

NATIONAL REPORT FOR THE GREAT BUSTARD MOU AND ACTION PLAN**HUNGARY**

This reporting format is designed to monitor the implementation of the Action Plan associated with the Memorandum of Understanding on the Conservation and Management of the Middle-European Population of the Great Bustard (*Otis tarda*). Reporting on the Action Plan's implementation will support exchange of information throughout the range and assist the identification of necessary future actions by the Signatory States. The questions presented here go beyond the scope of information already requested from CMS Contracting Parties for national reports to the CMS Conference of the Parties.

GENERAL INFORMATION

<p>Agency or institution responsible for the preparation of this report</p> <p>Ministry of Rural Development</p>
<p>List any other agencies, institutions, or NGOs that have provided input</p> <p>Kiskunság National Park Directorate (KNPD) – national co-ordinator organization of the species</p> <p>Fertő-Hanság National Park Directorate (FHNPD)</p> <p>Duna-Ipoly National Park Directorate (DINPD)</p> <p>Bükk National Park Directorate (BNPD)</p> <p>Körös-Maros National Park Directorate (KMNPD)</p> <p>Hortobágy National Park Directorate (HNPD)</p>
<p>Reports submitted to date:</p> <p>First: Period covered: 06 June 2001- 30 September 2004</p> <p>Second: Period covered: 01 October 2004 – 30 October 2008</p>
<p>Period covered by this report</p> <p>(01) (November) (2008) to (31) (December) (2012):</p>
<p>Memorandum in effect in country since:</p> <p>[Date: 06 / 06 / 2001]</p>

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PART I. GENERAL

This questionnaire follows the structure and numbering of the Action Plan annexed to the Memorandum of Understanding to make it easier to read the relevant action points before the form is filled in. In some cases, however, sub-actions were not listed separately for the sake of simplicity and to avoid duplications. They should however be taken into consideration when answering the questions.

0. National work programme

Is there a national work programme or action plan already in place in your country for the Great Bustard pursuant to Paragraph 4(g) of the Memorandum of Understanding?

Yes No

1. Habitat protection

1.1 Designation of protected areas.

To what extent are the display, breeding, stop-over and wintering sites covered by protected areas?

Designation of protected areas under national law	Classification of Special Protection Areas according to the requirements of Art.4.1 of the EC Birds Directive
<input type="checkbox"/> Fully (>75%) <input checked="" type="checkbox"/> High (50-75%) <input type="checkbox"/> Medium (10-49%) <input type="checkbox"/> Low (<10%) <input type="checkbox"/> None <input type="checkbox"/> Not applicable ¹	<input checked="" type="checkbox"/> Fully (>75%) <input type="checkbox"/> High (50-75%) <input type="checkbox"/> Medium (10-49%) <input type="checkbox"/> Low (<10%) <input type="checkbox"/> None <input type="checkbox"/> Not applicable ¹

What measures were taken to ensure the adequate protection of the species and its habitat at these sites?

In general, all main sites at the current distribution area of the GB are **under protection**, either according to the **Hungarian law, or being part of the Natura 2000 network** (or both).

In Hungary there is a total of 217 999 ha of Great Bustard habitats (total distribution area in the country) from which 182 215 ha is protected (nationally and / or as Natura 2000 site). From this, 85 182 ha land is protected by national law, 175 659 ha land is designated as SPA and 96 263 ha as SAC site (latter two giving altogether 182 007 ha of Natura 2000 sites for the GB in total).

At most nationally protected sites, the National Park Directorates (NPD) own a bigger proportion of the Great Bustard habitats, and most of the NPD-s manage this land on their own, however, there are some gaps, especially those sites that are not nationally protected (but part of the Natura 2000 network) like in the FHNP in Western Hungary, or the DINPD at the Upper Kiskunság region. The two main sub-populations (Kiskunság and Dévaványa) are located on lands owned by the state and assigned for management (either direct, or indirect, through contracts) to the NPD-s, and most of this area is nationally protected.

At the beginning of the reporting period, in 2009 a total of 76538 hectares of Great Bustard habitats (with a mixture of grassland and arable fields) were **owned by the state** and assigned for management to the Hungarian National Park Directorates, which has grown with an additional 855 hectares since. So by the end of the year 2012 a total 77393 hectares were owned by the state and managed by the NPD-s according to the following table:

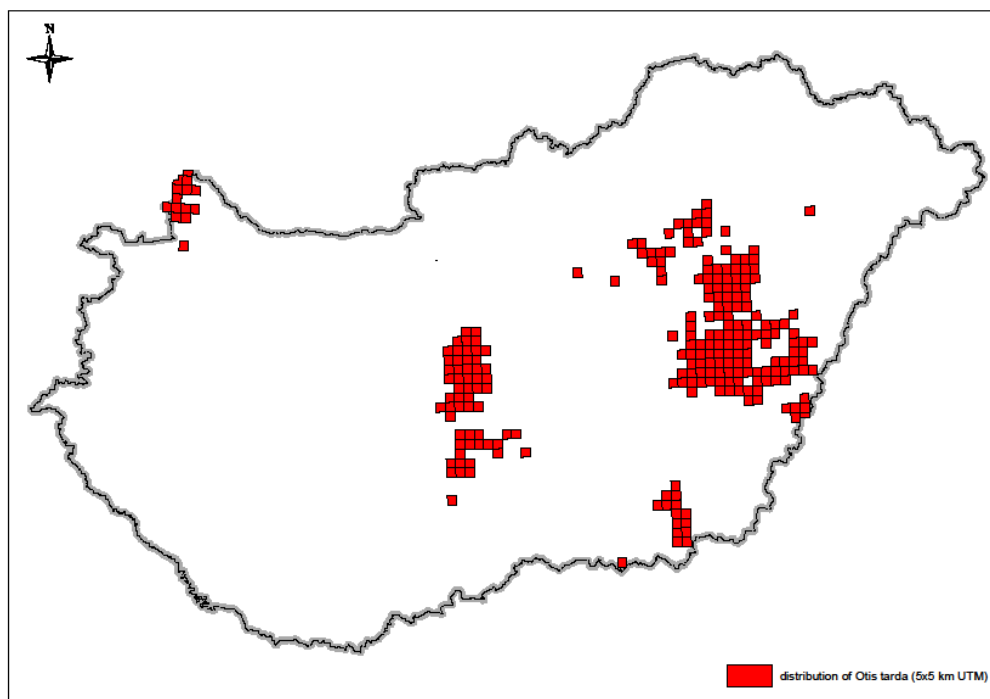
¹ The species occurs only irregularly, no regular stop-over or wintering sites identified.

NPD	site	area in 2009	plus	area in 2012	own managed in 2012
BNPI	Hevesi-sík	960	800	1760	600
BNPI	Borsodi Mezőség	16000	0	16000	0
HNPI	Hortobágy	30000	0	30000	1700
HNPI	Bihar	6000	0	6000	0
FHNPI	Mosoni-sík	0	0	0	0
DINPI	Kiskunság	0	55	55	0
KMNPI	Dévaványa	4550	0	4550	2000
KMNPI	Kis-Sárrét	210	0	210	90
KMNPI	Csanádi-puszták	2130	0	2130	2130
KNPI	Kiskunság	16688	0	16688	3035
TOTAL		76538	855	77393	9555

Most of these lands (88%) are contracted out to farmers with the favourable management requirements of Great Bustard protection, but a significant proportion, 12 % of the total Great Bustard habitats are directly managed by the National Park Directorates themselves.

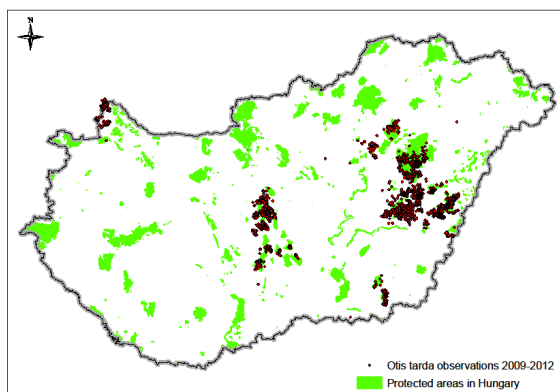
As shown, bigger proportions of the lands owned by the state and managed by the NPD-s are **leased to farmers**. The contracts at all NPD-s contain the **prescriptions**, which support the protection of GB, however these restrictions show some minor differences between the NPD-s. The most typical use of grassland habitat is grazing at the displaying grounds, and mowing at the breeding sites. The timing of first mowing varies between 15th June and 15th July as the earliest starting dates. The most common crops on cultivated lands are the alfalfa, the winter cereals (wheat, triticale, barley), the oil-seed rape, and a relatively big percentage of the arable lands are managed as 1-3 year old fallows or set-aside fields. The use of chemicals is either completely prohibited or is only possible with strict restrictions and under control.

All **managements** (including private farming as well) on lands within the protected areas are under the control of the NPDs, so the activities permitted include the requirements of GB protection. The most typical measures relating to GB protection are the regulation of grazing, mowing (both grass and alfalfa) and spraying.

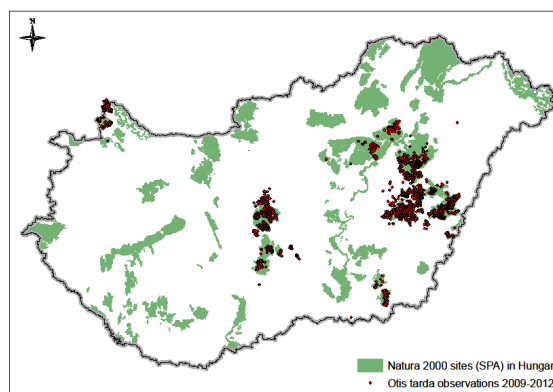


Distribution of Great Bustards in Hungary - 2012

The **Natura 2000 network** in itself helps to maintain the current habitats in optimal conditions and prevent further habitat losses due to unwanted developments, like road buildings, mining (gravel pits), new electric wires, etc. Also the loss of quantity of grasslands and their degradation can be stopped since the introduction of the related law (269/2007.), which regulates the use of land on Natura 2000 grasslands.



Great Bustards on protected areas



Great Bustards on SPA-s

The introduction of **the agri-environmental scheme** at all Great Bustard sites from 1st September 2009 was a big opportunity to offer the possibility for land-users (farmers) to harmonize their farming activity and the ecological needs of GB, outside of the protected areas as well (see chapter 1.2).

Where are the remaining gaps?

The **growth of the proportion of lands owned by the state and managed by the NPD-s** within and outside the protected area (especially on those Natura 2000 sites, which buffer the nationally protected areas) would be in general desirable for GB protection, as only the well constructed contracts between the NPD-s and the land-users can guarantee the long-term sustainability of the GB populations all over Hungary.

The **management on Natura 2000 sites** is regulated mostly on grasslands, however in this case as well, we only find partial measures of conservation; the lack of regulation on stipulating the timing of the mowing on Natura 2000 grassland sites is a missing provision / tool. As the main distribution area of the GB in Hungary is covered by the Natura 2000 network, at the moment the most important remaining gap for the everyday conservation is the **lack of a conservation-oriented regulation on agricultural activities on arable lands** within Natura 2000 sites.

In some parts of Hungary (like Eastern Hungary) the **lack of grazing animals** causes the degradation of GB habitats and results in an unfavourable crop-rotation, focusing on intensively grown crops like sunflower, maize and sugar beet.

A general problem on almost all GB sites is the high level of **predation** and on some parts the lack of staff specialized in GB conservation.

Are currently unoccupied, but potential breeding habitats identified in your country?

Yes No Not applicable²

² Countries *outside* of the historic (beginning of 20th Century) breeding range of the species.

If yes, please explain how these areas are protected or managed to enable the re-establishment of Great Bustard.

There are several smaller sites within the range of the GB and also in the surrounding areas. As it happened in the near past several times, if the regular GB monitoring gives the evidence of appearance on “new” sites used as breeding, wintering or moulting site, a systematic and more intensive monitoring is carried out to clarify the importance of the site.

Once a site is nominated as breeding site the following measures are taken:

1. Informing the land-users and trying to find the best management for the GB in the given situation and also make planning for the future to maintain and develop the conditions of the site.
2. Informing the relevant hunting association and all other relevant stakeholders to avoid further disturbance, which is supported by the law, as the GB is a strictly protected species in Hungary.
3. If it is needed, introducing restrictive regulations by the relevant authorities, as it did happen in the past.
4. There is a regular possibility for reshaping the extension of the agri-environmental scheme every 5 years, so the economic background of restrictions can be created.
5. Well documented monitoring and mapping of the site focusing on GB, but extended to other relevant bird species with national and EU level importance.

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

Please describe what measures have been taken to maintain land-use practices beneficial for Great Bustard outside of protected areas (e.g., set-aside and extensification schemes, cultivation of alfalfa and oilseed rape for winter, maintenance of rotational grazing, etc.).

In Hungary 182 215 ha from the total distribution area of 217 999 ha is protected either nationally and / or as part of the Natura 2000 network, consequently, there is 35 784 ha of Great Bustard habitats which fall outside of protected areas. This gives 16, 4 % of the habitats lying outside of protected areas.

For maintenance of the GB habitats outside the protected and Natura 2000 areas the only instrument is the introduction of the **agri-environmental scheme** under the wings of rural development. The program covers all the GB habitats in Hungary, and gives an additional benefit to the protection of the species; however, it must be complemented with other measures (see below). Three parts are related to the GB, and 2 of these directly focus on GB protection, which are briefly introduced by the following:

1. “**Grassland management** on GB habitats”: helps to maintain the grassland on displaying and breeding sites, with restriction on mowing and grazing. On breeding sites there is no grazing before June, the first time of mowing is 1st of July.
2. “**Management of arable lands** on GB habitats”: the following crop rotation is implemented: min 20% of the land is set-aside, on minimum 20% of the land alfalfa (or other plant from the family Papilionaceae), minimum 20% of the land cereals (excluding maize) and minimum 10% of the land oil-seed rape must be grown. An alternative is to grow alfalfa, or alfalfa mixed with grass with the restriction of mowing.
3. “**Restoration of grassland** due to nature conservation reasons”: in itself means a less intensive use compared to cultivated lands, and the first mowing can be done only after the 1st of July as well.

On **lands which are not involved in the agri-environmental scheme** and the breeding of GB (or other strictly protected birds) is detected, a local and temporary restriction of the land use can be implemented, as it happened a few times within the reporting period as well. The same tool was used in 2010, when GB-s caused significant damage on Savoy cabbage field, by eating the vegetables in harsh winter.

To what extent do these measures, combined with site protection, cover the national population?

- Fully (>75%)
 Most (50-75%)
 Some (10-49%)
 Little (<10%)
 Not at all
 Not applicable¹

Are recently (over the last 20 years) abandoned Great Bustard breeding habitats mapped in your country?

Yes No Not applicable¹

What habitat management measures have been taken to encourage the return of Great Bustard?

As the currently known sites used by the GB are either nationally protected and / or part of the Natura 2000 network, the maintenance of the Hungarian population of the species can be guaranteed from the aspect of habitat management. At the populations, which show some significant growth in recent times (KNPD, KMNPD and potentially FHNP) even in the reporting period between 2009 and 2012, the question of re-colonization and connection between isolated smaller sub-populations needs more attention and planning to ensure the growth of the entire population.

1. Due to the experiences of GB conservation in Hungary, the suitable management is relatively well known, so the question of “What and how to do on GB sites?” can easily be answered.
2. One of the urgent tasks in the near future time is to establish the archive database of GB distribution in Hungary, to complete the meta-population structure of the GB population within the Carpathian Basin and to identify distribution gaps as well. This database will be the basis for answering the “Where to protect the GB?” question.
3. And finally a regular, systematic monitoring needs to be carried out on these currently unoccupied sites to clarify the present importance of each site and document sporadic observations – in order to be prepared for the return of the GB as breeding species on these observed sites.

If there were any measures taken, please provide information on their impact.

The identification of the need of extension of GB protection measures was the only step, the further activities mentioned above are in the planning stage, which means certain measures have not been taken so far.

1.3 Measures taken to avoid fragmentation of Great Bustard habitats.

Are new projects potentially causing fragmentation of the species' habitat (such as construction of highways and railways, irrigation, planting of shelterbelts, afforestation, power lines, etc.) subject to environmental impact assessment in your country?

Yes No Not applicable¹

Is there any aspect of the existing legislation on impact assessment that limits its effective application to prevent fragmentation of Great Bustard habitats?

Yes No Not applicable¹

If yes, please provide details.

The **main threats**, which can cause the fragmentation or the reduction of the GB habitats in Hungary are the following:

- a) Opening new gravel pits or creating lakes
- b) Construction of wind farms (including in neighbouring countries, with potential impact on transboundary populations)
- c) Establishing new power lines (often as a co-investment of wind farms)
- d) Road (and railway) construction
- e) Irrigation (often followed by the cultivation of unfavourable crops)
- f) Afforestation
- g) Economical developments

According to the Hungarian (and European) legislation, it is not allowed to destroy the habitats of the protected species, like the GB and it is not allowed to make any kind of activity (especially the ones which cause irreversible changes on the habitats), that can make negative effect on their population. In practice all these investments need the permission of the Nature Conservation Authority, which contacts the local NPD about the natural values and the possible effects on the site of the proposed project. Besides, several activities (detailed in our previous NR) are subject to EIA – with the decision / authorization given to the environmental authority. The main task of the NPD-s is to collect data of observations about the protected values, create and maintain a database on the biotical values. The Geographical Information System (TIR) contains all this information, which can be very useful for the authorities to make their decision in advance.

However, projects still happen to be implemented on GB sites (see below). Sometimes the gap in these procedures is the fact, that all decisions can be based only on the present distribution area of the GB, and not the potential ones in the future.

Have there been any such projects implemented in any Great Bustard habitat in your country since signing this Memorandum of Understanding? Yes No Not applicable¹

Please, give details and describe the outcome of impact monitoring if available.

Most of these developments were rejected in their planning stage thanks to the database created by the NPD-s, but at certain regions (especially the marginal ones), where the amount or quality of observation data is insufficient, the population is suffering from these kinds of threats.

In the near past the following habitat losses were documented:

1. A new **gravel pit** was opened in the northern part of the KNPD. The area converted to gravel mining was neighbouring with the GB sites, so its effect on the species is only indirect on a low level.
2. **Wind farms** were constructed at the area of the FHNP, and further to the direct habitat loss, as the GB-s are avoiding the turbines, the buffer zones make their indirect effect on habitat loss. With the joint developments (like roads) and disturbance, the threat is on medium level, just like the wind farm construction plans on the Romanian part effecting the Kis-Sárrét and Nagyszalonta cross-border population at the KMNP.
3. Some new **dirt roads** were constructed at the KMNP, as co-investments of the gas pumps. The investments are reversible and make only temporary and low level effect on GB-s.
4. **Irrigation and sometimes illegal water pumps** have effect on almost all GB sites in Hungary. The increasing disturbance and the growing of non-preferable crops are the main problem, but sometimes their indirect effect on underground water, and chemical use as well. Their effect is probably on low or medium level, however at some marginal regions can cause more problems especially regarding re-colonization.
5. **Afforestation** causes local problem in the KNPD at only a low level. Main forestations were established in the second half of the 20th century, the newer ones can be rejected if any reliable observation data is collected. Creation of forests on “natural “ ways like the spread of bushes and trees on grassland or other agricultural fields is a much more common, widespread, but reversible problem in Hungary. The habitat restoration on some forested habitats would be needed nationwide.

The general method to prevent the mentioned developments is the maintenance and development of the GB database, as it has helped several times to reject even “big investments” in the near past like bypass-roads, gravel pits, power lines or other projects listed above.

2. Prevention of hunting, disturbance and other threats

2.1 Hunting.

Is Great Bustard afforded strict legal protection in your country? Yes No

Please, give details of any hunting restrictions imposed for the benefit of Great Bustard including those on timing of hunting and game management activities.

The hunting restrictions are very variable in different parts of the country, however, the principles are the same. The main issues regarding hunting are roe deer hunting during displaying (disturbance) and at the breeding (endangering) sites, but several other hunting activities have an effect on GB. The HNP, the KMNP and the BNPD run the **hunting activity on their own at the main part of the protected areas** (mostly displaying grounds), where the GB is present, and from 2011 so does the KNP as well.

The **10-year hunting plan** for each hunting society contains prescriptions from the nature conservation aspects as well, which are given by the NPD-s being in charge at certain areas. These **restrictions** focus on:

1. Hunting of roe deer in spring (restrictions on location and timing)
2. Predator control (supporting only the effective methods)
3. Feeding of game and winter hunting of brown hare and pheasant (avoid disturbance of wintering GB flocks)
4. Hunting and game monitoring at night
5. Traffic on GB habitats

At all sites a good cooperation exists between the NPD-s and the hunting societies, with regular meetings to find the balance between the GB protection and the economical needs of the societies.

Please, indicate to what extent these measures ensure the protection of the national Great Bustard population?

The national population is covered by restrictions on hunting to prevent hunting-related disturbance:

- Fully (>75%)
- Most (50-75%)
- Some (10-49%)
- Little (<10%)
- Not at all
- Not applicable¹

2.2 Prevention of disturbance.

What measures have been taken to prevent disturbance of Great Bustard in your country, including both breeding birds and single individuals or small flocks on migration?

Significant part of the GB sites are under national protection, where **all activities that might have a negative effect on GB-s, including any kind of disturbance**, jeopardise of the success of their breeding or other vital functions of individuals, and of course, damaging their habitats, sites of occurrence, shelters, feeding, nesting, resting or roosting sites are **prohibited** by law and enforced by the relevant nature conservation authority.

There is **no free access** to the main part of the protected areas, so human disturbance is limited. The border of the “no entry” zones are well marked with posts and gates, and also well communicated to the local stakeholders. As farming and hunting is also restricted, the accidental disturbance (walking or driving in) is on a very low level.

Small **aeroplanes** might cause disturbance on displaying or resting birds at some places (like Kiskunság), however flying is under regulation as well. There is a very good cooperation with the nearby airports to filter out the non-cooperative pilots.

Technical sports (like kites, or gliders) can cause disturbance in the breeding and wintering season, especially outside of the nationally protected areas. According to the law, disturbing a protected species is not allowed. Informing the general public about its importance is an everyday task of the local GB conservation officers and the ranger service of the NPD-s.

The importance of mushroom and chamomile collection nowadays is lower.

Please, indicate to what extent these measures have ensured the protection of the national population.

The national population is covered by restrictions on other activities causing disturbance:

- Fully (>75%)
- Most (50-75%)
- Some (10-49%)
- Little (<10%)
- Not at all
- Not applicable¹

2.3.1 Prevention of predation.

What is the significance of predation to Great Bustard in your country?

The real effect of predators to the breeding success is unknown (not quantified), but **probably very high**. Some indirect results show that the optimal habitat management and the predator control only together can ensure the optimal conditions to the GB populations in Hungary.

For healthy, **fully grown individuals** there is no natural predator, but on displaying ground the exhausted adult males are often taken by foxes, but in these cases the cause of death is not necessarily predation.

The predation on **eggs and small chicks** can be measured only on nests found in emergency situations, however this does not reflect on natural conditions, since if the nest is once disturbed, very often the environment of the nest is changed so drastically due to the agricultural activity (by flushing the female and

creating a buffer zone) that it attracts predators that can ultimately cause significant losses via ‘**secondary predation**’.

The **intensive growth** of the Hungarian **wild boar** population causes more and more problems to ground breeding species by destroying nests and eating eggs or even smaller chicks. In the year 2010 with its extremely big amount of rainfall (causing temporary changes in habitats) an additional spread was detectable, and now the species is present at almost all GB habitats.

What are the main predator species?

- *Mammals*: red fox (*Vulpes vulpes*), wild boar (*Sus scrofa*), stray dog (*Canis lupus familiaris*)
- *Birds*: hooded crow (*Corvus corone cornix*), marsh harrier (*Circus aeruginosus*)

What measures have been taken to control predators in areas where Great Bustard occurs regularly?

- *Red fox*: trapping at the den, using artificial burrows, shooting on feeders.
- *Wild boar*: suitable habitat management like grazing on grasslands at deeper elevations (“swamps”), reducing spread of bushes (especially the invasive species), and adjusting crop rotation as well. Shooting on driven hunts.
- *Stray dog*: shooting.
- *Hooded crow*: trapping at nests, catching on feeders, shooting.
- *Marsh harrier*: not relevant, as it is protected species in Hungary.

How effective were these measures?

- Effective (predation reduced by more than 50%)
 Partially effective (predation reduced by 10–49%)
 Less effective (predation reduced by less than 10%)
 Not applicable¹

Efficiency depends on the input of personnel, time and energy. There are well developed methods to control all predator species (see above), but as the activity of the hunting societies are different just like the protection status of the hunting areas, the predation level varies throughout the range of GB in Hungary.

2.3.2 Adoption of measures for power lines.

What is the significance of collision with power lines in your country?

In the reporting period a total of 35 dead GB-s were found and documented in Hungary. Out of these, in 16 cases the cause of death was collision, which means almost 50% of the total known losses. It means that **for adult birds collision is the main mortality factor**, without calculating the possible collisions happening during movements between sub-populations, where monitoring is not done.

Out of these 16 casualties 13 occurred on medium voltage power lines (MVPL), 2 on train power lines and 1 on a wire fence. The train line causes problems only in the Kiskunság region, where from 2005 a total of 7 collisions could be detected on the Budapest-Kelebia train lines.

What proactive and corrective measures have been taken to reduce the mortality caused by existing power lines in your country?

Within the reporting period measures reducing the collisions with power lines have been taken at the area of BNPD, HNPD and partly on KNPD, as follows:

- **BNPD**: **bird alerting devices (Firefly)** have been put on MVPL in a length of 6,2 km. On the southern part 7,2 km of MVPL have been buried, and another 4+3 km-s will be buried soon.
- **HNPD**: in 2008 ca. 80 kms of MVPL have been buried, and in 2012 the **burial** of another 11.3 kms was started. In addition, a total of 410 bird alerting devices have been put on medium and high voltage PLs.
- **KNPD**: as the most important parts of MVPL-s and train-lines have been marked under the LIFE project (2005-2008) and the effect of this measure was monitored in the last 4 years. As this measure resulted in no significant difference in number of casualties before and after the marking, no more devices were applied.

4. Recovery measures

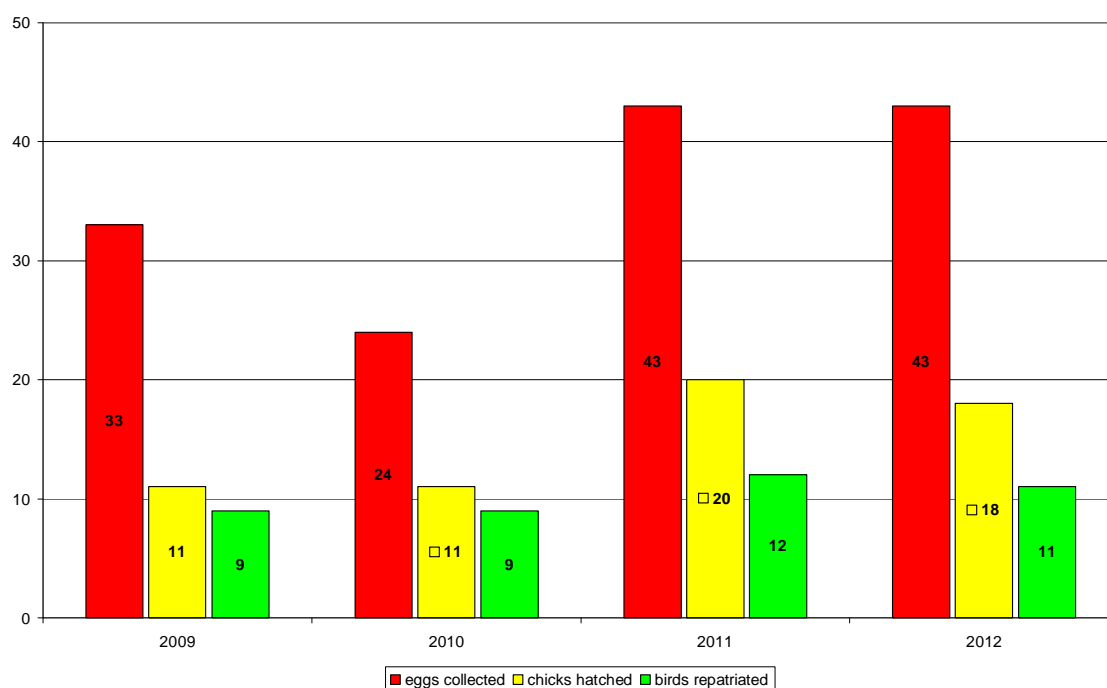
4.1 Captive breeding* in emergency situations.

Is captive breeding playing any role in Great Bustard conservation in your country? Yes No

Please, describe the measures, staff and facilities involved and how these operations comply with the IUCN criteria on reintroductions.

The **Great Bustard Rescue Centre at Dévaványa** was established in 1978. Nowadays a well constructed system is operating with separate buildings, rearing and releasing pens and a very well trained staff. One person is in charge, who is the head of the centre and the number of temporarily applied co-workers may vary during the year.

The main activity is the rearing of eggs rescued from emergency situations, like mowing, harvesting, grazing and spraying. The **number of eggs collected, chicks hatched and ultimately the birds repatriated** are shown on the following graph:



The relatively big difference between collected and hatched eggs is due to high proportion of infertile eggs (30-50%) and the early embryonic death (EED), which results in another 10-15% of loss. Unhatched eggs go to post-mortem examination.

Injured birds at the Rescue Station breed as well, mostly by placing rescued eggs or just hatching chicks under flightless females.

4.2 Reintroduction.

Have there been any measures taken to reintroduce the species in your country? Yes No

If yes, please describe the progress. If there was any feasibility study carried out, please summarize its conclusions.

* In effect, "captive breeding" should be read as "captive rearing" according to current practices.

4.3 Monitoring of the success of release programmes.

Are captive reared birds released in your country?

Yes No

If yes, please summarize the experience with release programmes in your country. What is the survival rate of released birds? What is the breeding performance of released birds?

The releasing program is based on a **400 ha releasing pen**, where the almost fully fledged birds are taken with the maintenance of regular feeding and in the first period 24 hour guarding.

The **habitat structure** has been developed according to the ecological needs of the GB and the large size of the pen offers an optimal habitat not just for the artificially reared birds, but for the wild ones as well. This is the key factor of releasing, as the repatriated birds gradually lose the human contact and turn to wild group of birds. By the end of summer or early autumn all young birds join to wild ones and spread around the station.

In the reporting period (2009-2012) 77 times were marked birds observed among wild GB-s just after release, which shows a very good success in the first stage (**joining to wild groups**).

We do not have data on the survival rate or the breeding performance of released birds at present.

In order to accomplish this, and track the birds in their further lifetime, the KMNPD plans to apply radio-transmitters on tail feathers to elongate the monitored period after releasing the birds (resighting colour ring is not very easy), but a long term study would need much better detectable **marking**, like wing-tags or "backpacks".

What is the overall assessment of release programmes based on the survival of released birds one year after release?

- Effective (the survival is about the same as of the wild ones)
- Partially effective (the survival rate is lower than 75% of the wild birds)
- Ineffective (the survival is less than 25% of wild birds)
- Not applicable³

Even though all released birds are marked with colour rings, the survival of repatriated or of wild birds is unknown.

5. Cross-border conservation measure

Has your country undertaken any cross-border conservation measures with neighbouring countries?

Yes No Not applicable⁴

Please, give details of your country's collaboration with neighbouring countries on national surveys, research, monitoring and conservation activities for Great Bustard. Especially, list any measures taken to harmonise legal instruments protecting Great Bustard and its habitats, as well as funding you have provided to Great Bustard for particular conservation actions in other Range States.

Austria: The West Pannonian population is located on the area of 4 countries (Austria, Hungary, Slovakia and Czech Republic), however most of the birds are resident in Austria and Hungary. The co-operation between the two countries is very good mostly in **bilateral censuses** and **study-visits**.

Slovakia: The protection of the West Pannonian GB population is implemented by Austria, Hungary, Slovakia and the Czech Republic, with the co-ordination of Austria (Rainer Raab). Within this framework the **co-operation** is very tight, an **INTERREG project** has also been completed in the region.

³ No release is taking place in the country.

⁴ For countries which do not have any transboundary population.

Romania: As the most eastern GB population is located just at the Hungarian and Romanian border, the co-operation between the two countries is essential. A project also has been completed successfully within the framework of the **Hungary-Romania Cross-Border Co-operation Programme 2007-2013** (HURO/1001/302/1.3.1). The project period covered the dates between 01/03/2012 and 28/02/2013, which gave an extra power to the collaboration. **Synchronized censuses, study visits** and **monitoring** are organized regularly. From the Romanian part Attila Nagy took part at the **experts meeting** in Hungary/Lakitelek in November 2012.

Serbia: The co-operation between the Serbian and Hungarian experts is really good. **Several visits** were organized to the Mokrin region (SRB) from Hungary and to the sites of the KMNPD from Serbia. A **Rafford Grant project** is going on, which aims at creating archive and online database, doing more intensive monitoring in Serbia, but also informing the main stakeholders (farmers and hunters) in and around the Mokrin region. The project is implemented by the **support of the KMNPD and the KNPD**. To give an extra power to the protection of the Serbian population and IPA project proposal was also sent, but it failed unfortunately. By the spring of 2013 the database of the Carpathian basin will contain the observations in the Serbian part as well.

6. Monitoring and research

6.1.1 Monitoring of population size and population trends.

Are the breeding, migratory or wintering Great Bustard populations monitored in your country?

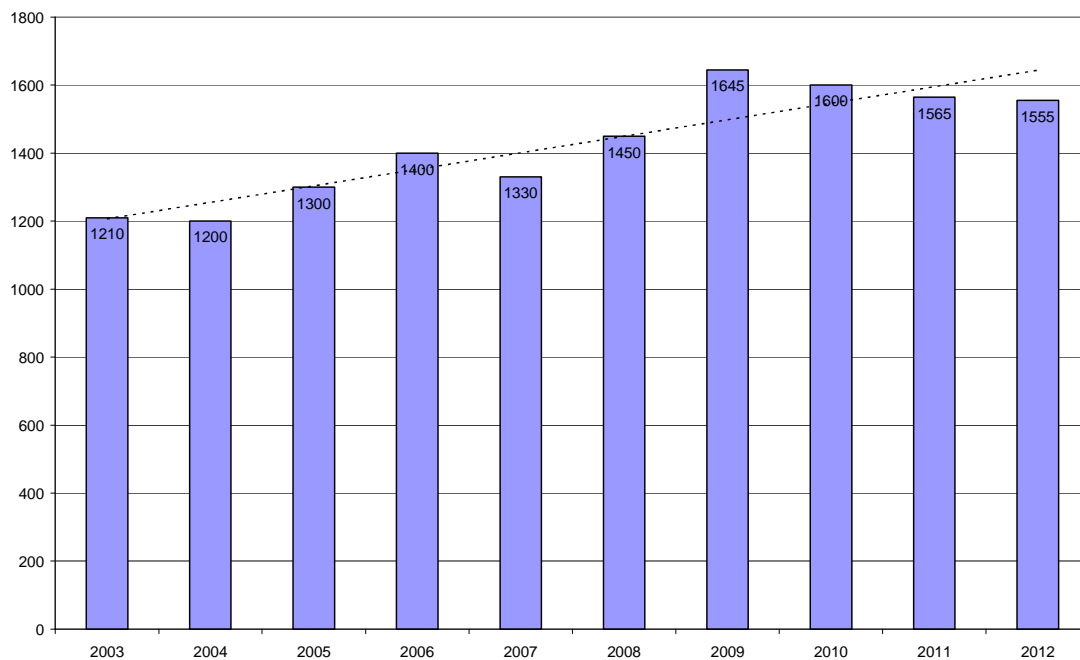
Yes No

What proportion of the national population is monitored?

- All (>75%)
- Most (50-75%)
- Some (10-49%)
- Little (<10%)
- None
- Not applicable¹

What is the size and trend in the national population?⁵

The entire Hungarian Great Bustard (*Otis tarda*) population in **2012 counted 1555 individuals**. The 10 years trend shows a continuous and intensive growth according to the following graphs:



The estimated Hungarian GB population between 2003 and 2012

Breeding/resident population (2012)

No. of adult males: 535
 No. of females: 390
 No. of juveniles: 630
 Total: 1555

Trend: Declined by __% over the last 10 years
 Stable
 Increased by approx. 28,5 % over the last 10 years

Non-breeding population (on passage, wintering)

No. of adult males: _____
 No. of females: _____
 No. immature males: _____

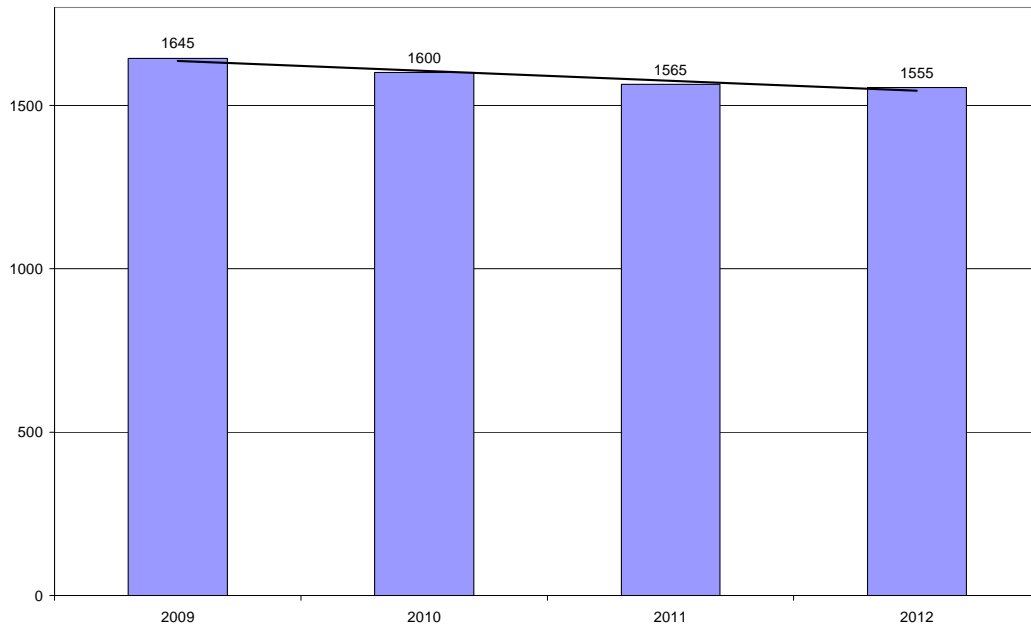
Trend: Declined by __% over the last 10 years
 Stable
 Increased by __% over the last 10 years

Not relevant.

For countries where the species occurs only occasionally, please give the details of known observations within the reporting period: Not relevant.

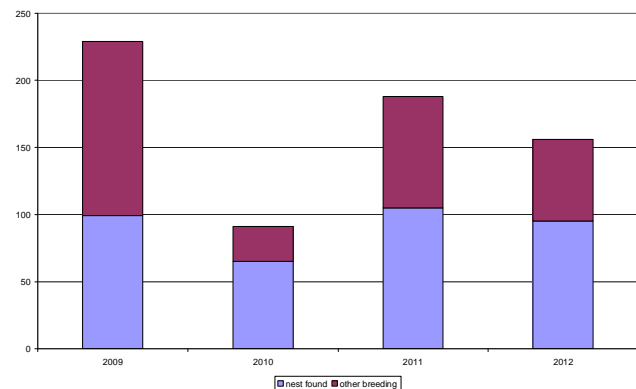
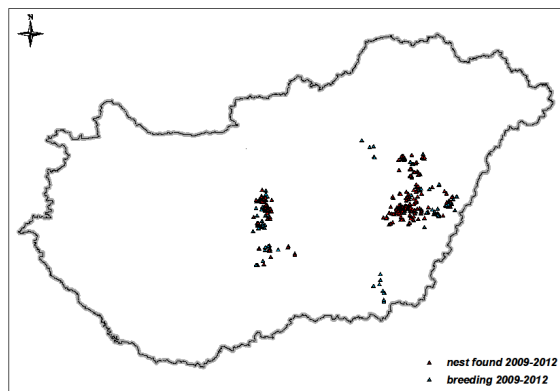
⁵ Only for countries where the species occurs regularly.

The monitoring data show a significant increase (28,5 %) over the last 10 years, however a slow decrease (5%) was experienced over the reporting period between 2009 and 2012, as the graph shows:



The estimated Hungarian GB population between 2009 and 2012

A possible reason of the decline between 2008 and 2012 can be the extreme weather conditions within the reporting period. 2010 was the rainiest year over the last 100 years, followed by the driest year in 100 years time. The number of clutches, and the number of nests found and solitary breeding females detected during the monitoring activity, showed a very significant decline in 2010 nationwide.

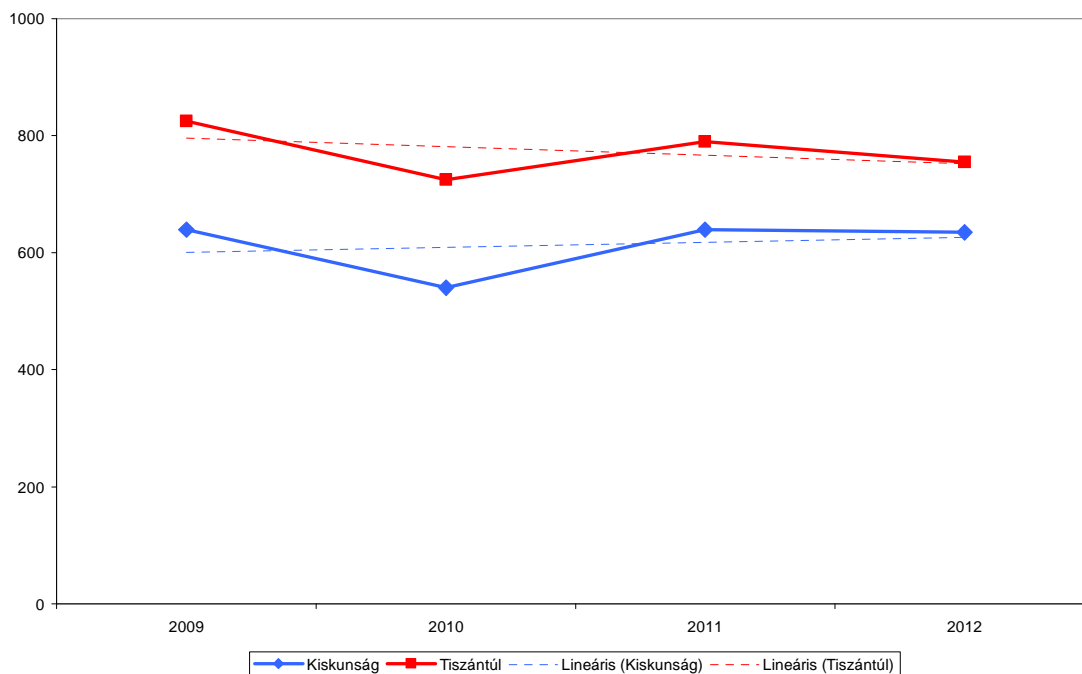


Numbers (nests and other breeding birds detected) and location of known Great Bustards breeding in Hungary (2009-2012)

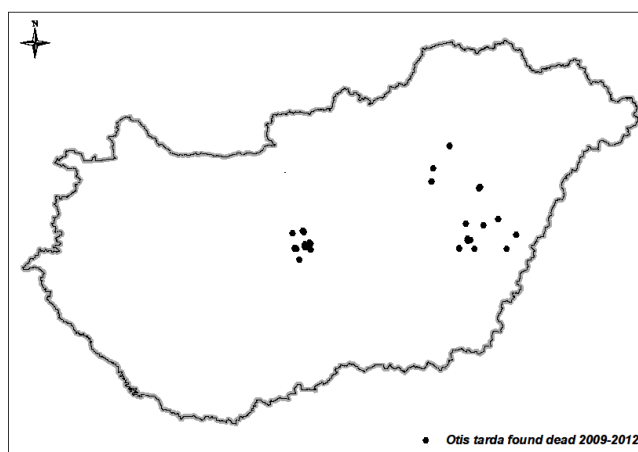
Nests: 2009 n=99
 2010 n=65
 2011 n=105
 2012 n=95

Other breeding: 2009 n=130
 2010 n=26
 2011 n=83
 2012 n=61

The effect of the year 2010 can be well demonstrated in the trends of the two main sub-populations (see below). The sub-populations of the KNPD (Kiskunság) and the KMNP and HNPD together (Tiszántúl), which give approximately 85% of the entire Hungarian population, show a very similar pattern, with almost parallel changes in the last 4 years.



In the reporting period 35 dead specimens were found (see also point 2.3.2):



Number of Great Bustards found dead between 2009 and 2012 (n=35)

6.1.2 Monitoring of the effects of habitat management.

Is the effect of habitat conservation measures monitored in your country?

Yes Partially No Not applicable¹

Please, provide a list of on-going and completed studies with references if results are already published.

- Németh Á., Lóránt M., and Vadász Cs. – How effective are the management regulations of the Great Bustard Protection Agro-Environmental Program? Természetvédelmi közlemények 15, pp. 226-234, 2009.

What can be learned from these studies?

Sustainable land use on GB sites can be realised through the appropriate farming structure and crop choice. There are farming methods that can be economical without the support of an agro-environmental scheme: this involves farming based on extensive animal husbandry and production of the necessary fodder.

What are the remaining gaps and what measures will your country do to address these gaps?

More studies would be needed dealing with the topic in order to have sound and comparable scientific results on the effects of different habitat management activities, and prescriptions – including the monitoring of habitat choice and breeding success. The “Joint Research Program” to be adopted at the MoS3 should serve as basis for co-operative studies for the RS-s.

6.2.1 Comparative ecological studies.

Have there been any comparative studies carried out on the population dynamics, habitat requirements, effects of habitat changes and causes of decline in your country in collaboration with other Range States?

Yes No Not applicable¹

Please, provide a list of on-going and completed studies with references if results are already published

- Burnside R. J., Végvári, Z., Konyhás, S., James, R. and Székely, T. Human disturbance and conspecifics influence display site selection by Great Bustards *Otis tarda*. Bird Conservation International (in press)
- Spakovszky P., Pellingner A., and Burda B. - A mosoni túzok (*Otis tarda*) állomány hosszú távú fenntartásának természetvédelmi problémái. *Ornis Hungarica*, 19, pp 133-140, 2011.

What can be learned from these studies?

The fragmentation of habitats (construction of wind farms, gravel pits and gas-pipelines) is the main endangering factor for the GB population in Western Hungary, and probably nationwide as well.

What are the remaining gaps where the Memorandum of Understanding could assist?

Joint studies would be needed dealing with the topic in order to better understand the main threatening factors and their proportion in causing negative effects, and better monitor the possible differences among populations and effects of different conservation, habitat management activities in RS-s.

The “**Joint Research Program**” to be adopted at the MoS3 should serve as basis for co-operative studies for the RS-s.

6.2.2 Studies on mortality factors.

Are the causes of Great Bustard mortality understood in your country?

Yes Partially No Not applicable¹

Please, provide a list of on-going and completed studies with references if results are already published.

What can be learned from these studies?

What are the remaining gaps and what measures will your country do to address these gaps?

More studies would be needed dealing with the topic in order to better understand and quantify the levels of threat caused by different mortality factors - including power lines, wind turbines and agricultural management. The “Joint Research Program” to be adopted at the MoS3 should serve as basis for co-operative studies for the RS-s.

6.2.3 Investigation of factors limiting breeding success.

Are the factors limiting breeding success in core populations understood in your country?

Yes Partially No Not applicable⁶

⁶ Only for breeding countries.

Please, provide a list of on-going and completed studies with references if results are already published

What can be learned from these studies?

What are the remaining gaps and what measures are you going to take to address these gaps?

More studies would be needed dealing with the topic in order to understand what factors and to what extent limit the breeding success of the species, including the effect of predation and the success of predator control strategies. The “Joint Research Program” to be adopted at the MoS3 should serve as basis for co-operative studies for the RS-s.

6.2.4 Studies on migration.

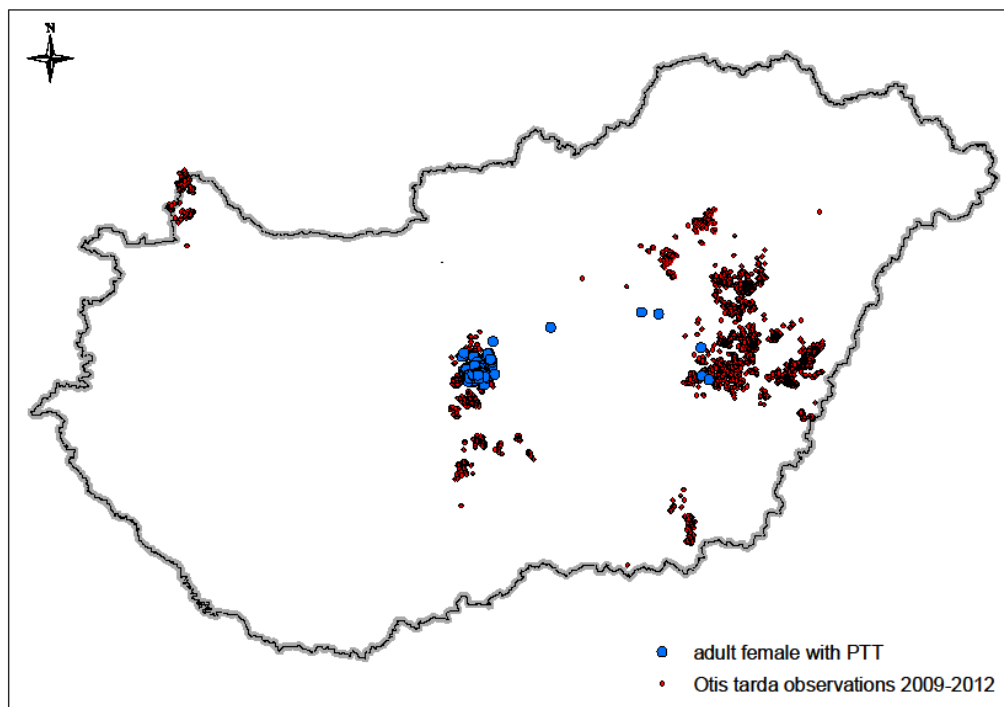
Were there any studies on migration routes and wintering places carried out in your country?

Yes Partially No Not applicable¹

The female marked with satellite transmitter on 12 May 2006 is still alive and the transmitter is still working. As the **Hungarian population is only a partial migrant** (there were no significant movements between 2005 and 2012) the main question was to answer the connection between sub-populations within the meta-population system of the GB in Hungary.

Where are the key sites and what is the size of the population they support?

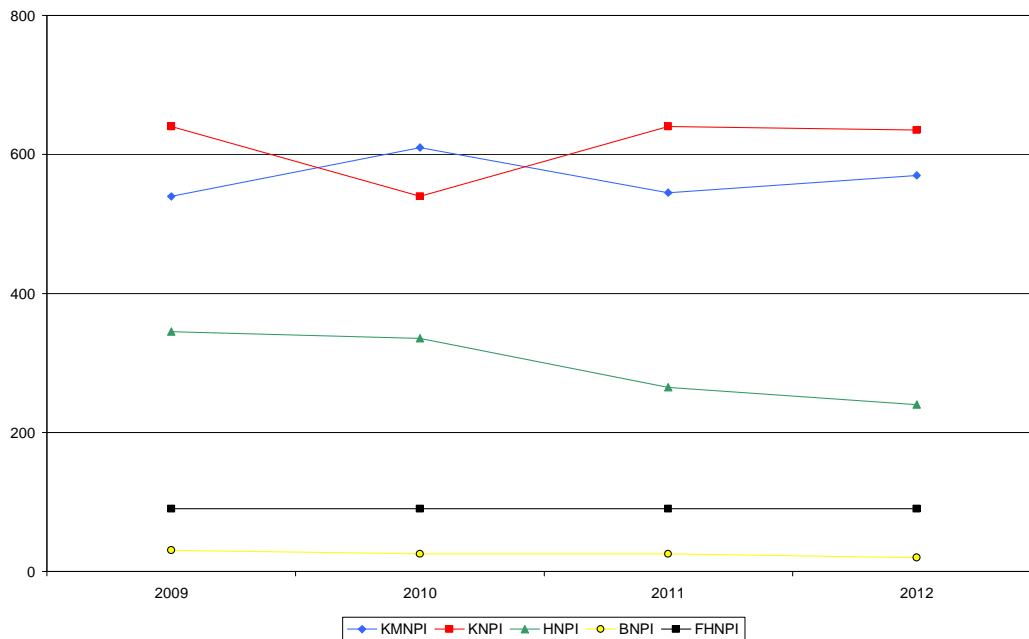
The bird was tagged in the Kiskunság region (Central Hungary) and has spent the last 6 years within the region. The only significant movements were detected in the winter of 2009/2010, when she went to the East and joined to the sub-populations of the KMNPD. The visit lasted from December to March, when she came back to the place where she had been caught:



Do you have any knowledge about the origin of these birds supported by ringing or other marking methods?

The **Hungarian population is a partial migrant** (only migrates to the South in harsh winters, occasionally) In the reporting period there were no observations of migrant birds outside the country.

The following graph shows the analysis of the changes in the **number of individuals regarding the Hungarian sub-populations**:



The “twist” of the two main sub-populations (KNPD and KMNP) was at the same time, when the tagged female visited the GB sites in the KMNP and came back to the KNPD. This winter was exceptional, as the amount of snow was much less in the East as in Central Hungary (the opposite is the normal). A possible theory is that the bird visited the milder eastern part for wintering.

Interesting information is the fact, that on the “way back” the bird(s) visited areas, which haven’t been used by GB-s in the present time for a while, but are known as former GB sites. This fact shows the **importance of the empty patches** in the Hungarian meta-population system.

What are the remaining gaps and what measures will your country do to address these gaps?

More studies, especially **telemetries** would be needed dealing with the topic mentioned in order to better understand seasonal movements and genetic relationship between sub-populations. A lot more individuals should be marked with satellite transmitters.

A research is planned to mark adult female GBs with satellite transmitters and fledged juveniles with wing tags in the main sub-population of KNPD, KMNP and HNP. These birds, complemented with the reared chicks (marked with colour-rings) in Dévaványa, hopefully will help to understand the meta-population system in Hungary.

7. Training of staff working in conservation bodies

Is there any mechanism in place in your country to share information on biological characteristics and living requirements of Great Bustard, legal matters, census techniques and management practices to personnel working regularly with the species? Yes No Not applicable¹

If yes, please describe it.

In Hungary a “**Great Bustard Conservation Working Group**” has existed since the early 1990s. The group comprises all (about 25) experts working for different nature conservation organizations (rangers, other national park staff, researchers, NGO-s, ministry and inspectorate staff) in different parts of the country. These experts exchange experiences by informing each other on relevant population and nature conservation issues concerning the species during the regular meetings of the Working Group, held once a year.

Have personnel dealing with Great Bustard participated in any exchange programme in other Range States?

Yes No Not applicable¹

If yes, please give details on number of staff involved, country visited and how the lessons were applied in your country.

See at cross-border conservation measures under chapter 5.

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

What measures have been taken to increase the awareness about the protection needs of the species and its habitat in your country since signing the Memorandum of Understanding?

- Organizing of meetings for farmers
- Organizing of meetings for hunters
- Exhibitions at the visitor centres of NPD-s
- Leaflets
- Study trails on GB sites
- Guided tours and visits to GB sites

Do farmers, shepherds, political decision makers and local and regional authorities support Great Bustard conservation?

Yes Partially No

What are the remaining gaps or problems and how are you going to address them?

In general a much more intensive **PR activity** would be needed.

9. Economic measures

Have there been any initiatives taken to develop economic activities that are in line with the conservation requirements of Great Bustard in your country?

Yes Partially No Not applicable¹

What percentage of the population is covered in total by these measures?

- All (>75%)
- Most (50-75%)
- Some (10-49%)
- Little (<10%)
- None
- Not applicable

How effective were these measures?

- Effective (more than 50% of the targeted area is managed according to the species' needs)
- Partially effective (10–49% of the targeted area is managed according to the species' needs)
- Ineffective (less than 10% according to the species' needs)
- Not applicable¹

10. Threats

Please, fill in the table below on main threats to the species in your country. Use the threat scores categories below to quantify their significance at national level. Please, provide an explanation on what basis you have assigned the threat score and preferably provide reference. Add additional lines, if necessary.

Threat scores:

Critical: a factor causing or likely to cause **very rapid declines** (>30% over 10 years).

High: a factor causing or likely to cause **rapid declines** (20-30% over 10 years).

Medium: a factor causing or likely to cause relatively **slow, but significant, declines** (10-20% over 10 years).

Low: a factor causing or likely to cause **fluctuations**.

Local: a factor causing local declines but likely to cause **negligible declines at population level**.

Unknown: a factor that is likely to affect the species but it is unknown to what extent.

Threat name	Threat score	Explanation and reference
Habitat loss	Low	
Losses of eggs and chicks	High	
Predation	Medium	Critical at BNPD, probably high at KNPD.
Collision with powerlines	Medium	High at KNPD.
Human disturbance	Low	
Pesticides	Unknown	
Illegal hunting	Low	
Others (specify)		