

SINO-HIMALAYAN MOUNTAIN FORESTS

THIS region is made up of the mid- and high-elevation forests, scrub and grasslands that cloak the southern slopes of the Himalayas and the mountains of south-west China and northern Indochina. A total of 28 threatened species are confined (as breeding birds) to the Sino-Himalayan mountain forests, including six which are relatively widespread in distribution, and 22 which inhabit one of the region's six Endemic Bird Areas: Western Himalayas, Eastern Himalayas, Shanxi mountains, Central Sichuan mountains, West Sichuan mountains and Yunnan mountains. All 28 taxa are considered Vulnerable, apart from the Endangered White-browed Nuthatch, which has a tiny range, and the Critically Endangered Himalayan Quail, which has not been seen for over a century and may be extinct.

- **Key habitats** Montane temperate, subtropical and subalpine forest, and associated grassland and scrub.
- **Altitude** 350–4,500 m.
- **Countries and territories** **China** (Tibet, Qinghai, Gansu, Sichuan, Yunnan, Guizhou, Shaanxi, Shanxi, Hebei, Beijing, Guangxi); **Pakistan; India** (Jammu and Kashmir, Himachal Pradesh, Uttaranchal, West Bengal, Sikkim, Arunachal Pradesh, Assam, Meghalaya, Nagaland, Manipur, Mizoram); **Nepal; Bhutan; Myanmar; Thailand; Laos; Vietnam.**

Threatened species

	Threatened species			Total
	CR	EN	VU	
☉ ¹	1	1	26	28
☾	—	—	—	—
Total	1	1	26	28

Key: ☉ = breeds only in this forest region.

¹ Three species which nest only in this forest region migrate to other regions outside the breeding season, Wood Snipe, Rufous-headed Robin and Kashmir Flycatcher.

☾ = also breeds in other region(s).

The Sino-Himalayan mountain forests region includes Conservation International's South-central China mountains Hotspot (see pp.20–21).

The forests of the Palas valley in northern Pakistan support the largest known population of Western Tragopan. PHOTO: BIRDLIFE



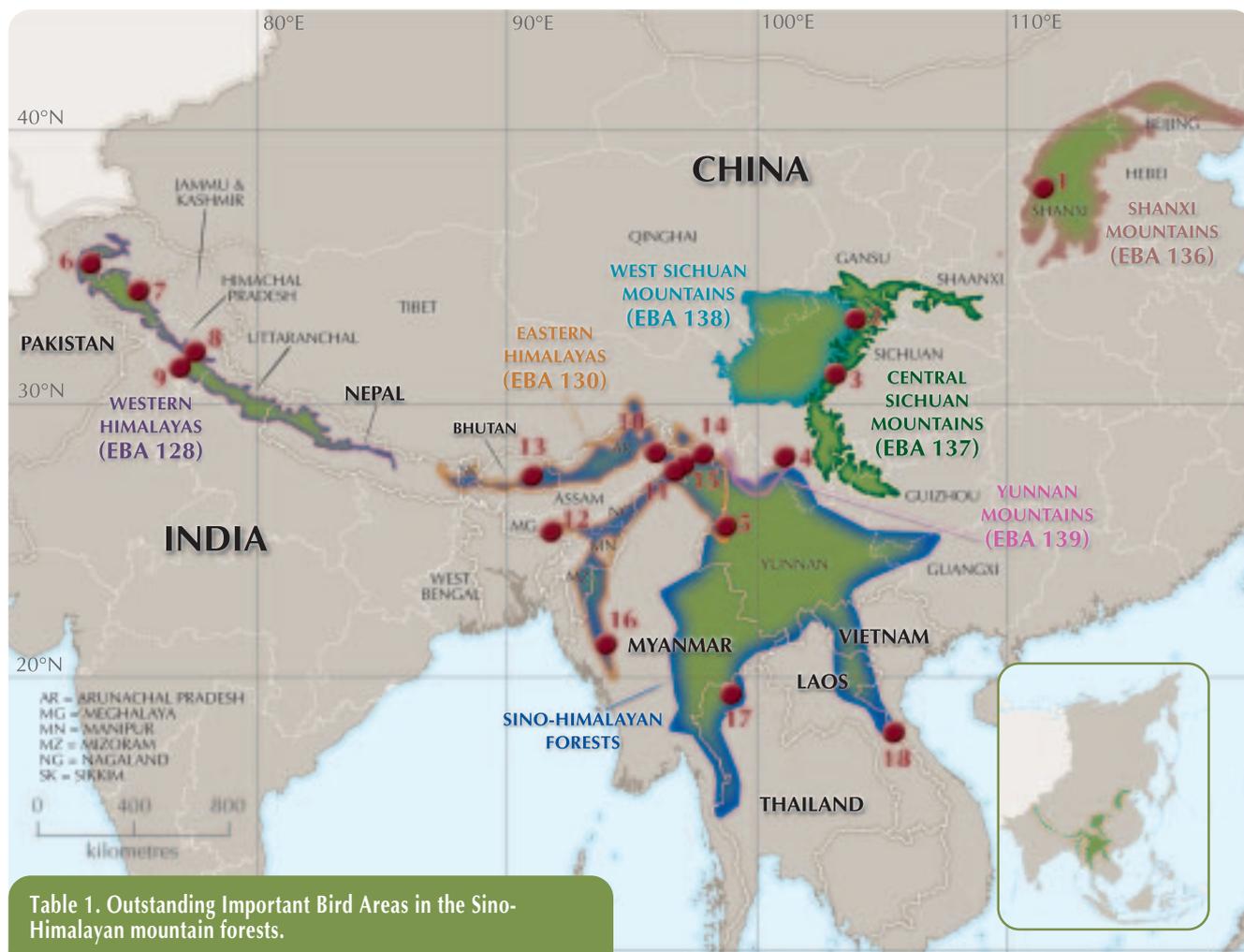


Table 1. Outstanding Important Bird Areas in the Sino-Himalayan mountain forests.

IBA name	Status	Territory	Threatened species and habitats
1 Panguangou NNR	PA	Shanxi	Large population of Brown Eared-pheasant, and breeding Grey-sided Thrush
2 Jiuzhaigou NR	PA ^{BR, WH}	Sichuan	Large reserve with several Central Sichuan mountains and West Sichuan mountains EBA species, including Rusty-throated Parrotbill
3 Wolong BR	PA ^{BR}	Sichuan	Large reserve with several Central Sichuan mountains and West Sichuan mountains EBA species
4 Mahuang valley	—	Sichuan	Recent records of White-speckled Laughingthrush
5 Gaoligong Shan NNR	PA ^{BR}	Yunnan	Large reserve with several Eastern Himalayas EBA species
6 Palas valley	—	Pakistan	Largest known population of Western Tragopan
7 Overa WS	PA	Jammu & Kashmir	Breeding population of Kashmir Flycatcher
8 Great Himalayan NP	PA	Himachal Pradesh	Large reserve with populations of Western Tragopan and Cheer Pheasant
9 Majathal WS	PA	Himachal Pradesh	Large population of Cheer Pheasant
10 Mehao WS ^{F06}	PA	Arunachal Pradesh	Several Eastern Himalayas EBA species, possibly including Rusty-throated Wren-babbler
11 Namdapha NP ^{F06}	PA	Arunachal Pradesh	Largest reserve with most Eastern Himalayas EBA species, notably Snowy-throated Babbler
12 Cherrapunji	—	Meghalaya	Breeding site for Dark-rumped Swift, recent records of Tawny-breasted Wren-babbler
13 Thrumshingla NP	PA	Bhutan	Large reserve with several Eastern Himalayas EBA species
14 Hkakaborazi NP	PA	Myanmar	Large reserve with several Eastern Himalayas EBA species, plus Rufous-necked Hornbill and Beautiful Nuthatch
15 Hponkanrazi WS ^{F06}	PA	Myanmar	Large reserve with many Eastern Himalayas EBA species, notably Snowy-throated Babbler, plus Rufous-necked Hornbill and Beautiful Nuthatch
16 Natma Taung NP	PA	Myanmar	Several Eastern Himalayas EBA species, notably White-browed Nuthatch, plus Hume's Pheasant
17 Doi Chiang Dao WS	PA	Thailand	Breeding populations of Hume's Pheasant and Giant Nuthatch
18 Nakai-Nam Theun ^{F06}	PA	Laos	Large population of Rufous-necked Hornbill, also Beautiful Nuthatch

Rufous-necked Hornbill also occurs in outstanding IBAs listed for F07 (Huai Kha Khaeng WS) and G02 (Manas NP).

Note that more IBAs in this region will be included in the *Important Bird Areas in Asia*, due to be published in early 2004.

Key IBA name: BR = Biosphere Reserve; NP = National Park; NR = Nature Reserve; NNR = National Nature Reserve; WS = Wildlife Sanctuary.

Status: PA = IBA is a protected area; (PA) = IBA partially protected; — = unprotected; BR = IBA is wholly or partially a Biosphere Reserve (see pp.34–35); WH = IBA is wholly or partially a World Heritage Site (see p.35); F06 = also supports threatened forest birds of region F06.

Table 2. Threatened birds of the Sino-Himalayan mountain forests.

Species			Distribution and habitat
SINO-HIMALAYAN FORESTS			
Hume's Pheasant <i>Symaticus humiae</i>	☉	VU	Forest at 750–3,300 m in Myanmar and adjacent parts of north-east India and northern Thailand, and China (Yunnan and Guangxi)
Wood Snipe <i>Gallinago nemoricola</i>	☉ ^m	VU	Breeds in alpine grassland and scrub near the treeline in the Himalayas and south-west China (EBAs 128, 130, 138 and probably 139)
Rufous-necked Hornbill <i>Aceros nipalensis</i>	☉	VU	Broadleaf evergreen forest at 700–2,000 m from Bhutan, north-east India, Myanmar and southern China (Tibet and Yunnan) to northern Thailand, Laos and Vietnam
Grey-sided Thrush <i>Turdus feae</i>	☉	VU	Breeds in forest above 1,000 m in Shanxi, Hebei and Beijing (EBA 136), and winters in the mountains of north-east India, Myanmar, Thailand and Laos
Giant Nuthatch <i>Sitta magna</i>	☉	VU	Pine forests at 1,000–2,000 m in China (Yunnan and adjacent parts of Sichuan and Guizhou), eastern Myanmar and northern Thailand
Beautiful Nuthatch <i>Sitta formosa</i>	☉	VU	Broadleaf evergreen forest at 600–2,400 m from Bhutan and north-east India to northern Thailand, Laos and Vietnam
WESTERN HIMALAYAS (EBA 128)			
Himalayan Quail <i>Ophrysia superciliosa</i>	☉	CR	Known by nineteenth century records from two localities in Uttar Pradesh, in grassland and scrub on steep hillsides at 1,650–2,400 m
Western Tragopan <i>Tragopan melanocephalus</i>	☉	VU	Ranges from northern Pakistan to Uttar Pradesh, where it nests in coniferous and mixed forests at 2,500–3,600 m
Cheer Pheasant <i>Catreus wallichi</i>	☉	VU	Ranges from northern Pakistan to western Nepal, favouring steep slopes with scrub, tall grass and stunted trees at 1,200–3,050 m
Kashmir Flycatcher <i>Ficedula subrubra</i>	☉ ^m	VU	Virtually confined as a breeding bird to Kashmir, nesting at 1,800–2,300 m in open broadleaf deciduous forests with scrub
The Data Deficient Sillem's Mountain-finch <i>Leucosticte sillemi</i> is known by two specimens collected on a barren plateau at c.5,125 m in southern Xinjiang, China, immediately to the north of the Western Himalayas			
EASTERN HIMALAYAS (EBA 130)			
Chestnut-breasted Partridge <i>Arborophila mandellii</i>	☉	VU	Himalayas of north-east India and Bhutan, in broadleaf evergreen forest at 350–2,500 m
Blyth's Tragopan <i>Tragopan blythii</i>	☉	VU	Himalayas from Bhutan to Yunnan, and the mountains south of the Brahmaputra in north-east India and north-west Myanmar, in forest at c.1,500–3,300 m
Sclater's Monal <i>Lophophorus sclateri</i>	☉	VU	Himalayas from Arunachal Pradesh to Yunnan, in subalpine scrub, grassland and coniferous forest at 2,500–4,200 m
Dark-rumped Swift <i>Apus acuticauda</i>	☉	VU	Nests on cliffs near forest, with known breeding colonies in India (Meghalaya and Mizoram) and eastern Bhutan
Rusty-bellied Shortwing <i>Brachypteryx hyperythra</i>	☉	VU	Himalayas from West Bengal to northern Myanmar and Yunnan, in forest up to c.2,900 m
Rusty-throated Wren-babbler <i>Spelaornis badeigularis</i>	☉	VU	Known by a single specimen collected in winter in eastern Arunachal Pradesh, in subtropical forest at 1,600 m
Tawny-breasted Wren-babbler <i>Spelaornis longicaudatus</i>	☉	VU	Mountains south of the Brahmaputra river in Meghalaya, Assam and Manipur, in forest at 1,000–2,000 m
Snowy-throated Babbler <i>Stachyris oglei</i>	☉	VU	Recorded in forest and scrub in ravines in eastern Arunachal Pradesh and northern Myanmar
White-browed Nuthatch <i>Sitta victoriae</i>	☉	EN	Only found on Mt Victoria and in southern Chin State in western Myanmar, in broadleaf forest at c.2,300–3,000 m
SHANXI MOUNTAINS (EBA 136)			
Brown Eared-pheasant <i>Crossoptilon mantchuricum</i>	☉	VU	Mixed coniferous-broadleaf forest at 800–2,600 m
CENTRAL SICHUAN MOUNTAINS (EBA 137)			
Rufous-headed Robin <i>Luscinia ruficeps</i>	☉ ^m	VU	Forest and scrub at c.2,400–2,800 m in northern Sichuan and southern Shaanxi
Black-throated Blue Robin <i>Luscinia obscura</i>	☉	VU	Forest and bamboo in the mountains of southern Gansu and northern Sichuan
Snowy-cheeked Laughingthrush <i>Garrulax sukatschewi</i>	☉	VU	Forest, bamboo and scrub at 2,000–3,500 m in southern Gansu and northern Sichuan
Grey-hooded Parrotbill <i>Paradoxornis zappelyi</i>	☉	VU	Bamboo and stunted forest above 2,000 m in southern Sichuan and northern Guizhou
Rusty-throated Parrotbill <i>Paradoxornis przewalskii</i>	☉	VU	Forest, bamboo and scrub above 2,000 m in southern Gansu and northern Sichuan
WEST SICHUAN MOUNTAINS (EBA 138)			
Chinese Monal <i>Lophophorus lhuysii</i>	☉	VU	Breeds in grassland, scrub and rocky areas above the treeline at c.3,300–4,500 m
Sichuan Jay <i>Perisoreus internigrans</i>	☉	VU	Subalpine coniferous forest and mixed fir and rhododendron forest at c.3,000–4,300 m
YUNNAN MOUNTAINS (EBA 139)			
White-speckled Laughingthrush <i>Garrulax bieti</i>	☉	VU	Coniferous forest and mixed fir and rhododendron forest at c.2,500–4,300 m

☉ = breeds only in this forest region; m = migrates to other region(s)

OUTSTANDING IBAs FOR THREATENED BIRDS (see Table 1)

Eighteen IBAs have been selected, which together support populations of all threatened forest birds of this region apart from Himalayan Quail and possibly Rusty-throated Wren-babbler, and include some of the largest and richest forests remaining in the Sino-Himalayan mountains. Many other forest sites in this region with significant populations of threatened forest birds will be documented during BirdLife's ongoing IBA Project.

CURRENT STATUS OF HABITATS AND THREATENED SPECIES

The extent of forest loss varies widely within this region. In China, large-scale logging operations have clear-felled huge areas of forest, including subalpine forests up to the treeline. In Sichuan, forest cover declined from 19% to 12.6% between the early 1950s and 1988 and in Yunnan it declined from c.55% to c.30% between the early 1950s and 1975; subsequent loss of habitat in China has, if anything, been even more rapid (see F03: South-east Chinese forests). However, some extensive tracts of forest are protected in reserves (often established for charismatic mammals such as giant panda *Ailuropoda melanoleuca* and Yunnan snub-nosed monkey *Rhinopithecus bieti*) or survive in unlogged areas, and in 1998 a national logging ban restricted logging to local subsistence needs. In the Himalayas, although natural habitat remains relatively secure at high altitudes, forests at mid-elevations tend to be under greater pressure, and are now highly fragmented in many areas. Three-

quarters of original forest cover has been lost in the western Himalayas, and this figure is even higher for Nepal, where almost all lower-altitude subtropical forests have been lost or degraded. In north-east India and northern Myanmar the situation is less extreme, as large, almost continuous areas of mid- and high-altitude forests remain. However, forests were being rapidly logged in north-east India until a recent ban, and shifting cultivation has cleared or degraded large areas. In Bhutan an admirable national policy proposes to maintain forests over 60% of the country, although some localised habitat loss has been reported. Some montane forests in Myanmar, Thailand, Laos and Vietnam have been badly affected by clearance for permanent and (especially) shifting agriculture, as well as commercial timber extraction; the situation is particularly acute in Chin State, Myanmar, northern Laos and north-west Vietnam, but some large areas of relatively undisturbed forest remain, for example in northern Myanmar and the Annamite mountains in Laos and Vietnam.

CONSERVATION ISSUES AND STRATEGIC SOLUTIONS (summarised in Table 3)

Forest loss and degradation

■ SHIFTING CULTIVATION

Some parts of the region are populated by ethnic groups whose lifestyle is based on shifting or semi-shifting cultivation. Practised on a small scale using long clearing cycles, this has little lasting impact and the forest eventually recovers. However, in many areas increased population pressure and a reduction in the area of forest available have

Table 3. Conservation issues and strategic solutions for birds of the Sino-Himalayan mountain forests.

Conservation issues	Strategic solutions
Forest loss and degradation	
<ul style="list-style-type: none"> ■ SHIFTING CULTIVATION ■ CONVERSION TO AGRICULTURE AND PLANTATIONS ■ FORESTRY AND ILLEGAL LOGGING ■ EXPLOITATION OF FOREST PRODUCTS ■ DEVELOPMENT (URBAN, INDUSTRIAL, ETC.) ■ DISTURBANCE AND LIVESTOCK GRAZING 	<ul style="list-style-type: none"> ➤ Promote sustainable forms of upland agriculture that do not result in net loss of natural forest ➤ Prevent conversion to agriculture and plantations within protected areas ➤ Reduce illegal forest conversion and cutting in China by clarifying administrative boundaries, land ownership and land-use rights ➤ Continue logging bans in China and north-east India, and promote similar bans elsewhere in the region ➤ Develop sustainable, community-based forest management in China, northern India and Pakistan ➤ Control illegal logging at key sites for threatened birds ➤ Establish community forests to provide non-timber forest products, and develop sustainable alternatives to wood as a source of fuel ➤ Assess the environmental impact of development projects in forested areas, and minimise development near key sites ➤ Control human disturbance and overgrazing at key sites
Protected areas coverage and management	
<ul style="list-style-type: none"> ■ GAPS IN PROTECTED AREAS SYSTEM ■ WEAKNESSES IN RESERVE MANAGEMENT 	<ul style="list-style-type: none"> ➤ Improve coverage of threatened species by modifying the boundaries of existing reserves, or by establishing new reserves (including village sanctuaries) ➤ Review and revise the protected areas system of Myanmar ➤ Strengthen reserve management through improved funding, infrastructure and staff training
Exploitation of birds	
<ul style="list-style-type: none"> ■ HUNTING AND TRAPPING 	<ul style="list-style-type: none"> ➤ Improve enforcement of hunting laws, and control gun ownership, particularly near protected areas ➤ Conduct education programmes to improve understanding of forest conservation, threatened species and hunting laws ➤ Establish community-based conservation initiatives to control hunting at key sites
Gaps in knowledge	
<ul style="list-style-type: none"> ■ INADEQUATE DATA ON THREATENED BIRDS 	<ul style="list-style-type: none"> ➤ Search for Himalayan Quail in the Western Himalayas ➤ Survey north-east India, Bhutan and northern Myanmar for poorly known Eastern Himalayan species ➤ Determine whether White-speckled Laughingthrush has populations in any protected area in Yunnan, or if new reserves are required ➤ Investigate whether the poorly known threatened birds of the Sichuan mountains are adequately protected by giant panda reserves

Logs floating down a river illustrate the huge scale of clear-felling of forests in China, but a recent logging ban provides a great opportunity to develop sustainable forestry under the National Forest Protection Program.

F04

PHOTO: MIKE CROSBY/BIRDLIFE



resulted in a rapid shortening of the cycle, and an increase in pioneer shifting cultivation, which is causing widespread forest loss and degradation, principally in the mountains of north-east India, Myanmar and northern Indochina. Often associated with shifting cultivation, fires have been one of the biggest causes of montane forest loss in northern Vietnam and Laos. There is an urgent need to promote sustainable forms of upland agriculture that do not result in net loss of natural forest, including improved agricultural and agro-forestry practices that enable farmers to remain longer on established clearings, and thereby reduce their demand for new land. Efforts are needed to rehabilitate abandoned land, including the development of community forestry plantations. At selected key sites, projects should integrate conservation and land-use development, and work in collaboration with local people. Such projects could prevent shifting cultivation within core areas of reserves, and control it in buffer zones. Simple socio-economic incentives to replace destructive practices by shifting cultivators should be promoted through environmental awareness and training programmes.

■ CONVERSION TO AGRICULTURE AND PLANTATIONS

Clearance for permanent agriculture and plantations has contributed to the reduction and fragmentation of natural forests in many areas. Deforestation for agriculture is now illegal in China, but small-scale encroachment still happens. Conversion for tea and other plantations is still taking place in north-east India. These activities need to be effectively banned within core areas of reserves, and controlled in buffer zones. In China (and probably elsewhere), disputes over administrative boundaries need to be resolved and land

ownership and land-use rights clarified, to help strengthen forest management and prevent illegal conversion for agriculture.

■ FORESTRY AND ILLEGAL LOGGING

Until recently, commercial logging was a major reason for the diminution of natural forests in this region, particularly subtropical forests at mid-altitudes. The clearance and degradation of forests has caused major environmental problems, including erosion, which causes siltation of rivers, and damage to watersheds, which affects water supplies (causing periodic flooding and drought). A national logging ban was enacted in China in 1998, which limits logging to local subsistence needs. Following disastrous floods in 1992, logging was banned in North West Frontier Province, Pakistan; although the ban was lifted in 2001, strict new regulations have so far prevented the resumption of wide-scale logging. Logging and timber export was recently banned in Arunachal Pradesh and other north-east Indian states. These bans have greatly reduced the rate of forest loss, but some illegal logging continues, and in Arunachal Pradesh it is still legal to cut timber to supply plywood and veneer factories. In Laos and Vietnam, logging of the commercially very valuable conifer *Fokienia hodginsii*, mainly for export to Japan, affects montane areas.

The commercial logging bans in China and India should be continued, and, where appropriate, similar restrictions promoted in other parts of the region. The ban in China allows the forestry authorities to work together with local communities, NGOs and conservationists to develop sustainable forestry under the National Forest Protection Program (see *Forestry and illegal logging* under F03).

A huge variety of foods and medicines are harvested from forests in China.



PHOTO: MIKE CROSBY/BIRDLIFE

Measures are needed to minimise illegal logging, particularly in protected areas and other sites of high biodiversity value. Since the ban, forestry workers in Sichuan have been redeployed in replanting some of the steeper denuded slopes, mainly using seeds from local broadleaf trees; similar reforestation with appropriate mixtures of native tree species is needed elsewhere in the region. In Pakistan, the government is currently revising its Forest Working Plan, which provides an opportunity to prescribe extraction rates and logging practices which benefit local people and conserve biodiversity.

■ EXPLOITATION OF FOREST PRODUCTS

The collection of wood and other forest vegetation for fuel, construction material and fodder is causing forest degradation in many parts of the region. The collection of fuelwood from collective forests by local people is permitted in China, but poses a threat to forest ecosystems, particularly as logging waste is no longer available for fuel. In some areas of Nepal (and presumably also India), the cutting of fuelwood to provide heating and hot water for tourists is degrading forests near trekking routes. These activities need to be minimised throughout, and controlled within core zones of protected areas. Community or collective forests need to be established more widely, and their management improved and made more sustainable through training in forestry techniques for local people. Sustainable alternatives to fuelwood should be promoted, including the use of biogas (produced from livestock manure) and solar power.

■ DEVELOPMENT (URBAN, INDUSTRIAL, ETC.)

New roads, dams, mines, buildings and other developments strongly contribute to habitat loss in this region, both by directly damaging forests, and indirectly by displacing

people into forest areas. Construction of roads in highland areas may cause landslips, and provide improved access to remote montane habitats for shifting cultivators, illegal loggers, hunters and harvesters of forest products. Environmental impact assessments should be conducted for development projects (and associated new and upgraded access routes) that have the potential to damage forested areas, with appropriate mitigation plans. New developments should be avoided near protected areas and other sites of high biodiversity value.

■ DISTURBANCE AND LIVESTOCK GRAZING

In addition to the permanent residents, there are seasonal influxes of large numbers of people, their livestock and dogs into montane habitats. In summer, flocks of sheep, goats or yaks are taken to the high-altitude forests and alpine grasslands, damaging vegetation structure, particularly the understorey; moreover, production of cheese from yak milk requires considerable fuelwood. The summer peak in both grazing and the (locally large-scale) collection of edible fungi and medicinal plants coincides with the bird breeding season, probably posing a threat to some threatened species (e.g. partridges and pheasants) through disturbance and hunting. New management measures are needed in areas where human disturbance and overgrazing are a problem; for example, in the Daliang Shan in Sichuan control of livestock movements through forests to grazing areas is required, along with restrictions on bamboo-shoot collecting.

Protected areas coverage and management

■ GAPS IN PROTECTED AREAS SYSTEM

There are many protected areas in this region, which together support populations of most threatened birds. However, it is unclear whether some of the more poorly

known species, such as Himalayan Quail, Dark-rumped Swift, White-speckled Laughingthrush and Rusty-throated Wren-babbler, are adequately covered by existing reserves. The most important populations of Western Tragopan in northern Pakistan are currently unprotected, notably in the Palas valley; conservation measures are needed to protect these forests from high-impact commercial logging. Where surveys locate important populations of poorly known species, or reveal that current levels of protection are inadequate (as in the case of Hume's Pheasant in India), new reserves need to be established for the species in question. Many protected areas are too small to support viable populations of the larger threatened species; to improve coverage of these low-density birds, selected reserves should be enlarged, and their buffer zones expanded. Villagers are often not opposed to the idea of protected areas, and indeed themselves confer some level of protection to montane forests in order to maintain their water supply and populations of prey species; such local protection could be reinforced and supported, by encouraging communities to establish village sanctuaries. The protected areas system in Myanmar is currently being reviewed and revised, and surveys are required in ornithologically undocumented areas to locate suitable sites for new reserves, for example in Shan State to safeguard Hume's Pheasant and Giant Nuthatch.

■ WEAKNESSES IN RESERVE MANAGEMENT

There are major problems with the management of protected areas, linked to a lack of resources and the practical difficulties associated with remote mountainous

terrain, with forestry departments in most countries understaffed, underfunded and badly equipped. As a consequence, illegal activities are widespread in many reserves, including logging, mining, forest grazing, agricultural encroachment, hunting, etc. Increased resources and improved management planning and training of reserve staff are needed, with a particular focus on the most outstanding sites for threatened biodiversity. Appropriate funding and training of the governmental departments responsible for conservation are also required. In China, the National Endangered Plant and Wildlife Protection and Nature Reserve Construction Program is a new government initiative that has the potential to make these types of improvement.

Exploitation of wildlife

■ HUNTING AND TRAPPING

Shooting and snaring of wildlife is common throughout much of this region, which is populated by ethnic groups whose lifestyle is based on shifting or semi-shifting cultivation and hunting, although pressure is less intense in Bhutan and Tibet for cultural reasons. The larger forest species are probably most seriously affected, notably the hornbills, and partridges and pheasants, which have been much reduced in many areas. Improved law enforcement is required to prevent illegal hunting both inside and outside protected areas. Control of gun ownership is meeting with some success in Laos and Vietnam, and could be expanded to other countries in the region, particularly near important protected areas. Education programmes concerned with forest conservation, threatened species and the hunting laws

Blyth's Tragopan and other galliforms are shot and snared in many parts of the eastern Himalayas.



PHOTO: JEAN HOWMAN/WPA

The threatened birds of the Sichuan mountains are poorly known, and studies are required to investigate whether they are adequately protected by the reserves established for giant panda.

PHOTO: JOHN HOLMES



could help reduce hunting pressure, possibly using the most charismatic threatened forest birds such as Blyth's Tragopan or Rufous-necked Hornbill as flagships. Community-based initiatives, including signing of stakeholder agreements with local households and establishment of patrolling

groups, have helped control hunting at key sites in Vietnam, and should be tried in other areas of high biodiversity value.

Gaps in knowledge

■ INADEQUATE DATA ON THREATENED BIRDS

Knowledge of the distribution and ecology of the threatened birds is very incomplete, including their tolerance of logging and other modifications of their habitats. Two Himalayan species—Himalayan Quail in the west and Rusty-throated Wren-babbler in the east—have gone unreported for years, and need to be searched for. Most other Eastern Himalayan species are poorly known, notably Chestnut-breasted Partridge, Dark-rumped Swift, Snowy-throated Babbler and Rusty-bellied Shortwing, and surveys are required throughout the remaining forests in the highlands of north-east India, Bhutan and northern Myanmar. In China, surveys are required for White-speckled Laughingthrush, to determine whether it has populations in any protected areas and, if not, which of its sites should be established as reserves. The threatened species of the West and Central Sichuan mountains EBAs are poorly known, most notably Rufous-headed Robin, Black-throated Blue Robin and Rusty-throated Parrotbill, and studies are required to investigate whether these birds are sufficiently protected by the network of reserves established for giant panda and other mammals.