

MANIPUR



Photo: Anwaruddin Choudhury

Loktak is the largest freshwater lake in the northeast India. It is also a Ramsar Site.

Manipur (23° 50' - 25° 42' North and 92° 59' - 94° 46' East) has an area of 22,327,00 ha which constitutes 0.7% of the country's geographical area. Manipur is bounded by Nagaland in the north, Mizoram in the south-west, Myanmar in the east and south, and the Cachar district of Assam in the west. The total number of districts in the State is nine. The terrain in the State is predominantly hilly, except a broad central valley extending over about 1800 sq. km. The average altitude of the valley is 850 m while the maximum altitude of the hilly region is almost 3,000 m. The Manipur (Imphal) and the Barak are the main rivers. Loktak, a large freshwater lake, lies to the south of the valley. In the valley, there is hardly any forest left; the fertile alluvial plain was cleared for cultivation long ago. The natural forest is mainly found in patches in the hills. Towards the east and the southeast, three lakes, Ikop Pat, Kharung Pat and Pumlen Pat, complete the wetland ecosystem of the Manipur Valley.

If we see the recent history, the State came under the British rule as a princely state in 1891. In 1947, a democratic form of government with the Maharaja as the Executive Head and a legislature was established, which was dissolved in 1949. In 1963, the legislative assembly was established and on January 21, 1972, Manipur achieved full statehood.

The State has witnessed bitter ethnic conflict in recent times. The ethnic hostility between the Kukis and the Nagas has a deep rooted historical background. As per the 2001 census, the population of the Kukis is 0.25 million and of the Nagas 0.4 million.

The temperature in the State varies from 2 °C to 38 °C and the annual rainfall ranges from 1,250 mm to 2,700 mm. The climate in most parts of the State is tropical whereas in the higher elevations, it is subtropical.

As per the 2001 Census, the total human population of the State is 2.39 million (0.2% of the country's population), of which 76% is rural and 24 % urban with an average population density of 107 persons per sq. km.

Vegetation

The major forest types occurring in Manipur are Tropical Evergreen and Semi-Evergreen, Tropical Moist Deciduous, Subtropical Pine, and Subtropical Broadleaf and also small areas of Temperate Forests. Large stretches of bamboo forests are also found (Choudhury 1992). Manipur is ranked third amongst all the States in respect of percentage of the State's geographical area recorded as forest area (Ministry of Environment and Forest 2001). As per the Forest Survey of India report of 2001, the recorded forest area of the State is 17,418,00 ha which constitutes 78% of the geographical area of the State and 2.3% of the country's forest area. According to legal classification, the reserved forest constitutes 8.4%, protected forest 23.9% and unclassified forest 67.7% (Ministry of Environment and Forest 2001). The Forest Survey of India report of 2001, states the dense forest is 25.6%, open forest 50.2% and non-forest constitutes 24.2% of the state's forest area.

As per the Forest Survey of India report of 1999, there has been an overall increase of 999 sq. km in the dense forest. This is the result of an improvement of 852 sq. km of open forest and 365 sq. km of scrub. On the other hand, there has been a degradation of 218 sq. km of dense forest to open forest, mainly due to shifting cultivation, called *jhum*.

However, according to Choudhury (1992), based on the records of the State Forest Department, in 1986, the total forest area of Manipur was 15,154 sq. km or 67.9% of the total geographical area. But the satellite data of the National Remote Sensing Agency (NRSA) show that in 1980-82, the forest cover was 13,572 sq. km. Prior to that, in 1972-75, the forest cover was 67.5% (NRSA). So, the net loss of forest cover in about a decade was 6.8%.

IBAS AND PROTECTED AREAS

There is one national park (Keibul Lamjao) and five wildlife sanctuaries in Manipur. The total area under the protected area network is 26,660 ha which is 1.19% of the geographical area of the State. Loktak lake with an area of around 20,000 ha, is a wetland of international importance. It has been designated as a Ramsar site.

Number of IBAs and IBA criteria

A1= Threatened species; A2 = Restricted Range species; A3= Biome species; A4=Congregatory species

IBAs of Manipur

IBA site codes	IBA site names	IBA criteria
IN-MN-01	Ango or Anko Hills	A1, A2
IN-MN-02	Bunning Wildlife Sanctuary	A1, A2
IN-MN-03	Dzuku Valley	A1, A2
IN-MN-04	Jiri-Makru Wildlife Sanctuary	A1
IN-MN-05	Kailam Wildlife Sanctuary	A1, A2
IN-MN-06	Loktak Lake and Keibul Lamjao National Park	A1, A4iii
IN-MN-07	Shiroi Community Forest	A1, A2
IN-MN-08	Yangoupokpi-Lokchao Wildlife Sanctuary	A1
IN-MN-09	Zeilad Lake Sanctuary	A1

AVIFAUNA

More than 400 species of birds have been identified in Manipur (Choudhury 1998). Loktak Lake, a Ramsar site since 1990, is a prominent waterfowl area. Higgins (1933-34.) had documented the birds and mammals of Manipur, including birds shot/seen at the Loktak Lake. He listed the White-fronted Goose Anser *Anser albifrons* (recorded at least four times between 1916 and 1931: Higgins 1948), Falcated Teal *Anas falcata*, Baer's Pochard *Aythya baeri*, Scaup Duck *Aythya marila*, Common Golden-eye *Bucephala clangula* and Common Shelduck *Tadorna tadorna*. In 1932, Higgins also shot a male Pink-headed Duck *Rhodonessa caryophyllacea*. The bird is now extinct or Critically Endangered (BirdLife International 2001). The Burmese Sarus Crane *Grus antigone sharpii*, which used to be breeding resident in the marshes of Loktak Lake, is now probably extinct locally as no authentic sighting has been reported in recent years (Choudhury 1998).

Past records confirm the presence of the White-winged Duck *Cairina scutulata* but the species was always rare and there have been no recent sightings (Choudhury 1998). Brown Hornbill *Anorrhinus tickelli* and Rufous-necked Hornbill *Aceros nipalensis* were reported by Choudhury (1998) at elevations higher from previously recorded above 2,000 m. Wreathed *Aceros undulatus* and Great Pied *Buceros bicornis* hornbills also occur, probably in good numbers. The Hooded Crane *Grus monacha*, of which only a handful of records are available for the entire Indian subcontinent (Ali and Ripley 1987), was a regular visitor in small numbers to Manipur (Higgins 1933-34). The only other area where they were seen being the North Cachar Hills of Assam (Choudhury 1998, 2000).



List of threatened birds with IBA site codes

Vulnerable		
Spot-billed Pelican	<i>Pelecanus philippensis</i>	IN-MN-06
Lesser Adjutant	<i>Leptoptilos javanicus</i>	IN-MN-06
Greater Spotted Eagle	<i>Aquila clanga</i>	IN-MN-06
Blyth's Tragopan	<i>Tragopan blythii</i>	IN-MN-01, 03, 07
Mrs. Hume's Pheasant	<i>Syrnaticus humie</i>	IN-MN-01, 03, 05, 07
Green Peafowl	<i>Pavo muticus</i>	IN-MN-01, 08
Dark-rumped Swift	<i>Apus acuticauda</i>	IN-MN-03
Rufous-necked Hornbill	<i>Aceros nipalensis</i>	IN-MN-01, 02, 05, 07
Near Threatened		
Brown Hornbill	<i>Amorrhinus tickelli</i>	IN-MN-07

Threatened Birds for which Manipur is important

If we see the historical records of threatened birds, there were many birds recorded from Manipur such as Oriental Stork *Ciconia boyciana*, Greater Adjutant *Leptoptilos dubius*, White-winged Duck *Cairina scutulata*, Spot-billed Pelican *Pelecanus philippensis*, Baikal Teal *Anas formosa*, Baer's Pochard *Aythya baeri*, Pallas's Fish-Eagle *Haliaeetus leucoryphus*, Greater Spotted Eagle *Aquila clanga*, Lesser Kestrel *Falco naumanni*, Manipur Bush-Quail *Perdica manipurensis*, Blyth's Tragopan *Tragopan blythii*, Mrs. Hume's Pheasant *Syrnaticus humie*, Green Peafowl *Pavo muticus*, Sarus Crane *Grus antigone*, Hooded Crane *Grus monacha*, Masked Finfoot *Heliopais personata*, Wood Snipe *Gallinago nemoricola*, Pale-capped Pigeon *Columba punicea*, Rufous-necked Hornbill *Aceros nipalensis*, Grey-sided Thrush *Turdus feae*, Tawny-breasted Wren Babbler *Spelaeornis longicaudatus*, Slender-billed Babbler *Turdoides longirostris*, and Beautiful Nuthatch *Sitta formosa* (BirdLife International 2001). If proper surveys are conducted, some of these species could be found even now.

Brief information about important threatened species in Manipur is given below. Most of these records are historical and very few species have recent records, because no detailed surveys have been carried out in the recent past as the State has been facing insurgency for the past many years.

Manipur Bush-Quail *Perdica manipurensis* **Vulnerable**

The specialized habitat of this poorly known species is undergoing a continuing rapid decline and severe fragmentation, pressures that are assumed to be causing a decline. In addition, there have been no confirmed records of the bird since 1932, indicating it may have a small population. These factors, combined with ongoing hunting pressures across its range, qualify it as Vulnerable (BirdLife International 2001). In Manipur, this quail was recorded from the Manipur valley in 1899 and 1932 (Higgins 1933–1934); in Imphal in 1906 (Powell Connor 1908); in the Churachandpur region in 1913 (Higgins 1913). The world population is estimated at less than 10,000 and possibly less than 1,000 (McGowan *et al.* 1995).

Blyth's Tragopan *Tragopan blythii* **Vulnerable**

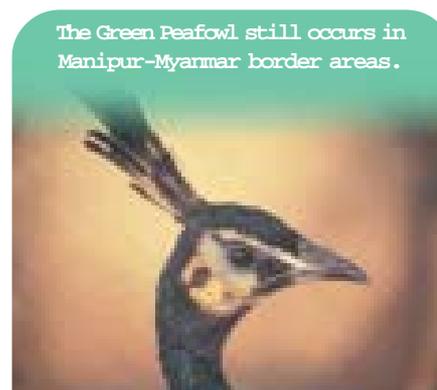
This species qualifies as Vulnerable because its total population is believed to be small and declining, and is scattered in small subpopulations over a severely fragmented range. Widespread hunting and continuing habitat destruction will inevitably exacerbate this situation (BirdLife International 2001). In Manipur, it has been reported from the Dzuko Valley and Siroi Hills (Choudhury 1992) where it is apparently commonly trapped (Choudhury 1996). It occurs in the higher hills, usually above 1,800 m. The Siroi area of the Ukhrul district and the Barail Range in the Tamenglong and the Senapati districts are their main strongholds in Manipur.

Mrs. Hume's Pheasant *Syrnaticus humie* **Vulnerable**

This species appears to have been reduced to a small population, which has become increasingly fragmented. Its status remains virtually unknown across a substantial proportion of its historic range in Myanmar, and habitat loss and hunting continue to pose major threats. It therefore qualifies as Vulnerable (BirdLife International 2001). In Manipur it has been recorded from the southern slopes of the Dzuko Valley and Siroi Hills (Choudhury 1992). Another area where this pheasant could be seen is the Thoubal valley (the Thoubal river is a tributary of the Manipur river) (Ali and Ripley 1987). A recent survey has found three new sites in the Ukhrul and the Churachandpur districts with an additional eight sites where further confirmation is necessary (Choudhury 2002). This species prefers lower elevations between 900 to 2,000 m.

Green Peafowl *Pavo muticus* **Vulnerable**

This majestic species has a small, rapidly declining and severely fragmented population, primarily owing to high hunting levels, although it has also suffered a reduction in the extent and quality of its habitat. Rapid decline and further fragmentation are projected to continue. These factors qualify it as Vulnerable (BirdLife International 2001). From Manipur, it was recorded from the extreme north of the Manipur valley in 1928 (Higgins 1933–1934) and along the Myanmar border and in the Churachandpur district in 1990 (Choudhury 1992). This species was once widespread in the forested areas of northeast India, especially south of the Brahmaputra river. Quite a few Green Peafowl are present in the Imphal Zoo, apparently collected from the Chandel district bordering Myanmar. In the villages located in the southeastern areas of Ukhrul district, some peafowl are kept as pets by villagers who hatch them from eggs collected in the wild (Choudhury 1998).



The Green Peafowl still occurs in Manipur-Myanmar border areas.

Photo: Anwaruddin Choudhury

Restricted Range species

Manipur falls under the Endemic Bird Area of Eastern Himalayas (EBA 130), which constitute 21 restricted range species in India (Stattersfield *et al.* 1998). The key habitats of this EBA are Subtropical Hill Forest, Temperate Forest, and Subalpine Forest. The key threats to these areas are moderate habitat loss (e.g., due to logging, *jhumming*, overgrazing) and hunting. Only five IBAs fulfill this A2 (Restricted Range species) criterion.

Endemic Bird Area 130: Eastern Himalayas		
Blyth's Tragopan	<i>Tragopan blythii</i>	IN-MN-01, 03, 07
Dark-rumped Swift	<i>Apus acuticauda</i>	IN-MN-03
Striped Laughingthrush	<i>Garrulax virgatus</i>	IN-MN-03
Brown-capped Laughingthrush	<i>Garrulax austeni</i>	IN-MN-03
Wedge-billed Wren-Babbler	<i>Sphenocichla humei</i>	IN-MN-03
Austen's Barwing	<i>Actinodura waldeni</i>	IN-MN-03
Grey Sibia	<i>Heterophasia gracilis</i>	IN-MN-01, 02, 03, 05, 07
White-naped Yuhina	<i>Yuhina bakeri</i>	IN-MN-03

Biomes

In Manipur, three biomes are found: Biome-7 (Sino-Himalayan Temperate Forest), with key habitats of Broadleaf Evergreen Forest, Broadleaf Deciduous, Mixed Broadleaf-Coniferous and Coniferous Forest and Montane Grassland; Biome-8 (Sino-Himalayan Subtropical Forest) which has Lower Montane Rain Forest, Hill Evergreen Forest and Pine Forest as key habitats; and Biome-9 (Indo-Chinese Tropical Moist Forest) which has Lowland Evergreen Rain Forest, Semi-Evergreen Rain Forest and Moist Deciduous Forest. A total of 226 bird species are found in the three biomes BirdLife International (undated). As we do not have a general bird checklist of Manipur, it is not known how many biome species are found in the State.

THREATS AND CONSERVATION ISSUES

Besides habitat destruction, hunting and poaching are the major reasons for the scarcity of wildlife in Manipur. The hill tribes like the Nagas, the Kukis and the Mizos are all avid hunters and hardly spare any wildlife. All types of wild animals and birds are hunted, from large galliformes, hornbills, to deer and primates. Even elephants are hunted for meat. There is a great need for environmental awareness, especially among those living around IBAs and protected areas.

Jhumming or shifting cultivation is the biggest cause of the destruction of the natural forest. *Jhum* cultivation should be controlled. No *jhum* should be allowed in the remaining pockets of the primary forests, on steep slopes and above the elevation of 1,500 m (Choudhury 1998). Manipur has the highest allocation of *jhum* control fund from the Government of India. Both NGOs and the state government should see that this fund is properly utilized and actually helps the remaining pockets of forests.

Logging of timber and collection of non-timber forest produce are potential threats. At the Bunning Wildlife Sanctuary, community conflict and establishment of villages within the Sanctuary area have caused damage to the Sanctuary (A. U. Choudhury *pers. comm.* in 2003). Protection measures in the existing protected areas such as Keibul Lamjao and Yangoupokpi-Lokchao should be strengthened.

Threats to IBAs

A=Agriculture intensification/expansion; B=Dams/Dykes; C=Disturbance to Birds; D=Firewood Collection;
E=Industrialisation/Urbanisation; F=Unsustainable exploitation; G=Others; H=Natural Events

According to A. U. Choudhury, in the Dzuko Valley hunting has been a part of life for the tribes living around the area but now they have taken the initiative to stop hunting. This is already having a positive effect on the wildlife. Seasonal fires destroy some parts of the habitat every year. An increasing number of trekkers and tourists are aggravating the problem of non-degradable solid waste. Many tourists indiscriminately collect the endemic Dzuko Lily *Lilium chitrangadae*, which is confined to this small valley.

Siroi (Shiroi) Hill is the only known home of the Siroi Lily *Lilium macklineae*, and the sentiments and emotions of the local people are closely attached to this flower. Uncontrolled visits by tourists and collection of the Lily has led to its severe decline (Salam Rajesh

pers. comm. 2003). Protecting this flower and the Siroi Hill will also protect the threatened birds found in and around this Hill.

Eye-browed Thrush *Turdus obscurus* is killed in large numbers by villagers during winter with glued sticks (Choudhury 1998). The local people could be motivated by making them aware of the need to protect this species. Since Siroi Hill is not a protected area, conservation efforts should be initiated by NGOs with the help of the community leaders.

The Loktak Lake ecosystem has changed considerably after the construction of a multipurpose hydel and irrigation project at Ithai. The natural wetland with fluctuating water level has been converted to a reservoir with more or less constant water level. Besides bringing about basic hydrological changes, this has resulted in severe problems for the lake biota and the communities traditionally dependent on it. Loktak has, therefore, been placed in the Montreaux record, a list of internationally important wetlands (Ramsar Sites) that have undergone or are undergoing significant changes in their ecological character. Loktak is also threatened by excessive loading of silt and nutrients from various anthropogenic sources. Deforestation, shifting cultivation, uncontrolled use of fertilisers in agricultural lands, and discharge of domestic wastes, all contribute to the input of silt and nutrients into the lake. This will accelerate the ageing of the lake by rapid siltation and excessive biomass production.



Manipur is the only home of the nominate race of the Brown-antlered deer, a critically endangered subspecies.

Photo: Amrattadin Choudhury

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ANGO OR ANKO HILLS



IBA Site code	: IN-MN-01
State	: Manipur
District	: Ukhrul
Coordinates	: 25° 13' 00" N, 94° 34' 00" E
Ownership	: Community
Area	: 40,000 ha
Altitude	: 500 m to >2,000 m
Rainfall	: >2,000 mm
Temperature	: 2 °C to 30 °C
Biogeographic Zone	: North-East
Habitats	: Tropical Semi-evergreen Forest, Tropical Evergreen Forest, Sub-tropical Broadleaf Hill Forest

IBA CRITERIA: A1 (Threatened Species), A2 (Endemic Bird Area 130: Eastern Himalayas)

PROTECTION STATUS: Not officially protected

GENERAL DESCRIPTION

The Ango or Anko Hills lie on the Indo-Myanmar border, in the Ukhrul district, northeast of Manipur. Owing to its remoteness, the area is largely undisturbed. The local community is also inclined to give it some protection. The forests consist of Moist Subtropical and Tropical Evergreen types. The flora and fauna are poorly known, however, the Green Peafowl *Pavo muticus* and Rufous-necked Hornbill *Aceros nipalensis*, two threatened species, are reported from this site (A. U. Choudhury *pers. comm.* 2003).

AVIFAUNA

The bird life of the Anko range is not very well known. This site lies in the Eastern Himalayas Endemic Bird Area (EBA), identified by Stattersfield *et al.* (1998) and BirdLife International (undated). This EBA is one of the bird rich areas of India, with 21 restricted range species, and a total of 114 bird species found in Biome-8 (Sino-Himalayan Subtropical Forest) and Biome-7 (Indo-Chinese Tropical Moist Forest).

Ango Hills is one of the two IBAs in India where the Green or Burmese Peafowl is found, hence it is considered extremely important for conservation. Historically, the Green Peafowl was distributed widely from northeast India to southern China, Myanmar, Thailand, Laos, Vietnam and Cambodia (BirdLife International 2001). It persists in all these countries except Malaysia and Bangladesh, but it has certainly declined and now only occurs in fragmented, greatly reduced populations. The current world population of this peafowl in the wild is estimated at 5,000 to 10,000 individuals, and declining (McGowan and Garson 1995). In India, it was formerly distributed on the southern banks of the Brahmaputra river, from Nagaon to Cachar district, but now it is restricted to east Manipur (Choudhury 2000). Therefore, protection of this IBA is an urgent need.

BirdLife International (2001) has listed only four sites in Manipur for Mrs. Hume's Pheasant *Syrnaticus humei*. However, Choudhury (2002) has identified 11 more sites for this State Bird of Manipur.

Four species of hornbills are found: the globally threatened Rufous-necked Hornbill *Aceros nipalensis*, Near Threatened Great Pied Hornbill *Buceros bicornis* and Brown Hornbill *Anorrhinus tickelli*, and much commoner Oriental Pied

Hornbill *Anthracoceros albirostris*. The Wreathed Hornbill *Aceros undulatus* is also likely to occur (A. U. Choudhury *pers. comm.* 2003).

Vulnerable	
Blyth's Tragopan	<i>Tragopan blythii</i>
Mrs. Hume's Pheasant	<i>Syrnaticus humei</i>
Green Peafowl	<i>Pavo muticus</i>
Rufous-necked Hornbill	<i>Aceros nipalensis</i>
Endemic Bird Area 130: Eastern Himalayas	
Blyth's Tragopan	<i>Tragopan blythii</i>
Grey Sibia	<i>Heterophasia gracilis</i>

OTHER KEY FAUNA

Among the mammals, the Sumatran Rhinoceros *Dicerorhinus sumatraensis* is noteworthy (Choudhury 1997). Villagers of Konkan, which is about 88 km by road from Ukhrul town, encountered stray individuals as recently as the early 1990s (Aleng *pers. comm.* to Choudhury 1997). In the 1970s, a rhino was shot by the Tangkhul Naga tribe (known as the Somra tribe in Myanmar) of Khamsong village, northeast of Ukhrul town. If it is proved that this highly endangered mammal still exists in the area, the site would need special protection. Choudhury (1997) has suggested that about 40,000 ha of the Ango Range of Manipur (and about 50,000 ha in the Saramati-Fakim area of Nagaland) should be declared protected areas to save the rhinos and their habitat. The Sumatran Rhinoceros is perhaps the most endangered large mammal in the world, with an estimated population of only 300 animals (Foose and Strien 1998).

Seven species of primates are found in the area: the Assamese Macaque *Macaca assamensis*, Rhesus Macaque *M. mulatta*, Stump-tailed macaque *M. arctoides*, Pig-tailed macaque *M. nemestrina*, Capped Langur *Trachypithecus pileata*, Hoolock Gibbon *Hylobates hoolock* and Slow Loris *Nycticebus coucang*. Among the carnivores, Tiger *Panthera tigris*, Leopard *Panthera pardus*, Clouded Leopard *Neofelis nebulosa*, Golden Cat *Catopuma temminckii* Dhole or Wild Dog *Cuon alpinus* and Asiatic Black Bear *Ursus thibetanus* are found. Wild Boar *Sus*

A view of Anko (Ango) range. This poorly known tract is still unsurveyed.

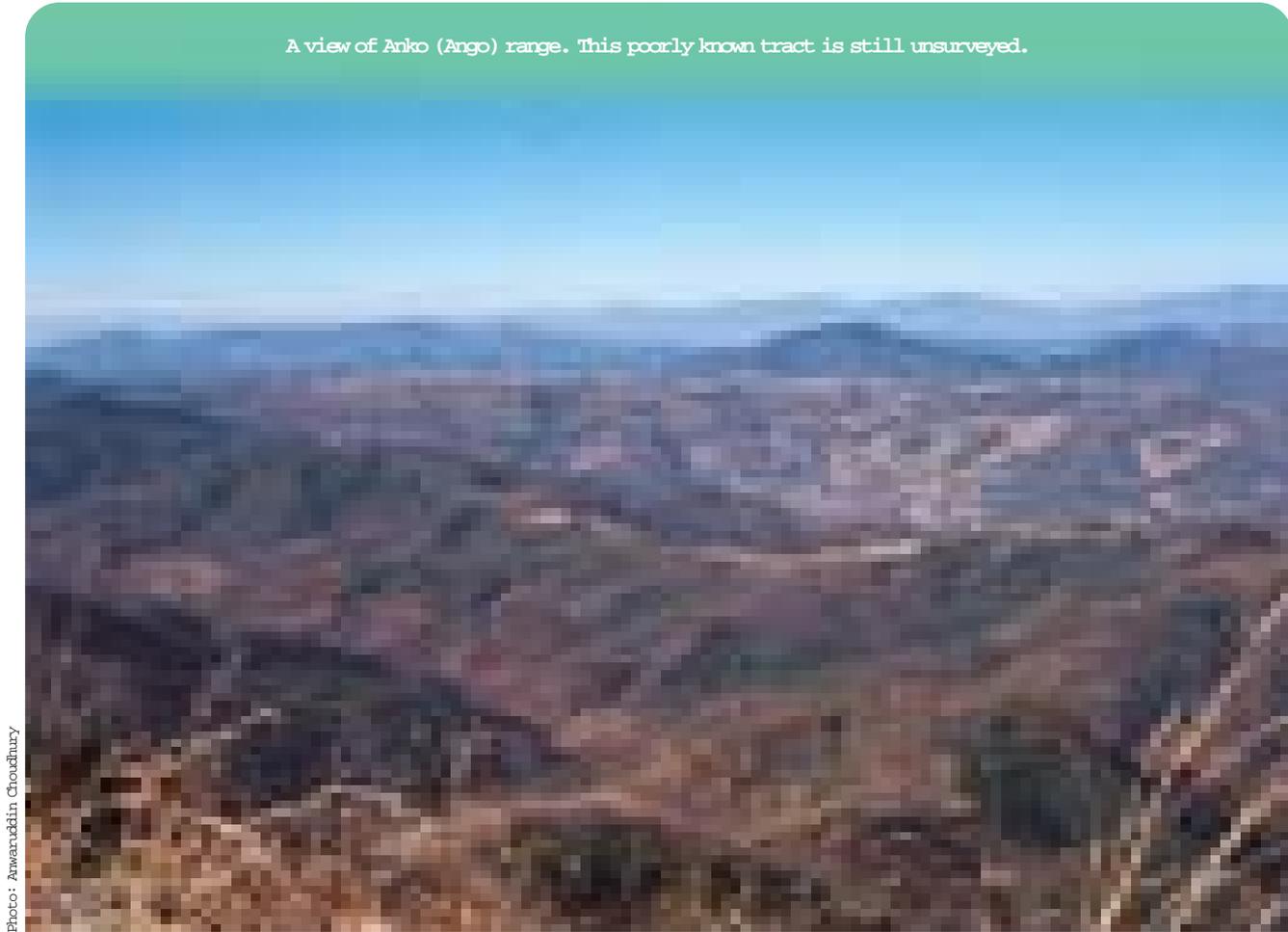


Photo: Anwaruddin Choudhury

scrofa, Sambar *Cervus unicolor*, Indian Muntjak or Barking Deer *Muntiacus muntjak*, Gaur *Bos frontalis*, Goral *Nemorhaedus goral* and Serow *Nemorhaedus sumatraensis* are the major ungulates found in the area.

LAND USE

- Forestry

THREATS AND CONSERVATION ISSUES

- Poaching
- Collection of forest produce

The local community has recently shown some interest in conserving this important area. However, logging of timber and collection of non-timber forest produce are potential threats. Hunting of wild animals is a traditional occupation of the local community. There is also an urgent need to survey the area for a detailed biodiversity inventory.

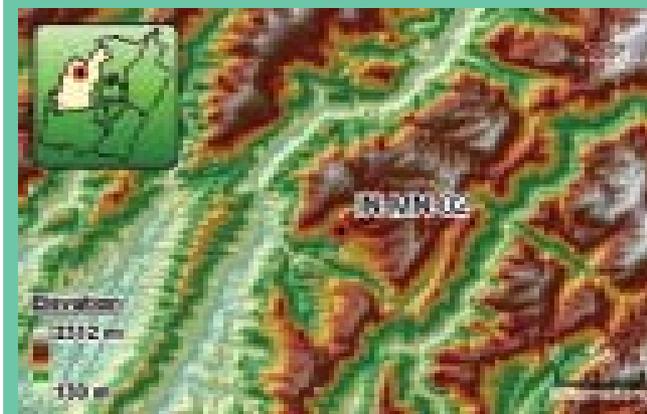
KEY CONTRIBUTORS

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BUNNING WILDLIFE SANCTUARY



IBA Site Code	: IN-MN-02
State	: Manipur
District	: Tamenglong
Coordinates	: 25° 04' 19'' N, 93° 31' 51'' E
Ownership	: State
Area	: 11,580 ha
Altitude	: 1,000 - 1,800 m
Rainfall	: >2,000 mm
Temperature	: 2 °C to 25 °C
Biogeographic Zone	: North-East
Habitats	: Montane Wet Temperate Forest, Tropical Dry Evergreen Forest

IBA CRITERIA: A1 (Threatened Species), A2 (Endemic Bird Area 130: Eastern Himalayas)

PROTECTION STATUS: Wildlife Sanctuary, established in 1997

GENERAL DESCRIPTION

Bunning Wildlife Sanctuary is located in the Tamei subdivision in Tamenglong district, and is part of the Barail Range. The Barak river flows near the Sanctuary. Many streams originate from the catchment areas within the Sanctuary and feed the Barak. Tropical Evergreen and Semi-evergreen Forests occur in the Sanctuary. The site is poorly known and should be given priority for a biodiversity survey.

AVIFAUNA

Detailed information on avifauna from this sanctuary is lacking. However, some of the biome restricted species are as follows (A. U. Choudhury pers comm. 2003): Rufous-bellied Niltava *Niltava sundara*, Brown Hornbill *Anorrhinus tickelli*, Golden-throated Barbet *Megalaima franklinii*, Blue-throated Barbet *M. asiatica*, Bay Woodpecker *Blythipicus pyrrhotis*, Maroon Oriole *Oriolus traillii*, Himalayan Treepie *Dendrocitta formosae*, White-throated Bulbul *Alophoixus flaveolus*, Grey Peacock-pheasant *Polyplectron bicalcaratum*, and Pale-headed Woodpecker *Gecinulus grantia*.

Among the globally threatened species, the Rufous-necked Hornbill *Aceros nipalensis* is found (A. U. Choudhury pers.

comm. 2003). Another bird of conservation interest is the Grey Sibia *Heterophasia gracilis*, considered to be a restricted range species by Stattersfield *et al.* (1998). This IBA is included in the Eastern Himalayas Endemic Bird Area. This part of the Himalaya is particularly rich in restricted range birds, and the genus *Sphenocichla* is endemic to it. Detailed investigation would reveal many important species.

Vulnerable	
Rufous-necked Hornbill	<i>Aceros nipalensis</i>
Endemic Bird Area 130: Eastern Himalayas	
Grey Sibia	<i>Heterophasia gracilis</i>

OTHER KEY FAUNA

The Sanctuary has most of the mammalian elements of the northeast, such as the Tiger *Panthera tigris*, Asian Elephant *Elephas maximus*, Gaur *Bos frontalis*, Asiatic Black Bear *Ursus thibetanus* and Dhole or Wild Dog *Cuon alpinus*. Among non-human primates, Hoolock Gibbon *Hylobates hoolock*, Assamese Macaque *Macaca assamensis*, and Capped Langur *Trachypithecus pileatus* are noteworthy.

Not much is known about the reptiles and amphibians.

LAND USE

- q Forest
- q Agriculture

THREATS AND CONSERVATION ISSUES

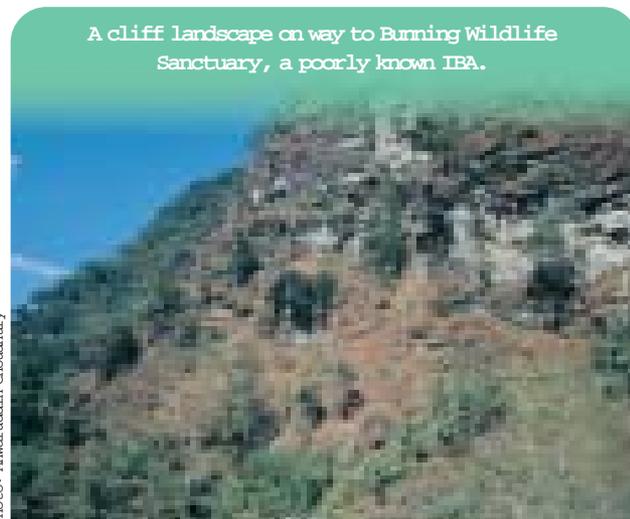
Community conflict and establishment of villages within the Sanctuary area have caused damage to the Sanctuary.

KEY CONTRIBUTORS

Salam Rajesh, W Rajesh Singh, R. K. Ranjan Singh, Anwaruddin Choudhury, M. Firoz Ahmed, Kulojyoti Lahkar

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A cliff landscape on way to Bunning Wildlife Sanctuary, a poorly known IBA.

Photo: Anwaruddin Choudhury

MN-03

DZUKU VALLEY



IBA Site Code	: IN-MN-03
State	: Manipur
District	: Senapati
Coordinates	: 23° 31' 05" N, 93° 48' 15" E
Ownership	: Community
Area	: 2,500 ha
Altitude	: 1,500 - 2,990 m
Rainfall	: >2,000 mm
Temperature	: 0 °C to 25 °C
Biogeographic Zone	: North-East
Habitats	: Sub-tropical Broadleaf Hill, Montane Wet Temperate Forest

IBA CRITERIA: A1 (Threatened Species), A2 (Endemic Bird Area 130: Eastern Himalayas)

PROTECTION STATUS: Not officially protected

GENERAL DESCRIPTION

The Dzuku Valley with its surrounding hill ranges is one of the biodiversity-rich ecosystems in the northeast region of India.

Dzuku valley is an attractive, naturally beautiful area on the border of Nagaland and Manipur, where the Dzuku, a tributary of the Barak river, flows through. The hills are uniformly covered with short and tall bamboo, grasses and other flora. Some of the hillocks have Broadleaf Temperate Forest, providing habitat for Blyth's Tragopan *Tragopan blythii* and other birds of tropical forests. Dzuku is famous for the Dzuku Lily *Lilium chitrangadae*, endemic to the Dzuku Valley. The valley receives tremendous numbers of local tourists during the flowering seasons.

The name is derived from the *Mao Pukmai* language. *Dzu* means cold or frozen and *ku* means water. Hence, it is literally called frozen water. During winter, the slow moving river is covered with a thin layer of ice (Ranjan Singh 1995).

The Dzuku Valley enjoys a cold temperate climate with a severe winter, and heavy rainfall during the monsoon (Ranjan Singh 1995).

Dzuku is contiguous with two other IBAs of Nagaland, Khonoma Nature Conservation and Tragopan Sanctuary, and Pulie Badze-Japfu-Dzuku. Together they constitute about 20,000 ha of

Subtropical Forest. The Tenipu peak (Mt. Iso) rises about 2,990 m and is the highest peak in Manipur.

AVIFAUNA

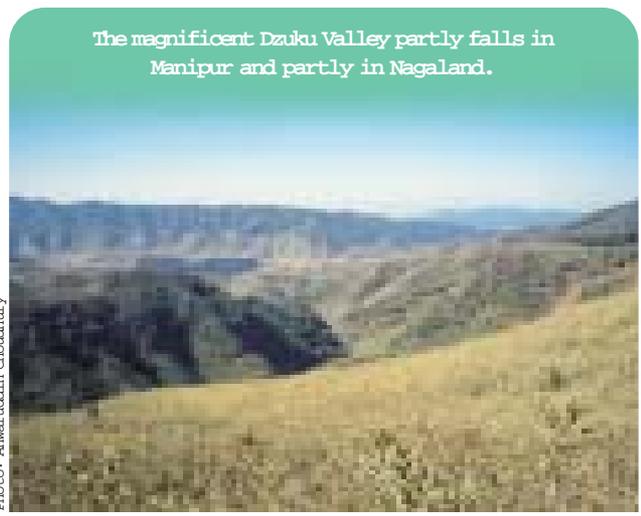
Detailed information on the avifaunal diversity of this site is not available. The site however supports a good population of Blyth's Tragopan *Tragopan blythii* that occurs in the subtropical and temperate broadleaf forests. The villagers have shown interest in protecting Blyth's Tragopan (F. Ahmed *pers. comm.* 2003).

A small breeding colony of the Dark-rumped or Khasi Hills Swift *Apus acuticauda* has been discovered in Khonoma-Dzukou of Nagaland (Ahmed *et al.* 2003). Hence, this species could be occurring in Dzuku area of Manipur. A thorough investigation is required.

On the southern slopes of Barail range, there are records of Mrs. Hume's Pheasant *Syrmaticus humiae* (Choudhury 2002). However, it has become very rare in the area, and may disappear unless urgent measures are taken for its protection.

Dzuko IBA is included in the Eastern Himalayas Endemic Bird Area (EBA). This is one of the bird rich areas of India, with a total of 21 restricted range species. Most parts of this IBA have Sino-Himalayan Subtropical Forest (Biome-8), with only a small portion having Sino-Himalayan Temperate Forest (Biome-7). A total of 207 biome species has been listed by BirdLife International (undated). Detailed studies are required to find out how many of these biome species are found in this IBA.

The Biome species recorded from nearby Kohoma Nature Conservation and Tragopan Sanctuary, which are likely to occur here are: Rufous-breasted Accentor *Prunella strophiata*, Stripe-throated Yuhina *Yuhina gularis*, Rufous-bellied Niltava *Niltava sundara*, Mountain Bamboo Partridge *Bambusicola fytchii*, Blue-throated Barbet *Megalaima asiatica*, Mountain Bulbul *Hypsipetes mcclllandii*, Maroon Oriole *Oriolus traillii*, Small Minivet *Pericrocotus cinnamomeus*, and Fire-tailed Sunbird *Aethopyga ignicauda*.



The magnificent Dzuku Valley partly falls in Manipur and partly in Nagaland.

Photo: Anwaruddin Choudhury

Vulnerable	
Blyth's Tragopan	<i>Tragopan blythii</i>
Mrs. Hume's Pheasant	<i>Syrmaticus humiae</i>
Dark-rumped Swift	<i>Apus acuticauda</i>

The Red Serow still occurs in the hills around Dzuku Valley as well as in other hilly tracts of Manipur.



Photo : Anwaruddin Choudhury

Endemic Bird Area 130: Eastern Himalayas

Blyth's Tragopan	<i>Tragopan blythii</i>
Dark-rumped Swift	<i>Apus acuticauda</i>
Striped Laughingthrush	<i>Garrulax virgatus</i>
Brown-capped Laughingthrush	<i>Garrulax austeni</i>
Wedge-billed Wren-Babbler	<i>Sphenocichla humei</i>
Austen's Barwing	<i>Actinodura waldeni</i>
Grey Sibia	<i>Heterophasia gracilis</i>
White-naped Yuhina	<i>Yuhina bakeri</i>

OTHER KEY FAUNA

Like most forests of Manipur, hunting was rampant till a few years ago, so sighting of animals was rare, but after the villagers decided to stop hunting, the wildlife is recovering. Some of the species found here are Leopard *Panthera pardus*, Clouded leopard *Neofelis nebulosa*, Asiatic Black Bear *Ursus thibetanus*, Capped Langur *Trachypithecus pileatus*, Stump-tailed Macaque *Macaca arctoides* and Serow *Nemorhaedus sumatraensis*. The reptile and amphibian fauna appears to be very rich, but no work has been done on it (A. U. Choudhury pers. comm. 2003).

LAND USE

- q Forest
- q Tourism and recreation
- q Watershed development

THREATS AND CONSERVATION ISSUES

Hunting has been a part of life for the tribes living around the area but now they have taken the initiative to stop hunting. This is already having a positive effect on the wildlife. Seasonal fires destroy some parts of the habitat every year. Trekkers and tourists are increasing and with them the problem of non-degradable solid waste. Many tourists indiscriminately collect the endemic Dzuko Lily which is confined to this small valley.

There is a need to conduct periodic biodiversity status surveys to assess the impact of community conservation measures.

KEY CONTRIBUTORS

W. Rajesh Singh, Salam Rajesh, R. K. Ranjan Singh, Anwaruddin Choudhury and M. Firoz Ahmed

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MN-04

JIRI-MAKRU WILDLIFE SANCTUARY



IBA Site Code	: IN-MN-04
State	: Manipur
District	: Imphal East and Tamenglong
Coordinates	: 24° 50' 45" N, 93° 17' 29" E
Ownership	: State
Area	: 19,800 ha
Altitude	: 80 - 500 m
Rainfall	: 2,500 - 3,500 mm
Temperature	: 7 ° C to 35 ° C
Biogeographic Zone	: North-East
Habitats	: Tropical Wet Evergreen Forest and Tropical Semi-evergreen Forest

IBA CRITERIA: A1 (Threatened Species), Data Deficient
PROTECTION STATUS: Wildlife Sanctuary, established in 1997

GENERAL DESCRIPTION

This site is located between the rivers Jiri and Makru, both tributaries of the Barak river near the Assam-Manipur border. It lies partly in Imphal East (Jiribam Sub-division) district and partly in Tamenglong district. The terrain is hilly, being part of the West Manipur Hills. Tropical Wet Evergreen and Semi-evergreen Forest dominate (A.U. Choudhury *pers. comm.* 2003). This site is important for forest birds.

The Makru river is characterized by deep pools that once harboured Gharial while the Green Peafowl used to occur along its banks.



Photo: Anwaruddin Choudhury

AVIFAUNA

This is a Data Deficient site and should be surveyed on a priority basis. The Green Peafowl *Pavo muticus* was found in the area till 1960s. Stray birds might still occur. Local villagers belonging to the Zeliangrong Naga reported of encountering stray Green Peafowl along the Jiri River during 1990s. BirdLife International (2001) considers it as globally threatened. Other threatened birds reported but not confirmed include the White-winged Duck *Cairina scutulata* and Rufous-necked Hornbill *Aceros nipalensis*. The

Near-Threatened Great Pied *Buceros bicornis* and Brown Hornbill *Anorrhinus tickelli* are, however, found in the area (A. U. Choudhury *pers. comm.* 2003).

OTHER KEY FAUNA

Seven species of primates are present, including the Capped Langur *Trachypithecus pileata* and Hoolock Gibbon *Hylobates hoolock*. Carnivores include the Wild Dog *Cuon alpinus*, Asiatic Black Bear *Ursus thibetanus*, Leopard *Panthera pardus*, Sambar *Cervus unicolor*, Barking Deer *Muntiacus muntjak*, Serow *Nemorhaedus sumatraensis* and Gaur *Bos frontalis* (Choudhury 2002). There are past records of the Gharial *Gavialis gangeticus* from the Makru River (A. U. Choudhury *pers. comm.* 2003)

LAND USE

- ☐ Forestry
- ☐ Agriculture (*jhum*)

THREATS AND CONSERVATION ISSUES

- ☐ Felling of trees
- ☐ *Jhum* cultivation
- ☐ Poaching of birds
- ☐ Insurgency

Although it was notified as a wildlife sanctuary, enforcement is still inadequate. Felling of trees, *jhum* cultivation and poaching of birds are the main issues.

KEY CONTRIBUTOR

Anwaruddin Choudhury

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- Choudhury, A. U. (2002) Distribution and Conservation of the Gaur *Bos gaurus* in the Indian Subcontinent. *Mammal Review* 32(3): 199-226.

KAILAM WILDLIFE SANCTUARY



IBA Site code	: IN-MN-05
State	: Manipur
District	: Churachandpur
Coordinates	: 24° 11' 60" N, 93° 25' 00" E
Ownership	: State
Area	: 18,750 ha
Altitude	: 500 - 2,018 m
Rainfall	: >1,500 mm
Temperature	: 2 °C to 30 °C
Biogeographic Zone	: North-East
Habitats	: Tropical Evergreen Forest

IBA CRITERIA: A1 (Threatened Species), A2 (Endemic Bird Area 130: Eastern Himalayas), Data Deficient

PROTECTION STATUS: Wildlife Sanctuary, established in 1991

GENERAL DESCRIPTION

Kailam Wildlife Sanctuary is located within the Kailam-Tipaimukh Hill Range in Churachandpur district. The terrain is mainly hilly, with a large number of streams, and thick forested hillsides. Most of the streams flow from this hill range into the Tuivai river. This is another lesser known area of Manipur state. A hydroelectric power project is proposed on the Tipaimukh river, which is likely to submerge part of the Sanctuary (R.K.Ranjan Singh *pers. comm.* 2003)

This proposed data deficient IBA is covered with Tropical Evergreen and Semi-evergreen Forests and Bamboo brakes.

AVIFAUNA

General information on avifauna is lacking, due to which this IBA is considered as Data Deficient. According to A. U. Choudhury (*pers. comm.* 2003), the bird life is extremely rich, like most of the tropical rainforest areas of Manipur. The Rufous-necked Hornbill *Aceros nipalensis*, a Vulnerable species, and Grey Sibia *Heterophasia gracilis* (Restricted Range species) according to BirdLife International (2001) have been reported, but their status and distribution within the site is not known.

There are records of Mrs Hume's Pheasant *Syrmaticus humiae* from nearby areas (Choudhury 2002), so it may occur at this site also.

This site is famous for five species of hornbills: Brown *Anorrhinus tickelli*, Rufous-necked, Great Pied *Buceros bicornis*, Wreathed *Aceros undulatus* and Oriental Pied *Anthraceros albirostris*.

Kailam WLS is located in the Eastern Himalayas Endemic Bird Area. There are 21 restricted range species in this EBA. Considering the extent of natural forests still remaining in this IBA, most of the restricted range species of the Eastern Himalayas EBA are likely to occur here.

The greater part of the Sanctuary is at 1,000 m above msl, so it falls in Biome-9 (Indo-Chinese Tropical Moist Forest). In the higher reaches, between 1,000 m and 2,000 m, Sino-Himalayan Subtropical Forest (Biome-8) is seen. At least 114 biome-restricted species are likely to occur here. A detailed investigation of this IBA is urgently needed.

Vulnerable

Mrs. Hume's Pheasant (?)	<i>Syrmaticus humiae</i>
Rufous-necked Hornbill	<i>Aceros nipalensis</i>

Endemic Bird Area 130: Eastern Himalayas

Grey Sibia	<i>Heterophasia gracilis</i>
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OTHER KEY FAUNA

As in the case of avifauna, not much is known about the mammalian and reptilian fauna. However, the area lies in the general distribution range of the Leopard *Panthera pardus*, Golden Cat *Catopuma temmincki*, Serow *Nemorhaedus sumatraensis*, Hoolock Gibbon *Hylobates hoolock*, Stump-tailed Macaque *Macaca arctoides* and Asiatic Black Bear *Ursus thibetanus*.

LAND USE

- ☐ Forest
- ☐ *Jhum* cultivation

THREATS AND CONSERVATION ISSUES

- ☐ Construction of dam
- ☐ *Jhum* cultivation
- ☐ Hunting

Construction of the proposed Tipaimukh hydroelectric dam is a threat to this IBA as it will submerge a large part of the primary tropical forests. There has been some *jhum* cultivation around the Sanctuary. Hunting is common in the area as in other areas dominated by indigenous tribes.

KEY CONTRIBUTORS

W. Rajesh Singh, Salam Rajesh, R. K. Ranjan Singh and Anwaruddin Choudhury

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LOKTAK LAKE AND KEIBUL LAMJAO NATIONAL PARK



IBA Site code	: IN-MN-06
State	: Manipur
District	: Bishnupur and Imphal West
Coordinates	: 24° 34' 60" N, 93° 49' 60" E
Ownership	: State
Area	: 20,000
Altitude	: 767 - 813 m
Rainfall	: 1,400 mm
Temperature	: 0 °C to 36 °C
Biogeographic Zone	: North-East
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4iii (≥20,000 waterbirds)

PROTECTION STATUS: National Park, established in March 1977

GENERAL DESCRIPTION

Loktak Lake is the largest natural freshwater lake in Northeast India and plays an important role in the ecological and economic security of the region. This oval lake with a maximum length of 26 km and width of 13 km has an average depth of 2.7 m. There are 14 hills varying in size and elevation, appearing as islands, in the southern part of the lake. Prominent among them are Sendra, Ithing and Thanga islands. The site also includes Phumlén, Kharung and Ikop wetlands. The Loktak Lake basin has a direct catchment area of 98,000 ha and an indirect catchment of 715,700 ha. Of the direct catchment area 43,000 ha is under paddy cultivation, 15,000 ha under human habitation, and 40,000 ha under forests.

The Loktak and other lakes in Manipur valley dominate its economy to a great extent. About three-fourth of the total population of the State lives around these lakes (Choudhury 2002).

The Keibul-Lamjao National Park (4,000 ha) is home to the highly endangered Manipur Brow-antlered Deer *Cervus eldi eldi*, one of the three subspecies of Thamin Deer *Cervus eldi*. The other two subspecies are found in Myanmar and Indo-China. Keibul-Lamjao NP was created to protect this deer, locally known as *Sangai*. It was reported to be extinct in 1951, but a survey conducted by IUCN revealed that a few animals existed in the Park. *Sangai* are specially adapted to this floating habitat, with their characteristic hooves, which unlike other deer species, help the animal to walk conveniently over the floating islands.

The lake is designated as a wetland of International Importance under the Ramsar Convention in 1990.

Keibul-Lamjao National Park, which forms the southern portion of Loktak Lake, is a large continuous mass of swamp with floating mats of vegetation, locally known as *phumdis*, covering much of its surface. *Phumdis* are composed of decaying vegetation, up to 1.6 m thick and 80% submerged, and can support the weight of large mammals. The vegetation comprises of *Zizania latifolia*, *Leersia hexandra*, *Phragmites karka*, *Cepithipedium* spp., *Carex* spp., *Saccharum munja*, *Coix lachryma-jobi*, *Narenga porphyrochroma*, and *Polygonum perfoliatum*. Within Indian limits, *Zizania latifolia* is found only in Loktak Lake (Choudhury 2002). There are small hillocks within Keibul-Lamjao, namely Chingjao, Pabotching and Toyaching, which provide a refuge for large mammals during wetter periods (Yadava and Varshney 1981, Scott 1989).

AVIFAUNA

Loktak Lake provides refuge to thousands of birds of at least 116 species, including 21 species of waterfowl. Their numbers would easily exceed 20,000 (A4iii criteria: The site is known or thought to hold, on a regular basis, equal to or more than 20,000 waterbirds or >10,000 pairs of seabirds of one or more species). It also has records of Spot-billed Pelican *Pelecanus philippensis* and Greater Spotted Eagle *Aquila clanga*, both globally threatened species. The Lesser Adjutant *Leptoptilos javanicus* is regularly seen. So the site also qualifies A1 criteria.

As detailed studies on avifauna have not been conducted, it cannot be said whether Loktak Lake fits A4i criteria (i.e. the site is known or thought to hold, on a regular basis, >1% of the biogeographic population of a congregatory water species). However, the numbers of some waterfowls run into thousands.

According to Tombi Singh and Singh (1994), Loktak Lake provides refuge to thousands of birds. Due to intense hunting pressure and general disturbance, the waterfowl number has declined in recent years. Hume (1888) had recorded 57 species of birds in Loktak Lake alone.

There are many old reports of Eastern Sarus Crane *Grus antigone sharpii*. Higgins (1934) mentions that the species is "not uncommon, residing and breeding in the swamps in the south of the valley: but it is not shot." The birds were mainly found in pairs, and once a large flock of 20 to 30 individuals was seen. The Hooded Crane *Grus monachus* was also found in Manipur, nearly 100 years ago, but none have been seen in recent decades.

Vulnerable

Spot-billed Pelican	<i>Pelecanus philippensis</i>
Lesser Adjutant	<i>Leptoptilos javanicus</i>
Greater Spotted Eagle	<i>Aquila clanga</i>

OTHER KEY FAUNA

Altogether 425 species of animals (249 vertebrates and 176 invertebrates) have been identified in the lake, which is used as a breeding ground for several fish species. The total faunal diversity is likely to be higher, as many species have not been properly identified or surveyed. Besides the famous Brow-antlered Deer or *Sangai*, Hog Deer *Axis porcinus* is also found in Loktak Lake but in low numbers due to hunting pressure. Choudhury (1992) estimates

a population of about 200 individuals. Other fauna of the site includes the Large Indian Civet *Viverra zibetha*, Small Indian Civet *Viverricula indica* and Common Otter *Lutra lutra*. A good population of Wild Boar *Sus scrofa* resides in this IBA, as it has no natural predator and is also safe from hunting (Choudhury 1992).

LAND USE

- q Fisheries
- q Tourism /recreation
- q Water management
- q Transport
- q Human habitation

THREATS AND CONSERVATION ISSUES

- q Over fishing
- q Filling in of wetlands
- q Siltation and Reclamation
- q Pollution
- q Hydro-electric Project

The lake ecosystem has changed considerably after the construction of a multipurpose hydroelectric and irrigation project. The natural wetland with fluctuating water level was converted into a reservoir with a more or less constant water level. Besides bringing about basic hydrological changes, this resulted in severe problems for the lake biota and the communities traditionally dependent on it. Loktak has, therefore, been placed in the Montreaux record, a list of internationally important wetlands (Ramsar Sites) that have undergone or are undergoing significant changes in their ecological character. Currently, Loktak is threatened by excessive loading of silt and nutrients from various anthropogenic sources. Deforestation, shifting cultivation, uncontrolled use of fertilisers in agricultural lands, and discharge of domestic wastes, all contribute to the input of silt and nutrients into the lake. This will accelerate the ageing of the lake by rapid siltation and excessive biomass production.

The construction of the Moirang-Sendra and Keibul Thanga causeways have completely separated the Takmu sub-basin from the main Loktak Lake. The Bishenpur-Mayong Imphal road has also been constructed across the northern part of the Lake. Increasing numbers of causeways in the lake obstruct water flow and encourage human settlement. Numerous fish farms and floating hutments have

proliferated in the lake. The domestic sewage from the floating hutments, which is directly discharged into the lake, is accelerating the process of eutrophication. The use of DDT to fight the mosquito menace has further added to the problem of chemical pollution. There are 55 rural and urban settlements around the lake. The total human population in and around the lake is estimated to be about 100,000, of which about 30,000 are fishermen. Two major land uses in the catchment are shifting cultivation in the forests on the hills and paddy cultivation in the valley.

Populations of both migratory and resident waterfowl, several macrophytes and fish have rapidly declined in the past few decades. Shooting, netting, pesticide pollution and hydrological changes, as well as increased human presence, fishing, removal of vegetation, and tourism have all contributed to the decline in bird. There is an increasing tendency among people to kill the birds for consumption and sale. Earlier, birds were trapped but in recent years, villagers have taken to killing birds by poisoning them with insecticides and pesticides placed in small fish which are used as bait. Hundreds of birds are killed everyday for consumption.

KEY CONTRIBUTORS

R. K. Ranjan Singh, C. L. Trisal and H. Tombi Singh

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The floating hutments on *phumdis* (floating mats of vegetation) are a feature of Loktak Lake.



Photo: Anwaruddin Choudhury

SHIROI COMMUNITY FOREST



IBA Site Code	: IN-MN-07
State	: Manipur
District	: Ukhrul
Coordinates	: 25° 06' 00" N, 94° 27' 32" E
Ownership	: Community
Area	: 5,000 ha
Altitude	: 1,500 - 2,570m
Rainfall	: >2,000 mm
Temperature	: 5 °C to 30 °C
Biogeographic Zone	: North-East
Habitats	: Sub-tropical Broadleaf Hill Forest, Montane Grassy Slopes

IBA CRITERIA: A1 (Threatened Species), A2 (Endemic Bird Area 130: Eastern Himalayas)

PROTECTION STATUS: Not officially protected

GENERAL DESCRIPTION

Shiroi Hills is located in the Ukhrul district of Manipur state, at about 100 km northeast of the capital Imphal. Though most of the hills are denuded of forest cover, due to *jhum* cultivation, the slopes of Shiroi Hills still have good Subtropical Broadleaf Forest with grasses and shrubs on the hilltop. Shiroi Hill is famous for the Shiroi Lily *Lilium macklineae*, endemic to the Shiroi Ridge.

The area supports threatened species such as Mrs. Hume's Pheasant *Symaticus humiae*, Rufous-necked Hornbill *Aceros nipalensis* and Blyth's Tragopan *Tragopan blythii*. Considering the ecological importance of the area, the state government of Manipur had proposed to declare the Shiroi Hills (about 4,100 ha) as a National Park but the local community did not agree to hand over their area to the government. However, they are willing to protect it through community initiatives (A. U. Choudhury *pers. comm.* 2002).

AVIFAUNA

There is no information on the avifauna of the Shiroi Hills area, except for the known presence of a few endangered birds. Choudhury (2002) recorded Mrs. Hume's Pheasant at this site. This globally threatened species (BirdLife International 2001) is still found in the hills of Ukhrul and Senapati districts of Manipur. It is also thinly distributed in the hill tracts of Arunachal Pradesh, Nagaland and Mizoram, northern and western Myanmar and southwestern China (Ali and Ripley 1983, Grimmett *et al.* 1998, Fuller and Garson 2000).

There are two subspecies of Hume's Pheasant, one of which, *S. humiae humiae*, is found in India and western Myanmar, while the other, *S. h. burmanicus*, occurs in southern China, northern and eastern Myanmar and extreme northern Thailand (BirdLife International 2001). The global population is estimated at a few thousand individuals, and the population of subspecies *humiae* may be as low as 1,000 (McGowan and Garson 1995, BirdLife International 2001). As the species survives in disturbed and secondary forests, deforestation may not be its main threat. However, this large bird is extensively hunted for its flesh.

Shiroi Hills is included in the Eastern Himalayas Endemic Bird Area (EBA), identified by Stattersfield *et al.* (1998). This bird rich area of India has 21 restricted range species of which two have been definitely identified but more are likely to occur. The site lies in Biome-7 (Sino-Himalayan Temperate Forest)

and Biome-7 (Sino-Himalayan Sub-tropical Forest) In Biome-7 112 species are listed by BirdLife International (undated). As the habitat is largely intact, many species of this biome are likely to occur here. Detailed investigation on the avifauna is urgently needed.

Vulnerable	
Blyth's Tragopan	<i>Tragopan blythii</i>
Mrs. Hume's Pheasant	<i>Symaticus humiae</i>
Rufous-necked Hornbill	<i>Aceros nipalensis</i>
Near Threatened	
Brown Hornbill	<i>Amorrhinus tickelli</i>
Endemic Bird Area 130: Eastern Himalayas	
Blyth's Tragopan	<i>Tragopan blythii</i>
Grey Sibia	<i>Heterophasia gracilis</i>

OTHER KEY FAUNA

As in the other hill forests of Manipur, Leopard *Panthera pardus*, Wild Dog *Cuon alpinus*, Hoolock Gibbon *Hylobates hoolock*, Stump-tailed Macaque *Macaca arctoides* and the Slow Loris *Nycticebus coucang* are among the known mammals. Tiger *Panthera tigris* and Gaur *Bos frontalis* are occasionally seen. Not much information is available on the reptiles and amphibians.

LAND USE

- ☐ Forestry
- ☐ Agriculture
- ☐ Water catchment

THREATS AND CONSERVATION ISSUES

- ☐ Tree felling
- ☐ Hunting and trapping
- ☐ Collection of plants
- ☐ Cultivation

This hill is the only known home of the Shiroi Lily, and the sentiments and emotions of the local people are closely attached to this flower. Uncontrolled visits by tourists and collection of the

The Shiroi ridge is known for its endemic flower, Shiroi Lily as well as threatened birds such as Blyth's Tragopan, Hume's Pheasant and Rufous-necked Hornbill



MN-07

Photo: Anwaruddin Choudhury

Lily has led to its severe decline (Salam Rajesh *pers. comm.* 2003). Protecting this flower and the hill will also protect the threatened birds found in and around the hill.

Tree felling and trapping of galliformes are major threats to the habitat and species.

Eye-browed Thrush *Turdus obscurus* is killed in large numbers by villagers during winter, with glued sticks (Choudhury 1998).

The local people could be motivated by making them aware of the need to protect this unique hill range. Since the area is not a sanctuary or a national park, conservation efforts, should be initiated by non-governmental organizations with the community leaders.

The streams originating from the Shiroi Hill are the only sources of water for Ukhrul town, the district headquarters.

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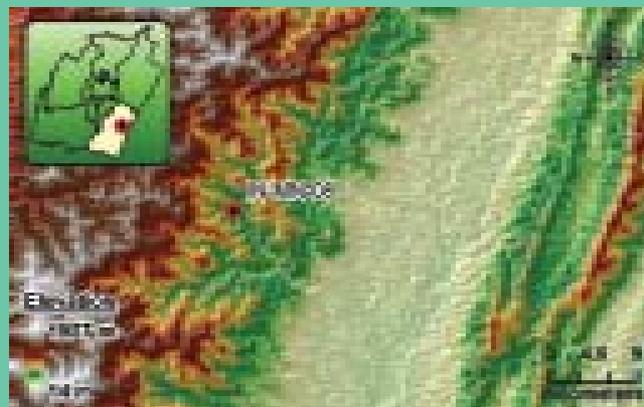
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YANGOUPOKPI-LOKCHAO WILDLIFE SANCTUARY



IBA Site Code	: IN-MN-08
State	: Manipur
District	: Chandel
Coordinates	: 24° 20' 10" N, 93° 46' 50" E
Ownership	: State
Area	: 18,480 ha
Altitude	: Not available
Rainfall	: >1,500 mm
Temperature	: 6 °C to 32 °C
Biogeographic Zone	: North-East
Habitats	: Tropical Semi-evergreen Forest and Tropical Moist Deciduous Forest

IBA CRITERIA: A1 (Threatened Species)

PROTECTION STATUS: Wildlife Sanctuary, established in March 1989

GENERAL DESCRIPTION

Yangoupokpi-Lokchao Sanctuary is located on the Indo-Myanmar border, c. 110 km from Imphal. The eastern boundary of the Sanctuary is coterminous with the international border. Moreh town, a point of international trade, is located on the fringe of this sanctuary. Some studies have been done on the flora and fauna, but more work is required for a full inventory. The Green Peafowl *Pavo muticus* has been reported from the Sanctuary, which is an important international refuge for wildlife from either side of the international border and may house some Southeast Asian components also. Tropical Moist Deciduous Forests cover the area, while the valleys bear Tropical Semi-evergreen forests.

AVIFAUNA

No detailed information is available on this data deficient site, which is one of the two areas in India where the Green Peafowl is still occasionally seen (Choudhury 2000). BirdLife International (2001) has listed it as Vulnerable, as it has a rapidly declining and severely fragmented population, owing primarily to high hunting pressure and habitat destruction. Rapid decline and further fragmentation are foreseen, hence its vulnerable status.

This site falls in the East Himalayas Endemic Bird Area (Stattersfield *et al.* 1998). This part of the Himalayas is particularly rich in restricted range (endemic) birds, and the genus *Sphenocichla* is endemic to this EBA. BirdLife International (undated) has identified 21 Indian bird species restricted to this EBA. We do not know how many species are found in this site.

Yangoupokpi-Lokchao Wildlife Sanctuary comes within Biome-9 (Indo-Chinese Tropical Moist Forest). Nineteen bird species occur in this biome (BirdLife International, undated). As the forest is largely intact, many of these biome-restricted species are likely to occur in this IBA. Detailed investigation of the biodiversity of this site is urgently needed in view of its deteriorating conditions.

Vulnerable	
Green Peafowl	<i>Pavo muticus</i>

OTHER KEY FAUNA

Asiatic Black Bear *Ursus thibetanus*, Sambar *Cervus unicolor*, Barking Deer *Muntiacus muntjak*, Clouded Leopard *Neofelis*

nebulosa, Capped Langur *Trachypithecus pileatus*, and Hoolock Gibbon *Hylobates hoolock* are reported from this area (A. Choudhury *pers. comm.* 2002).

Fewer records are available on the amphibians and reptiles. The Burmese subspecies of Python *Python molurus vittatus* is not uncommon.

LAND USE

- ☐ Nature reserve
- ☐ Agriculture

THREATS AND CONSERVATION ISSUES

- ☐ Hunting
- ☐ Habitat loss
- ☐ Insurgency
- ☐ Encroachment

The site is on the international border, so poaching and smuggling of wildlife products are rampant. Moreh is a fast growing township of Manipur on the international border where international trade is allowed. As a result, human settlers are putting pressure on the Sanctuary. Illegal charcoal making for supply to the town of Tamu in Myanmar is a growing problem.

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R. K. Ranjan Singh, Anwaruddin Choudhury, Salam Rajesh and W. Rajesh Singh

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ZEILAD LAKE SANCTUARY

	IBA Site Code	: IN-MN-09
	State	: Manipur
	District	: Tamenglong
	Coordinates	: 24° 53' 60" N, 93° 22' 60" E
	Ownership	: State
	Area	: 2,100 ha
	Altitude	: 200 - 240 m
	Rainfall	: 2,500 - 3,500 mm
	Temperature	: 6 °C to 30 °C
	Biogeographic Zone	: North-East
	Habitats	: Tropical Wet Evergreen Forest, Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), Data Deficient
PROTECTION STATUS: Wildlife Sanctuary, established in 1997

GENERAL DESCRIPTION

This site is located in the West Manipur Hills and is known for its five lakes surrounded by tropical rainforest. Located 20 km away from the district headquarters, Tamenglong town, it is in the basin of the Barak river (Choudhury 2002) and has hilly terrain.

AVIFAUNA

Very little is known about the bird life, but there are reports of the White-winged Duck *Cairina scutulata* (Choudhury 2002) which is treated as Vulnerable by BirdLife International (2000). This site needs further surveys, as a complex of five montane lakes surrounded by tropical rain forest might be the haunt of many rare and endangered birds. The Near Threatened Great Pied Hornbill *Buceros bicornis* and Brown Hornbill *Anorhinus tickelli* are found in the area (A.U. Choudhury pers. comm. 2003). The only survey

on birds was carried out by Choudhury (2003) during which most of the commoner species were recorded. Interestingly, one collared Kingfisher was also observed.

OTHER KEY FAUNA

The Hoolock Gibbon *Hylobates hoolock*, Assamese Macaque *Macaca assamensis*, Stump-tailed macaque *M. arctoides*, Capped Langur *Trachypithecus pileata*, Slow Loris *Nycticebus coucang*, Asiatic Black Bear *Ursus thibetanus*, occasional Tiger *Panthera tigris*, and turtles in the lakes, are noteworthy (A.U. Choudhury pers. comm. 2003).

LAND USE

- ☐ Forestry
- ☐ Agriculture

THREATS AND CONSERVATION ISSUES

- ☐ Felling of trees
- ☐ *Jhum* cultivation
- ☐ Poaching of birds

Although notified as a wildlife sanctuary, enforcement is still inadequate. Felling of trees, *jhum* cultivation on the hill slopes and poaching of birds are the main issues.

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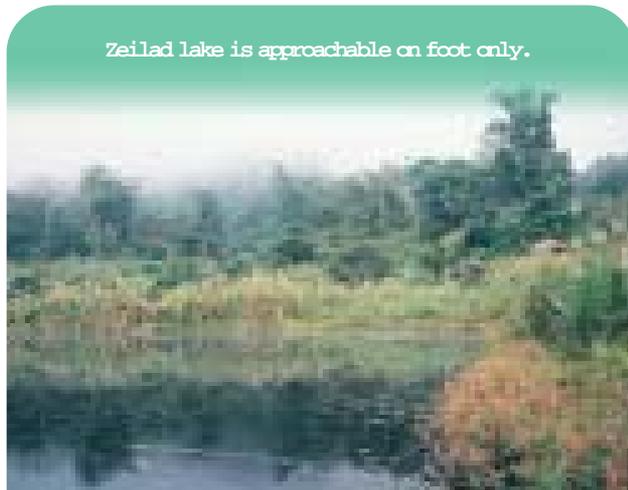


Photo: Anwaruddin Choudhury