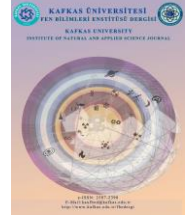




Kafkas Üniversitesi Fen Bilimleri Enstitüsü Dergisi Institute of Natural and Applied Science Journal

Dergi ana sayfası/ Journal home page: <https://dergipark.org.tr/tr/pub/kujs>



E-ISSN: 2587-2389

Ornithofauna of Erciş Pınarlı Meydan Caldera (Van/Türkiye)

Abdulsamet KARATAŞ^{1*} & Özdemir ADIZEL¹

¹ Van Yüzüncü Yıl University, Faculty of Science, Biology, Van, Turkey

(İlk Gönderim / Received: 15. 05. 2026, Kabul / Accepted: 16. 07. 2026, Online Yayın / Published Online: 30. 07. 2026)

Keywords:

Birds,
Ornithofauna,
Pınarlı Meydan Caldera,
Erciş

Abstract: The aim of this study is to determine the avifauna of the Erciş Pınarlı Meydan Caldera. During fieldwork conducted over a period of 13 months, 126 bird taxa from 38 families (Familia) belonging to 19 orders (Ordo) were recorded. Of the bird taxa identified, 125 are species and 1 is a subspecies. When the birds recorded in the study area were assessed according to IUCN criteria, 1 species was classified as Endangered (EN), 2 species as Vulnerable (VU), 3 species as Near Threatened (NT), 118 species are Least Concern (LC), and 2 bird species are not listed. According to the Bern Convention categories, 86 species are listed in Appendix II, 32 species in Appendix III, and 8 species are not listed. According to the MAKK (2025–2026) criteria, it was determined that of the bird species observed in the study area, 24 are classified as Annex I, 15 as Annex II, and 87 as “excluded” from the list. When examining the regional statuses of the bird species inhabiting the area, it was determined that 12 species are migratory (T), 52 are resident (Y), 54 are summer visitors (YZ), and 8 are winter visitors. It was established that the area is home to an immense diversity of bird species, and the importance of its conservation was emphasized.

Erciş Pınarlı Meydan Kalderası Ornito faunası (Van/Türkiye)

Anahtar Kelimeler:

Kuşlar,
Ornito fauna,
Pınarlı Meydan Kalderası,
Erciş.

Özet: Bu araştırmanın amacı Erciş Pınarlı Meydan Kalderası’nın ornito faunasını belirlemektir. 13 ay boyunca yapılan saha çalışmalarında 19 takım (Ordo)’a ait 38 aileden (Familia) 126 kuş taksonu kaydedilmiştir. Tespit edilen kuş taksonlarından 125’i tür ve 1’i alttür seviyesindedir. Çalışma sahasında tespit edilen kuşlar IUCN’e göre değerlendirildiğinde; 1 türün Tehlikede (EN-Endangered), 2 türün Hassas (VU-Vulnerable), 3 türün Tehlikeye Yakın (NT-Near threatened), 118 türün Önceliği Düşük (LC- Least Concern) ve 2 kuş türün de kapsam dışı olduğu belirlenmiştir. BERN kategorilerine göre ise 86 tür Ek liste II, 32 tür Ek liste III ve 8 tür de kapsam dışı kategorisinde bulunmaktadır. MAKK (2025-2026) kriterlerine göre çalışma sahasında gözlemlenen kuş türlerinden 24’ü Ek liste I, 15’i Ek liste II ve 87’si de kapsam dışı kategorisinde değerlendirilen türler olduğu belirlenmiştir. Alanda yaşayan kuş türlerinin bölge statülerine bakıldığında ise 12 türün transit (T), 52’nin yerli (Y), 54’ün yaz ziyaretçisi (YZ) ve 8 türün de kış ziyaretçisi olduğu tespit edilmiştir. Alanın muazzam bir kuş çeşitliliğine ev sahipliği yaptığı belirlenmiş olup korunmasının önemi vurgulanmıştır.

*İlgiliyazar: krtssamet65@gmail.com
DOI: 10.58688/kujs.1951682

1. INTRODUCTION

The significance of birds extends beyond ecological systems, encompassing nutritional, cultural, and artistic dimensions of human life, while their ecological functions contribute substantially to the maintenance of natural environmental balance (Karakaş 2023,2024,2025). Birds contribute significantly to ecosystem functioning by naturally regulating populations of numerous agricultural pest species. In this context, the present study aims to provide detailed information on the avifauna of Pınarlı Meydan Caldera in the Erciş District of Van Province through the investigation of species composition, population status, and habitat characteristics. Particular emphasis was placed on determining the bird species using the area, analysing population dynamics and their relationship with environmental conditions, and identifying potential threats that may affect the persistence of local bird populations and their habitats.

Ornithological research in Türkiye have increased considerably in recent decades, leading to a substantial increase in knowledge regarding the distribution, ecology, and conservation status of bird species (Büyük & Karakaş 2022, Atabey & Karakaş 2024). Nevertheless, there are still significant knowledge gaps for many geographically isolated and ecologically unique areas such as the Pınarlı Meydan Caldera, which is located in the Erciş district of Van Province, represents one such area. Owing to its diverse habitat structure and apparent avian richness, the caldera was selected as the focal site of this study. Accordingly, this study aims to document the bird species occurring within the caldera and to provide baseline data that will contribute to future ecological and conservation-oriented research. The caldera area is characterized by a lake-centered volcanic basin encircled by elevated landforms, creating a mosaic of habitats that support a diverse bird community. Systematic field surveys and direct observations conducted throughout the study period enabled a detailed assessment of species composition and habitat use within the area. The findings not only enhance current knowledge of the region's avifauna but also highlight the ecological significance of the caldera as a habitat for bird populations in eastern Türkiye.

2. MATERIAL AND METHOD

The bird diversity of the Pınarlı Meydan Caldera was monitored for a total of 13 months between December 2023 and December 2024. Field surveys were conducted four times per month, covering the period from sunrise to sunset. Additional evening observations were carried out on selected dates to record nocturnal species. This sampling design provided year-round data on the bird diversity of the study area.

Bird species were identified using Dobinson's grid-based raster mapping method. Accordingly, the study area was divided into equal grid cells, and species occurrence was recorded within each cell to generate spatial distribution maps. These maps were then used to visualize the distribution patterns of the species across the area. Bird species were identified using the ornithological field guides (Kızıroğlu, 2015; Svensson et al., 2009). Avifaunal data were collected through field surveys covering the main habitat categories present in the study area. Sampling was based on point counts in uniform habitats and line-transect surveys (Bibby et al. 1998) in habitat boundaries and transitional zones (Erdoğan, 1995; Erdoğan et al., 2002; Aslan et al., 2011). Species records were supported by optical observations and photographic evidence. Additional information was obtained from local people and a review of relevant ornithological literature. Published studies and reports from the study area and adjacent regions were examined to support data interpretation. All records were subsequently compared with national and international databases, and the conservation status of each species was assessed according to IUCN, BERN, CITES, MAKK, and AKD criteria.

2.1. General Characteristics of the Study Area

The Pınarlı Meydan Caldera is a volcanic depression of geological importance located in the Erciş district of Van Province, eastern Türkiye, resulting from past volcanic activity. The caldera, characterized by a lake basin surrounded by hills, provides suitable habitat conditions for a diverse bird community due to the presence of multiple habitat types. The study area is located approximately 1 km from Pınarlı Village in a straight-line distance. A large portion of the area or is nearly completely covered by snow during the winter months. When the water level exceeds the basin's capacity, surplus water is conveyed through a drainage culvert. Due to the predominance of rocky terrain around the caldera, the area is unsuitable for agricultural activities (Figure 1). In contrast, the caldera provides suitable conditions for livestock grazing. The interior of the caldera is utilized as seasonal summer pasture, and stone walls are present in the area to accommodate animals during nighttime.

3. RESULTS AND DISCUSSION

Field surveys conducted over a 13-month period identified conducted over a 13-month period to identify the avifauna of the Pınarlı Meydan Caldera, 126 bird taxa belonging to 38 families (Familia) across 19 orders (Ordo) were identified. Of the identified bird taxa, 125 are species and 1 is a subspecies.

A summary of the recorded species on the species observed in the Pınarlı Meydan Caldera is provided in Table 1 and Table 2.

Table 1. List of Bird Species Identified in the Study Area.

SCIENTIFIC NAME	RDB	IUCN	BERN	MAKK	CITES	AKD	SEASONAL STATUS
Podicipediformes							
Podicipedidae							
<i>Tachybaptus ruficollis</i>	A.3.1	LC	APX II	NI	NI	NI	R
<i>Podiceps cristatus</i>	A.5	LC	APX III	NI	NI	NI	R
<i>Podiceps nigricollis</i>	A.4	LC	APX II	NI	NI	NI	R
Pelecaniformes							
Ardeidae							
<i>Ixobrychus minutus</i>	A.2	LC	APX II	NI	NI	APX I	T
<i>Nycticorax nycticorax</i>	A.3.1	LC	APX II	NI	NI	APX I	SV
<i>Ardeola ralloides</i>	A.3	LC	APX II	NI	NI	APX I	T
<i>Bubulcus ibis</i>	A.2	LC	APX II	NI	NI	NI	SV
<i>Egretta garzetta</i>	A.3.1	LC	APX II	NI	NI	APX I	SV
<i>Ardea cinerea</i>	A.3.1	LC	APX III	APX I	NI	NI	R
Suliformes							
Phalacrocoracidae							
<i>Phalacrocorax carbo</i>	A.3	LC	APX III	APX II	NI	NI	SV
Threskiornithidae							
<i>Platalea leucorodia</i>	A.3	LC	APX II	NI	NI	APX I	SV
<i>Plegadis falcinellus</i>	A.3.1	LC	APX II	NI	NI	APX I	SV
Ciconiiformes							
Ciconiidae							
<i>Ciconia ciconia</i>	A.3.1	LC	APX II	NI	NI	APX I	SV
Anseriformes							
Anatidae							
<i>Tadorna ferruginea</i>	A.4	LC	APX II	NI	NI	APX I	R
<i>Tadorna tadorna</i>	A.3.1	LC	APX II	NI	NI	NI	R
<i>Anas crecca</i>	A.5	LC	APX III	APX II	NI	APX II-A	WV
<i>Anas platyrhynchos</i>	A.5	LC	APX III	APX II	NI	APX II-A	R
<i>Spatula clypeata</i>	A.4	LC	APX III	APX II	NI	NI	WV
<i>Aythya ferina</i>	A.5	VU	APX III	APX II	NI	APX II-A	R
Accipitriformes							
Accipitridae							
<i>Milvus migrans</i>	A.3	LC	APX II	NI	APX II	APX I	T
<i>Gypaetus barbatus</i>	A.1.2	NT	APX II	NI	APX II	APX I	T
<i>Neophron percnopterus</i>	A.3	EN	APX II	NI	APX II	APX I	SV
<i>Gyps fulvus</i>	A.2	LC	APX II	NI	APX II	APX I	R
<i>Aegypius monachus</i>	A.2	NT	APX II	NI	APX II	APX I	T
<i>Circus gallicus</i>	A.4	LC	APX II	NI	APX II	APX I	T
<i>Circus aeruginosus</i>	A.3	LC	APX II	NI	APX II	APX I	R
<i>Circus pygargus</i>	A.1.2	LC	APX II	NI	APX II	APX I	SV
<i>Accipiter nisus</i>	A.3	LC	APX II	NI	APX II	NI	R
<i>Buteo buteo</i>	A.3	LC	APX II	NI	APX II	NI	T
<i>Buteo rufinus</i>	A.3	LC	APX II	NI	APX II	APX I	R
<i>Hieraetus pennatus</i>	A.3	LC	APX II	NI	APX II	APX I	SV
<i>Aquila chrysaetos</i>	A.1.2	LC	APX II	NI	APX II	APX I	R
Falconiformes							
Falconidae							
<i>Falco naumanni</i>	A.2	LC	APX II	NI	APX II	APX I	T
<i>Falco tinnunculus</i>	A.2	LC	APX II	NI	APX II	NI	R
<i>Falco subbuteo</i>	A.3.1	LC	APX II	NI	APX II	NI	SV
Galliformes							
Phasianidae							
<i>Alectoris chukar</i>	A.2	LC	APX III	APX II	NI	APX II-A	R
Gruiformes							
Rallidae							
<i>Rallus aquaticus</i>	A.3	LC	APX III	APX I	NI	APX II-A	R
<i>Gallinula chloropus</i>	A.3.1	LC	APX III	APX I	NI	APX II-A	R
<i>Fulica atra</i>	A.5	LC	APX III	APX II	NI	APX II-A	R
Charadriiformes							
Recurvirostridae							
<i>Himantopus himantopus</i>	A.3	LC	APX II	NI	NI	APX I	SV
<i>Recurvirostra avosetta</i>	A.4	LC	APX II	NI	NI	APX I	SV
Charadriidae							
<i>Charadrius dubius</i>	A.3	LC	APX II	NI	NI	NI	SV
<i>Vanellus vanellus</i>	A.5	NT	APX III	APX I	NI	APX II-A	SV

Scolopacidae							
<i>Calidris pugnax</i>	B.4	LC	APX III	APX I	NI	APX I	T
<i>Gallinago gallinago</i>	B.3.1	LC	APX III	APX II	NI	APX II-A	WV
<i>Tringa totanus</i>	A.4	LC	APX III	APX I	NI	APX II-A	SV
<i>Tringa nebularia</i>	B.3.1	LC	APX III	APX I	NI	APX II-A	SV
<i>Tringa ochropus</i>	B.2	LC	APX II	NI	NI	NI	SV
<i>Actitis hypoleucos</i>	A.3	LC	APX II	NI	NI	NI	SV
Laridae							
<i>Larus ridibundus</i>	A.5	LC	APX III	APX I	NI	APX II-A	WV
<i>Sterna hirundo</i>	A.3	LC	APX II	NI	NI	APX I	SV
<i>Chlidonias leucopterus</i>	A.4	LC	APX II	NI	NI	NI	T
<i>Larus armenicus</i>	A.4	LC	APX III	APX I	NI	NI	R
Pterocliiformes							
Pteroclididae							
<i>Pterocles orientalis</i>	A.3	LC	APX II	APX I	NI	APX I	R
Columbiformes							
Columbidae							
<i>Columba livia</i>	A.5	LC	APX III	APX II	NI	APX II-A	R
<i>Columba palumbus</i>	A.4	LC	NI	APX II	NI	APX II-A	R
<i>Streptopelia decaocto</i>	A.5	LC	APX III	APX I	NI	APX II-A	R
<i>Streptopelia turtur</i>	A.3.1	VU	APX III	APX II	NI	APX II-A	SV
<i>Spilopelia senegalensis</i>	A.4	LC	APX III	APX I	NI	NI	R
Cuculiformes							
Cuculidae							
<i>Cuculus canorus</i>	A.2	LC	APX III	NI	NI	NI	SV
Strigiformes							
Strigidae							
<i>Bubo bubo</i>	A.1.2	LC	APX II	NI	APX II	APX I	R
<i>Athene noctua</i>	A.2	LC	APX II	NI	APX II	NI	R
Caprimulgiformes							
Caprimulgidae							
<i>Caprimulgus europaeus</i>	A.1.2	LC	APX II	NI	NI	APX I	SV
Apodidae							
<i>Apus apus</i>	A.3.1	LC	APX III	NI	NI	NI	SV
<i>Tachymarptis melba</i>	A.3.1	LC	APX II	NI	NI	NI	SV
Coraciiformes							
Meropidae							
<i>Merops apiaster</i>	A.3.1	LC	APX II	NI	NI	NI	SV
Coraciidae							
<i>Coracias garrulus</i>	A.2	LC	APX II	NI	NI	APX I	SV
Bucerotiformes							
Upupidae							
<i>Upupa epops</i>	A.2	LC	APX II	NI	NI	NI	SV
Piciformes							
Picidae							
<i>Jynx torquilla</i>	A.1.2	LC	APX II	NI	NI	NI	T
<i>Dendrocopos syriacus</i>	A.2	LC	APX II	NI	NI	APX I	R
Passeriformes							
Alaudidae							
<i>Melanocorypha calandra</i>	A.5	LC	APX II	NI	NI	APX I	R
<i>Melanocorypha bimaculata</i>	A.3	LC	APX II	NI	NI	NI	SV
<i>Galerida cristata</i>	A.4	LC	APX III	APX I	NI	NI	R
<i>Alauda arvensis</i>	A.4	LC	APX III	APX I	NI	APX II-A	R
<i>Eremophila alpestris</i>	A.3.1	LC	APX II	NI	NI	NI	R
Hirundinidae							
<i>Riparia riparia</i>	A.5	LC	APX II	NI	NI	NI	SV
<i>Hirundo rustica</i>	A.5	LC	APX II	NI	NI	NI	SV
Motacillidae							
<i>Anthus campestris</i>	A.2	LC	APX II	NI	NI	APX I	SV
<i>Anthus pratensis</i>	A.3	LC	APX II	NI	NI	NI	SV
<i>Anthus spinoletta</i>	A.3	LC	APX II	NI	NI	NI	SV
<i>Motacilla flava</i>	A.3.1	LC	APX II	NI	NI	NI	SV
<i>Motacilla flava feldegg</i>	A.3	NI	NI	NI	NI	NI	SV
<i>Motacilla cinerea</i>	A.2	LC	APX II	NI	NI	NI	SV
<i>Motacilla alba</i>	A.3.1	LC	APX II	NI	NI	NI	R
Muscicapidae							
<i>Muscicapa striata</i>	A.3	LC	APX II	NI	NI	NI	SV
<i>Erithacus rubecula</i>	A.3	LC	APX II	NI	NI	NI	WV
<i>Cyanecula svecica</i>	A.2	LC	APX II	NI	NI	NI	R
<i>Irania gutturalis</i>	A.1.2	LC	APX II	NI	NI	NI	SV

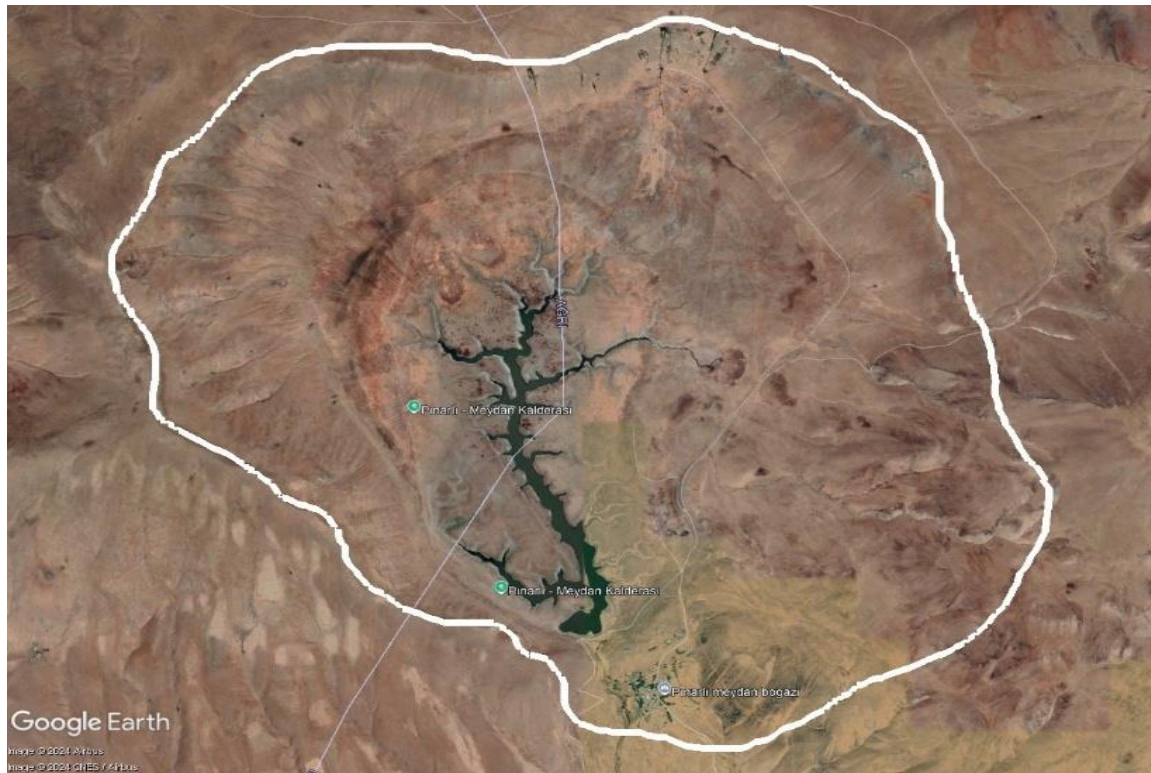
Ornithofauna of Erciş Pınarlı Meydan Caldera (Van/Türkiye)

<i>Phoenicurus ochruros</i>	A.2	LC	APX II	NI	NI	NI	SV
<i>Phoenicurus phoenicurus</i>	A.3	LC	APX II	NI	NI	NI	R
<i>Saxicola rubetra</i>	A.3	LC	APX II	NI	NI	NI	SV
<i>Saxicola torquatus</i>	A.3	LC	APX II	NI	NI	NI	SV
<i>Oenanthe isabellina</i>	A.3	LC	APX II	APX I	NI	NI	R
<i>Oenanthe oenanthe</i>	A.3	LC	APX II	APX I	NI	NI	SV
<i>Oenanthe hispanica</i>	A.2	LC	APX II	NI	NI	NI	SV
<i>Monticola saxatilis</i>	A.1.2	LC	APX II	NI	NI	NI	SV
<i>Monticola solitarius</i>	A.1.2	LC	APX II	NI	NI	NI	SV
Phylloscopidae							
<i>Phylloscopus collybita</i>	A.3.1	LC	APX II	NI	NI	NI	SV
<i>Phylloscopus trochilus</i>	A.3.1	LC	APX II	NI	NI	NI	SV
Panuridae							
<i>Panurus biarmicus</i>	A.3	LC	APX II	NI	NI	NI	WV
Paridae							
<i>Cyanistes caeruleus</i>	A.2	LC	APX II	NI	NI	NI	SV
<i>Parus major</i>	A.3.1	LC	APX II	NI	NI	NI	R
Sittidae							
<i>Sitta neumayer</i>	A.2	LC	APX II	NI	NI	NI	R
Laniidae							
<i>Lanius collurio</i>	A.3	LC	APX II	APX II	NI	APX I	SV
<i>Lanius minor</i>	A.3	LC	APX II	NI	NI	APX I	T
Corvidae							
<i>Pica pica</i>	A.5	LC	NI	APX II	NI	APX II-A	R
<i>Pyrrhocorax pyrrhocorax</i>	A.3	LC	APX II	NI	NI	NI	R
<i>Corvus monedula</i>	A.5	LC	NI	APX II	NI	APX II-A	R
<i>Corvus frugilegus</i>	A.5	LC	NI	APX II	NI	NI	R
<i>Corvus cornix</i>	A.5	NI	NI	APX II	NI	APX II-A	R
Sturnidae							
<i>Sturnus vulgaris</i>	A.5	LC	NI	APX I	NI	APX II-A	SV
<i>Pastor roseus</i>	A.4	LC	APX II	NI	NI	NI	SV
Passeridae							
<i>Passer domesticus</i>	A.5	LC	NI	APX II	NI	NI	R
<i>Passer hispaniolensis</i>	A.3	LC	APX III	APX I	NI	NI	R
<i>Passer montanus</i>	A.3	LC	APX III	APX I	NI	NI	R
<i>Petronia petronia</i>	A.3	LC	APX II	NI	NI	NI	R
<i>Montifringilla nivalis</i>	A.2	LC	APX II	NI	NI	NI	R
Fringillidae							
<i>Fringilla coelebs</i>	A.4	LC	APX III	APX I	NI	NI	R
<i>Fringilla montifringilla</i>	A.3	LC	APX III	APX I	NI	NI	R
<i>Carduelis carduelis</i>	A.3.1	LC	APX II	NI	NI	NI	R
<i>Spinus spinus</i>	A.3	LC	APX II	NI	NI	NI	WV
<i>Linaria cannabina</i>	A.3	LC	APX II	NI	NI	NI	R
Emberizidae							
<i>Emberiza hortulana</i>	A.3	LC	APX III	APX I	NI	APX I	SV
<i>Emberiza schoeniclus</i>	A.3	LC	APX II	NI	NI	NI	WV
<i>Emberiza melanocephala</i>	A.4	LC	APX II	NI	NI	NI	SV
<i>Emberiza calandra</i>	A.4	LC	APX III	APX I	NI	NI	R

APX: Appendix, NI: Not Included, WV: Winter Visitor, SV: Summer Visitor, R: Resident, T: Transient

Table 2. Conservation categories and species counts of birds recorded in the study area

CONSERVATION CRITERIA		NUMBER OF SPECIES
SEASONAL STATU	WV	8
	T	12
	R	52
	SV	54
	EN	1
IUCN	NT	3
	VU	2
	LC	118
	NI	2
CITES	APX II	18
	NI	108
BERN	APX II	86
	APX III	32
	NI	8
RDB	A.1.2	9
	A.2	20
	A.3	40
	A.3.1	20
	A.4	15
	A.5	18
	B.2	1
	B.3.1	2
	B.4	1
	APX I	34
	APX II-A	7
	APX II-B	14
AKD	NI	71
	APX I	23
	APX II	17
MAKK	NI	86
TOTAL		126

**Figure 1.** Boundaries of the study area and satellite image.

The avifaunal survey of the Pınarlı Meydan Caldera yielded 126 taxa belonging to 38 families and 19 orders, comprising 125 species and a single subspecies. Based on an assessment using IUCN criteria, it was determined that one species was- Egyptian vulture *Neophron percnopterus*-classified as Endangered (EN). It was also determined that there are two species classified as Vulnerable (VU). These are Turtle Dove *Streptopelia turtur* and Common pochard *Aythya ferina* (IUCN 2026). A total of three species recorded in the study area are listed as Near Threatened (NT), namely Northern Lapwing *Vanellus vanellus*, Bearded vulture *Gypaetus barbatus*, and Cinereous vulture *Aegypius monachus*. Northern Lapwing was identified as a summer migrant and was confirmed to breed within the study site. Based on the IUCN Red List criteria, 118 species were categorized as Least Concern (LC). Although these species are not currently considered threatened, the conservation of their habitats remains essential for sustaining their populations. According to the BERN criteria, 86 species are listed in Appendix II, 32 species in Appendix III, and 8 species are excluded from the list. In accordance with the Central Hunting Commission Decisions (MAKK), 24 of the species found in the area are listed in Appendix I, 15 in Appendix II, and 87 are excluded. When evaluated according to CITES criteria, 18 species are listed in Appendix II, and 108 species are not included in any list. Of the recorded avifauna, 52 species were resident (R), 54 summer visitors (SV), 12 transients (T), and 8 winter visitors (WV). Overall, 106 species (84%) were confirmed or presumed to breed within the study area in the area, underscoring its importance as a breeding site.

The study area is situated in close proximity to human settlements and is therefore subject to anthropogenic influence. According to the MAK Hunting Area Maps, the study area falls within a General Hunting Area. One of the greatest threats to birds in the study area is unregulated and uncontrolled hunting outside the hunting regulations established by the Central Hunting Commission. Wild ducks and waterfowl are typically hunted in the region. Bird species are generally hunted with firearms. Necessary measures must be taken to prevent this situation, and regular inspections should be conducted. Other threats in the region include livestock grazing, nest destruction, unsustainable farming practices, and harm to eggs and chicks. There are barns in the area built by local herders and people from nearby villages. The presence of grazing animals and existing barns in the area poses a threat to the nests of bird species breeding in the region. Therefore, it is of great importance to educate the local community about the breeding seasons of the bird species living in the area. Another factor threatening birds in the study area is the drop in the lake's water level below the elevation set by the State Hydraulic Works (DSİ) due to drought during the summer months. As a result of this factor, the habitats of waterbird species living and feeding in Pınarlı Meydan Caldera Lake are at risk. Measures must be taken to prevent the lake's water level from falling below the specified elevation. The Pınarlı Meydan Caldera is an area worthy of protection. According to the Ministry of Environment and Urbanization, the Pınarlı Meydan Caldera should be designated as a potential natural site. The caldera itself should be registered as a Qualified Natural Protection Area, while the surrounding area should be registered as a Sustainable

Protection and Controlled Use Area. Based on the protection statuses determined by the Ministry of Agriculture and Forestry, the Pınarlı Meydan Caldera should be designated as a Wetland of Local Importance. Another threat comes from visitors to the area to picnic. If appropriate conservation measures are implemented and both local residents and visitors are made aware of the issue, damage to the area's biodiversity can be prevented. (Kumerloeve, 1969), in his study conducted in the Hakkâri region and around Lake Van, recorded 219 bird species. According to his findings, 131 species were confirmed breeders, 42 were classified as probable breeders, and 46 were identified as migratory species passing through the region. Compared with the present study, the overall breeding patterns are largely consistent, indicating that the region has continued to support important breeding bird populations over time. However, some differences in breeding status were observed between the two studies. These variations may reflect long-term changes in habitat conditions, land-use practices, climatic factors, and differences in survey period, sampling effort, or methodological approaches. Overall, the comparison suggests that while the general breeding bird assemblage has remained relatively stable, certain species have experienced changes in their breeding status over time. (Vielliard, 1968), during visits to several regions of Turkey in July and October 1967, recorded 124 bird species in Van. Comparison with the present study indicates a high degree of similarity in species composition, suggesting that many characteristic bird species of the region have persisted over time. Minor differences between the two studies are likely attributable to temporal changes in bird distribution, seasonal variation, habitat conditions, and differences in sampling coverage and survey methodology. (Kızıroğlu, 2008; 2009; 2015), in his comprehensive studies on the avifauna of Turkey, reported 513 bird species, including vagrant species. The species recorded in the present study are largely consistent with this national checklist, confirming that the avifauna of the Pınarlı Meydan Caldera represents an important component of Turkey's bird diversity. Any discrepancies are likely related to the local scope of the present study and regional differences in species distribution. (Adızel and Durmuş, 2009b), documented 177 bird species and two subspecies in their study of the avifauna of Lake Erçek. Comparison with the present findings reveals substantial similarity in species composition, reflecting the ecological resemblance between the study areas. Differences in the number and status of recorded species may be associated with habitat heterogeneity, seasonal variation, and long-term environmental changes. (Adızel et al., 2016), identified 233 bird species in the Lake Van Basin. The findings of the present study are highly consistent with those reported for the basin, demonstrating that the Pınarlı Meydan Caldera supports a bird community representative of the wider Lake Van Basin. Nevertheless, differences in species richness and breeding status between the studies may reflect changes in habitat quality, environmental conditions, and differences in sampling intensity over time. (Nergiz and Durmuş, 2017), identified 51 waterbird species at Lake Arin. The waterbird species recorded in the present study are generally consistent with their findings, indicating that the wetlands within the region continue to provide suitable habitats for many of the same species. Observed differences may be explained by variations in wetland characteristics, water levels, migration

dynamics, and survey periods. (Gök and Adizel, 2022), investigated the avifauna of Koçköprü Dam, located within the Erciş district of Van Province. Based on field surveys conducted between March 2018 and June 2019, they identified 141 bird species, including 7 winter visitors, 28 transient species, 42 resident species, and 64 summer visitors. Comparison with the present study shows that the majority of the recorded species are common to both areas, which is expected given their geographical proximity and similar ecological characteristics. However, differences in species richness and regional status were also observed. These differences may be associated with variations in habitat structure, altitude, wetland characteristics, seasonal resource availability, and differences in sampling period and survey effort. Overall, the comparison indicates that, despite local differences, the two areas support broadly similar avifaunal communities.

4. CONCLUSION

The relatively lower bird diversity and abundance recorded in the present study can be explained by both natural environmental conditions and increasing anthropogenic pressures. The caldera remains covered by snow and ice for extended periods, restricting suitable feeding and roosting habitats, particularly for waterbirds, and resulting in seasonal movements to nearby wetlands. As environmental conditions become more favorable with snowmelt, many species return to the area. However, this period also coincides with the seasonal arrival of livestock and pastoral activities in the highlands. Increased human presence, grazing pressure, and the large number of herding dogs may further disturb birds and reduce habitat suitability, potentially contributing to differences in species occurrence and abundance compared with previous studies conducted in the region. This study is expected to contribute to Turkey's ornithological data and support the conservation of the area and the development of a sustainable management plan.

5. REFERENCES

Acar, B. (1972). Kuşlarımız. Redhouse Yayınevi.

Adizel, Ö., Durmuş, A., & Turan, L. (2000). Kuş gözlemciliğinin çevre eğitime katkısı. V. Uluslararası Ekoloji ve Çevre Sorunları Sempozyumu, 196–202.

Adizel, Ö. (2005). A study on avifauna protection, development and redound to ornithotourism in Erçek Lake (Van, Turkey). 13th International Symposium on Environmental Pollution and Its Impact on Life in the Mediterranean Region.

Adizel, Ö., Durmuş, A., Turan, L., & Kızıroğlu, İ. (2007). Ahlat Sazlığı'nın (Bitlis) korunması ve gelişmesi üzerine bir çalışma. XVI. Ulusal Biyoloji Kongresi, 122–123.

Adizel, Ö., & Durmuş, A. (2009a). Sulak alan tahribatının Dönemeç (Engil) Deltası–Van örneğinde irdelenmesi.

Yüzüncü Yıl Üniversitesi Fen Bilimleri Enstitüsü Dergisi, 14(1), 42–44.

Adizel, Ö., & Durmuş, A. (2009b). A study on bird species under threat and avifauna of Erçek Lake (Van-Turkey). Scientific Research and Essay, 4(10), 1006–1011.

Adizel, Ö., Durmuş, A., Turan, L., & Kızıroğlu, İ. (2002). Doğubayazıt Sazlığı'nın (Ağrı) eko-ornitolojik açıdan son durumu. XVI. Ulusal Biyoloji Kongresi, 70.

Adizel, Ö., Durmuş, A., & Kızıroğlu, İ. (2016). Lake Van Basin types of bird species. 5th International Eurasian Ornithology Congress, 25.

Adizel, Ö., Azizoğlu, E., & Kızıroğlu, İ. (2017). A new bird species record for Turkey: Hume's wheatear (*Oenanthe albonigra* Hume, 1872). Natural Science and Discovery, 3(3), 44–47.

Adizel, Ö., Toyran, K., & Azizoğlu, E. (2018). Biological assessment on external reliefs of the historical Akdamar Church: Reliefs of mammals. Acta Zoologica Bulgarica, 70(3), 339–347.

Adizel, Ö., Azizoğlu, E., & Yıldız, M. Z. (2019). A biological assessment of exterior reliefs of Akdamar Cathedral in Van/Turkey: Relief of birds. South-Western Journal of Horticulture, Biology and Environment, 10(1), 15–27.

Adizel, Ö., Yıldız, M. Z., Ünal, M., Azizoğlu, E., Öztürk, F., & Akman, B. (2017). Biodiversity of Van Reeds, Eastern Turkey. Commagene Journal of Biology, 1(1), 31–41.

Adizel, Ö., Azizoğlu, E., & Kızıroğlu, İ. (2022). Ahlat Sazlığı ekosisteminin son durum değerlendirmesi (Bitlis – Türkiye). Tabiat ve İnsan, 1(191), 32–45.

Aslan, A., Kaska, Y., & Erdoğan, A. (2011). The ornithological importance of Dalaman (Muğla, Turkey) wetlands and threats to the bird population. Turkish Journal of Zoology, 35(4), 481–489.

Atabey, A., & Karakaş, R. (2024). The bird diversity and conservation recommendations for Mount Zülküf in southeast Anatolia, Türkiye. Journal of Animal Diversity, 6(1), 12–20.

Avcı, F., Adizel, Ö., & Azizoğlu, E. (2017). A study on ornithofauna of Muş Plain. ADYUTAYAM Dergisi, 5(1), 20–32.

Azizoğlu, E., & Adizel, Ö. (2017). Determination of seasonal habitat usage and population distributions of bird species detected in and around of Yüksekova Nehil Reed (Hakkari-Turkey). ADYUTAYAM Dergisi, 5(1), 10–19.

- Azizoğlu, E., & Adızel, Ö. (2017a). A study on the distribution and population status of the Whooper Swan (*Cygnus cygnus* L. 1758) in the Van Lake Basin. *Natural Science and Discovery*, 3(2), 25–32.
- Azizoğlu, E., & Adızel, Ö. (2018). Motorized vehicle–bird collisions on the highway surrounding Lake Van (Turkey). *Doğu Fen Bilimleri Dergisi*, 1(2), 26–33.
- Beaman, M. (1976). Threats to migrant birds of prey in Turkey. *Birds International*, 2, 39–42.
- Bibby, C., Jones, M., & Marsden, S. (1998). Bird surveys: Expedition field techniques. Expedition Advisory Centre, Royal Geographical Society.
- Biler, L., & Çelik, E. (2021). The avifauna value of Lake Erçek (Van, Turkey). *Şırnak Üniversitesi Fen Bilimleri Dergisi (Şırnak University Journal of Sciences)*, 2(1), 29–38.
- Büyük, G., & Karakaş, R. (2022). Bird diversity at the Adıyaman-Gölbaşı Lakes Important Bird Area (IBA), in southeast Turkey. *Wildfowl*, 72, 116–131.
- Durmuş, A., & Adızel, Ö. (2008). Balık Gölü (Doğubeyazıt-Ağrı) ve çevresinin eko-ornitofaunası üzerine bir araştırma. *Yüzüncü Yıl Üniversitesi Fen Bilimleri Enstitüsü Dergisi*, 13(2), 94–97.
- Durmuş, A., & Adızel, Ö. (2011). Gece balıkçılı (Nycticorax nycticorax)'nın Van Gölü Havzasındaki beslenme ekolojisi. *Ekoloji*, 20(78), 34–40.
- Durmuş, A., Alp, Ş., Adızel, Ö., Ünal, M., Karabacak, O., Demirci, E. Y., Erman, M., & Berber, Ş. (2013). A comparison of management planning principles of wetland ecosystem (the Delta of Bendimahi) and mountain ecosystem (Mountain of Ispiriz) in the Van Lake Basin/Turkey. *Advances in Environmental Biology*, 7(3), 434–440.
- Durmuş, A., & Çelik, E. (2017). Determination of ornithological richness of Erçek Lake, Dönemeç and Bendimahi Deltas (Van/Turkey) in winter season and mapping with geographic information system. *International Journal of Scientific & Technology Research*, 6(4), 63–66.
- Erdoğan, A., Öz, M., Sert, H., & Tunç, M. R. (2002). Antalya Yamansaz Gölü ve yakın çevresinin avifaunası ve herpetofaunası. *Ekoloji*, 10(43), 33–39.
- Ergene, S. (1945). Türkiye kuşları (İstanbul Üniversitesi Fen Fakültesi Monografileri, No. 4). İstanbul Üniversitesi.
- Ertuş, A., & Durmuş, A. (2021). Muş Alparslan Barajı ve çevresi ornitofaunası üzerine bir araştırma. *Doğu Fen Bilimleri Dergisi*, 4(1), 19–27.
- Gallner, J. C. (1976). Observations ornithologiques nouvelles dans la région de Van (Turquie). *Alauda*, 44, 111–117.
- Gök, G., & Adızel, Ö. (2022). Koçköprü Barajının ornitofaunası (Erciş/Van). *Yüzüncü Yıl Üniversitesi Fen Bilimleri Enstitüsü Dergisi*, 27(2), 206–218.
- Azizoğlu, E., Adızel, Ö., & Gök, G. (2018). Doğu Anadolu Bölgesi ornito-kronolojik tarihi. *Doğu Fen Bilimleri Dergisi*, 1(2), 34–40.
- International Union for Conservation of Nature. (2025). The IUCN Red List of Threatened Species. <https://www.iucnredlist.org/> (Erişim tarihi: 27 Haziran 2026).
- Karakaş, R. (2023). The birds and environmental health. In A. Satar & Y. K. Haspolat (Eds.), *New horizons in environmental health I* (pp. 124–132). August Publishing. ISBN 978-625-6893-76-4.
- Karakaş, R. (2024). The importance of biodiversity in terms of environmental health. In A. Satar & Y. K. Haspolat (Eds.), *New horizons in environmental health II* (pp. 80–92). September Publishing. ISBN 978-625-6598-92-8.
- Karakaş, R. (2025). Effects of some environmental pollutants on nature and environment. In A. Satar & Y. K. Haspolat (Eds.), *Environmental health integration: Ecology, toxicology, and public health* (pp. 148–165). ISBN 978-625-5976-74-1.
- Kasperek, M., & Van der Ven, J. (1983). *Birds of Turkey* (Vol. 1: Erçek Gölü). Kasperek Verlag.
- Kızıroğlu, İ. (1994). Canlıların yok olma süreci ve Anadolu'da soyu tükenme tehlikesi altındaki kuş türleri. *Tabiat ve İnsan*, 28, 2–4.
- Kızıroğlu, İ. (2008). Türkiye kuşları kırmızı listesi. Ankamat Matbaacılık.
- Kızıroğlu, İ. (2009). Türkiye kuşları cep kitabı. Ankamat Matbaacılık.
- Kızıroğlu, İ. (2015). Türkiye kuşları cep kitabı (The pocket book for birds of Turkey). İnkılap Kitabevi.
- Kumerloeve, H. (1961). Zur Kenntnis der Avifauna Kleinasien: Mit besonderer Berücksichtigung der südlichen Landesteile (Taurus–Kilikien–Nordwest-Mesopotamien). *Bonner Zoologische Beiträge*, 12, 1–318.
- Kumerloeve, H. (1969). Van Gölü–Hakkâri bölgesi (Doğu/Güneydoğu Küçük Asya) kuşları (Zur Avifauna des Van Gölü und Hakkâri-Gebietes, E/SE-Kleinasien). *İstanbul Üniversitesi Fen Fakültesi Mecmuası Seri B*, 34, 245–312.

- Meteoroloji Genel Müdürlüğü. (2025). Meteoroloji Genel Müdürlüğü resmî web sitesi. Retrieved June 16, 2025, from <https://www.mgm.gov.tr>
- Nergiz, H., Tabur, M. A., & Ayvaz, Y. (2012). Nest site selection and reproductive success of white-headed duck (*Oxyura leucocephala* Scopoli, 1769) in the Van Lake Basin (Turkey). *The Journal of Animal & Plant Sciences*, 22(3), 546–551.
- Nergiz, H., & Durmuş, A. (2017). Effects of habitat change on breeding waterbirds in Arin (Sodali) Lake, Turkey. *Applied Ecology and Environmental Research*, 15(3), 1111–1118.
- Svensson, L., Mullarney, K., Zetterström, D., & Grant, P. J. (1999). *Collins bird guide: The most complete field guide to the birds of Britain and Europe*. HarperCollins.
- Van der Ven, J. A., & Gheyselinck, G. F. (1981). *Birds in Eastern Turkey II. Report*.
- Vielliard, J. (1968). Résultats ornithologiques d'une mission à travers la Turquie. *İstanbul Üniversitesi Fen Fakültesi Mecmuası Seri B*, 33, 67–170.
- Witherby, H. F., & Woosnam, R. B. (1907). On a collection of birds from western Persia and Armenia. *The Ibis*, 9(1), 74–111.
- Yarar, M., & Magnin, G. (1997). Türkiye'nin önemli kuş alanları. *Doğal Hayatı Koruma Derneği*.