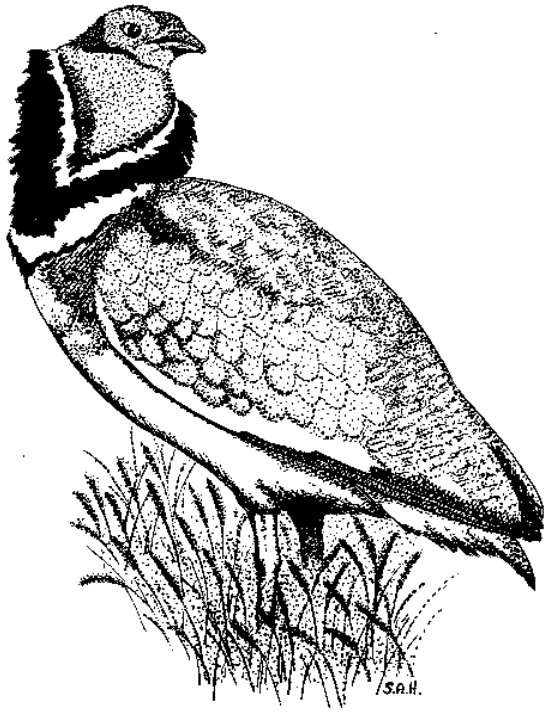
Little Bustard
(Tetrax tetrax)



European Union Species Action Plan for Little Bustard *(Tetrax tetrax)*

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Milestones in production of action plan

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Reviews

This action plan should be reviewed and updated every four years. An emergency review will be undertaken if sudden major environmental changes occur within the species range, liable to affect the population.

Geographical scope

Within the EU this action plan needs implementation in France, Italy, Portugal and Spain, but information has also been compiled regarding Russia, Turkey and Ukraine.

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SUMMARY

The Little Bustard *Tetrax tetrax* is a Near-threatened species (Collar *et al*., 1994), considered Vulnerable in Europe due to large declines in most of its European range, most of the global population of this species, which exceeds 100,000 birds, being concentrated in Europe (Tucker and Heath, 1994). It is listed on Annex 1 of the EU Wild Birds Directive and Appendix II of the Bern Convention.

After dramatic declines since the 19th century, leading to extinction in many countries of central and southern Europe and northwest Africa, its present range is divided into two widely separated subareas. In the east the Little Bustard may already be extinct in Ukraine and Turkey, but populations still seem to be relatively healthy in Russia and Kazakhstan. The western part of the range extends into the EU, mostly within Iberia. Some 100,000-200,000 displaying males have been estimated for Spain and about 20,000 individuals for Portugal. Much smaller, relict populations remain in Italy (1,500-2,200 birds in Sardinia and 50 birds in Apulia) and parts of France (1,200 displaying males).

Populations are resident, dispersive or migratory in different regions. In Europe Little Bustards mostly inhabit arable (extensive dry cereal crops) and pastoral lands, selecting areas with high a diversity of ground cover, i.e. mosaics with pasture, long-rotation fallow and legume crops. Present trends in agriculture (e.g. towards monocultures, concentration of landholdings, irrigation and tree crops) are resulting in rapid loss and/or fragmentation of Little Bustard habitat.

Thus the use of agri-environment measures to maintain or increase large areas of non-intensive farmland appears to be the most effective conservation tool for this species.

Threats and limiting factors

- Irrigation of dry crops - high/critical
- Afforestation - high
- Conversion to perennial crops - high
- Concentration of landholdings - high
- Trends to monoculture - high
- Inappropriate pesticide use - high
- Predation - medium
- Farm mechanisation - low (locally high)
- Inappropriate livestock densities - medium/low
- Built development - low
- Shooting - low
- Collisions - low

Conservation priorities

Maintain large areas of extensive arable/pastoral land and enhance habitat quality within them, through application of agri-environment policies - essential
(i.e. by increasing legume crops, unploughed fallows and set-aside fields, and by preventing irrigation, concentration of landholdings, afforestation, tree crops, pesticide application and inappropriate stocking densities).

Designate and manage protected areas - high

Determine movement patterns and locate main wintering concentrations in Iberia - high

Research to determine the factors that may influence breeding success - high

Evaluate the effectiveness of management/conservation measures - high

Inform farmers of the need to protect the Little Bustard and the farming practices that may affect it - high.

1. Introduction

The Little Bustard *Tetrax tetrax* is a dry grassland species that in Europe has adapted its habitat preferences to arable and pastureland. It is presently considered Near threatened at the global level (Collar *et al*., 1994). In Europe it is classed as a SPEC 2 (a species with an unfavourable conservation status, concentrated in Europe) being Vulnerable due to large declines over most of its European range from 1970 to 1990 (Tucker and Heath, 1994). It is included in Annex I of the EU Wild Birds Directive and Appendix II of the Bern Convention and CITES.

The species experienced catastrophic declines in many parts of its former range due mainly to agricultural intensification (e.g. Schulz, 1985, del Hoyo *et al*., 1996). Its most important populations are now located in the EU, mainly within the Iberian Peninsula. The available but incomplete figures suggest that 80-90% of the world population may be concentrated in Spain and Portugal.

Due to the Mediterranean semi-arid climate, much of this area has low-input agriculture that results in a mosaic of dry cereal crops with fallows, sheep-grazed pasture, legume crops and extensive vineyards. In such habitat the Little Bustard can attain high densities for example in Castilla-La Mancha and Extremadura in Spain and the Alentejo in Portugal. On the other hand the status of the species in the heavily intensified areas of France and Italy is already critical.

In January 1997 a workshop took place in Trujillo, Spain, to discuss the global status of the Little Bustard and to agree on the conservation priorities. It was organised by BirdLife International and SEO/BirdLife, and was attended by 14 experts from the EU range states: France, Italy, Portugal and Spain. This Action Plan is based largely on the results of that workshop and of the subsequent process of consultation.

If the dramatic decline of this species is to be halted or reversed, urgent action must be taken to maintain or enhance the quality of the Little Bustard habitat over considerable expanses of farmland. The Common Agricultural Policy can play a fundamental role in achieving this aim, not only by promoting environmentally friendly practices, but also by removing current harmful subsidies (such as subsidies for tree or sunflower plantations in steppic areas).

2. Background information

2.1. Distribution and population

The range of the Little Bustard originally covered a wide area in the southwestern Palearctic, from Morocco and the Iberian Peninsula to Kyrgyzstan and extreme northwest China (del Hoyo *et al*., 1996). After large population declines in late 19th and 20th centuries, it became extinct as a breeding species in many countries, including Algeria, Tunisia, Germany in 1907, Poland in 1909, Slovakia, Austria in 1921, Hungary in 1952, Serbia in 1948, and in the mid 20th century Greece, Romania, Bulgaria, Moldavia and probably, Turkey and Azerbaijan.

Today two distinct nuclei remain: a western one centred in Spain and Portugal, reaching parts of Morocco (where no recent breeding records are known), France, Sardinia and extreme southeast Italy; and an eastern one, centred in southeastern European Russia and Kazakhstan. It winters from the Mediterranean through Turkey and the Caucasus to Iran, and erratically elsewhere in South Asia (del Hoyo *et al*., 1996).

Tucker and Heath (1994) estimate a total world population of 84,000-120,000 individuals, with over 50% in Iberia, 20% in Russia and an additional 20,000 in Kazakhstan. Recent information (de Juana and Martínez, 1996, and present document based on Trujillo meeting) substantially modifies these figures, and the European population alone (excl. Kazakhstan) would appear to be between 120,000 and 230,000, of which over 80% are in Iberia.

TABLE 1: Population status of the Little Bustard in Europe.

Country	Displaying males (year estimated: source)	Number of birds (year estimated: source)	Population trend: source
France	W: 449-539; SE: 710 (1996: Jolivet 1996, pers. comm.)	4,000-5,000 (Tucker & Heath 1994)	large decrease, but stable in La Crau (SE) (Boutin and Metais, 1995)
Italy - Peninsula - Sardinia	- -	50 1,500-,2200 (1995-6: Pettretti, in litt.)	small decrease stable
Portugal	-	10,000-20,000 (Tucker & Heath 1994)	some decline
Russia	9,000 (early 1990s: Belik, in prep.)	18,000-20,000 (Tucker & Heath 1994)	decline
Spain	100,000-200,000 (1996: de Juana and Martínez, pers. comm.)		decline
Turkey	0?	0-50 (Tucker & Heath 1994)	small decrease
Ukraine	1-10? (del Hoyo et al., 1996)	8-10 (Tucker & Heath 1994)	

2.2. Life history

Breeding

Female Little Bustards nest on the ground among low vegetation, often in fallow or arable fields, generally in the vicinity of the males' displaying sites. The clutch is laid from February to June, usually of 3-4 eggs which are incubated for 20-22 days. Chicks are fed and cared for by the female, becoming fully grown at 50-55 days. The young possibly remain with female during the first winter. Sexual maturity is reached in the first or second year for females and the second year for males.

Migration and movements

Little Bustard populations tend to be fully migratory towards the north and east of the breeding range. Those in Italy, southern France and the Iberian Peninsula seem to be largely sedentary or dispersive, although little is still known about the extent of the movements and their geographical variability. In central France, birds arrive on the breeding areas in March-April, males are in full display from mid-April to mid-June and postnuptial/premigratory flocks congregate from August to October (Boutin and Métais, 1995).

Feeding

The adults eat mainly plants, taking young shoots, leaves, flowers, grasses and cereal grains. When breeding on cultivated land, Leguminosae and Cruciferae are frequently consumed. Invertebrates are also taken, chiefly beetles and grasshoppers, especially in summer. The chicks feed mainly on insects during the first days of life, especially grasshoppers (Cramps and Simmons, 1985).

Habitat requirements

In Western Europe, breeding habitat includes various types of pseudo-steppic habitats such as extensive cereal crops and pasturelands.

In the Iberian Peninsula the Little Bustard is well adapted to the arable areas where its distribution is largely determined by the diversity of ground cover, especially selecting long-rotation fallows and legume crops. On the

other hand, it prefers areas such as pasture with high floristic and arthropod diverstiy (Martínez and de Juana, 1993). Vegetation height is also a very important, displaying males usually selecting an average height not exceeding 20 cm. The species shows some tolerance to the proximity of buildings, villages and roads (Martínez, 1994).

It is therefore essentially a bird of the wider countryside, although in general ideal habitat has shrunk into discrete areas now identified as Important Bird Areas. Some of these are very large, and whilst their recognition (ie designation) as protected areas is necessary, their management is realistically best undertaken through maintaining appropriate agricultural methods.

2.3. Threats and limiting factors

Changes in land-use:

Irrigation of arable crops

This type of farming is very detrimental to Little Bustards for various reasons. Firstly, it leads to intensive cultivation, replacing traditional dry-cultivated cereals, legumes and fallows by sugarbeet, sunflowers, etc and quick growing cereals. The latter are harvested earlier, potentially causing more damage to breeding Little Bustards (see *Farm mechanisation* below). These new crops require major doses of pesticides (see *Pesticide use* below) and inorganic fertilisers. Maintenance of the irrigation equipment leads to increased disturbance of the birds.

Irrigation is the most important problem in Italy, especially in Sardinia, being also relevant in parts of France, Portugal and Spain. Most irrigation in these areas is funded by the State and/or the European Union. The Spanish national irrigation scheme aims to incorporate 200,000 ha during the next 20 years, in a high proportion of Little Bustard areas. Also in Russia irrigation schemes pose a severe threat, at least in Saratov region.

Importance: high/critical

Afforestation

Not only does this land-use change cause habitat loss but it can also cause increased predation rates (see *Predation* below) adjacent to the new plantations (Angelstam, 1986; Andrén, 1992). As the areas most affected by afforestation in Spain are the marginal highland zones or *páramos* (Suárez *et al.*, 1996) this could result in a range contraction; but major impacts are not envisaged for the most important Little Bustard areas of Extremadura and Castilla-La Mancha. In Portugal, afforestation with *Quercus rotundifolia* is taking place in Little Bustard areas.

Importance: high

Conversion to perennial crops

This affects some of the most important areas for the species, by reducing suitable habitat. In the Apulia region of Italy there are damaging plantations of almonds and vineyards. In France, in the main area of La Crau the increase in peach, apricot and plum orchards caused severe impacts during the 1980s and still poses a threat, while in the Hérault and Gard region the increase in tall vineyards has reduced habitat availability. In Spain, plantations of almonds and olives are rapidly expanding through Little Bustard areas. In Portugal, almonds, vineyards and *Pinus pinea* plantations are also increasing.

Importance: high

Concentration of landholdings

This process is the Spanish Government policy, *concentración parcelaria,* of encouraging landowners with disjunct landholdings to make changes to their landownership so that they end up with one large block of land. Because it enables intensification and specialisation of agriculture, it results in severe loss of habitat diversity with loss of the mosaic of different types of land-use together with loss of field edges, hedges, stream beds, etc.

Importance: high

Trends to monoculture

Current trends towards crop specialisation, whether market-led or subsidy-led, result in a loss of habitat diversity, especially through increases in cereal crops and declines in legumes and fallows (both short and long-rotation) and ploughing of grasslands and scrublands.

Importance: high

Pesticide use

The negative impact of pesticides is well known in gamebirds, chick survival being significantly increased when agricultural use of pesticides is reduced (Rands, 1986). Also Hellmich (1992) studying a population of Great Bustard (*Otis tarda)* in Extremadura recorded smaller average sizes of family flocks in years of early spraying of Malathion against locusts (*Dociostaurus maroccanus*). This probably also affects important Little Bustard populations in the same areas.

Importance: high

Predation

Predation on nests of ground-nesting birds is a major cause of reproductive failure. Bowman and Harris (1980) have shown that spatial heterogeneity is more important than nest concealment in reducing nest depredation. This could be a factor contributing to the severe decline of the species in highly intensified agricultural areas. The possible predators of Little Bustard eggs and chicks include corvids, foxes, dogs and harriers. In Russia's Saratov region Rooks *(Corvus frugilegus)* regularly prey on nests after females have been flushed by harvesters (Moseykin, 1992).

Importance: medium

Farm mechanisation

In some areas of the Iberian Peninsula, especially in the south, harvesting machinery causes some losses of eggs and chicks, due to the early mowing of cereals. In France, impact of farm machinery is very high, especially in set-aside and legume fields.

Importance: low (locally high)

Inappropriate livestock densities

Extensive grazing is important in helping to maintain steppes, fallows and grassland in a suitable condition for Little Bustards. There are two types of threats associated with livestock: over-grazing and under-grazing. The first has been most detrimental in the steppes of Russia and Ukraine, as it led to the conversion of *Stipa* steppes to *Artemisia* scrub, much less favoured by Little Bustards (Belik, 1992). Also in the Spanish grasslands of Extremadura region, in La Serena and the Alcudia valley, sheep numbers have increased greatly due to EU payments, leading to severe over-grazing, especially in years of drought. Sheep overgrazing is also a problem in Portugal and Sardinia. In contrast, in the highland areas of central Spain *(páramos)* sheep numbers are decreasing, leading to scrub regeneration and loss of herbaceous cover.

Trampling of nests by cattle is a cause of breeding failure in Russia's Saratov region (Moseykin, 1992).

Importance: medium/low

Built development

In small populations, the increase of infrastructures such as roads, dams, residential areas, power lines, etc., can negatively affect the species through habitat loss or fragmentation e.g. in Apulia, Italy.

Importance: low

Shooting

Shooting could be of local importance as a mortality factor whether through deliberate poaching or opportunistically during the hunting of associated game such as partridges and hares e.g., in Sardinia.

Importance: low

Collisions

Collision of birds with over-head lines or wire fences is also a cause of mortality but more information is needed as to its importance.

Importance: low

2.4. Conservation status and recent conservation measures

Countries within the European Union

France

The Little Bustard has been legally protected in France since 1976, being listed as Very Threatened in the new national Red Data Book to be published in 1997.

The formerly very important French population has rapidly declined in recent decades (Boutin and Métais, 1995) with an apparent 80%

decline between 1979-80 (min. 7,200 males) and the recent national LPO/BirdLife surveys which estimated 1,400 displaying males in 1995 and 1,200 in 1996 (Jolivet, 1996 and pers. Comm.). The species now seems on the verge of extinction in the regions of Champagne-Ardenne, Centre and Île-de-France. Up to 55 % of the Little Bustards in France occur within Important Bird Areas (IBAs), including most of the Mediterranean population but only 15% of the Poitou-Charentes population. These are the only remaining striongholds:

Poitou-Charentes region, in western France. This population amounts to 449-539 displaying males and is decreasing at an alarming rate (since 1979, an average decline of 60 %, ranging from 50 % in La Charente and Vienne to 78 % in Deux-Sèvres) Breeding habitat is exclusively arable, since all grazing has been abandoned. Agricultural intensification (rural development and changes in farming systems) seems to be playing a major role in the decline. The species is migratory in this region, males arriving in April and the last post-breeding flocks usually being recorded in October.

In the farmland areas of W France, agri-environment measures (EU Regulation 2078/92) have been introduced with varying success, mainly to promote alfalfa cultivation and to delay mowing dates. In addition the current CAP set-aside schemes could have potential benefits for the Little Bustard, but increasing areas of set-aside are now being used for industrial production of oilseed-rape. A LIFE funded programme (1997-2001) run by LPO on the conservation of the Little Bustard in western France is: experimenting on agricultural management at seven sites of 1,000-2,500 ha as a basis for a management handbook and action plan; acquiring key areas; and raising local public awareness among farmers and decision makers. An international seminar is planned involving the four relevant EU countries.

Mediterranean France region in southeast France. The main population, ca. 500 displaying males, is in the area of La Crau, department of Bouches-du-Rhône (Provence-Alpes-Côte d'Azur). The habitat consists of ca. 11,500 ha of steppe-like stony grassland ("coussous") interspersed with hay fields, peach groves and several other crops, including cereals and legumes. The mean density is 3.5 displaying males per square kilometre, averaging 6.5 males in the northern half, with a mixture of grasslands and crops, and 1.3 males in the southern half, where "coussous" greatly predominates. The IBA at La Crau covers 40,100 ha, but only 11,500 ha of it (most of the remaining "coussous") has been designated as Special Protection Area (SPA). Eventually, 6,000-7,600 ha of "coussous" will become a natural reserve (expected in 1998); 3,000 ha have been purchased so far with the help of LIFE funding. Most of the remaining SPA will benefit from agri-environment measures to encourage extensive grazing; the LIFE Project pays for this on 2,021 ha and payments under article 19 of European Agreement 797/85 cover a further 3,876 ha of "coussous" and 13,000 ha of hay fields.

The rest of Provence region holds roughly 50 males. Most of the remaining Mediterranean French population is in the departments of Gard and Hérault (Languedoc-Roussillon), with some 80 displaying males in each, breeding on farmland with some vineyards. While the La Crau population seems stable, major declines have been noted in the other areas. During winter, some 1,500 birds are regularly censused in La Crau, while 200-250 birds gather at two sites in Gard and Hérault departments.

Italy

The Little Bustard has been legally protected since 1978, although at least in Sardinia annual hunting decrees have prevented its hunting since 1953. It is categorised as a vulnerable species.

Two separate populations remain, one in the southeast Italian peninsula (Apulia or Puglia), the other in Sardinia island (Meschini and Frugis, 1993). The small area of distribution in Apulia, in the plain of Foggia, Manfredonia, is the last remnant of a formerly wide-ranging population covering the Italian peninsula and Sicily. In Apulia the Little Bustard was quite abundant in 1920 and still common in 1960, but census work carried out in 1995-96 (F. Petretti, *in litt.*) revealed just three displaying males, while enquiries to local farmers and hunters suggest a maximum of 50 birds in all. The areas still suitable for breeding amount to some 1,200 ha (from ca. 15,000 ha in 1975 and 50,000 ha in 1950) and consist of stony pastures scattered among extensive cereal crops and almond tree plantations. The area exploited during winter is much larger.

In Sardinia, an estimate of 1,500-2,200 individuals has recently been made, based upon the extent of suitable habitat, density of displaying males and size of post-breeding

flocks (F. Petretti, *in litt*.). This figure agrees well with estimates for 1971-1982 (Schenck and Aresu, 1985), suggesting stability in numbers. The area still suitable for breeding amounts to ca. 80,000-100,000 ha of dry pastures scattered among extensive cereal crops, distributed through most of the western half of the island. Particularly good concentrations are found in unprotected IBAs (i.e. highlands of Campeda and Abbasanta and valley of Campidano). Smaller but significant numbers are found in sites in Nurra and Ottano highlands and the valleys of Coghinas and and Oristanese. The area exploited during winter is much larger. Breeding densities seem reasonably high (average 1.4 to 2.1 birds per square kilometre for the whole area in 1971-1982).

All the Apulian breeding range has been included within the Gargano National Park, which is an SPA, but this measure alone is probably not enough to halt the present rate of habitat destruction through urban development and ploughing.

In Sardinia, only a negligible fraction of the population occurs in protected habitat. However, a LIFE Project (1997-1999) run by WWF Italy to protect Sardinia's steppic habitats aims to establish a demonstration network of protected microreserves totalling 80 ha in Piana de Chilivani-Campo di Ozieri (affecting some 300 birds). It is intended that this will be designated as an SPA. A detailed management plan will be drawn up. The project will also develop an awareness campaign among farmers aimed at promoting the implementation of agri-environment measures.

Portugal

The species is legally protected; hunting has been forbidden since 1992. It is not considered within the national Red Data Book.

The Little Bustard is widely distributed and apparently still common in the southern half of Portugal, but to the north of the Tagus river it occurs only in scattered localities (Rufino, 1989). Most of the population is concentrated in Alto Alentejo and Baixo Alentejo regions. In one locality of Alto Alentejo (Vila Fernando) Schulz (1985) reported densities of 9-13 displaying males per square kilometre, while for Baixo Alentejo M. Pinto (*in* de Juana and Martínez, 1996) estimates average densities of 4 displaying males per square kilometre and Moreira and Leitão (1996) have recorded an average of 26 males per square kilometre in cereal fallows of the locality of Castro Verde (up to 47 males per square kilometre in old fallows, the highest density recorded so far for the species).

The total population of Portugal was estimated as ca. 10,000-20,000 birds (Tucker and Heath, 1994). It was probably close to 20,000 birds during the 1980s (M. Pinto, pers. comm.) but recent counts in several localities suggest some decline.

So far there are no protected areas, SPAs or ESAs specifically designated and managed for the Little Bustard. However several of the most important sites have recently been proposed as SPAs and the very important one of Castro Verde (ca. 64,000 ha), is included in a zonal programme under EU Regulation 2078/92. Over 2,600 ha. of this Improtant Bird Area has been the subject of pilot agricultural management scheme (involving also land acqisition and public awareness) funded during 1993-94 by the LIFE-Nature fund. A very important wintering population is found in the Tejo Estuary SPA, and a smaller population is in the Castro Marim SPA.

In addition to Castro Verde, key IBAs yet to be designated as SPAs include - Alter do Chão, Alvito, Campo Maior, Monforte plains, Mourão and Barrancos, SW Coast, Vila Fernando, Évora plains.

Spain

The species is legally protected and included as Indeterminate in the national Red Data Book (Indeterminate: a threatened species on which available information is not enough to precisely decide among categories Endangered, Vulnerable or Rare). It is also listed as Species of Special Interest in the National Catalogue of Threatened Species (Royal Decree 439/90).

The Little Bustard is still widely distributed in Spain. The main breeding range coincides with the central plateaus or *mesetas*. Outside these are the isolated and more fragmented populations of Galicia, the Ebro valley and Andalucía (de Juana and Martínez, 1996). Habitat is usually a mosaic of quite extensive cereal crops, fallows and smaller areas devoted to sheep grazing, ranging from dry grasslands to xerophytic shrub-steppes (Suárez, Naveso and de Juana, 1996).

Densities vary considerably between regions, partly due to different levels of agricultural intensification (de Juana and Martínez, 1996).

The best populations are in the southern Meseta (regions of Castilla-La Mancha and Madrid) and in Extremadura. These have an average density of 3.6 displaying males per square kilometre (1.2-5.1, n=6) with an almost continuous distribution as large expanses of suitable habitat remain (over 48,000 square kilometres are occupied by dry cereal farming or pasture land). Recent population estimates within this region include 1,275 displaying males in Campo de Montiel area (Campos and López, 1996) and a minimum of 1,109 displaying males in Llanos de Cáceres area (Hellmich and Núñez Arjona, 1996).

The other regions have much lower densities and population declines and range contractions already appear to have taken place; some recent estimates for different provinces are: within the Ebro valley, 400-500 birds for Navarra and 800-1,300 breeding males for Lleida; and within the northern Meseta, 50-80 "pairs" for Burgos and 400-600 "pairs" for Salamanca.

The previous Spanish population estimate of 50,000-70,000 individuals (Cramp and Simmons, 1980; Tucker and Heath, 1994) seems exceedingly low on present evidence. A figure in the range 100,000-200,000 breeding males is probably a more realistic estimate (de Juana and Martínez, pers. comm.).

Limited information is available on winter distribution, although flocks of up to several hundred are known to gather in different areas of Castilla-La Mancha, Extremadura and Andalucía regions, often favouring alfalfa fields (peak count is 5,500 birds in a single flock in La Mancha, after Otero, 1985).

Only insignificant parts of the breeding range are presently included in protected areas. The percentage of IBAs with steppic habitat designated as SPAs is extremely low (Viada and Naveso, 1996). While 66 IBAs (ca. 4,500,000 ha) have relevant Little Bustard populations, only four of these have been designated as SPA (c. 200,000 ha) for the Little Bustard.

Agri-environment measures under regulation 2078/92/CEE are currently being implemented in seven Autonomous Regions. In theory they cover a maximum total of almost 2,000,000 ha, affecting up to 30 IBAs, but in practice they are being applied only to some 10-15% (SEO/BirdLife, unpubl.).

The Extremadura regional government are undertaking a LIFE Project (1997-1999) to protect the Great Bustard, Little Bustard and Lesser Kestrel in Extremadura's steppe SPAs. A Habitat Conservation Management Plan for steppe birds has been prepared by SEO/BirdLife for the regional government of Madrid. A Little Bustard Conservation Plan is being prepared by the Navarra regional government.

Countries outside the European Union

Russia

The species is legally protected and included within category II (numbers still relatively large but declining at an alarming rate) in the USSR Red Data Book, 1984.

Formerly very common in the southeastern steppe areas, the Little Bustard experienced massive population declines and steady southward retreat of range during the 19th and 20th centuries. Now it appears to be relatively common only in the lower Don and lower Volga basins.

In the Saratov region prior to 1975 it bred in 26 districts, but only in 10 districts by 1985 when 1,200 birds were counted (90% males) and 1,300-1,600 estimated, 73 % in the Rovenskiy, Engelsskiy, Krasnokutskiy and Ozinskiy districts (Moseykin, 1992). Also in the mid 1980s, there were estimates of: 1,000-1,500 breeding males for the Rostov region (Belik and Sidelnikov, 1989), where the main breeding areas lie between the Sal and Don rivers in the Nizhne-Kundryuchenskiye and Donsko-Tsyamlyanskiy sandy steppes (Belik, 1992); and 300-400 breeding males for the Eastern Cis-Caucasus region (Khokhlov, pers. comm.).

The primary habitat in Russia was *Stipa* steppes, but after widespread ploughing and severe overgrazing there has been a switch towards breeding in fallows or even crops of perennial herbs (like *Agropyron pectinatum* or alfalfa) since the 1970s. This has probably allowed some population recovery: to around 9,000 breeding males by the early 1990s (Belik, *in prep*.).

In adjacent areas of the former USSR, there are probably good breeding populations in Kazakhstan, but detailed information is lacking. Both in Russia and Kazakhstan the species is fully migratory, arriving in mid-April. However, a very important wintering ground lies on the southwestern coast of the Caspian Sea, where, in the Kyzyl-Agach reserve (Azerbaijan) during October to March there were concentrations of

up to 9,000 birds in 1980-81 (Vorobyova, 1992), 62,300 in 1971 (del Hoyo et al., 1996), 26,000 in 1986 and 100,000 in 1990 (Schadilov and Khakhin, 1991).

Turkey

The species may already be extinct in Turkey: there are no recent breeding records and only a few modern observations during the breeding season are known (Kasparek, 1989). In former times it bred in several areas, such as Karacabey in western Anatolia and the Erzurun plain in eastern Anatolia. Also as a winter visitor it was apparently very common, being sold in huge numbers in the markets of Istanbul and Izmir (Schulz, 1985).

Ukraine

The Little Bustard was exceedingly common in the Crimea during the 19th century and was still common in this and other steppe zones at the beginning of the 20th century (Schulz, 1985; Fedorenko, 1992). However, it now seems almost extinct as a breeding species (del Hoyo *et al*., 1996). The best area was at the southern part of the Kerchensk peninsula, in the Crimea, where probably hundreds of birds were present before 1965 but only 20-23 "pairs" in the 1970s (Schulz, 1985). During 1984-85 only very small numbers were known to still breed in the Crimea "and in other regions only a few pairs" (Fedorenko, 1992). Loss of habitat through ploughing up of virgin land and most probably, overgrazing, are usually considered the main causes of the catastrophic decline.

3. Aims and Objectives

Aim

To stop the decline of the threatened Little Bustard populations and to enhance the density and breeding success of the species throughout its range.

Objectives

3.1. Policy and legislation

3.1.1. Agricultural policies

3.1.1.1. To promote the maintainance of biodiversity as an objective of agricultural policies alongside production objectives including through reform of Article 39 of the EU Treaty (which defines the objectives of Agriculture Policy) and elaboration of a sectoral plan under the EU biodiversity strategy currently in draft.

Priority: essential
Timescale: ongoing

3.1.1.2. To change livestock support systems to encourage appropriate low-intensity grazing pressure, possibly by replacing payments per head by payments per hectare. To modulate cattle stocks always taking into account ecological factors.

Priority: medium
Timescale: ongoing

3.1.1.3. Preservation and recovery of extensive farming

To apply the agri-environment regulations (2078/92/CEE) to encourage land uses, agrochemical use and timing of agricultural practices that are compatible with Little Bustard conservation.

Priority: high/essential
Timescale: ongoing

3.1.2. Forestry policies

Through environmental impact assessments, to evaluate afforestation schemes such as those promoted by Regulation 2080/92 EEC, in order to determine their impact on Little Bustard populations (measuring habitat loss, habitat fragmentation and expected increase in predator numbers, and taking into account the cumulative effects of individual projects). In the most important areas for the Little Bustard, afforestation should be strictly prevented.

Priority: high
Timescale: ongoing

3.1.3. Species protection policies

To seek full legal protection in national law for the Little Bustard in each range state, for example through inclusion as a threatened species in the National Red Data Book or National Catalogue and appropriate implementing legislation.

Priority: medium
Timescale: short

3.1.4. International cooperation

To set up a regional agreement on the Conservation of Palearctic Dry Grassland Birds under the Bonn Convention.

Priority: medium
Timescale: long

3.2. Species and habitat protection

3.2.1. Designation of protected areas

3.2.1.1. To designate as Special Protection Areas all Important Bird Areas that hold significant Little Bustard populations.

Priority: high
Timescale: short

3.2.1.2. To create protected areas under national law in SPAs and other areas harbouring nationally important populations of the Little Bustard.

Priority: medium
Timescale: short

3.2.2. Protection and management of protected areas

3.2.2.1. To prevent developments that could change or fragment the habitat, such as the construction of highways, roads, railways and powerlines, or irrigation, afforestation (see also 1.2) and landholding concentration schemes.

Priority: high
Timescale: reactive

3.2.2.2. To increase habitat diversity and food availability through the increase of legume crops and unploughed fallows and the temporary set-aside of cultivated land.

Priority: high/essential
Timescale: ongoing

3.2.2.3. To control key predators, in cases where predation is found to be a significant problem, in order to prevent high levels of breeding failure.

Priority: medium
Timescale: reactive

3.2.2.4. To reduce pesticide use in order to ensure adequate food resources.

Priority: high
Timescale: ongoing

3.2.3. Hunting

3.2.3.1 To prevent any hunting or poaching of the Little Bustard. This should include law enforcement and education of hunters and farmers on whose crops the bustards may feed (see 4.1).

Priority: low
Timescale: ongoing

3.3. Monitoring and research

3.3.1. Population monitoring

3.3.1.1. To standardise census methods to be used throughout the range of the species.

Priority: high
Timescale: short

3.3.1.2. To develop and implement an international monitoring programme, which will accurately quantify and monitor trends in the distribution, population size, density of breeding males and sex ratio of the Little Bustard throughout its range.

Priority: high
Timescale: ongoing

3.3.2. Habitat requirements

To investigate the diet of adults and chicks and to relate it to food availability. To study habitat selection across the species range.

Priority: high
Timescale: short

3.3.3. Breeding biology

To determine the breeding success in the different types of habitat used by the Little Bustard and to analyze the factors which may have an influence on breeding success, such as food availability, predation, farm machinery and social structure (lekking system).

Priority: high
Timescale: short

3.3.4. Movements and wintering areas

To determine the movement patterns of the Little Bustard by marking birds. To enhance international cooperation in order to locate the wintering areas, and to study habitat requirements in winter.

Priority: high
Timescale: short

3.3.5. Evaluation of management/ conservation measures

To evaluate the effectiveness of management/conservation measures for the Little Bustard. To monitor the application of the agri-environment measures in order to improve them and increase their acceptance by farmers.

Priority: high
Timescale: short

3.4. Public awareness and training

3.4.1. Rural community

To inform the rural community about the conservation needs of the Little Bustard. To advise on the species requirements as well as on the potentially harmful or beneficial farming practices, seeking the collaboration of farmers. Also ensure that hunters understand that Little Bustards must not be killed.

Priority: high
Timescale: ongoing

3.4.2. Conservation and agricultural agencies

3.4.2.1. To provide technical training to conservation staff working in Little Bustard areas on the species biology, census techniques and management practices.

Priority: medium
Timescale: ongoing

3.4.2.2. To advise staff working in the agricultural agencies in charge of the allocation and distribution of agri-environment measures about the requirements of Little Bustard.

Priority: medium
Timescale: 5

3.4.3. General public

To increase public awareness on the need to protect the Little Bustard and its habitat. To raise the profile of the species as an important element of the European natural heritage. To use the Little Bustard as a flagship for the protection of steppic habitats throughout Europe.

Priority: medium
Timescale: ongoing

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5. Annex

Recommended conservation actions by country

France

1.1.1 Introduce fauna and flora conservation objectives in the Set-Aside Regulation (1765/92), as it affects large expanses of agricultural land (some 1.9 million ha in 1993-94) and could become an important tool for the conservation of the Little Bustard.

1.1.1, Promote, possibly through special agri environment measures, extensive cereal and
1.1.3, legume cultivation in currently abandoned fields in Languedoc and Provence. The
2.2.2 development of "industrial set-aside" (oil seed-rape cultivation) in western France must be carefully monitored.

1.1.3. Maintain and encourage current agri environment measures in La Crau in order to preserve suitable mosaics of different crops (hay, dry cereal and legume crops) surrounding the "coussous" areas. Expand these measures to other habitats and regions, taking into account that in the context of intensive agriculture of western France, the compensation grants must be high enough to compete with other CAP payments.

2.1. Designate as SPAs all the IBAs still holding significant populations of Little Bustard, including the following ones in the Languedoc-Rousillon and Provence regions:
LR 01 (Aerodrome Lezignan-Corbieres); LR 06 (Hautes Corbieres); LR 07 (Basses Corbieres) LR 08 (Gorges de la Vist et Cirque de Navacelles); LR 13 (Gorges du Gardon); LR 14 (Autes garrigues du Montpellierais); LR 23 (Petite Camargue fluvio-lacustre); PAC 12 (Plateau de Valensole) and PAC 13 (Plateau de l´Arbois, Garrigues de Lancon et Chaîne des Côtes).

2.2.1. Prevent the extension of peach groves and industrial projects in La Crau. Carry out environmental impact assessments wherever Little Bustard habitat could be threatened by new motorways or powerlines.

3.2. Study habitat use and its consequences in the Little Bustard population in La Crau, as an essential tool for defining management goals.

3.5. Evaluate the effectiveness of the conservation actions, especially agri-environment measures and the current LIFE Project.

Italy

1.1.3,
2.2.1 Prevent further habitat loss in Sardinia, due to ploughing of grasslands and irrigation schemes, mainly in the area Coghinos-Oschiri-Logudoro-Ozieri, making use where appropiate of agri environment measures.

2.1.2. Encourage the setting up of nature reserves in Little Bustard areas, such as Piana di Chilivani-Campo di Ozieri currently being promoted by WWF-Italy.

2.2. Implement urgent conservation actions in order to halt the decline of the very small and isolated population of the Apulia region (which is restricted to the Gargano National Park), mainly by preserving natural pastureland, avoiding further urban development and preventing poaching and any other disturbance of the Little Bustards.

Portugal

1.1.1,
2.2.2. Promote extensive cultivation and increase the relative area of long-term fallows

1.1.3. Extend agri-environment measures, such as those presently applied in the Castro Verde area, to other important Little Bustard areas, such as the plains of Elvas-Campo Maior, Évora plain and Mourâo.

1.3. Include the Little Bustard in the Vulnerable category in the Portuguese Red Data Book.

2.2.1. Environmental impact assessments should be carefully undertaken for the road, irrigation and afforestation plans in the Alentejo region, especially the Lisbon-Algarve highway and the Alqueva and Xévora irrigation projects.

2.2.4. Reduce pesticide use in all dry-cultivation areas.

3.1.2., 3.1.1 Carry out a national census of the breeding population, if possible with the same methodology as in Spain.

3.2., 4.1 Investigate farmers complaints of crop damage.

3.4. Carry out an inventory and census of the wintering concentrations, in coordination with Spain.

3.5. The effectiveness of the agri-environment measures applied in Castro Verde dry grasslands must be monitored and evaluated for their impact on, *inter alia*, Little Bustard and, if appropriate, adjusted accordingly.

Spain

1.1.3. Extend the implementation of agri-environment measures.

1.3. Include the Little Bustard in the Vulnerable category of the Spanish Red Data Book and other national or regional catalogues of threatened species.

1.3, 2.3 Prevent the inclusion of the Little Bustard in the list of game species, as has recently been proposed by the ASAJA farmers union in Castilla-La Mancha.

2.1.1 Designate as SPAs all the IBAs holding relevant populations of the Little Bustard, and the following ones as soon as possible: 037 (Tierra de Campos), 038 (Villafáfila, alredy partly designated), 042 (Alaejos-Nava del Rey), 043 (Madrigal-Peñaranda), 064 (Talamanca-Camarma, partly designated), 077 (Pétrola-Almansa-Yecla), 080 (Campo de Montiel), 085 (Llanos de Tembleque-La Guardia), 095 (Llanos de Oropesa), 101 (Cuatro Lugares), 112 (Llanos entre Cáceres y Trujillo, partly designated), 115 (Brozas-Membrío), 124 (Botoa-Villar del Rey), 125 (Olivenza-La Albuera), 134 (Azuaga-Llerena-Peraleda de Zaucejo), 137 (La Serena), 145 (Bardenas Reales), 179 (Ballobar-Candasnos), 181 (Cogull-Alfés, partly designated), 186 (Belchite-Mediana, partly designated), 221 (Cagitán-Almorchón), 225 (Depresión de Guadix), 244 (Campiña de Carmona).

2.1.2. For the Little Bustard population and other associated threatened birds such as Great Bustard, Lesser Kestrel, Stone-curlew, Black-bellied Sandgrouse and Pin-tailed Sandgrouse, promote the designation as protected areas under the Natural Park or equivalent law of the most outstanding Spanish steppic areas, such as La Serena, Los Monegros, Las Bardenas, Belchite, Villafáfila, Llanos entre Cáceres y Trujillo and Campo de Montiel.

2.2.1. Ensure that Strategic Environmental Assessments are undertaken for transport, irrigation and afforestation plans, paying special attention to the highway Madrid-Guadalajara-Soria (which affects Talamanca-Camarma area), the irrigation plans of Las Bardenas, Los Monegros, Ballobar, Segarra-Garrigues, La Sagra-Torrijos, Los Oteros, Valle del Guadalentín, Central Extremadura and Madrigal-Peñaranda; and the present afforestation schemes for set-aside fields (following the procedures of Extremadura and Castilla-La Mancha regions, no afforestation should be allowed in steppic areas important for birdlife, especially if they are either SPAs or IBAs).

2.2.2. Promote the following habitat conservation measures wherever possible: increase area of extensive legume crops; create and maintain natural vegetation headlands and fringes; encourage long-rotation

fallows, without any cultivation; maintain the extensive network of sheep droves (cañadas); and also take into account the wintering flocks of the Little Bustard when designing agri-environment measures.

2.2.4. Promote a general reduction in pesticide applications, especially within designated SPAs; in particular, the treatments against locusts in Extremadura region should be reduced to a minimum in La Serena, Llanos de Cáceres and Trujillo-Ibahernando main areas.

3.1.2. Urgently undertake a detailed national census of the Little Bustard breeding population, using displaying males as census units.

3.2.,
4.1 Investigate allegations, by some farmers, of crop damage by postbreeding and winteringflocks.

3.4. Carry out an inventory and census of the wintering concentrations, in coordination with Portugal.

3.5. Evaluate the effectiveness of conservation measures and particularly of the agri-environment measures already in operation.

4.3. Develop a public awareness campaign, stressing the importance of the Spanish Little Bustard populations from a global perspective.

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