A30					10
Clangula hyemalis (Linnaeus, 1758)	Long-tailed Duck	A20	**MTi**				
Somateria mollissima (Linnaeus, 1758)	Common Eider	A20	**MWi**				
S. m. mollissima (Linnaeus, 1758)							
Melanitta fusca (Linnaeus, 1758)	Velvet Scoter	A10	**MWr**				
Melanitta nigra (Linnaeus, 1758)	Common Scoter	A20	**MWi**				
Bucephala clangula (Linnaeus, 1758)	Common Goldeneye	A10	**MWr**				
B. c. clangula (Linnaeus, 1758)							
Mergellus albellus (Linnaeus, 1758)	Smew	A20	**MWi**				
Mergus merganser Linnaeus, 1758	Goosander	A11	**YMr**	**BCr**	**2+**	**UN**	11
M. m. merganser Linnaeus, 1758							
Mergus serrator Linnaeus, 1758	Red-breasted Merganser	A10	**MWr**				
Alopochen aegyptiaca (Linnaeus, 1766)	Egyptian Goose	E12	**YR**	**BN**	**1**		
Tadorna tadorna (Linnaeus, 1758)	Common Shelduck	AD12	**YMr**	**BN**	**1**	**VP**	12
Tadorna ferruginea (Pallas, 1764)	Ruddy Shelduck	DE10	**YMi**				13
Cairina moschata (Linnaeus, 1758)	Muscovy Duck	E13	**YR**	**BP**			14
Callonetta leucophrys (Vieillot, 1816)	Ringed Teal	E23	**YR**				15
Aix galericulata (Linnaeus, 1758)	Mandarin Duck	CE11	**YMr**	**BCr**	**2+**	**AC**	
Netta rufina (Pallas, 1773)	Red-crested Pochard	AD11	**YMr**	**BCr**	**1**	**VP**	16
Aythya ferina (Linnaeus, 1758)	Common Pochard	A12	**YMr**	**BCi**	**1**	**VP**	17
Aythya nyroca (Güldenstädt, 1770)	Ferruginous Duck	AD12	**YMr**	**BN**	**1**	**VP**	18
Aythya collaris (Donovan, 1809)	Ring-necked Duck	A30	**VA**				
Aythya fuligula (Linnaeus, 1758)	Tufted Duck	A11	**YMr**	**BCr**	**2+**	**UN**	
Aythya marila (Linnaeus, 1761)	Greater Scaup	A20	**MWi**				
A. m. marila (Linnaeus, 1761)							
Spatula querquedula (Linnaeus, 1758)	Garganey	A11	**MSr**	**BCr**	**1**	**VP**	

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Spatula clypeata (Linnaeus, 1758)	Northern Shoveler	A13	**YMr**				19
Sibirionetta formosa (Georgi, 1775)	Baikal Teal	D30					
Mareca strepera (Linnaeus, 1758)	Gadwall	A12	**YMr**	**BCi**	**1**	**VP**	20
M. s. strepera (Linnaeus, 1758)							
Mareca penelope (Linnaeus, 1758)	Eurasian Wigeon	A10	**MWr**				
Anas *platyrhynchos* Linnaeus, 1758	Mallard	AC11	**YMr**	**BCr**	**4=**	**AC**	
A. p. platyrhynchos Linnaeus, 1758							
Anas acuta Linnaeus, 1758	Northern Pintail	A10	**MWr**				
Anas crecca Linnaeus, 1758	Common Teal	A10	**YMr**				21
A. c. crecca Linnaeus, 1758							
Podicipediformes Podicipedidae							
Tachybaptus ruficollis (Pallas, 1764)	Little Grebe	A11	**YMr**	**BCr**	**3+**	**AC**	
T. r. ruficollis (Pallas, 1764)							
Podiceps grisegena (Boddaert, 1783)	Red-necked Grebe	A10	**MWr**				22
P. g. grisegena (Boddaert, 1783)							
Podiceps cristatus (Linnaeus, 1758)	Great Crested Grebe	A11	**YMr**	**BCr**	**3+**	**AC**	
P. c. cristatus (Linnaeus, 1758)							
Podiceps auritus (Linnaeus, 1758)	Horned Grebe	A10	**MWr**				
P. a. auritus (Linnaeus, 1758)							
Podiceps nigricollis C. L. Brehm, 1831	Black-necked Grebe	A12	**YMr**	**BN**	**1**	**VP**	23
P. n. nigricollis C. L. Brehm, 1831							
Phoenicopteriformes Phoenicopteridae							
Phoenicopterus roseus Pallas, 1811	Greater Flamingo	A20	**MTi**				
Columbiformes Columbidae							
Columba livia J. F. Gmelin, 1789	Rock Dove	C11	**YR**	**BCr**	**6+**	**AC**	
C. l. var. *domestica*	Feral Pigeon						
Columba oenas Linnaeus, 1758	Stock Dove	A11	**YMr**	**BCr**	**3+**	**AC**	
C. o. oenas Linnaeus, 1758							
Columba palumbus Linnaeus, 1758	Common Woodpigeon	A11	**YMr**	**BCr**	**6+**	**AC**	
C. p. palumbus Linnaeus, 1758							
Streptopelia turtur (Linnaeus, 1758)	European Turtle Dove	A11	**MSr**	**BCr**	**5—**	**PA**	
S. t. turtur (Linnaeus, 1758)							
Streptopelia decaocto (Frivaldszky, 1838)	Eurasian Collared Dove	A11	**YR**	**BCr**	**6+**	**AC**	
Pterocliformes Pteroclidae							
Syrrhaptes paradoxus (Pallas, 1773)	Pallas's Sandgrouse	B40					
Pterocles alchata (Linnaeus, 1766)	Pin-tailed Sandgrouse	B40					
P. a. caudacutus (S. G. Gmelin, 1774)							
Caprimulgiformes Caprimulgidae							
Caprimulgus europaeus Linnaeus, 1758	European Nightjar	A11	**MSr**	**BCr**	**3=**	**AC**	24
C. e. europaeus Linnaeus, 1758		A10	**MTr**				
C. e. meridionalis E. J. O. Hartert, 1896		A11	**MSr**	**BCr**	**3=**	**AC**	

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Apodidae							
Tachymarptis melba (Linnaeus, 1758)	Alpine Swift	A11	**MSr**	**BCr**	**4+**	**AC**	
T. m. melba (Linnaeus, 1758)							
Apus pallidus (Shelley, 1870)	Pallid Swift	A11	**MSr**	**BCr**	**4=**	**PA**	
A. p. brehmorum E. J. O. Hartert, 1901							
Apus apus (Linnaeus, 1758)	Common Swift	A11	**MSr**	**BCr**	**5**	**AC**	
A. a. apus (Linnaeus, 1758)							
Cuculiformes Cuculidae							
Clamator glandarius (Linnaeus, 1758)	Great Spotted Cuckoo	A20	**MTi**				25
Coccyzus americanus (Linnaeus, 1758)	Yellow-billed Cuckoo	B40					
Cuculus canorus Linnaeus, 1758	Common Cuckoo	A11	**MSr**	**BCr**	**4**	**AC**	
C. c. canorus Linnaeus, 1758							
Gruiformes Rallidae							
Rallus aquaticus Linnaeus, 1758	Western Water Rail	A11	**YMr**	**BCr**	**2**	**UN**	
R. a. aquaticus Linnaeus, 1758							
Crex crex (Linnaeus, 1758)	Corncrake	A14	**MSr**				26
Porzana porzana (Linnaeus, 1766)	Spotted Crake	A13	**MTr**				27
Zapornia parva (Scopoli, 1769)	Little Crake	A12	**MSr**	**BN**	**1**	**VP**	28
Zapornia pusilla (Pallas, 1776)	Baillon's Crake	A20	**MTi**				29
Z. p. intermedia (Hermann, 1804)							
Porphyrio porphyrio (Linnaeus, 1758)	Purple Swamphen	A30					30
P. p. porphyrio (Linnaeus, 1758)							
Porphyrio alleni T. R. H. Thomson, 1842	Allen's Gallinule	A30					31
Gallinula chloropus (Linnaeus, 1758)	Common Gallinule	A11	**YMr**	**BCr**	**4—**	**PA**	
G. c. chloropus (Linnaeus, 1758)							
Fulica atra Linnaeus, 1758	Common Coot	A11	**YMr**	**BCr**	**4+**	**AC**	
F. a. atra Linnaeus, 1758							
Gruidae							
Anthropoides virgo (Linnaeus, 1758)	Demoiselle Crane	B40					32
Grus grus Linnaeus, 1758)	Common Crane	A10	**MWr**				
G. g. grus (Linnaeus, 1758)							
Otidiformes Otididae							
Tetrax tetrax (Linnaeus, 1758)	Little Bustard	A30	**VA**				
Otis tarda Linnaeus, 1758	Great Bustard	BD30					33
O. t. tarda Linnaeus, 1758							
Gaviiformes Gaviidae							
Gavia stellata (Pontoppidan, 1763)	Red-throated Loon	A10	**MWr**				
Gavia arctica (Linnaeus, 1758)	Arctic Loon	A10	**MWr**				
G. a. arctica (Linnaeus, 1758)							
Gavia immer (Brünnich, 1764)	Common Loon	A30	**VA**				
Procellariiformes Procellariidae							

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Fulmarus glacialis (Linnaeus, 1761) *F. g. auduboni* Bonaparte, 1857	Northern Fulmar	A30					
Calonectris diomedea (Scopoli, 1769)	Scopoli's Shearwater	B40					
Puffinus lherminieri Lesson, 1839 *P. l. baroli* (Bonaparte, 1857)	Audubon's Shearwater	B40					
Ciconiiformes Ciconiidae							
Ciconia nigra (Linnaeus, 1758)	Black Stork	A11	**YMr**	**BCr**	**1**	**VP**	34
Ciconia ciconia (Linnaeus, 1758) *C. c. ciconia* (Linnaeus, 1758)	White Stork	AC11	**YMr**	**BCr**	**2+**	**PA**	35
Pelecaniformes Threskiornithidae							
Platalea leucorodia Linnaeus, 1758 *P. l. leucorodia* Linnaeus, 1758	Eurasian Spoonbill	A12	**YMr**	**BP**		**VY**	36
Threskiornis aethiopicus (Latham, 1790)	African Sacred Ibis	C11	**YR**	**BCr**	**3+**	**AC**	37
Geronticus eremita Linnaeus, 1758	Northern Bald Ibis	E20	**YMi**				
Plegadis falcinellus (Linnaeus, 1766)	Glossy Ibis	A12	**YMr**	**BCi**	**1**	**VP**	38
Ardeidae							
Botaurus stellaris (Linnaeus, 1758) *B. s. stellaris* (Linnaeus, 1758)	Eurasian Bittern	A11	**YMr**	**BCr**	**2+**	**UN**	
Ixobrychus minutus (Linnaeus, 1766) *I. m. minutus* (Linnaeus, 1766)	Common Little Bittern	A11	**MSr**	**BCr**	**2—**	**UN**	
Ixobrychus eurhythmus (Swinhoe, 1873)	Schrenck's Bittern	B40					
Nycticorax nycticorax (Linnaeus, 1758) *N. n. nycticorax* (Linnaeus, 1758)	Black-crowned Night Heron	A11	**MSr**	**BCr**	**4—**	**PA**	39
Ardeola ralloides (Scopoli, 1769) *A. r. ralloides* (Scopoli, 1769)	Squacco Heron	A11	**MSr**	**BCr**	**2=**	**UN**	40
Bubulcus ibis (Linnaeus, 1758) *B. i. ibis* (Linnaeus, 1758)	Cattle Egret	A11	**YMr**	**BCr**	**3+**	**PA**	41
Ardea cinerea Linnaeus, 1758 *A. c. cinerea* Linnaeus, 1758	Grey Heron	A11	**YMr**	**BCr**	**4—**	**PA**	42
Ardea purpurea Linnaeus, 1766 *A. p. purpurea* Linnaeus, 1766	Purple Heron	A11	**MSr**	**BCr**	**2=**	**UN**	43
Ardea alba Linnaeus, 1758 *A. a. alba* Linnaeus, 1758	Great White Egret	A12	**YMr**	**BN**	**1**	**VP**	44
Egretta garzetta (Linnaeus, 1766) *E. g. garzetta* (Linnaeus, 1766)	Little Egret	A11	**YMr**	**BCr**	**4—**	**PA**	45
Egretta gularis (Bosc, 1792)	Western Reef Egret	D30	**VE**				46
Pelecanidae							
Pelecanus onocrotalus Linnaeus, 1758	Great White Pelican	BD30	**VE**				47
Suliformes Sulidae							
Morus bassanus (Linnaeus, 1758)	Northern Gannet	A30					
Phalacrocoracidae							

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Microcarbo pygmaeus (Pallas, 1773)	Pygmy Cormorant	A10	**YMr**				
Phalacrocorax carbo (Linnaeus, 1758)	Great Cormorant	A11	**YMr**	**BCr**	**3+**	**AC**	48
P. c. carbo (Linnaeus, 1758)		A30	**VA**				
P. c. sinensis (Staunton, 1796)		A11	**YMr**	**BCr**	**3+**	**AC**	
Charadriiformes Burhinidae							
Burhinus oedicnemus (Linnaeus, 1758)	Eurasian Thick-knee	A11	**MSr**	**BCr**	**2+**	**UN**	49
B. o. oedicnemus (Linnaeus, 1758)							
Haematopodidae							
Haematopus ostralegus Linnaeus, 1758	Eurasian Oystercatcher	A20	**MTi**				
H. o. ostralegus Linnaeus, 1758							
Recurvirostridae							
Recurvirostra avosetta Linnaeus, 1758	Pied Avocet	A20	**MTi**				
Himantopus himantopus (Linnaeus, 1758)	Black-winged Stilt	A11	**MSr**	**BCr**	**3—**	**PA**	
H. h. himantopus (Linnaeus, 1758)							
Charadriidae							
Pluvialis squatarola (Linnaeus, 1758)	Grey Plover	A10	**MTr**				
P. s. squatarola (Linnaeus, 1758)							
Pluvialis apricaria (Linnaeus, 1758)	Eurasian Golden Plover	A10	**MWr**				
P. a. apricaria (Linnaeus, 1758)							
Eudromias morinellus (Linnaeus, 1758)	Eurasian Dotterel	A10	**MTr**				
Charadrius hiaticula Linnaeus, 1758	Common Ringed	A10	**MSr**				
C. h. hiaticula Linnaeus, 1758	Plover						
Charadrius dubius Scopoli, 1786	Little Ringed Plover	A11	**MSr**	**BCr**	**2—**	**UN**	
C. d. curonicus J. F. Gmelin, 1789							
Charadrius alexandrinus Linnaeus, 1758	Kentish Plover	A23	**MTi**				50
C. a. alexandrinus Linnaeus, 1758							
Vanellus vanellus (Linnaeus, 1758)	Northern Lapwing	A11	**YMr**	**BCr**	**4=**	**AC**	
Vanellus spinosus (Linnaeus, 1758)	Spur-winged Lapwing	D30					51
Vanellus gregarius (Pallas, 1771)	Sociable Lapwing	A30	**VA**				
Scolopacidae							
Numenius phaeopus (Linnaeus, 1758)	Whimbrel	A10	**MTr**				
N. p. phaeopus (Linnaeus, 1758)							
Numenius tenuirostris Vieillot, 1817	Slender-billed Curlew	B40					52
Numenius arquata (Linnaeus, 1758)	Eurasian Curlew	A12	**YMr**	**BCi**	**1**	**VP**	53
N. a. arquata (Linnaeus, 1758)							
Limosa lapponica (Linnaeus, 1758)	Bar-tailed Godwit	A20	**MTi**				
L. l. taymyrensis Engelmoer and Roselaar, 1998							
Limosa limosa (Linnaeus, 1758)	Black-tailed Godwit	A11	**MSr**	**BCr**	**1**	**VP**	
L. l. limosa (Linnaeus, 1758)							
Arenaria interpres (Linnaeus, 1758)	Ruddy Turnstone	A20	**MTi**				
A. i. interpres (Linnaeus, 1758)							
Calidris canutus (Linnaeus, 1758)	Red Knot	A20	**MTi**				
C. c. canutus (Linnaeus, 1758)							
Calidris pugnax (Linnaeus, 1758)	Ruff	A10	**MTr**				

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Calidris falcinellus (Pontoppidan, 1763)	Broad-billed Sandpiper	A30	**VA**				
C. f. falcinellus (Pontoppidan, 1763)							
Calidris ferruginea (Pontoppidan, 1763)	Curlew Sandpiper	A10	**MTr**				
Calidris temminckii (Leisler, 1812)	Temminck's Stint	A10	**MTr**				
Calidris alba (Pallas, 1764)	Sanderling	A10	**MTr**				
C. a. alba (Pallas, 1764)							
Calidris alpina (Linnaeus, 1758)	Dunlin	A10	**MTr**				
C. a. alpina (Linnaeus, 1758)							
Calidris maritima (Brünnich, 1764)	Purple Sandpiper	A30					
Calidris minuta (Leisler, 1812)	Little Stint	A10	**MTr**				
Calidris melanotos (Vieillot, 1819)	Pectoral Sandpiper	A30	**VA**				
Limnodromus scolopaceus (Say, 1822)	Long-billed Dowitcher	A30					54
Scolopax rusticola Linnaeus, 1758	Eurasian Woodcock	A12	**YMr**	**BCi**	**1**	**VP**	55
Gallinago media (Latham, 1787)	Great Snipe	A20	**MTi**				
Gallinago gallinago (Linnaeus, 1758)	Common Snipe	A13	**MWr**				56
G. g. gallinago (Linnaeus, 1758)							
Lymnocryptes minimus (Brünnich, 1764)	Jack Snipe	A10	**MWr**				
Steganopus tricolor Vieillot, 1819	Wilson's Phalarope	A30					
Phalaropus lobatus (Linnaeus, 1758)	Red-necked Phalarope	A30	**VA**				
Phalaropus fulicarius (Linnaeus, 1758)	Red Phalarope	A30	**VA**				
Actitis hypoleucos (Linnaeus, 1758)	Common Sandpiper	A11	**YMr**	**BCr**	**2—**	**UN**	
Actitis macularius (Linnaeus, 1766)	Spotted Sandpiper	A30	**VA**				
Tringa ochropus Linnaeus, 1758	Green Sandpiper	A10	**YMr**				
Tringa erythropus (Pallas, 1764)	Spotted Redshank	A10	**MTr**				
Tringa nebularia (Gunnerus, 1767)	Common Greenshank	A10	**YMr**				
Tringa totanus (Linnaeus, 1758)	Common Redshank	A12	**MSr**	**BCi**	**1**	**VP**	57
T. t. totanus (Linnaeus, 1758)							
Tringa glareola Linnaeus, 1758	Wood Sandpiper	A10	**MSr**				
Tringa stagnatilis (Bechstein, 1803)	Marsh Sandpiper	A10	**MTr**				
Glareolidae							
Cursorius cursor (Latham, 1787)	Cream-colored Courser	A30					
C. c. cursor (Latham, 1787)							
Glareola pratincola (Linnaeus, 1766)	Collared Pratincole	A20	**MTi**				
G. p. pratincola (Linnaeus, 1766)							
Laridae							
Hydrocoloeus minutus (Pallas, 1776)	Little Gull	A10	**YMr**				
Xema sabini (Sabine, 1819)	Sabine's Gull	A30	**VA**				
X. s. sabini (Sabine, 1819)							
Rissa tridactyla (Linnaeus, 1758)	Black-legged Kittiwake	A20	**MTi**				
R. t. tridactyla (Linnaeus, 1758)							
Larus genei Brème, 1839	Slender-billed Gull	A30	**VA**				
Larus ridibundus Linnaeus, 1766	Black-headed Gull	A11	**YMr**	**BCr**	**2=**	**UN**	
Larus pipixcan Wagler, 1831	Franklin's Gull	A30	**VA**				
Larus melanocephalus Temminck, 1820	Mediterranean Gull	A10	**MTr**				
Larus audouinii Payraudeau, 1826	Audouin's Gull	A30	**VA**				

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Larus canus Linnaeus, 1758	Mew Gull	A10	**MWr**				
L. c. canus Linnaeus, 1758		A10	**MWr**				
L. c. heinei Homeyer, 1853		A30	**VA**				
Larus fuscus Linnaeus, 1758	Lesser Black-backed Gull	A10	**MWr**				
L. f. graellsii A. E. Brehm, 1857		A10	**MWr**				
L. f. intermedius Schiøler, 1922		A20	**MWi**				
Larus argentatus Pontoppidan, 1763	European Herring Gull	A20	**MWi**				
L. a. argentatus Pontoppidan, 1763							
Larus michahellis J. F. Naumann, 1840	Yellow-legged Gull	A11	**YMr**	**BCr**	**2+**	**AC**	58
L. m. michahellis J. F. Naumann, 1840							
Larus cachinnans Pallas, 1811	Caspian Gull	A10	**MWr**				
Larus hyperboreus Gunnerus, 1767	Glaucous Gull	A30	**VA**				
L. h. hyperboreus Gunnerus, 1767							
Larus marinus Linnaeus, 1758	Great Black-backed Gull	A30					
Onychoprion fuscatus (Linnaeus, 1766)	Sooty Tern	B40					59
O. f. fuscatus (Linnaeus, 1766)							
Sternula albifrons (Pallas, 1764)	Little Tern	A11	**MSr**	**BCr**	**2—**	**VP**	60
S. a. albifrons (Pallas, 1764)							
Gelochelidon nilotica (J. F. Gmelin, 1789)	Common Gull-billed Tern	A10	**MTr**				
G. n. nilotica (J. F. Gmelin, 1789)							
Hydroprogne caspia (Pallas, 1770)	Caspian Tern	A20	**MTi**				
Chlidonias hybrida (Pallas, 1811)	Whiskered Tern	A10	**MTr**				
C. h. hybrida (Pallas, 1811)							
Chlidonias leucopterus (Temminck, 1815)	White-winged Tern	A12	**MSr**	**BCi**	**1**	**VP**	61
Chlidonias niger (Linnaeus, 1758)	Black Tern	A11	**MSr**	**BCr**	**2—**	**VP**	
C. n. niger (Linnaeus, 1758)							
Sterna hirundo Linnaeus, 1758	Common Tern	A11	**MSr**	**BCr**	**3—**	**PA**	
S. h. hirundo Linnaeus, 1758							
Sterna paradisaea Pontoppidan, 1763	Arctic Tern	A30					62
Thalasseus sandvicensis (Latham, 1787)	Sandwich Tern	A20	**VA**				
T. s. sandvicensis (Latham, 1787)							
Stercorariidae							
Stercorarius longicaudus Vieillot, 1819	Long-tailed Jaeger	A20	**MTi**				
S. l. longicaudus Vieillot, 1819							
Stercorarius parasiticus (Linnaeus, 1758)	Arctic Jaeger	A20	**MTi**				
Stercorarius pomarinus (Temminck, 1815)	Pomarine Jaeger	A30	**VA**				
Catharacta skua Brünnich, 1764	Great Skua	A30					
Alcidae							
Fratercula arctica (Linnaeus, 1758)	Atlantic Puffin	B40					
Alca torda Linnaeus, 1758	Razorbill	B40					
A. t. islandica C. L. Brehm, 1831							
Uria aalge (Pontoppidan, 1763)	Common Murre	B40					
U. a. aalge (Pontoppidan, 1763)							

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Strigiformes Tytonidae							
Tyto alba (Scopoli, 1769)	Common Barn Owl	A11	**YMr**	**BCr**	**1**	**VP**	
T. a. alba (Scopoli, 1769)		A11	**YMr**	**BCr**	**1**	**VP**	
T. a. guttata (C. L. Brehm, 1831)		A30	**VA**				
Strigidae							
Glaucidium passerinum (Linnaeus, 1758)	Eurasian Pygmy Owl	A11	**YR**	**BCr**	**3+**	**PA**	
G. p. passerinum (Linnaeus, 1758)							
Athene noctua (Scopoli, 1769)	Little Owl	A11	**YR**	**BCr**	**4+**	**AC**	63
A. n. noctua (Scopoli, 1769)							
Aegolius funereus (Linnaeus, 1758)	Boreal Owl	A11	**YMr**	**BCr**	**3=**	**PA**	
A. f. funereus (Linnaeus, 1758)							
Otus scops (Linnaeus, 1758)	Eurasian Scops-Owl	A11	**MSr**	**BCr**	**3+**	**AC**	
O. s. scops (Linnaeus, 1758)							
Asio otus (Linnaeus, 1758)	Northern Long-eared Owl	A11	**YMr**	**BCr**	**4—**	**PA**	
A. o. otus (Linnaeus, 1758)							
Asio flammeus (Pontoppidan, 1763)	Short-eared Owl	A10	**MWr**				
A. f. flammeus (Pontoppidan, 1763)							
Strix aluco Linnaeus, 1758	Tawny Owl	A11	**YR**	**BCr**	**4+**	**AC**	
S. a. aluco Linnaeus, 1758							
Bubo bubo (Linnaeus, 1758)	Eurasian Eagle-Owl	A11	**YR**	**BCr**	**2=**	**UN**	
B. b. bubo (Linnaeus, 1758)							
Accipitriformes Pandionidae							
Pandion haliaetus (Linnaeus, 1758)	Osprey	A10	**MTr**				
P. h. haliaetus (Linnaeus, 1758)							
Accipitridae							
Elanus caeruleus (Desfontaines, 1789)	Black-winged Kite	A30	**VA**				
E. c. caeruleus (Desfontaines, 1789)							
Pernis apivorus (Linnaeus, 1758)	European Honey-buzzard	A11	**MSr**	**BCr**	**3+**	**AC**	
Gypaetus barbatus (Linnaeus, 1758)	Bearded Vulture	BC11	**YR**	**BN**	**1**	**VP**	64
G. b. barbatus (Linnaeus, 1758)							
Neophron percnopterus (Linnaeus, 1758)	Egyptian Vulture	A20	**MTi**				
N. p. percnopterus (Linnaeus, 1758)							
Circaetus gallicus (J. F. Gmelin, 1788)	Short-toed Snake-eagle	A11	**MSr**	**BCr**	**2+**	**PA**	
Gyps fulvus (Hablizl, 1783)	Griffon Vulture	AC10	**MSr**				
G. f. fulvus (Hablizl, 1783)							
Aegypius monachus (Linnaeus, 1766)	Cinereous Vulture	C10	**MSr**				
Clanga pomarina (C. L. Brehm, 1831)	Lesser Spotted Eagle	A30	**VA**				
Clanga clanga (Pallas, 1811)	Greater Spotted Eagle	A20	**MWi**				
Aquila nipalensis Hodgson, 1833	Tawny Eagle	B40					
A. n. orientalis Cabanis, 1854							
Aquila heliaca Savigny, 1809	Eastern Imperial Eagle	A30	**VA**				

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Aquila chrysaetos (Linnaeus, 1758)	Golden Eagle	A11	**YR**	**BCr**	**3+**	**AC**	65
A. c. chrysaetos (Linnaeus, 1758)							
Aquila fasciata Vieillot, 1822	Bonelli's Eagle	A30	**VA**				
A. f. fasciata Vieillot, 1822							
Hieraaetus pennatus (J. F. Gmelin, 1788)	Booted Eagle	A10	**MTr**				
Circus aeruginosus (Linnaeus, 1758)	Western Marsh Harrier	A11	**YMr**	**BCr**	**1**	**VP**	
C. a. aeruginosus (Linnaeus, 1758)							
Circus cyaneus (Linnaeus, 1766)	Hen Harrier	A10	**MWr**				
Circus macrourus (S. G. Gmelin, 1770)	Pallid Harrier	A10	**MTr**				
Circus pygargus (Linnaeus, 1758)	Montagu's Harrier	A12	**MSr**	**BCi**	**1**	**VP**	66
Accipiter nisus (Linnaeus, 1758)	Eurasian Sparrowhawk	A11	**YMr**	**BCr**	**4+**	**AC**	
A. n. nisus (Linnaeus, 1758)							
Accipiter gentilis (Linnaeus, 1758)	Northern Goshawk	A11	**YR**	**BCr**	**3+**	**AC**	
A. g. gentilis (Linnaeus, 1758)							
Haliaeetus albicilla (Linnaeus, 1758)	White-tailed Eagle	A30	**VA**				
Milvus milvus (Linnaeus, 1758)	Red Kite	A12	**YMr**	**BN**	**1**	**VP**	67
M. m. milvus (Linnaeus, 1758)							
Milvus migrans (Boddaert, 1783)	Black Kite	A11	**MSr**	**BCr**	**2+**	**PA**	
M. m. migrans (Boddaert, 1783)							
Buteo lagopus (Pontoppidan, 1763)	Rough-legged Buzzard	A20	**MWi**				
B. l. lagopus (Pontoppidan, 1763)							
Buteo buteo (Linnaeus, 1758)	Eurasian Buzzard	A11	**YMr**	**BCr**	**4=**	**AC**	
B. b. buteo (Linnaeus, 1758)		A11	**YMr**	**BCr**	**4=**	**AC**	
B. b. vulpinus (Gloger, 1833)		A20	**MTi**				
Buteo rufinus (Cretzschmar, 1829)	Long-legged Buzzard	A20	**MTi**				
Bucerotiformes Upupidae							
Upupa epops Linnaeus, 1758	Common Hoopoe	A11	**MSr**	**BCr**	**3=**	**AC**	
U. e. epops Linnaeus, 1758							
Coraciiformes Meropidae							
Merops persicus Pallas, 1773	Blue-cheeked Bee-eater	A30					
M. p. chrysocercus Cabanis and Heine, 1860		A30	**VA**				
M. p. persicus Pallas, 1773		A30					
Merops apiaster Linnaeus, 1758	European Bee-eater	A11	**MSr**	**BCr**	**4+**	**AC**	
Coraciidae							
Coracias garrulus Linnaeus, 1758	European Roller	A11	**MSr**	**BCr**	**1**	**VP**	
C. g. garrulus Linnaeus, 1758							
Alcedinidae							
Alcedo atthis (Linnaeus, 1758)	Common Kingfisher	A11	**YMr**	**BCr**	**3**	**AC**	68
A. a. ispida Linnaeus, 1758		A20	**MWi**				
A. a. atthis (Linnaeus, 1758)		A11	**YMr**	**BCr**	**3**	**AC**	
Piciformes Picidae							

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Jynx torquilla Linnaeus, 1758	Eurasian Wryneck	A11	**MSr**	**BCr**	**3—**	**PA**	
J. t. torquilla Linnaeus, 1758		A10	**MTr**				
J. t. tschusii O. Kleinschmidt, 1907		A11	**MSr**	**BCr**	**3—**	**PA**	
Picus canus J. F. Gmelin, 1788	Grey-faced Woodpecker	B40					
P. c. canus J. F. Gmelin, 1788							
Picus viridis Linnaeus, 1758	Eurasian Green Woodpecker	A11	**YR**	**BCr**	**4=**	**AC**	69
P. v. viridis Linnaeus, 1758							
Dryocopus martius (Linnaeus, 1758)	Black Woodpecker	A11	**YR**	**BCr**	**3+**	**AC**	
D. m. martius (Linnaeus, 1758)							
Leiopicus medius (Linnaeus, 1758)	Middle Spotted Woodpecker	B40					
L. m. medius (Linnaeus, 1758)							
Dryobates minor (Linnaeus, 1758)	Lesser Spotted Woodpecker	A11	**YR**	**BCr**	**3+**	**AC**	
D. m. buturlini E. J. O. Hartert, 1912							
Dendrocopos leucotos (Bechstein, 1802)	White-backed Woodpecker	B40					
D. l. lilfordi (Sharpe and Dresser, 1871)							
Dendrocopos major (Linnaeus, 1758)	Great Spotted Woodpecker	A11	**YR**	**BCr**	**5+**	**AC**	
D. m. pinetorum (C. L. Brehm, 1831)							
Falconiformes Falconidae							
Falco naumanni Fleischer, 1818	Lesser Kestrel	A10	**MTr**				
Falco tinnunculus Linnaeus, 1758	Common Kestrel	A11	**YMr**	**BCr**	**4=**	**AC**	
F. t. tinnunculus Linnaeus, 1758							
Falco vespertinus Linnaeus, 1766	Red-footed Falcon	A10	**MTr**				
Falco eleonorae Gené, 1839	Eleonora's Falcon	A10	**MTi**				
Falco columbarius Linnaeus, 1758	Merlin	A10	**MWr**				
F. c. aesalon Tunstall, 1771							
Falco subbuteo Linnaeus, 1758	Eurasian Hobby	A11	**MSr**	**BCr**	**3+**	**AC**	
F. s. subbuteo Linnaeus, 1758							
Falco biarmicus Temminck, 1825	Lanner Falcon	AD30	**VA**				70
F. b. feldeggii Schlegel, 1843							
Falco cherrug J. E. Gray, 1834	Saker Falcon	AD30	**VA**				71
F. c. cherrug J. E. Gray, 1834							
Falco peregrinus Tunstall, 1771	Peregrine Falcon	A11	**YMr**	**BCr**	**3+**	**AC**	72
F. p. calidus Latham, 1790		A20	**MWi**				
F. p. peregrinus Tunstall, 1771		A11	**YMr**	**BCr**	**3+**	**AC**	
Psittaciformes Psittacidae							
Myiopsitta monachus (Boddaert, 1783)	Monk Parakeet	E12	**YR**	**BCi**	**1**		73
M. m. monachus (Boddaert, 1783)							
Passeriformes Oriolidae							
Oriolus oriolus (Linnaeus, 1758)	Eurasian Golden Oriole	A11	**MSr**	**BCr**	**4=**	**AC**	

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Laniidae							
Lanius collurio Linnaeus, 1758	Red-backed Shrike	A11	**MSr**	**BCr**	**4—**	**PA**	
Lanius minor J. F. Gmelin, 1788	Lesser Grey Shrike	A24	**MSi**	**BP**	**0**	**VY**	74
L. m. minor J. F. Gmelin, 1788							
Lanius excubitor Linnaeus, 1758	Great Grey Shrike	A10	**MWr**				75
L. e. excubitor Linnaeus, 1758		A10	**MWr**				
L. e. homeyeri Cabanis, 1873		B40					
Lanius meridionalis Temminck, 1820	Southern Grey Shrike	A30					
Lanius senator Linnaeus, 1758	Woodchat Shrike	A14	**MSr**	**BP**	**0**	**VY**	76
L. s. senator Linnaeus, 1758		A14	**MSr**	**BP**	**0**	**VY**	
L. s. niloticus (Bonaparte, 1853)		B40					
L. s. badius Hartlaub, 1854		A30					
Corvidae							
Pyrrhocorax pyrrhocorax (Linnaeus, 1758)	Red-billed Chough	A11	**YR**	**BCr**	**3=**	**AC**	
P. p. erythroramphos (Vieillot, 1817)							
Pyrrhocorax graculus (Linnaeus, 1766)	Yellow-billed Chough	A11	**YR**	**BCr**	**4=**	**AC**	
P. g. graculus (Linnaeus, 1766)							
Garrulus glandarius (Linnaeus, 1758)	Eurasian Jay	A11	**YMr**	**BCr**	**5+**	**AC**	77
G. g. glandarius (Linnaeus, 1758)							
Pica pica (Linnaeus, 1758)	Eurasian Magpie	A11	**YR**	**BCr**	**6+**	**AC**	
P. p. pica (Linnaeus, 1758)							
Nucifraga caryocatactes (Linnaeus, 1758)	Northern Nutcracker	A11	**YR**	**BCr**	**4=**	**AC**	78
N. c. caryocatactes (Linnaeus, 1758)		A11	**YR**	**BCr**	**4=**	**AC**	
N. c. macrorhynchos C. L. Brehm, 1823		B40					
Corvus monedula Linnaeus, 1758	Eurasian Jackdaw	A11	**YMr**	**BCr**	**4+**	**AC**	79
C. m. monedula Linnaeus, 1758		A30					
C. m. spermologus Vieillot, 1817		A11	**YMr**	**BCr**	**4+**	**AC**	
Corvus frugilegus Linnaeus, 1758	Rook	A10	**MWr**				
C. f. frugilegus Linnaeus, 1758							
Corvus corax Linnaeus, 1758	Common Raven	A11	**YR**	**BCr**	**4+**	**AC**	
C. c. corax Linnaeus, 1758							
Corvus corone Linnaeus, 1758	Carrion Crow	A11	**YR**	**BCr**	**6+**	**AC**	
C. c. corone Linnaeus, 1758		A11	**YR**	**BCr**	**4=**	**AC**	
C. c. cornix Linnaeus, 1758		A11	**YR**	**BCr**	**5+**	**AC**	
Paridae							
Periparus ater (Linnaeus, 1758)	Coal Tit	A11	**YMr**	**BCr**	**5=**	**AC**	
P. a. ater (Linnaeus, 1758)							
Lophophanes cristatus (Linnaeus, 1758)	Crested Tit	A11	**YR**	**BCr**	**4=**	**AC**	
L. c. mitratus (C. L. Brehm, 1831)							
Poecile palustris (Linnaeus, 1758)	Marsh Tit	A11	**YR**	**BCr**	**5=**	**AC**	
P. p. italicus (Tschusi and Hellmayr, 1900)							
Poecile montanus (Conrad, 1827)	Willow Tit	A11	**YR**	**BCr**	**4=**	**AC**	
P. m. montanus (Conrad, 1827)							
Cyanistes caeruleus (Linnaeus, 1758)	Eurasian Blue Tit	A11	**YMr**	**BCr**	**5=**	**AC**	
C. c. caeruleus (Linnaeus, 1758)							

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Parus major Linnaeus, 1758	Great Tit	A11	**YMr**	**BCr**	**6+**	**AC**	
P. m. major Linnaeus, 1758							
Remizidae							
Remiz pendulinus (Linnaeus, 1758)	Eurasian Penduline-tit	A14	**MWr**	**BP**	**0**	**VY**	80
R. p. pendulinus (Linnaeus, 1758)							
Alaudidae							
Melanocorypha calandra (Linnaeus, 1766)	Calandra Lark	A20	**MSi**				
M. c. calandra (Linnaeus, 1766)							
Melanocorypha yeltoniensis (J. R. Forster, 1768)	Black Lark	B40					
Calandrella brachydactyla (Leisler, 1814)	Greater Short-toed Lark	A22	**MSr**	**BCi**	**1**	**VP**	81
C. b. brachydactyla (Leisler, 1814)							
Eremophila alpestris (Linnaeus, 1758)	Horned Lark	A30					
E. a. flava (J. F. Gmelin, 1789)							
Lullula arborea (Linnaeus, 1758)	Woodlark	A11	**YMr**	**BCr**	**4+**	**AC**	
L. a. arborea (Linnaeus, 1758)							
Alauda arvensis Linnaeus, 1758	Eurasian Skylark	A11	**YMr**	**BCr**	**4—**	**PA**	82
Alauda a. arvensis Linnaeus, 1758							
Galerida cristata (Linnaeus, 1758)	Crested Lark	A12	**YMr**	**BCi**	**1**	**VP**	83
G. c. cristata (Linnaeus, 1758)							
Panuridae							
Panurus biarmicus (Linnaeus, 1758)	Bearded Reedling	A20	**MWi**				
P. b. biarmicus (Linnaeus, 1758)							
Cisticolidae							
Cisticola juncidis (Rafinesque, 1810)	Zitting Cisticola	A12	**YMr**	**BCi**	**1**	**VP**	84
C. j. cisticola (Temminck, 1820)							
Acrocephalidae							
Hippolais polyglotta (Vieillot, 1817)	Melodious Warbler	A11	**MSr**	**BCr**	**4=**	**AC**	
Hippolais icterina (Vieillot, 1817)	Icterine Warbler	A10	**MTr**				
Acrocephalus paludicola (Vieillot, 1817)	Aquatic Warbler	A30	**VA**				
Acrocephalus melanopogon (Temminck, 1823)	Mustached Warbler	A10	**MWr**				86
A. m. melanopogon (Temminck, 1823)							
Acrocephalus schoenobaenus (Linnaeus, 1758)	Sedge Warbler	A13	**MTr**	**BP**		**VY**	86
Acrocephalus palustris (Bechstein, 1798)	Marsh Warbler	A11	**MSr**	**BCr**	**4—**	**PA**	
Acrocephalus scirpaceus (Hermann, 1804)	Common Reed Warbler	A11	**MSr**	**BCr**	**3—**	**PA**	
A. s. scirpaceus (Hermann, 1804)							
Acrocephalus agricola (Jerdon, 1845)	Paddyfield Warbler	A30	**VA**				
A. a. septimus Gavrilenko, 1954							
Acrocephalus arundinaceus (Linnaeus, 1758)	Great Reed Warbler	A11	**MSr**	**BCr**	**3—**	**PA**	
A. a. arundinaceus (Linnaeus, 1758)							
Locustellidae							
Locustella luscinioides (Savi, 1824)	Savi's Warbler	A12	**MSr**	**BCi**	**1**	**VP**	87
L. l. s luscinioides (Savi, 1824)							
Locustella naevia (Boddaert, 1783)	Common Grasshopper Warbler	A10	**MTr**				
L. n. naevia (Boddaert, 1783)							

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Hirundinidae							
Delichon urbicum (Linnaeus, 1758)	Northern House Martin	A11	**MSr**	**BCr**	**5—**	**PA**	88
D. u. urbicum (Linnaeus, 1758)							
Cecropis daurica (Laxmann, 1769)	Red-rumped Swallow	A22	**MSi**	**BN**	**1**	**VP**	89
C. d. rufula (Temminck, 1835)							
Hirundo rustica Linnaeus, 1758	Barn Swallow	A11	**MSr**	**BCr**	**5=**	**AC**	
H. r. rustica Linnaeus, 1758							
Ptyonoprogne rupestris (Scopoli, 1769)	Eurasian Crag Martin	A11	**MSr**	**BCr**	**4+**	**AC**	
Riparia riparia (Linnaeus, 1758)	Collared Sand Martin	A11	**MSr**	**BCr**	**3=**	**PA**	
R. r. riparia (Linnaeus, 1758)							
Phylloscopidae							
Phylloscopus bonelli (Vieillot, 1819)	Western Bonelli's Warbler	A11	**MSr**	**BCr**	**4=**	**AC**	
Phylloscopus sibilatrix (Bechstein, 1793)	Wood Warbler	A11	**MSr**	**BCr**	**3=**	**AC**	
Phylloscopus inornatus (Blyth, 1842)	Yellow-browed Warbler	A20	**MWi**				
Phylloscopus humei (W. E. Brooks, 1878)	Hume's Leaf Warbler	A30					
P. h. humei (W. E. Brooks, 1878)							
Phylloscopus proregulus (Pallas, 1811)	Pallas's Leaf Warbler	A30					
Phylloscopus trochilus (Linnaeus, 1758)	Willow Warbler	A10	**MTr**				
P. t. trochilus (Linnaeus, 1758)		A10	**MTr**				
P. t. acredula (Linnaeus, 1758)		A30					
Phylloscopus collybita (Vieillot, 1817)	Common Chiffchaff	A11	**YMr**	**BCr**	**5=**	**AC**	
P. c. abietinus (Nilsson, 1819)		A20	**MTi**				
P. c. collybita (Vieillot, 1817)		A11	**YMr**	**BCr**	**5=**	**AC**	
Phylloscopus tristis Blyth, 1843	Siberian Chiffchaff	A20	**MWi**				
Scotocercidae							
Cettia cetti (Temminck, 1820)	Cetti's Warbler	A11	**YR**	**BCr**	**3—**	**PA**	
C. c. cetti (Temminck, 1820)							
Aegithalidae							
Aegithalos caudatus (Linnaeus, 1758)	Long-tailed Tit	A11	**YR**	**BCr**	**5=**	**AC**	90
A. c. europaeus (Hermann, 1804)							
A. c. italiae Jourdain, 1910							
Sylviidae							
Sylvia atricapilla (Linnaeus, 1758)	Eurasian Blackcap	A11	**YMr**	**BCr**	**6+**	**AC**	
S. a. atricapilla (Linnaeus, 1758)							
Sylvia borin (Boddaert, 1783)	Garden Warbler	A11	**MSr**	**BCr**	**4—**	**PA**	
S. b. borin (Boddaert, 1783)							
Sylvia nisoria (Bechstein, 1792)	Barred Warbler	A24	**MSi**	**BP**		**VY**	91
S. n. nisoria (Bechstein, 1792)							
Sylvia hortensis (J. F. Gmelin, 1789)	Western Orphean Warbler	A24	**MSi**				92
S. h. hortensis (J. F. Gmelin, 1789)							
Sylvia curruca (Linnaeus, 1758)	Lesser Whitethroat	A11	**MSr**	**BCr**	**4=**	**AC**	
S. c. curruca (Linnaeus, 1758)							
Sylvia melanocephala (J. F. Gmelin, 1789)	Sardinian Warbler	A11	**YR**	**BCr**	**2+**	**UN**	
S. m. melanocephala (J. F. Gmelin, 1789)							

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Sylvia cantillans (Pallas, 1764)	Subalpine Warbler	A11	**MSr**	**BCr**	**2**	**UN**	93
S. c. iberiae Svensson, 2013		A11	**MSr**	**BCr**	**2**	**UN**	
S. c. cantillans (Pallas, 1764)		A22	**MSi**	**BCi**	**1**	**VP**	
S. c. albistriata (C. L. Brehm, 1855)		A30	**VA**				
Sylvia subalpina Temminck, 1820	Moltoni's Warbler	A11	**MSr**	**BCr**	**4+**	**AC**	
Sylvia communis Latham, 1787	Common Whitethroat	A11	**MSr**	**BCr**	**3—**	**PA**	
S. c. communis Latham, 1787							
Sylvia conspicillata Temminck, 1820	Spectacled Warbler	A30	**VA**				
S. c. conspicillata Temminck, 1820							
Sylvia sarda Temminck, 1820	Marmora's Warbler	A30					
Sylvia undata (Boddaert, 1783)	Dartford Warbler	A22	**YMi**	**BP**	**0**	**VY**	94
S. u. undata (Boddaert, 1783)							
Leiotrichidae							
Leiothrix lutea (Scopoli, 1786)	Red-billed Leiothrix	C30					
Certhiidae							
Certhia brachydactyla C. L. Brehm, 1820	Short-toed Treecreeper	A11	**YR**	**BCr**	**4=**	**AC**	
C. b. brachydactyla C. L. Brehm, 1820							
Certhia familiaris Linnaeus, 1758	Eurasian Treecreeper	A11	**YR**	**BCr**	**4=**	**AC**	
C. f. macrodactyla C. L. Brehm, 1831							
Sittidae							
Sitta europaea Linnaeus, 1758	Eurasian Nuthatch	A11	**YR**	**BCr**	**5+**	**AC**	
S. e. cisalpina Sachtleben, 1919							
Tichodroma muraria (Linnaeus, 1766)	Wallcreeper	A11	**YR**	**BCr**	**3=**	**AC**	
T. m. muraria (Linnaeus, 1766)							
Troglodytidae							
Troglodytes troglodytes (Linnaeus, 1758)	Northern Wren	A11	**YMr**	**BCr**	**5—**	**PA**	
T. t. troglodytes (Linnaeus, 1758)							
Cinclidae							
Cinclus cinclus (Linnaeus, 1758)	White-throated Dipper	A11	**YR**	**BCr**	**3=**	**AC**	
C. c. aquaticus Bechstein, 1797							
Sturnidae							
Sturnus vulgaris Linnaeus, 1758	Common Starling	A11	**YMr**	**BCr**	**6=**	**AC**	
S. v. vulgaris Linnaeus, 1758							
Sturnus unicolor Temminck, 1820	Spotless Starling	B40					
Pastor roseus (Linnaeus, 1758)	Rosy Starling	A20	**MTi**				
Turdidae							
Zoothera aurea (Holandre, 1825)	White's Thrush	B40					
Z. a. aurea (Holandre, 1825)							
Turdus viscivorus Linnaeus, 1758	Mistle Thrush	A11	**YMr**	**BCr**	**4=**	**AC**	
T. v. viscivorus Linnaeus, 1758							
Turdus philomelos C. L. Brehm, 1831	Song Thrush	A11	**YMr**	**BCr**	**5=**	**AC**	
T. ph. philomelos C. L. Brehm, 1831							
Turdus iliacus Linnaeus, 1758	Redwing	A10	**MWr**				
T. i. iliacus Linnaeus, 1758							

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Turdus merula Linnaeus, 1758	Eurasian Blackbird	A11	**YMr**	**BCr**	**6+**	**AC**	
T. m. merula Linnaeus, 1758							
Turdus obscurus J. F. Gmelin, 1789	Eyebrowed Thrush	A30					
Turdus pilaris Linnaeus, 1758	Fieldfare	A11	**YMr**	**BCr**	**3—**	**PA**	
Turdus torquatus Linnaeus, 1758	Ring Ouzel	A11	**MSr**	**BCr**	**4—**	**PA**	
T. t. torquatus Linnaeus, 1758		A10	**MTr**				
T. t. alpestris (C. L. Brehm, 1831)		A11	**MSr**	**BCr**	**4—**	**PA**	
Turdus eunomus Temminck, 1831	Dusky Thrush	A30	**VA**				
Turdus atrogularis Jarocki, 1819	Black-throated Thrush	B40					
Muscicapidae							
Muscicapa striata (Pallas, 1764)	Spotted Flycatcher	A11	**MSr**	**BCr**	**4—**	**PA**	
M. s. striata (Pallas, 1764)							
Erithacus rubecula (Linnaeus, 1758)	European Robin	A11	**YMr**	**BCr**	**6=**	**AC**	
E. r. rubecula (Linnaeus, 1758)							
Cyanecula svecica (Linnaeus, 1758)	Bluethroat	A13	**MTr**				95
C. s. svecica (Linnaeus, 1758)		A23	**MTi**				
C. s. cyanecula (Meisner, 1804)		A10	**MTr**				
Luscinia luscinia (Linnaeus, 1758)	Thrush Nightingale	A30	**VA**				
Luscinia megarhynchos C. L. Brehm, 1831	Common Nightingale	A11	**MSr**	**BCr**	**5=**	**AC**	
L. m. megarhynchos C. L. Brehm, 1831							
Tarsiger cyanurus (Pallas, 1773)	Orange-flanked Bush Robin	A30	**VA**				
Ficedula parva (Bechstein, 1792)	Red-breasted Flycatcher	A30					96
Ficedula semitorquata (Homeyer, 1885)	Semi-collared Flycatcher	A30					
Ficedula hypoleuca (Pallas, 1764)	European Pied Flycatcher	A13	**MTr**				97
F. h. hypoleuca (Pallas, 1764)							
Ficedula albicollis (Temminck, 1815)	Collared Flycatcher	A24	**MSi**				98
Phoenicurus ochruros (S. G. Gmelin, 1774)	Black Redstart	A11	**YMr**	**BCr**	**5+**	**AC**	
P. o. gibraltariensis (J. F. Gmelin, 1789)							
Phoenicurus phoenicurus (Linnaeus, 1758)	Common Redstart	A11	**MSr**	**BCr**	**5+**	**AC**	
P. p. phoenicurus (Linnaeus, 1758)							
Monticola saxatilis (Linnaeus, 1766)	Rufous-tailed Rock-Thrush	A11	**MSr**	**BCr**	**3=**	**AC**	
Monticola solitarius (Linnaeus, 1758)	Blue Rock-Thrush	A11	**YR**	**BCr**	**2**	**UN**	
M. s. solitarius (Linnaeus, 1758)							
Saxicola rubetra (Linnaeus, 1758)	Whinchat	A11	**MSr**	**BCr**	**4—**	**PA**	
Saxicola torquatus (Linnaeus, 1766)	Common Stonechat	A11	**YMr**	**BCr**	**4—**	**PA**	
S. t. rubicola (Linnaeus, 1766)							
Oenanthe oenanthe (Linnaeus, 1758)	Northern Wheatear	A11	**MSr**	**BCr**	**4=**	**AC**	
O. o. leucorhoa (J. F. Gmelin, 1789)		A30					
O. o. oenanthe (Linnaeus, 1758)		A11	**MSr**	**BCr**	**4=**	**AC**	
Oenanthe deserti (Temminck, 1825)	Desert Wheatear	A30	**VA**				
O. d. deserti (Temminck, 1825)							

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Oenanthe hispanica (Linnaeus, 1758)	Black-eared Wheatear	A20	**MSi**				
O. h. hispanica (Linnaeus, 1758)		A30	**VA**				
O. h. melanoleuca (Güldenstädt, 1775)		A30	**VA**				
Oenanthe leucura (J. F. Gmelin, 1789)	Black Wheatear	B40					
O. l. leucura (J. F. Gmelin, 1789)							
Regulidae							
Regulus regulus (Linnaeus, 1758)	Goldcrest	A11	**YMr**	**BCr**	**4=**	**AC**	
R. r. regulus (Linnaeus, 1758)							
Regulus ignicapilla (Temminck, 1820)	Common Firecrest	A11	**YR**	**BCr**	**4+**	**AC**	
R. i. ignicapilla (Temminck, 1820)							
Bombycillidae							
Bombycilla garrulus (Linnaeus, 1758)	Bohemian Waxwing	A20	**MTi**				
B. g. garrulus (Linnaeus, 1758)							
Prunellidae							
Prunella collaris (Scopoli, 1769)	Alpine Accentor	A11	**YR**	**BCr**	**4=**	**AC**	
P. c. collaris (Scopoli, 1769)							
Prunella modularis (Linnaeus, 1758)	Dunnock	A11	**YMr**	**BCr**	**5=**	**AC**	99
P. m. modularis (Linnaeus, 1758)							
Passeridae							
Passer domesticus (Linnaeus, 1758)	House Sparrow	A11	**YR**	**BCr**	**3**	**PA**	
P. d. domesticus (Linnaeus, 1758)							
Passer italiae (Vieillot, 1817)	Italian Sparrow	A11	**YR**	**BCr**	**6=**	**AC**	
Passer montanus (Linnaeus, 1758)	Eurasian Tree Sparrow	A11	**YMr**	**BCr**	**5—**	**PA**	
P. m. montanus (Linnaeus, 1758)							
Petronia petronia (Linnaeus, 1766)	Rock Sparrow	A11	**YMr**	**BCr**	**2+**	**UN**	
P. p. petronia (Linnaeus, 1766)							
Montifringilla nivalis (Linnaeus, 1766)	White-winged Snowfinch	A11	**YMr**	**BCr**	**3—**	**PA**	
M. n. nivalis (Linnaeus, 1766)							
Motacillidae							
Anthus trivialis (Linnaeus, 1758)	Tree Pipit	A11	**MSr**	**BCr**	**5—**	**PA**	
A. t. trivialis (Linnaeus, 1758)							
Anthus cervinus (Pallas, 1811)	Red-throated Pipit	A10	**MTr**				
Anthus pratensis (Linnaeus, 1758)	Meadow Pipit	A10	**MWr**				
Anthus spinoletta (Linnaeus, 1758)	Water Pipit	A11	**YMr**	**BCr**	**5=**	**AC**	
A. s. spinoletta (Linnaeus, 1758)							
Anthus petrosus (Montagu, 1798)	Rock Pipit	B40					
A. p. littoralis C. L. Brehm, 1823							
Anthus richardi Vieillot, 1818	Richard's Pipit	A30	**VA**				100
A. r. richardi Vieillot, 1818							
Anthus campestris (Linnaeus, 1758)	Tawny Pipit	A11	**MSr**	**BCr**	**2**	**UN**	

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Motacilla flava Linnaeus, 1758	Western Yellow Wagtail	A11	**MSr**	**BCr**	**5—**	**PA**	
M. f. thunbergi Billberg, 1828		A10	**MTi**				
M. f. flavissima (Blyth, 1834)		A30	**VA**				
M. f. flava Linnaeus, 1758		A10	**MTr**				
M. f. beema (Sykes, 1832)		A30	**VA**				
M. f. feldegg Michahelles, 1830		A20	**MTi**				
M. f. iberiae E. J. O. Hartert, 1921		A30	**VA**				
M. f. cinereocapilla Savi, 1831		A11	**MSr**	**BCr**	**5—**	**PA**	
Motacilla cinerea Tunstall, 1771	Grey Wagtail	A11	**YMr**	**BCr**	**4+**	**AC**	
M. c. cinerea Tunstall, 1771							
Motacilla citreola Pallas, 1776	Citrine Wagtail	A30	**VA**				
M. c. citreola Pallas, 1776							
Motacilla alba Linnaeus, 1758	White Wagtail	A11	**YMr**	**BCr**	**5=**	**AC**	101
M. a. yarrellii Gould, 1837		A30	**VA**				
M. a. alba Linnaeus, 1758		A11	**YMr**	**BCr**	**5=**	**AC**	
Fringillidae							
Fringilla coelebs Linnaeus, 1758	Common Chaffinch	A11	**YMr**	**BCr**	**6=**	**AC**	
F. c. coelebs Linnaeus, 1758							
Fringilla montifringilla Linnaeus, 1758	Brambling	A10	**MWr**				
Coccothraustes coccothraustes (Linnaeus, 1758)	Hawfinch	A11	**YMr**	**BCr**	**3=**	**AC**	
C. c. coccothraustes (Linnaeus, 1758)							
Carpodacus erythrinus (Pallas, 1770)	Common Rosefinch	A30	**VA**				
C. e. erythrinus (Pallas, 1770)							
Pyrrhula pyrrhula (Linnaeus, 1758)	Eurasian Bullfinch	A11	**YMr**	**BCr**	**4—**	**PA**	
P. p. pyrrhula (Linnaeus, 1758)		A20	**MWi**				
P. p. europaea Vieillot, 1816		A11	**YR**	**BCr**	**4—**	**PA**	
Chloris chloris (Linnaeus, 1758)	European Greenfinch	A11	**YMr**	**BCr**	**5=**	**AC**	
C. c. chloris (Linnaeus, 1758)		A10	**MWr**				
C. c. aurantiiventris (Cabanis, 1851)		A11	**YMr**	**BCr**	**5=**	**AC**	
Linaria flavirostris (Linnaeus, 1758)	Twite	A30					
L. f. flavirostris (Linnaeus, 1758)							
Linaria cannabina (Linnaeus, 1758)	Common Linnet	A11	**YR**	**BCr**	**5—**	**PA**	
L. c. cannabina (Linnaeus, 1758)							
Acanthis flammea (Linnaeus, 1758)	Redpoll	A11	**YR**	**BCr**	**4—**	**PA**	102
A. f. cabaret (Statius Müller, 1776)		A11	**YR**	**BCr**	**4—**	**PA**	
A. f. flammea (Linnaeus, 1758)		A30					
Loxia pytyopsittacus Borkhausen, 1793	Parrot Crossbill	A30					
Loxia curvirostra Linnaeus, 1758	Red Crossbill	A11	**YMr**	**BCr**	**4=**	**AC**	
L. c. curvirostra Linnaeus, 1758							
Loxia leucoptera J. F. Gmelin, 1789	Two-barred Crossbill	A30					
L. l. bifasciata (C. L. Brehm, 1827)							
Carduelis carduelis (Linnaeus, 1758)	European Goldfinch	A11	**YMr**	**BCr**	**5—**	**PA**	
C. c. carduelis (Linnaeus, 1758)							
Carduelis citrinella (Pallas, 1764)	Citril Finch	A11	**YMr**	**BCr**	**3=**	**AC**	
Serinus serinus (Linnaeus, 1766)	European Serin	A11	**YMr**	**BCr**	**5=**	**AC**	
Spinus spinus (Linnaeus, 1758)	Eurasian Siskin	A11	**YMr**	**BCr**	**2**	**PA**	

Table 5. *Cont.*

GCL Updated to December 2022			OCL 2010–2019				
Species Subspecies	**English Name**	**AERC**	**OC**	**BR**	**POP**	**RL**	**Note**
Calcariidae							
Calcarius lapponicus (Linnaeus, 1758)	Lapland Longspur	A30	**VA**				
C. l. lapponicus (Linnaeus, 1758)							
Plectrophenax nivalis (Linnaeus, 1758)	Snow Bunting	A20	**MWi**				
P. n. nivalis (Linnaeus, 1758)							
Emberizidae							
Emberiza melanocephala Scopoli, 1769	Black-headed Bunting	A12	**MSi**	**BCi**	**1**	**VP**	103
Emberiza calandra Linnaeus, 1758	Corn Bunting	A11	**YMr**	**BCr**	**4—**	**PA**	
E. c. calandra Linnaeus, 1758							
Emberiza cia Linnaeus, 1766	Rock Bunting	A11	**YR**	**BCr**	**5=**	**AC**	
E. c. cia Linnaeus, 1766							
Emberiza hortulana Linnaeus, 1758	Ortolan Bunting	A11	**MSr**	**BCr**	**3—**	**PA**	
Emberiza caesia Cretzschmar, 1827	Cretzschmar's Bunting	A30					
Emberiza cirlus Linnaeus, 1766	Cirl Bunting	A11	**YMr**	**BCr**	**5=**	**AC**	
Emberiza citrinella Linnaeus, 1758	Yellowhammer	A11	**YR**	**BCr**	**5—**	**PA**	
E. c. citrinella Linnaeus, 1758							
Emberiza leucocephalos S. G. Gmelin, 1771	Pine Bunting	A20	**MWi**				
E. l. leucocephalos S. G. Gmelin, 1771							
Emberiza schoeniclus (Linnaeus, 1758)	Reed Bunting	A14	**YMr**	**BP**	**0**	**VY**	104
E. s. schoeniclus (Linnaeus, 1758)		A14	**YMr**	**BP**	**0**	**VY**	
E. s. intermedia Degland, 1849		A20	**MWi**				
Emberiza rustica Pallas, 1776	Rustic Bunting	A30	**VA**				
E. r. rustica Pallas, 1776							
Emberiza pusilla Pallas, 1776	Little Bunting	A20	**MWi**				

3.1.1. Notes on Selected Taxa

1. *Coturnix japonica*: Singing males of presumed hybrid origin (*C. japonica* × *C. coturnix*) were reported by Caula and Beraudo [33]. Potential wild-born juveniles were also captured during ringing activities [38].
2. *Alectoris rufa*: Genetic evidence of hybridization between *A. rufa* and *A. chukar* was detected in Alessandria province in individuals introduced from captivity [69].
3. *Phasianus colchicus*: Introduced pheasants came from different subspecies (e.g., *P. c. colchicus*, *P. c. mongolicus*) and their hybrids.
4. *Bonasa bonasia*: The breeding range was historically restricted to the Ossola Valley [25]. A slow but progressive westward expansion to the Aosta Valley in the last few decades has been determined [34].
5. *Tetrao urogallus*: Last documented presence in Ossola Valley, with two birds shot in 1957 after decades of absence [70].
6. *Oxyura leucocephala*: Some recent observations of birds near a Wildfowl Center where a breeding program was established; most likely escaped individuals. A few individuals of Ruddy Duck *Oxyura jamaicensis* have also been reported.
7. *Cygnus cygnus*: Most, if not all, of the observations recorded from 2000 onward are attributed to escaped birds.
8. *Branta leucopsis*: Only two winter observations (AL 2010, 2011) were recorded as probably referring to wild birds, due to the date, location, and behavior [71,72].

9. *Anser anser*: Most migrating and/or wintering birds recorded in Italy are regarded as *A. a. rubrirostris* [73,74]. Breeding of some introduced *A. a. anser* pairs has been reported [36,73].
10. *Anser erythropus*: A specimen collected on the Po River (AL 1958) was presumed to be an *A. erythropus* × *A. albifrons* hybrid [75]. A genetic assessment of this specimen would be interesting given the results of [76].
11. *Mergus merganser*: First breeding was recorded in 1998 on Lake Maggiore. Since then, the population has regularly increased in terms of both numbers (about 20 pairs in 2019) and locations ([77] and GPSO unpubl.).
12. *Tadorna tadorna*: Confirmed breeding of 1–4 pairs (VC 2017–2022) [78].
13. *Tadorna ferruginea*: The presence of truly wild birds was previously questioned by Boano [79]. The current records refer to escaped birds or individuals from European feral populations.
14. *Cairina moschata*: A small self-sustaining population has been present since the early 2000s at Lake Orta [80]. This population has recently disappeared [73].
15. *Callonetta leucophrys*: After some observations during the breeding period in 2019, wild breeding of an escaped pair has recently been recorded in 2020 in CN province (GPSO unpubl.).
16. *Netta rufina*: First breeding was recorded in 2006 [81]. Breeding pairs increased from 2 to 7 (2019) in two sites along the rivers Tanaro and Po [61]. Like in other mainland sites in Italy, it is unknown whether the colonization was due to an extension of the natural range extension or was improved by the addition of escaped birds from Wildfowl Centers [73].
17. *Aythya ferina*: As in the past, breeding has been irregularly documented (NO 2009, 2012–2013; TO 2017) [32,82].
18. *Aythya nyroca*: Known for breeding at the beginning of the twentieth century [83], and reconfirmed as such, with growing numbers in the past decade (GPSO unpubl.). It is unclear whether escaped birds contributed to this expansion.
19. *Spatula clypeata*: Only two breeding records in the past [25]. A new successful breeding record was reported near a Wildfowl Center (CN 2020) [84].
20. *Mareca strepera*: After the first breeding record (VC 2007) [85], a noticeable increase in observations in various localities during breeding seasons has been documented in the last decade [86–88], but with very few documented breeding records.
21. *Anas crecca*: No reliable breeding records in the last thirty years. Therefore, the few records reported by Mingozzi et al. [25] should be considered insufficiently documented.
22. *Podiceps grisegena*: Courtship and nest construction were recorded at Lake Viverone in 2018 without any other signs of breeding [89].
23. *Podiceps nigricollis*: Repeated breeding of 1–3 pairs at Lake Maggiore in 2009–2019 [32]. Considered here irregular, *contra* [36].
24. *Caprimulgus europaeus*: The Piedmont breeding population has been referred to as *C. e. meridionalis* due to its biometric measurements [90].
25. *Clamator glandarius*: Some observations of full-grown juveniles recorded in June-July [71,87] and one observation of a male offering food to a female (VC 2009) [91] are the only putative breeding records of the species.
26. *Crex crex*: Very few documented breeding events were known prior to the early 1950s [92,93]. A recent data review showed the regular presence of some singing males in two Alpine areas during the breeding period but without any evidence of breeding [94].
27. *Porzana porzana*: A single breeding event observed in 1984 [25].
28. *Zapornia parva*: First breeding records of single pairs with juveniles in two localities (CN, VC 2012) [95]. Other singing and territorial males were recorded in the same or nearby sites in 2011, 2013, and 2014, followed by a new breeding event in 2021 (VC) [96].

29. *Zapornia pusilla*: Given the detection difficulty of migrant birds, it is not surprising that only one observation has been recorded in the past decade (VC 2018) [89], whereas observations of the similar-in-behavior *Zapornia parva* have greatly increased.
30. *Porphyrio porphyrio*: The first observation of this species in the PAV region was documented in Vercelli province in 2020 [97].
31. *Porphyrio alleni*: The first record of this species in the PAV region was documented in Turin province in 2021 [97].
32. *Anthropoides virgo*: Aimassi and Boano [98] reassessed the historical Bonelli's record (CN 1802); two other records (TO 1955, NO 1958) are considered doubtful [99].
33. *Otis tarda*: The only record in this century (TO 2005) is likely to be related to the reintroduction project in Great Britain [42].
34. *Ciconia nigra*: After the first breeding record (1 pair, VC 1994) [100], the population was still small but breeding was regular, with four pairs present in 2016 [101].
35. *Ciconia ciconia*: Very few breeding records in the past [102]. As a result of a reintroduction project, the number of nesting pairs had increased to 47 pairs by 2014 [59].
36. *Platalea leucorodia*: Four pairs bred for the first time in PAV in a heronry (VC 1990) [103]; reconfirmed (2–3 pairs) in 1991 [104] and 2007-2008 [85].
37. *Threskiornis aethiopicus*: 572 breeding pairs in 2018 [58].
38. *Plegadis falcinellus*: Two breeding pairs in 2018 [58].
39. *Nycticorax nycticorax*: 2005 breeding pairs in 2018 [58].
40. *Ardeola ralloides*: 32 breeding pairs in 2018 [58].
41. *Bubulcus ibis*: 776 breeding pairs in 2018 [58].
42. *Ardea cinerea*: 1691 breeding pairs in 2018 [58].
43. *Ardea purpurea*: 42 breeding pairs in 2018 [58].
44. *Ardea alba*: 1–2 breeding pairs in 2016-2018 [32,58].
45. *Egretta garzetta*: 1984 breeding pairs in 2018 [58].
46. *Egretta gularis*: The subspecific attribution of the observed birds remains uncertain but what is certain is that *E. g. gularis* was reported in Lombardy along the Sesia River on the PVA border [42].
47. *Pelecanus onocrotalus*: Most recent observations are usually considered to be of doubtful origin or escaped birds. The oldest checklist record (AL 1685) reported in [20] is referred to as *Phoenicopterus roseus* [23].
48. *Phalacrocorax carbo*: *Ph. carbo sinensis* is common year-round, with the first breeding record in 1989 [105] and 716 breeding pairs in 2018 [58]. Observations of Cormorants with a "gular pouch angle" of about 50° which can be attributed to *Ph. carbo carbo* [106] were recently documented (GPSO, unpubl.); however, ring recoveries or genetic confirmations are lacking.
49. *Burhinus oedicnemus*: About 50 pairs were recorded in PAV in 2014 [52].
50. *Charadrius alexandrinus*: 4-6 breeding pairs were documented in 1984–1985 on a sandy island in the Sesia River [25]. There is only one other observation during a breeding period and in a similar habitat (Po River) in 2020 [107].
51. *Vanellus spinosus*: This species is considered to belong to AERC category A at an Italian scale [17], but we believe that it is more appropriate for AERC category D [108].
52. *Numenius tenuirostris*: The last two regional records, one in approximately 1960 [43] and the other in 1986 [109], both from Vercelli province, are insufficiently documented [20,42]. We thus consider this species to be in AERC category B.
53. *Numenius arquata*: First breeding records (1–2 pairs) in 1996 and 1998 near Biella [110], which were reconfirmed in 2014 (for details, see [73,111].
54. *Limnodromus scolopaceus*: New to the region (VC 2020) [112].
55. *Scolopax rusticola*: Few breeding records [32,34,72,113], patchily distributed in the Alps and Apennines. The breeding occurrence of the species has been underestimated due to its elusive behavior.
56. *Gallinago gallinago*: Only two breeding records (CN 1958, AL 1986) [114,115].

57. *Tringa totanus*: The first breeding record was in 1994 in the rice fields of Vercelli province, where 1–5 pairs were regularly recorded up to 2002 [116]. Only 1–2 pairs were bred again from 2014 to 2017 [117].
58. *Larus michahellis*: First breeding pair observed in 1985. The population was estimated at 32 pairs in 2008 [118] but was included in the AC Red List category due to the very large (order 4) summer resident non-breeding population [119].
59. *Onychoprion fuscatus*: The only record from PAV (CN 1862) is considered doubtful, which aligns with the views of Boano and Mingozzi [43] and Brichetti and Fracasso [73].
60. *Sternula albifrons*: Once had regular breeding with more than a hundred pairs in 1998 [120]. This was reduced to 24–35 pairs in 2016–2017 [121] and to a single pair in 2020 along the Po River [107].
61. *Chlidonias leucopterus*: From 10 to 18 breeding pairs in the rice fields of Vercelli province during 1993–1999, now reduced to 1–2 pairs in 2018–2019 [117].
62. *Sterna paradisea*: The first record of this species in the PAV region was in Cuneo province in 2021 [97].
63. *Athene noctua*: Taxonomic analyses revealed that some individuals shared genetic characteristics with the western clade (*A. n. vidalii*) but without a clear correspondence with morphology [122–124].
64. *Gypaetus barbatus*: Following the reintroduction project, the first pair was breeding in 2010 in the Gran Paradiso National Park [125]. The PAV population began to grow, with six observed to be breeding in 2019 [126].
65. *Aquila chrysaetos*: More than 180 breeding pairs in 2013 [53,56].
66. *Circus pygargus*: On average, 8 pairs (max. 16) were breeding in the western half of the region, mostly in Cuneo province [127], followed by a strong decline and the last breeding confirmed in 2014 [87].
67. *Milvus milvus*: First breeding record TO 2018 [128]; 1–2 pairs yearly confirmed in the same area up to 2022 [129].
68. *Alcedo atthis*: Following the biometric evidence, the PAV breeding birds can be referred to as *A. a. atthis* [130], but two recoveries of ringed birds from Spain and France [38] indicate the arrival of individuals from the *A. a. ispida* range.
69. *Picus viridis*: The PAV population is considered to belong to the nominate subspecies [131,132].
70. *Falco biarmicus*: The occurrence of some escaped birds from falconry cannot be ruled out.
71. *Falco cherrug*: The occurrence of some escaped birds from falconry cannot be ruled out.
72. *Falco peregrinus*: About 150 breeding pairs were recently estimated [34,133]. Similarly to other large *Falco* species, the occurrence of some escaped birds from falconry cannot be ruled out.
73. *Myiopsitta monachus:* The first breeding was observed in PAV in 1997 [33], and the existence of small colonies (about 2–5 pairs in Cuneo and Turin provinces) has been confirmed up until 2014 [87].
74. *Lanius minor*: Documented as breeding until 2007 [85]. Afterward, breeding was irregularly observed in PAV, with little evidence of possible and one probable breeding in traditional sites in 2017 [134].
75. *Lanius excubitor*: The three museum specimens attributed to *L. e. homeyeri* [20] should be regarded as doubtful and need to be re-examined to avoid confusion with the nominal subspecies [135].
76. *Lanius senator*: Once an uncommon breeding species [25], it rapidly decreased after the last confirmed breeding in Alessandria province in 2005 [136]. Afterward, there were only sparse records of these birds during the breeding season, without any evidence of certain breeding. The certain breeding record reported by Lardelli et al. [36] was not supported by evidence. It would be useful to review the taxonomic attribution of

the museum specimens of *L. s. niloticus* and *L. s. badius* given the results of Nasuelli et al. [137].

77. *Garrulus glandarius*: Keve [138] (1966) considered the Italian Jays to be *G. g. albipectus* but we did not find any clear differences with European *G. g. glandarius*, which is consistent with Shirirhai and Svensson [139].
78. *Nucifraga caryocatactes*: The records attributed to *N. c. macrorhynchos* remain doubtful and need reassessment [21,29].
79. *Corvus monedula*: The occurrence of the nominate subspecies was confirmed only by the winter recovery of a ringed bird in Austria [39], but is likely less rare, as winter migrants often associated with the migrant *Corvus frugilegus* should come from the *C. m. monedula* (or *C. m. soemmerringii*) range.
80. *Remiz pendulinus*: *Contra* Pavia and Boano [21], there are documented breeding records up to 2002–2003 [32,33]. In the decade 2010–2019, only single singing males were observed at two sites (TO, VC 2010) [71].
81. *Calandrella brachydactyla*: The breeding population declined from 60–80 pairs [25] to 2 pairs in 1996 [31]. A few birds were still present in the breeding period at traditional sites up to 2008–2010 [71,85,91].
82. *Alauda arvensis*: Taxonomic information on the breeding population is insufficient. We agree with Shirirai and Svensson [140] and consider that *A. a. cantarella* is included in *A. a. arvensis*.
83. *Galerida cristata*: Localized breeders in southeastern Piedmont [25] have now significantly declined. Two breeding pairs were observed in 2016 in Novara province [32].
84. *Cisticola juncidis*: The first breeding was confirmed in 2020 in Vercelli province [117] but singing males and territorial pairs in variable numbers were observed in the same area in the last decade without certain breeding evidence [25,35].
85. *Acrocephalus melanopogon*: A female with a brood patch was ringed in early July 2013 [86] at a site regularly monitored during the breeding season, where the species is regularly present in winter [39].
86. *Acrocephalus schoenobaenus*: The only certain breeding record of the species in PAV was found in 2009 in Vercelli province [91], without any further breeding evidence in the following years.
87. *Locustella luscinioides*: After the last confirmed breeding record at Lake Maggiore in 2015 [88], singing territorial males were observed in a few other wetlands and years without any proof of breeding, as in the decade 2000–2009, when the species was considered as an extinct breeder in PAV [21].
88. *Delichon urbicum*: We agree with Shirirai and Svensson [140] and include *D. u. meridionale* in the nominate subspecies.
89. *Cecropis daurica*: The breeding sites in Alessandria province have been deserted since 1984 [25] and thus the species was considered extinct as a breeder in PAV according to Pavia and Boano [21]. However, recently, 1–2 breeding pairs were observed between 2011 and 2015 in the Langhe area [72,86–88,95].
90. *Aegithalos caudatus*: The taxonomic assessment of the PAV birds is complex. In fact, birds morphologically resembling the subspecies *A. c. italiae* are not uncommon during the breeding period, whereas birds with a clear *A. c. europaeus* morphology prevail in winter. Although individuals with all-white heads have been recorded, there are no certain records of *A. c. caudatus*.
91. *Sylvia nisoria*: The former population in the Ossola Valley and surrounding areas (Lake Orta) declined from 10 pairs in the 1980s to 1 pair in 2007 [141], when the last breeding record in PAV was documented.
92. *Sylvia hortensis*: Always a very rare breeder in PAV [21,142]. More recently, only territorial males in the Aosta Valley in 1999 and 2009 [34]; in Apennines in 2003 [143]; and in Biella province in 2019–2021 [97,112,144] have been reported but always without any breeding evidence.

93. *Sylvia cantillans*: This species shows a fairly widespread breeding population in the alpine xerothermic areas of the Susa Valley, with some other scattered pairs. It is referred to as the taxon *S. c. iberiae* based on its morphology and genetic evidence [145]. In addition, single pairs in the Aosta Valley [34] and, although less certain, the southern valley of Cuneo province [146], can be referred to as the nominate subspecies based on their calls and morphology.
94. *Sylvia undata*: Rare breeder in the southern part of the region both in Alessandria [25] and Cuneo provinces (1999, 2007–2008) [33].
95. *Cyanecula svecica*: One breeding pair of the subspecies *C. s. svecica* was confirmed in 1983 near Lake Moncenisio (Susa Valley, but in French political territory) [25]. Since then, just one territorial pair has been observed in 2017 in the nearby Chisone Valley [82].
96. *Ficedula parva*: In addition to one historical record (1875), one more recent and reliable observation (2002), not yet accepted by Ornitho.it, has been reported for the Ossola Valley [147].
97. *Ficedula hypoleuca*: First confirmed breeding for PAV (and Italy) in 2021: a pair nested in May-June in a nest box in the Ossola Valley; however, a storm, unfortunately, destroyed the nest and the nestlings inside [148].
98. *Ficedula albicollis*: In the same Apennines valley of SE Piedmont where a little breeding population was discovered in 1983 [149], up until 2009 there were a few observations during the breeding period [91].
99. *Prunella modularis*: The breeding birds from the PAV Alps were confirmed as belonging to the nominate subspecies based on their morphology and genetics [150,151].
100. *Anthus richardi*: Seven records dated back to the 1800s but none of the five most recent observations (2007–2021) were documented with accompanying photos or sound recordings.
101. *Motacilla alba*: Regarding the *M. a. yarrellii* subspecies, two recent observations (VB 2018, BI 2022), both documented with accompanying pictures [152,153], confirm this taxon. Other records should be re-evaluated after a thorough analysis of the photographic documentation.
102. *Acanthis flammea*: An old record of *A. f. cabaret* correctly reported by Camusso [154] was previously mistakenly identified as *A. f. flammea* [21]. Therefore, there is only one accepted record of this taxon in PAV.
103. *Emberiza melanocephala*: Singing males have been regularly observed since 2001 [155], nest building was observed in 2013 [86], and a nest with eggs was found in 2022 [156] in the same area of the Northern Apennines in Alessandria province.
104. *Emberiza schoeniclus*: Once a relatively common breeder in marsh areas [25], although the population decreased in the last three decades, it is still considered a regular breeder with the nominate subspecies [21]. After 2009, only singing males have been found in less than ten sites, without evidence of certain breeding. The certain breeding record reported by Lardelli et al. [36] was due to an erroneous record (GPSO unpubl.).

3.1.2. Comments on the GCL and OCL

Overall, 408 species (444 taxa) were included in the GCL, whereas during the decade 2010–2019, 355 (87.0%) bird species (383 taxa, 86.3%) were relevant to the OCL for the same region. The 53 species excluded from the OCL with respect to the GCL were exclusively vagrant species. Additionally, it should be noted that since the previous checklist [21], eleven vagrant species (*Porphyrio porphyrio*, *Porphyrio alleni*, *Anthropoides virgo*, *Limnodromus scolopaceus*, *Xema sabini*, *Larus pipixcan*, *Larus hyperboreus*, *Sterna paradisaea*, *Aquila heliaca*, *Oenanthe deserti*, and *Motacilla citreola*) and six subspecies (*Caprimulgus europaeus meridionalis*, *Phalacrocorax carbo carbo*, *Larus canus heinei*, *Alcedo atthis ispida*, *Corvus monedula monedula*, and *Sylvia cantillans iberiae*) have been added to the GCL, as they were sufficiently documented. Four more species were escaped birds breeding in the region or elsewhere (*Branta canadensis*, *Alopochen aegyptiaca*, *Callonetta leucophrys*, and *Myiopsitta monachus*) and

one (*Geronticus eremita*) was a species involved in an ongoing introduction project [157]. Interestingly, one species (*Ficedula hypoleuca*) was documented for the first time as breeding in Italy in PAV [148].

The GCL comprised 396 species in AERC categories A (n = 363), B (n = 26), and C (n = 7). Twelve species in AERC categories D (n = 6) and E (n = 6) were considered for the scope of this list. All but 21 species were listed under one AERC category, and the exceptions are represented by species where some records concerned wild birds with a significant proportion of them being escaped individuals or individuals from established introduced populations. Among the recorded species, 268 (277 taxa) were considered to occur regularly and 47 (56 taxa) irregularly, whereas there were 93 (111 taxa) vagrants, 23 (26 taxa) of which have not been observed in PAV since 1950. Overall, 213 species in categories A–C have been recorded as breeding, with 174 of them considered regular breeders, 23 irregular breeders, 7 accidental breeders, and 9 former breeders.

The OCL included 355 bird species (383 taxa), 267 (276 taxa) of which were regularly observed, 47 (56 taxa) of which were irregularly observed, and 41 (51 taxa) of which were only accidentally recorded in PAV (i.e., vagrants). Among the taxa regularly or irregularly observed, 149 species (151 taxa) were observed in all the periods of the year and 48 species (57 taxa) were observed only during migration periods. The confirmed breeders include 197 species (200 taxa), 173 of which are regular breeders (175 taxa), 14 are irregular breeders, and 10 are new compared to the previous decade (*Anser anser*, *Alopochen aegyptiaca*, *Tadorna tadorna*, *Aythya nyroca*, *Podiceps nigricollis*, *Zapornia pusilla*, *Ardea alba*, *Gypaetus barbatus*, *Milvus milvus*, and *Cecropis daurica*). Another eight species nesting in the decade 2000–2009 (*Cairina moschata*, *Platalea leucorodia*, *Lanius minor*, *Lanius senator*, *Remiz pendulinus*, *Acrocephalus schoenobaenus*, *Sylvia nisoria*, *Sylvia undata*, and *Emberiza schoeniclus*) were not confirmed in 2010–2019 (see notes following Table 5 for more details).

3.2. Red List of Breeding Birds 2010–2019

According to our evaluation protocol (Table 3), almost half of the species (47.3%, n = 96, out of the 203 evaluated) (Figure 2) can be classified as having an acceptable conservation status (category AC). Of the remaining 107 species, 50 (24.6%) show signs of a decline in numbers or a restricted range/population that require conservation efforts (category PA). The other species are in need of urgent monitoring and conservation care and protocols, as 18 (8.9%) species are considered as having an unsafe conservation status (category UN) and 31 (15.3%) are on the verge of local extinction due to very small breeding populations (category VP). Finally, eight (3.9%) species can be confirmed extinct in the last decade (category VY): *Platalea leucorodia*, *Lanius minor*, *Lanius senator*, *Remiz pendulinus*, *Acrocephalus schoenobaenus*, *Sylvia nisoria*, *Sylvia undata*, and *Emberiza schoeniclus*). For some of them, indications of possible or probable breeding were irregularly collected (*Lanius minor*, *Lanius senator*, *Remiz pendulinus*, *Sylvia undata*, *Emberiza schoeniclus*) (see notes following Table 5).

The eight species that became extinct as breeders in the decade 2010–2019 (category VY) were added to the four species (*Tetrao urogallus*, *Crex crex*, *Sylvia hortensis*, and *Ficedula albicollis*) already considered extinct as breeders in PAV from the last checklist [21]. Among them, the only confirmed extinct species in the region is *Tetrao urogallus*. The others are uncertain due to insufficient or doubtful data (see Section 3.1.1).

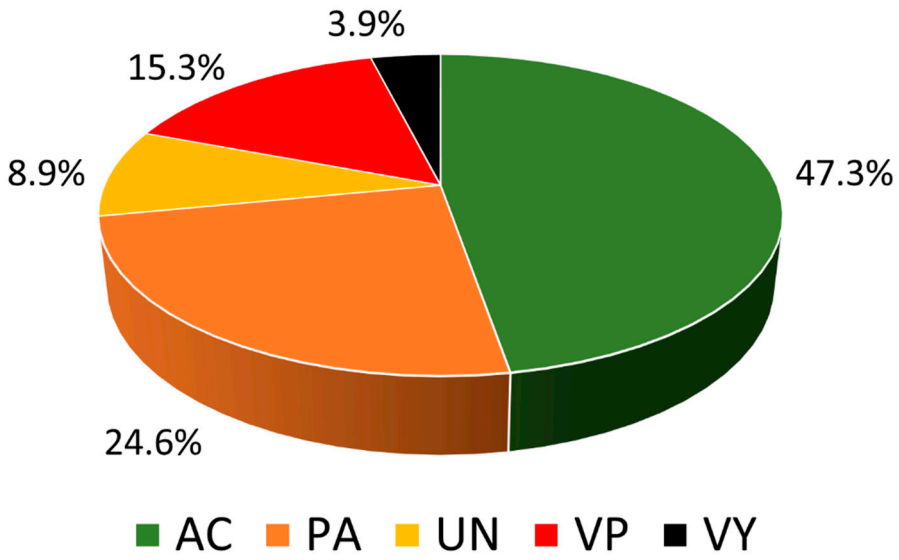

Figure 2. Risk level (percentage classes) expressed for each breeding species (n = 203) in PAV belonging to the Operational Checklist 2010–2019 (see Table 4 for details).

4. Discussion

The 396 species listed (AERC categories A–C) in the GCL represent 71.9% of all species recorded at the national level (n = 551), whereas the 204 breeding species represented 71.1% (Italy n = 287) and the 90 vagrant species represented 67.7% (Italy n = 133). The area of the PAV region represents 9.5% of the total national territory (Table 6).

Table 6. Total number of recorded species (AERC A–C categories), breeding species, and vagrant species on the national checklist and some regional checklists. The regions are ordered by surface area. Data source: Italy [17]; Piedmont and Aosta Valley, this work; Sicily [158]; Sardinia [159]; Apulia [160]; Veneto [161]; Latium [162]. See text for details.

	Italy	Piedmont and Aosta Valley	Sicily	Sardinia	Apulia	Veneto	Latium
Area (km^2)	302.068	28.648	25.832	24.100	19.541	18.345	17.232
%	100	9.5	8.6	8.0	6.5	6.1	5.7
Total n of species (AERC A–C)	551	396	437	405	370	412	415
%	100	71.9	79.3	73.5	67.2	74.8	75.3
Number of breeding species	287	204	155	170	173	203	187
%	100	71.1	54.0	59.2	60.3	70.7	65.2
Number of vagrant species	133	90	120	112	88	56	92
%	100	67.7	90.2	84.2	66.2	42.1	69.2

The biogeographical significance of the figures can be assessed by comparing the PAV values (total species number as a proxy of general biodiversity; breeding number as a proxy of the landscape heterogeneity; and the vagrant number as a proxy of the relevance of the migratory pathways) to those of other regional checklists that are based on similar assumptions. The regions were also selected with reference to their geographical characteristics, i.e., the area extension (similar or minor to PAV), and to their continental or insular condition. Considering that differences among regions may reflect some methodological aspects (in particular, differences in systematic and nomenclature adopted by the various lists and variations in the level of ornithological investigation), a few considerations can be made with reference to Table 6.

Sicily, whose geographical extension is very similar to that of PAV, had the highest total number of species. Latium, whose territorial extension corresponds to about 60.1% of that of PAV, had a higher total number of species than PAV. The highest number of vagrant

species, very close to the national number, was in Sicily and Sardinia. Conversely, PAV had the highest number of breeding species, followed by Veneto, whereas Sicily had the lowest number.

These findings can be attributed to biogeographic patterns such as the species-area relationship and the island biogeography [163,164]. In addition, the strategic position with respect to the main migratory routes, as well as the high degree of ornithological investigation, could explain the high numbers of accidental species in Sicily and Sardinia. It is well known that many vagrants are encountered on seacoasts or little islands, where drift due to crosswinds can displace birds from their normal routes, especially during misty or rainy weather [165]. The relatively low number of species found in PAV with respect to other less extended regions may be a consequence of the geographic and landscape characteristics of the region. PAV is a mostly mountainous region with urbanized, densely cultivated lowlands and hilly areas with restricted woodland patches, and with relatively few lakes and wetlands areas. PAV is much less attractive to aquatic, marshland, or open-habitat bird species in comparison with other parts of Italy. In addition, the presence of the large alpine chain that surrounds the north and west of the region for more than half of its perimeter makes it marginal with respect to other migratory flyways. However, the relatively large number of breeding birds in this region, as well as the almost identical value of the Veneto region, can be at least partially explained by the great landscape diversity of the alpine chain, with its conspicuous altitudinal gradient.

A comparison of the data in the PVA Red List and that in the Italian Red List [165] reveals interesting aspects for further analysis. Despite the different criteria for assigning species to risk categories and grouping related categories, we can see a similar percentage of relatively safe species (55% LC in Italy vs. 47% AC in PAV), as well as more threatened or endangered species (20% EN-EX in Italy vs. 19% VP-VY in PAV). On the other hand, the number of species classified as being at an intermediate threat level in PVA (33% UN-PA), clearly exceeds that identified at the national level (20% NT-VU). This is likely influenced by the 5% of species not evaluated (data deficient) at the national level but could also be linked to the different survey areas, which inevitably entails smaller populations for many species at the regional level, consequently making them more worthy of attention.

5. Conclusions

As our work has the potential to be a useful tool for characterizing the avifauna of PAV, especially with the help of the online spreadsheet. Therefore, it is important to stress the necessity of more efficient data collection, in particular for breeding species, to adapt to environmental and climatic changes in the near future. Although birdwatching activities have increased significantly in the past year, most people have focused on birding in more suitable or productive spots or randomly looking for uncommon or rare observations. Although standardized monitoring efforts have also increased, they have mostly been focused on establishing bird communities and monitoring their trends using point counts or similar rapid assessment surveys. Although these methods are useful for estimating species richness and relative abundance [166], with an emphasis on the bird species related to the Farmland Bird Index [48,49], they are insufficient for in-depth research on breeding biology and ecology. More precise and repeatable surveys are needed for a greater number of breeding populations that can actually track trends in real numbers (and not only in orders of magnitude) over time [167].

For these reasons, over the next ten years (decade 2020–2029) more efficient, widespread, and focused efforts are needed for (a) better tracking of the trends of breeding species of major concern; and (b) locating and proving the confirmed status for all the breeding species in the PAV, with a particular emphasis on the species not recently documented or only found irregularly and/or in a very few localities in the region such as *Crex crex*, *Galerida cristata*, *Calandrella brachydactyla*, *Locustella luscinioides*, and *Emberiza schoeniclus*. On the other hand, even more widespread species, such as *Phylloscopus sibilatrix*, *Sylvia borin*,

Pyrrhula pyrrhula, and *Coccothraustes coccothraustes*, consistently have very few confirmed breeding records each year, if any.

In conclusion, we stress the need for a more standardized approach to the regional checklist both in terms of category codes and the considered time frame. From this point of view, a decade is suggested as the best time frame for monitoring and comparing temporal changes in the same region and biodiversity differences between regions.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/d15040550/s1, Document S1: Boano et al. bird checklist_Operational Checklist online.

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