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PROPOSAL FOR THE INCLUSION OF THE GLOBAL POPULATION OF THE GREAT BUSTARD (*Otis tarda)* IN CMS APPENDIX I

Summary

The Government of Mongolia has submitted a proposal for the inclusion of the global population of the Great Bustard (*Otis tarda)* on CMS Appendix I at the 11th Meeting of the Conference of the Parties (COP11), 4-9 November 2014, Quito, Ecuador.

The proposal is reproduced under this cover for its evaluation by the 18th Meeting of the CMS Scientific Council.

PROPOSAL FOR INCLUSION OF SPECIES ON THE APPENDICES OF THE CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS

A. PROPOSAL: To list the global population of Great Bustard, *Otis tarda*, on Appendix I

B. PROPONENT: Government of Mongolia

C. SUPPORTING STATEMENT

1. Taxon

1.1 Classis: Aves
1.2 Ordo: Gruiformes
1.3 Familia: Otididae
1.4 Species: *Otis tarda*, including both subspecies, *O.t. tarda* and *O.t. dybowskii*
1.5 Common name(s): Great Bustard, Abetarda-comum, Avutarda, Grande Outarde, Großtrappe, Túzok,Дрохва,Дуадак, ХонинТоодог, Дрофа, 大鸨

2. Biological data

2.1 Distribution
2.1.1 Current distribution

The Great Bustard breeds at discrete, traditional display sites (leks) across Eurasia from Portugal to Manchuria(Figure 1, Butchart & Symes 2014). The northern limits of this breeding range currently include the UK, Germany, and northern Kazakhstan. The current southern limit of the Great Bustard's breeding range is described by northern Morocco, Turkey, and Nei Mongol in the People's Republic of China. This breeding distribution is characterized by a high degree of fragmentation particularly outside of Iberia and south western Russia.

Irruptive movements bring Great Bustards in central Europe into countries of southern Europe. Populations in Turkey and eastward through Eurasia make regular migrations to distinct wintering grounds as far south as Syria, and Anhui Province of China.

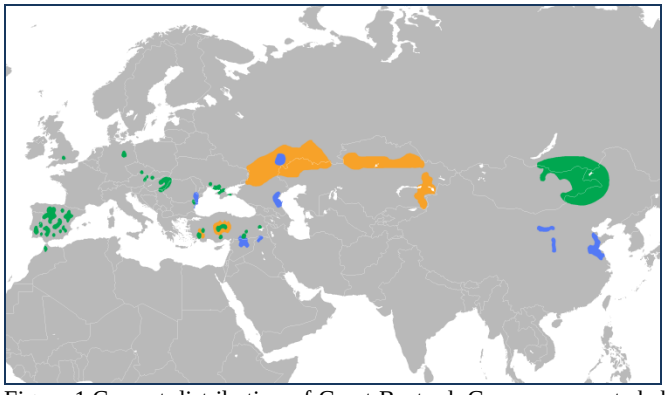

Figure 1.Current distribution of Great Bustard. Green represents habitat used year-round by some portion of the population; yellow represents breeding grounds; blue represents wintering grounds. Breeding ranges described in Kazakhstan, Mongolia, southeastern Russia and China would be more accurately represented by a number of dots, reflecting small, fragmented populations. Source: Wikimedia Foundation.

2.1.2 Historic distribution

Whereas the current distribution of Great Bustards is characterized in most portions of its range by small, disjunct populations, this species was once found more continuously across the steppe and desert-steppe belt of Eurasia, as well as north Africa and throughout cereal agriculture in Western Europe. Breeding populations of Great Bustards were extirpated from Algeria, the Balkans, Bulgaria, Czech Republic, France, Poland, Romania, Syria, Tajikistan, Tunisia, and the UK (where they were reintroduced in 2004), in the 19th and 20th centuries. The number of distinct breeding populations (leks) as well as the number of individuals within remaining leks has decreased in areas of Central and Eastern Europe, the Middle East (Turkey and Iran), Kazakhstan and East Asia (southeastern Russia, Mongolia China).

As a result of these declines in breeding populations, Great Bustards now only rarely visit countries of the Middle East, Caucasus, and Central Asia where they once regularly overwintered.

Subspecies: The nominate subspecies *Otis tarda tarda*is found from Portugal through Xinjiang, China. *O. t. dybowskii* inhabits areas east of the Altai Mountain range, in southeastern Russia, Mongolia and eastern China.

2.2 Population

The global population of Great Bustard is estimated between 44,000 and 57,000 individuals(Alonso and Palacín 2010). The majority (57-70%) of this population is found in the Iberian Peninsula, with the second largest population center (15-25%)located in southwestern Russia. These populations are relatively stable.

Populations in Central Europe representing 3-4% of the world's Great Bustards, which have been listed under Appendix I of CMS, and are covered by the Memorandum of Understanding on the Middle-European Population of Great Bustard, are increasing.

However, across the greater part of this species' distribution, populations are declining. Over the past fifty years, rapid declines have occurred in the eastern half of the species range, where Great Bustards have been completely eliminated from many regions.

There is particular concern for the eastern subspecies of Great Bustard (*O.t. dybowskii*), of which only 1200-2000 individuals are estimated to remain in southeastern Russia, Mongolia, and eastern China(Chan and Goroshko 1998, Tseveenmyadag 2001, Alonso and Palacín 2010). These remnant populations are declining, isolated, and suffer from a lack of genetic diversity (Tian et al. 2006). Increasing threats to these populations are observed as infrastructure is developed and human settlement increases in these regions of Asia.

2.3 Habitat

Great Bustards are historically a species of open grasslands, breeding in steppe and desert-steppe zones of Eurasia as well as portions of northern Africa. The species expanded into Western Europe as forests were cleared for agriculture (Isakov 1974). Today, agricultural fields are the only available breeding habitat for Great Bustards in some areas. Active, fallow, and abandoned cereal fields are used by the species, where they feed primarily on insects and non-cereal vegetation(Lane et al. 1999, Bravo et al. 2013). The eastern subspecies is notable

for its use of forest edges and small forest clearings as well as pastured grassland and cereal agricultural mosaics (Goroshko 1999, Kessler in litt.).

Wintering habitat is similar to breeding habitat. Great Bustards in agricultural fields feed on cereal stubble or alfalfa at this time of year(Lane et al. 2001).

2.4 Migrations and international movements

Great Bustards display a variety of migratory patterns across their broad geographic range, with length and duration of migration generally increasing longitudinally from west to east. This migratory behaviour and other patterns of movement (e.g. dispersal of young birds) frequently involves the crossing of one or more international borders.

Iberian populations are partially migratory, exhibiting an assortment of short seasonal movements of 10-200 km distance(Alonso et al. 2000, 2001). There was likely once regular genetic exchange between populations in Spain, Portugal, and Morocco (Broderick et al. 2003), but dispersal especially to Morocco has diminished as populations on both sides of Gibraltar have reduced(Alonso et al. 2009a).

Populations in Central Europe tend towards sedentary behaviour, but facultative migrations of up to 650 km have been recorded in response to severe winter weather, bringing these birds to states in southern Europe(Block 1996, Streich et al. 2006). Within Central Europe, non-migratory movements regularly result in these birds crossing international borders.

Through satellite tracking, it has been determined that female Great Bustards breeding in southwestern Russia regularly migrate 1100 km over the course of one week to overwinter in Ukraine (Oparina et al. 2001). During the breeding season, there is likely exchange between these breeding populations and those in western Kazakhstan.

Historically, Great Bustards also migrated from south western Russia, and possibly western Kazakhstan, along the western shore of the Caspian to overwinter in significant numbers in Azerbaijan and Iran. Now such movements are rare (Patrikeev 2004, Rabiee and Moghaddas 2008).Though Syrian breeding populations have likely been extirpated, Great Bustards breeding or wintering in Iran and Turkey probably move into Iraq and Syria (Tareh 2000).

Historically, Great Bustards in Kazakhstan and Tajikistan migrated southward into Uzbekistan, Turkmenistan, Afghanistan, and Pakistan to overwinter (Bostanzhoglo 1911, Gubin 2010). They are now rarely sighted on these wintering grounds, due to severe declines in the Great Bustard population of Kazakhstan and its extirpation in Tajikistan (Meklenburtsev et al. 1990). Today, Great Bustards wintering in south Kazakhstan irruptively migrate into Uzbekistan during harsh winter conditions (Kreitsberg-Mukhina 2003).

Results of satellite telemetry have revealed that females of the Asian subspecies of Great Bustard (*Otis tarda dybowskii*) breeding in north-central Mongolia take two months to migrate 2000 km into Shaanxi Province of China, making use of multiple stopovers (Kessler et al. 2013). These females move nomadically across a broad wintering range. Great Bustards in southeastern Russia likely make similar migrations through Mongolia into China.

Many Great Bustard leks in southeastern Russia and northern Mongolia are located close to the international border. These birds most likely intermittently cross the border for forage or

to find desired habitat. It is probably that dispersal events once frequently occurred across this border.

It is worth noting that differences in migratory behaviour across the wide distribution of the Great Bustard appear to be distinct features of local populations, representing adaptations to local climate and geography. Priority should be placed on maintaining local populations of Great Bustards, as programs involving the translocation of birds may face difficulty in this regard.

3. Threat data

3.1 Direct threats

3.1.1 Collision with overhead cabling

As large birds with low manoeuvrability in flight, Great Bustards are highly vulnerable to collision with overhead cabling(Janss and Ferrer 2000, Raab et al. 2010). Mortalities due to collisions are reported across the species' annual range, and are expected to increase in Asia as infrastructure and industry develop. In Central Europe, international cooperation under the auspices of the Memorandum of Understanding on Middle-European Populations has resulted in the marking and burying of cables that affect neighbouring populations.

3.1.2 Hunting

Great Bustards are almost universally protected from hunting across their distribution. However, over the past fifty years, uncontrolled, illegal hunting has been a major cause of decline and even extermination of local populations of this slow-reproducing species in the central and eastern portions of its range(Chan and Goroshko 1998, Heunks et al. 2001). Poaching on both breeding and wintering grounds represents a serious threat to the survival of Great Bustard populations breeding in Turkey, Kazakhstan, south eastern Russia, and Mongolia. The development of a more extensive paved road network in rural Asia has facilitated the travel of urban hunters to rural areas.

On migratory and wintering areas in China, Great Bustards suffer from the indiscriminate poisoning of wild birds for supply of meat to "wild foods" restaurants(Shi 2008; Chan & Goroshko 1998, Kessler in litt.). Great Bustards breeding in southeastern Russia, Mongolia, and northern China use this migratory pathway.

3.1.3 Destruction of eggs and chicks

Great Bustards are ground-nesting birds with a naturally low reproductive rate. In Spain, a ten-year study found an average of 0.15 chicks produced per breeding female per year (Morales et al. 2002). Nests in natural grassland suffer from predation by corvids and canines, whose abundance may be artificially elevated around human population points. In addition, wildfires, both natural and anthropogenic, destroy nests in Asian steppe habitat. In areas used as pasture, livestock sometimes trample Great Bustard nests.

Great Bustard clutches in agricultural fields are often destroyed by agricultural machinery. In Spain, pre-hatching mortality was found to be 50% and post-hatching mortality 57%, due largely to crushing by machinery (Ena et al. 1987). Nests which are not directly crushed may

be predated by corvids which observe the flushed female. The provision of incentives to farmers to accommodate Great Bustard nests during key periods is carried out in some areas of Europe.

3.1.4 Indirect poisoning

Accidental poisoning of Great Bustards by agricultural chemicals and rodenticides is occasionally reported throughout the range of the species (e.g., Puzanskii 2000, Oparin et al. 2013).

3.2 Habitat destruction

Great Bustards require large annual territories used at low levels of development. Habitat destruction, fragmentation, and agricultural intensification have been major factors in declines of western populations of Great Bustard, and are likely to become greater factors in eastern populations as well.

3.2.1 Declining quality of breeding habitat

Timing of use of agricultural machinery, and the intensification of agricultural production are major habitat-quality threats on breeding grounds, as described in "3.1.3 – Destruction of eggs and chicks" and "3.3.1 – Agricultural chemical use". For bustards inhabiting natural grasslands, overgrazing decreases quality of forage and increases risk of the trampling of nests.

Great Bustards are a lekking species, which perform breeding displays and nest at traditional lek sites. Due to strong philopatry (Alonso and Alonso 1992, Alonso et al. 2000), males may continue to display and females to nest at a lek site despite conversion to inappropriate habitat, with resultant high mortality and/or low breeding success that may drive the local population to extinction.

3.2.2 Declining quality of migratory stopovers and wintering areas

Eastern European and Asian populations of Great Bustard, which perform long-distance movements, require large areas of open grassland or agricultural land for foraging during migration and wintering. Increasing human population density and activity decrease the quality of habitat through disturbance. Installation of overhead cabling creates risk of fatal collisions.

3.2.3 Disturbance

Great Bustards are exceptionally wary and sensitive to human disturbance, exhibiting fleeing distances from 500 to 1500 m(Gewalt 1959). This trait is exaggerated in areas where they are persecuted by humans. Unsuitable levels of even benign human activity can cause Great Bustards to abandon otherwise suitable habitat.

3.3 Indirect threats

3.3.1 Agricultural chemical use

The use of pesticides and herbicides on agricultural fields where Great Bustards nest reduces the food base necessary for growth of Great Bustard chicks (Bravo et al. 2013). Male chicks are particularly vulnerable to limited food supply, as they have higher growth rates due to the species' high degree of sexual dimorphism (Martín et al. 2007).

Rates of chemical application are likely to increase in eastern Europe and Asia. Yet, Great Bustard chicks in these areas are under greater pressure for rapid growth, as the more severe climate in these areas requires that nesting begin later in spring, and also demands that chicks be prepared for long-distance migration in the fall, including the crossing of international borders(Kessler et al. 2013).

3.3.2 Loss of genetic diversity

Increasing isolation of remnant Great Bustard leks, especially in Morocco and the Asian portion of the species' distribution, negatively impacts genetic diversity (Tian et al. 2006, Alonso et al. 2009a). There is concern about loss of unique genetic characteristics of the Asian subspecies, which numbers less than 2000 individuals(Alonso and Palacín 2010).

3.3.3 Climate change

As large, heavy birds, male Great Bustards are sensitive to high temperatures (Alonso et al. 2009b). Climate simulations suggest that much of the Great Bustard's current range in Europe will become unsuitable in the late 21st century. Huntley et al. (2007) find that suitable habitat will shift out of western Europe into areas of eastern Europe and Sweden which the species does not currently inhabit. Osborne et al. (2008)find that suitable habitat will persist in northwest Spain and Turkey, but additionally shift into France, Poland, and the Baltic states, where the Great Bustard is not currently found. It is uncertain how this highly philopatric species will adjust to climate changes.

3.4 Threats connected especially with migrations and movements

Partial migrations performed in western Europe, facultative irruptions in central Europe, and regular migrations performed from Turkey eastward all expose Great Bustards to threats over a large spatial scale, including collision with overhead cabling, hunting, poisoning, and habitat degradation(Yan 1982, Chan and Goroshko 1998, Oparin et al. 2003, Andryushchenko and Popenko 2012).In many regions, non-migratory patterns of movement also result in the crossing of international borders, exposing these birds to different conditions and threats.

The prolonged migration performed by the Asian subspecies, which involves use of multiple stopovers, crossing of international borders, and nomadic behaviour on wintering grounds, puts its entire population at particular risk. In a tagged cohort of female Asian Great Bustards, all observed mortalities have occurred on the migratory pathway and wintering grounds (Kessler, unpublished data). Further, climate change is expanding the extent of the Gobi Desert (Wang et al. 2008), which is a migratory obstacle for these Great Bustards.

In both facultative and regular long-distance migrating populations of Great Bustard, there appears to be a tendency for females to migrate more often or further than males. Since Great

Bustards are a lekking species in which females are solely responsible for incubation and rearing of chicks, increased mortality of females on the migratory pathway has the potential to impact population growth greatly.

High levels of mortality were previously encountered during irruptive migration events in Central Europe. With the listing of these Middle-European populations on Appendix I, a system of communication was developed between Range States hosting breeding populations and Range States which periodically receive irruptive migrants. This allows these southern states to better ensure appropriate conditions for the bustards' survival.

Listing of the entire population of Great Bustard under Appendix I could promote growth in currently stable populations in the Iberian Peninsula, while slowing alarming declines in populations outside of Europe. Raising the international conservation profile of this species also has potential to affect conservation action in Range States which are non-signatories. Improvement in migratory breeding populations has the potential to restore wintering populations that have disappeared from the Middle East, Caucasus and Central Asian countries over the past century.

3.5 National and international utilisation

In the past, international trade in Great Bustard feathers resulted in the listing of this species on Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This trade has largely been halted.

As described above in "3.1.2 – Hunting," Great Bustards are pursued particularly in eastern Europe, the Middle East, and Asia. Reasons for hunting include sport, meat for personal use or trade, and curiosity about this rare bird as it is sighted on irregular stopovers. An international component to this persecution exists in the form of sport hunters arriving to Asian Range States from western Europe and the Arabian Peninsula to pursue this species.

4. Protection status and needs

4.1 National protection status

The Great Bustard is red-listed across most of its range, at levels from Vulnerable to Extinct.

4.2 International protection status

The Great Bustard is considered as Vulnerable in the IUCN Red List of Threatened Species.

4.2.1 Coherence with CITES

The Great Bustard is listed on Appendix II of CITES. International trade is controlled across the species' range. This listing has been successful in largely halting international trade in the species' feathers, which were once used for fly fishing.

Factors gravely threatening populations of Great Bustard, which are not related to international trade, are detailed above in Section 3. These include collisions with overhead cabling, hunting, and destruction of eggs, chicks, and habitat degradation and loss. Listing of

the entire population of Great Bustard under Appendix I would be an appropriate mechanism to coordinate knowledge-sharing and international efforts to reduce these threats.

4.2.2 Coherence with the Birds Directive

The Great Bustard is listed on Annex I of the European Commission Birds Directive. The Directive has supported the designation of protected areas, including 141Special Protection Areas which hold the Great Bustard as a designation feature. The directive also protects Great Bustards through a ban on hunting. LIFE projects funded at €10 million over the last decade have focused on conservation work for the species.

Listing the global population of Great Bustards on Appendix I of CMS is consistent with the EU Birds Directive. Within Europe, this listing will further facilitate protection and restoration of habitat and help to prevent, remove or minimize the adverse effects of activities or obstacles that seriously impede or prevent the migration of the species.

Importantly, this listing will also provide a mechanism for sharing of knowledge about best practices for protection of Great Bustards (e.g., methods of marking overhead cabling; the development of cooperative agreements with farmers to ensure compatibility of the agricultural schedule with Great Bustard breeding) developed via EU projects with non-EU Range States.

4.2.3 Coherence with CMS

Currently, the global population of Great Bustard is listed on Appendix II of the CMS.

Middle-European populations of Great Bustard are protected on Appendix I through a Memorandum of Understanding. Range states are convened for formal meetings and have developed an international species action plan (Nagy 2009). Joint action includes coordinated census programs and cooperation to eliminate threats to neighbouring populations (e.g., burying overhead cables)

Yet, the condition ofpopulations of Great Bustard breeding in the Middle East, Central and East Asia, as well as north Africa, is considerably worse than that in Middle Europe. Central Asia now holds only 300 individuals(Mityaev and Yashchenko 2006), as does Turkey (Karakas and Akarsu 2009). Eastern Asian populations, which comprise a distinct subspecies, contain approximately 2000 individuals(Alonso and Palacín 2010). About 100 individuals remain in Morocco (Hellmich and Idaghdour 2002). Threats to these populations are increasing with industrial and agricultural development, and expansion of human population. As populations from portions of the range within and east of Turkey are regular, long-distance migrants, the extirpation of local breeding populations also means reductions or elimination of stopover or wintering populations in adjacent states. Listing of the entire species of Great Bustard under Appendix I would help to coordinate protection of these populations.

The Central Asian Flyway Action Plan provides protection to migratory waterbirds across their annual ranges in Central Asia. Listing of the entire species of Great Bustard under Appendix I would provide similar protection for this dryland migrant in this region.

4.3 Additional protection needs

4.3.1 Direct protection

Collisions with cabling: Key Great Bustard movement corridors, including stretches of cabling causing mortality should be identified. Marking of overhead cabling, or ideally, burying or re-routing of cables from known sensitive areas, should be undertaken to reduce mortality (Raab et al. 2012). The potential of cabling to cause Great Bustard mortality should be explicitly considered in large-scale industrial developments in areas where populations are critically low.

Hunting: Elimination of hunting along the migratory pathway is critical to the stabilization of migratory Great Bustard populations. However, adequate enforcement of hunting bans is challenging in rural areas of the Middle East, Central and Eastern Asia. Targeted public awareness campaigns should be undertaken in these areas to raise concern and reduce hunting among local people. Where illegal sport hunting by foreign citizens occurs, fines for foreign citizens should be increased. Prohibitions in sale of wild-caught game, which is also dangerous to consumers of meat from poisoned birds, should be better enforced at markets and restaurants.

Destruction of eggs and chicks: The timing of agricultural activities, and of Great Bustard nesting, varies across its broad Eurasian distribution. In breeding habitat outside of the EU, where such measures have already been implemented, research should be undertaken to assess the degree of compatibility between agricultural practices and Great Bustard breeding. EU states can play a valuable role in sharing knowledge and experience in developing appropriate subsidy schemes to provide high-quality breeding habitat.

4.3.2 Habitat protection

Protected areas: Across the Middle East, Central and East Asia, surveys should be undertaken to clarify lek sites. Where possible, satellite tracking would improve understanding of migratory routes. Leks, key migratory stopover sites, and wintering grounds hosting important populations of Great Bustard should be officially protected and, where necessary, backed up with enhanced anti-poaching enforcement and disturbance-reduction measures.

Subsidies for low-intensity agriculture: Agricultural intensification has played a major role in Great Bustard declines worldwide. State subsidies should provide incentives to maintain agricultural habitat in suitable condition for breeding Great Bustards. For example, where relevant, to discourage the use of agricultural chemicals which destroy the food base necessary for the growth of chicks, or to encourage the use of fallow periods to lessen disturbance. EU Range States with experience in such agricultural policy should share information on successful strategies to other Range States.

4.3.3 International communication

This listing will facilitate regular communication between Range States across the broad distribution of the Great Bustard. It will encourage information sharing from Range States with experience in Great Bustard conservation measures (e.g., states participating in the Memorandum of Understanding on Middle-European Populations) on best practices.

Turkey, Russia and China are non-signatory Range States hosting important migratory Great Bustard populations. Communication and cooperation on conservation planning for Great Bustards should be pursued with these states, and ideally, agreements on conservation measures signed.

Severe winter weather occasionally precipitates migration of Great Bustards into countries in which they do not regularly occur in contemporary times (e.g. southern Europe, Uzbekistan). Communication protocols between wildlife monitors should be established such that irruptive Range States are aware of potential irruptions and prepared to increase anti-poaching enforcement in appropriate areas.

4.3.3 Additional measures

Genetic diversity: When prioritizing conservation actions in regions with low genetic diversity, precautions should be taken to maintain genetic connectivity between extant Great Bustard populations. Urgent measures should be taken to improve the condition of the Asian subspecies, which suffers from low levels of genetic diversity.

Climate change: Modelling of shifts of suitable habitat in the Asian portion of the Great Bustard's range under climate change scenarios should be undertaken. Conservation planning should place special emphasis on areas likely to maintain suitability for Great Bustard habitation under climate change conditions.

5. Range States

Active Range States: Afghanistan, Albania, ARMENIA, AUSTRIA, Azerbaijan, Bosnia & Herzegovina, BULGARIA, China, CROATIA, CZECH REPUBLIC, GEORGIA, GERMANY, GREECE, HUNGARY, IRAN, Iraq, ITALY, KAZAKHSTAN, Korea - People's Republic, Korea - Democratic Republic, KYRGYZSTAN, THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA, MONGOLIA, MONTENEGRO, MOROCCO, PAKISTAN, PORTUGAL, ROMANIA, Russia, SERBIA, SLOVAKIA, SPAIN, SYRIA, TAJIKISTAN, Turkey, Turkmenistan, UKRAINE, UZBEKISTAN

Range States with Extinction of Breeding Population: ALGERIA, Azerbaijan, BELARUS, BULGARIA, FINLAND, FRANCE, GREECE, MOLDOVA, POLAND, ROMANIA, SWEDEN, SWITZERLAND, SYRIA, TAJIKISTAN, TUNISIA
Great Bustards appear as vagrants in some of these countries. In others, they continue to overwinter, leading to their listing also as Active Range States.

Reintroduction: UNITED KINGDOM

Vagrant: ALGERIA, BELGIUM, CYPRUS, DENMARK, EGYPT, FRANCE, FINLAND, IRELAND, ISRAEL, GREECE, Japan, LATVIA, Lebanon, LUXEMBOURG, MALTA, NETHERLANDS, SAUDI ARABIA, SWEDEN, TUNISIA
Single vagrants or small populations occasionally reach many other countries, particularly during facultative migration due to severe weather events.

(CMS Parties are capitalized.)

(Roselaar 1980, Collar 1985, 1996, Chan and Goroshko 1998, BirdLife International 2001, Ministry of Rural Development - Hungary 2013, Butchart and Symes 2014)

6. Comments from Range States

7. Additional remarks

8. References

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