

Avifauna Research of Antalya/ Kursunlu Redpine Natural Forest

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Summary

The variety of habitat in Kursunlu Redpine Natural Forest has an effect on the biological diversity of the region. This varied biological structure makes the region gain an importance in bird species.

The existence of Kingfisher (*Alcedo atthis*), Grey Heron (*Ardea cinerea*), Squacco Heron (*Ardeola ralloides*) and Little Bittern (*Ixobrychus minutus*) that have all been observed to incubate here indicates that the region has a clean wetland ecosystem.

As a result of this research based on observations made mostly in spring and summer, 152 bird species have been recorded. 85 species are definitely breeding, 21 are probable breeding birds. 46 bird species are winter visitors or transit birds.

Keywords: Redpine forest, grid mapping, clean wetland ecosystem Kursunlu

Introduction

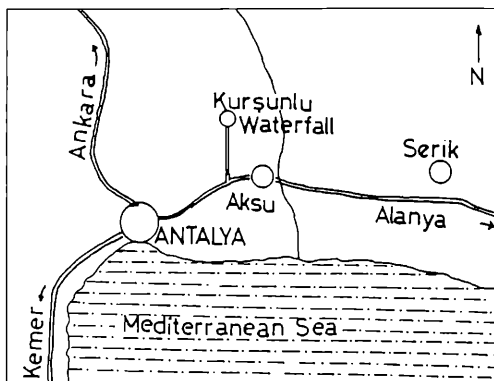


Fig. 1: Location of the area. – Lage des Kursunlu-Rotkiefer-Naturparkes (S-Türkei).

Affiliation of Kursunlu Redpine forest with Regional Forest Office of Antalya led to acceptance as Natural Forest (Park) in 1991 due to its recreational characteristics and the richness of its biological structure (ORMAN BAKANLIĞI 1993). With an area of 394 ha, it draws ones attention to its macchie flora within a rich Redpine (*Pinus brutia*) forest. Furthermore Kursunlu Waterfall, which is an indispensable part of this forest with a rich valley vegetation, is also biologically

very interesting. Because of all these reasons, there is prosperous animal life in the area of research. In this study an avifaunal research of the region will be conducted. With the results that will be obtained from other researchers, a management plan of the region will be made, and steps will be taken to make the region function as “Natural Information Centre” (KIZIROGLU 1992).

As mentioned before, the region’s rich natural conditions cause the biological diversity of the region. There are four habitats which consistently interact with each other:

- Kursunlu Waterfall Valley (= KWV),
- Redpine Forest Area (=RFA),
- Lakerat Area (=LA),
- Agricultural + similar areas (=ASA).

In this research the number of breeding and non-breeding bird species in the region will be given. The research is still continuing in order to determine the bird species that come to the region to spend the winter. The avifauna of the region will be searched and stated after winter observations and recordings.

As it is known, the number of bird species in our country is 425 (KIZIROGLU 1989 and 1993). The number of bird species recorded in this research is 152. This figure is not small at all. After other researches to be conducted in similar regions, an **Avifauna Map of Turkey** will be drawn. Another

aim of this research is to determine the distribution of bird species in terms of subspecies of birds in Turkey. Sound analyses of bird species, especially of those which belong to Passeriformes (songbirds), will be made.

Material and methods

In this research, grid mapping method has been used. For this method, 10 observation squares of 1 km² in habitats mentioned above were selected, and observations were conducted be-

tween 6.^{oo} - 10.^{oo} and 16.^{oo} - 19.^{oo} hours. During the observations an objective (MD Apo Tele Zoom 100-500 mm Minolta) and telescope (22-60×70 zoom Optolyth Royal) were used.

Table 1: Observation periods from Kursunlu

| Observation Period | | Observation Period | |
|--------------------|-------------------------|--------------------|----------------------|
| 1 | 24-31 Oktober 1992 | 9 | 19-25 May 1994 |
| 2 | 23-26 April 1993 | 10 | 22 June 1994 |
| 3 | 30 May- 5 June 1993 | 11 | 14-18 July 1994 |
| 4 | 3-4 July 1993 | 12 | 25-26 Aug. 1994 |
| 5 | 26-27 July 1993 | 13 | 10-12 Sept. 1994 |
| 6 | 20 Nov.1993 | 14 | 25 Feb.- 5 Mar. 1995 |
| 7 | 30 Dec. 1993-2 Jan.1994 | 15 | 5-11 May 1995 |
| 8 | 8-12 March 1994 | 16 | 12-17 Aug. 1995 |

Results

There are given the population status of bird species that incubate in Kursunlu Red-pine Natural Forest, and Red Data categories for breeding birds: A.1.2= threatened with extinction, A.2= severely endangered, A.3= endangered, A.4= potentially endangered; non-breeding birds: B.2= severely endangered, B.3= endangered (KIZIROGLU

1993). The values for population status (PS) show the number of incubating pairs in the 10 km² area. Hence: 1=1; 2=2-4; 3=5-14; 4=15-49; 5=50-249 is the number of individual birds. The systematic classification of bird species in table 2 was made according to KIZIROGLU (1989 and 1993).

Table 2: Population size and Red Data Book status of the bird species from Kursunlu Natural Forest. – *Populationsgrößen und Gefährdungskategorien der Vogelarten von Kursunlu.*

OB= Observed biotope OP= Observation period (1 through 12= January through December)

RDBS= Red Data Book status – *Gefährdungskategorie*PS= Population size (pairs/ 10 km²)S= Breeding status: B= definite breeding bird – *Brutvogel*; b= probable breeding bird – *wahrscheinlich brütend*

| Bird Species | OB | OP | RDBS | PS | S |
|---|---------|----------------------|-------|----|---|
| Graureiher <i>Ardea cinerea</i> | KWV | 3, 4, 6, 7 | A.3 | 2 | B |
| Rallenreiher <i>A. ralloides</i> | LA | 6-9 | A.3 | 1 | B |
| Zwergdommel <i>Ixobrychus minutus</i> | LA | 4, 6, 7 | A.3 | 1 | B |
| Seidenreiher <i>Egretta garzetta</i> | LA | 1, 3-5, 7, 12 | A.2 | 1 | B |
| Weißstorch <i>Ciconia ciconia</i> | ASA | 5, 6, 7 | A.3 | 3 | b |
| Braunsichler <i>Plegadis falcinellus</i> | LA | 7, 8, 12 | A.3 | 2 | b |
| Stockente <i>Anas platyrhynchos</i> | LA | 1-3, 9-12 | A.4 | 2 | – |
| Schwarzmilan <i>Milvus migrans</i> | LA | 1, 4, 7, 12 | B.3 | 1 | – |
| Schlangenadler <i>Circus gallicus</i> | AR | 9 | A.1.2 | 2 | b |
| Sperber <i>Accipiter nisus</i> | AR | 4, 7, 11 | A.4 | 2 | B |
| Habicht <i>Accipiter gentilis</i> | AR | 1, 3, 6 | A.3 | 2 | B |
| Rohrweihe <i>Circus aeruginosus</i> | LA, ASA | 3, 7, 11 | A.3 | 1 | B |
| Kornweihe <i>Circus cyaneus</i> | AR | 9, 10 | A.3 | 2 | b |
| Wiesenweihe <i>Circus pygargus</i> | ASA | 10, 12 | A.3 | 2 | – |
| Adlerbussard <i>Buteo rufinus</i> | AR | 11 | A.2 | 1 | – |
| Mäusebussard <i>Buteo buteo</i> | AR | 1, 3, 5, 10, 12 | A.3 | 2 | B |
| Bartgeier <i>Gypaetus barbatus</i> | RFA | 3, 8 | A.2 | 1 | – |
| Gänsegeier <i>Gyps fulvus</i> | RFA | 1, 7 | A.2 | 1 | – |
| Turmfalke <i>Falco tinnunculus</i> | AR | 6, 7 | A.4 | 2 | B |
| Rötelfalke <i>Falco naumanni</i> | AR | 7, 11, 12 | A.3 | 2 | – |
| Wanderfalke <i>Falco peregrinus</i> | AR | 1, 2, 3 | A.2 | 2 | – |
| Lanner <i>Falco biarmicus</i> | AR | 7, 11, 12 | A.2 | 2 | b |
| Würgfalke <i>Falco cherrug</i> | ASA | 1, 2, 3 | A.1.2 | 1 | – |
| Rotfußfalke <i>Falco vespertinus</i> | ASA | 9, | A.2 | 1 | B |
| Wachtel <i>Coturnix coturnix</i> | LA | 1, 3, 4, 6, 7, 9 | A.4 | 2 | B |
| Wasserralle <i>Rallus aquaticus</i> | LA | 1, 7, 12 | A.4 | 2 | B |
| Teichhuhn <i>Gallinula chloropus</i> | LA | 1-4, 6, 7, 12 | A.4 | 2 | B |
| Blässhuhn <i>Fulica atra</i> | LA | 1-3, 5, 6, 8, 10, 12 | – | 2 | b |
| Kranich <i>Grus grus</i> | ASA | 1, 3, 7, 12 | A.1.2 | 4 | – |
| Kiebitz <i>Vanellus vanellus</i> | ASA | 1, 3, 12 | A.4 | 3 | – |
| Rotschenkel <i>Tringa totanus</i> | LA | 2-5 | – | 4 | – |
| Schwarzkopfmöwe <i>Larus melanocephalus</i> | LA | 4, 7, 12 | A.4 | 2 | – |
| Lachmöwe <i>L. ridibundus</i> | LA | 1, 3, 5, 12 | B.3 | 1 | – |
| Weißkopfmöwe <i>L. cachiinnans</i> | LA | 1, 3, 7 | – | 2 | – |
| Haustaube <i>Columba livia</i> | AR | 1, 3-5, 11, 12 | – | 4 | B |
| Hohltaube <i>C. oenas</i> | RFA | 10 | A.2 | 2 | B |
| Ringeltaube <i>C. columbus</i> | RFA | 1, 3, 5-7 | A.4 | 2 | B |
| Türkentaube <i>Streptopelia decaocto</i> | AR | 1, 3, 4, 6, 7, 9, 10 | – | 3 | B |
| Turteltaube <i>S. turtur</i> | RFA | 6-10 | A.2 | 3 | B |
| Häherkuckuck <i>Clamator glandarius</i> | RFA | 8 | A.4 | 1 | – |
| Kuckuck <i>Cuculus canorus</i> | AR | 7, 8 | – | 2 | B |

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|--|----------|------------------|-------|---|---|
| Waldohreule <i>Asio otus</i> | AR | 6, 7, 12 | A.2 | 2 | B |
| Zwergohreule <i>Otus scops</i> | AR | 9, 11 | A.3 | 3 | B |
| Steinkauz <i>Athene noctua</i> | ASA | 1, 3, 5, 7, 12 | A.3 | 1 | B |
| Waldkauz <i>Strix aluco</i> | RFA | 12 | A.1.2 | 1 | B |
| Ziegenmelker <i>Caprimulgus europaeus</i> | ASA | 7, 8 | A.2 | 1 | – |
| Mauersegler <i>Apus apus</i> | AR | 5-7 | A.4 | 3 | B |
| Alpensegler <i>A. melba</i> | AR | 5, 7, 8 | A.4 | 2 | B |
| Eisvogel <i>Alcedo atthis</i> | BG; KWV | 1, 3-7, 12 | A.1.2 | 2 | B |
| Graufischer <i>Ceryle rudis</i> | KWV | 3-10 | A.1.2 | 1 | B |
| Bieneffresser <i>Merops apiaster</i> | AR | 5-8 | A.4 | 3 | b |
| Wiedehopf <i>Upupa epops</i> | ASA | 5, 6 | A.2 | 1 | B |
| Wendehals <i>Jynx torquilla</i> | ASA | 11, 12, 1 | A.3 | 3 | B |
| Grünspecht <i>Picus viridis</i> | AR | 6, 7, 11 | A.2 | 1 | B |
| Buntspecht <i>Dendrocopos major</i> | RFA | 3, 4, 7, 10 | A.3 | 2 | B |
| Mittelspecht <i>D. medius</i> | RFA | 7, 12 | A.3 | 2 | B |
| Kleinspecht <i>D. minor</i> | AR | 3, 6 | A.4 | 2 | B |
| Kalanderlerche <i>Melanocorypha calandra</i> | ASA | 10 | – | 2 | B |
| Stummellerche <i>Calandrella rufescens</i> | ASA | 7, 8 | A.3 | 4 | b |
| Haubenlerche <i>Galerida cristata</i> | ASA | 1-12 | – | 4 | B |
| Heidelerche <i>Lullula arborea</i> | AR | 6, 7 | – | 2 | b |
| Feldlerche <i>Alauda arvensis</i> | ASA | 3, 6-8, 10 | – | 3 | B |
| Rötelschwalbe <i>Hirundo daurica</i> | | 5-7 | – | 3 | B |
| Uferschwalbe <i>Riparia riparia</i> | | 5 | – | 2 | b |
| Mehlschwalbe <i>Delichon urbica</i> | | 6, 7 | – | 3 | B |
| Brachpieper <i>Anthus campestris</i> | ASA | 11 | A.3 | 2 | b |
| Baumpieper <i>A. trivialis</i> | KWV | 10, 11 | – | 2 | – |
| Wasserpieper <i>A. spinoletta</i> | KWV | 1, 3, 12 | A.4 | 2 | – |
| Schafstelze <i>Motacilla flava</i> | ASA | 5, 7, 8 | – | 2 | B |
| Gebirgsstelze <i>M. cinerea</i> | ASA | 1, 6, 7, 12 | A.4 | 2 | B |
| Bachstelze <i>M. alba</i> | KWV; LA | 1-3, 5-7, 11, 12 | A.4 | 2 | B |
| Graubülbül <i>Pycnonotus barbatus</i> | AR | 1-7, 10, 12 | A.4 | 4 | B |
| Wasseramsel <i>Cinclus cinclus</i> | KWV | 1, 4, 12 | A.3 | 2 | – |
| Zaunkönig <i>Troglodytes troglodytes</i> | AR | 2, 3, 7 | A.3 | 2 | B |
| Heckenbraunelle <i>Prunella modularis</i> | AR | 8-11 | – | 2 | b |
| Alpenbraunelle <i>P. collaris</i> | KWV | 7 | – | 2 | b |
| Heckensänger <i>Cercotrichas galactotes</i> | ASA | 5-8 | – | 4 | B |
| Rotkehlchen <i>Erithacus rubecula</i> | AR | 10-3 | – | 3 | B |
| Nachtigall <i>Luscinia megarhynchos</i> | AR | 5-7 | A.3 | 3 | B |
| Blaukehlchen <i>L. svecica</i> | ASA; LA | 6, 7 | – | 2 | – |
| Weißkehlchen <i>Irania gutturalis</i> | KWV | 5, 6 | – | 2 | B |
| Hausrotschwanz <i>Phoenicurus ochruros</i> | KWV | 1-3, 8, 12 | – | 2 | b |
| Gartenrotschwanz <i>P. phoenicurus</i> | AR | 1, 3, 7, 12 | – | 3 | B |
| Braunkehlchen <i>Saxicola rubetra</i> | AR | 1, 6, 7, 12 | – | 2 | b |
| Schwarzkehlchen <i>S. torquata</i> | AR | 1, 7, 12 | – | 2 | B |
| Steinschmätzer <i>Oenanthe oenanthe</i> | ASA | 6-8 | A.3 | 2 | B |
| Mittelmeersteinschmätzer <i>O. hispanica</i> | ASA; KWV | 6 | – | 2 | B |
| Felsensteinschmätzer <i>O. finschii</i> | ASA; KWV | 7, 9 | – | 2 | B |
| Isabellsteinschmätzer <i>O. isabellina</i> | ASA | 8, 9 | – | 2 | B |
| Amsel <i>Turdus merula</i> | AR | 1-12 | – | 3 | B |
| Wacholderdrossel <i>T. pilaris</i> | ASA; KWV | 1, 3, 12 | – | 4 | – |

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|--|----------|----------------------|-----|---|---|
| Singdrossel <i>T. philomelos</i> | ASA | 2, 12 | – | 5 | – |
| Misteldrossel <i>T. viscivorus</i> | ASA | 1, 3, 12 | – | 5 | – |
| Seidensänger <i>Cettia cetti</i> | AR | 2, 3, 5, 7 | A.4 | 3 | B |
| Schlagschwirl <i>Locustella fluviatilis</i> | KWV | 8, 9 | – | 2 | b |
| Tamariskensänger <i>Acrocephalus melanopogon</i> | KWV | 5-7 | – | 3 | – |
| Schilfrohrsänger <i>A. schoenobaenus</i> | AR | 3, 5-7 | – | 2 | b |
| Drosselrohrsänger <i>A. arundinaceus</i> | KWV | 5-7 | – | 2 | B |
| Dornspötter <i>Hippolais languida</i> | KWV | 6 | – | 2 | b |
| Gelbspötter <i>H. icterina</i> | AR | 11, 12 | – | 2 | – |
| Samtkopfgrasmücke <i>Sylvia melanocephala</i> | KWV | 1, 3-7, 10, 12 | – | 2 | B |
| Orpheusgrasmücke <i>S. hortensis</i> | KWV | 7 | – | 2 | B |
| Dorngrasmücke <i>S. communis</i> | AR | 5-7 | – | 2 | B |
| Maskengrasmücke <i>S. rueppelli</i> | AR | 5, 7 | – | 2 | – |
| Gartengrasmücke <i>S. borin</i> | KWV | 5 | – | 2 | B |
| Mönchgrasmücke <i>S. atricapilla</i> | KWV | 1, 5-8, 12 | – | 4 | B |
| Berglaubsänger <i>Phylloscopus bonelli</i> | AR | 8, 10 | – | 2 | B |
| Fitis <i>P. trochilus</i> | AR | 1, 3, 5-7, 9, 10, 12 | – | 5 | B |
| Zilpzalp <i>P. collybita</i> | AR | 11 | – | 3 | – |
| Wintergoldhähnchen <i>Regulus regulus</i> | AR | 9 | – | 2 | B |
| Sommergoldhähnchen <i>R. ignicapillus</i> | AR | 6, 7, 12 | – | 2 | – |
| Grauschnäpper <i>Muscicapa striata</i> | AR | 5-7 | – | 3 | – |
| Trauerschnäpper <i>Ficedula hypoleuca</i> | AR | 7-9 | – | 2 | B |
| Halsbandschnäpper <i>F. albicollis</i> | AR | 9, 10 | – | 2 | b |
| Halbringschnäpper <i>F. semitorquata</i> | AR | 5, 7 | – | 2 | B |
| Schwanzmeise <i>Aegithalos caudatus</i> | KWV | 3, 4, 6, 12 | A.2 | 2 | B |
| Tannenmeise <i>Parus ater</i> | AR | 1, 6, 8, 11 | – | 3 | B |
| Blaumeise <i>P. caeruleus</i> | AR | 1, 7, 12 | – | 2 | B |
| Kohlmeise <i>P. major</i> | AR | 1-5, 7, 12 | – | 4 | B |
| Trauermeise <i>P. lugubris</i> | AR | 9, 10 | – | 2 | B |
| Kleiber <i>Sitta europaea</i> | AR | 8, 12 | – | 2 | B |
| Türkenkleiber <i>S. krueperi</i> | AR | 3, 6, 7 | – | 2 | – |
| Waldbaumläufer <i>Certhia familiaris</i> | AR | 9, 12 | – | 2 | – |
| Gartenbaumläufer <i>C. brachydactyla</i> | AR | 7, 10 | – | 1 | – |
| Beutelmeise <i>Remiz pendulinus</i> | KWV | 11 | A.2 | 2 | B |
| Pirol <i>Oriolus oriolus</i> | AR | 5, 7, 9 | – | 2 | b |
| Neuntöter <i>Lanius collurio</i> | ASA | 5-7 | – | 2 | – |
| Schwarzstirnwürger <i>L. minor</i> | ASA | 6, 7 | – | 2 | – |
| Rotkopfwürger <i>L. senator</i> | KWV; ASA | 8, 9 | – | 2 | – |
| Maskenwürger <i>L. nubicus</i> | ASA | 5, 7, 8 | – | 2 | B |
| Eichelhäher <i>Garrulus glandarius</i> | AR | 1, 3, 5-7, 12 | – | 3 | B |
| Dohle <i>Corvus monedula</i> | AR | 1, 8, 10 | – | 3 | – |
| Saatkrähe <i>C. frugilegus</i> | ASA | 1, 12 | – | 2 | B |
| Nebelkrähe <i>C. corone cornix</i> | AR | 1, 3, 7, 12 | – | 3 | – |
| Kolkrabe <i>C. corax</i> | ASA | 1, 5, 12 | – | 4 | – |
| Star <i>Sturnus vulgaris</i> | AR | 1, 2, 12 | – | 3 | – |
| Rosenstar <i>S. roseus</i> | ASA | 5 | – | 5 | – |
| Haussperling <i>Passer domesticus</i> | AR | 1-12 | – | 4 | B |
| Feldsperling <i>P. montanus</i> | AR | 8, 11, 12 | – | 2 | B |
| Weidensperling <i>P. hispaniolensis</i> | KWV; LA | 7, 9, 11 | – | 2 | B |
| Steinsperling <i>Petronia petronia</i> | ASA | 2, 4, 5, 7, 8 | – | 5 | b |

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|---|-----|----------------|---|---|---|
| Buchfink <i>Fringilla coelebs</i> | AR | 1-3 | – | 3 | – |
| Girlitz <i>Serinus serinus</i> | AR | 1, 3, 7, 12 | – | 2 | B |
| Grünling <i>Carduelis chloris</i> | AR | 1-3, 12 | – | 3 | – |
| Stieglitz <i>C. carduelis</i> | AR | 1-3, 5-7, 9-12 | – | 3 | B |
| Gimpel <i>Pyrrhula pyrrhula</i> | AR | 11-2 | – | 2 | – |
| Kernbeißer <i>Coccothraustes coccothraustes</i> | AR | 11-1 | – | 4 | – |
| Zippammer <i>Emberiza cia</i> | ASA | 5, 7 | – | 2 | – |
| Ortolan <i>E. hortulana</i> | AR | 6, 7 | – | 2 | B |
| Rohrhammer <i>E. schoeniclus</i> | LA | 6-8 | – | 2 | B |
| Kappenammer <i>E. melanocephala</i> | ASA | 5-7 | – | 2 | B |
| Graupammer <i>E. calandra</i> | ASA | 1, 7, 12 | – | 2 | B |

Discussion

Definition of the biological structure of Kursunlu, which is very near to Antalya, and therefore visitors are very dense at weekends, has been possible with the systematic observations.

Kursunlu is a region which has a varied floristic structure. This variety caused the richness in the number of bird species. As can be seen in table 2, 152 bird species of 15 orders were recorded. 57 of these bird species belong to Non-Passeres and 95 to Passeres (22 families each). 46 bird species use this region as winter visitors or for resting during the transit passage. It was concluded that 85 species are definitely breeding birds, 21 are probably breeding birds as a preliminary result of the research. Although this number is very small as compared with other bird areas in Turkey, it is yet very important.

The existence of such a rich fauna in Kursunlu Waterfall Natural Forest is a result of interacting habitats in the region. There is a relation between distribution of *Pinus brutia* and some bird species; for example Krüper's Nuthatch (*Sitta krueperi*). According to FRANKIS (1992), Krüper's Nuthatch fig-

ured predominantly as a common species in *P. brutia* forests. It is understood that this avifauna is especially rich in winter. There are rich bird faunas in other regions of our country. It can be said that the natural structure of Redpine forests plays an important role in this diversity. However, it must be also accepted that the water ecosystem (Kursunlu waterfall) adds to the bird diversity.

It is necessary to scientifically determine and present the natural living structures in forest ecosystems of various regions in our country, which is inevitable in areas accepted as natural forest like Kursunlu Redpine Forest. In these regions Natural Information Centres can be set up and citizens can get to know and like their own nature and environment. This will contribute to common environmental education (KIZIROGLU 1992 and 1993).

Difficulties that may arise while asking people who do not know their nature and environment to protect it can be easily handled with the help of this centre to be established by the Ministry of Forestry and other institutions and cooperations.

Zusammenfassung

Die Untersuchungen über die Ornithofauna des Antalya Kursunlu Rotkiefer-Naturwaldes bestätigen seine Einordnung mit Naturparkstatus. Die Vielfalt der Biotope unterstreicht die wichtige Stellung dieser Region in Hinsicht auf die Vogelwelt. Ein wichtiger Beweis dafür, daß das Areal ein sauberes Feuchtgebiet hat, ist das Brutvorkommen von Eisvogel, Graureiher und Rallenreiher.

Im Gebiet wurden von 1992 bis 1995 in jedem Monat Beobachtungen der Vogelwelt durchgeführt und insgesamt 152 Vogelarten festgestellt. Davon sind 85 Arten sichere, 21 Arten wahrscheinliche Brutvögel; die übrigen 46 Vogelarten sind als Wintergast oder Durchzügler zu bezeichnen.

Es wurden die Gefährdungsgrade der Vogelarten im Gebiet festgestellt, nach IUCN Kriterien sind 6 Vogelarten vom Aussterben bedroht (A.1.2), 15 Vogelarten stark gefährdet (A.2).

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