CONSERVATION ISSUES AND STRATEGIC SOLUTIONS

THREATS TO ASIA'S BIRDS

Clearance, conversion and degradation of natural forests, grasslands and wetlands are by far the most important causes of endangerment to birds in the Asia region, affecting nearly all species classified as Critical, Endangered and Vulnerable (see Figure 1). Exploitation for human use is the second most common category of threat, affecting more than 50% of all threatened bird species; of these, c.70% are hunted for food and sport and c.30% captured for the wild bird trade. The sustainability of such exploitation is often difficult to assess, but it is feared that hunting and trade are reducing numbers of many threatened species, particularly in areas where their habitats and populations have been fragmented. Levels of exploitation of some species are clearly too high to be sustained, and are judged to be the single most serious threat that they face. Invasive species (introduced non-native animals and plants) are a potential threat to c.10% of Asia's threatened birds, but their precise impact on the populations of most of these birds is poorly understood. The most serious problem known is being caused by introduced predators on the Nansei Shoto and Izu islands in Japan. It is possible that some threatened birds are being affected by introduced predators or competitors elsewhere in Asia, e.g. on the islands of eastern Indonesia and the Philippines.

Figure 1. The main threats to globally threatened Asian birds.

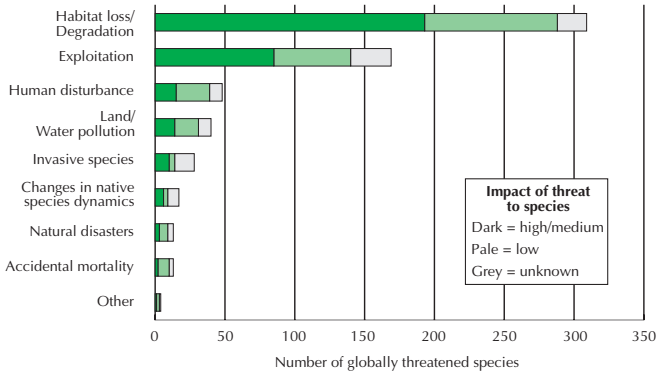
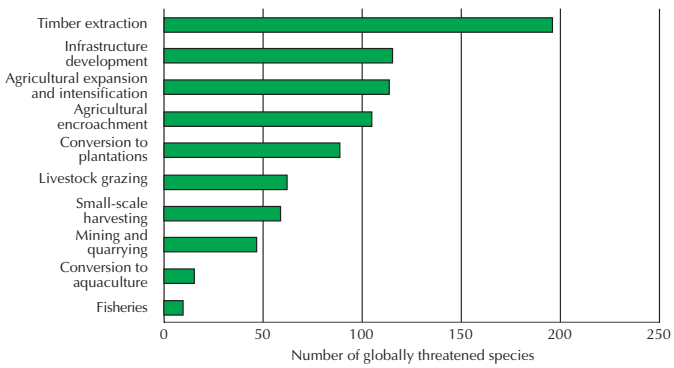


Figure 2. Main causes of habitat loss for globally threatened Asian birds.



The main causes of habitat loss and degradation are shown in Figure 2. A high proportion of Asia's threatened birds inhabit forests, and cannot survive where their habitat is clear-felled for timber and/or replaced by plantations, agriculture or development (including industrial, infrastructural, urban and mining). Many forest birds are intolerant of high levels of habitat degradation, and may be badly affected (at least until the forest has had time to recover) by selective logging, shifting agriculture, forest grazing and even subsistence collection of fuelwood and timber. The main pressure on Asia's waterbirds is wetland drainage and conversion, including the infilling (or 'reclamation') of intertidal coastal wetlands, principally for agriculture and aquaculture (i.e. shrimp- and fish-ponds). Dams and irrigation projects are also negatively affecting wetlands and other habitats in parts of the region. Grasslands are being converted for agriculture and plantations, and affected by excessive grazing pressure, grass harvesting and inappropriate burning.

POLICY APPROACHES TO BIODIVERSITY CONSERVATION

The forest, grassland, wetland and seabird accounts in this book summarise the main issues affecting threatened birds throughout the Asia region. On the basis of the detailed evidence compiled in *Threatened birds of Asia: the BirdLife International Red Data Book*, together with additional material provided by reviewers during the current project, recommendations are made in each account for conservation actions to address the most important issues. The following section provides an Asia-wide overview of the direct threats identified in these accounts and outlines some of the policy-level approaches that need to be taken.

It is beyond the scope of the current work to consider in any detail the complex social and economic factors that are the ultimate causes of habitat loss and other threats. These will, however, ultimately need to be addressed if biodiversity loss in the region is to be reversed. A brief overview of some of these issues is also provided below.

Direct threats to biodiversity: habitat loss

Figure 2 identifies 10 main causes of habitat loss and degradation in the Asia region, which are analysed in more detail in Table 1. General policy-level approaches are proposed in Table 1 that should be used to address each of these issues, and help reduce their negative effects on threatened birds and their habitats. Many of these direct causes of habitat loss are discussed in more detail in the forest, grassland, wetland and seabird accounts.

Direct threats to biodiversity: species

Figure 1 identifies several threats which directly impact on wild bird populations in the Asia region, three of which are analysed in more detail in Table 2. General policy-level approaches are proposed that could be used to address each of these issues, and help reduce their negative effects on threatened birds.

Table 1. Policy-level recommendations to address the main direct causes of habitat loss and degradation in the Asia region.

Overview of issues (and habitats impacted)	Policy recommendations
Timber extraction (Forest)	
Clear-cutting and selective logging for timber have had a massive impact on Asia's forests, especially the lowland moist tropical forests in South-East Asia. Forestry is typically the first major pressure in forest areas, but often opens them up to further degradation or clearance (see below). By the end of the 20th Century, depletion of natural forests had led to a substantial decline in the forestry industry in large parts of Asia (e.g. the Philippines, Vietnam, Sumatra), with logging moratoria in north-east India, Thailand and China. This has resulted in increased pressure on forests in Cambodia, Laos, Myanmar and parts of Indonesia. Many Asian countries have regulations and programmes designed to advance sustainable forest management. However, enforcement is often poor, and illegal logging predominates in some regions (e.g. Indonesia, Cambodia), undermining efforts for sustainable management and leading to substantial loss of government revenues. The pulp and paper industry is currently expanding in tropical Asia, with several large mills operational or under construction on Sumatra, Borneo and Mindanao. Large areas of native forest are being cleared for pulp fibre, and often replaced by timber plantations to supply the long-term needs of the industry. However, over-capacity in the industry implies a long-term, but unacceptable, reliance on native forest. *Prospects for the 21st Century* Regional demand for timber is likely to remain high, and for pulp and paper to increase, in part because of the expanding Chinese and Indian economies and the logging moratoria there and elsewhere. Pressure, including illegal logging, is likely to increase on the extensive remaining forests in eastern Russia, Laos, Cambodia and eastern Indonesia, and remain high in East Malaysia and Kalimantan.	➤ Establish permanent national forest estates, protected through legislation and land-use planning (with a particular focus on remaining areas of primary forest). ➤ Strengthen and expand sustainable forest management practices, including: reduced-impact logging; sufficiently long cutting cycles to allow logged forest to recover; replanting of cleared areas using native tree species or promotion of natural regeneration; integration of biodiversity conservation into national forest programmes. ➤ Advance forest certification, based on best practices in forest management and independent monitoring (see, e.g., http://www.fscoax.org/). Increase public preference for certified timber, and encourage industry commitment (retailers, manufactures, investors, lending institutions, buyers, and producers) to rapidly phase out the use of timber from non-certified sources. ➤ Develop inter-governmental initiatives to address illegal logging. ➤ Consider logging bans or moratoria where timber stocks are severely depleted and/or high levels of illegal logging are undermining any attempts to put in place sustainable forest management practices, e.g. Sumatra. ➤ Seek an agreement, involving both the industry and national governments, to freeze expansion of the pulp and paper industry in South-East Asia until plantations are in place to supply current pulp fibre needs. ➤ Encourage the pulp and paper industry (investors, lending institutions, buyers, and producers) to commit to rapidly phasing out the cutting of natural forest for pulp fibre. ➤ Conduct wood supply assessments of major pulp and paper plants to ensure against illegal sourcing and as a basis for monitoring and compliance. ➤ Enhance efforts for paper recycling, especially in the region's demand economies (Japan, South Korea, and increasingly China).
Infrastructure development (Forest; Grassland; Wetland)	
Many Asian countries are currently experiencing rapid economic growth, and the associated urban, industrial and infrastructural developments are directly reducing natural habitats. New roads and dams often open up previously inaccessible areas to habitat degradation or clearance, and could negatively affect many key areas for threatened birds throughout Asia, e.g. Kerinci Seblat National Park, Sumatra, Indonesia, and Northern Sierra Madre Nature Park in the Philippines. Dams may have several other impacts, including flooding of habitat, changes to river flow and displacement of people, but may provide an incentive to reduce deforestation and hence sediment load upriver (see p.35: World Commission on Dams). *Prospects for the 21st Century* Many parts of Asia are likely to continue to develop rapidly, with improved infrastructure (and political change) allowing development in areas that are currently inaccessible, e.g. parts of eastern Russia, Mongolia, Kuril Islands.	➤ Make development programmes and projects subject to strategic and/or environmental impact assessments, with mitigation for any negative impacts on biodiversity. Projects that would seriously damage natural habitats and biodiversity should not be advanced. ➤ Seek to integrate biodiversity conservation with regional development, by incorporating the strict protection or sustainable management of key areas of natural habitat (including IBAs) in national and provincial development plans. ➤ Review and revise development plans that include large-scale conversion of natural habitats (e.g. coastal reclamation in East Asia), to minimise the negative impacts on biodiversity. ➤ Prepare plans to integrate biodiversity conservation with development in currently inaccessible areas that might become accessible in the future, e.g. Korean Demilitarised Zone, Kuril islands.
Agricultural expansion and intensification (large scale) (Forest; Grassland; Wetland)	
Huge areas of natural habitat in Asia have been converted to agriculture, notably for rice cultivation in the lowlands of China and South and South-East Asia. Large state-sponsored schemes continue to lead to conversion, e.g. transmigration to forest areas in Indonesia, irrigation schemes in arid habitats in western India.	➤ Make large agricultural development programmes and projects subject to strategic and/or environmental impact assessments. ➤ Incorporate habitat protection into regional land-use planning processes, with regulations and policies for habitat protection and management, e.g. the retention of traditional non-intensive forms of land management (where they are beneficial to wildlife) in biodiversity-rich areas. ➤ Develop and enforce regulations to control the use of agrochemicals, particularly in biodiversity-rich areas.
Agricultural encroachment (small scale) (Forest; Grassland; Wetland)	
Shifting agriculture has been the principal cause of forest clearance and degradation in the eastern Himalayas and the mountains of Indochina and parts of Indonesia. In the Philippines, there are many landless *kaingin* farmers, who rapidly occupy and cultivate areas opened up by new roads. The expansion of smallholdings to grow vegetables is currently having a major impact on hill forests in the Philippines and Indonesia. *Prospects for the 21st Century* The impact of shifting agriculture and smallholdings is likely to reduce as lifestyles change.	➤ Advance sustainable livelihood schemes in upland areas with high biodiversity values, e.g. agro-forestry, improved agricultural techniques. ➤ Implement land reforms to increase security of land tenure (and incentive to invest in existing land holdings), and reduce dependency on marginal forest areas.

Table 1 ... continued. Policy-level recommendations to address the main direct causes of habitat loss and degradation in the Asia region.

Overview of issues (and habitats impacted)	Policy recommendations
Conversion to plantations (Forest; Grassland)	
There has been extensive replacement of natural forests (and grasslands) by a variety of plantation crops in Asia, including tea in the hills of India, China, Sri Lanka and Java, teak in India, Myanmar and Java, and rubber in South-East Asia, especially the Thai-Malay peninsula and Sumatra. Inappropriate afforestation of natural non-forest habitats is a problem in some parts of Asia, e.g. in Vietnam, where seasonally inundated grasslands and intertidal mudflats important for threatened birds are being planted with *Melaleuca* and mangroves. In recent decades, conversion to oil palm plantations has had a huge impact in the Thai-Malay peninsula and Sumatra. Coffee plantations have been expanded in hill forest areas of, e.g., Vietnam and Sumatra, and other plantation crops have had significant localised impact (e.g. cinnamon in Sumatra, pineapple in the southern Philippines, cacao and bananas in eastern Indonesia). Fire has been used widely in South-East Asia to clear forest for plantations and agricultural activities. This had a devastating impact in the late 20th Century (especially during the 1987/88 and 1997/98 El Niño events in Indonesia). *Prospects for the 21st Century* The demand for most commodities is likely to increase, especially from China and India, with remaining extensive forests vulnerable to conversion, particularly following logging (e.g. Kalimantan, eastern Indonesia and southern Myanmar to oil palm, Cambodian dry forests to teak and pulp wood plantations). There is concern that the frequency and severity of El Niño events will increase with global warming, and that extensive burnt-over forests from past events are now more susceptible to fire.	➤ Promote industry, government and donor agency commitment to halt forest clearance for plantations (especially buyers, investors, and growers of oil palm, pulp wood, coffee, rubber, tea, but also cacao, bananas, cinnamon). This could include public pressure on the industry (possibly involving certification schemes), the removal of subsidies which encourage conversion to plantations, and government moratoria on the allocation of forest land for conversion. ➤ Introduce safeguards into national and provincial reforestation policies to prevent inappropriate afforestation of natural non-forest habitats that are important for threatened birds. ➤ Encourage plantation companies to take greater corporate responsibility for forest conservation, including by developing 'best practice' in the establishment and management of plantations, e.g. retention of natural forest patches, use of native rather than exotic shade trees. ➤ Strictly control the use of fire to clear land for plantations, including through adherence to the ASEAN policy of zero burning. Greatly enhance forest fire monitoring, prevention and control mechanisms.
Livestock grazing (Forest; Grassland; Wetland)	
Grazing by livestock affects many habitats in Asia. In some places, e.g. the grasslands of northern and western India, well-managed grazing has the potential to improve wildlife habitat. However, in many cases excessive stocking levels are degrading forests (e.g. throughout the Indian subcontinent, Nusa Tenggara in Indonesia, the Visayas in the Philippines) and grasslands (e.g. in parts of Mongolia, China and India). Burning is widely used to improve pasture for livestock, but can also degrade the habitat of grassland birds. In the steppes of Mongolia, rodenticides have recently been used to control outbreaks of voles (linked to overgrazing), which has caused mortality of wildlife.	➤ Develop national or provincial grazing policies where required, with the aim of improving livestock husbandry, particularly to minimise damage to (and improve management of) natural habitats in areas of high biodiversity importance. ➤ Promote ecological management of grazing, including rotational grazing regimes that can provide optimum habitat for many grassland birds, and reduce outbreaks of voles (and the need to use rodenticides for their control). ➤ Promote the concept and use of fewer, better quality livestock. ➤ Improve controls on, and management of, the use of fire in maintaining pasture for grazing.
Small-scale harvesting (Forest; Grassland; Wetland)	
Harvesting of timber, grass and other natural products for fuel, building materials and other products is putting considerable pressure on many forests, grasslands and wetlands in Asia. This has increased as the region's population has grown, and natural habitats have been reduced, e.g. in eastern China and many parts of Indochina. It is set to continue in line with human population growth, especially in the Indian subcontinent.	➤ Promote community forestry schemes to provide a sustainable source of forest products for local consumption, especially near to key sites for biodiversity conservation. ➤ Introduce fuel-efficient stoves, and develop sustainable alternatives to wood as a source of fuel, e.g. biogas, solar power.
Mining and quarrying (Forest; Grassland; Wetland)	
Mining and quarrying has caused localised, but significant, loss of forest and other habitats in many parts of Asia (e.g. coal mining in Kalimantan, gold, copper and nickel mining in eastern Indonesia, quarrying in southern India). Mine access roads and temporary settlement by mineworkers can lead to serious indirect impacts. Mining operations sometimes cause river pollution, especially when illegal (and unregulated). In some countries, huge areas are covered by mining concessions or applications.	➤ Make mining concessions and applications subject to strategic and/or environmental impact assessments, with mitigation for any negative impacts on biodiversity, and cancellation of applications that would seriously damage natural habitats and biodiversity. ➤ Review and revise relevant legislation to ensure that mining concessions do not have precedence over gazetted or proposed protected areas. ➤ Ensure that there is adequate mitigation for any loss of natural forest during mining operations, e.g. through improved protection of surrounding forest areas. ➤ Introduce a regional moratorium on further open-cast coal mining in forest areas.
Conversion to aquaculture (Wetland)	
Wetlands are rapidly being converted to shrimp- and fish-ponds in many coastal areas of tropical Asia, e.g. the Philippines, and also inland, e.g. in India. This often affects intertidal flats and mangroves, and reduces habitat for specialised species, although traditionally managed non-intensive aquaculture can provide valuable habitat for many waterbirds.	➤ Make aquacultural projects subject to strategic and/or environmental impact assessments. ➤ Incorporate habitat protection into coastal development plans. ➤ Promote traditional non-intensive management of shrimp- and fish-ponds, to maximise their value to waterbirds, possibly with certification schemes for sustainably produced seafoods.
Fisheries (Wetland)	
Many coastal and freshwater wetlands in Asia are subject to intense fishing, including of fish and shrimp fry, which is reducing the food supply of many waterbirds, as well as people. In eastern Russia, some salmon fisheries are close to collapse because of overharvesting, and industrial-scale collection of eggs from their spawning grounds to supply salmon hatcheries.	➤ Promote the sustainable management of fisheries, with controls on excessive exploitation, local fish sanctuaries and closed seasons to maintain stocks, and reduced use of fishing gear which captures fry. ➤ Strictly protect the spawning grounds of commercially exploited species, e.g. salmon in eastern Russia. ➤ Ban the use of chemicals and dynamite for fishing.

Table 2. Policy-level recommendations to address hunting, the wild bird trade and invasive species in the Asia region.

Overview of issues	Policy recommendations
Exploitation: Hunting	
More than 150 threatened bird species in the Asia region are hunted for food and sport, or captured for the wild bird trade. However, the impact of this exploitation on their populations is generally poorly understood. In particular, very few studies have so far been made to investigate hunting pressure on birds in Asia, and to judge whether it is sustainable or is causing population declines. For some highly threatened birds, commercial hunting is judged to be the primary threat (see p.39). The habitats (and hence populations) of many forest birds are now fragmented, and it is likely that hunting is progressively causing the extinction of some of their subpopulations.	➤ Ensure that all globally threatened species that are hunted are adequately covered by national legislation in all countries in the Asia region. ➤ Where required, improve hunting legislation and its enforcement, including through education and awareness campaigns for hunters and the public, and training for law enforcers. ➤ Control gun, trap and mistnet ownership, especially near to key areas for threatened birds. ➤ Ban the use of poisoned baits for hunting, especially in China.
Exploitation: Wild bird trade	
Capture for the wild bird trade is a major problem for some threatened birds in Indonesia, the Philippines, and parts of several other countries in the Asia region. As with hunting, the impact of this exploitation on their populations is generally poorly understood, although for some highly threatened birds commercial trading is judged to be the primary threat (see p.39). CITES is designed to control international trade in wildlife (see pp.32–33).	➤ See pp.32–33 for recommendations under CITES. ➤ Ensure that all globally threatened species that are traded are adequately covered by national legislation in all countries in the Asia region. ➤ Where required, improve legislation relevant to the wild bird trade and its enforcement, including through education and awareness campaigns for traders and the public, and training for law enforcers.
Invasive species	
Introduced predators and competitors (both mammals and birds) appear to be causing declines in the populations of several endemic forest bird species in the Nansei Shoto and Izu islands in southern Japan, are believed to be a problem for some endemic species in the Andaman and Nicobar islands in India, and could be affecting threatened birds elsewhere, e.g. eastern Indonesia and Sri Lanka. Moreover, invasive exotic plant species are degrading the habitats of threatened birds in many parts of Asia.	➤ Ban any further deliberate releases of alien mammals and birds for 'pest' control or other reasons, especially on islands with endemic bird species. ➤ Take measures to prevent the accidental release of alien species. ➤ Study the impact of invasive species on threatened birds, e.g. on Sulawesi and Halmahera, eastern Indonesia. ➤ Promote eradication programmes to control invasive plants, particularly at key sites for threatened birds.

Underlying and indirect causes of biodiversity loss

The previous sections have analysed the main causes of endangerment to birds in the Asia region, and presented an overview of policy-level approaches towards tackling the direct causes of those threats. However, it is clear that the conservation community in Asia and globally also has to face up to the reality of tackling the underlying and indirect causes of biodiversity loss. This may appear a frustratingly difficult and long-term process, but it is essential if the unequal political and economic structures that underlie environmental problems are to change. Conservation and development workers at a local and national level are often overwhelmed by the reality that powers beyond their reach are the prime determinants of success and failure, and sense that there is little, if anything, they can do to influence factors like policy on land tenure, or resettlement. Nonetheless, if such underlying causes are not addressed, the best that 'on-the-ground' conservation action can hope to achieve is to deflect pressure from areas of high biodiversity to those of more marginal biodiversity value.

Underlying causes are deep-rooted and complex. A detailed analysis is beyond the scope of this review, but it is important for conservation efforts to give them serious attention. Most have their origins in the global economy, in issues like increasing consumption, undervaluation, and perverse subsidies, or in common global trends like participatory democracy or land tenure patterns. Hanging over all of these is the growing and uncertain nature of climate change. The following paragraphs illustrate some of these issues.

INCREASING CONSUMPTION

Economic growth and ever-increasing consumption, notably in some western countries, are arguably the main underlying causes of habitat loss and degradation in Asian countries. Industrialised Asian economies, in Japan for example, have fuelled regional trade in timber. Growing and more affluent nations in Asia are resulting in an increasing demand for paper (e.g. China) and palm oil (e.g. in South Asia, where it is the preferred choice for cooking oil). A promise of strong economic growth and pressure from external donors have caused a number of countries to pursue export-led development strategies, notably in critical sectors for biodiversity conservation like forestry and agriculture. As a consequence, investment capital has poured in over the past 20 years.

POVERTY AND THE ENVIRONMENT

In common with other regions, powerful links also exist between poverty, human population and the environment throughout Asia. In many areas, large number of people live below thresholds accepted nationally, both economically, and in a wide range of other ways (such as access to fresh drinking water, sanitation and primary health care). For such poor communities, natural areas like forests, grasslands and wetlands form a critical component of livelihood strategies, especially in the absence of reliable economic alternatives and in times of stress and poor food security.

LAND TENURE

Land tenure is an important consideration in people's attitude to land use and significant in terms of habitat loss, especially deforestation. Weak or unresolved land tenure systems outside forests often result in spontaneous or government-backed migration and colonisation of forested areas. A lack of recognition of legal rights for indigenous peoples or local communities means other people can easily enter areas and take control. In many cases, it also results in the loss of sustainable land uses by forest dwellers when forest resources are being taken over by large enterprises.

The World Bank's 1991 Forest Policy paper accepts that weak property rights are behind forest loss and degradation in many areas (Contreras-Hermosilla 2000).

UNDERVALUATION

Conservationists believe that biodiversity has important cultural, spiritual, recreational, and personal values, but invariably official policies tend to recognise natural resources only for their commercial value. The environment, including 'wild nature' or biodiversity, is severely undervalued, despite the fact that it is clear we depend on a full range of complex ecological functions to provide essential physical services, like clean air, pure water, and fertile soils. A recent study concluded that the irreplaceable value of wild nature is about $20 trillion a year (Balmford *et al*. 2002). Forests are particularly undervalued when their full environmental and social value is not taken into account (e.g. nutrient cycling, climate regulation, erosion control and recreation).

PERVERSE SUBSIDIES

So-called perverse subsidies are defined as those that cause habitat loss, but have no lasting positive impact on sustainable development (Sizer 2000). In the forest sector, perverse subsidies may be direct, such as tax write-offs, grants or low-interests loans, or indirect, such as low or uncollected forest rents, low labour costs, or the construction of 'free' access roads. Government assistance to plantations is supplied through low land and labour costs, weak pollution laws, and financial incentives.

Recent and past adjustment programmes of the IMF and structural loans by the World Bank and Asian Development Bank have encouraged and required trade liberalisation. This has promoted exploitation of a number of products linked to forest loss, including raw timber and agricultural crops from plantations such as oil palm. In Indonesia, for example, recent conditions for loans included a reduction in the levy on log exports, at a time of weakening regulations and rampant illegal trade, and cutting the levy on trade in crude palm oil. Indonesia has also seen resettlement or 'transmigration' programmes and plantations developed together to provide a workforce and employment.

POOR GOVERNANCE

Many underlying threats arise in situations where governance and administrative systems are weak or in a state of flux. This has been and continues to be a problem in several Asian countries, where it has allowed corruption and collusion to flourish, in part the result of cronically low salary levels and state social security provisions. Frequently downplayed or ignored in the past, corruption often lies behind inadequate regulation of companies, illegal land allocation, and encroachment of natural habitats including protected areas. For example, combined with corruption, poor governance and regulation of Indonesia's banking system has led to misguided investment decisions in forestry, including financing for illegal land clearance, and investment in sectors that were already severely over-capacitated such as pulp and paper.

Another factor behind a poor conservation record in some countries is the low level of investment in regulatory authorities (staff, budgets, training, etc.), which are regarded as a comparatively low priority. Over many years, protected areas have faced a number of basic management problems ranging from poor staff morale and discipline, lack of incentives for good performance, limited capacity, an emphasis on administration rather than field duties for reserve managers, and inappropriate and inflexible budget allocations. Communities that depend on natural resources are rarely, if ever, consulted over the decisions that radically influence local forests. In Indonesia (and many other countries), management of forests, forest land allocation, and protected areas management have been centralised until recently, with little or no authority extending to provincial and local government levels. As a consequence, local administrations have had little incentive to support conservation. This is likely to change, but improvements in terms of forest protection are unlikely to result over the short term.

CLIMATE CHANGE

An underlying threat which stalks the conservation debate in Asia and globally (and could significantly undermine existing and future conservation efforts) is climate change. In Asia, the most tangible effect has been an increase in the frequency, severity and geographical extent of droughts (and associated forest fires) in the Sundaland region (F07) since the 1960s. It is likely that climate change will have other impacts on Asia's habitats and biodiversity in the medium to long term, but in ways that are far from being fully understood, including the shift of habitats with their characteristic species composition along altitudinal and latitudinal gradients.

Towards sustainable forest management

The problems with forest management in many parts of the Asia region testify to the difficulties in addressing the direct and indirect causes of habitat loss. Ideally, government policy should allow forests (and other natural habitats) to be sustainably managed. However, it should be noted that the real impacts (certainly in terms of environmental and ecological elements) of 'sustainable forest management'

Forest mismanagement in many parts of the Asia region is causing rapid loss of habitat suitable for threatened forest birds.

PHOTO: MARCO LAMBERTINI/BIRDLIFE

(SFM) are still not fully understood. As yey, SFM has not been widely adopted by Asian countries. Ideally, economically, environmentally and socially viable SFM should be pursued in already modified forest, and, in parallel, there should be a total ban on commercial logging of primary areas.

Working towards sustainably managed systems means converting weak forest institutions into strong institutions with a genuine interest in administration and enforcement. It means tackling widespread corruption, and operating within a strong and clear regulatory framework. It means enabling strong public participation in decision-making about natural resources, and making sure that people, particularly indigenous and local communities, have adequate and enforceable rights. These are all aspects of politically stable, well-regulated economies that are resistant to external and internal upheavals. Such conditions will result if many of the underlying causes are tackled.

For forests, another factor is building a constituency of educated and active consumers whose purchasing demonstrates a preference for sustainable forest products. It is the opposite of consumer indifference, and in many markets, consumer choice is beginning to be channelled as a positive force. Increasingly, people are willing to pay a premium—typically 10–20%—for forest products from sustainably managed sources, and the need for an independent system of recognising genuine sources has led to certification. The Forest Stewardship Council (FSC) runs the largest and most advanced scheme. It sets out a series of principles and criteria which apply to all forests, and which are closely allied to concepts of SFM. These are then used to agree national standards, with the participation of all stakeholders, against which forest management units are assessed, certified and labelled. Products carrying an FSC label definitely come from sustainably managed forests (and plantations), and build the confidence of consumers.

Securing an area-based approach to conservation policy in Asia

A continuum exists from undisturbed primary forests, grasslands and wetlands that are rich in biodiversity to habitat that has been converted for monocultivation and from which all but the most determined and resistant species have been excluded. In the case of forest, it is a continuum that sees a sliding scale of endangerment, with species lost as 'management' moves from protection through low-impact logging, to clear felling. It shadows a continuum that starts with a full set of characteristic birds and sees a sequential loss of species as their tolerance of more than limited levels of habitat degradation declines. These species are the barometers, the indicators, of changing forest condition.

For conservation agencies, the continuum starts with the challenge to maintain adequate core areas of natural habitat that shelter a full complement of biodiversity. From a bird conservation angle, this begins with protecting a network of sites that conserves all species of concern. For BirdLife, Important Bird Areas (IBAs: see p.21), are the foundation of this network, but there is a growing trend to adopt similar approaches for other taxa, assembling sites that together form genuine ecological networks. The importance of such areas is central to the objectives of the Convention on Biological Diversity (see p.31), where Article 8 calls on parties to establish a system of protected areas. More recently, Target 9 of the Millennium Development Goals calls upon the global community to: 'Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources'. Indicators for this target include both the 'proportion of land area covered by forest' (no 25), and 'land area protected to maintain biological diversity' (no 26).

Important Bird Areas can be a major component of the networks, and with the development of other taxa-based evaluations, and the parallel evolution of consensus about priorities, the conservation community needs to lobby for long-term financial resources to maintain these areas. IBAs are chosen for biological reasons, entirely independently of any protection status, and this is a key policy objective, to make it clear that a global ecological network needs to take account of all biodiversity. Protected areas have been the cornerstone of conservation for over a century and good coverage has been achieved, but important gaps remain; the most significant gaps in coverage of globally threatened bird species in Asia, all of them IBAs, are discussed in the relevant forest, grassland and wetland accounts. National protected areas systems in Asia and elsewhere have well-documented weaknesses, linked to insufficient financial and human resources, the failure to integrate protected areas in national and/or local land-use planning, and a lack of participation in management by local government and other stakeholders.

With IBAs now identified in an increasingly large number of countries worldwide, a site-level constituency is growing. Regional directories have been published in Europe, the Middle East, and Africa, and will be available for Asia in 2004, and national directories have been published in more than 50 countries. A key outcome of the IBA process has been high levels of national and local ownership. At many sites this results in individuals and groups emerging who have a strong interest in IBA conservation. Generically known as Site Support Groups (SSGs), these groups are engaging in an increasingly wide range of activities. These include advancing wise resource-use at the local level, engaging in land-use planning and local decision making, building partnerships with other stakeholders including the private sector, and promoting the importance of conserving biodiversity. Often this means helping to strengthen or establish environmental education programmes in schools around sites.

Members of SSGs can also play a major role in monitoring the status of key species and habitats, and particularly the activities of people. Such community-based monitoring of sites leads to the reporting of illegal or destructive activities to the relevant authorities. For site-adjacent communities at many IBAs, marginalisation has meant poor access to work opportunities. As a result, an increasing number of SSGs are starting environmentally friendly conservation-linked projects that help communities generate income (for example, bee-keeping, tree nurseries, ecotourism). At some sites this can extend to providing services, such as assisting researchers and tour-guiding. SSGs are also working with NGOs and government agencies to rehabilitate degraded habitats, for example by tree planting.

In many ways, the growth of this networked site-based constituency has good prospects for conservation success in Asia, both in the short term through tackling direct threats such as illegal logging, and in the longer term by demanding change in those policies that drive the underlying causes of habitat loss. With this constituency increasingly active, SSGs are in a position to provide grassroots communities an opportunity to participate in negotiations and decisions that affect the sites that are their concern.

CONVENTIONS AND RELATED MECHANISMS

A range of international agreements has been established to support the conservation of biological diversity and sustainability in the use of natural resources. The information on threatened birds and their habitats presented in this publication is designed to provide a resource for governments and other decision-makers to implement effectively their obligations under these agreements. The following section introduces the relevant conventions and some related mechanisms, and makes recommendations on how they can benefit the conservation of threatened species in the Asia region. It focuses on agreements that offer direct opportunities to support the conservation of birds and their habitats (see Table 3 for country participation in these agreements). However, note that other conventions, such as the United Nations Framework Convention on Climate Change, will have impacts on species and habitats in the longer term.

Table 3. Participation in international agreements and other mechanisms by countries in the Asia region.

	Convention						
Country	CBD	Ramsar	CITES	CMS	WHC	UNCCD	MAB
Bangladesh	CP–p	CP (2)	CP		CP (3)	CP	NC
Bhutan	CP–C		CP		CP		
Brunei			CP			CP	
Cambodia	CP–C	CP (3)	CP		CP (1)	CP	NC (1)
China	CP–C	CP (21)	CP		CP (28)	CP	NC (22)
India	CP–p	CP (19)	CP	CP	CP (23)	CP	NC (3)
Indonesia	CP–C	CP (2)	CP		CP (6)	CP	NC (6)
Japan	CP–C	CP (13)	CP		CP (11)	CP	NC (4)
North Korea	CP				CP		NC (1)
South Korea	CP–C	CP (2)	CP		CP (7)	CP	NC (2)
Laos	CP–p				CP (2)	CP	
Malaysia	CP–C	CP (4)	CP		CP (2)	CP	NC
Maldives	CP–C				CP	CP	NC
Mongolia	CP–C	CP (6)	CP	CP	CP	CP	NC (4)
Myanmar	CP		CP		CP	CP	NC
Nepal	CP–C	CP (1)	CP		CP (4)	CP	NC
Pakistan	CP–C	CP (19)	CP	CP	CP (6)	CP	NC (1)
Philippines	CP–C	CP (4)	CP	CP	CP (5)	CP	NC (2)
Russia[1]	CP–C	CP (14)	CP		CP (4)	CP	
Singapore	CP–C		CP			CP	
Sri Lanka	CP–C	CP (2)	CP	CP	CP (7)	CP	NC (2)
Thailand	S	CP (10)	CP		CP (4)	CP	NC (4)
Timor-Leste							
Vietnam	CP–C	CP (1)	CP		CP (4)	CP	NC (2)

Key: CBD: Convention on Biological Diversity (CP = Contracting Party; CP–C = Contracting Party, National Biodiversity Strategy and Action Plan (NBSAP) completed; CP–p = NBSAP in preparation; S = signed, but not a Party); Ramsar Convention on Wetlands (CP = Contracting Party; figures in brackets are the number of Ramsar sites at July 2003); CITES: Convention on International Trade in Endangered Species (CP = Contracting Party); CMS: Convention on Migratory Species (CP = Contracting Party); WHC: World Heritage Convention (CP = Contracting Party Committee; figures in brackets are the number of World Heritage Sites at July 2002).; UNCCD: United Nations Convention to Combat Desertification (CP = Contracting Party); MAB: Man and the Biosphere Programme (NC = National Committee; figures in brackets are the number of Biosphere Reserves at November 2002).

[1] The numbers of Ramsar and World Heritage sites given for Russia only cover those in the Asia region (14 of the 35 Ramsar sites and four of the 16 World Heritage Sites).

International agreements and other mechanisms

CONVENTION ON BIOLOGICAL DIVERSITY (CBD)

The Convention on Biological Diversity was adopted in 1992 and came into force in 1993. It currently (July 2003) has 187 parties, amongst them 21 in the Asia region. The objectives of the convention are the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources. The primary approach of the convention is conservation in the wild. Parties have to identify components of biodiversity, such as threatened species, and ecosystems and habitats containing high diversity, large numbers of endemic or threatened species, or wilderness. Article 8 of the CBD requests parties to establish a system of protected areas, to restore degraded ecosystems, to maintain viable populations of species in natural surroundings, and to develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations. The convention has established thematic work programmes on the major ecosystems: marine and coastal biodiversity; forests; inland water ecosystems; dry and sub-humid lands; and agricultural biodiversity. The main tools for the CBD's national implementation are National Biodiversity Strategies and Action Plans (NBSAPs) which in many cases have been established with support from the Global Environment Facility (GEF), which hosts the CBD's financial mechanism. Most Asian countries have developed NBSAPs and are in the process of implementing them, while some are revising their first NBSAPs.

Website: http://www.biodiv.org/

Recommendations

- Countries in the Asia region that are not a party to the CBD (Brunei, Thailand and Timor-Leste) should accede to it.
- Include national lists of (and information on) threatened species and Important Bird Areas (IBAs: see p.21) in NBSAPs.
- Develop national and regional action plans for threatened species within the framework of NBSAPs.
- Review national protected area systems to ensure that they adequately cover threatened species and their habitats.
- Review, and if necessary strengthen, national legislation and/or other regulatory provisions for the protection of threatened species.
- Develop national policies and programmes for the conservation and sustainable use of important habitats for threatened species, supporting the implementation of the CBD's thematic work programmes on the major ecosystems, e.g. activities relevant to forest policy identified by the CBD Work Programme on Forest Biological Diversity.
- Identify gaps in the conservation of threatened species and their habitats and key sites, and hence funding opportunities through the GEF and other international donors (note that only a small proportion of the 311 outstanding IBAs for threatened bird species in Asia are currently receiving funding from these sources).

RAMSAR CONVENTION ON WETLANDS

The Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat, adopted in 1971, entered into force in 1975 and currently (July 2003)

has 137 parties, 16 of which are from the Asia region. The convention provides a framework for international cooperation for the conservation and wise use of wetlands. Parties are to designate suitable wetlands for inclusion in the List of Wetlands of International Importance, also known as Ramsar sites, to formulate and implement their planning so as to promote the conservation of wetlands included in the List and the wise use of all wetlands in their territory. At July 2003, 123 Ramsar sites had been designated in the Asia region. As many threatened birds heavily depend on wetlands, the Ramsar Convention is an excellent tool for their protection. A number of Asian wetlands of significance to threatened birds have already been designated as Ramsar sites, and 'wise use' approaches, for example in river basin management, are crucial to the survival of many species and communities. For a comprehensive approach to the national implementation of the convention, many countries have developed National Wetland Policies.

Website: http://www.ramsar.org/

Recommendations

- Countries in the Asia region that are not a party to the Ramsar Convention (Bhutan, Brunei, North Korea, Laos, the Maldives, Myanmar, Singapore and Timor-Leste) should accede to it.
- This review has identified 159 IBAs as outstanding for threatened waterbirds, of which 40 (25%) are currently designated as Ramsar sites (see regions F01, F07, G02, G03, W02, W03, W04, W05, W06, W08, W09, W10, W11, W12, W13, W14, W15, W18, W19 and W20). The remaining 119 wetland IBAs, all of which are likely to qualify under the Ramsar criteria, should be considered for designation as Ramsar sites (other than 11 in countries that are not yet a party to the Convention). Note that BirdLife International will publish a comprehensive Asia IBA Inventory in early 2004; many of the wetland sites included are likely to qualify for designation as Ramsar sites.
- National legislation and institutions should be reviewed for compatibility with good practice in respect of wetlands (using Ramsar guidelines).
- All countries should have a national wetland policy or equivalent, which includes activities for the protection of threatened waterbird species.
- Each significant wetland site should have a management plan, with defined conservation objectives and targets.
- Projects, programmes and policies likely to have significant negative effects on important wetland interests should be subject to environmental and/or strategic impact assessment.
- Wetlands in general should be managed in accordance with the 'wise use' principles of the Ramsar Convention, including environmentally sustainable management of their catchment/watershed/river basin context and of water resources, and including coordinated approaches in transboundary areas.
- All countries should have a national system for monitoring the ecological character of their wetlands, including defined policy responses to potential change.

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES (CITES)

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), adopted in 1973, came into force in 1975 and currently (July 2003) has 161 parties, amongst them 20 from the Asia region. The convention was established to ensure that trade in wildlife and wildlife products is managed sustainably. It aims to regulate international trade in wildlife products through international cooperation, while recognising national sovereignty over wildlife resources. Species on Appendix I are considered to be threatened with extinction and cannot be traded commercially, while those on Appendix II can only enter international trade under specific controlled circumstances. Many of the 303 Asian threatened species included in the current review are covered by the appendices (62 on Appendix I and 62 on Appendix II: see threatened species list in appendix, pp.241–245), including all raptors, parrots and owls. Trade (either international and/or domestic) is known to be an issue for four threatened species in the Asia region which are not listed on the CITES appendices (see Table 4).

Website: http://www.cites.org/

Recommendations

- Countries in the Asia region that are not a party to CITES (North Korea, Laos, the Maldives and Timor-Leste) should accede to it.
- Conduct a review of those threatened bird species in Asia where international trade is considered possibly to be significant, and which are not at present listed on any CITES appendix (see Table 4), to identify those which might benefit from listing. The situation of Black-winged Starling needs to be urgently assessed, as trade is believed to be the primary threat to this Endangered species.
- Conduct (as a matter of extreme urgency) a review of all threatened bird species on Appendix I where international trade is, or may be, continuing (see Table 5), in order to identify ways to strengthen the enforcement of CITES and to improve national bird trade legislation and its enforcement in the species' range states.
- Conduct a review (possibly including a 'Significant Trade Review') of threatened bird species on Appendix II where trade is considered to be significant (see Table 6), in order to determine appropriate actions such as the establishment of monitoring programmes, the reduction of quotas, or consideration for listing on Appendix I.

Trapping for the bird trade is reducing wild populations of many threatened birds in Asia, and needs to be controlled by improved enforcement of CITES and national bird trade legislation.

PHOTO: MARCO LAMBERTINI/BIRDLIFE

Table 4. Threatened bird species in Asia not listed on a CITES appendix but where trade is considered to be a significant issue.

Species	Status
Storm's Stork *Ciconia stormi*	EN
Greater Adjutant *Leptoptilos dubius*	EN
Timor Sparrow *Padda fuscata*	VU
Black-winged Starling *Sturnus melanopterus*	EN

Table 5. Threatened bird species in Asia on CITES Appendix I in which trade is considered to be continuing.

Species	Status
Palawan Peacock-pheasant *Polyplectron emphanum*	VU
Red-and-blue Lory *Eos histrio*	EN
Salmon-crested Cockatoo *Cacatua moluccensis*	VU
Philippine Cockatoo *Cacatua haematuropygia*	CR

Table 6. Threatened bird species in Asia on CITES Appendix II in which trade is considered to be continuing in significant numbers.

Species	Status
Bornean Peacock-pheasant *Polyplectron schleiermacheri*	EN
Green Peafowl *Pavo muticus*	VU
Chattering Lory *Lorius garrulus*	EN
Yellow-crested Cockatoo *Cacatua sulphurea*	CR
White Cockatoo *Cacatua alba*	VU
Blue-headed Racquet-tail *Prioniturus platenae*	VU
Green Racquet-tail *Prioniturus luconensis*	VU
Straw-headed Bulbul *Pycnonotus zeylanicus*	VU
Omei Shan Liocichla *Liocichla omeiensis*	VU
Green Avadavat *Amandava formosa*	VU
Java Sparrow *Padda oryzivora*	VU

- Review national legislation to ensure that it is adequate to address international and domestic trade in threatened birds, particularly the species listed in Tables 4, 5 and 6.
- Develop mechanisms to effectively control and monitor trade in wild fauna and flora at the national level by, amongst others, strengthening CITES Scientific and Management Authorities and training of customs officers and police. In particular, controls on the trading of Philippine Cockatoo need to be greatly improved in the Philippines (see region F09).
- Raise public awareness of the relevant legislation and the detrimental consequences of non-sustainable taking of and trading in wildlife.

CONVENTION ON MIGRATORY SPECIES (CMS)

The Convention on the Conservation of Migratory Species of Wild Animals (CMS), often known as the Bonn Convention, was adopted in 1979 and entered into force in 1983. At July 2003, it has 83 parties, five of which are in the Asia region. The objective of the convention is to protect migratory species, recognising that protection is needed throughout their migratory ranges, and that this requires international cooperation and action. Two appendices are attached to the Convention. Appendix I lists species which are in danger of extinction throughout all or a significant portion of their range. Appendix II species need not be threatened, but they must have a conservation status which requires, or would benefit from, an international agreement for their conservation. If the circumstances so require, a species can appear on both appendices. Parties are required to prohibit the taking of species on Appendix I, and to conclude agreements with other range states for the conservation and management of species on Appendix II. Parties must also endeavour to conserve and restore important habitats, eliminate impeding activities or obstacles to migration, and tackle other factors that endanger Appendix I species. For Appendix II species, among other things agreements should provide for a network of suitable areas of habitat along their migration routes. Some Asian countries participate in CMS agreements, but are not yet parties to the convention, including Russia and China in an agreement between several Siberian Crane range states. Twenty-seven threatened bird species in the Asia region are on Appendix I of CMS (including 18 which are also on Appendix II), and 15 are on Appendix II (see species list in appendix).

Website: http://www.wcmc.org.uk/cms/

Recommendations

- Only five countries in the Asia region are a party to the CMS (India, Mongolia, Pakistan, the Philippines and Sri Lanka), and more should accede to it.
- Ensure that the appendices correctly reflect the status and needs of Asian migratory bird species by adding species to one or both appendices as appropriate, notably the five species in Table 7. For some species, the accession of one or more relevant Range States will be needed first, in particular to ensure the development of multinational agreements for these species.
- Ensure that all Appendix I species are fully legally protected in all range states that are a party to the CMS.
- Conserve key habitats and sites for Appendix I species, using information on IBAs.
- Develop agreements between range states for the conservation and management of single species or groups of species on CMS Appendix II (e.g. Asian populations of Great Bustard).

Table 7. Threatened migratory birds in the Asia region not listed on a CMS appendix.

Species	Asia region range states
Swinhoe's Rail *Coturnicops exquisitus*	Russia, **Mongolia**, Japan, South Korea, China
Pale-backed Pigeon *Columba eversmanni*	Russia, China, **Pakistan**, **India** (and Central Asia)
Fairy Pitta *Pitta nympha*	Japan, North Korea, South Korea, China (mainland China, Hong Kong, Taiwan), Vietnam, Malaysia, Brunei, Indonesia
Yellow Bunting *Emberiza sulphurata*	Japan, South Korea, China (mainland China, Hong Kong, Taiwan), **Philippines**
Silver Oriole *Oriolus mellianus*	China (mainland China), Thailand, Cambodia

Range states in bold are a party to the CMS.

- Promote existing agreements in the region, in particular the Agreement on the Conservation of Albatrosses and Petrels (ACAP).
- Promote the conservation of South Asian waterbirds by either the extension of the African-Eurasian Waterbird Agreement (AEWA), or the negotiation of a separate agreement.

WORLD HERITAGE CONVENTION

The Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention) was adopted in 1972 and entered into force in 1975. At July 2003, it has 176 contracting parties, including 21 in the Asia region. The United Nations Educational, Scientific and Cultural Organisation (UNESCO) provides a secretariat for the convention in the World Heritage Centre in Paris. The aim of the convention is to identify and conserve cultural and natural monuments and sites of outstanding universal value, and this is implemented through the nomination of suitable sites by national governments; as of July 2002, 117 World Heritage Sites had been designated in the Asia region. The great majority of these sites are nominated for their cultural value, as is the case in other regions of the world; the convention has recognised this imbalance, and wishes to see more outstanding natural sitess added. The World Heritage Committee selects World Heritage Sites from among the national nominations, allocates resources for their management, and identifies threatened sites for the List of World Heritage in Danger.

Website: http://whc.unesco.org

Recommendations

- Countries in the Asia region that are not a party to the World Heritage Convention (Brunei, Singapore and Timor-Leste) should accede to it.
- This review has identified 311 IBAs as outstanding for threatened birds, of which 14 (4.5%) are in whole or in part World Heritage Sites (see regions F01, F03, F04, F05, F07, F08, F09, G02, W12 and W15). Many of the other IBAs undoubtedly qualify as World Heritage Sites but are not so designated. Realistic, but challenging, targets should be set gradually to add these sites, and help to redress the imbalance between cultural and natural sites.
- Use information collated during the IBA Programme to help identify threatened World Heritage Sites, for inclusion on the List of World Heritage in Danger, and to help counter the threats.

UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION (UNCCD)

The United Nations Convention to Combat Desertification (UNCCD) was adopted in 1994 and came into force in 1996. Alongside the Convention on Biological Diversity (CBD) and the Climate Change Convention (UNFCCC), it is one of the Rio conventions that were endorsed by the Rio Earth Summit in 1992. It seeks active cooperation with other conventions, such as the CBD, UNFCCC, Ramsar and CMS. The convention currently (July 2003) has 187 parties, of which 21 are in the Asia region. The objective of the convention is to combat desertification and to mitigate the effects of drought. Desertification is understood as land degradation in arid, semi-arid and sub-humid areas due to climate change and human activities such as deforestation, inadequate agriculture, overgrazing and others; the convention is therefore relevant to many parts of the Asia region, not only deserts. Regional annexes outline the specific obligations for countries to address desertification, with Annex II covering regional implementation in Asia. The main implementation tools are regional and national action programmes. It is expected that GEF's designation of land degradation as a focal area in 2002 will result in a stronger national implementation of the Convention.

Deforestation in the tropics can cause local climate change and water shortage, and should be addressed under the UNCCD through regional and national action programmes.

PHOTO: MICHAEL POULSEN/BIRDLIFE

Website: http://www.unccd.int

Recommendations

- Countries in the Asia region that are not a party to the UNCCD (Bhutan, North Korea and Timor-Leste) should accede to it.
- Develop regional and national action programmes in parts of Asia where habitat clearance and degradation has been sufficiently extensive to cause local climate change and water shortage, including parts of many forest regions (F01–F09) and grassland regions (G01–G03).
- Fully address biodiversity conservation in the development and implementation of action programmes, using information on threatened species and their habitats.
- Ensure that activities to combat desertification, such as reforestation and afforestation, do not negatively impact on threatened species and their habitats, with strategic and/or environmental impact assessments of any large schemes.

MAN AND THE BIOSPHERE PROGRAMME

UNESCO's Man and the Biosphere (MAB) Programme was launched in 1971 and develops the basis, within the natural and social sciences, for the conservation and sustainable use of biological diversity, and for the improvement of the relationship between people and their environment. The programme encourages interdisciplinary research, demonstration and training in natural resource management. An essential tool for the MAB programme is the network of Biosphere Reserves, which are areas of terrestrial and coastal ecosystems where solutions are promoted to reconcile biodiversity conservation with its sustainable use. MAB operates through National Committees and Focal Points amongst the UNESCO member states, and there are National Committees in 18 countries in the Asia region; at November 2002, 54 Biosphere Reserves had been designated in these countries (see Table 3).

Website: http://www.unesco.org/mab/

Recommendations

- Establish National MAB Committees in additional countries in the Asia region (Bhutan, Brunei, Laos, Russia, Singapore and Timor-Leste).
- This review has identified 311 IBAs as outstanding for threatened birds, of which 22 (7.1%) are in whole or in part Biosphere Reserves (see regions F03, F04, F05, F06, F07, F08, F09, W05, W06, W11, W15 and W18). Many of the other IBAs are undoubtedly appropriate for listing as Biosphere Reserves, and more of them should be designated.

WORLD COMMISSION ON DAMS

The World Commission on Dams was initiated by the World Bank and the World Conservation Union (IUCN). The Commission brought together governments, industry, investors, non-governmental organisations and indigenous peoples to thoroughly analyse the economic, social and ecological aspects of large dams, resulting in the publication of a report in 2000 which contains recommendations for their future planning. The United Nations Environment Programme is administrating the Dams and Development Project to implement these recommendations. Of the 45,000 large dams that have been constructed globally, more than 25,000 are in the Asia region. Clearly, threatened species have already been affected, and will continue to be affected, by the flooding of their habitats, the activities associated with the construction of large dams, and by changes in ecology downstream from the dams.

Website: http://www.dams.org/

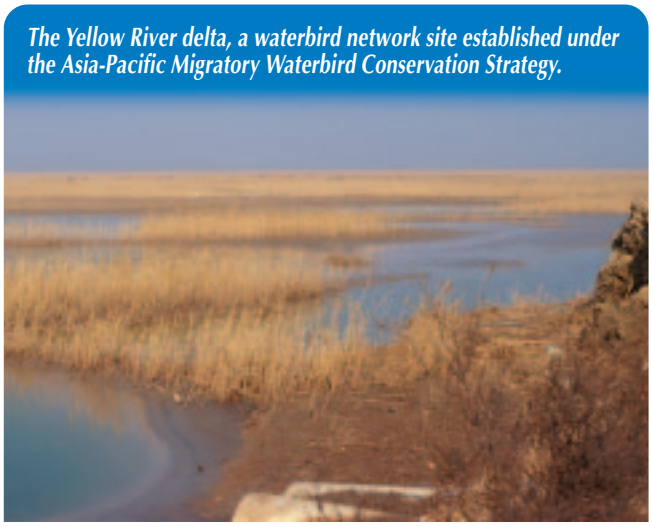
Recommendations

- Carefully assess the environmental impact of proposed dams (and associated irrigation schemes), using the recommendations of the World Commission on Dams and information on threatened birds and their habitats. Some examples of where proposed dams could negatively affect threatened birds are: the Mekong catchment, especially in Yunnan (China) and Laos (see regions F06 and W18); the lower Ganges and Brahmaputra floodplains in north-east India and Bangladesh (see region W14); the Amur valley in Russia and China (see region W03); and semi-deserts in north-west India (see region G03).
- Operate existing dams to take into account the ecological needs of threatened birds and other biodiversity, particularly species which inhabit river corridors and floodplains downstream. Some examples of where the management of existing dams should take into account the needs of threatened birds are: the Indus valley in Pakistan (see regions G02 and W11); the Gangetic plains of northern India (see regions G02 and W12); and the Yangtze basin in China (especially the Three Gorges Dam: see regions W06 and W08).

Regional agreements and other mechanisms

ASIA-PACIFIC MIGRATORY WATERBIRD CONSERVATION STRATEGY

The Asia-Pacific Migratory Waterbird Conservation Strategy promotes the conservation of migratory waterbirds and wetlands in the Asia-Pacific region. It is supported by the governments of Japan and Australia and coordinated by Wetlands International, with an international conservation committee to oversee its promotion and implementation. The Strategy has greatly increased awareness in the region of the need to protect migratory waterbirds and their habitats, and has led to a series of initiatives undertaken with the active support and involvement of governments, conventions, national and international NGOs, development agencies, the corporate sector and local communities. Regional conservation Action Plans have been developed and are being implemented for shorebirds, cranes and Anatidae. Networks of sites of international importance have been established (under the 'Brisbane Initiative') for these three waterbird groups (Anatidae Site Network in the East Asian Flyway, East Asian Australasian Shorebird Site Network and North East Asian Crane Site Network) that presently involves 74 sites in 12 countries (at June 2003: see regions F01, W01, W02, W03, W04, W05, W06, W08, W09 and W10); new sites are being added each year. Numerous activities have been undertaken at network sites, including public awareness and education, surveys and training courses in wetland management. International and national meetings have been held to share information and skills relevant to wetland management.



The Yellow River delta, a waterbird network site established under the Asia-Pacific Migratory Waterbird Conservation Strategy.

PHOTO: SIMBA CHAN

Website: http://www.wetlands.org/IWC/awc/waterbirdstrategy/Strat.htm

Recommendations

- Ensure that all IBAs which support important populations of threatened shorebirds, cranes and Anatidae are included in the regional site networks.
- Conduct further education and training activities at network sites, to improve awareness of threatened birds and their conservation needs, and to strengthen management of their wetland habitats.

CONSERVATION OF ARCTIC FAUNA AND FLORA (CAFF)

The Conservation of Arctic Fauna and Flora (CAFF) is a working group of the Arctic Council, with a mission to conserve Arctic biodiversity and to ensure that the use of Arctic living resources is sustainable. In the Asia region, Russia is a member of the Arctic Council. Of particular relevance to the conservation of threatened birds is CAFF's Circumpolar Protected Areas Network (CPAN) Strategy and Action Plan that was adopted by the Arctic Countries in 1996, which aims to develop and link the national systems of protected areas into a comprehensive circumpolar protected areas network.

Website: CAFF: http://www.caff.is/

Recommendations

- Use information on key sites for threatened bird species and IBAs to help develop the Circumpolar Protected Areas Network.

ASEAN AGREEMENT ON THE CONSERVATION OF NATURE AND NATURAL RESOURCES

The ASEAN Agreement on the Conservation of Nature and Natural Resources was adopted in 1985 and has been signed by Brunei, Indonesia, Malaysia, the Philippines, Singapore and Thailand, although it has not yet entered into force. It covers a broad range of conservation and development issues, including the conservation of threatened and endemic species and their habitats.

Website: ASEAN agreement: http://www.aseansec.org/6080.htm

Recommendations

- Review and ratify the ASEAN Agreement on the Conservation of Nature and Natural Resources, and use information on threatened bird species and IBAs to help in its implementation.

Bilateral migratory bird agreements/treaties

Ten bilateral migratory bird agreements/treaties involving territories in the Asia region have already been established (Table 8), and others are under discussion. These agreements provide mechanisms for the promotion of bilateral and international actions for the conservation of migratory birds.

Website: http://www.wetlands.org/IWC/awc/waterbirdstrategy/Strat.htm

Recommendations

- Implement international action programmes for selected threatened migratory waterbirds, including using information and recommendations from the *Threatened birds of Asia: the BirdLife International Red Data Book* and the current review.
- Consider further bilateral agreements where these would benefit the conservation of migratory birds.

Table 8. Bilateral agreements/treaties on the conservation of migratory birds in the Asia-Pacific region.

	Australia	China	India	Japan	North Korea	South Korea	Russia	U.S.A.
Australia								
China	Yes							
India								
Japan	Yes	Yes						
North Korea								
South Korea								
Russia			Yes	Yes	Yes	Yes		
U.S.A.		Yes		Yes			Yes	

Table reproduced with permission from the Asia-Pacific Migratory Waterbird Conservation Strategy: 2001–2005.

Okinawa Woodpecker is confined to a single IBA in southern Japan, Yambaru on Okinawa, where its habitat is under pressure from forestry and development.

PHOTO: TAKUKI HANASHIRO

PRIORITIES TO PREVENT THE EXTINCTION OF ASIAN BIRDS

The 324 globally threatened bird species that occur in the Asia region include some that have a very high risk of extinction, the 41 that are Critical and the 66 that are Endangered[1]. The conservation actions required for the protection of these birds and their habitats are therefore of the highest priority, and require immediate action. The following analysis focuses on these highly threatened species, to identify the pressures that could lead to their extinction in the near future[2]. Limited information is given here on the conservation measures required to address these issues; for more details go to the *Conservation issues and strategic solutions* sections of the relevant accounts (the codes for these are given in the Tables below: F01–F09 refer to forests, G01–G03 to grasslands, W01–W20 to wetlands and S01 to seabirds).

[1] According to the *IUCN Red List Categories and Criteria* (IUCN 2001), Critical species face an 'extremely high risk of extinction in the wild' (e.g. population viability analysis giving a probability of extinction of at least 50% within 10 years or three generations, whichever is the longer) and Endangered species a 'very high risk' (probability of extinction at least 20% within 20 years or five generations, whichever is the longer). Note that five of these species are excluded from the following analysis, two Critical seabirds because they nest (and face threats) outside the Asia region on Christmas Island, and three Endangered species which are endemic to Biak Island in Irian Jaya (which is not covered in this book).

[2] Note that many of the pressures on Critical and Endangered birds covered below are also affecting groups of Vulnerable species, and in the long-term could lead to them being upgraded to a higher category of threat.

Critical habitats and sites

Habitat loss is the major cause of endangerment in birds in the Asia region. Most Critical and Endangered bird species have restricted ranges, and/or are specialised to a particular habitat type, and they often occur in the areas and habitats that are being most rapidly cleared and modified by human activities. Table 9 includes all forest, grassland and wetland regions that support significant populations of one or more Critical and/or Endangered species. These birds are listed for each region, together with the main land-use issues that are impacting on their habitats. The tropical forests of continental South-East Asia, Indonesia and the Philippines are clearly of primary importance for highly threatened bird species, and immediate and effective conservation actions are needed if mass extinctions of species are to be averted. However, there are species and conservation issues in many other parts of the Asia region that require urgent attention.

Table 9. Key habitat conservation issues for Critical and Endangered bird species in Asia.

Habitat region	Issues	Species affected (Critical and Endangered only)
F01 Boreal and northern temperate forests	Forestry; Development	Scaly-sided Merganser, Blakiston's Fish-owl
F02 Japanese forests	Development; Forestry; Introduced predators	Japanese Night-heron; Okinawa Rail, Okinawa Woodpecker, Amami Thrush
F03 South-east Chinese forests	Forestry and illegal logging	White-eared Night-heron, Sichuan Partridge
F04 Sino-Himalayan mountain forests	Shifting cultivation; Exploitation of forest products	White-browed Nuthatch
F05 Indian peninsula and Sri Lankan forests	Forestry and illegal logging; Conversion to agriculture and plantations; Development	Forest Owlet, Sri Lanka Whistling-thrush, Rufous-breasted Laughingthrush
F06 Indo-Burmese forests	Forestry and illegal logging; Conversion to agriculture and plantations; Shifting agriculture; Exploitation of forest products; Development	White-bellied Heron, White-winged Duck, Orange-necked Partridge, Chestnut-headed Partridge, Edwards's Pheasant, Vietnamese Pheasant, Collared Laughingthrush, Grey-crowned Crocias
F07 Sundaland forests	Forestry and illegal logging; Pulp and paper industry; Conversion to plantations (especially oil palm); Conversion to agriculture; Forest fires; Development; Mining; Transmigration	Storm's Stork, White-shouldered Ibis, White-winged Duck, Javan Hawk-eagle, Bornean Peacock-pheasant, Silvery Wood-pigeon, Sumatran Ground-cuckoo, Gurney's Pitta, Rueck's Blue-flycatcher, Black-winged Starling, Bali Starling
F08 Wallacea	Forestry and illegal logging; Exploitation of forest products; Conversion to agriculture and plantations; Livestock grazing and fire; Transmigration; Development (including mining)	Maleo, Talaud Rail, Moluccan Woodcock, Wetar Ground-dove, Timor Green-pigeon, Timor Imperial-pigeon, Red-and-blue Lory, Chattering Lory, Blue-fronted Lorikeet, Yellow-crested Cockatoo, Sangihe Hanging-parrot, Flores Hanging-parrot, Taliabu Masked-owl, Siau Scops-owl, Flores Scops-owl, Lompobatang Flycatcher, Matinan Flycatcher, Caerulean Paradise-flycatcher, Flores Monarch, White-tipped Monarch, Black-chinned Monarch, Sangihe Shrike-thrush, Elegant Sunbird, Sangihe White-eye, Rufous-throated White-eye, Banggai Crow, Flores Crow
F09 Philippine forests	Conversion to agriculture; Forestry and illegal logging; Mining; Development	Japanese Night-heron (nb), Philippine Eagle, Mindoro Bleeding-heart, Negros Bleeding-heart, Mindanao Bleeding-heart, Sulu Bleeding-heart, Tawitawi Brown-dove, Negros Fruit-dove, Philippine Cockatoo, Blue-winged Racquet-tail, Black-hooded Coucal, Sulu Hornbill, Mindoro Tarictic, Visayan Tarictic, Visayan Wrinkled Hornbill, Streak-breasted Bulbul, Black Shama, Flame-templed Babbler, Negros Striped-babbler, White-throated Jungle-flycatcher, Cebu Flowerpecker, Isabela Oriole
G02 Indo-Gangetic grasslands	Conversion to agriculture and plantations; Grass harvesting; Livestock grazing; burning	Bengal Florican
G03 South Asian arid habitats	Irrigation and conversion to agriculture; Agricultural intensification; Livestock grazing; Grassland management	Great Indian Bustard, Lesser Florican, Jerdon's Courser
W02 Sea of Okhotsk and Sea of Japan coasts	Development	Crested Shelduck, Red-crowned Crane, Spotted Greenshank
W03 Amur, Ussuri and Sungari river basins	Wetland drainage; Development; Cutting of nesting trees	Oriental Stork, Red-crowned Crane
W06 Yellow Sea coast	Coastal reclamation; Potential development of the Demilitarised Zone (DMZ) in Korea	Black-faced Spoonbill, Swan Goose (nb), Red-crowned Crane (nb), Spotted Greenshank (nb)
W07 Central Chinese wetlands	Wetland conversion and agricultural change; Pollution/pesticides	Crested Ibis
W08 Lower Yangtze basin	Wetland conversion and agricultural change; Changes in river flow (caused by the Three Gorges Dam)	Oriental Stork (nb), Swan Goose (nb), Siberian Crane (nb)
W10 China Sea coast	Coastal reclamation; Conversion to aquaculture	Black-faced Spoonbill (nb), Spotted Greenshank (nb)
W14 Assam and Sylhet plains	Conversion to agriculture; Cutting of nesting trees	Greater Adjutant
W15 Bay of Bengal coast	Coastal reclamation; Conversion to aquaculture	Spotted Greenshank (nb)
W18 Lower Mekong basin	Conversion to agriculture; Cutting of nesting trees; Development (including dams)	Greater Adjutant, White-shouldered Ibis, Giant Ibis, Bengal Florican

Key: Species that occur in key areas only as non-breeding visitors are marked '(nb)'.

Table 10. Key sites for Critical and Endangered bird species in Asia.

Important Bird Area	Status	Species affected (Critical and Endangered only)
Bikin river basin, Primorye, Russia (F01)	—	Scaly-sided Merganser, Blakiston's Fish-owl
Central Amami forests, Japan (F02)	(PA)	**Amami Thrush**
Yambaru, northern Okinawa, Japan (F02)	(PA)	**Okinawa Rail**, **Okinawa Woodpecker**
Natma Taung National Park, Myanmar (F04)	PA	White-browed Nuthatch
Toranmal Reserve Forest (Shahada), Maharashtra, India (F05)	—	Forest Owlet
Ke Go and Khe Net, Vietnam (F06)	(PA)	**Vietnamese Pheasant**
Phong Dien and Dakrong, Vietnam (F06)	(PA)	Edwards's Pheasant
Chu Yang Sin National Park, Vietnam (F06)	PA	Collared Laughingthrush, Grey-crowned Crocias
Cat Tien National Park, Vietnam (F06)	PA	Orange-necked Partridge
Khao Nor Chuchi, Thailand (F07)	(PA)	Gurney's Pitta
Southern Tanintharyi Division, Myanmar (F07)	—	Gurney's Pitta
Bali Barat National Park, Bali, Indonesia (F07)	PA	**Bali Starling**
Mbeliling, Flores, Indonesia (F08)	—	Flores Hanging-parrot, Flores Monarch, Flores Crow
Ruteng Nature Recreation Park, Indonesia (F08)	PA	Flores Scops-owl
Paitchau-Iralalora, Timor-Leste (F08)	—	Yellow-crested Cockatoo, Timor Green-pigeon, Timor Imperial-pigeon, probably Wetar Ground-dove
Karakelang Hunting Reserve, Talaud, Indonesia (F08)	PA	**Talaud Rail**, Red-and-blue Lory
Gunung Sahendaruman, Sangihe, Indonesia (F08)	—	Sangihe Hanging-parrot, **Caerulean Paradise-flycatcher**, **Sangihe Shrike-thrush**, Elegant Sunbird, **Sangihe White-eye**
Pulau Siau, Indonesia (F08)	—	**Siau Scops-owl**
Bogani Nani Watabone National Park, Sulawesi, Indonesia (F08)	PA	Maleo, Matinan Flycatcher
Lompobatang Protection Forest, Sulawesi, Indonesia (F08)	PA	**Lompobatang Flycatcher**
Taliabu proposed nature reserve, Indonesia (F08)	—	Taliabu Masked-owl
Tanahjampea, Indonesia (F08)	—	**White-tipped Monarch**
Pulau Boano, Indonesia (F08)	—	**Black-chinned Monarch**
Kapalat Mada, Buru, Indonesia (F08)	—	**Rufous-throated White-eye**, possibly Blue-fronted Lorikeet
Siburan, Mindoro, Philippines (F09)	—	Mindoro Bleeding-heart, Black-hooded Coucal, Mindoro Tarictic
Northern Sierra Madre Nature Park, Luzon, Philippines (F09)	PA	Japanese Night-heron (nb), Philippine Eagle, Isabela Oriole
North-west Panay (Pandan peninsula), Philippines (F09)	—	Negros Bleeding-heart, Visayan Tarictic, White-throated Jungle-flycatcher
Central Panay Mountains, Philippines (F09)	—	Visayan Tarictic, Visayan Wrinkled Hornbill, Flame-templed Babbler, White-throated Jungle-flycatcher
Mt Canlaon National Park, Negros, Philippines (F09)	PA	**Negros Fruit-dove**, Visayan Tarictic, Flame-templed Babbler
Cuernos de Negros, Negros, Philippines (F09)	—	Visayan Tarictic, Visayan Wrinkled Hornbill, Flame-templed Babbler, **Negros Striped-babbler**
Tabunan, Cebu, Philippines (F09)	PA	Streak-breasted Bulbul, Black Shama, Cebu Flowerpecker
Mt Kaluayan-Mt Kinabalian complex, Mindanao, Philippines (F09)	—	Japanese Night-heron (nb), Philippine Eagle, Mindanao Bleeding-heart
Tawitawi island, Philippines (F09)	—	**Sulu Bleeding-heart**, **Tawitawi Brown-dove**, Philippine Cockatoo, Blue-winged Racquet-tail, Sulu Hornbill
Sri Lankamalleswara Wildlife Sanctuary, Andhra Pradesh, India (G03)	PA	Jerdon's Courser
Yancheng Nature Reserve, Jiangsu, China (W06)	PA	Swan Goose (nb), Red-crowned Crane (nb)
Yang Xian county, Shaanxi, China (W07)	(PA)	**Crested Ibis**
Poyang Hu lake, Jiangxi, China (W08)	(PA)	Swan Goose (nb), **Siberian Crane** (nb)
Tsengwen estuary, Taiwan (W10)	—	Black-faced Spoonbill (nb)
Chhep, Cambodia (W18)	(PA)	Greater Adjutant, Giant Ibis
Western Siem Pang, Cambodia (W18)	—	White-shouldered Ibis, Giant Ibis
Mazu (Matzu) Dao islands (S01)	PA	**Chinese Crested-tern**

Key: PA = IBA is a protected area; (PA) = IBA partially protected; — = IBA unprotected.
Species which are entirely or largely confined to a single IBA are shown in bold, and those which occur in IBAs only as non-breeding visitors are marked '(nb)'

The ranges of some Critical or Endangered birds are naturally very small, or their habitats have been reduced to just a few fragments, and they are now confined to a small number of IBAs. Table 10 identifies 41 IBAs that are crucial for the survival of at least 66 highly threatened bird species[1]. Only 22 of these are protected areas, or partially protected, and the establishment of new reserves should be considered at the other IBAs, or other mechanisms such as protection through land-use planning. Some of the Critical and Endangered species are entirely or largely confined to a single IBA, meaning that habitat loss or degradation at a single site could cause their extinction. Particularly notable IBAs include Gunung Sahendaruman on Sangihe in Indonesia, which supports five highly threatened species of which three are unique to the site, and Yambaru (northern Okinawa) in Japan and Tawitawi in the Philippines, both of which have two unique birds.

[1] Note that additional IBAs for some of these species are given in the forest, grassland and wetland accounts in this book, and more will be identified in the directory of *Important Bird Areas in Asia* which the BirdLife Asia network is scheduled to publish in early 2004.

Bali Starling is on the brink of extinction because of illegal trapping for the wild bird trade.

PHOTO: MARK EDWARDS/BIRDLIFE

Exploitation of birds

Exploitation is considered to be a significant threat to the 10 Critical and 25 Endangered species listed in Table 11. Of these, 23 species are heavily hunted for food and/or sport, but in most cases there is insufficient information available on capture rates and bird populations to judge whether such exploitation might be sustainable, or whether it is causing population declines. Two species are affected by both commercial collection of their eggs and hunting. Seven species are captured in significant numbers (in relation to the size of their global populations) for the wild bird trade, and three species are affecting by both hunting and capture for the wild bird trade.

Unsustainable exploitation is believed to be the principal cause of endangerment of several Critical and Endangered species. Large-scale commercial hunting of Swan Goose in the lower Yangtze basin in China is almost certainly the main reason for the species's rapid decline. Commercial egg collection is the most serious threat to Maleo on Sulawesi, and has caused abandonment of, or serious declines at, many of its nesting colonies, although habitat loss and hunting are also important factors. The eggs and chicks of Greater Adjutant and other waterbirds are subject to large-scale commercial collection at Tonle Sap lake in Cambodia, but projects are now underway to try to control this activity. Trapping for the wild bird trade is the main pressure on Philippine Cockatoo, and several Indonesian species, including Red-and-blue Lory, Chattering Lory, Yellow-crested Cockatoo, Black-winged Starling and Bali Starling. All of these species are listed on Appendix I or Appendix II of CITES, other than Black-winged Starling (see Table 11).

Gaps in knowledge

The distributions and habitat requirements of some of Asia's Critical and Endangered bird species are very poorly known, meaning that it is not possible to precisely define the habitat protection and other measures that are required to ensure their survival. Eleven Critical and Endangered Asian birds (and four Vulnerable and two Data Deficient species) that have not been recorded in recent decades are listed in Table 12. Some of them may already be extinct (e.g. Pink-headed Duck), but others probably still survive (e.g. Sulu Bleeding-heart) and need to be searched for to identify key sites and the most appropriate conservation actions. There are critical gaps in knowledge of the distributions and/or ecological requirements of the 16 highly threatened species in Table 13, which make it difficult to devise appropriate measures for their conservation. Research projects must be developed to improve understanding of their status and ecological requirements, key sites for their conservation, and the threats that they face.

Table 11. Critical and Endangered bird species in Asia that are seriously affected by exploitation.

Species	Status	CITES	Issue	Species	Status	CITES	Issue
White-eared Night-heron *Gorsachius magnificus*	EN		H	Negros Bleeding-heart *Gallicolumba keayi*	CR		H
Oriental Stork *Ciconia boyciana*	EN	I	H	Mindanao Bleeding-heart *Gallicolumba criniger*	EN		H
Greater Adjutant *Leptoptilos dubius*	EN		H, E	Wetar Ground-dove *Gallicolumba hoedtii*	EN		H
White-shouldered Ibis *Pseudibis davisoni*	CR		H	Tawitawi Brown-dove *Phapitreron cinereiceps*	CR		H
Giant Ibis *Thaumatibis gigantea*	CR		H	Timor Green-pigeon *Treron psittacea*	EN		H
Swan Goose *Anser cygnoides*	EN	I	H	Timor Imperial-pigeon *Ducula cineracea*	EN		H
White-winged Duck *Cairina scutulata*	EN	I	H	Red-and-blue Lory *Eos histrio*	EN	I	W
Javan Hawk-eagle *Spizaetus bartelsi*	EN	II	W	Chattering Lory *Lorius garrulus*	EN	II	W
Maleo *Macrocephalon maleo*	EN	I	E, H	Yellow-crested Cockatoo *Cacatua sulphurea*	CR	II	W
Orange-necked Partridge *Arborophila davidi*	EN		H	Philippine Cockatoo *Cacatua haematuropygia*	CR	I	W
Chestnut-headed Partridge *Arborophila cambodiana*	EN		H	Blue-winged Racquet-tail *Prioniturus verticalis*	EN	II	H
Edwards's Pheasant *Lophura edwardsi*	EN	I	H	Sulu Hornbill *Anthracoceros montani*	CR	II	H
Vietnamese Pheasant *Lophura hatinhensis*	EN		H	Mindoro Tarictic *Penelopides mindorensis*	EN	II	H
Bornean Peacock-pheasant *Polyplectron schleiermacheri*	EN	II	H, W	Visayan Tarictic *Penelopides panini*	EN	II	H, W
Great Indian Bustard *Ardeotis nigriceps*	EN	I	H	Visayan Wrinkled Hornbill *Aceros waldeni*	CR	II	H, W
Bengal Florican *Houbaropsis bengalensis*	EN	I	H	Black-winged Starling *Sturnus melanopterus*	EN		W
Lesser Florican *Sypheotides indica*	EN	II	H	Bali Starling *Leucopsar rothschildi*	CR	I	W
Mindoro Bleeding-heart *Gallicolumba platenae*	CR		H				

Key: CITES: Species listed on CITES Apendix I or II (see pp.32–33); Issue: H = hunting; E = egg collection; W = wild bird trade.

Table 12. Asia's 'lost species': Critical and Endangered bird species not recorded in recent decades.

Species (Critical and Endangered only)	Last record	Areas to search
Crested Shelduck *Tadorna cristata*	1964	Wetlands in eastern **Russia**, **North Korea** and probably north-east China (F01, W02, W03), including forested rivers in mountains
Pink-headed Duck *Rhodonessa caryophyllacea*	1949	Wetlands in northern **India** (W12, W13), especially in Bihar and Assam, and northern **Myanmar** (W16)
Himalayan Quail *Ophrysia superciliosa*	1876	Mountain grasslands and forests in the Western Himalayas in **India** (F04), including following up several unconfirmed reports
Javanese Lapwing *Vanellus macropterus*	1940	Coastal grasslands and wetlands on Java (W20), and possibly elsewhere in **Indonesia**
Silvery Wood-pigeon *Columba argentina*	1931	Small islands off Sumatra and other Greater Sunda islands, **Malaysia** and **Indonesia** (F07), and the coasts of the larger islands, including following up several recent unconfirmed sightings
Sulu Bleeding-heart *Gallicolumba menagei*	1891	Forests on Tawitawi and other islands in the Sulu archipelago, **Philippines** (F09)
Negros Fruit-dove *Ptilinopus arcanus*	1953	Forest on Mt Canlaon, where the single known specimen was collected, and elsewhere on Negros and Panay, **Philippines** (F09)
Siau Scops-owl *Otus siaoensis*	1866	Forest on Siau, where the single known specimen was collected, and possibly on other small islands off northern Sulawesi, **Indonesia** (F08)
White-eyed River-martin *Eurychelidon sirintarae*	1978	Riverine habitats in **Thailand** (W17) and elsewhere in South-East Asia
Rueck's Blue-flycatcher *Cyornis ruckii*	1918	Lowland forest in northern Sumatra, **Indonesia**, and possibly elsewhere in the Sundaland forests (F07)
Banggai Crow *Corvus unicolor*	1880s	Banggai and other islands in the Banggai and Sula island groups, **Indonesia** (F08)

In addition to the Critical and Endangered species in the table, four Vulnerable species (found in areas where their habitats are currently under relatively low pressure) have not been recorded in recent decades: Nicobar Sparrowhawk *Accipiter butleri* (F06: last definite record in the Nicobar islands in 1901, but possible sightings in the 1990s); Manipur Bush-quail *Perdicula manipurensis* (G02: no confirmed records in the grasslands of north-east India and Bangladesh since 1932); Black-browed Babbler *Malacocincla perspicillata* (F07: known by a single specimen collected in Kalimantan, Indonesia in the 1840s); Rusty-throated Wren-babbler *Spelaeornis badeigularis* (F04: known by a single specimen collected in the eastern Himalayas of India in 1947), plus two Data Deficient species (found in areas where their habitats might not be under any pressure): Vaurie's Nightjar *Caprimulgus centralasicus* (G01: known by a single specimen collected in the Taklimakan desert, Xinjiang, China in 1929), and Sillem's Mountain-finch *Leucosticte sillemi* (F04: known by two specimens collected at high altitude in the Western Himalayas in 1929).

Table 13. Key gaps in knowledge of Critical and Endangered bird species in Asia.

Species (Critical and Endangered only)	Actions to address main gaps in knowledge
White-eared Night-heron *Gorsachius magnificus*	Surveys in south-east **China** and northern **Vietnam** (F03) to investigate the species's breeding distribution and status, and the key sites for its conservation
Japanese Night-heron *Gorsachius goisagi*	National survey in **Japan** (F02) to update information on the species's breeding distribution and status, and the key sites for its conservation
White-rumped Vulture *Gyps bengalensis*	Research on the factors currently affecting its population in **South Asia** (G03), to determine the emergency action required for its protection
Indian Vulture *Gyps indicus*	Research on the factors currently affecting its population in **South Asia** (G03), to determine the emergency action required for its protection
Slender-billed Vulture *Gyps tenuirostris*	Research on the factors currently affecting its population in **South Asia** (G03), to determine the emergency action required for its protection
Sumba Buttonquail *Turnix everetti*	Surveys on Sumba in Nusa Tenggara, **Indonesia** (F08), to investigate the species's distribution and status, ecological requirements, and the key sites for its conservation
Moluccan Woodcock *Scolopax rochussenii*	Surveys in Northern Maluku, **Indonesia** (F08), to investigate the species's distribution and status, ecological requirements, and the key sites for its conservation
Jerdon's Courser *Rhinoptilus bitorquatus*	Surveys in arid parts of eastern **India** (G03), including thorough analysis of satellite images, to investigate the species's distribution and status, and the key sites for its conservation
Chinese Crested-tern *Sterna bernsteini*	Surveys on islands off the coast of eastern **China** (S01) and **Vietnam**, including at presumed former colonies in Shandong, to investigate the species's status and the key sites for its conservation
Blue-fronted Lorikeet *Charmosyna toxopei*	Surveys on Buru in Maluku, **Indonesia** (F08), to investigate the species's distribution and status, ecological requirements, and the key sites for its conservation
Sumatran Ground-cuckoo *Carpococcyx viridis*	Surveys on Sumatra, **Indonesia** (F07), to investigate the species's distribution and status, ecological requirements, and the key sites for its conservation
Taliabu Masked-owl *Tyto nigrobrunnea*	Surveys on the Sulu islands, **Indonesia** (F08), to investigate the species's distribution and status, ecological requirements, and the key sites for its conservation
Flores Scops-owl *Otus alfredi*	Surveys on Flores and other islands in northern Nusa Tenggara, **Indonesia** (F08), to investigate the species's distribution and status, and the key sites for its conservation
Forest Owlet *Heteroglaux blewitti*	Surveys in the forests of central **India** (F05), to investigate the species's distribution and status, and the key sites for its conservation
Gurney's Pitta *Pitta gurneyi*	Surveys of the forests of southern **Myanmar** (F07), to investigate the species's distribution and status, and the key sites for its conservation
Isabela Oriole *Oriolus isabellae*	Surveys on Luzon, **Philippines** (F09), to investigate the species's distribution and status, ecological requirements, and the key sites for its conservation