**Supplementary Material**

Current status of Great Bustard *Otis tarda* in Turkey: population size, distribution, movements, and threats

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Figure S2.Distributions of the minimum and maximum population size estimates for the Great Bustard leks in Turkey.

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**Figure S1.** Map showing the geographic coverage of our studies. Grey-colored provinces are the ones, in which we have conducted our field surveys, and the stars show the locations of the largest leks in Turkey.

**Table S1.** Population size estimates for Great Bustards breeding in Turkey since 1979. *\*These two estimates were done using the same information sources, making them redundant.*

|  |  |  |  |
| --- | --- | --- | --- |
| ***Year*** | ***Population Size Estimate (Individuals)*** | | ***Source*** |
| 1979 | 200-1000 | | Collar (1979) |
| 1980 | 200-1000 | | Cramp (1980) |
| 1981 | 4000 | | de Trucios (1990) |
| 1981 | 3000-4000 | | Goriup and Parr (1985) |
| 1996 | 800-3000 | | Kollar (1996) |
| 1996 | 145-4000 | | Kasparek and Bilgin (1996) |
| 2004 | 764-1250 | | Kılıç and Eken (2004) |
| 2004 | 703-1065 | | Özbağdatlı et al. (2004) |
| 2008 | 764-1250 | | Palacin and Alonso (2008) |
| 2009 | 400-600 | | Karakaş and Akarsu (2009) |
| 2010 | 400-1000 | | Alonso and Palacin (2010)\* |
| 1990-2008 | 400-1000 | | Alonso (2015)\* |
| 2016 | 700-1180 | | Birdlife International (2018) |
| 2021 | 559-780 | | Current Study |
|  |  |  | |

We used all the available literature and online databases to make our final population estimates and range estimates. These sources were OST (1969, 1972, 1975, 1978), Goriup and Parr (1985), Beaman (1986), Kasparek (1987, 1989), Ertan *et al.* (1989), Eames (1991), Kirwan (1994, 2003), Kirwan and Martins (1994, 2000), Kirwan *et al.* (2010), Magnin and Yarar (1997), Heunks *et al.* (2001), Gürkan *et al.* (2003), Kılıç and Eken (2004), Kılıç and Karakaş (2005), Eken *et al.* (2006), Özbağdatlı and Tavares (2006), Karakaş and Akarsu (2009), Karataş (2012), Karataş and Özelmas (2013), Tanrıverdi (2015), Akarsu (2016), Usta *et al.* (2016), Özgencil and Özcan (2018), eBird (2019), Karataş (2020).

**Appendix S1. National Red List Assessment**

We used two different approaches to compensate for the lack of population estimates from exactly one, two, or three generations ago (Table S1), which are required to assess some of the criteria in the IUCN guidelines. First, we used the temporally closest population size estimates to make the evaluations; to be able to do this, we chose estimates that are more recent than the year that we needed the estimate. This approach ensures the validity of the trigger because if a particular trigger over a time period that is shorter than the time period mentioned in the criteria is obtained, it is likely to mean that the trigger is valid. Second, we used two temporally closest estimates, one being older and another being more recent than the actual time for which we need the estimate, and then we applied a linear extrapolation to obtain the estimate for the year of interest.

To check the criteria that concern population changes over three-generations-time (nearly 30 years for Great Bustards) by using the first approach, we used the population size estimate from 1996 (Kollar 1996), and we found that Great Bustard populations in Turkey have suffered a 30-74% (mean: 52%) decline over 24 years, which is 20% shorter than three-generations-time. Using the linearly extrapolated population size estimate for the year 1991, we found that the Great Bustard population in Turkey has declined by 64-77% (mean: 70.5%) over three generations.

By using the closest estimate (Özbağdatlı et al. 2004) to assess the criteria concerning changes over two-generations-time (nearly 20 years for Great Bustards), we found that the species has declined by 20-27% (mean: 23.5%) over a period of time 15% shorter than two generations. To obtain an estimate for 2001 (nearly two generations ago) by using linear extrapolation approach, we used population size estimates from 1996 and 2004 (Kollar 1996, Özbağdatlı et al. 2004), and we found that the populations of the species have declined by 28-59% (mean: 43.5%) over two generations.

In the end, we opted to rely on the 20-years decline estimates because the population size estimates we used for the 30-years decline give very large ranges (+-2,200 individuals; Table S1), making them less reliable. Since both 20-years and 30-years resulted in the same EN categorisation, this did not change resulted while allowing us to be conservative with our assessment.

**Appendix S2. Threat Assessment**

**Table S2:** <https://figshare.com/s/4d1fe512b27bdee6e605>

**Table S2**. Studies conducted on *Otis tarda* in Turkey and the threats they report

We used all the available sources that reported threats for *Otis tarda* in Turkey (1985-2020). The threats mentioned in the sources were given a score of 1, and the unmentioned threats were given a score of 0. Our percentage calculations included 22 different sources that specified a total of 13 threats.



**Figure S2.** Distributions of the minimum and maximum population size estimates for the Great Bustard leks in Turkey. The critical level 30 (Pinto *et al*. 2005) is indicated by arrow heads on the horizontal axis.

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