Hacettepe J. Biol. & Chem., 2007, 35 (2), 83-87

# Birds of Camili (Artvin, Turkey)

## Utku Perktaş<sup>1,\*</sup> and Levent S. Turan<sup>2</sup>

<sup>1</sup>Hacettepe University, Faculty of Science, Department of Biology, Ankara, Turkey <sup>2</sup>Hacettepe University, Faculty of Education, Department of Biology Education, Ankara, Turkey

## Abstract

This study was conducted in Camili (Artvin, of North-East Turkey). Breeding and autumn migrating field surveys between March 2003 and October 2003 were performed in order to determine breeding statutes and transit bird species of Camili. The study area was divided into four different sub–regions. In these sub-regions, timed-species counts (TSCs) were made to determine species abundance. The Margalef index and the cluster analysis were also used to determine species richness and similarity between sub-regions. In total, 49 bird species were recorded. The most abundant breeding bird species in the study area were determined as redstart (*Phoenicurus phoenicurus*), blackbird (*Turdus merula*), blackcap (*Sylvia atricapilla*), coal tit (*Parus ater*), great tit (*Parus major*), jay (*Garrulus glandarius*), and chaffinch (*Fringilla coelebs*). Moreover, it was found out that the area was probably used by a total 38 actual and/or possible bird species for breeding purposes.

Key Words: Bird, Timed-species counts, Species richness, Camili

### Introduction

Because of important migration routes, different kinds of habitats, and wide variety of climatic regimes, Turkey has one of the richest bird faunas in the Western Palearctic. Although Turkey may have important areas, which are still unknown, for birds, the bird fauna of Turkey is relatively well known when compared to other groups (1). As the most recently, a total of 453 bird species were listed for Turkey (2). However, new species records have been made and bird species numbers are increasing (3).

North-East Turkey is an important region for bird species, especially forest birds and raptors. Studies on bird migration in this area, especially raptor migration, were carried out in 1990, and 1994 (4, 5); however, studies in terms of avifauna are scarce for the region.

Camili is located near the border of Georgia and has not been previously studied so far in terms of its bird species. Therefore, the aim of this paper is to show the birds present in Camili focusing on its ornithological importance.

#### Study Area

The study area includes three different valleys ( $41^{0}.28$ ' N,  $41^{0}.89$ ' E), Uğur-Maral, Efeler, and Baltacılar, and situated in Camili region (Figure 1). It is characterized by natural mixed forest area, subalpine and alpine meadows, and slopes with *Rhododendron*.

The study area has a semi-arid cold Mediterranean clim-

\*Corresponding Author

#### Utku Perktaş

Work phone : +90 312 297 8036 Fax : +90 312 297 2028 E-mail address: perktas@hacettepe.edu.tr ate (6). Detailed climate data are available for Artvin, which is approximately 60 km to the south-west of Camili (Figure 2). However, the harshest winter is usually observed in Camili spanning from November to May.

### Conservation of the Study Area

The area which lies between the Black and Caspian seas has been evaluated as one of the endemic bird areas (EBA) in the world (7). This mountainous EBA includes the study area. Therefore, the study area is important for Caucasian black grouse (*Tetrao mlokosiewiczi*) and Caucasian Chiffchaff (*Phylloscopus lorenzii*).

The primary problems that affect the natural ecosystem are overgrazing and hunting. During the summer period, grazing activities were seen in suitable habitats of Caucasian black grouse. Due to hunting, breeding redbacked shrike (*Lanius collurio*) populations and migrating raptor species, particularly Accipiter species, are under threat.

#### **Materials and Methods**

Observation surveys were performed between March and October in 2003. The study area was divided into four different sub-areas: 1-Uğur-Maral Valley, 2-Efeler Valley, 3-Baltacılar Valley, and 4-Camili (Figure 1). To assess the study area in terms of species abundance, timed-species counts (TSCs) were also made (8).

Cluster analysis was performed using SYNTAX 2000 to determine similarity between sub-regions according to most abundant bird species.

To assess the species diversity for different sub-regions, Margalef index was used. This index is commonly used in community studies in birds (9). According to the index,

$$D = (S-1)/log_e N$$
(1)

In this formula, S indicates species numbers, and N indicates individual numbers in the bird community (10).







(b)

Figure 1. Location of Camili (A). 1, 2, and 3 indicates subregions in Camili (B). 1-Uğur-Maral, 2-Efeler, and 3-Baltacılar.



Figure 2. Ombrothermic climate diagram for Artvin. species diversity (D) can be expressed as:

International conservation statuses for all recorded bird species were determined according to SPEC, European Threat Status (ETS), Bern Convention and Bonn Convention (11).

#### **Results and Discussion**

In the study area, 49 bird species were recorded between February and October 2003. They belong to 4 order and 18 families (Appendix I). The highest numbers of species were recorded in May (26 species). The smallest numbers of species were recorded in October (12 species). The highest numbers of individuals were recorded in June (245 individuals); the smallest numbers of species were recorded in October (135 individuals) (Figure 3).



Figure 3. Individual numbers of birds recorded in the study area.

During the spring period in 2003, actual and/or possible breeding bird species were determined in the study area and represented 77.5% (n=38) of total bird species recorded (Appendix I).

According to Margalef index, all sub-regions had different index value for each month during the study period (Figure 4). However, there is no significant difference between these index values (H=7.08, df=3, p>0.05).



Figure 4. According to the Margalef index, the comparision of the species richness between sub-regions in the study area.

The results of TSCs are given in Table 1 for most abun-

dant bird species. According to this count, the most abundant bird species in the study area are redstart (*Phoenicurus phoenicurus*), blackbird (*Turdus merula*), blackcap (*Sylvia atricapilla*), coal tit (*Parus ater*), great tit (*Parus major*), jay (*Garrulus glandarius*), and chaffinch (*Fringilla coelebs*). Chaffinch can also be assessed as the most dominant bird species for all study area. According to these bird species' TSC values, a cluster analysis indicated that Baltacılar region is different from other regions (Figure 5). Although there is no difference in terms of species richness between sub-regions, Baltacılar can be named as the key area for most abundant bird species.

Table 1. According to timed-species count, the most abundant bird species recorded in study area and their count scores.

	Baltacılar	Camili	Efeler	Uğur-Maral
Phoenicurus phoenicurus	5	5	2	2
Turdus merula	6	3	5	4
Sylvia atricapilla	4	3	3	3
Parus ater	4	3	3	2
Parus major	6	6	4	5
Garrulus glandarius	6	2	3	3
Fringilla coelebs	6	6	6	6

So far, ninety-seven areas in Turkey have been stated as important bird areas (IBA) (12). One of them is East Black Sea Mountain Ranges, which includes Trabzon, Rize, and Artvin. This IBA includes our study area and endemic bird area for Caucasus. It has a military protected status due to its proximity Georgia border. However, there are serious threats (e.g. trapping) which are imminent for redbacked shrike and raptor species. Although raptor specialized trapping is traditional for this area, this must be prevented immediately. All of raptor species are under threat according to international conservation status (e.g. Bern Convention, Bonn Convention).

Camili and its environs are really important for raptor migration. Borçka pass has been indicated as important gate for most of raptors and some other gliding birds (4, 5). In the study area, black kite (*Milvus migrans*), sparrowhawk (*Accipiter nisus*), honey buzzard (*Pernis apivorus*), long-legged buzzard (*Buteo rufinus*), golden eagle (*Aquila chrysaetos*), and saker falcon (*Falco cherrug*) were recorded during the autumn migration. Sparrowhawk, golden eagle, saker falcon were observed in migration flocks of black kites, honey buzzards, and longlegged buzzards, all of which are observed as highly migratory species in Western Palearctic (13). According to other international conservation status (e.g. Bern and ETS) (Appendix 1), the most of the raptor species (e.g. black kite, long-legged buzzard, golden eagle, and saker falcon) are indicated under threat. Therefore, the study area is very important for migrating raptors. So far, pesticides, changes in land use and habitat loss, hunting and trapping activities in distribution ranges of these species have been stressed as important threat factors (14, 15). In Turkey, especially Northeast part, trapping activities and habitat loss in relation to changing land use can be stressed as major threats for these migrant raptor species. Moreover, loss of habitat as a result of human development, shooting and indirect poisoning are stressed the major threats in Turkey and Greece for lammergeier, which is evaluated as a possible breeders in the study area (15, 16). Therefore, suitable habitats in the study area and environs must be seriously protected, and trapping activities must also be prevented.

Because of the similarity between the sub-regions, all of study area can be taken as important for breeding passerine species. Because of long-term habitat loss in Europe, redstart (*Phoenicurus phoenicurus*), stonechat (*Saxicola torquata*), olivaceous warbler (*Hippolais pallida*), orphean warbler (*Sylvia hortensis*), rock bunting (*Emberiza cia*), black-headed bunting (*Emberiza melanocephala*) have been evaluated under unfavorable conservation status according to ETS (15). According to our observations, there is no serious threat for passerines in the study area, except Caucasian chiffchaff. Habitat of Caucasian chiffchaff is under threat. This species distributes in high regions in the study area. Hence, habitat loss in relation to changing land use should be taken into consideration in the study area.

Some passerines usually select breeding areas which are located close to human activities. According to TSCs results of most abundant species between sub-regions, Baltacılar is different and richer than other areas for passerine species (Table 1, Figure 5). This result can be depended on food abundance in this sub-region.



Figure 5. Similarity pattern between sub-regions in the study area. The cophenetic correlation is 0.9975.

Another important bird species, the Caucasian black grouse, was highly affected by habitat loss and human disturbance. Although we determined places which may suitable for this species in the study area, we just found 85 some feces, but did not see any individuals. The main cause of the decline in this species may be deterioration in the suitability of the alpine meadows. Moreover, same threats were also indicated in some literatures (7) al-though this species is classified as "data deficient" by the World Conservation Union, and few studies were made in Turkey for this species (17, 18). This habitat is crucial not only for adults but also for juveniles. Therefore, grazing and land use must be seriously controlled in the study area. The most recently, moreover, an article in Journal of Ornithology gave a new insight about individual numbers of the Caucasian black grouse, and it supported our discussion about importance of the region for this species (19).

Our study showed bird species richness and some threats on them in Camili and its environs. At last, we can say that Camili and its environs are really important for raptors, black grouse and some passerine birds because of its location and habitat richness. Therefore, Camili must be strictly protected.

However, this study is not complete, as Camili covers a small portion of North-East Turkey. We believe that more observations and their evaluations are needed in North-East Turkey.

## Acknowledgments

We are thankful to Assist. Prof. Dr. Osman Sert to his helps during the field studies. This study was supported by Global Environment Facility (GEF).

## References

- 1. Bilgin, C., A new biodiversity information management system and its application to the avifauna of Turkey, PhD thesis, METU, Ankara, 134 pp., 1994.
- Kirwan, G.M., Martins, R.P., Eken, G. and Davidson, P., A Checklist of the Birds of Turkey. Sandgrouse. Supplement 1, 1-29, 1998.
- Erciyas, K., Özcam, P., Gursoy, A. and Barış, Y.S., A new species record for Turkey: Arctic warbler (Phylloscopus borealis). İ. Kiziroğlu, A. Erdoğan, L. Turan, T. Albayrak (Ed.), Proceedings of the 1st International Eurasian Ornithology Congress, Akdeniz University, Antalya, p. 31, 2004.
- Kok, M. and Ongeane, P., Raptor Migration in the North-East of Turkey, September 1990. Sandgrouse. 34, 8-11, 1995.
- Mrlik, V., Bobek, M., Pojer, F., Skopek, J. and Formanek, J., Raptor migration in north-east Turkey, autumn 1994. Sandgrouse. 35, 41-45, 1995.
- Akman, Y., İklim ve Biyoiklim (Biyoiklim Metotlar ve Türkiye İklimleri), Kariyer Matbaacılık Ltd. Şti., Ankara, 1999.

- 7. Sattersfield, A.J. and Crosby, M.J., Endemic Bird Areas of The World: Priorities for biodiversity conservation. Cambridge, UK, 1998.
- Bibby, C.J., Burgess, N.D., Hill, D.A., and Mustoe, S., Bird Census Techniques. Academic Press, London, 2000.
- 9. Newton, S. E. and Newton, A.V., The effect of rainfall and habitat on abundance and diversity of birds in a fenced protected area in the central Saudi Arabian desert. J. Arid Environ. 35, 715-735, 1997.
- 10. Şişli N., Ekoloji. Yeni Fersa Matbaacılık, Ankara, 1996.
- 11. Tucker, G.M. and Evans, M.I., Habitats for birds in Europe: a conservation strategies for the wider environment. Cambridge, UK, 1997.
- Magnin, G., Eken, G. and Yarar, M., Turkey. M.F. Heath and M. I. Evans (Ed.), Important Bird Areas in Europe: Priority sites for conservation 2: Southern Europe. BirdLife Conservation Series No. 8, Cambridge, pp. 651-689, 2000.
- 13. Ferguson-Lees, J. and Christie, D.A., Raptors of the world. Houghton Mifflin, USA, 2001.
- Spierenburg, T. J., Zoun, P. E. F. and Smit, T., Poisoning of wild birds by pesticides. In Wild bird mortality in the Netherlands 1975-1989. Working group on Wild Bird Mortality, NSBP, 1990.
- 15. Tucker, G.M. and Heath, M.F., Birds in Europe: their conservation status, BirdLife International, Cambridge, UK, 1994.
- Hallmann, B., Status and conservation problems of birds of prey in Greece. I. Newton and R.D. Chancelor (Ed.), Conservation studies on raptors. Cambridge, UK: International Council of Bird Preservation. pp. 55-59, 1985.
- 17. IUCN, Tetrao mlokosiewiczi. 2006 IUCN Red List of Threatened Species. url: http://www.iucnredlist.org, 2004.
- Baskaya, S., Distribution and principal threats to Caucasian black grouse Tetrao mlokosiewiczi in the Eastern Karadeniz Mountains in Turkey. Wildl. Biol. 9, 377–383, 2003.
- Gottschalk, T.K., Ekschmitt, K., Isfendiyaroglu, S., Gem, E. and Wolters, V., Assessing the potential distribution of the Caucasian black grouse Tetrao mlokosiewiczi in Turkey through spatial modeling. J. Ornithol. DOI 10.1007/s10336-007-0155-z.

Appendix 1. Recorded bird species in the study area and their conservation and breeding status.

Permis apviorus*     European Honey Buzzard     II     II     4     S     -       Milvas migran*     Elack Kite     II     II     3     V     -       Gypaetus barbatus*     Lammergeler     II     II     3     E     ?       Acopiter risus*     Eurasian Sparrowhawk     II     II     -     S     -       Buteo bufeo*     Common Buzzard     II     II     -     S     -       Buteo bufeo*     Common Kestrel     II     II     3     C     -       Falco cherurg*     Saker Falcon     II     II     3     D     b       Falco cherurg*     Saker Falcon     II     II     -     S     B       Dendrocopus major     Great Spotted Woodpecker     II     -     -     S     B       Anthus sponolitita     Water Pipit     II     -     -     S     B       Midacilia cinerea     Grey Wagtali     II     -     -     S     B       Minter Wren	SPECIES	COMMON NAMES	BERN <sup>1</sup>	BONN <sup>2</sup>	SPEC <sup>3</sup>	ETS4	BS⁵
Milvus migrans*     Black kite     II     II     3     V     -       Accipiter nisus*     Lammergeler     II     II     3     E     ?       Accipiter nisus*     Common Buzzard     II     II     -     S     -       Bute ontinus*     Common Buzzard     II     II     3     CE     -       Aquila chrysaetos*     Golden Eagle     II     II     3     E     -       Aquila chrysaetos*     Golden Eagle     II     II     3     E     -       Aquila chrysaetos*     Golden Eagle     II     II     3     E     -       Aquila chrysaetos*     Gormon Cuckoo     III     -     S     B       Drycocpus matius     Black Woodpecker     II     -     S     B       Anthus trivialis     Tree Pipit     II     -     S     B       Motacilla aba     White Wroated Dipper     II     -     S     B       Conclus cinclus chouses     Winter Wren     II     - <td< td=""><td>Pernis apivorus*</td><td>European Honey Buzzard</td><td>  </td><td>  </td><td>4</td><td>S</td><td>-</td></td<>	Pernis apivorus*	European Honey Buzzard			4	S	-
Gypeetus barbatus*     Lammergeler     II     II     II     II     II     II     II     II     II     III     III     III     III     IIII     IIII     IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Milvus migrans*	Black Kite	11	П	3	V	-
Ácipiter risus*     Eurasian Spairowhawk     II     II     -     S     -       Buteo rufinus*     Common Buzzard     II     II     3     (E)     -       Aquila chrysaetos*     Golden Eagle     II     II     3     R     -       Aquila chrysaetos*     Golden Eagle     II     II     3     R     -       Falco funninuus*     Common Kestrel     II     II     3     R     -       Falco cherrug*     Saker Falcon     II     II     3     E     -       Denotocopus major     Great Spotted Woodpecker     II     -     S     B       Hrundo rupestris     Eurasian Crag Martin     II     -     S     B       Motacilla aiba     White Wagtail     II     -     S     B       Cinclus cinclus     Bohenian Wawing     II     -     S     B       Conclus cinclus upotopicurus     Bohenian Wawing     II     -     S     B       Conclus cinclus upotopicurus     Common Redstart     II	Gypaetus barbatus*	Lammergeier	11	П	3	Е	?
Buteo turtinus*     Common Buzzard     II     II     I     S        Buteo rufinus*     Colden Eagle     II     II     S     R        Failo chrysaetos*     Colden Eagle     II     II     S     R        Failo chrysaetos*     Common Kestrel     II     II     S     E     -       Cuculus canorus     Common Cuckoo     III     -     -     S     B       Dendrocopus major     Great Spatted Woodpecker     II     -     -     S     B       Anthus spinoletta     Water Pipit     II     -     -     S     B       Anthus spinoletta     Water Ipit     II     -     -     S     B       Motacilla cherea     Grey Wagtail     II     -     -     S     B       Dembyoilta garrulus     Bohernian Waxing     II     -     -     S     B       Dombyoilta garrulus     Bohernian Waxing     II     -     -     S     B       Dombyoilta garrul	Accipiter nisus*	Eurasian Sparrowhawk	11	П	-	S	-
Buteo rufinus*     Long-legged Buzzard     II     II     S     (E)     -       Aquila chrysaetos*     Golden Eagle     II     II     S     D     b       Faico Inninculus*     Common Kestrel     II     II     S     D     b       Faico cherrug*     Saker Faicon     II     II     S     E     -       Cuculus canorus     Common Cuckoo     III     -     -     S     B       Dendrocopus major     Great Spotted Woodpecker     II     -     -     S     B       Anthus trivialis     Tree Pipit     II     -     -     S     B       Motacilla cherea     Grey Wagtail     II     -     -     S     B       Bombyolila garulus     Bohemian Waxwing     II     -     -     S     B       Pronela modularis     Dunnock     II     -     -     S     B       Propenceurus phoenicurus     Common Stonechat     II     II     4     S     B       Saxioola rube	Buteo buteo*	Common Buzzard	11	11	-	S	-
Aquila chrysaetos*     Golden Eagle     II     II     II     S     P       Falco tinnineulus*     Common Kestrel     II     II     S     E     -       Cuculus canorus     Common Cuckoo     III     -     -     S     B       Dendrocopus matrius     Black Woodpecker     II     -     -     S     B       Anthus spinoletta     Water Pipit     II     -     -     S     B       Anthus chrvais     Eurasian Crag Martin     II     -     -     S     B       Anthus chrvais     Eurasian Crag Martin     II     -     -     S     B       Anthus chrvais     Tree Pipit     II     -     -     S     B       Motacilla cherea     Grey Wagtail     II     -     -     S     B       Motacilla cherea     White-Throated Dipper     II     -     -     S     B       Conclus cinclus cinclus     Bohernian Waxing     II     -     -     S     B       Contols g	Buteo rufinus*	Long-legged Buzzard	11	П	3	(E)	-
Fålco tinnihraulus*     Common Kestrel     II     II     II     S     D     b       Falco cherrug*     Saker Falcon     II     II     -     -     S     B       Coucius canorus     Common Cuckoo     III     -     -     S     B       Drycocopus matrius     Black Woodpecker     II     -     -     S     B       Hundo rupestris     Eurasian Crag Martin     II     -     -     S     B       Anthus spinoletta     Water Pipit     II     -     -     S     B       Motacilla alba     White Vagtali     II     -     -     S     B       Bombycilla garrulus     Bohemian Waxwing     II     -     -     S     B       Prunella modularis     Dunnock     II     -     -     S     B       Propolycites troglodytes     Winter Wren     II     I     4     S     B       Saxicola rubecula     European Robin     II     II     II     S     B	Aguila chrysaetos*	Golden Eagle	11	11	3	Ŕ	-
Felor cherrug*     Saker Falcon     II     II     II     S     E       Cuculus canorus     Common Cuckoo     III     -     -     S     B       Dryocopus marius     Black Woodpecker     II     -     -     S     B       Dendrocopus major     Great Spotted Woodpecker     II     -     -     S     B       Anthus spinoletta     Water Pipit     II     -     -     S     B       Anthus trivialis     Tree Pipit     II     -     -     S     B       Motacilia cinerea     Grey Watail     II     -     -     S     B       Dombycilia garrulus     Bohemian Waxwing     II     -     -     S     B       Dombycila garrulus     Bohemian Waxwing     II     -     -     S     B       Punela modularis     Dunnock     II     -     -     S     B       Proneincurus phoenicurus     Common Redstart     II     II     4     S     B       Saxioola rubetra </td <td>Falco tinnínculus*</td> <td>Common Kestrel</td> <td>11</td> <td>П</td> <td>3</td> <td>D</td> <td>b</td>	Falco tinnínculus*	Common Kestrel	11	П	3	D	b
Cuculus canorus     Common Cuckoo     III     -     -     S     B       Dryocopus major     Great Spotted Woodpecker     II     -     -     S     B       Hundo rupestris     Eurasian Crag Martin     II     -     -     S     B       Anthus spinoletta     Water Pipit     II     -     -     S     B       Motacilia cinerea     Grey Wagtail     II     -     -     S     B       Motacilia diba     White Wagtail     II     -     -     S     B       Cinclus cinclus     White-throated Dipper     II     -     -     S     B       Conclus cinclus     White-throated Dipper     II     -     -     S     B       Prunella modularis     Dunnock     II     -     -     S     B       Pronenicurus     Phoenicurus     Dunnock     II     II     4     S       Saxicola rubera     Common Bedstart     II     II     4     S       Saxicola ruberus     Ri	Falco cherrug*	Saker Falcon	11	11	3	E	-
Drycocopus martilus     Black Woodpecker     II     -     -     S     B       Dendrocopus major     Great Spotted Woodpecker     II     -     -     S     B       Mitrudo rupestris     Eurasian Crag Martin     II     -     -     S     B       Anthus spinoletta     Water Pipit     II     -     -     S     B       Motacilla cinerea     Grey Wagtail     II     -     -     S     B       Motacilla cinerea     Grey Wagtail     II     -     -     S     B       Cinclus cinclus     White-throated Dipper     II     -     -     S     B       Dennock     II     -     -     S     B<	Cuculus canorus	Common Cuckoo	111	-	-	S	В
Déndrocopus major     Great Spotted Woodpecker     II     -     -     S     B       Hirundo rupestris     Eurasian Crag Martin     II     -     -     S     B       Anthus spinoletta     Water Pipit     II     -     -     S     B       Anthus spinoletta     Tree Pipit     II     -     -     S     B       Motacilla cinerea     Grey Wagtall     II     -     -     S     B       Motacilla alba     White Wagtall     II     -     -     S     B       Cinclus cinclus     Winte-throated Dipper     II     -     -     S     B       Dembycilla garrulus     Bohemian Waxwing     II     -     -     S     B       Pronella modularis     Dunnock     II     II     4     S     B       Pronenicurus phoenicurus     Common Redstart     II     II     4     S     B       Purdus forquatus     Ring Ouzel     II     II     4     S     B       Saxicola	Drvocopus martius	Black Woodpecker	11	-	-	S	В
Hirundo rupestrisEurasian Crag MartinIISBAnthus trivialisTree PipitIISBMotacilla cinereaGrey WagtailIISBMotacilla cinereaGrey WagtailIISBMotacilla albaWhite WagtailIISBCincius cinclusWhite-troated DipperIISBBombycilla garrulusBohemian WaxwingIISBPrunella modularisDunnockIISBPhoenicurus phoenicurusCommon RedstartIIII4SBSexicola rubetraWinter MrenIIII4SBSexicola rubetraCommon StonechatIIIIII4SBTurdus forquatusRing OuzelIIIIII4SBSylvia borinGarden WarblerIIIIII4SBSylvia hortensisOrphean WablerIIIIII4SBSylvia hortensisOrphean WablerIIIIII-SBParus derCali TitIISBPhyloscopus collybtaChiftchaffIISBSylvia hortensisCorphean WablerIIIISBParus derCali	Dendrocopus major	Great Spotted Woodpecker	11	-	-	S	В
Anthus spinolettaWater PipitIISBAnthus trivialisTree PipitIISBMotacilla cinereaGrey WagtailIISBCinclus cinclusWhite-throated DipperIISBDombyoilla garrulusBohemian WaxwingIISBDombyoilla garrulusBohemian WaxwingIISBPrunella modularisDunnockIISBPrunella modularisDunnockIIII4SBPrunella modularisCommon RedstartIIII4SBSaxicola rubeculaEuropean RobinIIII4SBSaxicola torquataCommon StonechatIIII4SBTurdus merulaCommon BlackbirdIIIII4SBSylvia borinGarden WarblerIIII4SBSylvia hortnessisOrphean WablerIIII4SBPhyloscopus lorenziiCaucasian ChiffchaffIISBParus aterCoal TitIISBParus aterCoal TitIISBParus aterCoal TitIISBParus aterCoal TitIISBParus	Hirundo rupestris	Eurasian Crag Martin	11	-	-	S	В
Anthus trivialisTree PipitIISBMotacilla cinereaGrey WagtaliII(S)BMotacilla albaWhite-WagtaliIISBCinclus cinclusWhite-throated DipperIISBDombycilla garrulusBohemian WaxwingII(S)-Troglodyfes troglodyfesWinter WrenIISBPrunella modularisDunnockIIS-Erithacus rubeculaEuropean RobinIIII4SBPhoenicurus phoenicurusCommon RedstartIIII4SBSaxicola torquataCommon BlackbirdIIII4SBTurdus forquatusRing OuzelIIII4SBSylvia borinGarden WarblerIIII4SBSylvia borinGardel TitIISB<	Anthus spinoletta	Water Pipit	Î	-	-	S	В
Motacilla cinereaGrey WagtailII(S)BMotacilla albaWhite WagtailIISBCinclus cinclusWhite-throated DipperIISBBombycilla garrulusBohemian WaxwingIISBPrunella modularisDunnockIISBPrunella modularisDunnockIIS-Erithaous rubeculaEuropean RobinIIII4SBPhoenicurus phoenicurusCommon RedstartIIII4SBSaxicola rubetraWhinchatIIII3(D)BSaxicola rubetraCommon StanechatIIII4SBTurdus merulaCommon BlackbirdIIIII4SBSylvia borinGarden WarblerIIII3(V)BSylvia borinGarden WarblerIIII4SBSylvia atricapillaBlackcapIIII4SBSylvia atricapillaCaucasian ChiftchaffIIII-?SPhylioscopus collybitaChiffchaffIIII-SBParus aterCoal TitIISBCorrus caraxEurasian NuthatchIISBCorrus coraxCorrinon RavenIIIS	Anthus trivialis	Tree Pipit	Î	-	-	S	В
Motacilla albaWhite WagtailIISBCinclus cinclusWhite-throated DipperIISBBombyella garrulusBohemian WaxwingIISBPrinella modularisDunnockIISBPrinella modularisDunnockIISBPrinella modularisDunnockIIII4SBPhoenicurus phoenicurusCommon RedstartIIII4SBSaxicola rubetraWhite-Namo RobinIIII4SBSaxicola torquataCommon StonechatIIII4SBSaxicola torquataCommon BlackbirdIIIII4SBTurdus merulaCommon BlackbirdIIIII4SBSylvia torinGarden WarblerIIII4SBSylvia torinGarden WarblerIIII4SBSylvia torinGarden WarblerIIII4SBSylvia torinaCaucasian ChiffchaffIIIISBPhylioscopus collybitaChiffchaffIIIISBPhylioscopus collybitaChiffchaffIIIISBParus aterCoal TitIISBParus aterCoal TitII- <td>Motacilla cinerea</td> <td>Grev Wagtail</td> <td>ü</td> <td>-</td> <td>-</td> <td>(Ŝ)</td> <td>B</td>	Motacilla cinerea	Grev Wagtail	ü	-	-	(Ŝ)	B
Chiclus cinclusWhite-throated DipperIISBBombycilla garrulusBohemian WaxwingII(S)-Troglodytes troglodytesWinter WrenIISBPrunelia modularisDurinockIISBPhoenicurus phoenicurusCommon RedstartIIII4SBSaxicola torquataCommon RedstartIIII4SBSaxicola torquataCommon StonechatIIII4SBTurdus torquatusRing OuzelIIII4SBTurdus torquatusCommon BlackbirdIIIII4SBSylvia borinGarden WarblerIIII4SBSylvia borinGarden WarblerIIII4SBSylvia hortensisOrphean WablerIIII4SBPhylioscopus collybitaChiffchaffIIIISBParus aterCoal TitIISBParus aterCoal TitIISBParus aterCormon RavenIIISBParus aterCoal TitIISBParus aterCoal TitIISBParus aterCoal TitIISBParus a	Motacilla alba	White Wagtail	II.	-	-	Š	B
Bombycilla garrulusBohemian WaxwingII(S)-Troglodytes troglodytesWinter WrenIISBPrunella modularisDunnockIIS-Erithacus rubeculaEuropean RobinIIII4SBPhoenicurus phoenicurusCommon RedstartIIII4SBSaxicola rubetraWhinchatIIII4SBSaxicola torquataCommon StonechatIIII4SBTurdus torquataCommon BlackbirdIIIII4SBTurdus merulaCommon BlackbirdIIIII4SBSylvia borinGarden WarblerIIII4SBSylvia atricapillaBlackcapIIII4SBSylvia borinGarden WarblerIIII4SBSylvia hortensisOrphean WablerIIII4SBPhylioscopus collybitaChiffchaffIISBParus aterCoal TitIISBParus aterGreat TitIISBCorws corneGreat TitIISBBarus aterCoal TitIISBParus aterGreat TitIISBCorws cornex <t< td=""><td>Cinclus cinclus</td><td>White-throated Dipper</td><td> II</td><td>-</td><td>-</td><td>Š</td><td>B</td></t<>	Cinclus cinclus	White-throated Dipper	 II	-	-	Š	B
Troglodytes troglodytesWinter WrenIISBPrunella modularisDunnockIIS-Erithacus rubeculaEuropean RobinIIII4SBPhoenicurus phoenicurusCommon RedstartIIII4SBSaxicola rubetraWhinchatIIII4SBSaxicola rubetraCommon StonechatIIII4SBSaxicola forquatusRing OuzelIIII4SBTurdus torquatusRing OuzelIIII4SBTurdus torquatusCommon BlackbirdIIIII4SBSylvia borinGarden WarblerIIII4SBSylvia borinGarden WarblerIIII4SBSylvia hortensisOrphean WablerIIII4SBPhylioscopus collybitaChiffchaffIIIISBPhylioscopus lorenziiCaucasian ChiffchaffIISBParus aterCoal TitIISBParus aterGreat TitIISBBarta europaeaEurasian NuthatchIISBCorvus coraxCommon RavenIIISBCorvus coraxCommon RavenIIISB	Bombycilla garrulus	Bohemian Waxwing	II.	-	-	(S)	-
Prunella modularisDunnockIIS-Erithacus rubeculaEuropean RobinIIII4SBPhoenicurus phoenicurusCommon RedstartIIII2VBSaxicola rubetraWhinchatIIII4SBSaxicola torquataCommon StonechatIIII4SBSaxicola torquatusRing OuzelIIII4SBTurdus torquatusRing OuzelIIII4SBTurdus torquatusCommon BlackbirdIIIII4SBSylvia borinGarden WarblerIIII4SBSylvia borinGarden WarblerIIII4SBSylvia hortensisOrphean WablerIIII4SBPhylioscopus collybitaChiffchaffIIIISBParus aterCoal TitIISBParus caeruleusBlue TitIISBParus caeruleusBlue TitIISBParus caeruleusBlue TitIISBParus defGormon RavenIIISBCorvus corone cornixHooded CrowSBCorvus corone cornixHooded CrowSBCorvus corone cornix	Tradadytes tradadytes	Winter Wren		_	_	s,	в
FrithelingFunctionFunct	Prunella modularis	Dunnock	ü	_	_	ŝ	-
Lindod rubbanCommon RedstartIII	Erithacus ruhecula	Euronean Rohin		П	4	ŝ	в
Saxicola rubetraWhinchatIIIII4SBSaxicola torquataCommon StonechatIIIIII4SBTurdus torquatusRing OuzelIIIIII4SBTurdus torquatusRing OuzelIIIIII4SBTurdus merulaCommon BlackbirdIIIIIII4SBSylvia borinGarden WarblerIIIIII4SBSylvia borinGarden WarblerIIIIII4SBSylvia hortensisOrphean WablerIIIIII4SBSylvia hortensisOrphean WablerIIIIII4SBPhylioscopus collybitaChiffchaffIIII?BPhylioscopus lorenziiCaucasian ChiffchaffIISBParus aterCoal TitIISBParus caeruleusBlue TitIISBSitta europaeaEurasian NuthatchIISBCorvus corone cornixHouse SparrowSBCorvus corone cornixHouse SparrowSBPasset domesticusHouse SparrowSBFringilla montifringillaBramblingIIISBCarduelis chlor	Phoenicurus nhoenicurus	Common Redstart		ii ii	2	v	B
Saxioola torquataCommon StonechatIII	Savicola rubetra	Whinchat			4	ŝ	B
DistributionCommon BlackbirdIII	Saxicola forquata	Common Stonechat		ü	3	സ്	B
Turdus BregulationCommon BlackbirdIII </td <td>Turdus torquatus</td> <td>Ring Ouzel</td> <td></td> <td></td> <td>4</td> <td>(U) S</td> <td>B</td>	Turdus torquatus	Ring Ouzel			4	(U) S	B
Hippolais pailidaOlivace us WarblerIIIIII3(V)BSylvia borinGarden WarblerIIIIII4SBSylvia atricapillaBlackcapIIII4SBSylvia hortensisOrphean WablerIIII4SBPhylloscopus collybitaChiffchaffIIII-7BPhylloscopus lorenziiCaucasian ChiffchaffII7BAegithalos caudatusLong-tailed TitIISBParus aterCoal TitIISBParus caeruleusBlue TitIISBParus majorGreat TitIISBGarus majorGreat TitIISBCorvus corone cornixHooded CrowSBCorvus corone cornixHouse SparrowSBPasser domesticusHouse SparrowSBPringilla coelebsCommon ChaffinchIII-4SBCarduelis chlorisEuropean GreenfinchIISBPringilla montifringillaBramblingIIISBCarduelis carduelisEuropean GoldfinchIISBCarduelis carduelisEuropean GoldfinchIIS <td>Turdus merula</td> <td>Common Blackbird</td> <td>ü</td> <td>ü</td> <td>4</td> <td>s</td> <td>B</td>	Turdus merula	Common Blackbird	ü	ü	4	s	B
ImportationGarden WarblerIIIIII4SBSylvia atricapillaBlackcapIIIIII4SBSylvia hortensisOrphean WablerIIIIII4SBPhylioscopus collybitaChiffchaffIIIIII-(S)BPhylioscopus lorenziiCaucasian ChiffchaffIIII?BParus aterCola TitIISBParus caeruleusBlue TitIISBParus majorGreat TitIISBSitta europaeaEurasian NuthatchIISBGarrulus glandariusEurasian JaySBCorvus coraxCommon RavenIIISBParus coelebsCommon ChaffinchIIISBCarduelis chlorisEuropean GreenfinchIISBParus coralis carduelisEuropean GreenfinchIISBCarduelis chlorisEuropean GreenfinchIISBParus coralis carduelisEuropean GoldfinchIISBCarduelis carduelisEuropean GoldfinchIISBCarduelis carduelisEuropean GoldfinchIISBPyrrh	Hinnolais nallida	Olivaceous Warbler			3	Ň	B
Sylvia atricapiliaBlackcapIIIIII4SBSylvia hortensisOrphean WablerIIIIII3VBPhylloscopus collybitaChiffchaffIIIIII-(S)BPhylloscopus lorenziiCaucasian ChiffchaffII?BAegithalos caudatusLong-tailed TitII?BParus aterCoal TitIISBParus caeruleusBlue TitIISBParus majorGreat TitIISBSitta europaeaEurasian NuthatchIISBGarrulus glandariusEurasian Jay(S)BCorvus corone cornixHooded CrowSBCorvus coraxCommon RavenIIISBFringilla coelebsCommon ChaffinchIIISBFringilla montifringillaBramblingIIISBCarduelis chlorisEuropean GlodfinchIISBCarduelis carduelisEuropean GlodfinchIISBCarduelis carduelisEuropean GlodfinchIISBCarduelis carduelisEuropean GlodfinchIISBCarduelis carduelisEuropean Bladfinch<	Sv(via horin	Garden Warbler		ü	4	S	B
Sylvia hortensisOrphean WablerII	Sylvia atricanilla	Blackcan			4	S	B
Phylloscopus collybitaChiffchaffIIIIII-CSBPhylloscopus lorenziiCaucasian ChiffchaffII?BAegithalos caudatusLong-tailed TitIISBParus aterCoal TitIISBParus caeruleusBlue TitIISBParus majorGreat TitIISBSitta europaeaEurasian NuthatchIISBGarrulus glandariusEurasian JaySBCorvus corone cornixHooded CrowSBCorvus coraxCommon RavenIIISBPasser domesticusHouse SparrowSBFringilla coelebsCommon ChaffinchIIISBFringilla montifringillaBramblingIIISBCarduelis chlorisEuropean GreenfinchIISBCarduelis carduelisEuropean GoldfinchIISBPyrrhula pyrrhulaEurasian BullfinchIIISBEmberiza ciaRock BuntingIISBEmberiza ciaRock BuntingII-3VB	Sylvia bortensis	Ornhean Wahler		ü	3	v	B
Physicscopus forenziiCaucasian ChiffchaffII?BAegithaios caudatusLong-tailed TitIISBParus aterCoal TitIISBParus caeruleusBlue TitIISBParus majorGreat TitIISBSitta europaeaEurasian NuthatchIISBGarrulus glandariusEurasian JaySBCorvus corone cornixHooded CrowSBCorvus coraxCommon RavenIIISBPasser domesticusHouse SparrowSBFringilia coelebsCommon ChaffinchIII-4SBFringilia montifringiliaBramblingIIISBCarduelis chlorisEuropean GreenfinchII-4SBCarduelis carduelisEuropean GoldfinchII-SBPyrrhula pyrrhulaEurasian BulfinchIII-SBPurrhula pyrrhulaEuropean GoldfinchII-SBEmberiza ciaRock BuntingII-3VD	Phyliascopus collyhita	Chiffchaff			-	(s)	B
Aegithalos caudatusLong-tailed TitIISBParus aterCoal TitIISBParus caeruleusBlue TitIISBParus majorGreat TitIISBSitta europaeaEurasian NuthatchIISBGarrulus glandariusEurasian JaySBCorvus corone cornixHooded CrowSBCorvus coraxCommon RavenIIISBPasser domesticusHouse SparrowSBFringilla coelebsCommon ChaffinchIII-4SBFringilla montifringillaBramblingIIISBCarduelis chlorisEuropean GreenfinchII-4SBPyrrhula pyrrhulaEuropean GoldfinchIISBEmberiza ciaRock BuntingII-3VB	Phylloscopus lorenzii	Caucasian Chiffchaff		-	_	2	B
Parus aterCoal TitIISBParus caeruleusBlue TitIISBParus majorGreat TitIISBSitta europaeaEurasian NuthatchIISBGarrulus glandariusEurasian JaySBCorvus corone cornixHooded CrowSBCorvus coraxCommon RavenIIISBPasser domesticusHouse SparrowSBFringilla coelebsCommon ChaffinchIII-4SBFringilla montifringillaBramblingIII-4SBCarduelis chlorisEuropean GreenfinchIISBPyrrhula pyrrhulaEuropean GldfinchIISBPartiza radiaRock BuntingII-3VB	Aedithalos caudatus	L ong-tailed Tit		_	_	, C	B
Parus caeruleusBlue TitIISBParus majorGreat TitIISBSitta europaeaEurasian NuthatchIISBGarrulus glandariusEurasian JaySBCorvus corone cornixHooded CrowSBCorvus coraxCommon RavenIIISBPasser domesticusHouse SparrowSBFringilla coelebsCommon ChaffinchIII-4SBFringilla montifringillaBramblingIIISBCarduelis chlorisEuropean GreenfinchII-4SBPyrrhula pyrrhulaEuropean GoldfinchIISBEmberiza ciaRock BuntingII-3VB	Parus ater	Coal Tit		_	_	c c	B
Parus majorGreat TitIISBSitta europaeaEurasian NuthatchIISBGarrulus glandariusEurasian JaySBCorvus corone cornixHooded CrowSBCorvus coraxCommon RavenIIISBPasser domesticusHouse SparrowSBFringilla coelebsCommon ChaffinchIII-4SBFringilla montifringillaBramblingIIISBCarduelis chlorisEuropean GreenfinchII-4SBPyrrhula pyrrhulaEuropean GoldfinchII-SBEmberiza ciaRock BuntingII-SBEmberiza ciaRock BuntingII-3VB	Parus caeruleus	Blue Tit		_	_	с С	B
Sitta europaeaEurasian NuthatchIISBGarrulus glandariusEurasian NuthatchIISBCorvus corone cornixHooded CrowSBCorvus coraxCommon RavenIIISBPasser domesticusHouse SparrowSBFringilla coelebsCommon ChaffinchIII-4SBFringilla montifringillaBramblingIIISBCarduelis chlorisEuropean GreenfinchII-4SBPyrrhula pyrrhulaEuropean GoldfinchIISBEmberiza ciaRock BuntingII-3VBEmberiza ciaRock BuntingII-3VB	Parus maior	Great Tit		-	_	c c	B
Garrulus glandariusEurasian NotifiationIISBGarrulus glandariusEurasian JaySBCorvus corone cornixHooded CrowSBCorvus coraxCommon RavenIIISBPasser domesticusHouse SparrowSBFringilla coelebsCommon ChaffinchIII-4SBFringilla montifringillaBramblingIIIS-Carduelis chlorisEuropean GreenfinchII-4SBPyrrhula pyrrhulaEuropean GoldfinchIISBEmberiza ciaRock BuntingII-3VBEmberiza malapasanhalaBlandariaII-3VB	Sitte europeee	Eurasian Nuthatch		-	-	2	B
Corvus corone cornixHooded CrowSBCorvus coraxCommon RavenIIISBPasser domesticusHouse SparrowSBFringilla coelebsCommon ChaffinchIII-4SBFringilla montifringillaBramblingIIIS-Carduelis chlorisEuropean GreenfinchII-4SBPyrrhula pyrrhulaEuropean GoldfinchIISBEmberiza ciaRock BuntingIISBEmberiza malapasanholoRock BuntingII-3VB	Carrulus alandarius	Eurasian Jay		-	-	(9)	B
Convus coraxCommon RavenIIIGBPasser domesticusHouse SparrowSBFringilla coelebsCommon ChaffinchIII-4SBFringilla montifringillaBramblingIIIS-Carduelis chlorisEuropean GreenfinchII-4SBCarduelis carduelisEuropean GoldfinchII-4SBPyrrhula pyrrhulaEurasian BullfinchIISBEmberiza ciaRock BuntingII-3VBEmberizaBlassenholoBlassenholoB-3C	Conus corone corniv	Hooded Crow	-	-	-	(3)	B
ConversionCommon RavenIIIG(3)BPasser domesticusHouse SparrowSBFringilla coelebsCommon ChaffinchIII-4SBFringilla montifringillaBramblingIIIS-Carduelis chlorisEuropean GreenfinchII-4SBCarduelis carduelisEuropean GoldfinchII-4SBPyrrhula pyrrhulaEurasian BullfinchIIISBEmberiza ciaRock BuntingII-3VBEmberizaPlandenegenholoPlandenegenholoPlandenegenholoCommonCommon	Convus corore cornix	Common Bayen	-	-	-	(9)	P
Fringilla coelebsCommon ChaffinchIII-4SBFringilla montifringillaBramblingIIIS-Carduelis chlorisEuropean GreenfinchII-4SBCarduelis carduelisEuropean GoldfinchII-4SBPyrrhula pyrrhulaEurasian BullfinchIII(S)BEmberiza ciaRock BuntingII-3VB	Passar domesticus	House Sparrow		-	-	(3)	P
Fringilla montifringillaBramblingIII-45BCarduelis chlorisEuropean GreenfinchIIS-Carduelis carduelisEuropean GoldfinchII-4SBCarduelis carduelisEuropean GoldfinchII-4SBPyrrhula pyrrhulaEurasian BullfinchIII(S)BEmberiza ciaRock BuntingII-3VB	Frindilla coalabs	Common Chaffingh	-	-	-	0	B
Carduelis chloris European Greenfinch II - 4 S B   Carduelis carduelis European Goldfinch II - - (S) B   Pyrrhula pyrrhula Eurasian Bullfinch III - - S B   Emberiza cia Rock Bunting II - - S B	Fringille montifringille	Brambling	111	-	4	0	U
Carduells circles European Glefinititi II - 4 5 B   Carduells carduells European Goldfinch II - - (S) B   Pyrrhula pyrrhula Eurasian Bullfinch III - - S B   Emberiza cia Rock Bunting II - - S B   Emberiza malapasanholo Plask baaded Bunting II - 3 V B	Cardualis obloris	European Creenfinch		-	-	3 C	- P
Pyrrhula European Golument II - - (5) B   Pyrrhula pyrrhula Eurasian Bullfinch III - - S B   Emberiza cia Rock Bunting II - 3 V B   Emberiza malapasanhala Plask baadad Bunting II - 3 V B	Carduelis chiulis Carduelis carduelis	European Greeninnun European Goldfinch	11	-	4	3 (9)	P
Eurasian Bullinich III S B Emberizaicia Rock Bunting II - 3 V B	Caruuelis caruuelis Durrhula purrhula	European Goluminum Europian Bullfinch	11	-	-	(3)	D
Emboriza malanasanhala — Diask baadad Bunting II - J V D	r yanula pyanula Emberize cie	Dock Rupting	11	-	- 2	3 V	P
	Emberiza malancoanhalo	Rock Duffilling Black beaded Pupting	11	-	ა ი	v ۸۸	P

\*All raptor species, except lammergeiger and kestrel, were recorded in migration period.

BERN CONVENTION: Appendix II indicates that "strictly protected fauna species", Appendix III indicated "protected fauna species".

<sup>2</sup>BONN CONVENTION: Appendix I indicates that "species in danger of extinction throughout all or major parts of their range", Appendix II indicates that "species which would benefit from international cooperation in their conservation and management".

\*SPEC Category: (1) Species of global conservation concern, i.e. classified as Globally Threatened, Conservation Dependent or Data Deficient. (2) Concentrated in Europe and with an unfavorable conservation status. (3) Not concentrated in Europe but with an unfavorable conservation status. (4) Concentrated in Europe and with a favorable conservation status.

<sup>4</sup>EUROPEAN THREAT STATUS (ETS): E-Endangered, V-Vulnerable, R-Rare, D-Declining, L-Localized, Ins-Insufficiently Known, S-Secure, ()-Status provisional.
<sup>5</sup>BREEDING STATUS (BS): B-Breeding, b-possible breeding.