

Severe decline in the breeding population of the White-tailed Eagle *Haliaeetus albicilla* in Iran, with observations on breeding activities in Gilan Province

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Summary: Because of the lack of records of White-tailed Eagle during the breeding season in Mazandaran and Golestan provinces in the last decade, a survey was conducted through which data were collected on the presence of this species during the breeding season in Gilan Province, visiting all suitable breeding habitats from 2013 to 2018. Only one active nest of the species was located, on an islet in Anzali wetland. This nest had three eggs and produced one fledgling. Waterbirds dominated in the diet of nestlings. Several mature birds were found in at least two other areas during the survey period. The results suggest a severe decline in the breeding population of the White-tailed Eagle in Iran.

INTRODUCTION

White-tailed Eagle *Haliaeetus albicilla* is the only species of sea eagle and fish eagle of the genus *Haliaeetus* that breeds in the Western Palearctic (Clark 1999). Although this species has a wide range in Europe, with an estimated breeding population of between 9000 and 12 300 pairs (BirdLife International 2015), it has been described as a very rare breeding bird in the Middle East (Porter & Aspinall 2010). Ferguson-Lees & Christie (2001) gave the status and distribution of the species in the Caspian region as uncertain. However, Scott (1975) reported that the White-tailed Eagle was a common winter visitor to Iran and a fairly common breeding bird in the south Caspian lowlands (Mazandaran, Golestan and Gilan provinces), based on the number of nests located and number of presumed breeding pairs observed during the breeding season between October 1970 and March 1976 (DA Scott in litt), when there were between 14 and 16 breeding pairs in the provinces of Gilan and Mazandaran in the south Caspian region: eight or nine pairs in Gilan (Table 1), and six or seven pairs in Mazandaran (one pair in the Ramsar/Khoshkedoran area, one or two pairs between Nowshahr and Amol, including the Galanrud Valley, one pair at Seyed Mohalli Ab-bandans and three pairs in the Miankaleh Peninsula/Gorgan Bay area). In 2009, during a project conducted by the Department of the Environment (DoE) to identify the breeding birds of Golestan and Mazandaran provinces, eight Iranian ornithologists and two ornithologists from the Netherlands surveyed all those habitats in Golestan and Mazandaran that had been reported as breeding sites by Derek Scott, but they failed to find any active nests or possible breeding pairs. Furthermore, K Rabiee and M Shakiba (bird experts in the provincial offices of the DoE in Mazandaran and Golestan provinces) had no records of breeding by this species in these provinces in the last decade. They believed that all of the wintering birds leave these provinces in April, and had no observations from the middle of April to the end of August. So, in this study, an attempt was made to collect all records of this species in Gilan Province during the breeding season (February to May) from 2013 to 2018. Also, despite the number of breeding pairs that have been reported in Iran in the past, there do not appear to be any data on the breeding ecology and biology of the White-tailed Eagle in the country, although the breeding ecology of the species is well known elsewhere, especially in northern and western Europe (Sandor *et al* 2015).

Table 1. Records of the number of individuals of White-tailed Eagle in Gilan province, Iran, during the breeding season from 2013 to 2018 (February (F), March (M), April (A) and May (M)). Dashes indicate that there was no census or visit in that month.

Years	2013			2014			2015			2016			2017			2018			D.A Scott, (1970-1976) (No. of pairs)
	F	M	A	F	M	A	F	M	A	F	M	A	F	M	A	F	M	A	
Near Astara	-	-	0	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	1
Abbasabad Dam	-	1	0	0	-	1	-	-	0	0	0	0	0	0	0	0	0	0	1
Lisar Protected Area (Jowkandan wetland)	-	-	-	1	0	-	1	-	1	0	1	0	1	1	0	1	1	2	2
Anzali Wetland	4	4	2	2	2	2	2	3	4	3	2	3	2	4	2	2	3	2	2 or 3
Bujagh National Park	3	0	0	1	3	2	1	0	4	2	0	0	0	3	4	0	1	2	0
Amirkelayeh Lake	1	0	0	0	2	0	0	0	-	1	0	2	0	1	1	0	-	-	1
Rasht fishpond	2	0	-	-	1	-	0	0	0	-	0	1	1	0	0	0	2	0	0

METHODS

Study area

Gilan Province (36°34'N to 38°27'N, 48°53'E to 50°34'E; 14 042.3 km²) is located in the north of Iran and to the southwest of the Caspian Sea. Elevation ranges of the province are from 26 m below sea level to over 3000 m above sea level. This province has three internationally important wetlands (Anzali, Amirkelayeh and Bujagh National Park) and other ecosystems including the Caspian Sea, rice fields, tea plantations, Hyrcanian forest and high mountain ranges. It is one of the most important areas for birds in Iran, with 348 bird species reported in the province (Ashoori & Abdoos 2013, Ashoori 2018).

Data Collection

This study attempted to collect all records of the species in southwestern coastal lowlands of the Caspian Sea (Gilan Province) during the breeding period (February to May) from 2013 to 2018. Also, all sites at which the bird had previously been reported during the breeding season in Gilan Province (Table 1) and other suitable habitats especially around large wetlands were checked on foot or by car, motorcycle or motorboat.

In the province of Gilan, one active nest of the White-tailed Eagle was located by AA on an islet in Anzali wetland in 2013. At this nest, breeding activities commenced in the middle of January. So, the nest was checked regularly from February to May, twice a month and about two to three hours during each visit from 2013 to 2018. A Drone Multicopter, telescope and binoculars were used to check the active nests and their contents, and to obtain information on dates of egg-laying, clutch size, hatching success, overall breeding success and the diet.

RESULTS

All records of White-tailed Eagles in Gilan during the breeding season from 2013 to 2018 are given in Table 1. The species was seen regularly during the breeding period at only two sites, Anzali wetland and Lisar Protected Area (Jowkandan wetland). All parts of

Anzali wetland were checked regularly, especially in 2015, but the only active nest found was that discovered in 2013 and the nest was active during the breeding season in all years from 2013 to 2018 (Tables 1, 2). No evidence of breeding was found at an old nest on a large tree in the southern part of the wetland Anzali, where the species had bred until 2003. It seems likely that encroachment by agriculture and conversion of parts of this wetland to poplar *Populus* sp. plantations, together with increased disturbance from farmers had resulted in the abandonment of this site by the eagles. Modern forestry methods have been mentioned as a reason for a reduction in the availability of suitable nesting habitat of White-tailed Eagles (Orta *et al* 2013).

Despite the presence of one or two individual eagles during the breeding season, no nest was located at Jowkandan wetland. F. Naziri, a local birdwatcher living in the area, searched the area thoroughly in 2017 and 2018, but failed to find any nest at this wetland or in the nearby Hyrcanian forest. The easy accessibility of all possible breeding sites and presence of large numbers of people in the area may be the reason for the failure of the birds to breed there. It seems that the long-term presence of people around an eagle nest will cause the birds to leave the nest for hours at a time, and there is then the possibility that Magpies *Pica pica* and Hooded Crows *Corvus cornix* might destroy the eggs or kill the newly hatched chicks. At the breeding site of Anzali wetland, the adult birds leave the nest every time AA approached the nest to within about 140 meters. There were usually a few Magpies and Hooded Crows around the nest, and one of the adult eagles would often drive them away from the nest.

In January 2018, H Alinejad (in litt) observed a pair of eagles in courtship display and carrying branches to a tree at Rasht fish farms, south of the city of Rasht. There are five fishponds varying in size from 300 ha to 500 ha, and totaling 1400 ha in all (Ashoori & Abdoos 2013). However, H Alinejad could not find any nest in the area in the second half of March and April. Undoubtedly, the guards at the fish farms would not allow White-tailed Eagles or other fish-eating birds to breed in the area.

Observations of a White-tailed Eagle nest

Only one active nest was located during the present study. It was located on Ghalam-Goodeh islet (37°27'N, 49°27' E, 81 ha) in the central part of the Anzali wetland complex (37°25' to 37°30'N, 49°25' to 49°30'E; 19 300 ha). This islet is uninhabited and the dominant tree species are Common Alder *Alnus glutinosa*, Caucasian Wingnut *Pterocarya fraxinifolia* and Caspian Locust *Gleditsia caspica*. There is a heronry on the islet close to the eagle nest, with some 600–1100 pairs of herons and egrets (Black-crowned Night Heron *Nycticorax nycticorax*, Little Egret *Egretta garzetta*, Cattle Egret *Bubulcus ibis* and Squacco Heron *Ardeola ralloides*) (Ashoori *et al* 2017). The eagle nest here was built in a Common Alder *Alnus glutinosa*, the largest tree on the islet, and situated in the centre of it (Plate 1). Egg-laying commenced in January in all six years of the study, and chicks usually hatched in the first few days of March. From early April to the middle of April, the chicks began to appear on the edge of the nest. The fledglings left the nest in late May, but remained around the nest and on the islet until the middle of June. The clutch size, hatching success and fledging success at this nest are given in Table 2.

Table 2. Clutch size, hatching success and fledging success at a nest of the White-tailed Eagle in Ghalam-Goodeh, Anzali wetland, Gilan Province, Iran.

Year	Clutch size	Number hatched	Number fledged
2013	-	-	2
2014	3	3	3
2015	3	3	3
2016	3	3	1
2017	-	2	1
2018	-	-	1



Plate I. White-tailed Eagle *Haliaeetus albicilla* nest in Common Alder with chicks and one parent, Ghulam-Goodeh islet in the Anzali wetland, Iran, April 2015. © A Ashoori

During a severe storm with strong winds in February 2017, the nest and eggs were destroyed. The pair tried to repair the nest within one week, but finally they built a new nest on another poplar tree about 150 m from the old nest. In 2018, they repaired the old nest in January and laid their eggs again.

Observations of the food brought to the nest by the eagles revealed that their diet consisted of waterbirds (70%), including Mallard *Anas platyrhynchos*, Common Teal *Anas crecca*, Garganey *Anas querquedula*, terns (*Sterna* spp. and *Chlidonias* spp.) and waders (*Tringa* spp.), and also fish (30%). They often hunted for their prey in an extensive area of open water in the central part of the wetland about 3-6 km from the nest. On a few occasions in April, one of the pair was seen about 7.5 km away from the nest at the east end of the wetland, where there was a large concentration of over 4000 waterbirds.

CONCLUSION

Threats such as human disturbance and persecution along with the loss and degradation of wetland habitats have been identified for the White-tailed Eagle (Krone & Scharnweber 2003). White-tailed Eagles are sensitive to the presence of people around their nests, although different pairs may show different sensitivity to disturbance. In general, human disturbance 300 meters or more from a nest is not a problem (Ruddock & Whitfield 2007). Urban development in Astara County and around Abbasabad Dam, the development of paddy fields towards wetlands, land-grabbing for conversion to agricultural land, the cutting down of suitable nesting trees, especially around Amirkelayeh Lake, and urban development around Bujagh National Park are most likely responsible for the failure of the species to breed in these areas in the last decade. Generally, it seems that the loss and

degradation of wetlands together with urban, rural, and agriculture developments in Gilan Province (Ashoori 2009) have been responsible for the disappearance of suitable breeding habitat of the White-tailed Eagle in Gilan. The only nest found in recent years was on an uninhabited islet. It is therefore likely that stresses caused by the presence of people are an important reason for the decline in the breeding population of the White-tailed Eagle in the south Caspian region. It seems that the nest on Ghalam-Goodeh islet in Anzali wetland is now the only active nest in Iran. There may still be some suitable breeding habitat in Gilan, such as in the southern part of Anzali wetland and at Jowukandan wetland, as White-tailed Eagles occasionally remain there throughout the breeding season. It is necessary to control the main threats, protect breeding sites, where no disturbance is permitted, and improve breeding habitat at key sites to revive the breeding population of this iconic species in Iran. Otherwise, the breeding population of the White-tailed Eagle may become extinct in Iran in the near future, as has happened in other Middle Eastern countries such as Iraq and Syria (Porter & Aspinall 2010).

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LITERATURE CITED

- Ashoori, A. 2009. [Endangered and protected birds of Gilan province]. Katibeh Gil, Iran. [In Farsi].
- Ashoori, A & A Abdoos. 2013. [Important wetland habitats for the waterbirds of Gilan]. Katibeh Gil, Iran. [In Farsi].
- Ashoori, A, HV Moradi, HR Rezaiee & M Salmanmahiny. 2017. Nest position, breeding success and diet of the Black-crowned Night Heron, *Nycticorax nycticorax* in the Anzali Wetland, Northern Iran (Aves: Ardeidae). *Zoology in the Middle East* 63: 283-290.
- Ashoori, A. 2018. The birds of Bujagh national park, Iran, 2004–2016. *Sandgrouse* 41(2): 144-156.
- Birdlife International. 2015. *European Red List of Birds*. Office for Official publications of the European Communities, Luxembourg.
- Clark, WS. 1999. *A field guide to the raptors of Europe, the Middle East, and North Africa*. Oxford University Press, Oxford, UK.
- Ferguson-Lees, J & DA Christie. 2001. *Raptors of the World*. Christopher Helm, London.
- Krone, O & C Scharnweber. 2003. Two White-tailed Sea Eagles (*Haliaeetus albicilia*) collide with wind generators in northern Germany. *Journal of Raptor Research* 37(2): 174–176.
- Mansoori, J. 2008. [A Field Guide to the Birds of Iran]. Farzaneh Publishing, Tehran. [In Farsi].
- Orta, K, GM Kirwan, DA Christie & P Boesman. 2013. White-tailed Sea-eagle (*Haliaeetus albicilia*). In: del Hoyo, J, A, Elliott, J, Sargatal, DA Chritie & E de Juana (eds), *Handbook of the birds of the World Alive*, Lynx Edicions, Barcelona.
- Porter, R & S Aspinall. 2010. *Birds of the Middle East*. Christopher Helm, London.
- Ruddock, M & DP Whitfield. 2007. *A review of disturbance distances in selected bird species. report from natural research (Projects) Ltd to Scottish Natural Heritage*. Scottish Natural Heritage, Battleby, UK.
- Sandor, AD, V Alexe, M Marinov, M Dorosencu, A Domsa & CBJ Kiss. 2015. Nest-site selection, breeding success, and diet of White tailed Eagles (*Haliaeetus albicilia*) in the Danube Delta, Romania. *Turkish Journal of Zoology* 39: 300-307.
- Scott, DA, H Moravej-Hamadani & A Adhami-Mirhosseyni. 1975. [The Birds of Iran]. Iran Department of Environment, Tehran. [In Farsi, with scientific, English and French names].

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