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**Memorandum of Understanding on the Conservation and Management of the Middle European Population of the Great Bustard
German Report**

0. National contact point

- The Brandenburg State Bird Conservation Centre (address see above) is acting as the national contact point corresponding to MoU 5.
- Dr. Torsten Langgemach is nominated as the official German MoU representative.

1. Habitat protection

1.1. Designation of protected areas

- three remaining Great Bustard areas are designated as SPAs covering nearly completely displaying and breeding areas and about the half of wintering areas
- main conservation measures at these sites consist of:
 - extensive farming
 - avoiding disturbances
 - predation management
 - artificial breeding

1.2. Measures taken to ensure the maintenance of Great Bustard habitats outside of protected areas

- no bustard specific measures, but supporting extensification schemes (agricultural programmes of the Brandenburg State following Directive EC 1257/99 Art. 22-24) and set asides (EC regional closing downs)
- only a small (unknown) percentage of breeding attempts outside conservation areas

1.3. Measures taken to avoid fragmentation of Great Bustard habitats

- railway extension across the SPA "Havellaendisches Luch" 1995-1998 - all measures in consideration of long-term Great Bustard conservation (starting population increase during this period)

- At present no projects within the conservation areas,
- Despite existing environmental impact assessment in 2003 twenty wind mills were built in the vicinity of the SPA "Fiener Bruch" within a regular wintering area and occasional breeding area,
- Despite several preventive measures wind energy development around and between the Great Bustard areas is currently the main problem regarding the coherence of these areas.

2. Prevention of hunting, disturbance and other threats

2.1. Hunting

- Great Bustard are game birds but with a year-round closed hunting season,
- Some additional hunting restrictions come into force after safeguarding SPAs by national law as nature conservation areas (e. g. restricted bird hunting, restricted hunting around display sites)

2.2. Prevention of disturbance

- Guiding the public by
 - closing ways through and around the core areas and
 - building observation towers,
- Several measures for guiding air traffic (military and leisure)
- All bustards are protected by these measures as long as they stay within the conservation areas

2.3.1. Prevention of predation

- Intensive dealing with the matter proves predation to be the major problem currently
- main predators identified:
 - Eggs: fox and raven, to lesser extent badger and racoon-dog, possibly smaller mustelids and racoon,
 - Juveniles: fox, sometimes White-tailed Eagle and possibly mustelids,
 - Hand-raised juveniles after releasing: fox and White-tailed Eagle, possibly mustelids,
 - Adults: fox,
- Predation management consists of:
 - Intensive hunting of foxes and neozoons forced by incentives (unsuccessful considering number of foxes and predation pressure on clutches, possibly successful considering female mortality) - after ceasing financial support in 2002 fox hunting markedly decreased (further subsidize for racoon-dog hunting is granted by the NGO "Foerdereverein Grosstrappenschutz" for scientific reasons),
 - Fencing of 15-20 ha areas for breeding of wild (!) females (successful),
 - Scaring of ravens in core areas and enclosures (nearly unsuccessful),
 - First attempts to condition taste aversion of ravens by prepared eggs (till now no optimal agent),
 - unsolved problem: Prevention of losses of juveniles by attacks of the White-tailed Eagle after releasing into the wild.

2.3.2. Adoption of measures for power lines

- Changing profile of alignment away from Bustard areas - three cases from the late 1970s until today,
- Re-equip wires to underground ones in several cases,
- Current attempts to get energy companies more active in laying wires under ground (20 kV) and marking wires (110-380 kV) in the wider bustard range.

2.3.3. Compensatory measures

- Loss of about 700 ha adjacent to the SPA "Fiener Bruch" due to a wind farm of 20 mills erected in 2003, some 30 individuals affected, 5 belonging to the breeding population of the "Fiener Bruch",
- Compensation consists of about 480.000 EUR designated for:
 - 40 ha extensification (20 years), additional 15 ha winter foraging areas (oilseed rape)
 - Purchase of 30 ha grassland by the "Foederverein Grosstrappenschutz",
 - Building of a 16 ha enclosure as shelter against ground predators for breeding females,
 - Monitoring activities: looking for collision victims under the wind mills (3x per week, for 4 years), population dynamics and behaviour (5 years),
- Only very first results since compensation has just begun (e. g. some collided birds, such as 3 Red kites)

3. Possession and trade

- Great Bustards are strongly protected by federal conservation law, so possessing and any kind of trade is completely illegal,
- Only one exemption exists: rescue of clutches as a conservation measure for artificial breeding; due to the severe predation pressure especially first clutches get lost. First clutches are taken more or less systematically because substitute clutches are safer, later clutches are taken in emergency only.

4. Recovery measures

4.1. Captive breeding in emergency situations

- See No. 3 !
- About 50 eggs/year are taken during the last years. From these eggs up to 28 chicks were released - in this way reproductive success of the small population has increased markedly,
- Methods used are checked after each season to improve management success,
- IUCN criteria are fulfilled,

4.2. Reintroduction

- not relevant

4.3. Monitoring of the success of release programmes

- Survival of released birds is controlled by intensive observation and by means of radio-tracking for the last five years,
- Post-release mortality mainly due to foxes and White-tailed Eagles, the latter are regularly responsible for scaring the birds and scattering the groups, integration of released birds into the wild population failed therefore,
- Surviving birds show normal behaviour pattern including reproductive behaviour (e. g. high insemination rate),
- Without the release programme the German population would be nearly extinct.

5. Cross border conservation measures

- There are no populations or sub-populations in the vicinity.
- Occasionally changes of experience with colleagues from Austria, Slovakia, Hungary, Spain etc.
- Joined projects with significant financial and personnel support of the NGO "Foerdereverein Grosstrappenschutz" took place in:
 - Hungary & Slovakia (1990s): support of artificial insemination and breeding,
 - Spain (1990-1993): basic research with recommendations for conservation and management,
 - Russia, lower Volga-region (1998-2000): basic research, survey of population size and structure, risk assessment (land use, power lines, hunting schemes, oil industry), support of conservation, management and public awareness, satellite-tracking to identify migration routes and wintering areas and initiate conservation measures (see below)
 - Ukraine (2000-2002): identifying wintering areas of the Volga population, survey of wintering population including risk assessment (hunting, power lines), supporting public awareness; (2002-2003): population survey including breeding performance and risk assessment,
 - Mongolia (2001-2004): survey of population size and structure, breeding performance mainly for conservation and management reasons.

6. Monitoring and research

6.1.1. Monitoring of population size and population trends

- Methods used:
 - continual observation throughout the year using radio-telemetry additionally
 - one spring count per year
- The population is completely monitored with the exception of single birds,
- After 60 years of population decline there is an increase from ca. 55 individuals in 1996 to 84 individuals in 2004.

6.1.2. Monitoring of the effects of habitat management

- Long-time monitoring of some taxons using different methods:
 - plant communities
 - breeding birds
 - small mammals
- Additional investigations of taxons for several years
 - arthropod bio-mass and diversity
 - butterflies
 - locusts, Saltatoria
 - beetles, Carabidae
 - spiders, Arachnida
- Additional investigations (e. g. vegetation structure, groundwater level, yield and composition of vegetation from agricultural viewpoint)

6.2.1. Comparative ecological studies

- Habitat requirements: Hungary (1988), Slovakia (1988), Austria (1990), Spain (1990-1993), Russia (1998-2000), Ukraine (2002-2003), Mongolia (2001-2004);
- Genetics: Spain, Austria, Slovakia, Hungary, Russia, Ukraine;
- Mortality/risk assessment: Spain (land use, barbed-wire fences, power lines, habitat fragmentation), Austria (power lines, wind mills), Russia (land use, power lines, hunting schemes, oil industry), Ukraine (land use, power lines, hunting schemes).

6.2.2. Promotion of studies on mortality factors

- Methods used:
 - intensive observation
 - radio-tracking
 - power line surveys (spot checks)
 - post-mortem investigations of all carcasses and remains found
- Mortality factors (ranked):
 - predation: foxes, White-tailed Eagles, possibly further species such as mustelids or Raccoon-dogs
 - power lines
 - agriculture (sometimes breeding females and clutches)
 - traffic

6.2.3. Investigation of factors limiting breeding success

- Predation is the main factor for low breeding success which is be proved by
 - intensive observation,
 - thermo-loggers used in clutches of lapwings and other meadow birds,
 - much greater breeding success in fenced areas free of mammals greater than martens

- Losses due to agriculture:
 - very difficult to detect,
 - dependent on intensity of co-operation between farmers and conservationists including land use contracts (avoidance is very personnel-intensive),
- Losses of juveniles due to bad weather conditions and lacking of arthropods.

6.2.4. Studies on migration

- There is no regular migration in Germany except flights in severe winters (frost and high snow cover, last case 1986/87),
- There are no influxes to the population due to the lacking of other ones,
- Knowledge on other kinds of movement is supported by individual colour-rings and radio-transmitters.

7. Training of staff working in conservation bodies

- Personnel is "self trained" over a long period (up to >20 years),
- Experiences of each breeding and management period are analysed for improving the next one,
- Continuous education due to intensive co-operation over decades with bustard specialists of nearly all relevant populations in Europe (e. g. Great Bustard Symposium in Buckow / Germany, see also 5. and 6.2.1.),
- New co-workers are intensively taught in their respective field.

8. Increasing awareness of the need to protect Great Bustards and their habitat

- Intensive co-operation with land users, first of all farmers and their stakeholders,
- Possible low interest of political decision makers needs more power in awareness campaigns.

9. Economic measures

- Despite a lot of conflicts between agriculture and bustard conservation the farmers are beneficiaries of nature conservation; payments are a stability factor in rapidly changing times,
- Chances of eco-tourism have to be used more intensively.

10. Threats

- No current changes in conservation status,
- There is no certainty that survival of Great Bustards in small conservation islands, covering less than 2 % of the former range, will be possible as long as "normal landscape" develops more and more bustard hostile (land use intensity, habitat fragmentation, wind energy industry, air traffic etc.).

- Within the conservation areas currently the main threat is predation - obviously some predators are beneficiaries of former conservation management to a greater extent than the target species. A lot of research as well as practical experiences have to be done to solve these problems (a Germany conference about predation took place this year in Brandenburg).
- The switch from payments of the State of Brandenburg (conservation contracts) to EC-payments is accompanied with smaller financial support and nearly the complete lack of flexibility, necessary for an efficient management.
- Although the increasing small German population of bustards is completely management at present and depends on a lot of financial and personnel efforts.
- The NGO "Foerderverein Grosstrappenschutz" grants a lot of the necessary financial and personnel support.