

CHHATTISGARH



Photo: Asad R. Rahmani

More than 50% forests of Chhattisgarh are protected and some provide habitat to Green Munia *Amandava formosa* and possibly Forest Owlet *Heteroglaux blewitti*.

Chhattisgarh, carved out of Madhya Pradesh, is located in central India. It is surrounded by Andhra Pradesh in the south, Jharkhand and Orissa in the east, Madhya Pradesh and Maharashtra in the west, and Uttar Pradesh and Jharkhand in the north. It is one of the most forested states of India, with about 44% land under forest cover. There are 16 districts in this State with Raipur as the capital.

Chhattisgarh is very rich in natural resources, mainly minerals, power and forest products. A large amount of revenue comes from mining (bauxite, limestone, coal and iron ore) and forest products. The well-known Bailadila mines are in this State. The steel plants at Bhilai and cement factories generate sizeable revenues for the State.

The rainfall decreases from the southeast and the east to the northwest and west. The annual rainfall varies between 800 mm and 1,800 mm and the annual temperature ranges from 4 °C to 45 °C.

The total population of the State is 20,795,956 (2.0% of the country's population) (Census 2001). About 80% of the population is rural. A large part (32.5%) of the State's population is tribal. The population density of the State is 154 persons per sq. km (Census 2001).

Vegetation

The total recorded forest area of Chhattisgarh is 59,285 sq. km, which is about 44% of the State's geographical area and 7.7% of the country's forest area (Ministry of Environment and Forests 2001). In the Forest Survey of India report of 2001, it is mentioned that the reserve forest is 40.4%, protected forest is 52.5% and unclassified forest is 7.1%. The dense forest is about 28.0%, open forest 13.7% and the non-forest and 58.2% (Ministry of Environment and Forests 2001). The main districts of the State with forest cover are in the north and south. Dantewara in the south has 68.35% forest cover, followed by Korya (61.58%) in the north, Bastar (54.77%) and Kanker (50.66%) (Ministry of Environment and Forests 2001).

There are four major forest types, namely Tropical Moist Deciduous, Tropical Dry Deciduous, Tropical Thorn and Subtropical Broadleaf Hill Forests. Forests are largely distributed in the north and in the southern parts of the State. Teak and Sal are the two most important forest formations of the State (Ministry of Environment and Forests 1999, 2001).

Most of the large mammals of Central India are found in Chhattisgarh, such as the Tiger *Panthera tigris*, Leopard *P. pardus*, Gaur *Bos frontalis*, Sloth Bear *Melursus ursinus*, Chital *Axis axis*, Sambar *Cervus unicolor*, Nilgai *Boselaphus tragocamelus*, Four-horned Antelope *Tetracerus quadricornis*, Chinkara *Gazella bennettii*, Barking Deer or Indian Muntjak *Muntiacus muntjak* and Wild Boar *Sus scrofa*. Medium sized carnivores are Striped Hyaena *Hyaena hyaena*, Golden Jackal *Canis aureus*, Grey Wolf *C. lupus* and Indian Wild Dog *Cuon alpinus*. Jungle Cat *Felis chaus* represents the small carnivores. Python *Python molurus* and Cobra *Naja naja* are found. The Mouse Deer *Moschiola meminna* could be present, but there is no confirmed record. Not much is known about the reptilian and amphibian fauna of the State.



IBAs AND PROTECTED AREAS

The State falls under the Deccan Biogeographical Zone of Rodgers *et al.* (2000). Of its forests, 11% are under the Protected Area Network. There are three national parks and 11 wildlife sanctuaries. So far only the Indravati National Park has been declared as a Tiger Reserve. Of the three national parks, the Indravati National Park has been identified as an IBA on the basis of the threatened species and the biome criteria. Of the 11 wildlife sanctuaries, four are IBAs. The Udanti and the Sitanadi wildlife sanctuaries are merged as one IBA because they are contiguous.

The Indravati National Park was constituted as a tiger reserve in 1982-83. It is situated on the banks of River Indravati and comprises vegetation of Tropical Mixed Deciduous Forest interspersed with grasslands. These forests mainly have Teak and Sal. The threatened bird species of the Park are the Oriental White-backed Vulture *Gyps bengalensis*, Long-billed Vulture *Gyps indicus* and Green Munia *Amandava formosa*.

Number of IBAs and IBA criteria

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

IBAs of Chhattisgarh

IBA site codes	IBA site names	IBA criteria
IN-CT-01	Barnawapara Wildlife Sanctuary	A1, A3
IN-CT-02	Gomarda Wildlife Sanctuary	A1, A3
IN-CT-03	Indravati National Park	A1, A3
IN-CT-04	Udanti and Sitanadi Wildlife Sanctuaries	A1, A3

AVIFAUNA

Not much work on the avifauna has been done in Chhattisgarh. The total number of bird species found in the State is not known. The State lies in Biome-11 (Indo-Malayan Tropical Dry Zone) where the key habitats are Dry Deciduous Forest, Dry Evergreen Forest, Thorn Forest, Semi-Desert Scrub, Wooded Grassland, Secondary Grassland, Arable land and abandoned farmland. This is a huge biome, occurring in nearly 14 countries. In India, 59 birds have been listed which represent this biome-assemblage of birds. The biome includes both forest and open country. Many of the species listed have adapted to man-modified habitats, so they have a wide distribution. As we do not have a detailed checklist, we do not know how many biome species are found here. But looking at the wide distribution of the Biome-11 species, perhaps all of them are found in Chhattisgarh. Some of the key species of this biome are the Red-headed Vulture *Sarcogyps calvus*, White-eyed Buzzard *Butastur teesa*, Red-headed Falcon *Falco chicquera*, Painted Spurfowl *Galloperdix lunulata*, Indian Peafowl *Pavo cristatus*, Plum-headed Parakeet *Psittacula cynocephala*, Indian Robin *Saxicoloides fulvicata*, Rufous-fronted Prinia *Prinia buchanani* and Green Munia.



Photo: Hira Panjwani

All 59 species of Biome-11 are found in Chhattisgarh including the Red-headed Vulture *Sarcogyps calvus*.

In 1997, the Forest Owllet *Heteroglaux (=Athene) blewitti* was rediscovered in northwestern Maharashtra (King and Rasmussen 1998). This provided an impetus to search for it in its former distribution range, especially in areas where specimens were collected earlier. Busna-Phuljhar at the border of Chhattisgarh and Orissa was one of the localities from where a Forest Owllet specimen was collected (Hume 1873). In a survey funded by IBA-IBCN, Ishtiaq *et al.* (2001) visited the Barnawapara Wildlife Sanctuary, the Udanti Wildlife Sanctuary, the Gomarda Wildlife Sanctuary, the Sirpur Reserve Forest, the Singhoda Reserve Forest, the Singhpur Reserve Forest in Chhattisgarh and the Khariar range in adjoining Orissa but could not locate any Forest Owllet despite playing its call at 36 different spots at the peak nesting season. The Khariar Forest from where a type specimen was collected could not be surveyed properly due to the insurgency problem. The habitat appears similar to other Forest Owllet sites. Negative results should not be taken as proof of absence (Ishtiaq and Rahmani 2000).



IN-CT



Important Bird Areas in India - Chhattisgarh

List of Threatened Birds with IBA site codes

The following are the globally threatened and Near Threatened species found in the four IBAs:

Critically Endangered		
Oriental White-backed Vulture	<i>Gyps bengalensis</i>	IN-CT-01, 02, 03, 04
Long-billed Vulture	<i>Gyps indicus</i>	IN-CT-01, 02, 03, 04
Vulnerable		
Lesser Kestrel	<i>Falco naumanni</i>	IN-CT-01
Green Munia	<i>Amandava formosa</i>	IN-CT-01, 02, 03, 04
Near Threatened		
Greater Grey-headed Fish-Eagle	<i>Ichthyophaga ichthyaetus</i>	IN-CT-01, 03

Once a detailed checklist of birds is made available, many more Vulnerable and Near Threatened species are likely to be identified from this State.

THREATS AND CONSERVATION ISSUES

Only four sites have been identified as IBAs and all of them are protected areas, under the management of the Chhattisgarh Forest Department. All the IBAs have forest villages in and around the protected areas that exert tremendous pressure on the forests.

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

Man-animal Conflict: This conflict is common in all the four IBAs, especially involving Sloth Bear and Leopard.

Tourism: The sites are major attractions for tourists and pilgrims, resulting in much disturbance to wildlife by the movement of vehicles, noise, non-degradable garbage, and forest fires.

Grazing, forest fires and collection of non-forest timber produce: Most of the areas have the problem of livestock grazing, which is too well-known to need elaboration here. Forest fires, mainly man-made, pose threats to many IBAs. These fires are started to facilitate the collection of Mahua flowers and to obtain Tendu leaves. The locals are allowed to collect minor forest produce. Sal seeds and Tendu leaves are collected by villagers as minor forest produces. Unfortunately, the time of their collection coincides with the breeding season of most ground-nesting resident birds, and hence causes disturbance.

Poaching: Traditional hunting by tribals is prevalent in many sanctuaries. Motorized hunting in the night on the numerous roads that crisscross the sanctuaries was once quite common but now is under control.

Mining and denotification threats: Chhattisgarh has many mineral resources. All the Protected Areas and IBAs are under constant threat of denotification and encroachment by mining lobby. The Supreme Court ruling against denotification of PAs without the approval of the National Board for Wildlife and Central Empowered Committee has reduced these threats but the danger remains. The strong and rich mining lobby influences the decisions of the politicians, who are anyway, not in favour of PAs.

Insurgency: Another problem of this State is insurgency, as a result of which most of the forests are at the mercy of these insurgent groups. In some of the PAs, the Forest Officials have not gone for years. These insurgent groups sometime join poachers and timber smugglers to loot the forest resources.

REFERENCES

- Hume, A. O. (1873) Novelties. *Stray Feathers* 1: 464-483.
- Ishtiaq, F. and Rahmani, A. R. (2000) Further information on the status and distribution of the Forest Owlet *Athene blewitti*. *Forktail* 16: 125-130.
- Ishtiaq, F., Bharos, A. M. K., Bharos, A. V. K., James, H. and Hedge, P. (2001) Survey for confirmation of the Forest Owlet sites and other proposed IBAs in Chhattisgarh State. Pp. 8. Bombay Natural History Society, Mumbai.
- King, B. and Rasmussen, P. C. (1998) The rediscovery of the Forest Owlet *Athene (Heteroglaux) blewitti*. *Forktail* 14: 51-53.
- Ministry of Environment and Forest (1999) State of Forest Report 1999. Forest Survey of India, Dehra Dun.
- Ministry of Environment and Forest (2001) State of Forest Report 2001. Forest Survey of India, Dehra Dun.
- Rodger, W. A., Panwar, H. S. and Mathur, V. B. (2000) *Wildlife Protected Area Network in India: A Review (Executive Summary)*. Wildlife Institute of India, Dehradun.

CT-01

BARNAWAPARA WILDLIFE SANCTUARY



IBA Site Code	: IN-CT-01
State	: Chhattisgarh
District	: Raipur
Coordinates	: 21° 25' 16" N, 82° 26' 36" E
Ownership	: State
Area	: 24,466 ha
Altitude	: 265 - 400 m
Rainfall	: 1,000 mm
Temperature	: 8 °C to 48 °C
Biogeographic Zone	: Deccan Peninsula
Habitats	: Tropical Dry Deciduous Forest

IBA CRITERIA: A1 (Threatened Species), A3 (Biome-11: Indo-Malayan Tropical Dry Zone)

PROTECTION STATUS: Wildlife Sanctuary, established in July 1976

GENERAL DESCRIPTION

The Barnawapara Wildlife Sanctuary derives its name from Bar and Nawapara forest valleys which are close to each other and situated in the middle of the Sanctuary. The site comes under Raipur Forest Division, and includes the reserved forests in Lawan and Sonakhan Forest Ranges. It is situated 15 km north of block headquarters Pithora on National Highway - 6, 100 km from Raipur town, and is approachable in all seasons.

The terrain is generally flat, with some hills varying from 265 to 400 m. There are numerous perennial and seasonal streams - all tributaries of the Mahanadi river. Summer is very hot, and most of these streams dry out. The Forest Department has created some waterholes, where most of the wildlife concentrates in summer.

The forest of this IBA can be classified according to Champion and Seth (1968) as Dry Teak, Dry Sal and South Indian Dry Deciduous Mixed Forest. Teak *Tectona grandis* occurs mainly in Schistose rock and in alluvial banks around rivers and streams (A. M. K. Bharos *pers. comm.* 2002). The important teak areas are on the Tenduchua hills. Sal *Shorea robusta* forest occurs mainly around village Gidpuri. Mixed forest areas harbour Bamboo *Dendrocalamus strictus*, *Terminalia* sp. and other species.

AVIFAUNA

More than 110 bird species have been recorded (A. M. K. Bharos *pers. comm.* 2003). The site lies in Biome-11 representing Indo-Malayan Tropical Dry Zone and therefore its typical bird species are found here. Besides the two Critically Endangered vulture species, this IBA site also has the Vulnerable Green Munia *Amandava formosa*. Lesser Kestrel *Falco naumanni* is also reported in winter. Out of the 59 Biome-11 species, 25 have been seen here. Most of them are quite common and widespread. This site was selected as an IBA mainly for the Green Munia, which is under tremendous threat from habitat destruction and trapping (BirdLife International 2001, Rajat Bhargava *pers. comm.* 2002). A small nesting colony of Oriental White-backed Vulture *Gyps bengalensis*, with 4 active nests, was located in 2001. The population is estimated to be 18 near village Rampur, and there could be more in other parts of the Sanctuary. Near Threatened Greater Grey-headed Fish Eagle *Ichthyophaga ichthyaetus* is also found near streams.

Critically Endangered

Oriental White-backed Vulture	<i>Gyps bengalensis</i>
Long-billed Vulture	<i>Gyps indicus</i>

Vulnerable

Lesser Kestrel	<i>Falco naumanni</i>
Green Munia	<i>Amandava formosa</i>

Near Threatened

Greater Grey-headed Fish-Eagle	<i>Ichthyophaga ichthyaetus</i>
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Biome-11: Indo-Malayan Tropical Dry Zone

Black Ibis	<i>Pseudibis papillosa</i>
White-eyed Buzzard	<i>Butastur teesa</i>
Rain Quail	<i>Coturnix coromandelica</i>
Jungle Bush-Quail	<i>Perdica asiatica</i>
Indian Peafowl	<i>Pavo cristatus</i>
Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>
Yellow-legged Green-Pigeon	<i>Treron phoenicoptera</i>
Plum-headed Parakeet	<i>Psittacula cynocephala</i>
Common Indian Nightjar	<i>Caprimulgus asiaticus</i>
Indian Grey Hornbill	<i>Ocyrceros birostris</i>
Yellow-fronted Pied Woodpecker	<i>Dendrocopos mahrattensis</i>
Lesser Golden-backed Woodpecker	<i>Dinopium benghalense</i>
Black-headed Cuckoo-Shrike	<i>Coracina melanoptera</i>
Small Minivet	<i>Pericrocotus cinnamomeus</i>
Common Woodshrike	<i>Tephrodornis pondicerianus</i>
Jungle Babbler	<i>Turdoides striatus</i>
Jungle Prinia	<i>Prinia sylvatica</i>
Ashy Prinia	<i>Prinia socialis</i>
White-browed Fantail-Flycatcher	<i>Rhipidura aureola</i>
Brahminy Starling	<i>Sturnus pagodarum</i>
Bank Myna	<i>Acridotheres ginginianus</i>
White-bellied Drongo	<i>Dicrurus caeruleus</i>

Green Munia *Amardava formosa* is under tremendous pressure from trapping.

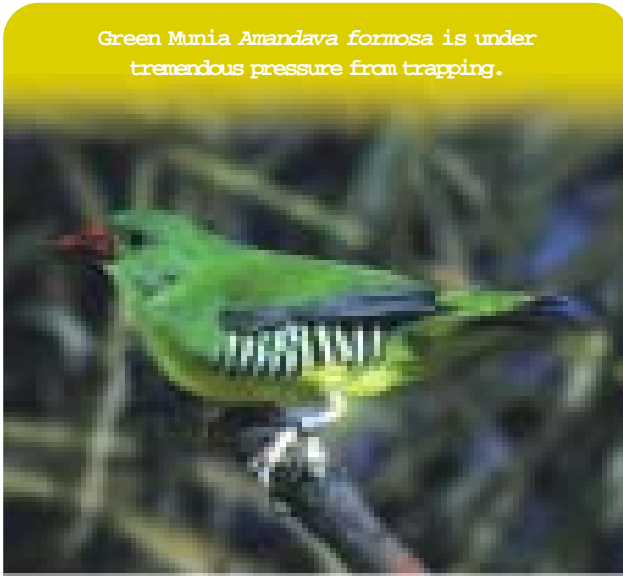


Photo: Gerhard Hofmann/BirdLife International

OTHER KEY FAUNA

Barnawapara has the typical biodiversity of central India's Dry Deciduous Forest, with its complement of well-known large mammals such as the Tiger *Panthera tigris*, Leopard *P. pardus*, Gaur *Bos frontalis*, Sloth Bear *Melursus ursinus*, Chital *Axis axis*, Sambar *Cervus unicolor*, Nilgai *Boselaphus tragocamelus*, Four-horned Antelope *Tetracerus quadricornis*, Chinkara *Gazella bennettii*, Barking Deer or Indian Muntjak *Muntiacus muntjak* and Wild Boar *Sus scrofa*. This area is famous for its population of Gaur. Medium sized carnivores are Striped Hyaena *Hyaena hyaena*, Golden Jackal *Canis aureus*, Wolf *C. lupus* and Indian Wild Dog *Cuon alpinus*. Jungle Cat *Felis chaus* represents the small carnivores. Not much work has been done on reptiles, but Indian Rock Python *Python molurus* and Indian Cobra *Naja naja* are found here.

LAND USE

- q Nature conservation and research
- q Human settlement
- q Tourism and recreation

THREATS AND CONSERVATION ISSUES

- q Livestock grazing
- q Man-animal conflicts
- q Disturbance to birds
- q Tourism
- q Forest fires

There are 25 forest villages inside the Sanctuary, of which 10 are located in the area presently under the management of the State Forest Development Corporation. Their total population is about 7,000 (Tiwari 1997). The livestock number about 8,500, and share the forest and its produce with wildlife, resulting in disturbance to the natural ecosystems. Man-animal conflict is common, especially involving Sloth Bear and Leopard. The site is a major attraction for tourists and pilgrims, who further deteriorate the conditions.

Forest fires, mainly man-made, also pose a threat to the site. These fires are started to facilitate the collection of Mahua flowers and to obtain Tendu leaves. Locals are allowed to collect minor forest produce. Sal seeds and Tendu leaves are collected from all over the Sanctuary. Unfortunately, the time of their collection coincides with the breeding season of most resident birds, and causes disturbance. Traditional hunting by tribals, prevalent in many other sanctuaries, is not a big problem here. Motorized hunting in the night was quite common on the numerous roads that crisscross this Sanctuary before it was declared in 1976, but now it is under control.

KEY CONTRIBUTOR

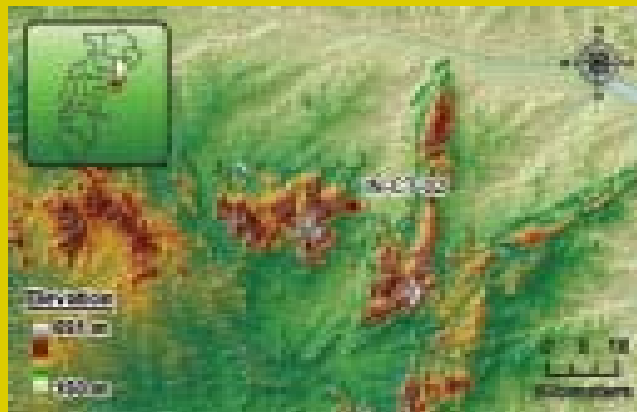
A. M. K. Bharos

KEY REFERENCES

- BirdLife International (2001) *Threatened Birds of Asia: The BirdLife International Red Data Book*. BirdLife International, Cambridge, U.K.
- Champion, H. G. and Seth, S. K. (1968) *A revised survey of forest types of India*. Govt. of India Press, Delhi. Pp. 403.
- Tiwari, S. K. (1997) *Wildlife Sanctuaries of Madhya Pradesh*. APH Publishing Corporation, New Delhi.

CT-02

GOMARDA WILDLIFE SANCTUARY



IBA Site Code	: IN-CT-02
State	: Chhattisgarh
District	: Raipur
Coordinates	: 21° 30' 24" N, 83° 06' 47" E
Ownership	: State
Area	: 27,791 ha
Altitude	: 400 m
Rainfall	: 1,100 mm
Temperature	: 8 °C to 48 °C
Biogeographic Zone	: Deccan Peninsula
Habitats	: Tropical Dry Deciduous Forest

IBA CRITERIA: A1 (Threatened Species), A3 (Biome-11: Indo-Malayan Tropical Dry Zone)

PROTECTION STATUS: Wildlife Sanctuary, established in August 1975

GENERAL DESCRIPTION

The Gomarda Sanctuary derives its name from the village Gomarda in Sarangarh *tehsil* of Raipur district. The Sanctuary is 15 km south of Sarangarh on Raigarh-Sarangarh-Saraipali state highway, which bisects the Sanctuary. The terrain is gently undulating, with numerous boulders and rocks, unfit for cultivation, and hence naturally protected. The main water source is the perennial Lath *nullah* (stream) and two medium sized tanks.

The vegetation is typical Tropical Dry Deciduous forest with Teak *Tectona grandis*, Bamboo *Dendrocalamus strictus*, *Terminalia* sp. and other species. The forest was under tremendous pressure from lopping and earlier commercial clear felling and selective cutting. Since the establishment of the Sanctuary, such pressures have been reduced. Nevertheless, the vegetation needs respite from further biotic pressure.

AVIFAUNA

More than 100 bird species have been recorded (A. M. K. Bharos *pers. comm.* 2003). The site lies in Biome-11 and therefore, bird species representing Indo-Malayan Tropical Dry Zone are found. The main species of conservation concern is the Green Munia *Amandava formosa*, which is endemic to India and is decreasing in numbers due to habitat destruction and illegal trapping for trade (BirdLife International 2001, Rajat Bhargava *pers. comm.* 2003). Gomarda lies within the main distribution range of the Green

Munia, so it could be one of the most important sites for long-term conservation of this globally threatened species.

Out of the 59 species listed in Biome-11 that are found in India, 27 species have been recorded till now from this IBA site. In the nearby Sarangarh tank, wildfowl are said to be present in large numbers, but we could not get any authentic information.

Critically Endangered

Oriental White-backed Vulture	<i>Gyps bengalensis</i>
Long-billed Vulture	<i>Gyps indicus</i>

Vulnerable

Green Munia	<i>Amandava formosa</i>
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Biome-11: Indo-Malayan Tropical Dry Zone

Black Ibis	<i>Pseudibis papillosa</i>
White-eyed Buzzard	<i>Butastur teesa</i>
Rain Quail	<i>Coturnix coromandelica</i>
Jungle Bush-Quail	<i>Perdica asiatica</i>
Indian Peafowl	<i>Pavo cristatus</i>
Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>
Yellow-legged Green-Pigeon	<i>Treron phoenicoptera</i>
Plum-headed Parakeet	<i>Psittacula cyanocephala</i>
Sirkeer Malkoha	<i>Phaenicophaeus leschenaultii</i>
Common Indian Nightjar	<i>Caprimulgus asiaticus</i>
Indian Grey Hornbill	<i>Ocyrocus birostris</i>
Yellow-fronted Pied Woodpecker	<i>Dendrocopos mahrattensis</i>
Lesser Golden-backed Woodpecker	<i>Dinopium benghalense</i>
Black-headed Cuckoo-Shrike	<i>Coracina melanoptera</i>
Small Minivet	<i>Pericrocotus cinnamomeus</i>
Common Woodshrike	<i>Tephrodornis pondicerianus</i>
Indian Robin	<i>Saxicoloides fulicata</i>
Jungle Babbler	<i>Turdoides striatus</i>
Jungle Prinia	<i>Prinia sylvatica</i>
Ashy Prinia	<i>Prinia socialis</i>
White-browed Fantail-Flycatcher	<i>Rhipidura aureola</i>
Brahminy Starling	<i>Sturnus pagodarum</i>
Bank Myna	<i>Acridotheres ginginianus</i>
White-bellied Drongo	<i>Dicrurus caerulescens</i>

Gyps species of vulture used to be seen in hundreds now very few are left.



Photo: Hira Panjabi

OTHER KEY FAUNA

Like any typical protected area in central India, Gomarda WLS has Tiger *Panthera tigris*, Leopard *P. pardus*, Gaur *Bos frontalis*, Spotted Deer or Chital *Axis axis*, Sambar *Cervus unicolor*, Barking Deer *Muntiacus muntjak*, Nilgai *Boselaphus tragocamelus*, Four-horned Antelope *Tetracerus quadricornis*, and Wild Boar *Sus scrofa*. The Mouse Deer *Moschiola meminna* could be present, but there is no confirmed record. Jungle Cat *Felis chaus*, Golden Jackal *Canis aureus*, and Striped Hyena *Hyaena hyaena* are also found. There are records of Grey Wolf *Canis lupus*, especially in the outskirts of the Sanctuary near human habitation and in open areas. There would be many more smaller carnivores but no study has been done.

LAND USE

- q Nature conservation and research
- q Human settlement
- q Tourism and recreation

THREATS AND CONSERVATION ISSUES

- q Human settlements
- q Livestock grazing
- q Firewood collection
- q Man-animal conflicts
- q Disturbance created by villagers, tourists and pilgrims
- q Forest fires

There are about 6 villages within and 24 villages around the Sanctuary having human population of more than 7,000 and more than 10,000 cattle, which compete with wildlife to share the limited forest resources. Villagers are allowed to collect minor forest produce such as Tendu leaves, honey, fallen timber, grass, and medicinal plants. Beside this, head loads of wood are allowed 'for personal consumption' but most of this wood lands up in the market. Over-grazing by cattle is the main problem, and needs to be stopped, at least in some identified core areas. Villagers start fires to facilitate collection of fallen Mahua flowers, which become visible on the dark burnt ground. These fires are set during April-May, the main breeding time for ground-nesting birds such as the Red Junglefowl *Gallus gallus*, Painted Spurfowl *Galloperdix lunulata*, Grey Francolin *Francolinus pondicerianus* and quails (*Coturnix* spp., *Perdicula* spp.).

Crop damage by ungulates is quite common, especially in forest villages. Killing of livestock by Leopard and Tiger creates resentment among the villagers most of them are very poor. Cattle kill compensation should be implemented at the earliest to minimize their antagonism.

Poaching is still a problem at the periphery of the Sanctuary, which is completely surrounded by human habitation. When the animals go out in search of food, they fall into traps and snares. This problem could be minimized if free grazing by cattle is stopped, so that wild ungulates have more food inside the Sanctuary.

The possibility of shifting the six forest villages should be explored. It would be good for both the wildlife and the poor villagers who live a pathetic life without medical, educational, transport and other facilities. However, this translocation should be done only with their active consent and by providing them good cultivable land and alternative livelihoods.

KEY CONTRIBUTOR

A. M. K. Bharos

KEY REFERENCE

BirdLife International (2001) *Threatened Birds of Asia: The BirdLife International Red Data Book*. BirdLife International, Cambridge, U.K.

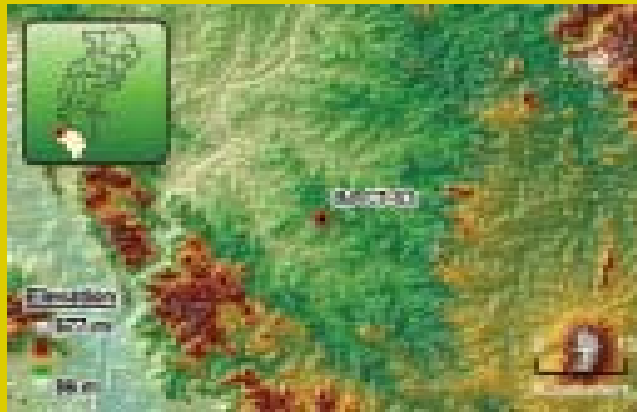
Tree cutting reduces the habitat for birds.



Photo: Asad R. Rahmani

CT-03

INDRAVATI NATIONAL PARK AND TIGER RESERVE



IBA Site Code	: IN-CT-03
State	: Chhattisgarh
District	: Dantewada and Bastar
Coordinates	: 19° 06' 39" N, 80° 29' 20" E
Ownership	: State
Altitude	: 607 - 2,110 m
Rainfall	: 950 mm
Temperature	: 8 °C to 48 °C
Area	: 1,25,837 ha
Biogeographic Zone	: Deccan Peninsula
Habitats	: Tropical Dry Deciduous Forest

IBA CRITERIA: A1 (Threatened Species), A3 (Biome-11: Indo-Malayan Tropical Dry Zone)
PROTECTION STATUS: National Park, established in 1982

GENERAL DESCRIPTION

The Indravati National Park derives its name from the River Indravati which flows through the Park area and is its lifeline. The Park is located in Dantewada district, which has been carved out of the erstwhile Bastar district. The Park was notified in 1978 and declared as a Tiger Reserve in 1983. It is situated 168 km from Jagdalpur and 468 km from Raipur, the capital of Chhattisgarh. The forest forms the catchment area of the Indravati, hence it is extremely important to protect it from further anthropogenic ravages.

Teak *Tectona grandis* mixed with bamboo is dominant in the Park. Based on the classification of Champion and Seth (1968), three major forest types are recognized in Indravati: Moist Mixed Deciduous Forest with Teak, Moist Mixed Deciduous Forest without Teak, and Southern Dry Mixed Deciduous Forest. The mixed deciduous forests at the foot and lower slopes of the hills include *Adina cordifolia*, *Anogeissus latifolia*, *Bombax ceiba*, *Boswellia glabra*, *Cassia fistula*, *Gmelina arborea*, *Semecarpus anacardium*, *Shorea robusta*, and *Tectona grandis*. Most trees shed their leaves by mid-February, but there are a few evergreens, notably *Cipadessa baccifera*, *Linociera ramiflora* and *Mallotus philippensis*. Evergreen forests occur in the Kangar Valley, Darba, Kutamsar and along the upper slopes of Bailadila. The vegetation here is dense with trees such as *Celtis cinnamomea*, *Callicarpa arborea*, *Eurya japonica*, *Symplocos laurina*, *Wendlandia heynei* and *W. gamblei*.

Awareness programmes for children should be initiated especially on the fringes of PAs.



Photo: Asad R. Rahmani

AVIFUANA

Detailed studies on avifauna have not been done, but A. M. K. Bharos (*pers. comm.* 2003) during various visits identified more than 125 bird species. There is an unconfirmed record of Greater Spotted Eagle *Aquila clanga* (Vulnerable).

Critically Endangered	
Oriental White-backed Vulture	<i>Gyp bengalensis</i>
Long-billed Vulture	<i>Gyps indicus</i>
Vulnerable	
Green Munia	<i>Amandava formosa</i>
Near Threatened	
Greater Grey-headed Fish-Eagle	<i>Ichthyophaga ichthyaetus</i>
Biome-11: Indo-Malayan Tropical Dry Zone	
Black Ibis	<i>Pseudibis papillosa</i>
White-eyed Buzzard	<i>Butastur teesa</i>
Rain Quail	<i>Coturnix coromandelica</i>
Jungle Bush-Quail	<i>Perdica asiatica</i>
Indian Peafowl	<i>Pavo cristatus</i>
Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>
Yellow-legged Green-Pigeon	<i>Treron phoenicoptera</i>
Plum-headed Parakeet	<i>Psittacula cyanocephala</i>
Sirkeer Malkoha	<i>Phaenicophaeus leschenaultii</i>
Common Indian Nightjar	<i>Caprimulgus asiaticus</i>
Indian Grey Hornbill	<i>Ocyrceros birostris</i>
Yellow-fronted Pied Woodpecker	<i>Dendrocopos mahrattensis</i>
Lesser Golden-backed Woodpecker	<i>Dinopium benghalense</i>
Black-headed Cuckoo-Shrike	<i>Coracina melanoptera</i>
Small Minivet	<i>Pericrocotus cinnamomeus</i>
White-bellied Minivet	<i>Pericrocotus erythropygus</i>
Common Woodshrike	<i>Tephrodornis pondicerianus</i>
Jungle Babbler	<i>Turdoides striatus</i>
Jungle Prinia	<i>Prinia sylvatica</i>
Ashy Prinia	<i>Prinia socialis</i>
White-browed Fantail-Flycatcher	<i>Rhipidura aureola</i>
Brahminy Starling	<i>Sturnus pagodarum</i>
Bank Myna	<i>Acridotheres ginginianus</i>
White-bellied Drongo	<i>Dicrurus caeruleus</i>

The Near Threatened Greater Grey-headed Fish-Eagle *Ichthyophaga ichthyaetus* is found around perennial forest streams and rivers. The site lies in Biome-11 representing Indo-Malayan Tropical Dry Zone. Among the Red Data Book (RDB) species, the two Critically Endangered *Gyps* vultures and Green Munia *Amandava formosa* are present.

OTHER KEY FAUNA

The central Indian population of the globally endangered Wild Buffalo *Bubalus arnee* (= *bubalis*) is found in Indravati (apart from Pamed and Udanti Sanctuaries). The common herbivore community comprises Chital *Axis axis*, Sambar *Cervus unicolor*, Nilgai *Boselaphus tragocamelus*, Four-horned Antelope *Tetracerus quadricornis*, Chinkara *Gazella bennettii*, Barking Deer or Muntjak *Muntiacus muntjak*, and Gaur *Bos frontalis*. Tiger *Panthera tigris* and Leopard *P. pardus* are the top carnivores present in the Park. Other important mammals include the Jungle Cat *Felis chaus*, Striped Hyaena *Hyena hyaena*, Golden Jackal *Canis aureus*, Wolf *C. lupus*, Indian Wild Dog *Cuon alpinus*, Sloth Bear *Melursus ursinus* and Wild Boar *Sus scrofa*. Common Indian Krait *Bungarus caeruleus*, Indian Rock Python *Python molurus* and Indian Cobra *Naja naja* are the most common reptiles sighted in the Park.



Pure stock of Wild Buffalo *Bubalus arnee* is found in Indravati NP.

Photo: P. M. Lad

LAND USE

- ☐ Nature conservation and research
- ☐ Human settlement
- ☐ Tourism and recreation

THREATS AND CONSERVATION ISSUES

- ☐ Livestock grazing
- ☐ Human settlements
- ☐ Man-animal conflicts
- ☐ Disturbance by villagers
- ☐ Forest fires

The Wild Buffalo is the most important mammal of this Park. The Forest Department claims having 44 individuals counted, but others say that this is a highly exaggerated figure. Even the figure of 44 individuals is a very low number for any species to survive. Unfortunately, the Government of India, has not given enough attention to preserve the gene pool of this highly useful mammal. Perhaps the only pure Wild Buffalo stock in the world is found in Indravati National Park. Every attempt should be made to protect and enhance this species, even if it involves spending millions of rupees.

Another important issue, which will have great impact on the Wild Buffalo habitat, is the plan to construct at least seven hydroelectric projects across the Indravati river. They are Bodhghat, Indra Sarovar, Bhopalpatnam, Inchampalli, Kutru I and Kutru II, Nagur I and Nagur II. Not only will these dams submerge vast tracts of forest, they will also displace thousands of tribals, who will be forced to shift to the Tiger Reserve, especially near water sources which are the main habitat of the Wild Buffalo. Man-animal conflict is bound to increase.

The Inchampalli hydroelectric dam project is proposed on the border area of Maharashtra, Andhra Pradesh and Chhattisgarh states. About 40,000 ha of forest would be clear-felled and 100 villages would be shifted. The proposed site of the dam is near village Somnur in Maharashtra on the confluence of Indravati and Godavari rivers. This project would require forest land from Indravati Tiger Reserve. Most of the villagers are opposed to the projects as they would disrupt their lifestyle and submerge fertile agricultural land.

Indravati NP also suffers from Naxalite (Maoist) insurgency, as a result of which Forest Officials have not been able to move freely in the Park. Poaching by tribals is rampant, even small birds are not spared. Sometimes, gangs of poachers dealing with wildlife products (tiger, leopard skins, antlers) involve these tribals in the killing of animals. As the area falls at the border of three states, poachers and smugglers have a free run of the Sanctuary while officers spent time in sorting out administrative details!

KEY CONTRIBUTORS

A. M. K. Bharos and Kishore Rithe

KEY REFERENCE

Champion, H. G. and Seth, S. K. (1968) *A revised survey of forest types of India*. Govt. of India Press, Delhi.

UDANTI AND SITANADI WILDLIFE SANCTUARIES



IBA Site Code	: IN-CT-04
State	: Chhattisgarh
District	: Raipur and Dhamtari
Coordinates	: 20° 10' 00" N, 82° 04' 30" E
Ownership	: State
Area	: 80,096 ha
Altitude	: 327 - 736 m
Rainfall	: 850 mm
Temperature	: 8 °C to 48 °C
Biogeographic Zone	: Deccan Peninsula
Habitats	: Tropical Dry Deciduous Forest

IBA CRITERIA: A1 (Threatened Species), A3 (Biome-11: Indo-Malayan Tropical Dry Zone)

PROTECTION STATUS: Sitanadi Wildlife Sanctuary, established in November 1974;
Udanti Wildlife Sanctuary, established in March 1983

GENERAL DESCRIPTION

The Udanti (24,760 ha) and Sitanadi (55,336 ha) wildlife sanctuaries derive their name from the rivers Udanti and Sitanadi which flow through the respective sanctuaries and form the lifeline of this IBA. They are located in the Brindanawagarh *tehsil* of Raipur district, and Sihawa-Nagri *tehsil* of Dhamtari district respectively. Udanti Sanctuary is situated 210 km and Sitanadi Sanctuary is situated 175 km southeast of Raipur. The eastern boundary of Udanti Sanctuary is the interstate boundary between Chhattisgarh and Orissa. The distance between the two sanctuaries is about 30 km, with a corridor of good forest cover. Both these sanctuaries form a compact forest for free movement of wildlife, particularly the Wild Buffalo *Bubalus arnee (=bubalis)* which is the State Mammal. As they are close to each other, and the bird fauna is very similar, we consider them as one IBA.

The forest types are Dry Tropical Peninsular Sal Forest and Southern Tropical Dry Deciduous Mixed Forest. The dominant species is Sal *Shorea robusta*, mixed with species of *Terminalia*, *Anogeissus*, *Pterocarpus*, and Bamboo. Teak *Tectona grandis* is also found. In Udanti, Sal forest covers about 34%, miscellaneous forest occupies 61.55% and Teak covers 4.4% (Gabrial 1995). Teak has been introduced into the area by the Forest Department.

AVIFUANA

More than 125 bird species have been recorded till now (A .M. K. Bharos *pers. comm.* 2003) but there could be many more. No systematic study on avifuna has been done in this IBA, which lies in Biome-11 and represents Indo-Malayan Tropical Dry Zone. There are not many threatened or endemic species. The site has been selected on the basis of presence of the Vulnerable Green Munia *Amandava formosa*, which has suffered severe decline due to habitat destruction and illegal trapping (BirdLife International, 2001). Udanti and Sitanadi Sanctuaries could form its stronghold, where its chances of long-term survival are good. Moreover, as they are protected areas, illegal trapping for bird trade could be controlled. Once the Green Munia's exact habitat requirements are known through research, habitat manipulation could be attempted in this IBA to increase habitat availability.

The two Critically Endangered *Gyps* species of vultures are quite widespread even now. Out of the 59 Biome-11 species listed by BirdLife International (2001), 27 have been seen in this IBA.

Critically Endangered

Oriental White-backed Vulture	<i>Gyps bengalensis</i>
Long-billed Vulture	<i>Gyps indicus</i>

Vulnerable

Green Munia	<i>Amandava formosa</i>
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Biome-11: Indo-Malayan Tropical Dry Zone

Black Ibis	<i>Pseudibis papillosa</i>
White-eyed Buzzard	<i>Butastur teesa</i>
Rain Quail	<i>Coturnix coromandelica</i>
Jungle Bush-Quail	<i>Perdica asiatica</i>
Indian Peafowl	<i>Pavo cristatus</i>
Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>
Yellow-legged Green-Pigeon	<i>Treron phoenicoptera</i>
Plum-headed Parakeet	<i>Psittacula cynocephala</i>
Sirkeer Malkoha	<i>Phaenicophaeus leschenaultii</i>
Common Indian Nightjar	<i>Caprimulgus asiaticus</i>
Indian Grey Hornbill	<i>Ocyrocus birostris</i>
Yellow-fronted Pied Woodpecker	<i>Dendrocopos mahrattensis</i>
Lesser Golden-backed Woodpecker	<i>Dinopium benghalense</i>
Black-headed Cuckoo-Shrike	<i>Coracina melanoptera</i>
Small Minivet	<i>Pericrocotus cinnamomeus</i>
White-bellied Minivet	<i>Pericrocotus erythropygus</i>
Common Woodshrike	<i>Tephrodornis pondicerianus</i>
Jungle Babbler	<i>Turdoides striatus</i>
Jungle Prinia	<i>Prinia sylvatica</i>
Ashy Prinia	<i>Prinia socialis</i>
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Brahminy Starling	<i>Sturnus pagodarum</i>
Bank Myna	<i>Acridotheres ginginianus</i>
White-bellied Drongo	<i>Dicrurus caeruleus</i>

OTHER KEY FAUNA

Along with the Indravati Tiger Reserve (another IBA), Udanti and Sitanadi are important refuges for the last few herds of the highly endangered Wild Buffalo. The Tiger *Panthera tigris* and Leopard *P. pardus* are at the top of the food pyramid of fauna. Indian Wild

Dog *Cuon alpinus* is another important carnivore, which mainly hunts Chital *Axis axis*, Sambar *Cervus unicolor*, Nilgai *Boselaphus tragocamelus*, Four-horned Antelope *Tetracerus quadricornis*, Chinkara *Gazella bennettii*, Barking Deer or Indian Muntjak *Muntiacus muntjak*, and Wild Boar *Sus scrofa* and young Gaur *Bos frontalis*. Sloth Bear *Melursus ursinus* is quite common, and often mauls villagers. Smaller carnivores include the Jungle Cat *Felis chaus*, Striped Hyena *Hyaena hyaena*, Wolf *Canis lupus*, and Golden Jackal *Canis aureus*. Not much is known about the reptilian and amphibian fauna of this IBA.

LAND USE

- q Nature conservation and research
- q Human settlement
- q Tourism and recreation

THREATS AND CONSERVATION ISSUES

- q Livestock grazing
- q Forest fires
- q Mining

Udanti Wildlife Sanctuary was mainly constituted to protect the remnant populations of the Wild Buffalo. According to the records of the Udanti Forest Department, a total of 78 animals are found. Kotwal *et al.* (2002) claim to have seen 27 animals, in 6 herds.

There are about 50 villages with more than 16,000 human population and more than 10,000 cattle. Over 50% of Udanti is burnt every year during summer in forest fires set by villagers (Kotwal *et al.* 2002). This poses a grave threat to all wildlife, especially the ground nesting birds which generally breed during summer.

However, the long-term and irreversible threat comes from plans for diamond mining. B. Vijaykumar Chhattisgarh Exploration (BVCE) Co. has already dug out samples from Deobhog area including the Udanti Wildlife Sanctuary, and has also set up its

Over-grazing by livestock is the key issue for conservation in most of the PAs.



Photo: Asad R. Rahmani

CT-04

own Kimberlite sample processing laboratory near Mainpur village. This was despite the refusal the Ministry of Environment and Forests, Government of India to grant permission for mining inside the Sanctuary.

KEY CONTRIBUTOR

A. M. K. Bharos

KEY REFERENCES

- BirdLife International (2001) *Threatened Birds of Asia: The BirdLife International Red Data Book*. BirdLife International, Cambridge, U.K.
- Gabrial, M. S. (1995) Working Plan of Udanti Wildlife Sanctuary. Wildlife Division, Raipur.
- Kotwal, P. C., Naik, M. L. and Mishra, R. P. (2002) Indian Wild Buffalo (*Bubalus bubalis*) an endangered species: Habitat and Diurnal Activity Pattern in Udanti Wildlife Sanctuary. *Cheetal* 41(3 & 4): 19-28.