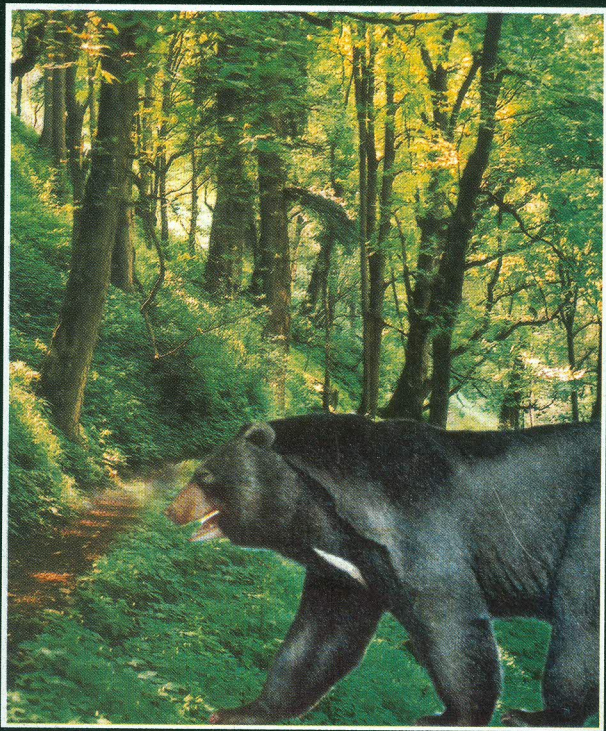


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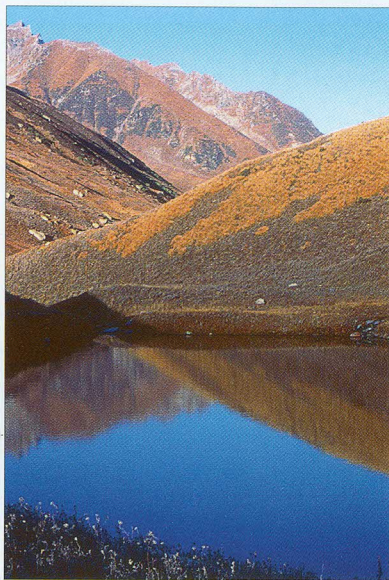


A Guide



The Great Himalayan National Park was created to preserve the unique, pristine beauty of Nature in the Western Himalayan region. Located in the Kullu Valley, the Park offers numerous opportunities to celebrate, conserve, protect, and preserve Nature.

In celebration of
International Year of Mountains and
International Year of EcoTourism 2002



Sartoo Lake



Trekking tracking wildlife

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FOREWORD

If there is one wilderness intact in the North Western Himalaya, with its full array of representative plants and animals, it is undoubtedly the Great Himalayan National Park. In a world where Nature silently retreats and is relentlessly vanquished by the juggernaut of insatiable human greed, the Great Himalayan National Park stands as the last hope for the continuance of its unique biological diversity born through aeons of evolutionary processes. What will happen to this and in this conservation area will in a sense define the future of life as we have known it in this part of the world.

The GHNP is the home of magnificent life forms like the elusive Western Tragopan, critically endangered globally, along with other spectacular pheasants and the mystic snow leopard or the mighty brown bear. Here one finds the resonance of silence in dark fir forests and cool alpine meadows resplendent with precious medicinal herbs and tiny blossoms, along with musical little brooks and roaring torrents, rarefied air and riveting mountain scenery. Here the smell of resin from pinewood joins the verdant explosions of spring or the magical alchemy of autumn. And if one treks the steep climbs on treacherous goat trails, the heart will pound with exertion and the mind will be enveloped in meditative tranquillity.

The yearning to experience Nature and be with it is active in varying degrees within all of us. Perhaps we seek Nature in flower pots or home gardens; in caged birds or beloved pets. So much of the varied rhythm of our lives and personal spiritual quest is linked to the timeless ways of Nature. As the poet Iqbal writes, "*Shorish se bhagata hoon, dil dhundta hai mera, Aisa saqoon jis par takreer bhi fida ho*" (Running from the din of the world, my heart seeks such tranquillity as cannot be described).

I do hope that through this publication many more people will be moved to experience Nature in its multi-faceted splendour and contribute to its conservation through that priceless "jewel in the crown of the Himalaya" – the Great Himalayan National Park.

Vinay Tandon

Chief Wildlife Warden, Himachal Pradesh

Shimla

Introduction

Bounded to the East by the Himalayan Mountains, the Great Himalayan National Park (GHNP) forms part of the boundary between four ecological zones: (1) the dry deserts of interior Asia and the well-watered lowlands of the Indian plains, (2) the Oriental and Palearctic faunal realms, (3) the high plateau of Tibet and the jumbled Himalayan peaks, and (4) the catchments of the Beas and Sutlej Rivers, both mighty tributaries of the Indus. Because of its complex geography and its great variations in altitude, the limited area of the Park encompasses an enormous range of species. They span the subtropical to the alpine and include those characteristic of the south-east Asian forests, as well as those found across Siberia and the Asian steppes. Few ecological sanctuaries present such a variety of wildlife habitat and biological diversity in such a small area.

The Park is the foremost priority for conservation in the North-West Himalayas. Its remote location has thus far spared the Park many of the problems that have affected natural ecosystems

elsewhere in India. The occurrence of temperate and alpine ecosystems in a geographically compact area make GHNP the most significant and biggest conservation unit in the biogeographic zone 2A i.e., Western Himalayas. This status further protects the relatively inaccessible rugged terrain which represents the ecology, geology and biota characteristic of the North-west Himalayas.

The boundaries of GHNP are contiguous with the Pin Valley National Park in Trans-Himalaya, the Ruppi-Bhawa Wildlife Sanctuary in Sutlej watershed, and the Kanawar Wildlife Sanctuary. Together, the varied wildlife habitats of these protected areas support the full range of western Himalayan biodiversity, from tropical to alpine and Tibetan. Thus, the Park is a crucial protected area (PA) because it connects other islands of biodiversity. This increases the availability of migration routes between PAs which is essential for the survival of many animals.

From the roadhead at Gushaini or Neuli, the trails leading to the Park pass through subtropical pine forests. They rise towards

the dense coniferous and mixed deciduous woods of the temperate zone, which is entered at about 1,800m. In summer the spreading canopy of green and silver oaks and horse chestnuts provide welcome relief from the Sun. Above this zone, at about 2,500m, cool-temperate forests of fir and spruce occur on northerly slopes, with brown oaks on southerly aspects. Above 3,000m, these forests grade gently into a sub-alpine zone of birches and rhododendrons, diminishing in size as the tree line is approached. Above 3,000-3,200m, we find alpine meadows, splashed with a great variety of flowers. Higher again is the realm of rock and ice that rules the high peaks and ridges.

Among the large mammals that visitors may encounter, there are several species of herbivores that are characteristic of the Park: the Goral (*Naemorhedus goral*), a small goat-antelope found in the lower forests, and in the higher forests, the Himalayan Tahr (*Hemitragus jemlahicus*). Above the tree-line the Bharal, or Blue Sheep (*Pseudois nayaur*). These mammals are the prey for Leopards (in the forest zone) and Snow Leopards (above tree-line).

Himalayan Black Bears inhabit the forests, while Asiatic Brown Bears occur on the alpine meadows.

Among birds, the Park is well known as the most important locality in India for the endangered Western Tragopan. Four other species of pheasant occur in or adjacent to the Park, the one most likely to be seen by visitors is the Himalayan Monal, an abundant bird in the higher forests, although rather shy. Raptors are also a prominent feature of the Park, with Lammergeiers, Himalayan Griffon Vultures and Golden Eagles being seen regularly. A great variety of other birds occurs, some of which reach their western limit in the Park.

The flora of GHNP shows affinities with Mediterranean, Tibetan and the Peninsular Indian region. For example, species of Valerians, *Dactylorhiza*, Yew, and *Leycesteria* are typical taxa which extend to Afghanistan and west China. Other affinities that are met with here are in form of buckthorn (*Hippophae*) of palaeartic region; Cedar trees, herbaceous Violets, and grasses such as *Poa* of Mediterranean region; and spurge (*Euphorbia*) shrubs of Peninsular India. In

addition, GHNP has a number of endemic species of Himalayas, for example several species of balsams (*Impatiens*), species of *Androsace*, *Hedysarum*, *Draba* (Whitlow grass), etc.

Many visitors are drawn to the mountains and the wildlife of the Park. The indigenous culture of the mountain villages, adjacent to the Park, also offer unique experiences for the traveler. Isolated for centuries from the large urban centers, these remote hamlets developed a highly distinctive culture, based on the worship of local deities (devta) which are celebrated in numerous local, regional and national festivals. From the characteristic architecture of the houses and temples, and the folk wood carvings that decorate them, to the silver jewellery and woven wool shawls and blankets, there is a great range of local crafts to see.

Nor should the visitor ignore the clear interdependence of people and environment that is characteristic of traditional lifestyles. Although the high valleys of the Park are remote and support a varied flora and fauna, the signs of traditional use are everywhere. They form an intimate part of the

Park's ecology. An understanding of the role that traditional practices (e.g., grazing, burning, and medicinal plant collection) have had on the Park's biota is important before we can fully appreciate the forces that have contributed to development of the ecosystems we see today.

Animals

The Great Himalayan National Park is home to more than 375 faunal species. So far, 31 mammals, 203 birds, 3 reptiles, 9 amphibians, 11 annelids, 17 mollusks and 127 insects belonging to six orders have been identified and documented. Most of the Himalayan fauna has been given protection under the high priority protection category of Schedule I of the Indian Wildlife (Protection) Act, 1972. Prominent mammals of Schedule I are blue sheep, snow leopard, common leopard, Himalayan brown bear, Himalayan tahr, musk deer, and serow (a goat-like antelope). The state government of Himachal Pradesh has banned hunting in the state for more than ten years: The ban continues.

A trek of 35 to 45 kms. in any of

the Park's valleys brings one into the high altitude habitat (3,500m and above) of animals such as blue sheep, snow leopard, Himalayan brown bear, Himalayan tahr and musk deer. Best sightings can be made in autumn (September-November) as animals start their seasonal migration to lower altitudes.

Mammals

Blue Sheep

Males are handsome with slate blue fur and black chests; weight about 60 kgs, unlike smaller females. Prefers grassy slopes near cliffs from 3,500m upwards to the limits of vegetation. Live in herds of about 5 to 20.

Himalayan Brown Bear

Usually herbivorous feeding on grass and herbs. Some become carnivorous killing sheep, goats or ponies. Males may grow to 1.7m in length; females are smaller.

Snow Leopard

One of the most beautiful of the large cats with handsomely marked coat. Inhabits the highest inner portions of the Park contiguous with the Pin Valley

National Park. Regular sightings of snow leopard are reported. First confirmed sighting in GHNP in Tirath, the headwater of Tirthan river, in July 1997. Needs to be surveyed intensively and extensively in the glacier areas of GHNP.

Himalayan Tahr

A wild goat which lives in the steepest precipices. May go up to 5,000m altitude. Males have a distinctive, dark, shaggy ruff and a long mantle of paler hairs: they weigh up to 100 kg; females about 60 kg. Live in groups as large as 20 to 30.

Musk Deer

Member of deer family though different appearance. Does not have any antlers. Males have backward-curving tusk-like incisors in the upper jaw. Unlike other deer, they have a gall bladder and a uniquely developed scent gland in the abdominal region which produces valuable musk. In some parts of GHNP they reach a relatively high density of 6 to 9 Musk Deer per sq. km. Rated high on the endangered species list. Hunted nearly to extinction for its musk.

Low to Middle Altitude Mammals of GHNP

Serow

A goat-antelope which is heavily built and of about 1 m height. One of the least studied mountain animals. Lives solitarily in moist gorges with thick vegetation; moves with amazing speed.

Rhesus Macaque

Common monkey of northern India. The Himalayan populations are larger, with longer fur than those in the plains. Large troops live near villages and forests. Mingles with humans, creating mischief. Has heavier winter coat in winters.

Barking Deer

Also known as Muntjac or Ribfaced Deer. Adult male 50 to 75 cms high to shoulders. Antlers small with short brow-tine. Females have bristly hair in place of horns. In GHNP seen in thickly wooded hills from 1,500 to 2,500m altitude.

Goral

A goat-antelope with yellowish grey or brown coat suffused with black. One of the best known

Himalayan animals. Very well represented in GHNP. Lives in small groups. Best seen on grassy ridges at dawn and dusk. Throat has distinct white patch. Height at shoulder is 65 to 70 cms. Horns about 13 cms. Goral prefer elevations of 1,000 to 3,000m.

Wide Ranging Mammals of GHNP

Himalayan Black Bear

Associated with mixed broad leaf and conifer forests. Adult males weigh up to 180 kgs before hibernation; head-body length of 1.6m. A creamy white V pattern marks the chest. Well adapted for tree climbing. Can become carnivorous. Villagers close to GHNP dislike this animal as it destroys their maize crop and sometimes kills cattle.

Common Leopard

A sleek and agile cat with a tawny, reddish yellow coat marked with small close set black rosettes. Average length is about 215 cms. Lives in forests as well as in open country. Sighted up to 3,500m.

Red Fox

A richly coloured fox with long silky fur and a superb brush. The

black back (to the upper half of its ears) and white tip to its tail are distinguishing features. This fox can easily be seen in the high altitude areas of Dhel, Tirath, and Rakti Sar.

Langur

Long-limbed, long-tailed, black faced monkey; heavily whiskered and thickly coated. Lives close to villages as well as in the forest areas. 60 to 75 cms height (while seated). Live in troops of 15 to 30 individuals, mostly on trees to 3,500m altitude.

Small Mammals of GHNP

Though small in size, these animals play a very important role in the food chain. They can be seen close to habitations, camping grounds and during the treks. Considered as pests and enemies by farmers. Well protected in the Park.

Grey Shrew

Also known as 'musk rat.' Widely distributed; intolerant of rats and helps to keep them away.

House Mouse

Common house mouse of about 5 to 8cms length. Villagers try to

kill this pest as they are voracious omnivores.

Royle's Mountain Vole

Small burrowing vole of about 8 to 10 cms length. Cylindrical body, tail is less than half the length of body. Fairly common at elevations above 3,000m. Prefers rocky grounds with coarse grass.

Indian Pika

Also known as "mouse hare"; 20 cms long, tail-less, mouse-like ears and hind feet. Gathers large piles of green vegetation for the winter season. Lives at 2,800m and above.

Giant Indian Flying Squirrel

Lives between 2,000m up to the treeline. Nocturnal forest animal; roosts in tree hollows. Feeds mainly on the central portion of leaves and walnuts.

Porcupine

Body length about 70 to 90 cms. Large rodents with hair modified into spines or quills. Favours rocky hill sides up to 2,500m. Usually lives in a burrow. Villagers consider them pests as they tend to damage crops.

Himalayan Palm Civet

Body length about 60 cms, tail about the same size. Coat may be uniform grey to tawny, darker on feet and tail; underparts white. White whiskers; body is without any marking or stripes. Forest dweller living in hollow trees. Favors fruits though preys on small birds and mammals.

Himalayan Weasel

Reddish-copper fur; body about 30 cm, tail 15 cm long. Found in dense forests from 1,500 to 5,000m altitude; also lives close to villages. Bold good hunters.

Yellow-throated Marten

Larger than a weasel; body length 45 to 60 cms. Fur deep brown with yellow throat. Adapts to varying conditions. In GHNP it is found in forest areas up to treeline. Hunts by day and night.

Birds

The birds of GHNP are an important part of the Park's biological diversity and an attraction for bird watchers. The Park falls within one of the globally important Endemic Bird Areas (DO2: Western Himalaya) identified by the ICDP Biodiversity

Project. Nearly 200 bird species including 132 passerines (small to medium sized, perching songbirds) and 51 non-passerines have been recorded in the Park. This suggests that the Park supports a substantial proportion of all the species occurring within its altitudinal range in the western Himalayas.

Important Bird Groups of the Park

Pheasants (or Galliforms): An important group of large, spectacular birds. GHNP is one of only two National Parks in the world with a population of the endangered Western Tragopan (also found in Machiara National Park, Pakistan). Another endangered pheasant, the Cheer pheasant is present on the steep, south-facing grassy slopes. Monal, and Koklas, are in abundant in the temperate forest zone while Kaleej occurs in small numbers below 2,000m.

Snow Partridge, Hill Partridge and Himalayan Snowcock also occur.

Five Pheasants of the GHNP

1. Western Tragopan

The male is one of the world's most spectacular birds: black on

the head, a deep crimson on face and mantle and orange on breast, the black belly and dark wings are spangled with star-like white specks. The female is dull brown. They occur in dense forest with undergrowth of bamboo or shrubs from 2,000-3,500m, solitary in spring, but in family groups in fall: often seen in trees where they may eat leaf buds. Males can be heard calling in spring and in October. Within the Park, the maximum number of sightings have been in the forests of Basu, Shift, Nada, Chordwar in Tirthan Valley. For the first time anywhere in the world, a Western Tragopan has been radio-collared in 1999 for radio-telemetry study. In the villages close to GHNP, the local name of Western Tragopan is Jujurana (Juju means bird and Rana means king) i.e. the king of the birds. There is a local legend that this pheasant was created by the "Lord" and all the birds in the universe donated a feather each to give it colour and unparalleled beauty.

2. Monal Pheasant

A large plump pheasant with a loud, ringing call. Males are mainly iridescent blue, green on the mantle and rufous on the

neck, with a white patch on the lower back and an orange tail; the female brown with white throat and white patch on upper tail. In the past the monal was hunted for its crest which is made-up of iridescent turquoise, wire-like, spatula tipped feathers, worn by local villagers on their caps. It is a prominent bird, well known to the local villagers and often recorded by the tourists and trekkers.

3. Koklas

The Koklas owes its name to the crow of the cock which is a loud, guttural kok-kok-kok...kokras. Males are brown streaked with silver, with dark green heads and a stiff crest; females duller with whitish throat patch. Koklas prefer dense undergrowth of Fir-Spruce forests, though they are also found in Oak-Deodar forests, between 2,400-3,100m altitude. Surveys indicate an increase in Koklash populations between 1996 and 1999.

4. White-crested Kaleej

A rather chicken-like, black and white pheasant with a red face and white crest; female all brown except for red face patch. Kaleej live in thickets of bamboo, and

shrubs adjacent to cultivation and water sources. They also dwell in pure Ban Oak forest as well as mixed forest of Cedar, Blue Pine, and Brown Oak. Most of the roosting sites are observed in Silver Oak forests. They are seen at dusk and dawn and have been observed close to the villages in the Ecozone.

5. Cheer Pheasant

Brown with long, pointed tails, red faces and small crests. The sexes are alike and they live in small groups on steep, grassy slopes with scattered trees. Cheer pheasants are found in very low numbers and they are difficult to observe, but they can often be heard calling at dusk. They have been sighted near Gati Pat in Jiwa Nal valley, and on the Park boundary close to the villages in Tirthan valley on the southern facing grassy slopes.

Other Birds of GHNP

Raptors

Both Himalayan Griffon vulture and Lammergeier are common in the Park, seen daily at all seasons. Golden Eagle and Common Buzzard are seen frequently at all seasons in the subalpine and

alpine zones. Eurasian Sparrowhawk is common below the tree line. Black Eagle and Booted Eagles are less frequently seen. There have been rare sightings of the Peregrine Falcon.

Shorebirds

The Eurasian Woodcock and the Solitary Snipe, both occur in summer and must breed within the Park

Pigeons

The Speckled Wood-Pigeon and Snow Pigeon are both common in the Park, as is the Oriental Turtle-Dove in summer.

Parakeets

The Slaty-headed Parakeet, is seen commonly in forest up to 2,200m altitude.

Cuckoos

Five species occur, all in summer: the most common are the Common Cuckoo and the Oriental Cuckoo.

Owls

The Collared Owlet and the Tawny Owl are both common. Other owls infrequently sighted include Mountain Scops-Owl, the Rock Eagle-Owl, Short-eared Owl.

Other Non-Passerines

Grey Nightjar

common during April-September up to 3,000m.

Himalayan Swiftlets and

Fork-tailed Swifts

Recorded frequently from April to October; mainly over forests.

White-throated Needletail

Very infrequent

Eurasian Hoopoe

Up to 3,500m during April-September.

Brown-fronted Woodpecker

and Great Barbet

Up to 2,000m

Scaly-bellied Woodpecker

and Himalayan Woodpecker

Throughout the temperate forests.

Speckled Piculet

Only at the lowest altitudes (below 2,000m).

Passerines

The leaf-warblers (8 species), flycatchers (11 species), tits (11 species), and thrushes (12

species) are well represented, but the babblers and laughing-thrushes (14 species) are the most important and distinctive group. White-throated and chestnut-crowned laughing-thrushes are common in flocks and family parties in lower altitude forests, while variegated laughing-thrushes occur to the limits of the trees. The smaller babblers include yuhinas, sibilas, shrike-babblers, minlas, and fulvetas. Many of these occur in mixed-species flocks in late summer and it is common to fall in with parties containing ten or more species combing every level of the vegetation for food. In spring, the songs of warblers, thrushes and flycatchers fill the forest with music.

Invertebrates

The invertebrates have been recognized as providers of "ecosystem services". They play an important role in maintaining various life processes and are a vital component of GHNP food chains. Other than flying insects, most of the invertebrates have limited powers of dispersal, and are very sensitive to disturbances in their

habitats. They can be used as indicators of a healthy ecosystem.

Among invertebrates, earthworms, leeches and mollusks have been studied in the Park. During a recent study, 11 species of earthworm were recorded out of which two are restricted to the Park. The leech diversity of the Park is confined to three species only (two aquatic and one terrestrial). The researchers have identified 14 species of mollusks, majority of them being terrestrial. Three species of slugs have also been reported from the Park.

Insects

By virtue of their vast numbers of both species and individuals, the insects are vital determinants of terrestrial ecological processes in the Park. Their presence is determined by availability of food, suitable climatic conditions, and shelter from disturbance and natural enemies. Insects in GHNP can be broadly classified in three categories:

1. Vegetation feeders: mainly beetles and plant bugs (many families of these orders feed and depend on plant life),
2. Pollinators: flies, butterflies,

moths and bees: (majority of pollinators belongs to these orders), and

3. Biodiversity indicators: Tiger beetle, ground beetle and dragonflies (may indicate land use change).

Only six insect orders (e.g., beetles, wasps, flies, plant bugs, dragonflies, and butterflies) have been studied in the Park. The selected six orders represented 37 families, 108 genera, and 125 species among the specimens identified so far. Insect research has established ecological relationships between flowering plants of sub-alpine and alpine areas, with their corresponding insect visitors. The descriptions of few insects given below may help to describe their important role in balancing the food web of the Park ecosystem:

Beetles

Long-horn Beetle

Usually large with very long antennae. The adults are sluggish and live on woody plants. The eggs are laid inside the plant by cutting slits with the help of sharp mandibles. In GHNP, four species have been collected between the elevation from 1,500 to 3,500m.

Click-Beetle

Occurs in many shape and colors. Some are minute or medium-sized, hard, elongate, slightly flat, black, grey, brown, sometimes brilliant metallic. The larvae known as wireworm are long, cylindrical and slightly flattened. The larvae of many species live in dead wood or under bark of the tree. Five kinds of click-beetles have been recorded between 1,500 to 2,500m elevation.

Stag-Beetle

Usually black or brown. Mandibles of males are enormously enlarged and antler like, hence the name Stag-beetle. The larvae breed in wet, decaying wood. Three kinds of stag beetles recorded between the elevation from 1,500 to 2,500m.

Dung-Beetle

Mostly feeds on dung of various large herbivore which is rolled into convenient-sized ball, then buried in underground chambers and fed at leisure. Maximum representation of species was recorded in this family. Eleven types of dung beetles were seen up to 2,500m.

Ladybird-Beetle

Minute or small, circular or oval, hemispherical with black, yellow, brown, red, and often spotted. This is a large family with 3,000 species recorded all over the world, it is widely distributed and occurring nearly all year round. During a GHNP study, six types of Ladybird-beetles were identified. One species was collected during May over the snow surface at 4,000m altitude.

Blister-Beetle

Medium-sized, and soft-bodied; mostly black, brown or some times bright metallic-blue or green. The adults are phytophagous and feed on flowers. Found between 1,500 to 2,500m elevations, mainly on the flowers of Impatiens.

Cicada

Loudest singers of the forest; they lay eggs into crevices of bark and incubate for about six weeks. Only one Cicada species was recorded from 2,000m elevation in GHNP.

Bees and Wasps

Pollinators collecting honey from forest trees. Source of income for local communities living close to

the GHNP. Three kinds of indigenous bees, two kinds of wasps identified between the elevation of 1,500 to 3,500m. The flowering plants visited by bees and wasps are aconites, Potentillas, Larkspurs, Anemones, Himalayan Blue Poppy, Asters, Salvia, and many others.

Butterflies

In GHNP 44 kinds of butterflies have been recorded. Common blue Apollo resident of alpine areas at about 4,000m elevation in the Tirthan and Sainj valleys of GHNP. Some of the translucent white endangered butterfly of the same genera were also observed above Saketi at 14,000 feet elevation in the Tirthan valley.

Yellow swallowtail, a rare butterfly in this area was recorded at about 4,000m in Tirath area of the Tirthan valley.

Cabbage butterfly was common in lower altitude upto 2,000m. Dark clouded yellow butterfly, with orange-red and black border found throughout the alpine pasture just after melting of snow, and feed various species of low growing flowers of genus Primula. The Common brimstone, a sulphur coloured or greenish yellow butterfly

found between the elevation of 1,500 to 2,500m on the edges of forest openings.

Moths

Indian Moon Moth

Beautiful white with pale or bluish green colour. Hind wings have long yellow colour tail. Sexes are similar but males have more strong feathered antennae and heavy furry body than female. Eyespots and pink crescent shaped marking on hind wing tail are the main characteristics.

Ailanthus Silk Moth

Ground colour moth, with variations from brown to olive green or orange brown. A brown pale band traverses both the wings. A narrow crescent shaped patch is there in the centre of both wings. Antennae of male are strongly feathered.

Great Peacock Moth

Red, black, and brown ringed eyespots on all wings. The wings are brown with light and dark bands, and the edge of the fore wings are suffused with silvery white.

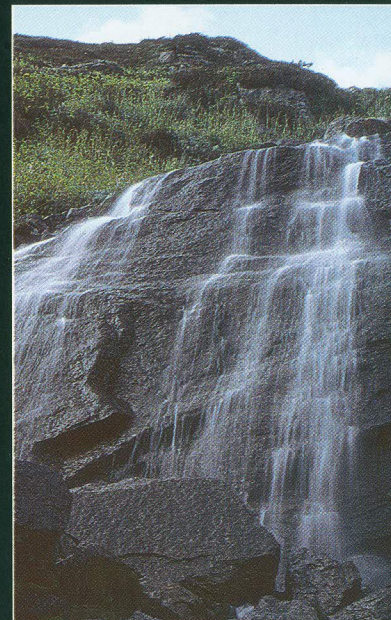
Moss Green Lappet

Triangular forewings with large, pale brown patches towards the



GHNP is a priority for wildlife conservation in the Western Himalayas. Many large mammals inhabit the Park. At lower elevations one can encounter Gora and the Himalayan Tahr. Above the tree line dwells the Bharal, or Blue Sheep. These mammals are the prey for Leopards and Snow Leopards. Himalayan Black Bears inhabit the forests, while Asiatic Brown Bears occur on the alpine meadows. For those who combine trekking endurance with patience, there is the memorable experience of encountering the wondrous wildlife found in the Park.

**Come Discover
Himachal's Wild Frontier!**



2

1. Water environments attract many animals.
2. Domain of the Snow Leopard



4



5

6

4. Dense forest habitat of Black Bear
5. Himalayan Brown Bear
6. Himalayan Black Bear

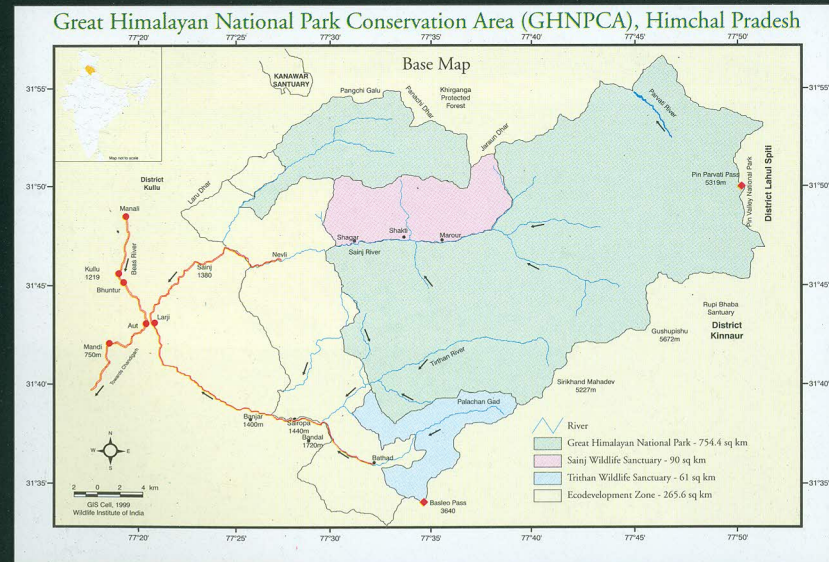
7. Serow
8. Himalayan Tahr
9. Map of GHNP



7



8



9

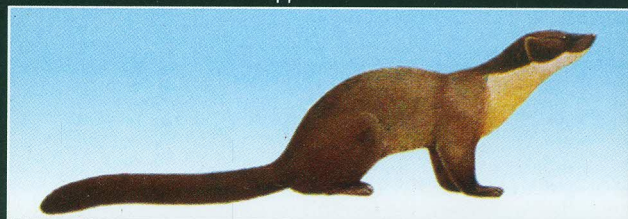
Conserving the Western Himalayan Environment



10



11



12



13

10. Himalayan Palm Civet
11. Himalayan Flying Squirrel
12. Yellow Throat Palm Civet
13. Himalayan Weasel



GREAT HIMALAYAN NATIONAL PARK

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base. Female much larger than male. Recorded between 1,500 to 2,000m.

Infant Moth

Small with hairy appearance, caused by its long, coarse wing fringes. The fore wings are blackish brown, sprinkled with white scales, while the hind wings are orange coloured. Found between 1,500 and 2,000m elevations.

Swallow tailed Moth

Pale yellow, often mistaken for a butterfly. A small tail-like extension on the hind wing with reddish brown spot at base of hind wing tail are quite distinct. Abundantly recorded between 1,500 to 2,000m.

Hawk Moth

Very distinctive streamlined wing shapes and robust bodies. Extremely powerful fliers, some even reaching speed of up to 50 km per hour.

Dragonflies

Indicators of water bodies because the eggs are dropped into water or on attached to submerged objects in long gelatinous string. Recorded up to 2,500m.

Worms (Annelids)

A total 14 species of annelida (11 earthworms and 3 leeches) have been recorded. Earthworms are known to be sensitive to change in native vegetation and land use practices and are very reliable bio-indicators for long term monitoring of disturbance and fragmentation of native ecosystems. The local communities have started vermicomposting as a major alternative income generation activity. This may enhance their crop production and reduce their dependencies upon the Park resources.

Mollusks (Mollusca)

As many as 14 species of both freshwater and terrestrial Mollusca found in GHNP and adjoining ecozone. Their favourite habitats are under large stones, logs, decaying leaves, and on wet rocks, tree trunks. They are characterized by low mobility, small populations, patchy and isolated distributions. They are threatened by habitat alterations. Absence of land mollusks may be a good indicator of large scale disturbance of natural vegetation in the area.

Plants

The Great Himalayan National Park supports a great diversity of plant life thanks to its wide altitude range and relatively undisturbed habitats. From the lofty pines and spruces and the great, spreading horse-chestnuts of the lower valleys, to the dense cushions and prostrate branches of the alpine herbs and junipers, the Park presents an endless variety of vegetation. Although some areas have been modified by grazing, this is one of the few areas of the Western Himalayas where the forests and alpine meadows can be seen in something approaching their original state. Only seventeen percent of GHNP's geographical area is covered by forest, because of the preponderance of alpine areas beyond tree line such as meadows, rocky peaks and snow-bound areas. However, these barren heights are usually touched on only briefly, if at all, by the average trekker. Instead, most walking is within the forest and subalpine zones where the majority of the more than 425 genera and 125 families of higher plants have been recorded within

the Park area occur. Vegetation occurs in well-defined altitude zones, beginning with the rather open subtropical forests of the lowest valley bottoms, grading into mixed forests of horse chestnuts, evergreen oaks, spruce and deodar, then to the upper temperate zone dominated by the rusty-leaved Kharshu Oak, spruce and fir and then into a subalpine zone of birches, stunted firs, and rhododendron bushes. Above that, all vegetation is reduced to grasses, herbs and low shrubs, such as juniper. This zonation effect is created by the effect of temperature on plant growth. For this reason, a given vegetation belt tends to be lower on north faces than on south faces. Likewise, moisture loving plants, such as bamboos, ferns and mosses, are more abundant on North faces, where the forest is usually very dense, while south faces support a more open forest with understory of grasses and berberis shrubs.

The subalpine zone is richest in species is followed by the alpine and upper temperate zones.

The following vegetation types can be recognised at various elevations in GHNP :

Temperate broad-leaved forests (2,000 to 3,000m),

Temperate conifer forests (2,000 to 3,000m),

Upper temperate broad-leaved and mixed conifer forests (2,500 to 3,500m),

Sub-alpine (Birch-Rhododendron) forests (3,000 to 3,500m),

Alpine scrubs (3,500m and above),

Alpine meadows (3,500m),

Riverine forests (along the rivers),

Temperate grassy slopes (2,000 to 3,000m), and

Temperate secondary scrub near village pastures and forest edges.

Medicinal Plants

This wonderful variety of plants is at once a blessing and a curse.

The blessing comes in the form of abundance and diversity of beautiful flowers, especially during the rainy season, when the alpine meadows are awash with color.

The curse is that many of the herbs and shrubs of the forests and meadows are much prized for

their medicinal properties. In the past, they were collected in small quantities for local use, but more recently better communications and a fashion for natural medicines among the wealthy both in India and elsewhere, have made the collection of medicinal plants a lucrative trade, drawing in outsiders and giving an incentive for harvesting on an unsustainable scale. At present, the Park management is attempting to develop alternatives to harvesting that will provide local people with equivalent income without damaging the magnificent ecology of the area.

Trees

The trees largely predominate the temperate belt of GHNP. The conifer species are widely distributed at various altitudes (e.g., *Pinus roxburghii*, Blue Pine, Cedar, Spruce and Fir) in the successive low to high altitudinal zones. Each of the upper coniferous belt has its characteristic oak which provide acorns for birds and rodents. The white-oak is associated with *Pinus roxburghii* and blue pine; green-oak with fir and spruce. Brown-oak mainly forms the pure community at the

treeline. A number of lichens and fungi occur on the oak trees which in turn provide food material for mammals and birds. Himalayan yew is most abundant in the fir forest where they give an appearance of an old forest and provide a distinct cool microclimate. *Rhododendron arboreum* dominates between 1,500-3,000m with a tendency of preference for the lower elevation on the north side. Four species of Maple occur with a wide range of altitude from 1,500-3,500m. Aesculus, alder, poplar, birch, and willows are common near the streams.

Shrubs and Herbs

If trees give the Park its gravity, creating the outlines of the scene, it is the shrubs and herbs that provide the gaiety. Flowers are found somewhere in the Park at almost all seasons. For the avid gardener, many will be familiar, because the Himalayas have been a source of many exotic shrubs and herbs transported to Europe and North America. Among these, are the genera *Berberis*, *Daphne*, *Desmodium*, *Lonicera*, *Indigofera*, *Ribes*, *Rhamnus*, *Sorbaria*, and *Viburnum*. Two species of hill

bamboos occur. These form dense clumps that are used by pheasants and other birds for feeding and breeding. Many climbers also occur, increasing the diversity of the middle levels of the forest.

Lichens

A special survey to study the diversity of lichens in the GHNP revealed an amazing 192 species in the Sainj, Tirthan, and Jiwa Nal valleys. The greatest diversity occurred between 2,500-3,000m altitude. After epiphytic orchids, lichens are the group of plants that are most sensitive to climatic changes. The occurrence of different species of lichens can be used in monitoring forest conditions (age structure, moisture conditions, and effect of pollution). Some lichens are harvested extensively throughout Himalaya, being used as ingredients in spices, ayurvedic medicines, and for other purposes. Every year about 10,000 tons of lichens are collected from the central Himalayan region of India alone. Commercially, the lichens are sold in the name of "Mendi", used to paint hands and other parts of the body on the occasion of weddings and other ceremonies.

The Alpine Zone

The altitude above which trees no longer grow varies with altitude, aspect, slope and other factors, but is generally above 3,600m in western Himalayas. For high altitude animals, this is one of the most important zones. The vegetation is mostly in stunted form due to the extreme cold climate and is dominated by prostrate shrubs, such as junipers, dwarf rhododendrons, bell heather, and stunted willows. Common herbaceous genera of alpine zone again include many introduced into gardens in the West: *Primula*, *Leontopodium*, *Corydalis*, *Pleurospermum*, *Saussurea*, and *Senecio*. *Berginia* and *Sedum* dominate the desert habitats between 3,600-4,200m. Rocky outcrops and ridges are interspersed with grazing meadows, used alike by domestic sheep and wild bharal. These areas are dominated by a luxuriant growth of *Anemone*, *Thalictrum*, *Corydalis*, and *Arenaria*. However, in places, heavy grazing by domestic sheep has led to the spread of weed species, such as docks, nettles and *Impatiens*. Their presence indicate the

overgrazing in the area, as most of these plants only spread where the droppings of sheep and goats provide a nitrogen-filled medium for them.

For flower-lovers, May and September are probably the best time to visit GHNP. May is good for flowers at lower altitudes and primulas dot the forest glades as the snow retreats. Trekking is arduous during the rainy season, but many rainy season flowers can still be seen in September, which is the best month to visit the alpine meadows.

Whatever season you come, there will be something to interest the botanist. For those less interested in the minutiae of the vegetation, it may be enough to experience the soaring forest trees: the great shafts of the firs, the wonderful spreading canopy of the oaks. This is an experience alas rarely offered in the Himalayas.

A keen naturalist, would hardly miss the gradients of vegetation types, and diversity of life forms especially plants. What are the characteristic plants in different ecological zones of GHNP? Where to look for interesting plants? The following account, based on my short trip to Tirthan valley, may through some light and gives some impressions of plant life in GHNP.

Personal Impressions

Floral Diversity of GHNP

Gopal S. Rawat

**Wildlife Institute of India,
Dehra Dun**

While conducting biological surveys in and around Great Himalayan National Park (GHNP) during 1995 – 99 I have had opportunities to visit some of the remote localities in Kullu district such as Tirath, Gumtarao, Dhela, Raktisar, Apgain, Mantalai and Pin-Parvati Pass. My student, Sanjay Singh, and I carried out systematic survey of higher plants (Angiosperms, Gymnosperms, and Pteridophytes) in the Park. In all, we recorded 832 species of higher plants belonging to 128 families and 427 genera from GHNP. Of the total species, 69 were trees, 113 shrubs, 28 climbers, 493 herbs, 96 grasses and sedges and 27 ferns. We assessed the conservation status of several medicinal and valuable plant species. Each visit has been enjoyable and educational. Any visitor, desirous of understanding the landscape features, range of habitats, biological diversity and

conservation issues of GHNP must visit at least a few of these places. A keen naturalist, would hardly miss the gradients of vegetation types, and diversity of life forms especially plants.

Question arise What are the characteristic plants in different ecological zones of GHNP? Where to look for interesting plants? The following account, based on my short trip to Tirthan valley, may throw some light and gives some impressions of plant life in GHNP.

A pleasant summer morning at Banjar base camp (12th June 1997, around 06 30 hrs). I, along with my students Sanjay and Vinod, drove to Gushaini in a hired Maruti van. Located some 10 km from Banjar at the confluence of Bathad and Tirthan rivers, Gushaini (about 1300m) is one of the gateways to GHNP. Without wasting any time at Gushaini, we begin our journey. The trail to Tirthan begins at an old temple where we offer silent prayers. We have our binoculars, backpacks and pack-breakfast with us. Three of our field assistants

had already left the previous afternoon for Rolla (nearly 11 kms inside) to make necessary camping arrangements. Initial climb of about 200m takes us to a small ridge which gives a commanding view of Tirthan and Bathad rivers on the left and back sides respectively. On our left we see a couple of old cedar (deodar) trees partly blocking the view of opposite grassy slope that is dotted with chir pine.

Ahead we encounter bushes of barberry, yellow and black raspberries, a wild rose, some other thorny bushes, two types of stinging nettles and a knot weed on either side of the trail indicating human habitation nearby.

Soon we enter a shady and moist path flanked by hill bamboo (nirgal) on either side. Associated with bamboo are several broad-leaf trees and shrubs such as dogwood, poplar, alder (Kos), white oak (ban), two species of Rhus, and high altitude counterpart of Hill toon (daral).

This stretch of forest is also very rich in ferns and herbaceous plants. The bamboo formation doesn't continue for more than a km and soon we reach another

scrub jungle on a gentle slope. This time, the thorny bushes are larger and species composition changes gradually. For another 4 kms the path goes through a boulder area with scattered ban oak and other broad leaf species. The rocks and tree trunks are laden with lichens, mosses, ferns and several climbers such as Clematis, Indian Ivy, and wild grape. We pass by a village, known as Ropa, which has about 8 – 10 house holds. Then there is a gradual climb to Kharongcha ridge (about 2,200m) that lies on the boundary of GHNP. Between Ropa and Kharongcha we record many more tree species, shrubs and herbs notably horse chestnut (khanor), different species of dog wood, *Desmodium*, *Indigofera*, black raspberry, wild turmeric (*Hedychium*), cobra lilies, two species of aster, and many more.

From Kharongcha to Rolla (3 kms) the path goes along the flat valley initially on the left and later on the right side of Tirthan river. The upper slopes of Kharongcha is covered with very dense oak (both ban and moru) with occasional conifers such as fir and spruce.

The valley part has mixed broadleaf forest represented by wild mulberry, two species of *Rhus*, walnut, alder, low altitude birch (*kath bhoj*), horse chestnut, elm, maple, and others. The southern grassy slope, opposite Kharongcha is annually burned by the local people for better grass production. Vinod scans these slopes and points out one goral feeding on the fresh green grass. The understorey vegetation between Kharongcha and Rolla appears heavily influenced by livestock grazing. Only on the steeper rocky slopes and deep ravines, away from the path, do we find new plants worth taking pictures, collection and preservation.

Around 11:30 a.m. we are at Rolla where our assistants welcome us with hot tea. We spend nearly two hours in pressing the plant samples, numbering them and making notes.

Soon after lunch we take a stroll along Tirthan, cross the river by a wooden bridge some two km ahead and climb the opposite, north facing slope that is largely dominated by fir. The majestic fir trees on the opposite slope of

Rolla look most impressive to me and I feel that some of these trees might be the largest in the western Himalaya.

By 5:30 p.m. we return to the camp site at Rolla with three bags full of plant specimens, largely collected along the river banks or from open slopes for fir trees didn't support much ground flora but for mosses, lichens and liverworts in moist localities.

The next day morning around 07:00 hrs, having finished our breakfast we left for Nada Thach (3,280m). The trail for Nada initially goes along the Tirthan valley for about 7 kms. The forest along this valley is largely temperate mixed broad-leaf type. The common trees include elm, hazel-nut, maples (3 types), bird cherry, walnut, willow, and poplar. Occasionally deodar and blue pine descend in the valley. Steeper slopes with poor soil support a variety of herbs and grasses.

At Chalocha we begin to ascend for Nada thach. The steep hill slope is dominated by mixed conifer forest mainly deodar and blue pine. These species gradually give way to conifer – broadleaf mixed forest comprising fir

(tosh), Himalayan yew (*rakhal*), maples, moru and eventually *kharsu* (brown oak). From Chalocha to Nada we pass through cool temperate and sub-alpine zones each with a variety of characteristic elements. By 1 p.m. we reach Nada for lunch, further plant exploration around thach, and our night halt. One side of Nada thach is covered by dense brown oak while the other side has stunted forest (*krummholz*) of violet rhododendron. Nada thach is full of Malora (*Rumex*) weed. Open areas away from the camping site are laden with various herbs such as anemones, primulas, geraniums, potentillas, senecio, Iris, and a few grasses and sedges. Stream course is covered with marsh marigold. While we dispersed in different areas for plant hunt in the afternoon, our assistants collected three different types of herbs for cooking as vegetables in the evening.

Our next destination for the third and fourth days was Majhoni (3,400m), located at the natural timberline. The timberline environments are my favorite camping sites in the greater Himalaya. Camping at such sites will allow you to cover various

vegetation or habitat types such as sub-alpine forests, *krummholz* patches, alpine scrub, grassy slopes, herbaceous meadows or rocky slopes. We reached Majhoni around 11:30 hrs passing through brown oak and riverine mixed forests. By the time we reached our camp, our assistant Pradeep had already collected about a kilo of morel mushroom from the shrubberies around camp site. He prepared mushroom soup, fresh green vegetable of a wild *Chenopodium*, and rice. The stretch from Majhoni to Tirath and surrounding slopes yielded us a great variety of alpine plants viz., buttercups, columbine, larkspur, Himalayan May apple, blue poppy, a variety of crucifers, violets, balsams, potentillas, *parnassia*, bell flowers, several members of coriander family, asters, edelweiss, dwarf rhododendrons, primulas, gentians, forget-me-nots, louseworts, wild mints and thymes, sages, bistort and its relatives, lilies, a few orchids, plenty of grasses and sedges to name a few. I wouldn't venture giving you all the names but our brief stay in Majhoni and Tirath areas of GHNP had been one of

the rewarding botanical excursions.

It may be noted that we covered mostly unusual and less traversed paths to maximize the plant search and avoided heavily grazed or camping sites of livestock. Undoubtedly, Tirath serves as a pilgrim place both for the locals as well as naturalists.

Ravinder Makhaik Correspondent, The Hindustan Times, Shimla

I was lucky enough to sight the rare bird on the morning of October 4, 2001 at about 8:45 a.m. Setting out from camp with Balak Ram near 'Chowai Dwar' (the rock cave camping site which has a spring emerging out of a rock and even has a sink where all the water vanishes), we had not walked for more than ten minutes when on crossing a bend right before me, behold there was the lord of the Park: bright, energetic, majestic and extremely beautiful the lord was gracious enough to grant me darshan (a look). A prayer spontaneously came to my lips. I remembered the folk song I had heard earlier at the function at Sai Ropa. "Jiju Rana" "Jiju monal- raja rana" (King

of Birds, the Monarch, the Western Tragopan). The monarch was as surprised as me and after making a warning call, in grace slowly retreated into the thick undergrowth nearby. Those precious five seconds shall remain engraved in my memory. However friend, philosopher, and guide for the tour, 'Balku' did not get to see the bird. Picking up the bird's alarm call by his vast experience, he had identified it as the Western Tragopan, the lord and synbol of the Great Himalayan National Park.

Upar niche

upar niche*
zigzag jagged
sloping softness
grasses granite.

gorges shifting
tirthan* flowing
slippery vision
all trails curving.

blue tahr watching
sentient contact
griffins circling
foxes wary.

porter chatter
all hard working
uppar niche
shadows playing.

up down trekking
one step breathing
Nature's leela*
all revealing.

- * upar, niche : up, down (Hindi)
- * Tirthan: river of GHNP
- * Leela : play of life/Hindu concept

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Accommodation

Over-night stays in the ecozone or Park have additional requirements, including, tents, sleeping bags, insulated mats, cooking utensils, food, etc. GHNP requires entry permits for treks. Society for Scientific Advancement of Hill and Rural Areas (SAHARA) is a non-governmental group organized by local village people and provides full logistic trek support. SAHARA offers guides, porters, tents, cooks, and coordinates different trek tours with GHNP staff.

The Sai Ropa Tourist Center

Located five kms. from Banjar and 5 kms before the Gushaini entrance to the Park. Nestled in the pine forest, the Tourist Center spreads over 3 ha. (six acres) area. It is also the headquarters of the Tirthan Wildlife Range Office from where entrance ticket to the Park can be obtained. The Center has a Forest Rest House, two dormitories (20 beds in all), and a hall with a photo exhibition about the Park. Outside, there is a 520m long "Biodiversity Trail" which has trees and medicinal plant species transplanted from the Park.

Other Activities

The Park and Kullu region offers excellent opportunities for bird watching, wildlife viewing, religious pilgrimages, cultural tours, and viewing local crafts and craft creation. There are options of rafting, climbing, fishing, attending a village festival, viewing local architecture, and sacred groves. The Park itself has two facilities for tourists: a tourist center at Sai Ropa and an Information Center at Larjee.

The Larji Information Center

Larji caters to the tourists coming to GHNP. It has a hall with training and projection facility for tourists, school children, and the village community. It is well located for orientation from Neuli or Gushaini. A small hall has Park educational displays. Park brochures, posters and entry ticket to the Park can be obtained here. The headquarters of Jiwanal Range Officer is also located here. In the open area of the Center, there is a pergola (gazebo), and information displays.

Treks within the Park

Sainj Valley: A five day trek through the Sainj valley. Total Distance: 56 km (round trip).

Sainj-Tirthan Valleys: An 8 day trek crossing two valleys. Moderate to strenuous. Experience the transitions between two magnificent valleys; about 85 km.

Gushaini to Shilt hut: Easy to moderate three day hike from Ecozone into Park; 30 km.

Jiwa Nala to Parvati River Valley: A very strenuous, dramatic 7 day hike, crossing the mountain passes at Kandi Galu (3627m), and Phangchi Galu (4,636m). Incredible vistas. Must be in excellent physical condition; 110 km.

Up to Tirath in Tirthan Valley: Experience the origin of a river; 6-7 days; 76 km.

Up to Raktisar in Sainj Valley: Trek within the Sainj Wildlife Sanctuary/GHNP; 6-7 days, 92 km.

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Coming soon a GHNP Web site
developed by Friends of GHNP :
www.greathimalayannationalpark.com

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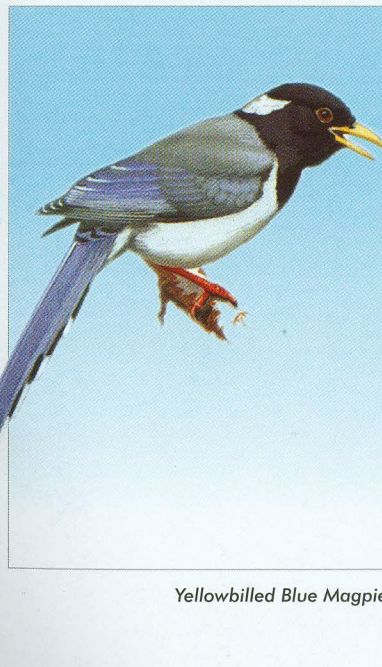
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**Note : Please refer to the GHNP
Booklets *Birds* and *EcoTourism*
for more detailed information
and/or contact Park officials for
specific trek information.**



View from Dhel Meadow 3737m



Yellowbilled Blue Magpie

Text :
Tony Gaston &
Sanjeeva Pandey

Photographs:
Courtesy : Bombay Natural History Society

Design:
Core Communications Pvt. Ltd.
Chandigarh

Published by:
Biodiversity Conservation Society
Great Himalayan National Park
Shamshi, Kullu
HP - 175 126, INDIA
Phone : +91-1902-265320
E-Mail : dirchnp@sancharnet.in

Processed & Printed at :
Chandika Press Limited
126, Industrial Area, Phase 1
Chandigarh

Front Cover:
Sartoo Lake. Photo : Sanjeeva Pandey
Back Cover:
Western Tragopan, Symbol of GHNP
Courtesy : World Pheasant Association International