AMUR, USSURI and SUNGARI RIVER BASINS

THIS region includes the floodplains of the middle and lower Amur river and the Ussuri river in south-east Russia, and the Sungari (Songhua) river in north-east China, which includes the Sanjiang (Three Rivers) plain. The extensive lowland wetlands on these floodplains support important breeding populations of several threatened waterbirds, most notably almost the entire global population of Oriental Stork, and high proportions of the global populations of Baer's Pochard and Red-crowned Crane, and probably Swinhoe's Rail. Large numbers of waterbirds occur on passage, notably Baikal Teal and Siberian and Hooded Cranes.

- **Key habitats** Freshwater wetlands on riverine plains.
- **Countries and territories** **Russia** (Khabarovsk, Amur, Jewish Autonomous Region, Primorye); **China** (Heilongjiang, Jilin, Inner Mongolia).

	Threatened species			
	CR	EN	VU	Total
breeding	—	3	5	8
passage	1	1	3	5
non-breeding	—	—	—	—
Total	1	4	8	13

Key: breeding = breeding in this wetland region.
passage = passage migrant.
non-breeding = non-breeding visitor.

The wetlands at Zhalong National Nature Reserve in China support important populations of several threatened waterbirds, but are affected by drainage and development.
PHOTO: SIMBA CHAN

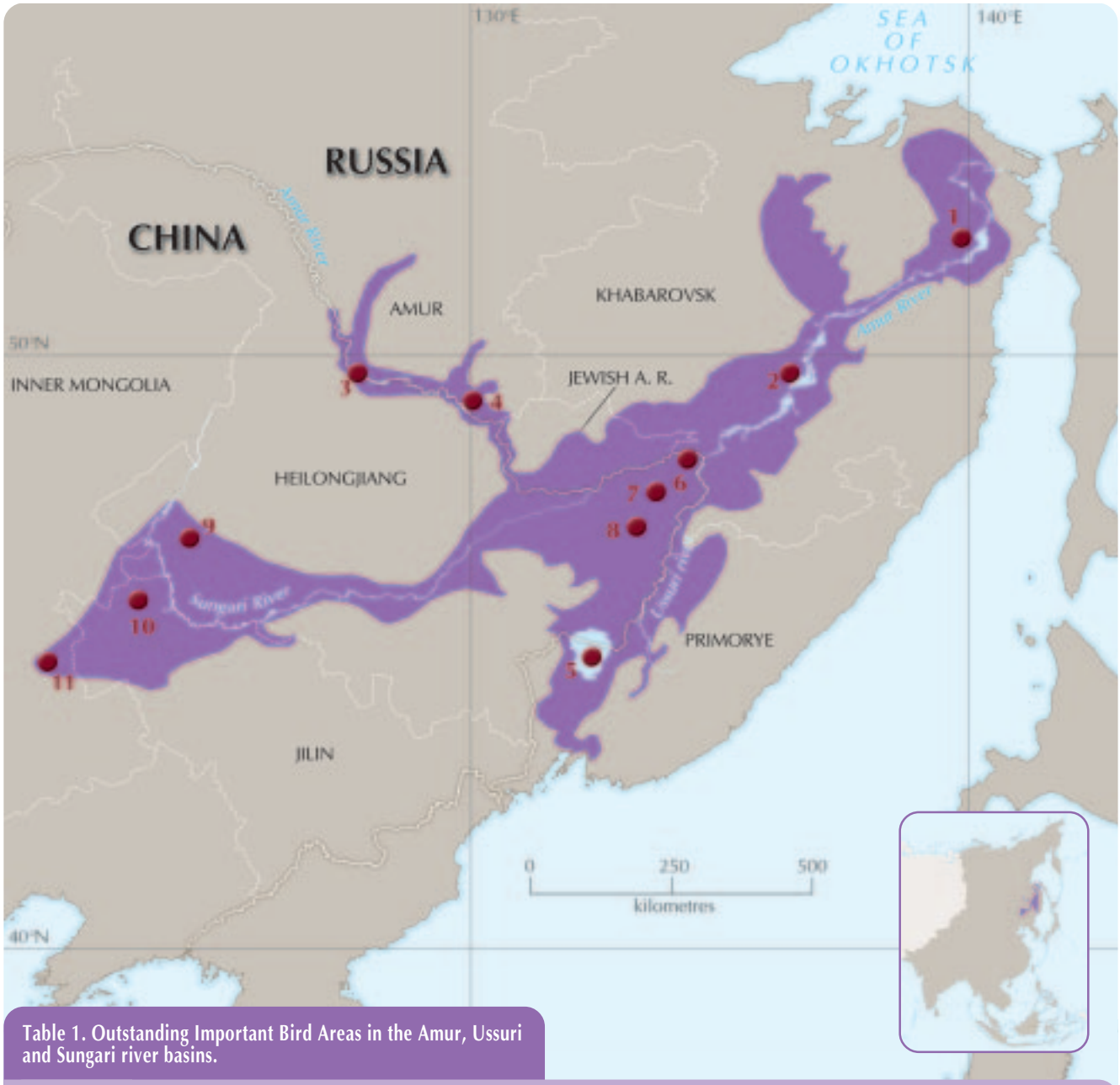

Table 1. Outstanding Important Bird Areas in the Amur, Ussuri and Sungari river basins.

	IBA name	Status	Territory	Threatened species
1	**Udyl' lake**[F01,W02]	PA [R]	Khabarovsk	Breeding Swan Goose and Baer's Pochard
2	**Bolon' lake**[F01]	PA [R]	Khabarovsk	Breeding Oriental Stork and Red-crowned Crane, passage waterfowl
3	**Muraviovka WR**	PA [R]	Amur	Breeding Oriental Stork, White-naped and Red-crowned Cranes, and passage Hooded Crane
4	**Arkhara lowlands**[F01]	(PA) [AP,R]	Amur	Breeding Oriental Stork, White-naped and Red-crowned Cranes, and possibly Swinhoe's Rail, passage cranes and waterfowl
5	**Khanka Lake / Xingkai Hu**	(PA) [AP,R]	Primorye; Heilongjiang	Breeding and passage Oriental Stork, cranes, waterfowl, Swinhoe's Rail and warblers
6	**Sanjiang NNR**	PA [AP,R]	Heilongjiang	Breeding and passage Oriental Stork, cranes and waterfowl
7	**Honghe NNR**[F01]	PA [R]	Heilongjiang	Breeding Oriental Stork and cranes
8	**Qixing He NR and Changlin Dao NR**	(PA)	Heilongjiang	Breeding Oriental Stork and cranes
9	**Zhalong NNR**	PA [AP,R]	Heilongjiang	Breeding and passage Oriental Stork, cranes, waterfowl, Swinhoe's Rail and warblers
10	**Melmeg NR**	PA	Jilin	Breeding and passage Oriental Stork, cranes and waterfowl
11	**Horqin NR**	PA	Inner Mongolia	Breeding and passage Oriental Stork and cranes

Several of the waterbirds of this region breed in the IBAs listed for F01 (Bikin river basin for Oriental Stork, White-naped and Red-crowned Cranes; Iman river basin for Oriental Stork, Baer's Pochard, White-naped and Red-crowned Cranes; and Xianghai NNR for Oriental Stork, Swan Goose, Baer's Pochard, White-naped and Red-crowned Cranes).
Note that more IBAs in this region will be included in the *Important Bird Areas in Asia*, due to be published in early 2004.

Key *IBA name*: NR = Nature Reserve; NNR = National Nature Reserve; WR = Wildlife Refuge.
Status: PA = IBA is a protected area; (PA) = IBA partially protected; — = unprotected; AP = IBA is wholly or partially an Asia-Pacific waterbird network site (see p.35); R = IBA is wholly or partially a Ramsar Site (see pp.31–32); F01 = also supports threatened forest birds of region F01; W02 = also supports threatened waterbirds of region W02.

OUTSTANDING IBAs FOR THREATENED BIRDS (see Table 1)

Eleven IBAs have been selected in this region, covering the most important breeding and passage sites of Oriental Stork, cranes and waterfowl.

CURRENT STATUS OF HABITATS AND THREATENED SPECIES

The extensive plains of this region were originally covered with vast wetlands, but these are now much reduced, fragmented and degraded as a result of conversion for agriculture, fires and other pressures. The rate of wetland conversion has accelerated in recent decades, as the human population has expanded. For example, the area of marshland on the Sanjiang plain in Heilongjiang has been reduced from 54,000 km² in the early 1950s to 14,700 km² at present (from 49% to 13% of the total area of the plain); fortunately, in 2000 the Chinese government announced that agricultural development there will come to an end. There has also been extensive deforestation, and the scarcity of mature trees suitable for nesting is a threat to Oriental Stork. Despite these problems, the region still has many globally and regionally outstanding wetlands, notably the key sites listed in Table 1.

CONSERVATION ISSUES AND STRATEGIC SOLUTIONS (summarised in Table 3)

Habitat loss and degradation

WETLAND DRAINAGE

Drainage of wetlands for agriculture and pasture continues to reduce the habitat of the region's threatened waterbirds,

Table 2. Threatened birds of the Amur, Ussuri and Sungari river basins.

Species			Distribution and population
Oriental Stork *Ciconia boyciana*	●	EN	Breeds mainly in the Amur and Ussuri basins, with smaller numbers on the Sanjiang plain
Swan Goose *Anser cygnoides*	○	EN	Breeds in the Amur basin and on the Sanjiang plain
Lesser White-fronted Goose *Anser erythropus*	✶	VU	Widespread on passage within this region
Baikal Teal *Anas formosa*	✶	VU	Widespread on passage within this region, with large numbers in Primorye on spring migration
Baer's Pochard *Aythya baeri*	◍	VU	Widespread, but localised breeding species within this region
Scaly-sided Merganser *Mergus squamatus*	✶?	EN	Scarce passage migrant from its nearby breeding grounds (in F01)
Siberian Crane *Grus leucogeranus*	✶	CR	The eastern population migrates through this region, with flocks staging at several sites in Amur, Heilongjiang and Jilin
White-naped Crane *Grus vipio*	◍	VU	Widespread, but localised breeding species within this region
Hooded Crane *Grus monacha*	✶	VU	Widespread on passage within this region
Red-crowned Crane *Grus japonensis*	◍	EN	Widespread, but localised breeding species within this region
Swinhoe's Rail *Coturnicops exquisitus*	◍	VU	Recorded in the breeding season in Amur, Primorye, Heilongjiang and Jilin
Manchurian Reed-warbler *Acrocephalus tangorum*	◍	VU	Breeds at Khanka lake in Primorye and at Zhalong in Heilongjiang
Marsh Grassbird *Megalurus pryeri*	◍	VU	Breeds at Zhalong in Heilongjiang and recorded in summer at Khanka lake in Primorye

● = region estimated to support >90% of global breeding population, ◍ = 50–90%, ◍ = 10–50%, ○ = <10%; ✶ = region estimated to support >90% of global population on passage, ✶ = 50–90%, ✶ = 10–50%, ✶ = <10%, ✶? = proportion of global population on passage unknown

Large areas of wetland in north-east China have been converted to farmland, but there is now a ban on agricultural development on Sanjiang plain.

PHOTO: SIMBA CHAN

Table 3. Conservation issues and strategic solutions for birds of the Amur, Ussuri and Sungari river basins.

Conservation issues	Strategic solutions
Habitat loss and degradation	
■ *WETLAND DRAINAGE*	➤ Incorporate wetland protection into the regional land-use planning processes in Russia and China
■ *DEVELOPMENT (URBAN, INDUSTRIAL, ETC.)*	➤ Assess the environmental impact of proposed development projects
■ *AGRICULTURAL FIRES*	➤ Promote alternatives to spring fires, to improve pastureland without damaging waterbird nesting habitat
■ *CUTTING OF NESTING TREES*	➤ Protect Oriental Stork nesting trees, plant new trees and provide carefully-sited artificial nest-posts
■ *POLLUTION/PESTICIDES*	➤ Enforce laws to control the use of toxic chemicals
■ *DISTURBANCE*	➤ Reduce disturbance around the nest sites of threatened birds
■ *FISHERIES*	➤ Improve management of fisheries at key wetlands
Protected areas coverage and management	
■ *GAPS IN PROTECTED AREAS SYSTEM*	➤ Expand Lake Khanka Nature Reserve and join the separate blocks into a single area
■ *WEAKNESSES IN RESERVE MANAGEMENT*	➤ Designate local sanctuaries to protect nesting storks, waterfowl and cranes
	➤ Give nature reserve management offices in China more authority to control land use inside their reserves
	➤ Strengthen reserve management in China through improved funding, infrastructure and staff training
Exploitation of birds	
■ *HUNTING*	➤ Ban spring hunting of all waterfowl in eastern Russia and China
	➤ Improve enforcement of hunting laws in China, and strictly prohibit the use of toxic chemicals to kill birds
Gaps in knowledge	
■ *INADEQUATE DATA ON THREATENED BIRDS*	➤ Survey breeding Baer's Pochard, Swinhoe's Rail and marshland warblers
	➤ Search for Crested Ibis and Crested Shelduck

although there is now a ban on agricultural development on Sanjiang plain (see above). In the Khanka lowlands and north-east China, large areas of marshland have been converted into rice paddies. Drainage of land adjacent to some key sites has affected their hydrology, for example at Zhalong, where the water inflow to the marsh has been reduced in recent years. Some nature reserves on the Sanjiang plain are also affected by water shortage, because the rivers that feed them have been dammed for irrigation projects. Further drainage should be prevented in and around areas supporting significant populations of threatened birds, through the establishment of new (and the effective management of existing) protected areas. Wetland protection needs to be incorporated into the land-use planning processes of the relevant provinces of Russia and China, with input from hydrological and ornithological experts.

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

Infrastructural development can negatively affect wetlands. For example, the construction of National Highway 301 through Zhalong National Nature Reserve has damaged the wetlands. A proposed series of dams in the Amur river basin is likely to have a devastating impact on the wetlands through flooding and increased agricultural development. Environmental impact assessments should be conducted for development projects that could negatively affect wetlands, with the aim of minimising their negative effects and developing appropriate mitigation plans.

■ *AGRICULTURAL FIRES*

The practice of setting fire to agricultural land in spring and autumn, to clear dead vegetation and improve pastures, is widespread. Spring fires are the main problem, as they destroy the nests and young of ground-nesting birds, and also the tall vegetation used to conceal nests. The breeding success of White-naped and Red-crowned Cranes has been seriously affected in many areas, for example on the Khanka plains where 50–90% of potential crane habitat is burned annually, and fires have killed several nesting trees used by Oriental Storks. Alternative techniques need to be devised to improve pastures without destroying crane and stork nests and breeding habitat. These could include fire prevention in spring and, in the areas used for nesting by threatened birds, the cutting of long grass in late summer (after nesting has finished) rather than burning. Awareness campaigns will be required to persuade farmers to adopt these measures.

■ *CUTTING OF NESTING TREES*

Oriental Storks normally use large trees for nesting, but the clearance of suitable trees for timber and firewood has been widespread. For example, in the Khanka lowlands there are now almost no tall trees suitable for nesting and the storks

Oriental Storks normally use large trees for nesting, but many suitable trees have been cut for timber and firewood.

PHOTO: WEN-HSIN HUANG

are forced to use lower trees and man-made structures such as pylons; birds nesting on electricity pylons have sometimes been electrocuted. Artificial nest-posts have been erected and successfully used at several sites in Russia and China, although the provision of artificial posts in a build-up area in Russia was discontinued when birds perished after becoming too confiding. This issue should be addressed by improved protection of nesting trees, provision of carefully sited artificial nest-posts, and planting of elm and willow trees (which are favoured by the storks) to replace the artificial posts in the long term. Oriental Stork is a large and charismatic bird, and new nest sites could be positioned to take advantage of the species's potential to raise conservation awareness.

POLLUTION/PESTICIDES

Several forms of pollution affect the region's wetlands. Poison baits are used widely, being placed by poachers to kill ducks and geese (see *Hunting* below) and by farmers to control rodents, but they also cause high mortality amongst cranes (and can harm the people who consume poisoned birds). Run-off containing fertiliser or toxic residues leads to eutrophication of wetlands, for example at Zhalong National Nature Reserve, and reduces birds' food supply by killing aquatic organisms. Industrial pollution is also a problem in some areas. For example, in the Amur drainage water pollution by phenols is affecting the quality of fish and the survival of fish fry, and the fishing industry and salmon runs are in danger of collapsing. The laws to control the use of toxic chemicals should be more strictly enforced, with education campaigns to warn users of their adverse effects on wildlife and people.

DISTURBANCE

Disturbance by people and livestock is a problem for threatened waterbirds in many areas, even within nature reserves, and leads to desertion of nests and increased predation by crows. Measures are required to reduce disturbance of nesting birds, including through regular patrolling of nature reserves.

FISHERIES

In many wetlands, the intensity of fishing has caused stocks to decline, for example in Zhalong and Xinghai National Nature Reserves, and fishermen now catch smaller fish. This will have reduced the food supply of cranes and other threatened waterbirds, and improved management of fisheries is required for the long-term benefit of both birds and fishermen, with strict enforcement of regulations to prevent illegal fishing.

Protected areas coverage and management

GAPS IN PROTECTED AREAS SYSTEM

Many of the most important wetlands in this region are protected in nature reserves, but some significant gaps remain. Lake Khanka Nature Reserve (392 km^2, in five separate blocks) should be expanded to c.600 km^2 and the separate blocks joined into a single area, as many threatened waterbirds nest outside the current reserve boundaries. Many nesting storks, waterfowl and cranes are widely distributed at low densities, and their conservation cannot be fully addressed by the creation of one or even several large reserves; the nesting territories of some individual pairs or clusters of nests should be designated as local sanctuaries (known as 'zakazniks' in Russia), where human activities can be regulated while they are nesting.

WEAKNESSES IN RESERVE MANAGEMENT

Although many important wetlands in this region are officially protected, they are not necessarily secure because of management problems linked to inadequate budgets. In China, many reserves have to generate income for their own operating budget, and business enterprises often operate within them, even in their core areas. For example, Xingkai

Lake Khanka Nature Reserve should be expanded, and the separate blocks joined into a single area, to protect all key areas for threatened waterbirds.

PHOTO: SIMBA CHAN

Hu Nature Reserve in Heilongjiang includes two state farms and one fish farm, where the reserve management office does not have the right to control land use, and other parts of the reserve are leased to individual developers for fisheries and to a mining bureau. A general measure that would greatly benefit conservation would be to give the management offices of nature reserves more authority to control land use inside their reserves. The National Endangered Plant and Wildlife Protection and Nature Reserve Construction Program is a new Chinese government initiative to improve the existing protected area system and establish new reserves, and it provides a mechanism to address the current management problems. It has the potential to provide stable funding for reserves and to improve reserve management, by improving their infrastructure, staff training, staff working conditions and the livelihood of local communities.

Exploitation of birds

HUNTING

Shooting during the spring and autumn is a major danger to the region's threatened ducks and geese; storks and cranes are also occasionally shot. The threatened waterfowl are often difficult to distinguish from the commoner species, and it has therefore been proposed that the spring hunting of all waterfowl should be banned in the Russian Far East and China. In north-east China, the large-scale collection of eggs for food may be causing a rapid decline in waterfowl populations, inside and outside nature reserves, and improved enforcement of existing laws is required to control this illegal activity. Poison baits are used widely by poachers in China to kill ducks and geese, and these also cause high mortality amongst cranes. The use of toxic chemicals to kill birds should be strictly prohibited, with awareness campaigns to improve understanding of the relevant laws and the possibility of being harmed through the consumption of poisoned birds.

Gaps in knowledge

INADEQUATE DATA ON THREATENED BIRDS

The distributions of several threatened species are poorly known, including Baer's Pochard and Swinhoe's Rail, and surveys are required to identify key sites for their conservation. Manchurian Reed-warbler and Marsh Grassbird are known from very few sites, where their status is poorly understood, and it is possible that the undiscovered breeding grounds of Streaked Reed-warbler (see W06) are within this region; efforts to locate these skulking species could use tape-recordings and mist-netting. Crested Ibis (see W07) is considered extinct in this region, but searches for remnant populations have been proposed at former sites, and efforts should also be made to locate Crested Shelduck (see W02), including through the distribution of illustrated leaflets.