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GUIDELINES ON MEASURES TO SECURE THE SUCCESSFUL WINTERING OF GREAT BUSTARD POPULATIONS IN MIDDLE-EUROPE

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**GUIDELINES ON MEASURES TO SECURE THE SUCCESSFUL
WINTERING OF GREAT BUSTARD
POPULATIONS IN MIDDLE-EUROPE**



Draft document
for consideration by the Memorandum of Understanding on the Conservation
and Management of the Middle-European Population of the Great Bustard

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1. Introduction

The First Meeting of the Signatory States of the MoU (Illmitz, Austria, 17-18 September, 2004) adopted the Medium Term International Work Programme (MTIWP) for the period of 2005 – 2010 on the conservation and management of the Middle- European population of the Great Bustard, which was agreed to be extended until 2012, the planned time of the Third Meeting of Signatories.

- 1) The MTIWP identified *inter alia* the preparation of guidelines on species and habitat conservation measures to be implemented on the wintering sites in Middle-Europe to secure successful wintering of Great Bustard populations. This paper is based on experiences regarding populations of the Carpathian Basin, mostly in Hungary.
- 2) The present document gives a draft summary of the weather conditions, the problems encountered and the conservation measures for the management of Great Bustard populations concerning the above mentioned objective.

2. PART 1

Inside the Carpathian basin

2.1 Winter Climates in Middle–Europe

The winter weather conditions significantly vary year by year in the Carpathian Basin and also further in the whole Middle-European region. These differences have become more distinct in the last decades, probably due to the climate change.

These varying weather conditions affect the wintering and the migration behaviour of Great Bustard populations each winter.

Regarding the weather conditions we can identify three main types of winter situations, as follows:

- 1) Unusually **mild weather** conditions during nearly the whole winter, without or with only little snow cover.
- 2) **Normal winter** conditions with only one or few (but always short) cold periods with daily temperature not below -10 C degrees, and only occasional thin (5-10 cm) snow covers.
- 3) **Harsh or severe winters** with 2 or 3 weeks of cold periods (minimum daily temperatures below -15 C degrees or -20 C degrees). If this is combined with deep (over 20 cm) and long-lasting snow cover, it even worsens the circumstances.



Figure 1: Harsh winter conditions when the frozen surface prevents the access to winter vegetation

2.2 Migratory behaviour in different weather conditions

The Great Bustard is a „partial migrant” bird species.

The background of the varied migration behaviour and habits of Great Bustard is the variation in winter weather conditions (Bankovics, 2005) as follows.

1-2) **In mild and normal winters** the Great Bustard populations in Hungary either do not migrate, they remain in their breeding areas, and behave as a sedentary species or they make only a (very) short distance migration. Their migration route might not go neither to the South nor beyond the national borders. Its direction is mostly East to West and is not more than 50 – 150 km-s.

This phenomenon is presumably due to a climatic gradient (in the East-West direction) as follows: the winter climate in the area lying east of River Tisza is more continental, and is usually colder than in the Kiskunság and compared to the further western areas, by 1 or 2 C degrees in average. This climatic variance causes sometimes the difference in the migration behaviour of the populations in the two areas.

3) **In severe winters** parts of the Great Bustard populations may migrate to Southern Europe, to the Balkan Peninsula or to Italy, but this can usually be prevented with conservation measures. Such migration did not take place in the last ten years in the Hungarian population, at least not in significant numbers of birds.

If the longer cold period accompanied with deep snow cover occurs in December or January the probability of migration (or partial migration) of Great Bustard groups is higher. However, closer to the breeding season in February, when the moustache of the adult males start to grow, as a sign of the very beginning of the breeding, they are more reluctant to move away, motivation for longer movements become lower and lower. Instead, they try to survive in the same areas which are usually their normal breeding sites.

2.3 Management activities

2.3.1 Preliminary establishment and management of wintering grounds

As shown, there are a number of uncertainties in migration habit, therefore it is very important that the management of Great Bustard wintering sites is planned and prepared carefully for the successful wintering in any case.

As the yearly winter weather is also unpredictable, it is important to take measures of precaution to ensure the availability of adequate and sufficient winter food. It is necessary to encourage the farming sector, to plan the location of the different plant cultures and eventually to sow the plant seeds and establish these plots already at the end of the previous summer in order to provide larger fields in the optimal wintering areas.

The main winter food for the Great Bustard is the oilseed rape (*Brassica napus*), combined with alfalfa (*Medicago sativa*) and the Savoy cabbage (*Brassica oleracea var. sabauda*) as alternative winter food supply. All three plants supply fresh green leaves and shoots preferred by the Great Bustard.

The management of **feeding sites** is primarily based on the establishment of one or more oilseed rape plots within or in the vicinity of the traditional wintering grounds. As the seeds of the oilseed rape are small, the optimal preparation of the soil before sowing is the first and very important step. Also the timing of seeding has effect on the quality of the leaves. In Central Europe, the oilseed rape is sown late August or early September. If it is seeded in time, the plants can spring forth and have time to grow big enough being able to last all winter and offer suitable nutrition for the Great Bustards. The overgrowth of the weeds often causes problems by reducing the viability of the oilseed rape plants. To avoid this weed-killer might be needed in autumn.

Besides the large plots of oil seed rape, **alternative feeding plots** should also be established in the vicinity as secondary and tertiary wintering ground, in case of disturbance, like hunting, travelling or agricultural activities occur. Alternative plant cultures might be the alfalfa and Savoy cabbage, as mentioned above.

The Koolrabi (*Brassica oleracea convar. acephala*) has been planted and used as winter food source since the 1970s, when the Kiskunság National Park was established. The cabbage was planted around the edges of some ploughed fields in one or two rows. The cabbage, using other varieties, remained as alternative food ever

since. Its stem grows high enough above the snow cover so that the Great Bustard is able to pick the cabbage leaves as winter food.

In those experimental years in the 1970s, in the Kiskunság NP another plant, the common sainfoin (*Onobrychis viciifolia*) was also planted in a small, sample area just for experimental reasons. The Great Bustards accepted this culture not only in winter, but preferred to be there also in summer. The „onobrychis” field has existed for some 6 years.

Furthermore, both planted oilseed rape and cabbage cultures and also the natural grasslands are ideal habitats for small rodents. The protein rich food provided by these animals can be especially important for the Great Bustard in cold winter days. In wintertime the most important rodent is the Common Vole (*Microtus arvalis*) as it is active in daylight in winter days, too. In autumn and early spring the Mound-building Mouse (*Mus spicilegus*) and the Wood Mouse (*Apodemus sylvaticus*) are also important as food sources. The latter two are nocturnal animals, but can sometimes come out in daytime as well.

Beside the feeding sites, the management of wintering grounds should cover the adequate management of **roosting sites** as well (which are commonly display or nesting sites in one). During their daily routine, the Great Bustards after visiting their feeding sites in the morning or even spending the whole day, fly back to their roosting sites in the late afternoon. These resting areas are usually perennial crops, like grassland and alfalfa fields, so ensuring these suitable and undisturbed habitats in the vicinity of the feeding grounds is essential. Preferably it should be of low vegetation, being a big, open area, from where approaching the feeding area is easy.

Beside the fact that the plots should be open and possibly a bit undulating, the offer of various relief-elements for **shelter** to the birds against strong wind, and in case of snowing can as well be important. Especially, if the snow falls in wind, thanks to the relief, there will be always snowless, bare patches, where the Great Bustards can find the leaves of the oilseed rape.

Once the plots are created and occupied by the birds, the regular **monitoring** of wintering flocks and weather conditions is needed. Due to the predictable daily movements of the birds and normally well-known stamping grounds, winter counts can be carried out at feeding or at roosting sites, however it is much easier to count while birds are feeding, especially if the vegetation is covered with snow.

Because the local daily movement between the feeding sites and the roosting sites may cause damages by collision of flying birds, it is proposed to put the powerlines into underground cable if possible. In Hungary such measures were carried out in the Hortobágy National Park and also in the Great Bustard habitat of the Borsodi Mezőség belonging to the Bükk National Park on a 11 km section during the LIFE program between 2004 and 2008.

2.3.2 Management during winter

1-2) In **mild and normal winter** circumstances, when the minimum temperature is seldom less than approximately -5 C degrees, the Great Bustard populations usually stay on their regular wintering sites which are the same as their breeding sites or situated on the nearby areas.

In case of mild winter weather it is not necessary to help the birds with direct food supply, it is enough to ensure the non-disturbance on the wintering habitats. In that case they can use also the natural vegetation and to a smaller extent, the invertebrate fauna to feed.

As noted, the most frequently used wintering habitats, are the rape fields used for feeding and the grasslands and alfalfa mostly as resting sites.

3) In case of **harsh winters** when the leaves of the oilseed rape have thick snow cover, or when the snow is frozen on the surface, it is difficult for the birds to get the food. In these cases, especially if these conditions last for several days or weeks, we have to feed and ensure the access to the winter vegetation for the wintering Great Bustards!

In case of thick snow cover, cattle **silage** is put out in the fields in small piles. The silage has been usually made from the green parts of maize (*Zea mays*) providing as winter food for the Great Bustard in the cold periods. In Hungary it has been a practice since the 1970s, in the Kiskunság National Park, followed later by all national parks in the country. Beside maize, green Savoy cabbage, good quality hay of dry alfalfa and also one kind of seed-mixture consisting of broken wheat, maize, sunflower and different weed seeds are also adequate and used winter foods (Széll, in print).



Figure 2 : The direct feeding of the birds in winter might decrease migration motivation

Besides providing direct food, the **cleaning of feeding sites** is also necessary to avoid movements of the birds and keep them in a well-watched and safe location. Since the Great Bustard LIFE programme that ran between 2004 and 2008, it has become a practice that agricultural equipment is used to remove part of the snow cover from the rape fields. In practice, with the help of tractors equipped with snowploughs or simply by pulling 2 or 3 larger tires by a tractor or even by a 4-wheel drive car, narrow rows of plantation (1 or 2 hectares) are made accessible for birds to feed. In other cases, when the snow cover may be thinner, but its surface is frozen we have to break it open.



Figure 3: Ensuring winter food supply by putting out silage (dried alfalfa) for the birds

It is recommended to lay down the obligation for the farmers to open the rape fields covered by snow in order to make feeding possible for the wintering Great Bustard flocks in the contract prescription - as done in the Hungarian agri-environmental scheme. In the opening process it is advisable to use machines with front equipment instead of pulling behind. This equipment is better to use a few cm above the ground in order to protect the young plants themselves (Széll, manuscript).



Figure 4: Cleaning the area by opening up a rape field by machines

In such weather conditions, daily, regular monitoring is vital. According to the monitoring results the cleaning activity might need to be repeated, as long as the weather conditions turn better.

Opening of the snow cover on rape fields can happen in natural ways, too. When the snow is not too thick Roe Deer (*Capreolus capreolus*), regularly forming a „feeding community” with the Great Bustards, scratch the surface of the snow cover with their hooves.



Figure 5: Great Bustard group together with Roe Deers feeding nearby do not cause any significant economic damage in the rape crops

All winter management practices in the breeding range ultimately aim to avoid movements of the birds and keep them in a well-watched and safe location. If the access for leaves is not ensured the populations might migrate to areas unknown and where their protection can not be guaranteed. These unpredictable movements might cause unpredictable losses to the Central European Great Bustard population.

On the other hand, as these occasional movements are pretty unknown, following our best practice, regularly monitoring and carrying out further research are the principles of management activities.



Figure 6: If winter food supply is not guaranteed Great Bustard flocks might leave the habitats and migrate off

3. PART 2

Outside the Carpathian basin

Management proposed for the migration routes and for the wintering sites

Under preparation – to be prepared by Range States with migratory and / or wintering populations.

According to the planned schedule this part of the GUIDELINE will be discussed during the MoS3 and the preliminary Scientific Symposium and prepared in an intersessional working group.

Questions raised

- What can we do, when the Great Bustard population has already left and they are on their migration routes or wintering sites?
- What happens when the Great Bustard arrives to its wintering place in one of the countries in Southern Europe?
- How do Range States or how should Range States ensure the adequate protection of the individuals / populations e.g from any disturbance, hunting?
- Do the authorized bodies ensure the highest available level of undisturbance of the habitats where Great Bustard individuals settle temporarily on their migration route?

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