

The Ornithological Diversity of the Province of Kilis

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Abstract: In this study, it is aimed to determine the bird diversity of Kilis province that is located in the southeast Anatolia, Turkey. For this purpose, field survey was conducted between February 2017 and June 2018. As a result, 129 species, belonging to 43 families (16 ordos) that live in settlements, agricultural fields, wetlands, forests, and steppes were recorded. They were categorized as 76 residents, 43 summer migrants, 8 winter visitors, and 2 transit migrants. According to the Red Data Book of Turkey, these species were listed as 2 "Vulnerable", 3 "Near threatened", and 124 "Least concern".

Keywords: Avifauna, *Clanga clanga*, *Streptopelia turtur*, redlist.

Kilis İli'nin Ornitolojik Çeşitliliği

Öz: Bu çalışmada Türkiye'de Güneydoğu Anadolu'da yer alan Kilis ilinin kuş çeşitliliğinin belirlenmesi amaçlanmıştır. Bu amaçla Şubat 2017 ve Haziran 2018 tarihleri arasında saha araştırması yapılmıştır. Bu çalışma sonucunda, yerleşimlerde, tarım alanlarında, sulak alanlarda, ormanlar ve bozkırlarda yaşayan (16 ordo) 43 familyaya ait 129 tür kaydedilmiştir. Türler, 76 yerli, 43 yaz göçmeni, 8 kış ziyaretçisi ve 2 transit göçmen olarak kategorize edilmiştir. Türkiye Kırmızı listesine göre, bu türlerin 2'si "hassas", 3'ü "neredeyse tehdit altında", 124'ü "asgari endişe" olarak listelenmektedir.

Anahtar kelimeler: Avifauna, *Clanga clanga*, *Streptopelia turtur*, kırmızı liste.

1. Introduction

Located at the intersection of three continents, Turkey is a bridge and in crossroads in terms of biodiversity (Karakaş, 1999; Ambarlı et al., 2016; Küçükosmanoğlu et al., 2019). Moreover, three (the Caucasus, the Mediterranean, and Irano-Anatolian) of the world's 34 hot spots that are rich in biodiversity, which must be protected immediately, are located in Turkey (Küçükosmanoğlu et al., 2019). Turkey displays the continent features in terms of bird species diversity. Two of the four bird migration routes in the Palearctic region cross over Anatolia. Among the most important reasons behind Turkey's avifaunistic richness are its location on major migration routes, geographical location, abundance of wetlands, and habitat diversity (Erciyas Yavuz, 2014; Erciyas Yavuz et al., 2015; Karaardıç & Erdoğan, 2019).

Ornithofaunistic research in Turkey with several exceptions, are devoted to exhibit local ornithofauna. Introducing a complete ornithofauna is possible by handling such local studies together (Kiziroğlu, 2015). Although there is no comprehensive study on the determination of the bird species in Kilis province, there is an extensive study on the determination of bird species in the province of Gaziantep which is the single neighbor of Kilis (Toprak et al., 2008). Also, bird observations made in this province on Kuşbank and Trakuş websites also have great contributions in determining the bird diversity of the province (Anonim, 2020a).

Kilis province, with its intact forest area located on the northwestern provincial border, with the agricultural

lands located in the east and with 6 rivers and dams and ponds on these rivers, has important resting, feeding, and breeding areas for both migratory species and resident species. There is no important bird area (IBA) for the bird species in Kilis province. However, there is the Elbeyli Key Biodiversity Area (KBA) (Eken et al., 2006). This area is the important resting and feeding area for the bird species in the east region of Kilis.

The aim of this study is to determine the bird diversity of Kilis. Our study will contribute to the studies done to list the bird species that are Turkey's biological richness.

2. Material and Methods

Kilis is situated in the C6 square in the southern part of Turkey and is bordered by Syria to the south and Gaziantep to the north, east, and west, with coordinates 36°37'-37°02' N, 36°42'-37°03' E and its total area is 1.642 km². Kilis province is zoo-geographically located in the western Palearctic. Also, the area falls in the Mediterranean and Irano-Turanian floristic regions and possesses a semiarid Mediterranean climate (Solak et al., 2014). Average annual temperature of experimental area was 17.1°C according to the long-term meteorological data (1959-2019) (Anonim, 2020b). The forest and shrub vegetation of study area is composed of *Pinus brutia*, *Pinus pinea*, *Arbutus andrachne*, *Pistacia lentiscus*, *Erica arborea*, *Styrax officinalis*, *Cistus creticus*, and some members of *Juniperus*, *Cupressus*, *Quercus*, *Fraxinus*, *Populus*, *Acacia*, *Olea* and *Acer* (Solak et al., 2014).

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The study was conducted between the dates of February 2017-June 2018, in a total of 13 field surveys on 41 days. 659 field spots between 371 and 972 meters were visited in Polateli, Elbeyli, and Musabeyli regions. Within the scope of the project, field survey was carried out on all 21 parcel on 1/25.000 scale map of Kilis province. The field survey was carried out for 3 days in winter, 9 days in spring, 3 days in summer, and 4 days in autumn in 2017 and 6 days in winter, 13 days in spring, and 3 days in summer in 2018. Field studies were conducted in wetlands, forests, steppes, settlements, and agricultural areas. The sites were selected by evaluation of the satellite images or on-site assessment.

In the survey and the assessment of bird population, 12x50 binoculars, telescope (with 15-60 magnification), DSLR camera with 100-400 mm and 50-500 mm lenses, video camera, and GPS were used as the basic equipment. "Collins Bird Guide, Red Data Book and The Pocket Guide Birds of Türkiye" were used in identification and status of species in Kilis (Svensson et al., 2009; Kiziroğlu, 2015; IUCN, 2021). Generally, counting and dot counting methods were used over the line transect when determining the species. Both direct and indirect observations such as sounds, wing sounds, feathers, singing of the birds were used in the field survey.

Field survey was carried out to monitor both

breeding and after breeding population in the study area. Investigations were conducted using transect method. Also, spot observation method (waiting for 45-60 minute durations on spots that have full sight of the area) was used to survey water birds and shore birds. Observations were conducted over 5 hours after the dawn and 3 hours before the nightfall since birds are very active and meteorological events like heat and moisture prevent determining the bird species from long distances. Species name, number of individuals, breeding status, habitat type, threats, date, hour and geographical coordinates were recorded. The geographical coordinates of the observed species were identified using the geographical positioning system (GPS) device Garmin Etrex 10. Coordinates were recorded as latitude and longitude in decimal degrees and referenced to the World Geodetic system established in 1984 (WGS84). These locations and their coordinates have been recorded in Noah's Ark Biodiversity Database (Anonim, 2020c).

3. Results and Discussion

As a result of this study, 129 species belonging to 43 families were determined. The list regarding the seasonal status of the birds determined during our field study and the classification of the birds determined in terms of order and family level, breeding status and Redlist status are as follows (Table 1).

Table 1. According Lepage (2020) the list of bird species determined.

Scientific Name	English Name	BERN	CITES	IUCN	Status	Breeding Status
<i>Alectoris chukar</i>	Chukar Partridge	III	OL	LC	R	B
<i>Francolinus francolinus</i>	Black Francolin	III	OL	LC	R	B
<i>Coturnix coturnix</i>	Common Quail	III	OL	LC	R	B
<i>Spatula querquedula</i>	Garganey	III	OL	LC	S	B
<i>Spatula clypeata</i>	Northern Shoveler	III	OL	LC	R	B
<i>Anas platyrhynchos</i>	Mallard	III	OL	LC	R	B
<i>Apus apus</i>	Common Swift	III	OL	LC	S	B
<i>Apus pallidus</i>	Pallid Swift	II	OL	LC	S	B
<i>Apus affinis</i>	Little Swift	III	OL	LC	S	B
<i>Cuculus canorus</i>	Common Cuckoo	III	OL	LC	S	B
<i>Columba livia</i>	Rock Dove	III	OL	LC	R	B
<i>Columba palumbus</i>	Common Wood Pigeon	OL	OL	LC	R	B
<i>Streptopelia turtur</i>	European Turtle Dove	III	OL	VU	S	B
<i>Streptopelia decaocto</i>	Eurasian Collared Dove	III	OL	LC	R	B
<i>Spilopelia senegalensis</i>	Laughing Dove	III	OL	LC	R	B
<i>Gallinula chloropus</i>	Common Moorhen	III	OL	LC	R	B
<i>Fulica atra</i>	Eurasian Coot	III	OL	LC	R	B
<i>Tachybaptus ruficollis</i>	Little Grebe	II	OL	LC	R	B
<i>Podiceps cristatus</i>	Great Crested Grebe	III	OL	LC	R	B
<i>Himantopus himantopus</i>	Black-winged Stilt	II	OL	LC	R	B
<i>Vanellus vanellus</i>	Northern Lapwing	III	OL	NT	R	B
<i>Charadrius dubius</i>	Little Ringed Plover	II	OL	LC	S	B
<i>Actitis hypoleucos</i>	Common Sandpiper	II	OL	LC	S	B
<i>Chroicocephalus genei</i>	Slender-billed Gull	II	OL	LC	R	B
<i>Chroicocephalus ridibundus</i>	Black-headed Gull	III	OL	LC	R	B
<i>Ichthyaeus ichthyaeus</i>	Pallas's Gull	III	OL	LC	W	NB
<i>Larus michahellis</i>	Yellow-legged Gull	III	OL	LC	R	B

Scientific Name	English Name	BERN	CITES	IUCN	Status	Breeding Status
<i>Larus armenicus</i>	Armenian Gull	III	OL	NT	R	U
<i>Ciconia nigra</i>	Black Stork	II	II	LC	S	U
<i>Ciconia ciconia</i>	White Stork	II	OL	LC	S	B
<i>Phalacrocorax carbo</i>	Great Cormorant	III	OL	LC	R	B
<i>Ixobrychus minutus</i>	Little Bittern	II	OL	LC	S	B
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	II	OL	LC	S	B
<i>Ardeola ralloides</i>	Squacco Heron	II	OL	LC	S	B
<i>Bubulcus ibis</i>	Western Cattle Egret	II	OL	LC	R	B
<i>Ardea cinerea</i>	Grey Heron	III	OL	LC	R	B
<i>Ardea purpurea</i>	Purple Heron	II	OL	LC	S	B
<i>Ardea alba</i>	Great Egret	II	OL	LC	R	B
<i>Egretta garzetta</i>	Little Egret	II	OL	LC	R	B
<i>Pandion haliaetus</i>	Western Osprey	III	II	LC	R	U
<i>Clanga clanga</i>	Greater Spotted Eagle	III	II	VU	W	U
<i>Hieraetus pennatus</i>	Booted Eagle	III	II	LC	R	U
<i>Accipiter nisus</i>	Eurasian Sparrowhawk	III	II	LC	R	B
<i>Circus aeruginosus</i>	Western Marsh Harrier	III	II	LC	R	B
<i>Circus cyaneus</i>	Hen Harrier	III	II	LC	R	U
<i>Milvus migrans</i>	Black Kite	III	II	LC	R	B
<i>Buteo rufinus</i>	Long-legged Buzzard	III	II	LC	R	B
<i>Buteo buteo</i>	Common Buzzard	III	II	LC	R	B
<i>Tyto alba</i>	Western Barn Owl	II	II	LC	S	B
<i>Athene noctua</i>	Little Owl	II	II	LC	R	B
<i>Asio otus</i>	Long-eared Owl	II	II	LC	S	B
<i>Upupa epops</i>	Eurasian Hoopoe	II	OL	LC	S	B
<i>Coracias garrulus</i>	European Roller	II	OL	LC	S	B
<i>Merops apiaster</i>	European Bee-eater	II	OL	LC	S	B
<i>Dendrocopos syriacus</i>	Syrian Woodpecker	II	OL	LC	R	B
<i>Falco tinnunculus</i>	Common Kestrel	II	II	LC	R	B
<i>Lanius collurio</i>	Red-backed Shrike	II	OL	LC	S	B
<i>Lanius senator</i>	Woodchat Shrike	II	OL	LC	S	B
<i>Garrulus glandarius</i>	Eurasian Jay	OL	OL	LC	R	B
<i>Pica pica</i>	Eurasian Magpie	OL	OL	LC	R	B
<i>Coloeus monedula</i>	Western Jackdaw	OL	OL	LC	R	B
<i>Corvus frugilegus</i>	Rook	OL	OL	LC	R	B
<i>Corvus cornix</i>	Hooded Crow	OL	OL	LC	R	B
<i>Corvus corax</i>	Northern Raven	III	OL	LC	R	U
<i>Poecile lugubris</i>	Sombre Tit	II	OL	LC	R	B
<i>Cyanistes caeruleus</i>	Eurasian Blue Tit	II	OL	LC	R	B
<i>Parus major</i>	Great Tit	II	OL	LC	R	B
<i>Alauda arvensis</i>	Eurasian Skylark	III	OL	LC	R	B
<i>Galerida cristata</i>	Crested Lark	III	OL	LC	R	B
<i>Calandrella brachydactyla</i>	Greater Short-toed Lark	II	OL	LC	S	B
<i>Melanocorypha bimaculata</i>	Bimaculated Lark	II	OL	LC	S	B
<i>Melanocorypha calandra</i>	Calandra Lark	II	OL	LC	R	B
<i>Pycnonotus xanthopygos</i>	White-spectacled Bulbul	III	OL	LC	R	B
<i>Hirundo rustica</i>	Barn Swallow	II	OL	LC	S	B
<i>Delichon urbicum</i>	Common House Martin	II	OL	LC	S	B
<i>Cecropis daurica</i>	Red-rumped Swallow	II	OL	LC	S	B
<i>Cettia cetti</i>	Cetti's Warbler	II	OL	LC	R	B

Scientific Name	English Name	BERN	CITES	IUCN	Status	Breeding Status
<i>Aegithalos caudatus</i>	Long-tailed Tit	III	OL	LC	R	B
<i>Phylloscopus trochilus</i>	Willow Warbler	II	OL	LC	T	U
<i>Phylloscopus collybita</i>	Common Chiffchaff	II	OL	LC	R	B
<i>Acrocephalus arundinaceus</i>	Great Reed Warbler	II	OL	LC	S	B
<i>Acrocephalus melanopogon</i>	Moustached Warbler	II	OL	LC	R	U
<i>Acrocephalus scirpaceus</i>	Eurasian Reed Warbler	II	OL	LC	S	U
<i>Iduna pallida</i>	Eastern Olivaceous Warbler	II	OL	LC	S	B
<i>Argya altirostris</i>	Iraq Babbler	III	OL	LC	R	U
<i>Sylvia curruca</i>	Lesser Whitethroat	II	OL	LC	S	B
<i>Sylvia melanocephala</i>	Sardinian Warbler	II	OL	LC	R	B
<i>Sylvia mystacea</i>	Menetries's Warbler	II	OL	LC	S	B
<i>Sitta neumayer</i>	Western Rock Nuthatch	II	OL	LC	R	B
<i>Sitta tephronota</i>	Eastern Rock Nuthatch	II	OL	LC	R	B
<i>Sturnus vulgaris</i>	Common Starling	OL	OL	LC	R	B
<i>Turdus merula</i>	Common Blackbird	III	OL	LC	R	B
<i>Turdus philomelos</i>	Song Thrush	III	OL	LC	W	NB
<i>Cercotrichas galactotes</i>	Rufous-tailed Scrub Robin	II	OL	LC	S	B
<i>Erithacus rubecula</i>	European Robin	II	OL	LC	R	B
<i>Luscinia megarhynchos</i>	Common Nightingale	II	OL	LC	S	B
<i>Irania gutturalis</i>	White-throated Robin	II	OL	LC	S	B
<i>Phoenicurus ochruros</i>	Black Redstart	II	OL	LC	W	NB
<i>Phoenicurus phoenicurus</i>	Common Redstart	II	OL	LC	T	U
<i>Saxicola rubicola</i>	European Stonechat	II	OL	LC	S	U
<i>Saxicola torquatus</i>	Common Stonechat	II	OL	LC	R	U
<i>Saxicola maurus</i>	Siberian Stonechat	II	OL	LC	W	NB
<i>Oenanthe oenanthe</i>	Northern Wheatear	II	OL	LC	S	B
<i>Oenanthe isabellina</i>	Isabelline Wheatear	II	OL	LC	S	B
<i>Oenanthe pleschanka</i>	Pied Wheatear	II	OL	LC	S	B
<i>Oenanthe finschii</i>	Finsch's Wheatear	II	OL	LC	R	B
<i>Oenanthe hispanica</i>	Black-eared Wheatear	II	OL	LC	S	B
<i>Passer domesticus</i>	House Sparrow	OL	OL	LC	R	B
<i>Passer hispaniolensis</i>	Spanish Sparrow	III	OL	LC	R	B
<i>Passer moabiticus</i>	Dead Sea Sparrow	III	OL	LC	R	B
<i>Passer montanus</i>	Eurasian Tree Sparrow	III	OL	LC	R	B
<i>Petronia petronia</i>	Rock Sparrow	II	OL	LC	R	B
<i>Gymnoris xanthocollis</i>	Yellow-throated Sparrow	III	OL	LC	S	B
<i>Motacilla flava</i>	Western Yellow Wagtail	II	OL	LC	S	B
<i>Motacilla cinerea</i>	Grey Wagtail	II	OL	LC	R	B
<i>Motacilla alba</i>	White Wagtail	II	OL	LC	R	B
<i>Anthus pratensis</i>	Meadow Pipit	II	OL	NT	W	NB
<i>Fringilla coelebs</i>	Common Chaffinch	III	OL	LC	R	B
<i>Chloris chloris</i>	European Greenfinch	II	OL	LC	R	B
<i>Rhodospiza obsoleta</i>	Desert Finch	III	OL	LC	R	B
<i>Linaria cannabina</i>	Common Linnet	III	OL	LC	R	B
<i>Carduelis carduelis</i>	European Goldfinch	II	OL	LC	R	B
<i>Serinus serinus</i>	European Serin	II	OL	LC	R	B
<i>Spinus spinus</i>	Eurasian Siskin	II	OL	LC	W	NB
<i>Emberiza calandra</i>	Corn Bunting	III	OL	LC	R	B
<i>Emberiza citrinella</i>	Yellowhammer	II	OL	LC	W	NB
<i>Emberiza cia</i>	Rock Bunting	II	OL	LC	W	NB

Scientific Name	English Name	BERN	CITES	IUCN	Status	Breeding Status
<i>Emberiza caesia</i>	Cretzschmar's Bunting	II	OL	LC	S	B
<i>Emberiza melanocephala</i>	Black-headed Bunting	II	OL	LC	S	B

B: Breeding; NB: Non-Breeding; U: Unknown

According to Kızıroğlu (2015); Resident (R), Summer migrant (S), Winter visitor (W), Transit migrant (T), Vagrant (V)

According to IUCN (2021), Red List categories; LC: Least concern, NT: Near threatened, VU: Vulnerable, EN: Endangered, CR: Critically endangered

According to BirdLife (2015), BERN categories; II: Annex II, III: Annex III, OL: Out of List

According to BirdLife (2015), CITES categories; II: Annex II, III: Annex III, OL: Out of List

In the light of the data obtained as a result of field studies "Yellow-legged Gull (*Larus michahellis*)", Menetries's Warbler (*Sylvia mystacea*)", "The Iraq Babbler (*Argya altirostris*)", "European Stonechat (*Saxicola rubicola*)", "Siberian Stonechat (*Saxicola maurus*)", "Yellowhammer (*Emberiza citrinella*)", "Cretzschmar's Bunting (*Emberiza caesia*)", "Yellow-throated Sparrow (*Gymnoris xanthocollis*)" are listed as new records for the Kilis province.

Finally, as a result of this study, some species that spread in a limited area (Dead Sea Sparrow "*Passer moabiticus*", The Iraq Babbler "*Argya altirostris*", Menetries's Warbler "*Sylvia mystacea*" and Yellow-throated Sparrow "*Gymnoris xanthocollis*") were identified.

4. Conclusion

This study is important as it is the first, regular and long-term research study on the ornithofauna of the area. Among the identified species, it was observed that important species that are in danger of extinction use the area for feeding, breeding, and resting during migration.

According to IUCN Redlist Categories, 2 Vulnerable (Greater Spotted Eagle "*Clanga clanga*" and European Turtle-dove "*Streptopelia turtur*") and 3 Near Threatened (Northern Lapwing "*Vanellus vanellus*", Armenian Gull "*Larus armenicus*" and Meadow Pipit "*Anthus pratensis*") were identified (BirdLife International, 2017a, 2017b, 2018, 2019a, 2019b). "European Turtle-dove (*Streptopelia turtur*)" is a summer migrant and "Northern Lapwing (*Vanellus vanellus*)" is a resident. In our bird list of the results, European Turtle-dove and Northern Lapwing are given as Breeding birds. In Çamurlu mound, two pairs of "European Turtle-dove" were observed that reproduce with nests in June 2018. In Save dam, a pair of "Northern Lapwing" was observed that reproduces with nest in May 2017. As a result, Çamurlu mound and Save dam are important areas for these species and must be protected.

Also, some species (Yellow-legged Gull "*Larus michahellis*", Menetries's Warbler "*Sylvia mystacea*", The Iraq Babbler "*Argya altirostris*", European Stonechat "*Saxicola rubicola*", Siberian Stonechat "*Saxicola maurus*", Yellowhammer "*Emberiza citrinella*", Cretzschmar's Bunting "*Emberiza caesia*", Yellow-throated Sparrow "*Gymnoris xanthocollis*") are listed as new records for the Kilis province as it is determined that these species were not observed in Kilis province in the literature review. Finally, in this province the existence of these species (Dead Sea Sparrow "*Passer moabiticus*", The Iraq Babbler "*Argya altirostris*", Menetries's Warbler "*Sylvia mystacea*" and Yellow-throated Sparrow "*Gymnoris xanthocollis*"), which have spread in a limited area in Turkey, is revealed

in our results. Although spread in a limited area, these species, except the Iraq Babbler, are breeding in Kilis.

92 species and 1 subspecies belonging to 38 families were identified in the study to determine the bird diversity between 2003 and 2004 in Gaziantep province, which is approximately 45 km northeast of the Kilis province (Toprak et al., 2008). 69 species detected in the study conducted by Toprak et al. (2008) were also detected in our study. However, 24 species detected in the study conducted by Toprak et al. (2008) were not detected in our study. In the study conducted by Toprak et al. (2008), 61 species detected in our study were not detected. These 61 species include both the new records species for the Kilis province and the species which have spread in a limited area in Turkey. 361 species belonging to 68 families were identified in Hatay province, which is approximately 103 km southwest of the Kilis province (Atahan et al., 2008; Ünal, 2016; Lepage, 2021). Hatay has such a large variety of birds, due to its location on an important bird migration route. However, The Iraq Babbler "*Argya altirostris*", Yellow-throated Sparrow "*Gymnoris xanthocollis*" and Dead Sea Sparrow "*Passer moabiticus*" species detected as new records for Kilis province could not be detected in the province of Hatay. This results indicates that these ornithological studies should be repeated regularly in order to follow the distribution status of the species.

Threats such as excessive use of pesticides due to agricultural activities, destruction of nests, excessive use of water, habitat destruction, poaching, and burning of reeds were determined for all bird species during the field studies conducted within the scope of the Biodiversity inventory of Kilis province. The amounts of punishment and counts of inspection should be increased in order to prevent the catching of the species and poaching. In order to prevent excessive use of pesticides and destruction of nests, inspections should be increased and awareness raising meetings should be held for local people. The activities that cause habitat destruction should not be allowed to be carried out in or near the areas where the birds are densely populated; however, if it must be done, it should be done by considering the annual life cycles of the birds such as breeding and hatching. Excessive and unconscious water use should be prevented through local public awareness meetings, administrative fines, and legal regulations. Lastly, hunting the "European Turtle-dove (*Streptopelia turtur*)", which is protected on a world scale, should be banned by the Central Hunting Commission Decisions as soon as possible.

Although, in the literature review, it was determined that this province's bird species list consists of 271 species belonging to 57 families (Kızıroğlu, 2015; Anonim, 2020c), results of this study determined 129 species belonging to

43 families. It is stated in the literature study that the main reason why some bird species cannot be observed in the field studies is the water shortage due to the excessive use in 2017 and 2018. Due to the decrease of water in rivers, dams and ponds, bird species that need their feeding and breeding depending on the water or water edge prefer suitable regions outside the province. For example; the ducks and shore birds determined during the every Mid-Winter Water Bird (KOSK) counts in the Küplüce, Seve and Balıklı ponds was not determined during the 2018 KOSK counts due to the excessive water decrease. To summarize, when the literature data is compared with the field surveys, the ornithofauna of the Kilis consists of 280 bird species belonging to 61 families. If these results are considered as a whole, 280 bird species, which were determined in Kilis province, correspond to more than half of the Turkey's bird list.

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Conflict of interest: The author declares that there is no conflict of interest.

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