Исторически многочисленная большая дрофа *Otis tarda tarda* почти исчезла из Западного Казахстана

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Аннотация: Популяция дрофы *Otis tarda tarda*, которая исторически населяла в большом количестве территорию Западного Казахстана (в т.ч. Западно-Казахстанскую, Атыраускую, Мангистаускую и Актюбинскую области), в XX столетии катастрофически сократилась в регионе. В XXI веке были зарегистрированы лишь единичные встречи, а во время специальных исследований, проводимых нами в 2006 и 2017 годах, были обнаружены только одно маленькое токовище и две небольших стаи в предмиграционный период. На основании наших данных, а также некоторых других свидетельств, можно сделать вывод, что на всей вышеуказанной обширной территории Казахстана обитают не более 40 дроф. Основные угрозы – браконьерство и развитие земледелия, препятствующее успешному размножению вида. Если дрофа полностью исчезнет на территории Западного Казахстана, восстановить популяцию будет очень сложно в связи с тем, что численность вида на прилегающих территориях Саратовской и Оренбургской областей Российской Федерации также продолжает сокращаться.

The historically abundant Great Bustard *Otis tarda tarda* is almost extirpated from western Kazakhstan

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Summary: Although historically abundant, Western Great Bustard *Otis tarda tarda* populations in western Kazakhstan (including West Kazakhstan, Atyrau, Mangystau and Aktobe provinces) declined catastrophically throughout the 20th century. Few observations have been reported in the 21st century, and our targeted surveys in 2006 and 2017 located only one small lek and two small flocks during the pre-migratory staging period. Considering our findings, as well as reports from other sources, we are unable to account for more than 40 Great Bustards across this large area of Kazakhstan. Threats to the species include poaching and agricultural intensification incompatible with successful breeding. Should the Great Bustard disappear from western Kazakhstan, recolonisation will be challenging unless population declines are also reversed in adjacent Saratov and Orenburg oblast's of Russia.

HISTORICAL STATUS AND DISTRIBUTION

In the first quarter of the 20th century, the Western Great Bustard *Otis tarda tarda* was described as an abundant breeding bird in the West Kazakhstan and Aktobe provinces of Kazakhstan, and also occurred in Atyrau province west of the Ural river and along portions of the Emba river, being found in natural steppe, abandoned fields, harvested wheat and winter wheat (Sushkin 1908, Bostanzhoglo 1911, Karamzin 1917). In the second quarter of the century, however, Great Bustard abundance declined, and by the 1960s the species was described as widely but only sparsely distributed across most of this area (Gavrin 1962). In 1971, the size of the 'Pricaspian-Ural population' (considered to encompass present-day West Kazakhstan and Aktobe provinces of Kazakhstan and the Orenburg oblast' of Russia) was estimated at only 350 adult individuals. By 1980, this had dropped to 260 individuals (Potapov & Flint 1987).

Since that time, almost all published reports of sightings in western Kazakhstan concern individual birds or small flocks (fewer than 10 individuals). In the 1980s, the species was observed breeding in very small numbers across West Kazakhstan province, particularly in the Utva river valley, the vicinity of Almaznoe town, and west of the Bitikskoe reservoir. The largest flock recorded consisted of 20 birds gathering for autumn migration north of Almaznoe (Debelo *et al* 1986). Groups of wintering Great Bustards have been reported only rarely in western Kazakhstan, and all have been located to the west of the Ural river in West Kazakhstan province (Debelo *et al* 1986).

Migration routes

There are several possible migration routes that may be used by Great Bustards in western Kazakhstan. Those breeding in West Kazakhstan province may migrate along the route documented for Great Bustards breeding on the left bank of the Volga river in the adjacent Saratov oblast' of Russia to overwinter in southern Ukraine and Crimea (Watzke 2007). The number of Great Bustards counted on these wintering grounds has decreased by a factor of seven since 1999 (Andryushchenko 2020). A migration corridor along the western shore of the Caspian sea was historically documented but is now rarely used by Great Bustards (Belik 1998). A third route traces the eastern Caspian shore, terminating in western Turkmenistan or north-eastern Iran (Bostanzhoglo 1911). The number of Great Bustards observed at the southern terminus of this route dropped dramatically during the 20th century (Kessler & Smith 2014).

PUBLISHED OBSERVATIONS IN THE 21ST CENTURY

There have been very few records of Great Bustards in western Kazakhstan in the 21st century. Most of these have occurred during the migratory period or pertain to individuals in flight, and are scattered across the region. In June 2001, four birds were observed on the Ustyurt plateau in Mangystau province (Grachev 2002). Four were observed in September of the same year in Oiyl district, western Aktobe province, and three in June 2002 in Irgiz district in eastern Aktobe province. In mid-May 2003, three Great Bustards were sighted flying over the open northern Caspian sea (Kovalenko 2003). In October 2003, a single bird was observed feeding along a riverbank north of Atyrau (Karpov 2003). In October 2007, five individuals were observed in the Utva river basin (Bidashko & Kolbintsev 2007). In late March and early April 2008 respectively one and two individuals were spotted flying over the Zhanakala district of West Kazakhstan province (Parfenov 2008). A single bird from Aktobe province was reported as sampled for a study of wildlife disease in 2018, but further details were not provided (Orynbayev *et al* 2018).

FIELD SURVEYS

We conducted surveys for Great Bustards in West Kazakhstan province in autumn 2006 and spring 2017. We selected this sector of western Kazakhstan because the majority of the recorded sightings of this species in recent decades have occurred there. We further targeted our surveys in West Kazakhstan by consulting field biologists and hunters with knowledge of the species in the region. The surveys in 2006 were undertaken from 9–16 October, and covered 997 km. Surveys in 2017 took place from 24 April–3 May, and covered 1503 km. Owing to the large escape distance for this species in this region, we conducted observations through spotting scopes from high points in the landscape. Despite these targeted explorations, we personally observed only two flocks (one of five birds, one of 13) during the pre-migratory staging period in 2006 and one small lek (two males and one female) in 2017. These birds were all observed in mosaics of agricultural cereals, although we also extensively surveyed areas with less anthropogenic impact.

At every opportunity we questioned local hunters, farmers and herders about their knowledge of Great Bustards. Local people associate the species with wheatfields, and ascribe its decline to overhunting. Older people reported large flocks during the Soviet era and a decline during more recent decades. By the time of our second survey, in 2017, we found that younger people were generally unfamiliar with the name of the Great Bustard.

In 2006, a local game warden estimated that a total of 20 Great Bustards remained during the breeding season in Burlinskii district. Local people also reported flocks of 2–30 birds gathering in October. It is likely that some of these individuals breed to the north, in Orenburg oblast' in Russia. In western Kazakhstan outside of West Kazakhstan province, a group of some six birds has been repeatedly observed in spring in Baiganinskii district of Aktobe province during aerial surveys of Saiga Antelope *Saiga tatarica* (Association for Conservation of Biodiversity of Kazakhstan, in litt), likely representing a lek.

POPULATION ESTIMATE

From our dedicated surveys, incidental observations in the course of other work in the region, and review of published reports, we find that the most important sites for the Great Bustard in western Kazakhstan are along the Utva river valley in Burlinskii (Borili) district and, to a lesser degree, Chingirlauskii (Shyngyrlau) district in West Kazakhstan province (Figure 1). Both breeding and migratory staging occur in these areas. Altogether, considering the information gathered above from published observations, our field observations, and oral interviews, we are not aware of more than 40 Great Bustards

occurring in western Kazakhstan, an area of over 700 000 km^2, during any season (Table 1). It is possible that further surveys might identify a few additional small leks.

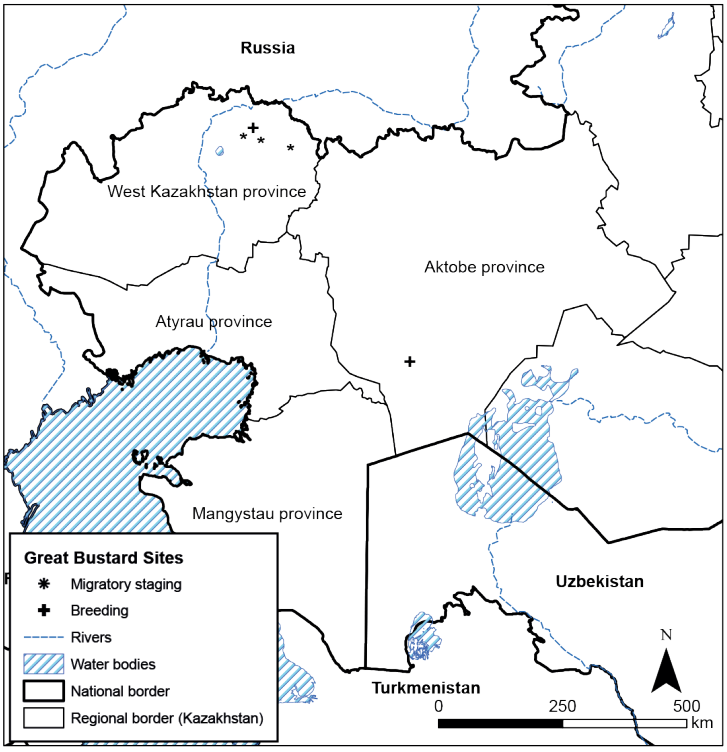

Figure 1. Contemporary sites confirmed to be used by Great Bustards in western Kazakhstan. Sightings of birds in flight and single, unrepeated stopovers are not included.

Table 1. Expert evaluation of the current Great Bustard population in western Kazakhstan in each season, based on our survey data and all known published and unpublished observations of the species in this region.

Season	Number of Great Bustards	Numbers of sites	Quality of estimate, from 1 (low-quality) to 5 (high-quality)
Breeding	5–26	2	2
Gathering for migration	20–40	3	2
Wintering	0	0	2

THREATS AND CONSERVATION RECOMMENDATIONS

In the mid-twentieth century, Great Bustard populations across broader Central Asia declined as a result of agricultural reclamation, poisoning by pesticides and rodenticides, and large-scale hunting using automobiles before protection of the species in the USSR (full review of this period in Kessler & Smith 2014). Poaching is identified by local people as a major reason for declines in recent decades. Great Bustards are wary in this region and exhibit a large escape distance (> 1 km). Poaching is reported by both local people and sport hunters from cities, and poses a heightened risk in autumn when Great Bustards gather in larger, more conspicuous flocks. We recommend the development of motivated

and geographically flexible anti-poaching enforcement teams to protect groups of Great Bustards during this season. An outreach campaign emphasising the critical status of the species in this region and the importance of its protection could be helpful.

There is a likely conflict between successful Great Bustard breeding and agricultural practices in the wheatfields where these birds gather. We noted an intensification of agricultural practices in this region between our surveys in 2006 and 2017, particularly a decrease in the complexity of the agricultural mosaic. However, only two contemporary lek sites are known (Baiganinskii and Burlinskii) in the entire western Kazakhstan region. Owing to the difficulty in observing these wary birds, identification of additional leks may be most efficiently accomplished by intensive surveys of the human population, focusing on hunters and farmworkers, to be confirmed by field surveys. Protective measures should be undertaken at all remaining lek sites to ensure breeding Great Bustards are not disturbed and nests are spared from destruction by agricultural machinery. This will require the development of agreements with farm-owners concerning bustard-friendly farming practices.

The Great Bustard has been nearly extirpated from western Kazakhstan and there is currently little chance of natural re-colonisation owing to declines in adjacent populations and range fragmentation. The two documented leks in western Kazakhstan are approximately 500 km distant from each other. Fewer than 100 Great Bustards are reported to remain in the adjacent Orenburg oblast' of Russia (Kornev & Gavlyuk 2019). The number of Great Bustards breeding along the lower Volga, approximately 400–600 km from the lek in West Kazakhstan, has decreased to under 3000 birds (Oparin & Oparina 2020).

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IN MEMORIAM

This paper is dedicated to the memory of Fedor Grigorievich Bidashko (1950–2018), *with whom this research was conducted. His deep knowledge and enthusiasm for the natural history of this region, and his brilliant and singular character, will be long remembered.*

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