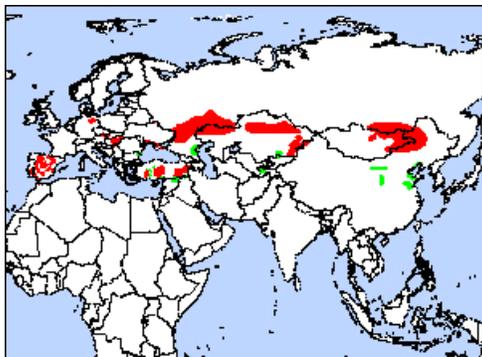


# Great Bustard *Otis tarda*

Birds Directive – Annex I



*Otis tarda* breeds in Europe, Turkey, central Asia, Russia and as far east as China<sup>1</sup>. Spain is its stronghold in the EU.

	AT	BE	BU	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IR
Present			?											
	IT	LV	LT	LU	MA	NL	PL	PT	RO	SL	SV	SE	UK	
Present									?					

Ro, (?): Nearly extirpated

## SPECIES INFORMATION

### ECOLOGY

- The great bustard is a large gregarious species, commonly found in flocks. For most of the year, males and females live in separate groups. Males can weigh up to 15 kilos, females are much smaller (ca 4-5 kilos);
- At the end of winter, males concentrate in display areas known as 'leks' to attract females. They disperse again once they have finished breeding;
- Females are solely responsible for choosing nest sites, incubating the eggs and rearing chicks;
- Egg laying occurs in April-May, and in June in colder north-eastern parts of the range. Females normally lay two eggs which are incubated for ca 25 days. The chicks usually stay with the females for about a year until the next breeding cycle;
- The nest is a simple depression on the ground, usually situated in the vicinity of the lek site. They are often located in patches of bare soil in cereal fields or grasslands;
- Bustards are not great flyers. Young males disperse some 5-65km from the site where they were born whilst females will usually only disperse 0,5-5 km from their natal nest;
- Young birds will often aggregate in areas already occupied by other bustards rather than settle in other unoccupied patches even if these other areas offer more favourable habitat conditions;
- Most great bustard populations in Europe are resident. Some populations may however migrate short distances (5-200 km) from breeding to wintering grounds and back in search of food and more clement weather conditions;
- Great bustards are omnivorous and opportunistic feeders. They usually forage in cultivated areas and depend on leguminous crops such as clover, alfalfa, black mustard and turnip, which constitute their main food source in the winter along with seeds (of wheat and barley) found on the ground after harvesting. In summer the diet is more diverse, with 40% being made up of invertebrates.

<sup>1</sup> \* Map and drawing courtesy of Birdlife: <http://www.birdlife.org/datazone/species/index.html>

## HABITAT REQUIREMENTS

- The great bustard is traditionally a dry grassland/steppic species but in Europe it is now found almost exclusively in flat open agricultural land, especially traditional extensive farmland;
- Birds in Iberia inhabit mixed forms of pasture, arable and fallow land, while those in Hungary live in steppic grasslands, pastures and semi-natural grasslands (puszta) intermixed with agricultural land;
- A certain amount of fallow land (e.g. fallow plots, set-aside plots, field margins, etc) is necessary to provide food and cover;
- Wintering habitat consists mostly of large fallow plains of leguminous crops such as alfalfa, clover, rape or other types of crucifers;
- Studies have shown that great bustards will preferentially select stubble fields, but will avoid ploughed or uncultivated areas, or any areas with roads, power lines or other human artifacts;
- Great bustards show strong fidelity to sites already used by other bustards (con-specific attraction), even if suitable habitat is available elsewhere. This may limit the re-colonisation of previously occupied or newly created sites.

## THREATS

Although the great bustard has a wide range, its population in Europe is now highly fragmented, surviving only in relatively isolated pockets in a few EU Member States (half the EU population is found in Spain). The threats are relatively well known :

- Agricultural intensification: the most critical threat comes from continued habitat loss resulting from ploughing up grasslands, intensifying cereal production to mono-cropping or permanent crops, and irrigating dry culture land;
- Infrastructure development: other land use changes such as afforestation, construction of roads, powerlines, wind farms, housing etc. in or near the species range also causes habitat loss and significant disturbance leading to a reduced breeding success;
- Application of certain agricultural practices: the use of herbicides, pesticides and fertilizers in core bird habitat, ploughing of fallow in spring, early harvesting and burning of stubble in summer can destroy nests, poison adults and reduce food sources;
- Change of crops: a reduction in alfalfa or other leguminous winter crops affects the birds' chances of survival due to reduced food sources and cover in winter;
- Overgrazing: inappropriate grazing management may damage breeding grounds;
- Collision with powerlines: bustards are big birds, their poor manoeuvrability in flight renders them unable to evade poorly marked powerlines. Collision with overhead cables is a significant cause of death in some countries. Small populations can be totally destroyed by a single powerline;
- Human disturbance: disturbance causes stress, desertion of clutches, and in the case of young birds, a reduction in time spent feeding. Disturbance at the display sites disrupts social behaviour and usually prevents reproduction;
- Predation: eggs and chicks are predated by foxes, corvids and dogs.

## FARMING PRACTICES FAVOURABLE TO GREAT BUSTARD

To ensure the continued survival of the great bustard in the EU, the first priority is to prevent any further deterioration of its remaining habitats and to maintain these in a favourable condition. It will also be important to promote compatible land uses in areas adjacent to existing populations which will allow the population to grow and expand its range.

This can be achieved with the following:

- Preserve non-intensive mixed farming systems: in remaining areas where the great bustard is still present. This should include preserving extensively grazed rotational fallows (1-5 years) and maintaining non extensive grasslands and non-irrigated cereal cultivation (cereals and legumes). The aim is to have a large and diverse enough area, containing a mosaic of fallow land, permanent grassland and arable crops to sustain a viable population of great bustards;
- Prevent significant land use changes: in or near existing sites for the great bustard. This includes preventing irrigation schemes, afforestation, conversion to permanent crops, cereal monocultures, ploughing up of fallow land, construction of roads, powerlines and other infrastructures;
- Adapt existing agricultural practices: to the life cycle of the great bustard, for instance by avoiding the use of herbicides, pesticides and fertilizers or treated seeds, not ploughing fallow land in spring, not burning stubble in summer, delaying harvesting of crops until after chicks have hatched, leaving un-harvested crop islands around nest sites, suspending farming operations in leks during the mating season, avoiding night-time harvesting, leaving areas of unharvested crops and uncultivated field margins for foraging and cover;
- Promote extensification programmes: to adapt or revert intensively used cereal crops back to extensively managed mosaic of cereal cultivation, fallow and grassland; priority should be given to areas currently used by the species where fragmented parcels of habitat can be reconnected to provide a sufficiently large area of suitable habitat capable of sustaining a viable population;
- Planting of winter cereals and leguminous crops: such as winter wheat, alfalfa, clover or other types of crucifers in wintering areas for great bustards. Rape fields are also important as a winter food source for bustards as is the maintenance of stubble;
- Prevent disturbance at breeding and display sites: since breeding females are especially vulnerable to disturbance, interference caused by farming activities, vehicles driving across the fields, hunting, and birdwatching should be minimised, especially in areas of low population density, for instance through wardening. Shepherd dogs should be trained not to chase or kill bustards;
- Ensuring appropriate grazing: by maintaining low livestock densities (e.g. < 2 sheep/ha). Active shepherding helps make balanced use of the available forage resources and continuation of transhumance helps to remove stock during periods of least forage. Any fences should have a large enough mesh for the birds to pass through and not be made out of barbed wire.

## OTHER SPECIES BENEFITING FROM THESE CONSERVATION MEASURES

Like every species, the great bustard has particular habitat requirements that are unique to its lifecycle. However, as the bustard is essentially a species of extensive dry grassland intermixed with arable and fallow land, several of the measures mentioned above would also benefit other species protected under the Habitats and Birds Directives that are typical of these habitats.

Contrary to some other steppic birds, it may also occupy not too intensively managed arable land if part of a mosaic with fallow and pasture. The species that may benefit from bustard friendly management measures thus include true steppe birds as well as species also found in dry, extensively farmed arable land. Examples from across the range include:

Montagu's Harrier, *Circus pygargus*

Red-footed Falcon, *Falco vespertinus*

Little Bustard, *Tetrax tetrax*

Collared Pratincole, *Glareola pratincola*

Pin-tailed Sandgrouse, *Pterocles alchata*

Calandra Lark, *Melanocorypha calandra*

Tawny Pipit, *Anthus campestris*

Corn Bunting, *Miliaria calandra*

Imperial Eagle, *Aquila heliaca* (hunting area)

Saker, *Falco cherrug*

Stone Curlew, *Burhinus oedicnemus*

Black-bellied Sandgrouse, *Pterocles orientalis*

Roller, *Coracias garrulus*

Short-toed lark, *Calandrella brachydactyla*

Black-eared Wheatear, *Oenanthe hispanica*

Mammals like: Souslik *Spermophilus citellus*.

## OBLIGATIONS ARISING FROM THE BIRDS DIRECTIVE

The great bustard is protected under the EU Birds Directive 79/409/EEC, listed in Annex I of the Directive. As a result, Member States must take the following measures to ensure its conservation.

### General requirements

Member States are required to take the requisite measures to maintain the population of the great bustard at a level which corresponds in particular to its ecological, scientific and cultural requirements, or to adapt the population of the species to that level (cf Article 2).

To achieve this, Member States are required to preserve, maintain or re-establish a sufficient diversity and area of habitats for the great bustard which should include primarily the following (cf Article 3):

- creation of protected areas;
- upkeep and management in accordance with the ecological needs of habitats both *inside* and *outside* protected areas;
- re-establishment of destroyed habitats;
- creation of habitats.

### Protecting the species

Member States should take the requisite measures to establish a general system of protection for the great bustard throughout its natural range within Europe, and in particular to prohibit the following (cf Art 5):

- deliberate killing or capture by any method;
- deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- taking their eggs in the wild and keeping these eggs;
- deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as this would have a significant negative effect on the birds;
- keeping birds, the hunting and capture of which is prohibited;
- sale, transport for sale, keeping for sale and the offering for sale of live or dead birds and of any readily recognizable parts or derivatives of these birds (cf Article 6).

Member States may derogate from these provisions under a number of circumstances (e.g. in the interest of public health, or judicious use) where there is no other satisfactory solution and where the derogations do not affect the overall conservation status of the species (cf Article 9).

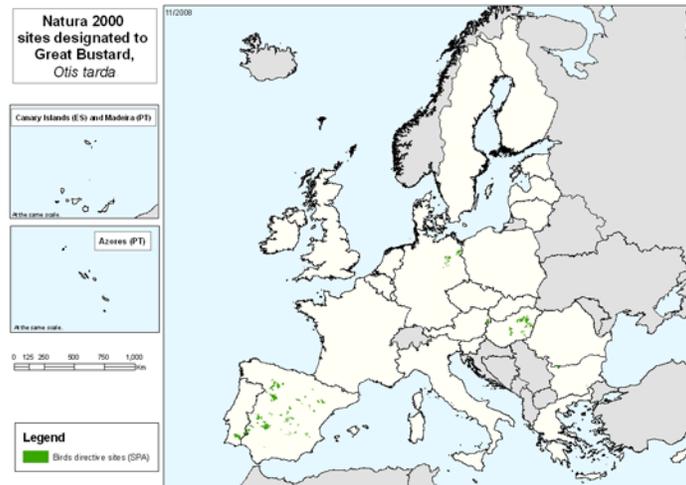
### Protecting core habitats for the species under Natura 2000

The great bustard is listed in Annex I of the Birds Directive in view of its vulnerable conservation state. In addition to the general provisions referred to above, Member States must also classify the most suitable territories in number and size as Special Protection Areas under Natura 2000 to ensure the survival and reproduction of the species across its entire area of distribution within the EU (cf Article 4). As of November 2008, a total of 91 SPAs have been designated in the EU-27 for great bustard.

### Managing Natura 2000 sites

Within these SPAs, Member States must take appropriate steps to avoid the deterioration of habitats of the great bustard as well as its disturbance, in so far as such disturbance could be significant.

Measures must also be taken to manage, maintain or, if necessary, restore areas for the great bustard both within SPAs and outside so that the objectives of the Directive are achieved (cf Art 3). The Birds Directive does not elaborate how this should be done as this is up to each Member State to decide but in practice management plans are very often developed for SPAs.



Management plans are useful documents in that they:

- identify the conservation needs of the habitats and species present in that site so that it is clear to all what is being conserved and why;
- analyse the socio-economic and cultural context of the area and the interactions between different land-uses and the species and habitats present;
- provide an open forum for debate amongst all interest groups and help build a consensus view on the long term management of the site;
- help find practical management solutions that are integrated into other land use practices.

Assessment and approval of plans and projects that may significantly affect Natura 2000 sites:

The EU Nature Directives support the principle of sustainable development. Their aim is to set the parameters by which the economic activities can take place whilst safeguarding Europe's biodiversity. Thus, any plans or projects that may affect the species and habitats for which the sites are designated must be first assessed to determine whether the project is likely to have a significant effect on the species and habitat types for which the site has been designated.

If the impact is not considered significant the project can go ahead. If the effect is expected to be significant then alternative less damaging options must be fully explored and selected. In exceptional cases, if no viable alternatives exist, projects with significant negative impact on Natura 2000 sites can still go ahead if they are considered to be of overriding public interest. In such cases, compensation measures will need to be taken in order to ensure that the ecological coherence of the Natura 2000 Network is not compromised (cf Articles 6 (3) & (4) of the Habitats Directive which apply to SPAs classified under the Birds Directive).

## **GREAT BUSTARD CONSERVATION THROUGH MEASURES UNDER CAP/RDPs**

The obligations arising under the Birds and Habitats Directives can be integrated into the CAP measures in the following manner:

### Cross compliance

Cross compliance is a horizontal CAP tool and applies to all direct payments (Pillar I), Pillar II payments (Less Favoured Area payments, Agri-Environment, Natura 2000 compensatory payments), and certain wine payments. The cross compliance requirements consist of 19 Statutory Management Requirements (SMR), and the requirements set to keep land in good agricultural and environmental conditions (GAEC).

In the case of the **Birds Directive** one of the 19 SMRs concerns the requirements resulting from the following articles that must be respected by farmers:

- Article 3 (1) & (2)(b): preserve and maintain a sufficient diversity of habitats for wild birds; in particular introduce measures for their upkeep and management in accordance with the ecological needs of habitats inside and outside of protected zones;
- Article 4 (1), (2), (4): special conservation measures in Natura 2000 sites and taking appropriate steps to avoid pollution or deterioration of these areas;
- Article 5 (a), (b) & (d): obligations under the general system or protection for all wild birds, and in particular prohibitions of the deliberate killing or capture by any method, the deliberate destruction of, or damage to, their nests and eggs or removal of their nests and/or the deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant.

In the case of SPAs another SMR based on the **Habitats Directive**, must also be respected:

- Article 6: within Natura 2000 sites take the necessary conservation measures to restore and maintain the species and habitat types for which the site is designated and prevent their deterioration, destruction or significant disturbance.

The exact requirements of the above mentioned SMRs vary between Member States and depend on the way the requirements of the Birds and Habitats Directives are translated into their laws and administrative measures (e.g. management plans for Natura 2000 sites) applicable to farmers, and consequently cross compliance.

In addition to meeting the SMRs, farmers must also keep land in good agricultural and environmental conditions (GAEC) which sets a minimum level of maintenance through, for instance, compulsory standards for:

- Retention of landscape features including where appropriate, hedges, ponds, ditches, trees (in line, in group or isolated) and field margins;
- Avoidance of encroachment of unwanted vegetation on agricultural land;
- Protection of permanent pasture.

Member States can also voluntarily set standards, for example, for<sup>2</sup>:

- Minimum livestock stocking rates or/and appropriate regimes;
- Establishment and/or retention of habitats.

#### Measures under Rural Development Programmes funded from EAFRD:

The following measures could be used to benefit bitterns:

- **Less Favoured Area payments:** (Article 37) linked to existing farming practices where they support upkeep of traditional low-input farming systems;
- **Natura 2000 payments:** (Article 38) in order to compensate for costs incurred and income foregone resulting from legal or administrative restrictions on farming within Natura 2000 areas such as a mixed rotational farming system containing large mosaics of grasslands, arable crops (including winter crops) and fallow land;
- **Agri-environmental (AE) schemes:** (Article 39) linked to voluntary measures undertaken by farmers on contractual basis such as avoiding the use of herbicides, pesticides and fertilizers or treated seeds, not ploughing fallow land in spring, not burning stubble in summer, delaying harvesting of crops until after chicks have hatched, leaving unharvested crop islands around nest sites, suspending farming operations in leks during the mating season, avoiding night-time harvesting, leaving areas of unharvested crops and uncultivated field margins for foraging and cover, planting winter cereals and leguminous crops in great bustard wintering grounds to provide food and cover in winter, maintaining appropriate levels of grazing; providing wardening to avoid disturbance during breeding / nesting season;
- **Reimbursement of non-productive investments:** (Article 41) can cover a range of investments from on-farm investments linked to AE schemes or to measures identified in management plans for an SPA such as promoting extensification programmes, restoring and reconnecting suitable habitats for the species,

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<sup>2</sup> These standards are however compulsory for those Member States who had already set a minimum requirements for these standards before 1 January 2009 or where national rules addressing the standard are applied in the Member State.

introducing active shepherding and wardening, planting of winter crops, marking powerlines, changing barbed wire fences to fences with a large mesh size;

- **Conservation of rural heritage** (Article 57): for instance to cover the cost of drawing up management plans for Natura 2000 sites hosting great bustards, undertaking habitat restoration measures in areas currently or potentially suitable for bustards, launching awareness campaigns on the conservation needs of great bustards.

In addition the following could also be used:

- **Training and information** (Article 21): e.g. could help make AE schemes more effective and train farmers and experts in the Farm Advisory Services on conservation and management requirements linked to wildlife such as great bustards;
- **Farm Advisory Services (FAS)** (Article 24 of RDR): the cost of obtaining advisory services on how to meet the minimum cross compliance requirements, such as those under the Habitats and Birds Directives can be reimbursed to farmers, foresters and other land managers, which can be beneficial to, inter alia, great bustards.
- **LEADER** (Article 61): integration of great bustard conservation into area-based local development strategies and enhancement of dialogue and collaboration between farmers, conservationists and other rural stakeholders in the area concerned.

## EXAMPLES OF GREAT BUSTARD-FRIENDLY MEASURES UNDER RDPs

The following provide some examples of how different countries have introduced support for bustard friendly farming through the Rural Development Regulations for 2000-2006 and 2007-2013. Further details, including a review of possible shortcomings and lessons learnt, are provided in the species report on the Wildlife and Sustainable Farming Initiative website: [http://circa.europa.eu/Public/irc/env/swfi/library?l=/species\\_reports&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/swfi/library?l=/species_reports&vm=detailed&sb=Title)

### SPAIN

**Castilla y León - Villafáfila Lagoons Reserve:** This 389 km<sup>2</sup> area harbours the biggest single great bustard population in Spain and in the EU. Arable land is dominant in the area. One third of the arable land is under cereals and an equivalent amount is fallowed. Sheep production is also important, traditionally based on the forage resource provided by cereal stubbles, fallow land and cultivated forage crops, such as alfalfa. The first specific agri-environment scheme was introduced under Regulation 1278/92.

Different types of voluntary contracts were devised which included incentive payments for:

- Type 1 and 2 contracts for: increasing the area of fallow and pastures on the holding, and improving their condition for great bustards, reducing fertiliser use, creating small woods or hedgerows.
- Type 3 contracts: for establishing long-term set-aside of land (20 years)
- Type 4 contracts: for re-introducing or maintaining alfalfa cultivation or maintaining threatened crop varieties.

In 1998, a first evaluation of the programme showed a change in production trends on the farms under agreement, with increases of fallow (13 %) and legumes and grassland (5 %), and a decrease of cereal area (17 %). The reduction in the use of fertilizers was estimated to be 29 % and the area treated with chemical products was reduced by 13 %. In 2000, the number of type 1 and 2 contracts covered a total area of 215 000 ha in Castilla y León (close to the 13 % of potential area), at a total cost of 21.4 million EUR. In the same year, the number of type 3 and 4 contracts covered 4,465 ha and a total cost of 0.94 million EUR. By 2004 some 64.6% of cultivated land in the Lagoons Reserve area was participating in agri-environment measures.

The schemes have contributed to maintaining an extensive farming system that is of very limited economic viability, while improving the quality of the farmland habitat and increasing the area of alfalfa (from 760 ha in 1996 to 3,624 ha in 2007). The schemes have also helped to convince farmers that the presence of great bustards on their land is not a barrier to their activity, but a source of economic benefit. Population surveys showed an increase in the great bustard population during the last 10–15 years. Of the various agri-environment measures, probably the most significant is the incentive for growing alfalfa, which has had the effect of maintaining a minimum presence of this crop in the great bustard area. The above described measures are therefore overall very positive for the species, although it does still allow certain practices that are negative for the great bustard, such as night-time harvesting and direct sowing (associated with blanket use of herbicides).

## PORTUGAL

**The Castro Verde Zonal Scheme (Alentejo)** Having altered the land use plan to prevent further afforestation of 85% of the land within Castro Verde in the 1980s, and run a pilot agri-environment programme through LIFE funds, the Castro Verde Zonal Scheme was created specifically to promote low intensity agriculture that is compatible with the conservation of cereal steppe birds in the Castro Verde Special Protection Area (SPA).

The scheme pays farmers to maintain traditional crop rotations and low grazing intensities, reduce pesticide inputs and keep stubble or crop coverage over the winter. By joining the Castro Verde Zonal Plan, farmers commit to:

- Exclusively use traditional cereal rotations within a given set;
- Guarantee a minimum of 70% of soil coverage during autumn / winter;
- Maintain the barley area below 12,5% of the rotation area;
- Leave untreated strips in plots subject to chemical treatment (width <8m, but not smaller than 5% of a plot);
- No use of aerial treatment methods;
- No use of certain chemical products;
- In plots larger than 100 ha, sowing of 1 ha of certain legumes or peas for wildlife per 100 ha of culture in non-continuous plots, each smaller than 0,5 ha;
- Monitor and implement culture practices in the plots sown for wildlife until the end of their cycle;
- Maintain the natural vegetation around water courses and bodies without hindering their necessary flow and retention capacities;
- Respect the farming calendar and harvest and soil mobilisation practices defined annually by the local support structure according to the characteristics of the agricultural year and the evolution of the biological cycles of the species targeted by the measure;
- No burning of stubble;
- No irrigation of areas larger than 10 ha continuous or 10 ha per production unit without previous permission from the local support structure;
- No installation of fences higher than 1,2 m or enclosing areas smaller than 15 ha and plantation of small tree groups without previous permission from the local support structure;

Monitoring suggests that all dry grassland birds in the SPA have benefited, with species like the great bustard, increasing in numbers as a result of this scheme compared to similar areas where the scheme was not taken up. Initially, the payments offered were sufficient to make the scheme attractive to farmers and, by 2000, management agreements covered 60% of the Castro Verde SPA. In 2000, however, the payments were reduced by 20% while the scheme requirements remained the same. As a result, farmers lost interest in the scheme and many decided not to renew their contracts after the first five years had expired; now this scheme covers only 30% of the SPA.

## HUNGARY

The great bustard in **Hungary** is a partial migrant. The population stands at ca 1,250 birds today. Originally a grassland bird, it is now also regularly found in cereal maize crops. Further intensification of steppes in Hungary was partly averted in 2002 with the introduction of Environmentally Sensitive Areas schemes. These ESAs, originally covering 40,000ha, were drawn up to introduce more environmentally friendly farming for the benefit of a number of farmland birds, such as the great bustard. Thanks to ESA two thirds of great bustard areas were eligible for agri environmental funding. Contracts could be made with farmers that encourage bustard-friendly farming: (1) arable farming with bustard protection and (2) alfalfa with bustard protection.

The voluntary schemes provide farmers with annual compensation payments for the loss of yield and other income due to the restrictions laid down in the contract. Management prescriptions include:

- Crop rotation (with determined crops ratio);
- Set-aside;
- Restrictions in the use of fertilizer, herbicides and fungicides;
- Prohibition of the use of highly toxic pesticides;
- Prohibition of soil loosening, amelioration, draining and irrigation activities;
- Restricted cutting (determined harvesting periods, methods and techniques);
- Application of game deterring chains during harvesting;
- Protective zone around nests;
- Reporting of the discovery of nests;
- Determined ploughing measures in areas with fire risk;
- Conservation of existing alleys, forest belts, old trees.

The scheme has been popular. For instance, in Kiskunsag which is one the Natura 2000 sites with the largest population of great bustard in Hungary, 50% of the land has been enrolled into agri-environment contracts. The scheme was however replaced two years later by a much broader RDP agri-environmental scheme which covers 120,000 ha. This was seen as a step backwards from the previous national schemes because the ESAs are no longer chosen with great bustard specifically in mind and the resources are too limited and cannot match the popularity of the schemes. Some new measures such as the use of heavy machinery and moving forward of the harvesting date to 15 June instead of 1 July are also directly detrimental for great bustards.

Another scheme that has great potential for the great bustard is the conversion of arable land to grassland. In Hungary, this conversion can be completed in 5 years. Such measures would be very good for creating habitats for the great bustard and to help it to expand its range. So far 600ha has been converted in Kiskunsag National park.