

## NATIONAL OVERVIEW



Photo: Otto Pflister

The Endangered Black-necked Cranes *Grus nigricollis* breeds only in Ladakh but a very small population found in north of West Bengal and parts of Sikkim.

## ANALYSIS AND RESULTS

### Status of IBAs

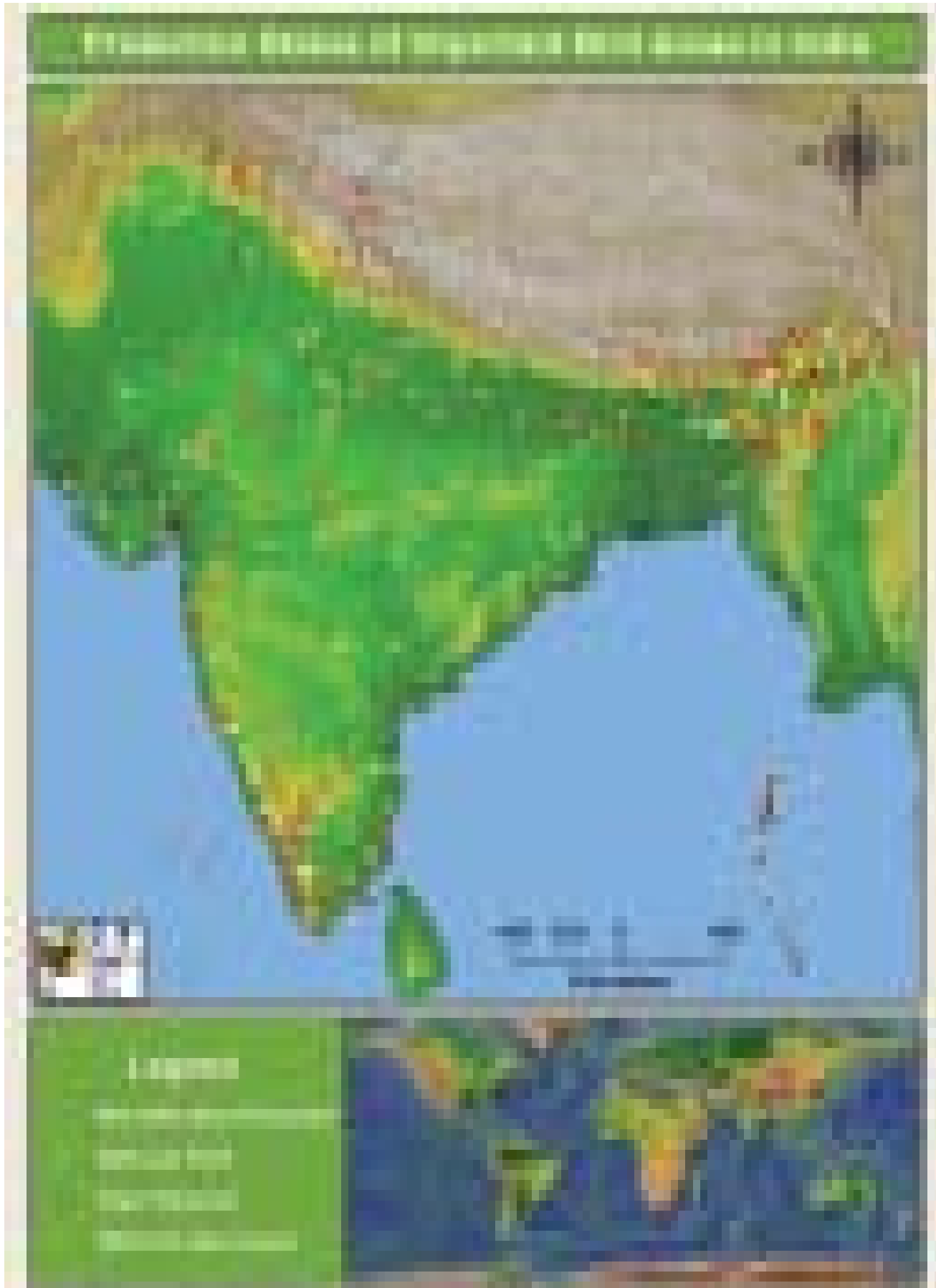
This IBA Inventory is the first comprehensive study in which sites have been identified for bird conservation in India on the basis of globally accepted criteria. Four hundred and sixty-five sites have been identified throughout the country, covering almost all threatened species, restricted range species, biome-assemblages and congregatory species (mainly wetland birds) of India. This list, however, is dynamic and not a fixed list of sites. It is anticipated that several new IBAs would be included once the bird monitoring programme is started and more surveys carried out, especially in those areas which are not properly explored for birds. The IBA Inventory will give a baseline to improve knowledge on birds, especially threatened species. As new sites are located, the database on the IBAs and on birds would improve.

### Categories and criteria met by Indian IBAs

The analysis of these 465 IBAs shows that 425 sites have globally threatened species (A1), 205 sites hold restricted range species (A2), and 99 sites qualify biome-restricted assemblages (A3), and 136 sites fit the congregatory (A4) criteria. Many sites fit more than one criterion, and some sites such as Keoladeo National Park and Chilika Lake qualify all the four criteria. That is why the sum total is more than 465.

Around 90% of IBAs in India are important for one or more of the 78 globally threatened species in India and 47% for the 74 restricted range species found in India. Almost all IBAs fall under at least one biome and hold some of the 374 bird species that fall in the biome criterion. The IBAs are also important for species that congregate in large numbers, such as congregatory terrestrial birds, wintering and passage waterbirds and breeding seabirds. Almost 17% of the IBAs have been identified for these species.

Important Bird Areas in India - National Overview





### The Indian IBAs and Criteria

RDB = Red Data Book species; RRS = Restricted Range Species

The following are the results of the analysis of the IBA sites on the basis of categories and criteria defined in the methodology. (Many IBAs qualify more than one criterion so here the total is more than 465.)

#### A1: GLOBALLY THREATENED SPECIES

There are 78 globally threatened bird species in India (BirdLife International 2001). Among these, 27 are restricted range species (25 species are endemic and two are found in secondary areas). The key habitats for the threatened species are wetlands (29 species), forest birds (27 species), grassland (14) and scrubland (4). There are many bird species which uses many habitat types, for example, the Greater Adjutant *Leptoptilos dubius* uses forest, wetland and urban areas. Similarly, the Lesser Kestrel *Falco naumanni* uses four habitats *i.e.*, forest, grassland, scrub and agricultural land.

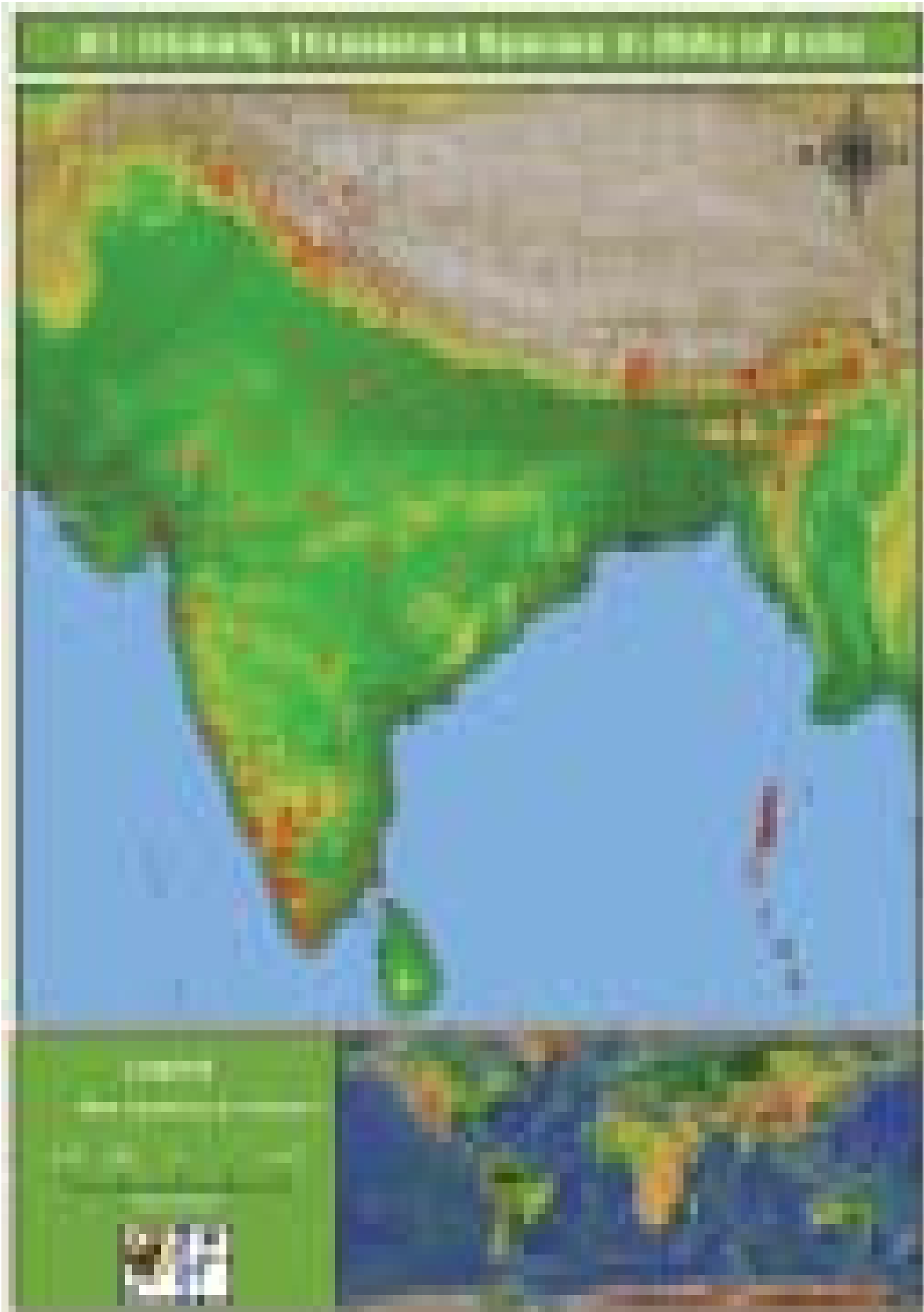
The IUCN categorizes birds in the Red Data List as:

- (a) Critically Endangered, eight species are found in India,
- (b) Endangered, 10 species in India,
- (c) Vulnerable, 57 species in India,
- (d) Conservation Dependent, one species, *i.e.*, Dalmatian Pelican *Pelecanus crispus*,
- (e) Data Deficient, two species: Andaman Crake *Rallina canningi* and Nicobar Scops-owl *Otus alius*,
- (f) Near Threatened, 52 species in India.

The following figures give details about the distributions of the globally threatened species in the IBAs. Vulnerable species are found in 71% of the IBAs, while Critically Endangered species are found in 19% of the IBAs, followed by Endangered, Data Deficient and Conservation Dependent.

#### Threatened species coverage in the IBAs

Important Bird Areas in India - National Overview



Important Bird Areas in India - National Overview

Threatened species coverage in the IBAs

Threatened species	Scientific Names	IUCN Category	EBA/SA	Number of IBAs
Dalmatian Pelican	<i>Pelecanus crispus</i>	CD		15
Spot-billed Pelican	<i>Pelecanus philippensis</i>	VU		67
White-bellied Heron	<i>Ardea insignis</i>	EN		11
Oriental Stork	<i>Ciconia boyciana</i>	EN		0
Lesser Adjutant	<i>Leptoptilos javanicus</i>	VU		91
Greater Adjutant	<i>Leptoptilos dubius</i>	EN		25
White-headed Duck	<i>Oxyura leucocephala</i>	EN		1
Lesser White-fronted Goose	<i>Anser erythropus</i>	VU		5
White-winged Duck	<i>Cairina scutulata</i>	EN		36
Baikal Teal	<i>Anas formosa</i>	VU		2
Marbled Teal	<i>Marmaronetta angustirostris</i>	VU		6
Pink-headed Duck (Extinct?)	<i>Rhodonessa caryophyllacea</i>	CR		0
Baer's Pochard	<i>Aythya baeri</i>	VU		22
Pallas's Fish-eagle	<i>Haliaeetus leucoryphus</i>	VU		52
Oriental White-backed Vulture	<i>Gyps bengalensis</i>	CR		162
Long-billed Vulture	<i>Gyps indicus</i>	CR		91
Slender-billed Vulture	<i>Gyps tenuirostris</i>	CR		40
Nicobar Sparrow-hawk	<i>Accipiter butleri</i>	VU	EBA-126	4
Greater Spotted Eagle	<i>Aquila clanga</i>	VU		101
Eastern Imperial Eagle	<i>Aquila heliaca</i>	VU		32
Lesser Kestrel	<i>Falco naumanni</i>	VU		35
Nicobar Megapode	<i>Megapodius nicobariensis</i>	VU	EBA-125, EBA-126	2
Swamp Francolin	<i>Francolinus gularis</i>	VU		35
Manipur Bush-quail	<i>Perdica manipurensis</i>	VU	EBA-131	2
Red-breasted Hill Partridge	<i>Arborophila mandellii</i>	VU	EBA-130	18
Himalayan Quail	<i>Ophrysia superciliosa</i>	CR	EBA-128	1
Western Tragopan	<i>Tragopan melanocephalus</i>	VU	EBA-128	17
Blyth's Tragopan	<i>Tragopan blythii</i>	VU	EBA-130	24
Sclater's Monal	<i>Lophophorus sclateri</i>	VU	EBA-130	7
Cheer Pheasant	<i>Catreus wallichii</i>	VU	EBA-128	22
Mrs. Hume's Pheasant	<i>Syrmaticus humiae</i>	VU		13
Green Peafowl	<i>Pavo muticus</i>	VU		6
Siberian Crane	<i>Grus leucogeranus</i>	CR		1
Hooded Crane	<i>Grus monacha</i>	VU		0
Black-necked Crane	<i>Grus nigricollis</i>	VU		10
Sarus Crane	<i>Grus antigone</i>	VU		67
Andaman Crake	<i>Rallina canningi</i>	DD	EBA-125	13
Masked Finfoot	<i>Heliopais personata</i>	VU		6
Great Indian Bustard	<i>Ardeotis nigriceps</i>	EN		12
Bengal Florican	<i>Houbaropsis bengalensis</i>	EN		21
Lesser Florican	<i>Sypheotides indica</i>	EN		16
Sociable Lapwing	<i>Vanellus gregarius</i>	VU		8
Wood Snipe	<i>Gallinago nemoricola</i>	VU		18
Spotted Greenshank	<i>Tringa guttifer</i>	EN		7
Spoon-billed Sandpiper	<i>Calidris pygmeus</i>	VU		4
Jerdon's Courser	<i>Rhinoptilus bitorquatus</i>	CR	SA-s071	2
Indian Skimmer	<i>Rynchops albicollis</i>	VU		29
Eastern Stock Pigeon	<i>Columba eversmanni</i>	VU		0
Nilgiri Wood-pigeon	<i>Columba elphinstonii</i>	VU	EBA-123	59
Pale-capped/Purple-wood Pigeon	<i>Columba punicea</i>	VU		16
Forest Owlet	<i>Heteroglaux blewitti</i>	CR	SA-s075	3
Dark-rumped Swift	<i>Apus acuticauda</i>	VU	EBA-130	6
Rufous-necked Hornbill	<i>Aceros nipalensis</i>	VU		54
Narcondam Hornbill	<i>Aceros narcondami</i>	VU	EBA-125	1
Yellow-throated Bulbul	<i>Pycnonotus xantholaemus</i>	VU		15
Nicobar Bulbul	<i>Hypsipetes nicobariensis</i>	VU	EBA-126	1

## Important Bird Areas in India – National Overview

Threatened species	Scientific Names	IUCN Category	EBA/SA	Number of IBAs
Grey-sided Thrush	<i>Turdus feae</i>	VU		1
Rusty-bellied Shortwing	<i>Brachypteryx hyperythra</i>	VU	EBA-130	19
White-bellied Shortwing	<i>Brachypteryx major</i>	VU	EBA-123	29
Stoliczka's Bushchat	<i>Saxicola macrorhyncha</i>	VU		12
Hodgson's Bushchat	<i>Saxicola insignis</i>	VU		4
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>	EN	EBA-123	12
Marsh Babbler	<i>Pellorneum palustre</i>	VU	EBA-131	11
Rusty-throated/Mishmi Wren-babbler	<i>Spelaormis badeigularis</i>	VU	EBA-130	4
Tawny-breasted Wren-babbler	<i>Spelaormis longicaudatus</i>	VU	EBA-130	4
Snowy-throated/Austen's Babbler	<i>Stachyris oglei</i>	VU	EBA-130	4
Jerdon's Babbler	<i>Chrysomma altirostre</i>	VU		8
Slender-billed Babbler	<i>Turdoides longirostris</i>	VU		5
Black-breasted Parrotbill	<i>Paradoxornis flavirostris</i>	VU	EBA-131	18
Hodgson's/Grey-crowned Prinia	<i>Prinia cinereocapilla</i>	VU		7
Bristled Grass-warbler	<i>Chaetornis striatus</i>	VU		7
Broad-tailed Grassbird	<i>Schoenicola platyura</i>	VU	EBA-123	20
Kashmir Flycatcher	<i>Ficedula subrubra</i>	VU	EBA-128	9
Pied Tit	<i>Parus nuchalis</i>	VU		12
Beautiful Nuthatch	<i>Sitta formosa</i>	VU		26
Green Munia	<i>Amandava formosa</i>	VU		15
Finn's Weaver	<i>Ploceus megarhynchus</i>	VU		11

CR = Critically Endangered, EN = Endangered, VU = Vulnerable, CD = Conservation Dependent, DD = Data Deficient  
 EBA = Endemic Bird Area; SA = Secondary Area; EBA-123 = Western Ghats, EBA-125 = Andaman Islands, EBA-126 = Nicobar Islands,  
 EBA-128 = Western Himalayas, EBA-130 = Eastern Himalayas, EBA-131 = Assam Plains, SA s071 = Eastern Andhra Pradesh,  
 SA s075 = Central Indian Forests

The numbers of *Gyps* species of vultures in India has crashed by 98% in the last 10 years.  
 This is chiefly due to the introduction of drug Diclofenac for veterinary use.



Photo: Asad R. Rahmani

## Important Bird Areas in India - National Overview

### A2: COVERAGE OF RESTRICTED RANGE SPECIES

There are 74 Restricted Range bird species in India (Stattersfield *et al.* 1998), many of them are found in neighbouring countries also. Twenty-seven of them are globally threatened. Out of these 74 species, 38 are confined to India (not found in any other country), of which 10 are globally threatened. Of the remaining 36 species (found in neighboring countries also), 13 are globally threatened species. We also found that out of 74 species, 57 restricted range species are continental and 22 are island species (Stattersfield *et al.* 1998).

The BirdLife International (2001) has identified seven Endemic Bird Areas (EBAs), and five Secondary Areas (SAs) in India. The EBAs hold more than two restricted range species, while SAs are those areas which have only one restricted range species. In the Western Ghats, 16 restricted range species are found, of which four are globally threatened. Sixty-six IBAs have been identified in the Western Ghats. In the Western Himalayas where 11 restricted range species are listed, four are globally threatened. Thirty-three IBAs have been identified in the Western Himalayas. The number of restricted range species, threatened species and EBAs/SAs are given below.

#### Endemic Bird Areas coverage in Important Bird Areas

	Endemic Bird Areas	Number of species	Number of RDB species	Number of IBA sites
EBA 123	Western Ghats	16	4	66
EBA 125	Andaman Islands	13	3	17
EBA 126	Nicobar Islands	9	4	11
EBA 128	Western Himalayas	11	4	33
EBA 130	Eastern Himalayas	21	7	59
EBA 131	Assam Plains	3	3	17
EBA 133	Southern Tibet	1	0	4

#### Distribution of IBAs in different Endemic Bird Areas

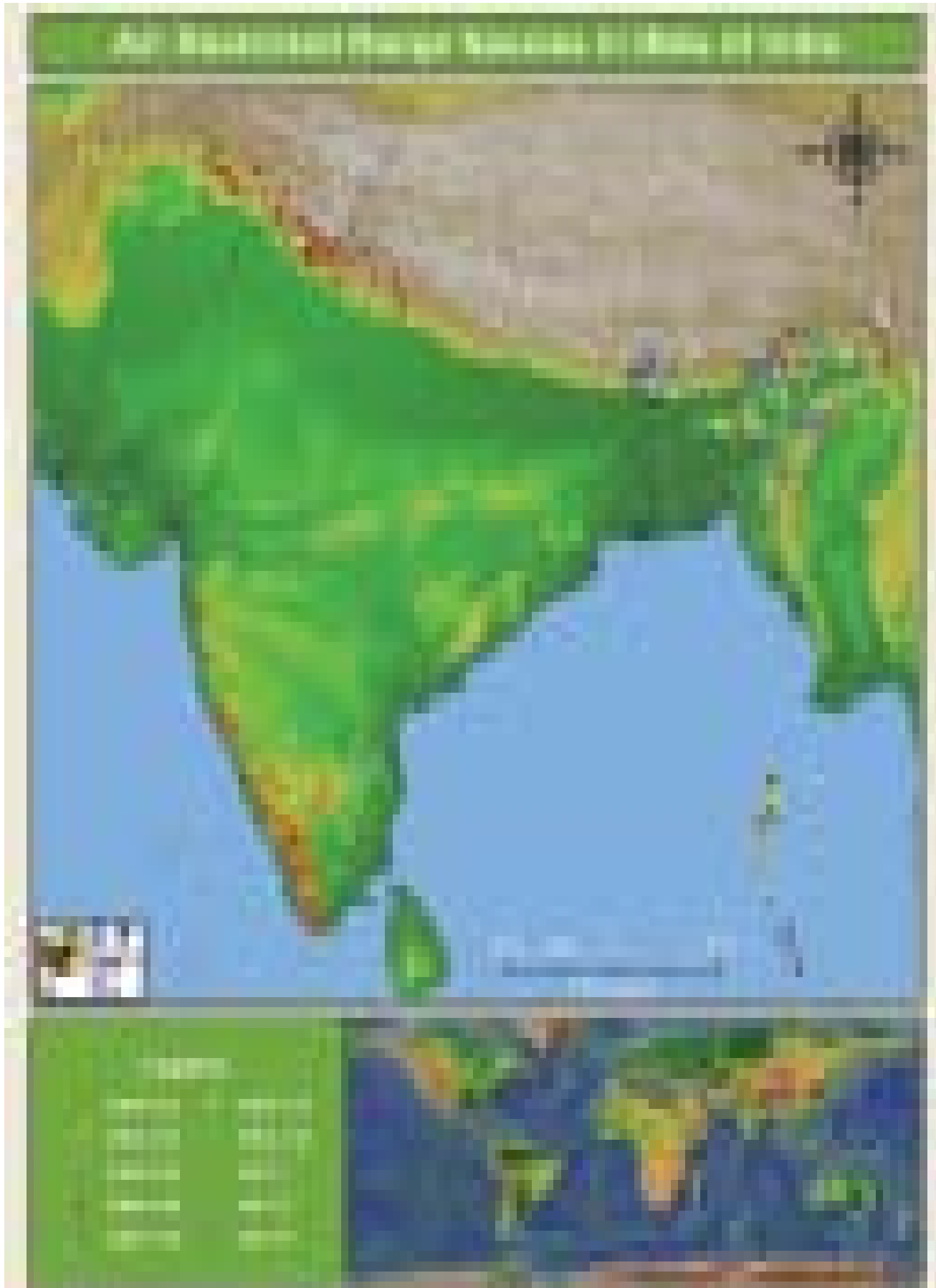
#### Secondary Areas coverage in Important Bird Areas

	Secondary Areas	Number of species	Number of RDB species	Number of IBA sites
SA s071	Eastern Andhra Pradesh	1	1	2
SA s072	Southern Deccan Plateau	1	1	8
SA s074	Indus Plains	1	0	0
SA s075	Central Indian Forests	1	1	4
SA s079	Northern Myanmar Lowlands	1	0	4

#### Distribution of IBAs in different Secondary Bird Areas in India



Important Bird Areas in India - National Overview





Important Bird Areas in India - National Overview

Restricted Range species coverage in the IBAs

Species	Scientific Names	IUCN Category	EBA/ SA	Number of IBAs
Nicobar Serpent-eagle	<i>Spilornis minimus</i>	NT	EBA-126	3
Andaman Serpent Eagle	<i>Spilornis elgini</i>	NT	EBA-125	15
Nicobar Sparrowhawk	<i>Accipiter butleri</i>	VU	EBA-126	4
Nicobar Megapode/Scrubfowl	<i>Megapodius nicobariensis</i>	VU	EBA-125, EBA- 126	2
Manipur Bush Quail	<i>Perdica manipurensis</i>	VU	EBA-131	2
Red-breasted Hill/Chestnut-breasted Partridge	<i>Arborophila mandellii</i>	VU	EBA-130	16
Himalayan Quail	<i>Ophrysia superciliosa</i>	CR	EBA-128	1
Western Tragopan	<i>Tragopan melanocephalus</i>	VU	EBA-128	17
Blyth's Tragopan	<i>Tragopan blythii</i>	VU	EBA-130	24
Sclater's Monal	<i>Lophophorus sclateri</i>	VU	EBA-130	7
Cheer Pheasant	<i>Catreus wallichii</i>	VU	EBA-128	22
Andaman Crake	<i>Rallina canningi</i>	DD	EBA-125	13
Jerdon's Courser	<i>Rhinoptilus bitorquatus</i>	CR	SA-s071	2
Nilgiri Wood-Pigeon	<i>Columba elphinstonii</i>	VU	EBA-123	59
Andaman Wood Pigeon	<i>Columba palumboides</i>	NT	EBA-125	16
Andaman Cuckoo-dove	<i>Macropygia rufipennis</i>	NT	EBA-125	16
Blue-winged Parakeet	<i>Psittacula columboides</i>		EBA-123	40
Nicobar Parakeet	<i>Psittacula caniceps</i>	NT	EBA-126	1
Andaman/Brown Coucal	<i>Centropus andamanensis</i>		EBA-125	12
Andaman Scops-owl	<i>Otus balli</i>	NT	EBA-125	11
Forest Owlet	<i>Heteroglaux blewitti</i>	CR	SA-s.075	3
Andaman Hawk-owl	<i>Ninox affinis</i>	NT	EBA-125	16
Dark-rumped Swift	<i>Apus acuticauda</i>	VU	EBA-130	6
Ward's Trogon	<i>Harpactes wardi</i>	NT	EBA-130	14
Malabar Grey Hornbill	<i>Ocyeros griseus</i>		EBA-123	41
Narcondam Hornbill	<i>Aceros narcondami</i>	VU	EBA-125	1
Andaman Black Woodpecker	<i>Dryocopus hodgei</i>	NT	EBA-125	13
Nilgiri Pipit	<i>Anthus nilghiriensis</i>	NT	EBA-123	23
Grey-headed Bulbul	<i>Pycnonotus priocephalus</i>		EBA-123	33
Yellow-throated Bulbul	<i>Pycnonotus xantholaemus</i>	VU	SA.s072	15
Nicobar Bulbul	<i>Hypsipetes nicobariensis</i>	VU	EBA-126	1
Rusty-bellied Shortwing	<i>Brachypteryx hyperythra</i>	VU	EBA-130	19
White-bellied Shortwing	<i>Brachypteryx major</i>	VU	EBA-123	29
Chestnut-backed Laughingthrush	<i>Garrulax nuchalis</i>	NT	SA-s079	1
Wynaad Laughingthrush	<i>Garrulax delesserti</i>		EBA-123	23
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>	EN	EBA-123	11
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>	NT	EBA-123	17
Striped Laughingthrush	<i>Garrulax virgatus</i>		EBA-130	5
Brown-capped Laughingthrush	<i>Garrulax austeni</i>		EBA-130	4
Marsh Babbler	<i>Pellorneum palustre</i>	VU	EBA-131	11
Rufous-throated Wren Babbler	<i>Spelaornis caudatus</i>	NT	EBA-130	12
Rusty-throated Wren Babbler	<i>Spelaornis badeigularis</i>	VU	EBA-130	4
Tawny-breasted Wren Babbler	<i>Spelaornis longicaudatus</i>	VU	EBA-130	4
Wedge-billed Wren Babbler	<i>Sphenocichla humei</i>	NT	EBA-130	12
Austen's/Snowy-throated Babbler	<i>Stachyris oglei</i>	VU	EBA-130	5
Indian Rufous Babbler	<i>Turdoides subrufus</i>		EBA-123	32
Giant Babax	<i>Babax waddelli</i>	NT	EBA-133	2
Hoary-throated Barwing	<i>Actinodura nipalensis</i>		EBA130	13
Austen's/Streak-throated Barwing	<i>Actinodura waldeni</i>		EBA-130	13
Brown-throated Tit-babbler/Ludlow's Fulvetta	<i>Alcippe ludlowi</i>		EBA-130	11
Grey Sibia	<i>Heterophasia gracilis</i>		EBA-130	26
Beautiful Sibia	<i>Heterophasia pulchella</i>		EBA-130	21
White-naped Yuhina	<i>Yuhina bakeri</i>		EBA-130	31
Black-breasted Parrotbill	<i>Paradoxornis flavirostris</i>	VU	EBA-131	18

## Important Bird Areas in India – National Overview

Species	Scientific Names	IUCN Category	EBA/SA	Number of IBAs
Brooke's Leaf Warbler	<i>Phylloscopus subviridis</i>		EBA-128	1
Tytlar's Leaf Warbler	<i>Phylloscopus tytleri</i>		EBA-128	7
Black-browed Leaf /Yellow-vented Warbler	<i>Phylloscopus cantator</i>		EBA-130	22
Broad-billed Flycatcher-Warbler	<i>Tickellia hodgsoni</i>		EBA-130	17
Broad-tailed Grassbird	<i>Schoenicola platyura</i>	VU	EBA-123	20
Kashmir Flycatcher	<i>Ficedula subrubra</i>	VU	EBA-128	9
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>	NT	EBA-123	27
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>	NT	EBA-123	28
White-bellied Blue Flycatcher	<i>Cyornis pallipes</i>		EBA-123	36
White-cheeked Tit	<i>Aegithalos leucogenys</i>		EBA-128	4
White-throated Tit	<i>Aegithalos niveogularis</i>		EBA-128	5
Kashmir Nuthatch	<i>Sitta cashmirensis</i>		EBA-128	0
Small/Crimson-backed Sunbird	<i>Nectarinia minima</i>		EBA-123	51
Spectacled Finch	<i>Callacanthus burtoni</i>		EBA-128	2
Orange Bullfinch	<i>Pyrrhula aurantiaca</i>		EBA-128	3
Sind Sparrow	<i>Passer pyrrhonotus</i>		SA s074	0
White-headed Starling	<i>Sturnus erythropygius</i>		EBA-125, 126	17
Andaman Drongo	<i>Dicrurus andamanensis</i>	NT	EBA-125	15
White-bellied Treepie	<i>Dendrocitta leucogastra</i>		EBA-123	30
Andaman Treepie	<i>Dendrocitta bayleyi</i>	NT	EBA-125	13

CR = Critically Endangered, EN = Endangered, VU = Vulnerable, DD = Data Deficient, NT = Near Threatened; EBA= Endemic Bird Area; SA = Secondary Area; EBA-123 = Western Ghats, EBA-125 = Andaman Islands, EBA-126 = Nicobar Islands, EBA-128 = Western Himalayas, EBA-130 = Eastern Himalayas, EBA-131 = Assam Plains; SA s071 = Eastern Andhra Pradesh, SA s072 = Southern Deccan Plateau, SA s074 = Indus Plains, SA s075 = Central Indian Forests, SA s079 = North Myanmar Lowlands

The Endangered Nilgiri Laughingthrush *Garrulax cachinnans* has a very limited distribution in the Western Ghats and found only above 1400 m as per the latest studies by the ENHS.



Photo: R. Vijaykumar Thordaman

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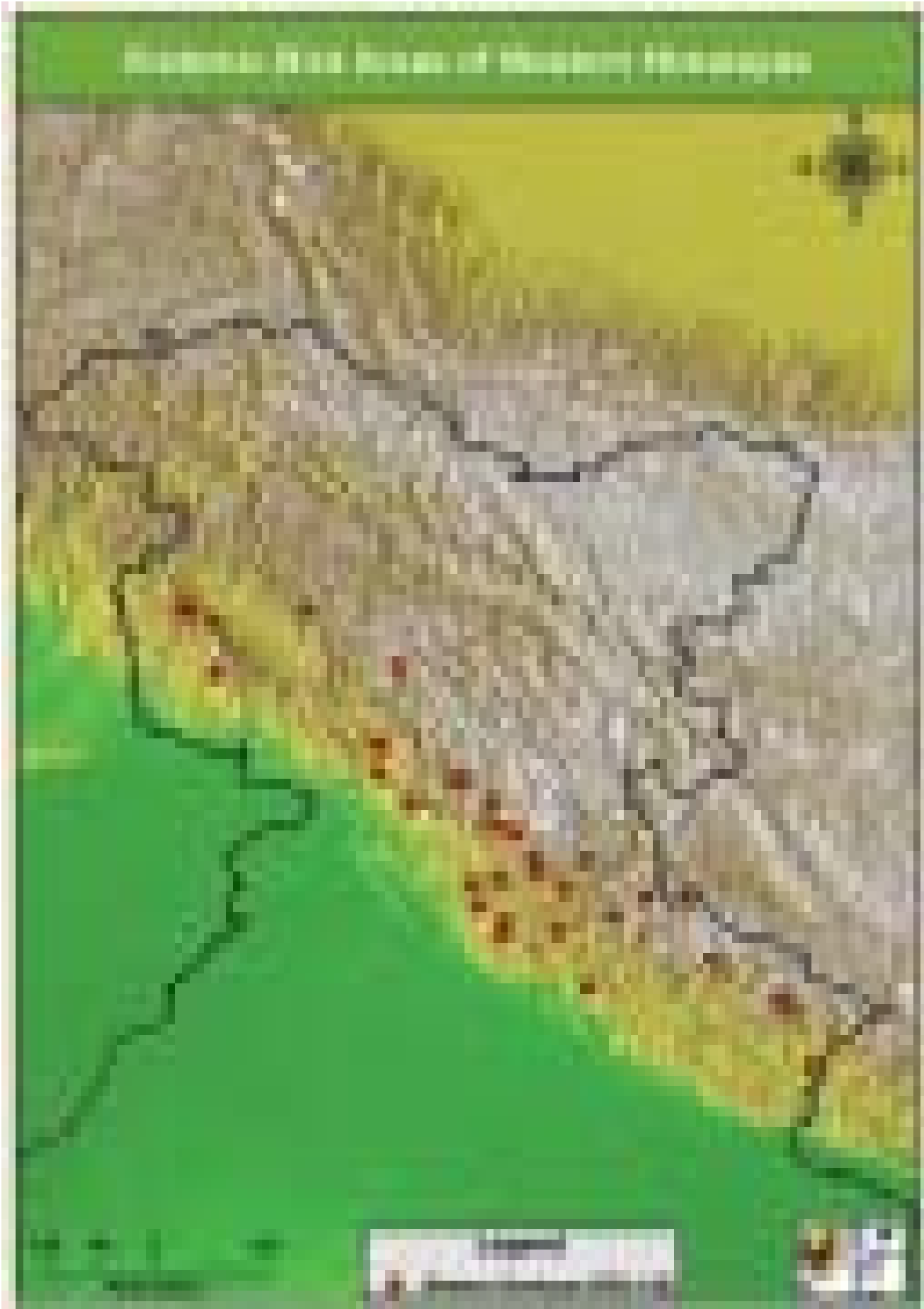


Important Bird Areas in India - National Overview



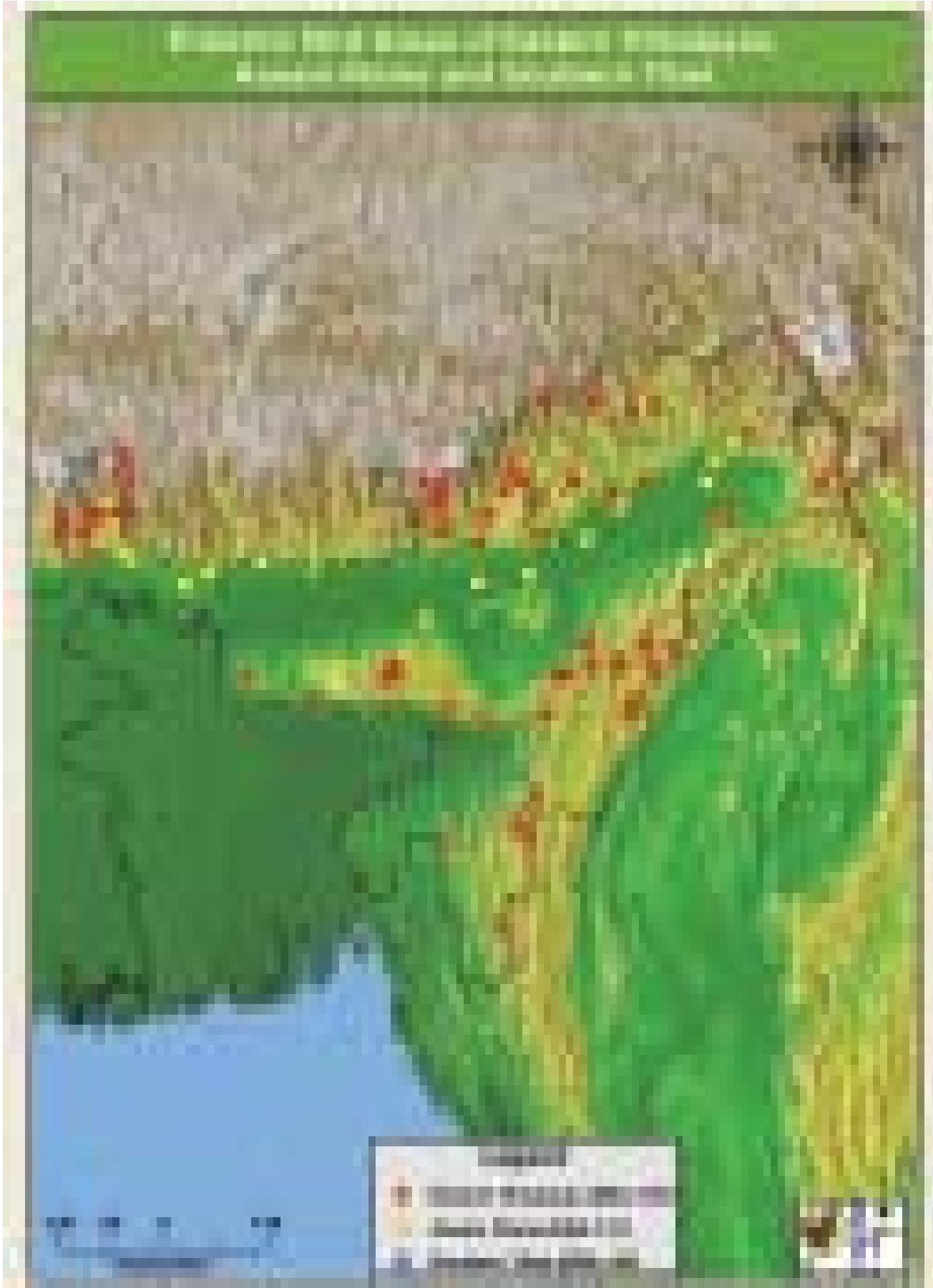


Important Bird Areas in India - National Overview





Important Bird Areas in India - National Overview

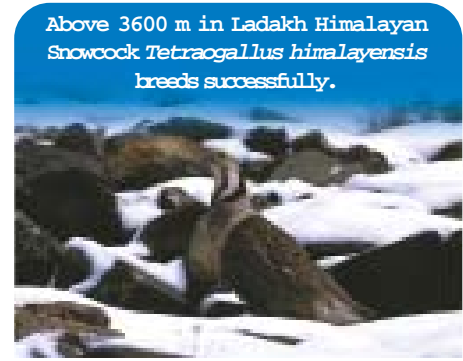


**A3: BIOME RESTRICTED ASSEMBLAGE**

This category applies to groups of species with largely shared distributions of greater than 50,000 sq. km, which occur mostly or wholly within all or part of a particular biome and are, therefore, of global importance.

The site is known or thought to hold a significant component of the group of species whose distributions are largely or wholly confined to one biome.

Ninety-nine IBAs have been identified using this criterion. The range of each biome and maps were provided by the BirdLife International. The status of the IBAs in the Biome categories are given in the following table.



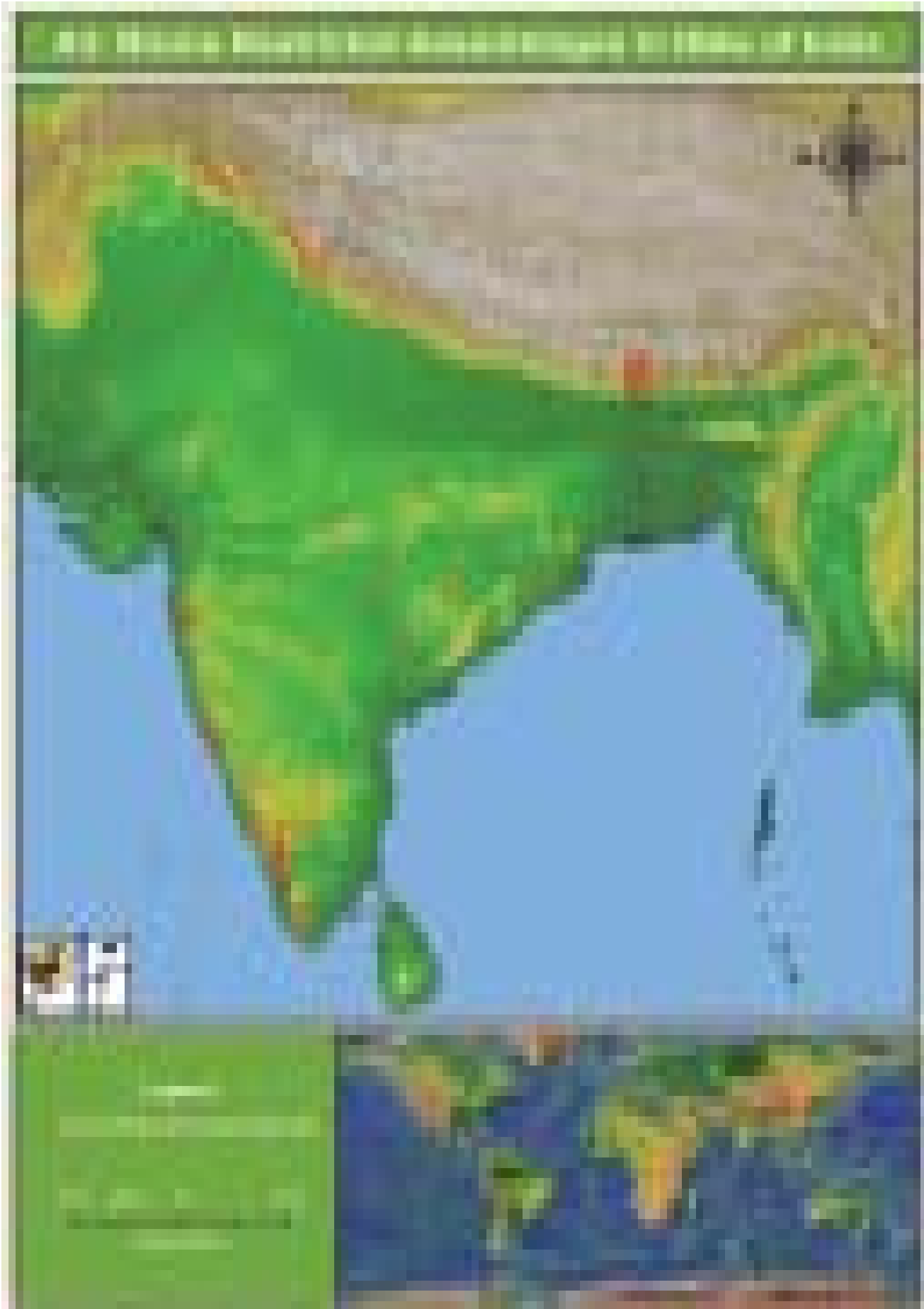
**IBAs in different Biomes**

Biome No.	Biome Name	Distribution of each biome	Total number of species for each biome in India	Number of IBAs
Biome-5	Eurasian High Montane (Alpine and Tibetan)	India, China, Bhutan, Nepal, Pakistan, Myanmar, Russia, Mongolia,	48	17
Biome-7	Sino-Himalayan Temperate Forest	India, Bangladesh, Bhutan, Nepal, Pakistan, Myanmar, Laos, Thailand, Vietnam, Russia, Mangolia, China, Taiwan	112	27
Biome-8	Sino-Himalayan subtropical Forest	India, China, Bangladesh, Bhutan, Nepal, Pakistan, Myanmar, Cambodia, Laos, Thailand, Vietnam, Taiwan, Philippines,	95	15
Biome-9	Indo-Chinese Tropical Moist Forest	India, China, Bangladesh, Bhutan, Nepal, Myanmar, Cambodia, Laos, Thailand, Vietnam	19	8
Biome-10	Indian Peninsula Tropical Moist Forest	India, Sri Lanka	15	37
Biome-11	Indo-Malayan Tropical Dry Zone	India, China, Bangladesh, Bhutan, Nepal, Pakistan, Sri Lanka, Myanmar, Cambodia, Indonesia, Laos, Malaysia, Thailand, Vietnam	59	27
Biome-12	Indo-Gangetic Plains	India, China, Bangladesh, Bhutan, Nepal, Pakistan, Myanmar, Cambodia, Laos, Thailand, Vietnam	13	2
Biome-13	Sahara-Sindian Desert	India and Pakistan	11	2

Although, all IBAs lie in one or the other biome (based on habitat type), in this table only those IBAs are listed which were specifically identified under the biome criterion. (Biome-6: Irano-turanian mountains is not found in India)

**Distribution of IBAs in different Biomes in India**

Important Bird Areas in India - National Overview





**A4: CONGREGATORY SPECIES**

Nearly 150 IBAs were identified using the congregatory criteria. The A4i criterion talks about the  $\geq 1\%$  of a biogeographic population of a congregatory waterbird species. Eighty-eight IBAs have been identified using the updated threshold list published in 2002 by the Wetlands International (Wetlands International 2002). A4ii is about  $\geq 1\%$  of the global population of a congregatory seabird or terrestrial species; five IBAs have been identified using this criteria, e.g. Habang in Assam and Velavadar in Gujarat. A4iii is about the presence of  $\geq 20,000$  waterbirds; 105 sites qualify this criteria. The A4iv is about the site exceeding the thresholds set for migratory species at bottleneck sites. In India, only three IBAs were selected under this criteria. They are Jatinga in Assam, Marine National Park and Nalsarovar in Gujarat.

**Congregation of birds and number of IBAs**

Many wetlands in India, such as Sheikha Jheel in north India, are important wintering sites for congregatory species where more than 20,000 waterbirds congregate.

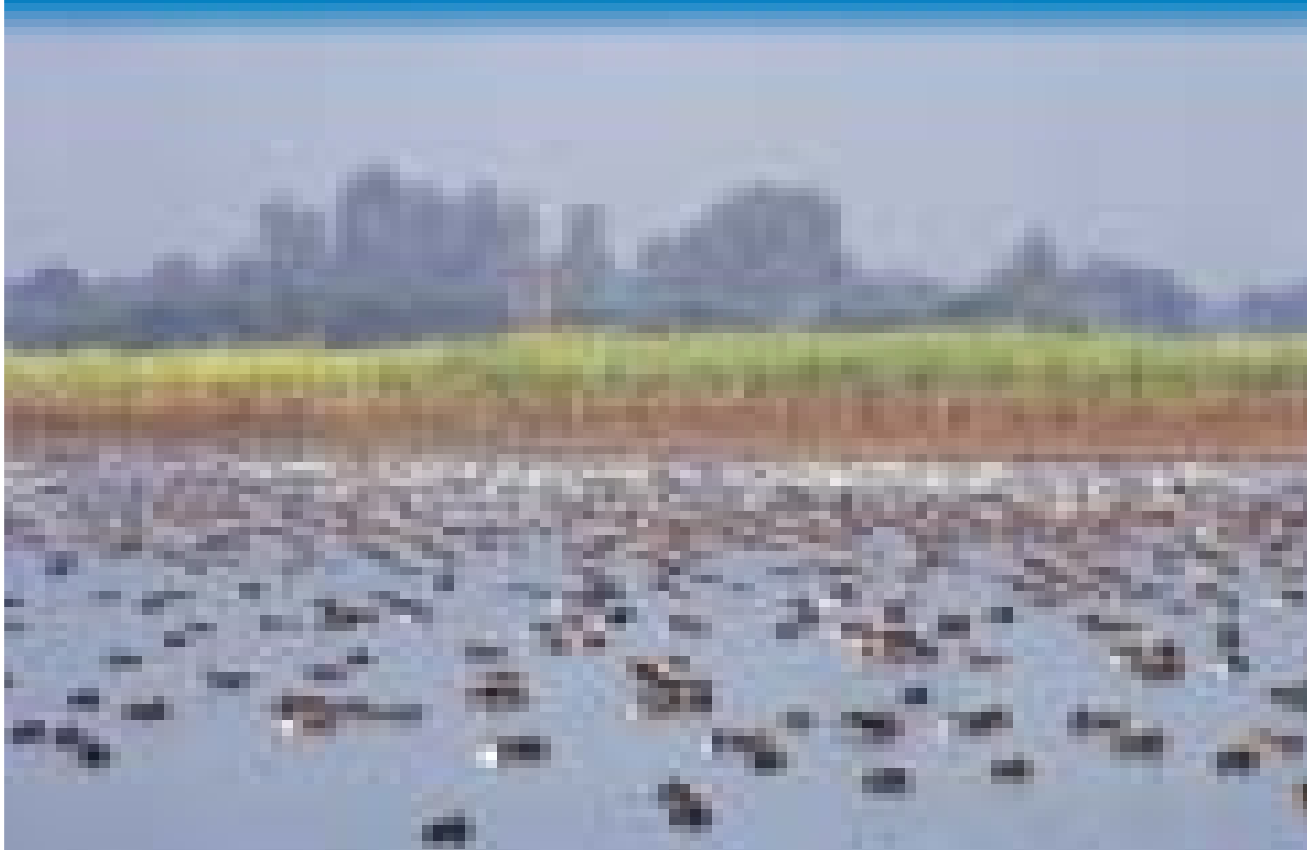
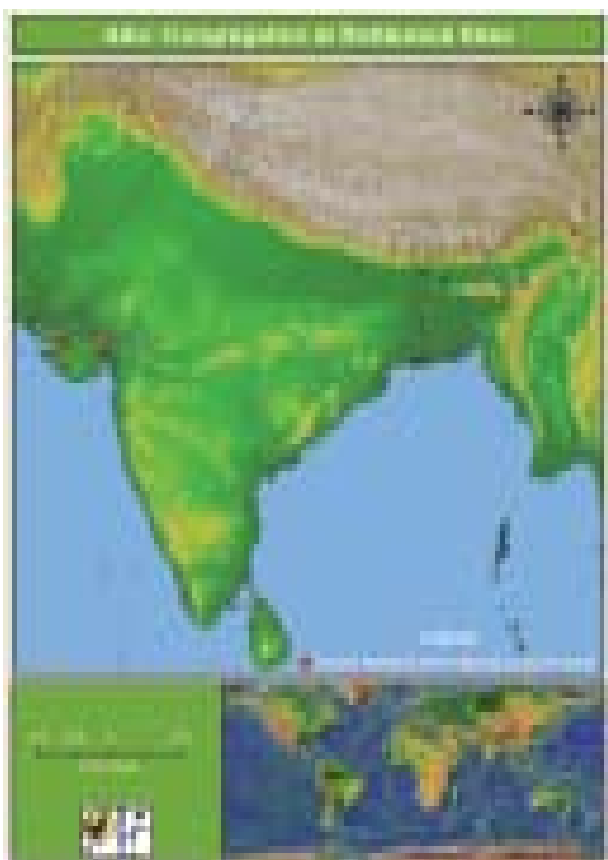
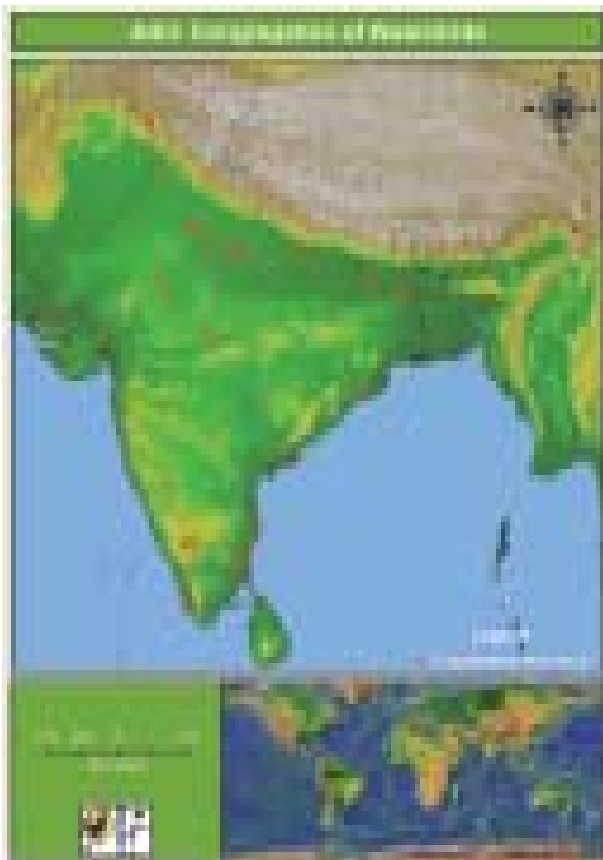
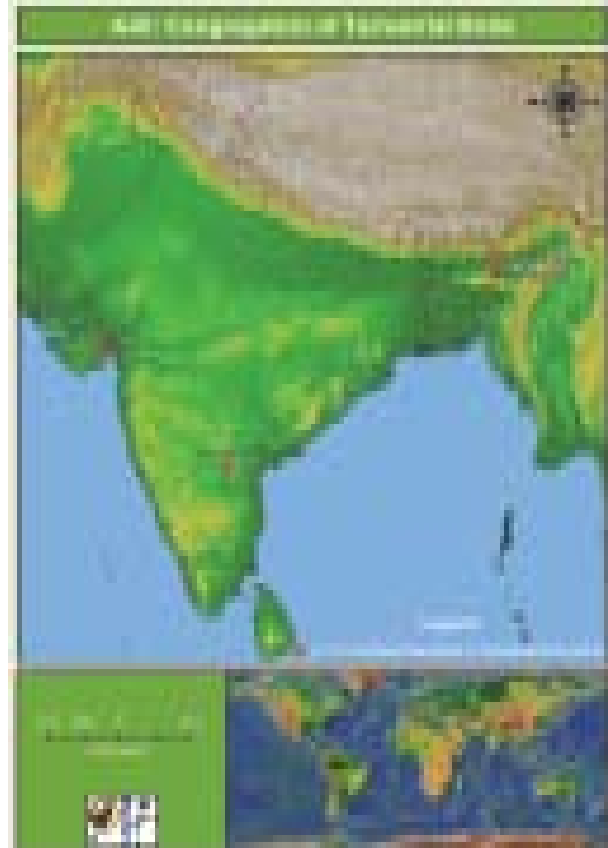


Photo: Asad R. Rahmani

Important Bird Areas in India - National Overview





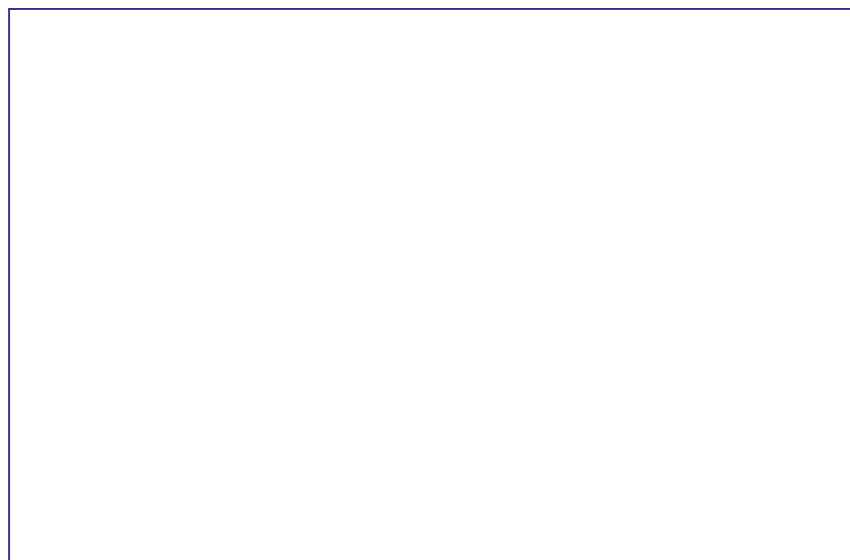
**IBAs IN DIFFERENT HABITAT TYPES**

Champion and Seth (1968) have classified India's vegetation into seven major groups, 16 sub-groups and over 150 sub-types and seral stages. This classification, by far, takes physiognomy, floristics as well as local edaphic and biotic factors into classification hence widely used by foresters as well as ecologists. Description of wildlife habitats, including major biomes and Important Bird Areas (IBAs) can best be done using Champion and Seth's categories. However, as this book deals with birds and Important Bird Areas, we have not gone into details of vegetation types of India, and for our analysis, we have categorized India's vegetation into eight general broad habitat categories, which are (1) Alpine Forest; (2) Sub-Alpine Forest; (3) Temperate Forest; (4) Evergreen Forest; (5) Deciduous Forest; (6) Grassland; (7) Wetland and (8) Desert.

Forest is the foremost habitat for threatened and other categories of IBAs in India, grasslands are very important for some of the most endangered birds such as the Great Indian Bustard and the Lesser Florican, and wetlands are important for 29 globally threatened and many common waterbirds.

Out of the 465 IBAs in India, the foremost category where the IBAs are distributed is Wetland with 27% IBAs. This is followed by Evergreen Forest (23%), Deciduous Forests (21%), Temperate Forests (11%), Grasslands (10%), Desert (7%), Alpine Forests (4%) and Sub-Alpine Forests (3%).

**IBAs in different habitat types**



**IBAs and Biogeographic Zones**

The Wildlife Institute of India (WII) had produced a document in 1988 by W. Alan Rodgers and H. S. Panwar which defined the biogeographic zones of India for planning a protected area network. This document was updated in 2000 (Rodgers *et al.* 2000). The WII classification uses four levels of planning unit which are as follows: (1) The Biogeographic Zone; (2) The Biotic Province; (3) The Land Region; and (4) The Biome.

We have used only the biogeographic zones which are large distinctive units of similar ecology, biome representation, community and species e.g., Himalayas, Western Ghats, Coasts etc. Rodger and Panwar (1988) had identified 10 biogeographic zones, divided into 26 provinces and many biomes. *The biome definition should not be confused with the BirdLife International's definition of biome.* As per Rodgers *et al.* (2000), a biome is an ecological unit, not a biogeographic unit. A biome such as Littoral Forest, Tropical Swamp Forest, Dry Grasslands or Riverine Habitats could be found in several biogeographic zones or provinces. Biome can be equated to Champion and Seth's broad forest vegetation types, with the addition of non-forest categories such as grassland, wetland etc. (Rodgers *et al.* 2000).

As per BirdLife International, biome is defined as "a major regional ecological community, characterised by distinctive life forms and principal plant species". No system of global biome classification has been found which can be adequately used as a basis for generating bird species lists. Therefore, it is necessary that we should have a regional approach, which may result in inter-regional differences but at the over all scale at which biome division are recognised may be comparable. The biome category applies to groups of species with largely shared distributions of greater than 50,000 sq. km, which occur mostly or wholly within all or part of a particular biome and are, therefore, of global importance.

The following figure gives the details of ten biogeographic zones of India defined by Rodgers *et al.* (2000) and the number of IBAs in each zone.



Important Bird Areas in India - National Overview





Important Bird Areas in India - National Overview

**IBAs distribution in different Biogeographic Zones of India**  
(classification of Zone is as per Rodgers *et al.* 2000)

The maximum number of IBAs (81 sites) are distributed in the Deccan Peninsula while the Himalaya and the North East biogeographic zones have same number of IBAs, i.e., 80 sites each, followed by the Western Ghats, the Semi-Arid, the Gangetic Plains, the Coasts, the Islands, the Trans-Himalayas and the Indian Desert.

Some of the pristine forests in the Western Ghats are perfect habitat for globally threatened species.



Photo: Clement Francis M.

## Important Bird Areas in India - National Overview

### Protection Status of IBAs in different States in India

In India, 465 IBAs have been identified using international criteria. The maximum number of IBAs are in Assam i.e., 46 of which 28 are not officially protected, while Delhi and Lakshadweep have just one IBA each. For the protection point of view, IBAs have been categorized into four, viz., wildlife sanctuary, national park, tiger reserve and not officially protected. The 'not officially protected' category consists of forest reserves, community reserve forests, community protected areas and so on.

Out of 465 IBAs in India, 191 are wildlife sanctuaries, 52 are national parks, 23 are tiger reserves, while 199 are not officially protected.

### Protection Status of IBAs

Sr. No.	States / Union Territories	Number of IBAs	WLS	NP	TR	NOP
1	Andaman and Nicobar Islands	19	6	4		9
2	Andhra Pradesh	16	11	1	1	3
3	Arunachal Pradesh	28	9	1	1	17
4	Assam	46	13	4	1	28
5	Bihar	11	3		1	7
6	Chhattishgarh	4	3		1	
7	Delhi	1	1			
8	Goa	4	3			1
9	Gujarat	17	6	3		8
10	Haryana	5	2	1		2
11	Himachal Pradesh	27	24	2		1
12	Jammu and Kashmir	21	6	3		12
13	Jharkhand	3	2		1	
14	Karnataka	37	15	4	2	16
15	Kerala	24	11	2	1	10
16	Lakshadweep	1				1
17	Madhya Pradesh	17	5	1	4	7
18	Maharashtra	20	8	2	2	8
19	Manipur	9	5	1		3
20	Meghalaya	8	1	2		5
21	Mizoram	6	2	2	1	1
22	Nagaland	9	3	1		5
23	Orissa	7	3	2	1	1
24	Pondicherry	2				2
25	Punjab	3	1			2
26	Rajasthan	24	8	2	2	12
27	Sikkim	11	6	1		4
28	Tamil Nadu	34	8	4	1	21
29	Tripura	2	2			
30	Uttar Pradesh	25	16	1		8
31	Uttaranchal	14	5	5	1	3
32	West Bengal	10	3	3	2	2
	<b>Total</b>	<b>465</b>	<b>191</b>	<b>52</b>	<b>23</b>	<b>199</b>

WLS = Wildlife Sanctuary, NP = National Park, TR = Tiger Reserve, NOP = Not officially protected

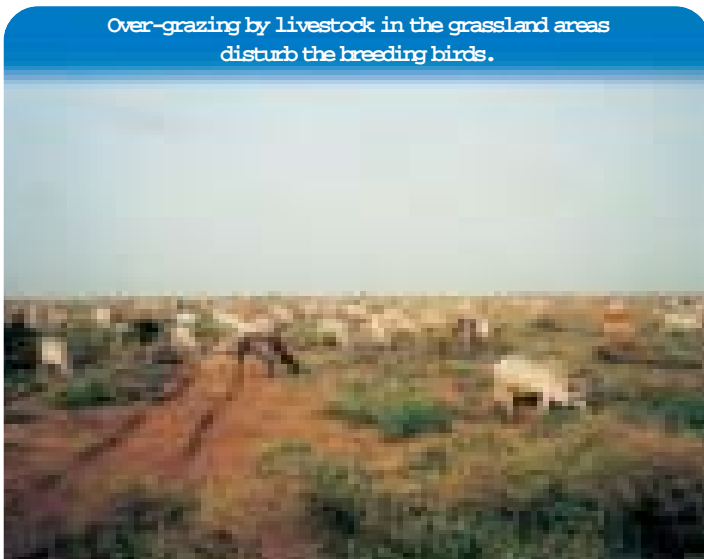
**THREATS TO IBAS**

One bird in eight in the world could join the extinction list in the next century (BirdLife International 2000). The main causes of extinction are habitat loss and habitat degradation. The foremost key threat to the Indian IBAs is the human-settlement and encroachment because with more than a billion people in the country, pressure on land is immense. Agricultural intensification is also a serious threat affecting the IBAs, especially in the north Indian states such as Punjab, Haryana, Uttar Pradesh or those states where the Green Revolution was started. Agricultural intensification results in excessive use of chemicals, changes in crop pattern, loss of habitat, effects of pest control on non-target species and so on. Deforestation has been the key issue in the Andaman Islands because of human population on some of the larger islands has grown rapidly due to the settlement of people from mainland India. Remaining forest is consequently under severe pressure from agriculture and grazing, with habitat loss and degradation from logging being another major threat to wildlife (Whitaker 1985, Sinha 1992).



Deforestation for agriculture shrinks the habitats of threatened and other species as seen near Nameri National Park in Assam.

Photo: M. Zafar-ul-Islam



Over-grazing by livestock in the grassland areas disturb the breeding birds.

Photo: M. Zafar-ul-Islam

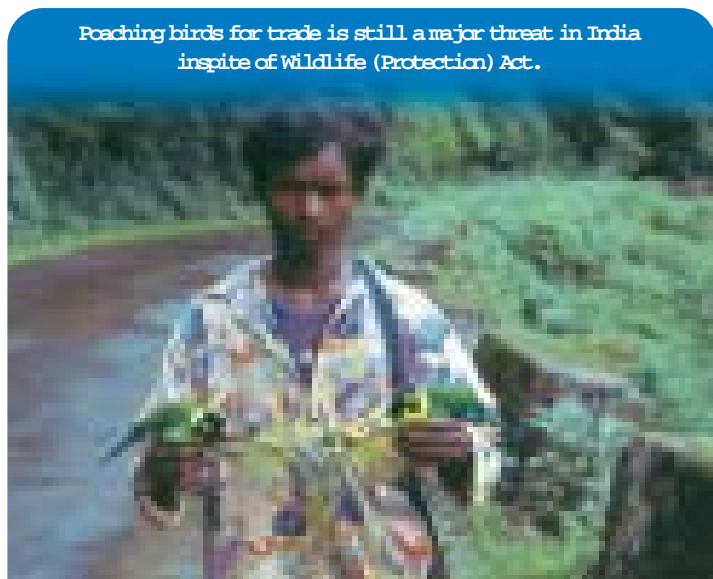
In the northeastern states of the Eastern Himalayas, the shifting cultivation (*jhum*) in the subtropical and temperate forests in the mountains can be sustainable if practiced on a small scale using clearing cycles of 15-20 years, but in many areas increased human population pressure has led to a rapid reduction in this cycle, for example in Meghalaya, where shifting cultivation resulted in the loss of large areas of forest and severe soil erosion (Stattersfield *et al.* 1998, Katti *et al.* 1992). As per our analysis, 321 IBAs are affected by agricultural intensification and expansion.

The Assam Plains have a huge and rapidly growing human population as a result of which very little natural habitat is left. This habitat is now much reduced in area and also severely fragmented (Rahmani 1988). Nonetheless, small relict patches of tall wet grasslands are left in Kaziranga, Orang, Pabitora, Dibru-Saikhowa and Laokhowa. Two of the three restricted range species of the Assam Plains are under severe threat, with one, Manipur Bush Quail

*Pedicularia manipurensis*, has not been seen since 1932. The second threatened species is the Black-breasted Parrotbill *Paradoxornis flavirostris*. We have recent sight records of this species from some IBAs. The third species of the Assam Plains Endemic Bird Area is the Marsh Babbler *Pellorneum palustre*. It is perhaps doing slightly better as it is found in moderately disturbed grasslands also.

Many of the IBAs will be badly affected by the dams of hydroelectric projects planned or being executed presently in India, especially in the northeastern states (see *IBAs in Northeast India: Threats to habitats and opportunities for conservation*). A large number of IBAs in the Northeast are impacted/likely to be impacted by large dams due to a range of issues: submergence, downstream impacts, pressures on forests due to labour involved in construction etc. A few examples are D'Ering Memorial Sanctuary, Talley Valley and Pakke sanctuaries in Arunachal Pradesh; Ripu Chirang, Subansiri, Chandubi *Beel* in Assam; Kailam Wildlife Sanctuary and Loktak Lake in Manipur; and Dzukou Valley in Nagaland.

In the Western Himalayas, habitat is being lost at important sites because of development projects such as roads and dams. Such projects adversely affects the habitats of some of the globally threatened species of this region such as the Western Tragopan *Tragopan melanocephalus*, Cheer Pheasant *Catreus wallichi*, Himalayan Quail *Ophrysia*



Poaching birds for trade is still a major threat in India inspite of Wildlife (Protection) Act.

Photo: Anwaruddin Chowdhury

Key threats to the IBAs

A= Agriculture intensification/expansion; B = Dams / Dykes; C = Disturbance to birds; D = Firewood collection;  
E = Industrialization; F = Unsustainable exploitation; G = Natural Events; H= Others

Some of the canals degrade the habitats of threatened birds, like this one near the Rollopadu Bustard Sanctuary.



Photo: M. Zafar-ul-Islam

*superciliosa*, and Kashmir Flycatcher *Ficedula subrubra*. The habitats of these birds are now much reduced and fragmented, and the Himalayan Quail may already be extinct. Overall 57 IBAs are directly affected by the dam projects in the country.

Overgrazing is another major problems all over the country, but especially in the grassland IBAs. Overgrazing causes adverse impacts on the habitats of grassland inhabiting birds such as the Lesser Florican *Sypheotides indica*, the Great Indian Bustard *Ardeotis nigriceps*, the Bengal Florican *Houbaropsis bengalensis*, larks, pipits and many others. The grazing policy in India is not very strong and even in many protected areas, illegal grazing is seen.

We have identified 26 major threats to IBAs and to threatened species. The major threats to 321 IBAs is agricultural intensification and expansion, which is the most serious threat affecting the IBAs in India. Excessive use of chemicals, changes in crop species or cultivation, loss of habitat, effects of pest control on non-target

species, nutrient pollution of wetlands as a result of agricultural intensification are the other threats. This also includes filling of wetlands and other methods of reclamation of lands. The other most important issue is unsustainable exploitation that includes hunting, egg collection, wildlife trade. Sometimes tourism and/or recreation is considered as a cause for destruction and degradation of habitat, as well as disturbance to birds. Recently some of the developmental projects are coming up in the biodiversity hot spots in the country, such as mining and hydroelectricity projects.

Key threats to each IBA are given in the site accounts, here the problems are presented in a nutshell.

Over-fishing from wetland IBAs is a major problem that needs to be controlled.



Photo: M. Zafar-ul-Islam



## Important Bird Areas in India - National Overview

### The key threats to the IBAs

Key threats	Number of IBAs	Notes
Afforestation	18	This includes intensified forest management
Agricultural intensification and expansion	321	This is the most serious threat affecting the IBAs in India. Includes: Irrigation, high fertilizer input, excessive use of chemicals, changes in crop species or cultivation, loss of habitat, effects of pest control on non-target species, nutrient pollution of wetlands as a result of agricultural intensification. This also includes filling of wetlands and other methods of reclamation of lands.
Aquaculture/fisheries	64	It includes reduction in fish farming due to economic crisis
Burning of Vegetation	59	Fires that are caused by natural events have been excluded and all man-made fires whether intentional (e.g. to clear vegetation for grazing) or accidental or malicious have been considered under this category.
Consequence of animal/plant introduction	80	Invasive species such as Lantana, Scotch Broom, Water Hyacinth.
Construction and impact of dykes/dam/barrages	33	Includes hydro-electric projects,
Deforestation (commercial)	15	—
Disturbance to bird	69	Limited to direct, often willful interference to birds by man and domestic animals e.g. dogs
Drainage	66	For centuries wetlands have been drained, particularly for agricultural purposes.
Dredging and canalization	5	Includes canals for irrigation
Extraction industry (mining)	31	Includes exploration, extraction activities/infrastructure and resultant pollution, covering all kinds of extraction, e.g. not only mining but also oil and gas, as well as pollution occurring during transport.
Filling in of wetlands	13	—
Firewood collection including (collection of Non-Timber forest produce)	117	—
Overgrazing	193	Includes grazing by livestock
Groundwater abstraction	6	—
Industrialization/Urbanization includes pollution, sewage, trade effluent,	67	—
Infrastructure Roads, railways	47	—
Intensified forest management	3	—
Natural events and others	13	Includes drought, erosion, storms etc.
Recreation, tourism	87	Tourism and/or recreational is considered as a cause for destruction and degradation of habitat, as well as disturbance to birds.
Selective logging/cutting, illegal timber felling	106	—
Shifting agriculture	26	Jhumming, especially in the Northeast
Unsustainable exploitation	259	It includes hunting, egg collection, wildlife trade
Man-animal conflicts	19	This threat has been least recorded due to paucity of the information on the intensity of the threat
Human-settlements, encroachments	139	—
Others	59	—

Sarus Cranes *Grus antigone* is included in the Endangered category of IUCN because of its drastic population decline due to overgrazing and disturbance.



Photo: Asad R. Rahmani