

# EURASIAN STEPPES and DESERT

**T**HE Eurasian steppes are a vast belt of grassland extending from eastern Europe through western and central Asia to north-east Asia. The five threatened species which occur in the east Asian steppes include four which also range westwards outside the Asian region, Imperial Eagle, Lesser Kestrel and Great Bustard to Europe, and Pale-backed Pigeon to Central Asia. They occur in a variety of habitats in addition to lowland grasslands: Imperial Eagle inhabits forest-steppe, and some forest conservation measures are relevant to the species (see F01); Pale-backed Pigeon is found in open, sparsely wooded habitats in the mountains; and White-throated Bushchat breeds in mountain grasslands. The lakes and other wetlands in the steppes are important for threatened waterbirds, and are covered in W05.

- **Key habitats** Steppe grasslands, forest steppe and mountain steppe, scrub in sandy desert.
- **Altitude** Lowlands to 3,100 m.
- **Countries and territories** **Russia** (Krasnoyarsk, Khakassia, Tuva, Irkutsk, Buryatia, Chita); **Mongolia**; **China** (Heilongjiang, Jilin, Inner Mongolia, Xinjiang, Gansu); outside the Asian region, the steppes extend through central and western Asia to eastern Europe.

	Threatened species			Total
	CR	EN	VU	
🐦 <sup>1</sup>	—	—	1	1
🐦	—	—	4	4
Total	—	—	5	5

Key: 🐦 = breeds only in this grassland region.

<sup>1</sup> White-throated Bushchat, which nests only in this grassland region, migrates to another grassland region (G02).

🐦 = also breeds in other region(s).

*Large areas of relatively unspoilt steppe grassland remain in East Asia, particularly in Mongolia.* PHOTO: UTE BRADTER





*The Mongolian government is considering a number of industrial and infrastructural projects that would have a major impact on the natural grasslands, particularly in the east of the country.*



PHOTO: UTE BRADTER

### OUTSTANDING IBAs FOR THREATENED BIRDS

All threatened species in this region are relatively widespread and tend to occur at low densities. Their conservation is therefore best addressed at the landscape level, and no outstanding IBAs have been selected for them. However, several grassland birds of this region breed in or near to some of the wetland IBAs listed for W05, and other sites which support the threatened grassland birds will be documented during BirdLife's ongoing IBA Project.

### CURRENT STATUS OF HABITATS AND THREATENED SPECIES

The steppe grasslands of eastern Russia and northern China have been greatly reduced through ploughing and conversion to agricultural land, and other threats there include overgrazing, cutting of Imperial Eagle nesting trees, too frequent steppe fires, pesticide use, human disturbance and hunting. However, all five of the threatened birds are migratory and some declines in their numbers (e.g. of Imperial Eagle in Russia in areas where there have been no

Lesser Kestrel has declined rapidly in Europe in recent decades, but it remains locally common in the East Asian steppes.



PHOTO: RAY TIPPER

Table 1. Threatened birds of the Eurasian steppes and desert.

Species		Distribution and habitat
<b>Imperial Eagle</b> <i>Aquila heliaca</i>	☛ <sup>mo</sup> <b>VU</b>	Recorded breeding in Krasnoyarsk, Khakassia, Irkutsk, Buryatia, Mongolia and Xinjiang, in forest-steppe and lowland grasslands
<b>Lesser Kestrel</b> <i>Falco naumanni</i>	☛ <sup>mo</sup> <b>VU</b>	Locally common breeding species in the steppes of Krasnoyarsk, Tuva, Mongolia, Xinjiang and Inner Mongolia, and presumably Buryatia and Gansu
<b>Great Bustard</b> <i>Otis tarda</i>	☛ <sup>mo</sup> <b>VU</b>	Breeds in steppe and forest-steppe in Krasnoyarsk, Khakassia, Tuva, Buryatia, Chita, Mongolia, Heilongjiang, Jilin, Inner Mongolia and Xinjiang
<b>Pale-backed Pigeon</b> <i>Columba eversmanni</i>	☛ <sup>mo</sup> <b>VU</b>	Breeds in open, sparsely wooded habitats in the Tien Shan mountains in China (Xinjiang, with summer records from Gansu)
<b>White-throated Bushchat</b> <i>Saxicola insignis</i>	☛ <sup>m</sup> <b>VU</b>	Breeds in mountain grasslands in central and western Mongolia, and (at least formerly) just across the Russian border in Altay

The Data Deficient Vaurie's Nightjar *Caprimulgus centralasicus* is known only by a single specimen collected in sandy scrub in the Taklimakan desert in Xinjiang, China

☛ = breeds only in this grassland region; ☛ = also breeds in other region(s); o = also breeds outside the Asia region; m = migrates to other region(s) of Asia

obvious changes to their breeding habitats) have probably been caused by problems on their wintering grounds; for example, wintering Imperial Eagle and Great Bustard are hunted, and wintering White-throated Bushchat is affected by loss of natural grasslands (see G02).

In Russia, large-scale conversion of steppe to agricultural land from the 1960s to early 1980s led to substantial declines in Imperial Eagles (through reduced availability of its main prey species, the Siberian suslik *Spermophilus dauricus*) and Great Bustard; however, the ploughing of steppes has ceased in this part of Russia, and some formerly cultivated areas are

reverting to steppe. Great Bustards ceased breeding on the eastern Song-nen plains in Heilongjiang following oilfield development at Daqing, mass human migration from other provinces, and a campaign to develop the 'northern wilderness' for agriculture from the 1950s to the 1970s. An estimated four million hectares of grassland was converted to farmland in Xinjiang between the 1950s and the 1990s, but much of this land was unsuitable for cultivation and is now subject to uncontrollable soil erosion, and about one million hectares has become barren ground; there were also inappropriate policies in this region to poison keystone

species such as pika *Ochotona* and zokor *Myospalax*. The rate of development of the steppes for agriculture has been much lower in Mongolia, but there is growing pressure from an increasing human population (which has tripled since 1950) and an associated increase in livestock. The Mongolian government plans to develop large areas of the country, which could have a major impact on the threatened grassland species.

## CONSERVATION ISSUES AND STRATEGIC SOLUTIONS (summarised in Table 2)

### Habitat loss and degradation

#### ■ CONVERSION FOR AGRICULTURE

Although the conversion of steppe for agriculture has now ceased in most parts of eastern Russia, this is still a threat in China, and the Mongolian government has plans for large-scale agricultural development in the steppe zone. The benefits of such conversion should be carefully considered in the light of the economic failure (and subsequent abandonment) of such schemes in several parts of the steppes, and the potential losses of biodiversity. Indeed, the evidence indicates that very little of the steppe is suitable for cultivation, and that most schemes should be halted.

*Conversion of steppe for agriculture has ceased in most parts of eastern Russia, and some formerly cultivated areas are reverting to steppe, but this is still a threat in Mongolia and China.*



PHOTO: OTTO PFISTER

#### ■ DEVELOPMENT (URBAN, INDUSTRIAL, ETC.)

In parts of eastern Russia and northern China, steppe grasslands have been reduced and degraded by industrial, infrastructural and urban development. The steppe zone of Mongolia is currently relatively undeveloped, but the government is considering industrial and infrastructural projects that would have a major impact on natural grasslands, particularly in the east. These include the construction of a new bridge crossing from China into eastern Mongolia, passing through Nomrog Strictly Protected Area, and a 'Millennium highway' across the country. The planned Tumen River Area Development Programme (see W02) could lead to increased exploitation of natural resources in Mongolia and elsewhere. Industrial development plans in Mongolia include mining, oilfields and other exploration, and some protected areas may be degazetted as a result. These proposals should be subject to environmental impact assessments at the strategic level, to consider the potential impacts of the whole development process on the environment and threatened species, and to plan the mitigation of any negative effects.

#### ■ CUTTING OF NESTING TREES

Imperial Eagles require large trees for nesting, but in several parts of Russia and China suitable trees are being lost because of wood-cutting (in Russia often for tourists' fires), as well as grazing cattle and steppe fires. Tree cutting is also a potential threat to Pale-backed Pigeon in Xinjiang. Special protection needs to be given to Imperial Eagle nesting trees, and artificial nest platforms could be erected in areas which lack nest sites.

#### ■ STEPPE FIRES

Steppe fires, usually set by man in spring and early summer, are a threat to Great Bustard, Imperial Eagle (through destruction of nesting trees) and possibly other species. For example, in Chita up to 70% of steppe is burnt annually, killing many young Great Bustards. Fire is a natural phenomenon in the steppes, and improved fire management could help to maintain the grassland quality for both livestock and wildlife. The setting of grassland fires therefore needs careful planning and strict control (with measures to prevent fires being caused by negligence or deliberately by

Table 2. Conservation issues and strategic solutions for birds of the Eurasian steppes and desert.

Conservation issues	Strategic solutions
<b>Habitat loss and degradation</b>	
<ul style="list-style-type: none"> <li>■ CONVERSION TO AGRICULTURE</li> <li>■ DEVELOPMENT (URBAN, INDUSTRIAL, ETC.)</li> <li>■ CUTTING OF NESTING TREES</li> <li>■ STEPPE FIRES</li> <li>■ IRRIGATION</li> <li>■ LIVESTOCK GRAZING</li> <li>■ PESTICIDES</li> <li>■ DISTURBANCE</li> </ul>	<ul style="list-style-type: none"> <li>➤ Reconsider plans to convert steppe to agricultural land in Mongolia and China</li> <li>➤ Assess the environmental impact of proposed development projects in Mongolia</li> <li>➤ Specially protect Imperial Eagle nesting trees</li> <li>➤ Improve fire management, to avoid harm to nesting birds and their habitats</li> <li>➤ Prevent flooding of Great Bustard nests on irrigated farmland</li> <li>➤ Develop ecological management of grazing, encouraging nomadic herders to reduce their herds</li> <li>➤ Promote alternatives to pesticides for the control of vole outbreaks</li> <li>➤ Control disturbance in key breeding areas of threatened birds, and provide direct protection to nest sites if required</li> </ul>
<b>Protected areas coverage and management</b>	
<ul style="list-style-type: none"> <li>■ GAPS IN PROTECTED AREAS SYSTEM</li> <li>■ WEAKNESSES IN RESERVE MANAGEMENT</li> </ul>	<ul style="list-style-type: none"> <li>➤ Establish new nature reserves for Imperial Eagle and Great Bustard</li> <li>➤ Strengthen the management of protected areas in eastern Mongolia</li> </ul>
<b>Exploitation of birds</b>	
<ul style="list-style-type: none"> <li>■ HUNTING</li> </ul>	<ul style="list-style-type: none"> <li>➤ Improve enforcement of hunting laws, through training of law enforcers and conservation awareness work with hunters and the public</li> <li>➤ Control gun ownership, and regularly check vehicles for guns and shot birds</li> </ul>
<b>Gaps in knowledge</b>	
<ul style="list-style-type: none"> <li>■ INADEQUATE DATA ON THREATENED BIRDS</li> </ul>	<ul style="list-style-type: none"> <li>➤ Survey all threatened species to identify key breeding areas</li> <li>➤ Study the breeding ecology of Pale-backed Pigeon and White-throated Bushchat</li> <li>➤ Investigate the breeding distribution and migratory routes of Great Bustard</li> </ul>

Livestock levels have increased since the 1950s, and in many parts of the steppes they now exceed the carrying capacity of the grasslands.

PHOTO: JACOB WIJKEMA



G01

miscreants), involving new fire management laws, to prevent them running out of control or affecting threatened birds during the breeding season. Current policies to try to exclude fires from some parts of the steppes should be reviewed, as this leads to a build-up of flammable material, so that when fires occur (as they inevitably will) they are more intense, destructive and difficult to control.

#### ■ IRRIGATION

The sinking of boreholes to supply water to domestic herds has led to adjacent severe land erosion and generally lowered water-tables. Irrigation of agricultural land is a major threat to breeding Great Bustards in Xinjiang, as it floods nests and drowns chicks, although some farmers build small dykes to protect nests. This positive action should be promoted more widely, so that more nests are successful.

#### ■ LIVESTOCK GRAZING

Livestock levels in many parts of the steppes exceed the carrying capacity of the grasslands, with the densities in some areas three to four times the levels in the 1950s, as herders tend to keep their increased wealth as livestock. This causes direct damage to the grasslands, and is linked to outbreaks in vole numbers (see *Pesticides* below). Ecological management of grazing needs to be established, particularly by preventing grazing in some areas in summer; this allows the grass to grow tall, thereby reducing the density of voles by four to five times, and providing autumn and winter grazing. Nomadic herders may need to be persuaded to reduce herd sizes, perhaps by providing alternative means to save their wealth.

#### ■ PESTICIDES

The steppes suffer periodic outbreaks in the numbers of Brandts' voles *Microtus brandti*, which occur at their highest densities in short, heavily grazed grasslands; the frequency of outbreaks has increased in recent years, correlated with increased density of livestock. The voles are regarded as pests because they compete with livestock for pasture, so aerial spraying of zinc phosphide and bromadiolone, and distribution of seeds dressed with pesticides, have been used against them in Mongolia. These chemicals have caused mortality in birds, for example of Great Bustards in Russia, and of large number of birds in Mongolia in 2002. The effectiveness of pesticides as a means of controlling voles

has been questioned, particularly as they kill predators that in a natural system would control vole numbers. Alternative approaches are the development (which is ongoing in China and Australia) of non-toxic chemicals which render female voles infertile, ecological management of grazing (see *Livestock grazing* above), and the reduction of hunting of mammalian predators. Pesticides are also used in eastern Russia to control insects, and this seems to be affecting the breeding success of Imperial Eagle (and other birds of prey). Awareness campaigns should be conducted to inform farmers about the dangers of pesticides and about the regulations on their use.

#### ■ DISTURBANCE

Disturbance by people and domestic animals is a significant threat to nesting steppe birds. Some Imperial Eagle breeding territories in eastern Russia are subject to heavy tourist pressure, which has probably caused nest desertion. Disturbance linked to increased human population and changing agricultural practices is probably a factor in the decline of Great Bustard, which tends to abandon heavily grazed steppes. Its eggs may be destroyed by tractors; disturbance and predation by herding dogs is a problem in some areas; and when the bustards are flushed from their nests the eggs are vulnerable to crows and other predators. Disturbance should be controlled in key breeding areas of both Imperial Eagle and Great Bustard, and nest sites directly protected if necessary (see *Gaps in protected areas system* below). In areas where Great Bustards nest on farmland, studies should be conducted to help identify ways to modify agricultural practices and minimise their negative impact. Local people should be encouraged to take the initiative in Great Bustard conservation; in Russia and Mongolia this has proved successful, with farmers avoiding ploughing areas near Great Bustard nests, while in Xinjiang farmers have built dykes to prevent flooding of nests. In Russia, new legislation may be required to reduce the numbers of dogs kept by herdsmen.

### Protected areas coverage and management

#### ■ GAPS IN PROTECTED AREAS SYSTEM

The threatened steppe species mostly occur at low densities and range widely to feed, so site protection is of limited value for their conservation. The most practical approaches may be small, seasonally protected areas, to manage the

habitat at important nesting and feeding areas during summer. New protected areas suggested for Imperial Eagle include Bratsk reservoir in Irkutsk and Barguzinskaya valley in Buryatia. New reserves proposed for key Great Bustard breeding areas in eastern Russia include: several small areas in the Khakassia steppes; Domna (Domka) valley, Yeravinski district, Buryatia; and Argunsky and Urulyunguievskaya Pad' in the Urulyunguy lowlands of Chita. Other key areas for Great Bustard that warrant official protection are Kherlen-Menen in Mongolia, Tacheng basin in Xinjiang and Baicheng Pintai in Jilin.

#### ■ WEAKNESSES IN RESERVE MANAGEMENT

Imperial Eagle breeds in Pribaykal'skiy and Tunkinskiy National Parks in eastern Russia, but these reserves do not provide effective protection for the species and its habitats; many areas where it hunts are privately owned, and need to be transferred to the park (probably by paying their current owners), and its nest sites should be given special protection. Given the plans to develop the steppes of eastern Mongolia (see *Development (urban, industrial, etc.)* above), it is important to ensure the effective protection of globally and nationally important biodiversity there by strengthening the management of the nine existing and 12 proposed protected areas, and by supporting biodiversity conservation and sustainable alternative livelihoods in buffer zones.

### Exploitation of birds

#### ■ HUNTING

Great Bustard is protected throughout its Asian breeding range, but illegal hunting is a major problem, and Imperial

Eagle is also hunted. Great Bustards are wary of people, but less so of men on horseback or in cars, so hunters often shoot birds from vehicles; the recent decline of the east Asian population appears to be closely linked to the availability of improved firearms and motorised vehicles. In China, bustards are also killed using poisoned grasshoppers, and local people sometimes collect their eggs. In the past, bustards were protected by traditional beliefs, but these appear to have broken down in many areas. Park rangers and police need to be better equipped and trained (including in the identification of protected species) to enforce wildlife protection laws. The ownership of guns should be strictly controlled, with regular checks of vehicles for guns and shot birds. Awareness campaigns are required to ensure that hunters know that killing Great Bustards is illegal, and to encourage the formation of unions that help their members to avoid violating the hunting laws.

### Gaps in knowledge

#### ■ INADEQUATE DATA ON THREATENED BIRDS

The distribution and breeding populations of all of the threatened species are incompletely known, and surveys are required to identify key sites for their conservation and any threats; studies are also needed of the breeding ecology of Pale-backed Pigeon and White-throated Bushchat. Protection of the east Asian population of Great Bustard is hampered by inadequate knowledge of its breeding and wintering ranges and migratory routes; surveys are required, involving analysis of vegetation maps and interviews with local people, together with satellite-tracking and possibly colour-banding (using the national colour codes already established for cranes).