

The Great Bustard *Otis tarda tarda* is Critically Endangered in Turkmenistan

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Summary: In Turkmenistan the Great Bustard *Otis tarda tarda* is a poorly studied passage migrant and wintering species, occurring widely but patchily in spring in March–April, autumn in October–November and winter in December–March, with records mainly in the north-west and south-west of the country. The species prefers (at any time of the year) open habitats—solid soil (clay, more rarely crushed stony or loessic) deserts with sagebrush–saltwort and small brush vegetation assemblages; sometimes it occurs at the edge of oases. The main threats are illegal hunting; desert development (gas exploration, animal grazing, expansion of transportation network), which causes disturbance to birds; and the irrigation and ploughing of wild lands. Hunting Great Bustards has been prohibited since 1958, and the species is included in the *Turkmenistan Red Data Book* (1985, 1999, 2011) as ‘very rare, under threat of extinction’, but illegal hunting continues. A conservation management plan is needed that will reduce illegal hunting, increase awareness of the species’ needs, and strengthen the penalties for poaching; develop a research programme in strictly protected areas and Important Bird Areas but also outside them, studying winter distribution in and around cultivated landscapes; and draw on the experience of breeding birds at a laboratory in the Kopetdag foothills.

HISTORICAL AND CURRENT STATUS

The Great Bustard *Otis tarda tarda* is poorly studied in Turkmenistan, where it is a passage migrant and wintering species. Spring migration occurs in March–April, autumn migration in October–November, and overwintering from December to March. The species does not nest in Turkmenistan. There is only one case of possible nesting recorded in 1884 (Zarudnyi 1896). There have been no targeted studies of this species; all existing data (15 sources) were gathered incidentally. It was distributed widely and could have potentially been recorded in any part of the plain that covers about 80% of Turkmenistan, especially during the migratory period. However, historical winter observations were primarily in two main regions: (1) clay territories in the Kopetdag foothills (then free of human influence) and (2) in the plains of extreme south-western Turkmenistan. The species was occasionally recorded at other places in the country.

The Great Bustard was common, even numerous, during winter in the lower Atrek river in south-western Turkmenistan. Concentrations of birds were in the tens, and once up to 200 individuals, in December in the years 1935–1939 (Isakov & Vorobyev 1940), 1947 (Dement’ev & Turov 1951) and 1949 (Ataev *et al* 1978).

There are no numerical data available concerning Great Bustards wintering in the northern foothills of the central Kopetdag in the 1940s, but the number ‘dramatically decreased in comparison with 1925–1926’ (Dement’ev 1952), and especially in comparison with earlier periods, when flocks of hundreds of individuals were recorded on the outskirts of Ashgabat (Zarudnyi 1903).

From 1960–1980 the number of Great Bustards in the foothills of the Kopetdag declined dramatically (Saparmuradov 2003). Only small groups of birds (several individuals or even single birds) were observed (Ataev *et al* 1978, Mischenko & Scherbak 1980, Saparmuradov & Eminov 1993). However, as seen in Table 1, an increase in the number of records, particularly in very recent years, could be construed as evidence of an increase in the population, not only in the Kopetdag foothills, but in other areas of Turkmenistan as well, apparently owing to increased levels of cereal production. Even so, there are few recent sightings: 34 records in the past quarter of a century (Table 1 & Figure 1). The number of Great Bustards overwintering in the country is estimated at 25–45 (Table 2).



Figure 1. Map of observations of the Great Bustard in Turkmenistan over the past 22 years (see Table 1).

DISTRIBUTION, PROTECTED AREAS AND HABITAT

The Great Bustard is widely distributed across the country, but the major regions where the species is observed on migration are north-western and eastern Turkmenistan. Wintering areas are spread widely in the Kopetdag foothills (specifically in areas with cereal fields), with notably more in the northern foothills, which have well-developed agricultural lands, than in the south-western foothills, which consist of clay lowlands (Table 2).

Seven Important Bird Areas (IBAs) and three protected areas include habitat suitable for the Great Bustard in Turkmenistan. Particularly important is Chokrak-Tutly IBA (147 962 ha in area; Rustamov *et al* 2009), which encompasses a wide, 135-km long, west–east band along the Karakumdari river in the northern foothills of the western Kopetdag (Hojamuradov & Rustamov 2020). This is where most recent observations of Great Bustards have occurred (records 5, 9, 14, 15, 16, 20, 21, 24, 25, 27, 28, 30 in Table 1 and Figure 1).

Throughout the annual cycle the species prefers open habitats, specifically solid soil (clay, lesser crushed stony or loessic) deserts with sagebrush–saltwort and small brush vegetation associations; and it sometimes occurs at oases. It avoids blown sands, and sands with tree and bush vegetation, as well as large anthropogenic areas (with the exception of agriculture) and wetlands.

THREATS

Poaching

Hunting of Great Bustards has been prohibited by law since 1958 (Rustamov *et al* in press). In 1975, the species was included in the *Red Book of Turkmenistan* as a ‘very rare endangered species’ (Rustamov 1985), assessed as category I (CR – Critically Endangered) in the *Red Book of Turkmenistan* in 1999 (Saparmuradov 1999) and included in the third edition with the same category in 2011 (Saparmuradov 2011). It is also included in the fourth edition

Table 1. Observations of the Great Bustard in Turkmenistan over the past 22 years.

Record no. (see Figure 1)	Date	Coordinates	Number of birds	Location	Observer
1	5 April 1998	38°39'21"N 64°13'20"E	1 (male)	Compacted sand between channels of the Mehejan and Amudar'ya rivers, Lebap province	V Balakleets
2	13 May 2000	40°09'30.83"N 52°58'27.52"E	1	Schistose-loamy lowlands, 17 km north of Turkmenbashi, Balkan province	A Scherbina
3	13 May 2000	40°20'57"N 53°05'48"E	1	Schistose-loamy lowlands, 42 km north of Turkmenbashi, Balkan province	
4	12 December 2005	40°40'42"N 53°17'25"E	8	Dry plain north of llaman well, Balkan province	
5	November 2006	38°52'24"N 56°37'42"E	6	Loamy regions on piedmont lowlands north-east of Goch train station, Balkan province	A Potaeva
6	14 January 2007	38°07'04"N 65°24'51"E	1 (female)	Loamy lowlands on border between a sandy area and winter fields, 9 km west of Tallymerjen train station, Lebap province	E Rustamov
7	5-10 March 2007	41°43'25"N 57°83'50"E	1 (male)	Loamy lowlands, near Edykhovuz well, Dashoguz province	A Amanov
8	10 September 2013	40°35'37"N 55°25'05"E	1	Yaglydag ridge, loamy region at altitude of Itguirugy, 5 km south-west of Kyzylkaya settlement, Balkan province	A Scherbina
9	Early December 2014	39°20'86"N 56°06'31"E	49	Piedmont lowlands, loamy lowlands, 30 km north-west of Serdar, Balkan province	M Aiyriev
10	15 March 2015	38°45'23"N 64°18'10"E	1	Plateau at eastern shore of Soltandag lake, Lebap province	V Balakleets
11	17 March 2015	40°50'54"N 61°50'68"E	7	Plateau at north-eastern shore of Soltansanjar lake. Koshbulak district, Lebap province	K Davudov

12	January 2016	38°13'38"N 58°52'38"E	2	Abandoned and winter fields north of Chorly settlement, Akhal province	A Potaeva
13	January 2016	37°45'57"N 59°21'57"E	1	Abandoned and winter fields, 18 km north of Soltandesht settlement, Akhal province	
14	November 2016	39°05'20"N 56°17'51"E	8	Loamy piedmont lowlands, 11 km north of Serdar, Balkan province	
15	January 2017	39°16'41"N 55°55'05"E	30	Loamy piedmont lowlands, winter fields, 35 km east of Bereket, Balkan province	Kh Khojamuradov
16	January 2017	39°23'05"N 55°47'53"E	20 (in 3 flocks)	Loamy piedmont lowlands, winter fields, south of Gettin settlement, Balkan province	
17	17 March 2017	38°51'31"N 64°21'42"E	2	Plateau by a cliff of the Zennibaba depression, Lebap province	S Taganov
18	8 April 2017	40°26'01"N 54°12'21"E	Foot-prints	Schistose-loamy lowlands with dry plains, 13 km north of Koshoba village, Balkan province	E Rustamov
19	10 November 2017	38°50'23"N 64°13'99"E	2	Plateau to east of Soltandag lake, Lebap province	K Davudov
20	January 2018	39°14'39"N 56°09'37"E	7	Winter fields on shore of Karakmudarya, 15 km south of Ok village, Balkan province	Kh Khojamuradov
21	January 2018	39°24'18"N 55°55'08"E	40	Winter fields, 10 km north-east of Gettin settlement, in Chokrak district, Balkan province	A Potaeva
22	28 April 2018	41°29'39"N 58°19'44"E	Foot-prints	Clay area at base of southern part of Tarimkaya cliff, Dashoguz province	P Iankov & E Rustamov
23	Early November 2018	38°29'89"N 59°40'82"E	4	Sand-loamy lowlands, 40 km south of Mollakurban lakes, near Kyrkgui well, Akhal province	V Laptev
24	End November 2018	39°24'34"N 55°59'87"E	6-9	Loamy piedmont lowlands, winter wheat fields, 4 km east of Bereket, Balkan province	Kh Khojamuradov
25	End December 2018	38°43'51"N 56°56'09"E	2	Loamy piedmont lowlands, winter fields, 10 km east of Bamy settlement, Balkan province	

26	6 January 2019	41°57'37"N 58°42'51"E	3	Wheat fields, 20 km north of Rukhybelent settlement, Dashoguz province	A Amanov
27	5 February 2019	39°35'59"N 56°06'14"E	16	Piedmont lowlands, on border between a sandy area and winter fields, Khojaguima district, 10 km southwest of Ok settlement, Balkan province	Kh Khojamuradov
28	3 March 2019	39°04'27"N 56°22'57"E	9	Piedmont loamy lowlands, 3 km northwest of Serdar town, Balkan province	
29	10 March 2019	40°02'06"N 55°39'52"E	2	Solonchak-loamy desert, 20 km north of Dikche, Balkan province	
30	22 December 2019	39°17'56"N 56°01'00"E	6	Piedmont lowlands, wheat fields, 25 km north of Iskander train station, Balkan province	
31	15 January 2020	40°05'53"N 57°08'10"E	7 (4 males, 3 females)	Schistose-loamy lowlands around Ak-Yaila well, Balkan province	
32	25-26 January 2020	37°29'06"N 61°35'54"E	1	Field in level sands, 12 km south of Shatlyk settlement, Mary province	N Mallyev
33	25 November 2020	41°32'17"N 58°21'44"E	7	On clay area at base of northern part of Tarimkaya cliff, Dashoguz province	A Amanov
34	16 December 2020	42°07'35"N 59°28'56"E	2	Winter fields, 14 km west of Boldumsaz, Dashoguz province	

(Rustamov & Khojamuradov in press). Despite this, illegal hunting continues. Poachers usually kill bustards for their own use as food as well as for black market sale. They use motorcycles and cars to search for and pursue the birds, which have nowhere to hide in the open.

Development of desert lands

In Turkmenistan, especially in the last 25–30 years, large-scale development of deserts has been carried out: gas exploration and production, expansion of the transport and electricity network, construction of new settlements, expansion of pastures and increase in livestock (sheep, cows, camels). All this has placed increased anthropogenic pressure on desert ecosystems, degradation of wild bird habitats and impoverishment of their food supply, including for bustards; herders' dogs represent an addition to the predation pressure that (particularly breeding) birds experience.

Reclamation and cultivation of virgin lands

Large-scale irrigation of the Karakum and other deserts in Turkmenistan causes salinisation and degradation of the habitats of the Great Bustard. Although the cultivation

Table 2. Current population estimate for Great Bustards in Turkmenistan. These numbers are an expert evaluation of the number of individual birds appearing in the region in each season.

Season	Number of Great Bustards in country	Number of Great Bustards in sub-region	Description of region	Quality of estimate, from 1 (low-quality) to 5 (high-quality)
On migration	Insufficient data	Up to 50 or more	Piedmont loess and sandy-loamy lowlands of the Kopetdag mountains, with agricultural lands	4
		Up to 10	Valley of the Amudar'ya river and agricultural lands of Tallymerjen (in Dowlitli district)	3
		Up to 10	Schistose-clay plains of northern Turkmenistan	4
		Up to 5	Schistose-clay plains of north-west Turkmenistan	3
		unknown	Clay valleys of south-west Turkmenistan	2
Wintering	25-45	Up to 50	Piedmont loess and sandy-loamy lowlands of the Kopetdag mountains, with agricultural lands	5
		unknown	Clay plains of south-western Turkmenistan	2
		Occasional single birds	Right shore of Amudar'ya river in foothills of Gaurdak Mountains and agricultural lands of Tallymerjen (in Dowlitli district)	5

of grain and fodder crops produces new areas for feeding bustards and other wintering birds (Black-bellied Sandgrouse *Pterocles orientalis*, Asian Houbara *Chlamydotis macqueenii*, Little Bustard *Tetrax tetrax*), it also attracts wintering bustards to the periphery of oases. This, in turn, makes the birds more accessible for illegal hunting.

PRIORITY CONSERVATION ACTIONS

A management plan is needed for the short- and long-term protection of bustards in Turkmenistan. This should not be a task only for scientists.

Most of all, it is important to provide for anti-poaching measures, which should include constant large-scale campaigning and publicity for the protection of the species, aimed at raising people's awareness of all issues related to the conservation of bustards. The law against poaching all bustard species needs to be strengthened with higher penalties, widely publicised and fully enforced, producing a sharp drop in illegal hunting and trade in harvested birds. A special role should be given to cooperation between the state bodies of the Biodiversity Control Inspectorate and the public, including the Society of Hunters and Fishermen and the Nature Protection Society of Turkmenistan.

A programme of research is needed on the Great Bustard's numbers, range and agricultural habitat use, both inside and outside protected areas, using GIS and other

technologies. Studies of crop rotation and production can help manage birds wintering on the fringes of cultivated land.

In the 1980s, on the southern edge of the Karakum desert (37°57'16"N 58°34'22"E) east of Ashgabat, a laboratory was briefly established at the Department of Nature Protection of the Turkmen Agricultural Institute to study the breeding of rare birds including the Chukar Partridge *Alectoris chukar* and Caspian Snowcock *Tetrao gallus caspius*, and the experience gained there (Sopyev *et al* 1990) should be used in the development of measures to restore populations of bustards as well as various galliforms in Turkmenistan.

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