

# NATUREAL TREASURES OF NEPAL





# NATURE

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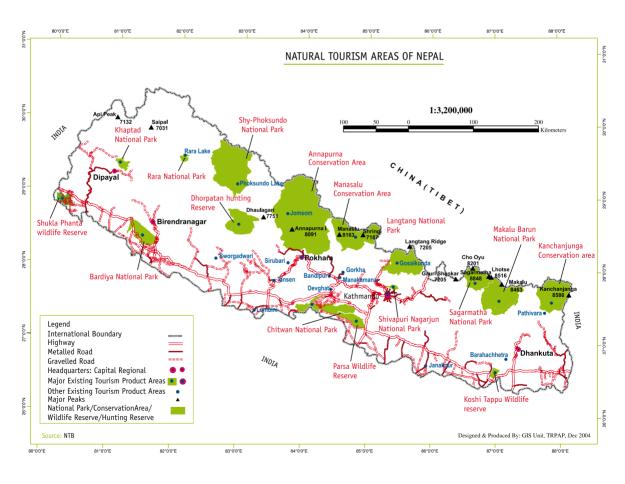


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# NEPAL





### General Introduction

Little known until the mid-20th century, when the country was opened to the outside world, Nepal is home to 101 diverse ethnic groups who even today practice centuries-old traditions and religious beliefs which have changed little over time. Nepal, a treasure trove of natural heritage, is a relatively small nation of 25.8 million people where climatic zones vary dramatically within a short distance from the low lying Kanchan Kalan (67m) to Mount Everest (8848m), the highest point on earth.

Little known until the mid-20<sup>th</sup> century, when the country was opened to the outside world, Nepal is home to 101 diverse ethnic groups who even today practice centuries-old traditions and religious beliefs which have changed little over time.

Nepal's ecological zones run east to west and are vertically intersected by the river systems. The southern lowland Tarai (67-300m) continues to the Bhabar belt covered with the Char Kose Jhadi forests known for rich wildlife. Further north, the Siwalik zone (700-1500m) and the Mahabharat range (1500-2700m) give way to the Duns (valleys), such as Trijuga, Sindhuli, Chitwan, Dang and Surkhet. The Midlands (600-3500m), north of the Mahabharat range is where the two beautiful valleys of Kathmandu and Pokhara lie covered in terraced ricefields, and surrounded by forested watersheds.

The high Himalaya (above 3000m) comprises mountain crests, alpine pastures and temperate forests limited by the tree-line (4000m) and snow line (5500m). Eight of the 14 eight-thousanders of the world lie in Nepal: Sagarmatha (Mount Everest 8848m), Kanchenjunga (8586m), Lhotse (8516m), Makalu (8463m), Cho Oyu (8201m), Dhaulagiri (8167 m), Manaslu (8163m) and Annapurna (8091m). The inner Himalayan valleys (above 3600m) such as Mustang and Dolpa are cold deserts sharing topographical characteristics with the Tibetan plateau. Nepal has five seasons: spring, summer, monsoon, autumn, and winter. The high Himalaya acts as a barrier to the cold winds blowing from Central Asia in winter, and forms the northern boundary of the monsoon wind patterns. Eighty percent of the precipitation is received during the monsoon (June-September). Winter rains are more pronounced in the western hills. The average annual rainfall is 1600mm, but varies by eco-climatic zones, such as 3345mm in Pokhara and below 300mm in Mustang.

Temperature varies according to topographic variations with an average temperature drop of 6°C for every 1000m gain in altitude. In the Tarai, winter temperatures are between 22-27°C, while summer temperatures exceed 37°C. In the Midlands, temperatures are between 12-16°C.

Nepal holds the so called 'Water Towers of South Asia' with its 6000 rivers which are snow-fed or dependant on rain. The perennial rivers include the Mahakali, Karnali, Narayani, and Koshi Rivers originating in the Himalaya. The medium-sized rivers like Babai, West Rapti, Bagmati, Kamla,

The immense diversity in Nepal's flora and fauna is remarkable. Its wildlife resources belong to the Palaearctic and Indo-Malayan realms. The 136 ecosystems is confined to 11 bio-climatic zones and 9 eco-regions that are defined by ecological features, climate, and plant and animal communities.

Kankai, and Mechi Rivers generally originate in the Midlands and the Mahabharat range. A large number of seasonal streams, mostly originating in the Siwaliks, flow across the Tarai.

Of the 163 wetlands documented, nine are globally recognized as Ramsar sites. They are: Koshitappu Wildlife Reserve, Beeshazarital, Jagdishpur reservoir and Ghodaghodital in the tarai, and Gokyo, Phoksundo, Rara and Gosaikunda in the mountainous region and Mai Pokhari (Illam) in the mid-mountain region.

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136 ecosystems is confined to 11 bio-climatic zones and 9 eco-regions that are defined by ecological features, climate, and plant and animal communities.

Comprising only 0.1% of land area on a global scale, Nepal possesses a disproportionately rich biodiversity. Of the total number of species found globally, Nepal possesses 2.80% plants, 3.96% mammals, 3.72% butterflies, and 8.90% birds. Of 6391 species of flowering plants recorded in Nepal, 399 are endemic. The endemic fauna are: Himalayan Field mouse, Spiny babbler, Nepal kalij, 14 herpetofauna, and six types of fishes.

Nepal's 16 Protected Areas cover 19.67 % of its land compared to the global average of 11%. Each of the nine national parks, three

wildlife reserves, three conservation areas and one hunting reserve cover various geographical locations from the sub-tropical jungles of the tarai to the arctic conditions of the Everest region. The World Heritage Sites of Nepal are: Chitwan National Park, Sagarmatha National Park, Lumbini,

Changu Narayan, Kathmandu Durbar Square, Patan Durbar Square, Bhaktapur Durbar Square, Swoyambhunath, Boudhanath and Pashupatinath.

There are more than 30 natural caves in the country out of which only a few are accessible by road. The Maratika Cave (also known as Haleshi) is a pilgrimage site associated with Buddhism and Hinduism. The Siddha cave is near Bimalnagar along the Kathmandu-Pokhara highway. The Pokhara area is known for caves namely Bats' shed, Batulechaur, Gupteswar, Patale Chhango etc. The numerous caves around Lo Manthang in Mustang include Luri and Tashi Kabum which house ancient murals and chhortens dating back to the 13th century.



# Moths and Butterflies

Nepal has a high number of fauna species of which higher fauna groups have been relatively well studied compared to the lower fauna groups, except for the butterflies and to some extent the spiders.



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There are 651 species of butterflies, which are distributed throughout the country in various ecological zones, 325 in the Tarai, 557 species in the Mid-hills, and 82 in the Highlands. The Red Data Book of the Fauna of Nepal has listed 142 species of butterflies, of which 12 were endangered, 43 vulnerable, and the rest, 87 species susceptible to be threatened. The endangered species are Brown gorgon, Krishna peacock, Sikkim hairstreak, Slate Royal, Scaece siren, Blue duchess, Pale Hockeystick sailer, Great Hockeystick sailer, Crebeta, Pale forester and Lidderdales dawnfly.

The three endemic species of butterflies in Nepal are: Banded Apollo, Common Red apollo and Walnut Blue. Similarly, the three species listed in the CITES appendix II are Kaiser-I-hind, Golden birdwing and Common birdwing.

The Himalayan cliff honeybee, the world's largest bee species, and the Atlas moth, the world's largest moth, and a relict Himalayan dragonfly are three of the bestknown insects unique to Nepal. Found in the Manaslu and Annapurna conservation areas, the Himalayan cliff honeybee (*Apis laboriosa*) normally measures 3cm in length, nests at altitudes between 2500m and 3200m, and forages at altitudes of up to 4,100m. The Atlas moth (*Attacus atlas*) has a wingspan of up to 400sq.cm. from as little as 25cm. to 30cm. The Relict Himalayan dragonfly (*Epiophlebia laidlawi*) is found in the Sagarmatha National Park and Shivapuri Nagarjun National Park.



# Wildlife

Wildlife of Nepal is officially classified into two main categories: common and protected. Wildlife of Nepal is officially classified into two main categories: common and protected. The common category lists such species as common leopard, spotted deer, Himalayan tahr, blue sheep and others. These species are commonly seen in the wild. The protected species include 26 mammals, nine birds and three reptiles. These rare animals are confined to their prime habitats. However, they can be encountered in the specific protected areas mostly during autumn and spring as follows:



#### Mammals

SN	English Name	Local Name	Latin Name	Protected Areas for Encounter
1	Asiatic elephant	Hatti	Elephas maximus	Parsa, Chitwan, Bardia, Shuklaphanta, Koshitappu
2	Assamese monkey	Assami rato bandar	Macaca assamensis	Langtang, Makalu Barun, Kanchenjunga
3	Black buck	Krisnasar	Antilope cervicapra	Bardia, Khairi-Panditpur
4	Clouded leopard	Dwanse chituwa	Neofelis nebulosa	Shivapuri and other National Parks
5	Four horned antilope	Chauka	Tetraceros quadricornis	Bardia, Chitwan
6	Gangetic dolphin	Shons	Platanista gangetica	Koshitappu, Chitwan, Bardia
7	Gaur	Gauri gai	Bos gaurus	Chitwan, Parsa, Trijuga
8	Great Tibetan sheep	Nayan	Ovis ammon	Annapurna
9	Himalayan Bear	Himali rato bhalu	Ursus arctos	Annapurna
10	Hispid hare	Hispid kharayo	Caprolagus hispidus	Shuklaphanta
11	Indian pangolin	Salak	Manis pentadactyla	Shivapuri
12	Leopard cat	Chari bagh	Felis bengalensia	Langtang
13	Lynx	Lynx	Felis lynx	Annapurnna
14	Musk deer	Kasturi mirga	Moschus moschiferos	Kangchenjungha, Sagarmatha, Makalu Barun, Langtang, Rara, Annapurna, Manaslu, Shey-Phoksundo, Khaptad, Rara
15	Pygmi hog	Pudke Bandel	Sus salvanius	Koshitappu
16	Red panda	Habre	Ailurus fulgens	Kangchenjungha, Sagarmatha, Makalu Barun, Langtang
17	Rhinoceros	Gainda	Rhinoceros unicornis	Chitwan, Bardia, Shuklaphanta
18	Snow leopard	Hiu chituwa	Panthere uncia	Shey-Phoksundo, Langtang, Sagarmatha, Kangchenjungha
19	Spotted linsang	Silu	Prionodon pardicolor	Chitwan
20	Striped hynae	Hundar	Hyaena hyaena	Bardia
21	Swamp deer	Barhasingha	Cervus duvauceli	Shuklaphanta, Bardia
22	Tibetan antilope	Chiru	Pantholops hodgsoni	Shey Phoksundo
23	Tiger	Bagh	Panthera tigris	Parsa, Chitwan, Bardia, Shuklaphanta
24	Wild buffalo	Arna	Bubalus bubalis	Koshitappu
25	Wild yak	Yak	Bos grunniens	Sagarmatha, Makalu, Kanchenjunga
26	Wolf	Bwanso	Canis lupus	Shey Phoksundo, Khaptad, Sagarmatha



#### Birds

SN	English Name	Local Name	Latin Name	Protected Areas for Encounter
1 2 3	Chir pheasant Impeyan pheasant Crimson horned pheasant	Kalij Danfe Monal	Catreus wallichii Lophophorus impeyanus Tragopan satyra	Mountain protected areas Mountain protected areas Mountain protected areas
4	White stork	Seto sarus	Ciconia ciconia	Chitwan, Parsa
5	Bengal florican	Khar majur	Eupodotis bengalensis	Chitwan, Bardia, Shuklaphanta, Parsa
6	Lesser florican	Sano khar majur	Sypheotides indica	Chitwan, Bardia, Parsa
7	Sarus crane	Sarus	Grus grus	Lumbini, Chitwan, Shuklaphanta, Parsa
8	Giant hornbill	Thulo dhanesh	Buceros bicornis	Chitwan, Bardia, Parsa
9	Black stork	Kalo sarus	Ciconia nigra	Chitwan, Bardia, Shuklaphanta, Parsa

#### Reptiles

SN	English Name	Local Name	Latin Name	Protected Areas for Encounter
1 2	Gharial Python	Gharial gohi Ajingar	Gavialis gangeticus Python species	Chitwan, Bardia, Koshi Chitwan, Bardia, Parsa, Shuklaphanta, Koshi
3	Monitor lizard	Sun gohoro	Varanus flavescens	Chitwan, Bardia, Shuklaphanta



# Zoo and Museums

The Central Zoo (6.5ha) houses 119 species of 970 animals. They comprise 33 species of 206 mammals, 60 species of 321 birds, 17 species of 424 fish and 9 species of 19 reptiles.



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The Natural History Museum, established in 1975, houses an estimated 40,000 zoological specimens (invertebrates and vertebrates), including 900 specimens of over 650 species of birds and 100 skeletons, some skins, fossils, rocks, and minerals, plastic and clay models, and wildlife trophies.

Wildlife museums maintained in the protected areas have significant collections mostly obtained from local sources as well as some that were confiscated from poachers and smugglers.



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The Tarai-Siwaliks (below 1000m) contain subtropical vegetation that has characteristics of the south-east Asia-Malaysian and Indian floristic composition. The dominant tree is sal, and other species extant are *Terminalia, Anogeissus, Adina cordifolia, Butea monosperma, Bombax ceiba, Dalbergia sissoo, Acacia catechu* etc. The forests in the western region are well preserved. It is estimated that there are nearly 1500 species of flowering plants in this belt.

The Mid-hills (1000-3000m) have the greatest ecosystem as well as species diversities in Nepal, largely due to the great variety of terrain and the occurrence of subtropical to temperate flora and fauna in this zone. Harboring nearly 32% of the forests in the country, the zone includes 52 types of ecosystems with an estimated number of flowering plant species over 4000. Major species found in the zone are *Castanopsis indica*, *Schima wallichii, chir pine, Alnus nepalensis, Cedrela, Albizia* etc in the lower belt, and *Castanopsis tribuloides, Castanopsis hystrix, Lithocarpus pachyphylla*, blue pine, several species of oaks and rhododendrons, *Aesculus, Acer, Juglans* etc in the upper belt.

The Highlands (above 3000m) include 38 major ecosystems covering one-third of the country's forests. They comprise around one third of the total forest cover of Nepal, representing birch, oak, rhododendron, juniper, fir, cedar, larch, and spruce forests. About 420 flowering plant species have been recorded above 5,000m on both sides of the Himalayan range in the Everest region. It is estimated that over 2,700 species of flowering plants are found in the zone. Although relatively less diverse than the Mid-hills and Lowlands, they are characterized by a large number of endemic species. Based on the climatological, florisitic and ecological information, Nepal has been divided into three geographic regions: West (the Karnali River system further west of 83°E longitude); East (the Koshi River system further east of 86°30'E longitude); and Center (Gandaki River system between 83° and 86°30'E longitudes). The indicator species like Aesculus indica and Cedrus deodara are predominantly found in the west, while *Castanopsis hystrix* and *Larix griffithiana* are predominant in eastern and central Nepal. Eastern Nepal is richer in rhododendron species, for example the Mechi zone contains as many as 28 species, and the Mahakali zone only 5. The Rhododendron *arboreum* grows up to 15m and grows abundantly in the lower belt, whereas Rhododendron nivale grows only 10-30cm at 4500-5500m, the world record for the vascular plants.

The central Botanical Garden (82 ha) is located at Godawari (1515m) in the south-east corner of the Kathmandu valley. At the base of Phulchoki (2.715m), it is surrounded by natural evergreen forests of mainly *Schima wallichii* and *Castanopsis* indica. *Alnus nepalensis* are concentrated along the water courses. Some common trees and shrubs of this garden are *Choerospondias axillaris*, *Myrica esculenta*, *Pyracantha crenulata*, *Rubus ellipticus*, *Mahonia napaulensis*, *Zizyphus incurve*, *Stranvaesia nussia*, *Prunus cerrasoides*, *Pyrus pashia* etc. The orchid house alone contains about 90 species including *Dendrobium densiflorum*, *Ceologyne cristata*, *Calanthe masuca* and *Pleione hookeriana* etc.

The other botanical gardens in the country (location, altitude, year of establishment) are:

- Maipokhari Botanical Garden, Illam, 2200m (1992)
- 2. Dhanusha Botanical Garden, Dhanushadham, Dhanusha, 75m (1998)
- Vrindaban Botanical Garden, Hetauda, Makawanpur, 500m (1962)
- 4. Daman Botanical Garden, Daman, Makawanpur, 2140m (1962)
- 5. Tistung Botanical Garden, Tistung, Makawanpur, 1700m (1962)



- 6. Dhakeri Botanical Garden, Banke, 130m (1962)
- Mulpani Botanical Garden, Kapurkot, salyan, 2000m (1990)
- 8. Dhitachor Botanical Garden, Jumla, 2500m (1990)
- 9. Godawari Botanical Garden, Godavari, Kailali, 130m (1998)
- 10.Deoria Botanical Garden, Dhangadhi, Kailali 100m

The National Herbarium at Godavari (established in 1960) houses over 161,800 plant specimens and is the largest herbarium in Nepal.

Over 700 species of plants of Nepal have been identified as plants having medicinal value. Of them, 72 species are commercially important, and the five major species having the highest export quantity of their biomaterials are rittha or soap nut (Sapindus mukorossi), timur or Nepali pepper (Zanthoxylum armatum), Jhyau or Lichen (Parmelia spp), Pawan (Persia bombycina) and Chiretta (Swertia chirayita). A unique plant species that grows on a caterpillar is yarsa gumba (*Cordyceps*) *sinensis*) which is found in the Shey Phoksundo area and similar high altitude regions. The Amchi (Tibetan traditional healer) and Aryuvedic traditions rely on these medicinal herbs and their derivatives for their cures. Some important places where these traditions are extant are: Annapurna, Langtang, Sagarmatha and Shey-Phoksundo besides others.

The community forests in the hills and plains are noteworthy and worth a visit. Over 15,000 user groups are engaged in the planting and natural regeneration of trees and medicinal plants. Wildlife including birds and mammals like leopards have returned to these forests. In many places, tourism has become a major activity besides harvesting of forest products. The activities in the community forests within the buffer zones of Chitwan are: elephant safaris, nature walks etc.

# PROTECTED



## Protected Areas of Nepal

With the enactment of the 1973 National Parks and Wildlife Conservation Act, Nepal joined other nations in the cause of biodiversity conservation by establishing 16 Protected Areas that include nine national parks, three wildlife reserves, one hunting reserve, and three conservation areas.



With the enactment of the 1973 National Parks and Wildlife Conservation Act, Nepal joined other nations in the cause of biodiversity conservation by establishing 16 Protected Areas that include nine national parks, three wildlife reserves, one hunting reserve, and three conservation areas. Buffer zones have been declared in the 11 protected areas where local communities are empowered to manage their own resources.

These protected areas are the depositories of diverse flora and fauna found in the country. They represent 31 out of 36 forest ecosystems as simplified from the 136 types on the basis of the climax vegetations and ecological homogeneity. They are home to 95% of the total bird species found in the country, 85% of the mammal species, and 66% each of the herpetofauna and fish species. They include two World Heritage Sites and six Ramsar Sites out of nine.



Each of the protected areas of Nepal has its unique ecological features offering special attractions and potential activities for visitors depending upon its location. Each of the protected areas of Nepal has its unique ecological features offering special attractions and potential activities for visitors depending upon its location. The following two tables (one by physiographical locations and another by protected areas) provide basic information at a glance.

Protected Areas by Location	Major Attractions	Potential Activities
Tarai Siwaliks (Bardia, Chitwan, Koshitappu, Parsa and Shuklaphanta)	Wildlife: mega fauna and ungulates, birds, elephant stables Landscape: rivers, forests, grasslands, wetlands	Elephant ride, jungle drive, nature/village walk, folk dance,rafting,Rock climbing local festivals
Midlands (Khaptad and Shivapuri)	Culture: Tharu, community lifestyle Wildlife: leopards, musk deer, deer, wild boar, Himalayan black bear, birds Landscape: moorland, forests, streams Culture: community lifestyle	Nature/village walk, local festivals, Hiking, Canyoning
High Mountains (Annapurna, Dhorpatan, Kanchenjunga, Langtang, Makalu Barun, Manaslu, Rara, Sagarmatha and Shey Phoksundo)	Wildlife: snow leopard, red panda, musk deer, pheasants Landscape: mountain peaks, glacial lakes, forests, pastures Culture: Sherpa, Tamang, Bhotia culture, community lifestyle	Mountaineering, trekking, Nature/village walk, Canyoning, local festivals
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Protected Area	Landscape	Wildlife	Culture
Annapurna	mountain peaks, wetlands, rivers, caves, forests, pastures	snow leopard, blue sheep, pheasants	Several global recognitions, Hindu andBuddhist culture, transhumance, Ethnic lifestyles of Gurung, Thakali, Bhotia, Magar, Brahmin, Kshetri etc
Bardia	'Gift to the Earth', Tiger Conservation Unit	Tiger, rhinoceros, elephants	Tharu culture
Chitwan	World Heritage Site and Ramsar Site	Tiger, rhinoceros, crocodile/elephant breeding, Vulture Breeding Center	Tharu culture, community lifestyle
Dhorpatan	Hunting reserve, mountain peaks, forests, pastures	leopard, goral, serow, Himalayan tahr, pheasants	Hindu culture, transhumance
Kangchenjungha	'Gift to the Earth', mountain peaks, glaciers, wetlands, rivers, forests, pastures	snow leopard, musk deer, red panda, pheasants	Hindu and Buddhist culture, transhumance
Khaptad	moorland, forests, streams	Leopards, musk deer, wild boar, birds, wild dog	transhumance, festivals

Protected Area	Landscape	Wildlife	Culture
Koshitappu	Ramsar Site, river, grasslands	Arna, elephants, birds, dolphin	community lifestyle
Langtang	Ramsar site, mountain peaks, glaciers, glacial lakes, forests, pastures	snow leopard, red panda, musk deer, pheasants, Himalayan black bear	Tamang culture, Amchi, festivals, transhumance
Makalu Barun	mountain peaks, glaciers, glacial lakes, forests, pastures	snow leopard, red panda, musk deer, pheasants, Himalayan black bear	Sherpa culture, transhumance, community lifestyle
Manaslu	mountain peaks, rivers, forests, pastures	snow leopard, blue sheep, goral, serow, Himalayan tahr, pheasants	Ethnic lifestyles of Gurung and Bhotia, Amchi, transhumance
Parsa	forests, grasslands	Tiger, elephants, blue bull	community lifestyle

Protected Area	Landscape	Wildlife	Culture
Rara	Ramsar Site, lake, forests	Red panda, musk deer, pheasants	community lifestyle
Sagarmatha	World Heritage Site, Ramsar Site, mountain peaks, glaciers, glacial lakes, forests, pastures	snow leopard, red panda, musk deer, pheasants	Sherpa culture, festivals
Shey Phoksundo	Ramsar site, mountain peaks, glacial lakes, forests, pastures, cold desert	Snow leopard, blue sheep, musk deer, Tibetan wolf, pheasants	Bonpo culture, Amchi, transhumance
Shivapuri	mountain, forests, streams	Clouded leopard, Common leopard, wild boar, Himalayan Black bear, birds	Hindu and Buddhist culture, festivals
Shuklaphanta	grasslands, wetlands	Tiger, barasingha, Elephants	community lifestyle



# NATIONAL PARKS



(968 km2) and Buffer Zone (328 km2)

Practically untouched by modernization, it is a major component of the Tiger Conservation Landscape. Its proposed extension has been declared a 'Gift to the Earth'.



The Bardia National Park, situated in Mid-western Nepal, occupies the Karnali flood plain, the Babai river valley, and the Siwaliks range with the highest peak of Sukarmala (1441m).

Practically untouched by modernization, it is a major component of the Tiger Conservation Landscape. Its proposed extension has been declared a 'Gift to the Earth'.

Historically a hunting ground and fishing site, 1,500 households were evacuated from here in 1984.

#### Climate

The park enjoys three distinct seasons, each providing a unique experience. October through early April is quite dry. The days are warm, and the nights are cool and pleasant. From April through June, the temperature rises up reaching 45°C in May. The hot sticky days give way to the monsoon rains that last till September. The best time to visit the park is from October through March.

#### Flora and Fauna

The park consists of three major natural forests from the riverine composition of khair-sissoo, to sal in the Tarai and hills and to Chir pine-oak in the Siwaliks. Of the recorded 173 species, sal is the dominant species.



The park is home to 59 species of mammals, 407 types of birds, 52 kinds of amphibians/ reptiles, and 124 species of fish. Fauna includes tigers, wild elephants, rhinoceros, swamp deer, black buck and dolphins among the mammals, gharials and pythons among the reptiles. Some of the endangered birds found in the park are *Bengal florican*, *Lesser florican* and sarus crane.

#### Areas of Interest

The Babai valley consists of an ecological succession from cultivated lands to wildlife habitats. The Babai river is good for fishing sites, and rafting is also possible.

The Karnali river is known for its large volume of water inhabited by the critically endangered Gangetic dolphins, soft-shelled turtles and Mahseer fish etc. The Karnali bridge at Chisapani is ideally located to provide a great viewpoint for observing the gigantic water body turning from its turbulent mountain character to a widely spread braided pattern.

The park is home to 83 One horned rhinoceros translocated from Chitwan. A very successful

program in crocodile breeding is also carried out at Thakurdwara.

An elephant stable near Thakurdwara provides insight and entertainment for visitors. Occasionally, wild elephants frequent the site during feeding time. Herds of over 50 wild elephants move about the Babai valley and other parts of the park. Visitors often encounter these mega species in the wild.

The park management regularly conducts a series of scientific experiments on tiger, rhinoceros and other wildlife using camera-traps and other equipment.

Animal sighting is more frequent and highly rewarding during the annual grass cutting season in January.

During the months of September, November, February and April, migratory birds arrive to augment the number of residential birds giving birdwatchers a great opportunity to enjoy their sport.



There is an information center, wildlife museum, Tharu ethnographic museum and souvenir shop around Thakurdwara. Local lodges also provide guests with basic information.

In the buffer zone, the local community is involved in maintaining forests, irrigation channels, biogas projects, school eco clubs, local festivals, traditional dances etc.

The Khairapur black buck sanctuary, located near Gularia about 15 km south-east of Thakurdwara, is home to over 100 black bucks in their natural habitat.

#### Activities

With the assistance of guides and tour operators, visitors can participate in a variety of activities in and around the park. Depending upon their choice and interests, visitors can go for elephant rides, jungle drives, rafting, nature walks, bird watching, village walk, cultural program etc.

#### Access

Public buses run along the highway passing through the park, thus linking it with Kathmandu

and other parts of the country. The road journey to Nepalgunj from Kathmandu is about 12 hours.

The most convenient means of reaching the park is by flying to Nepalgunj (daily flights). Buses are also available from Kathmandu. Public bus service is available between Nepalgunj and Thakurdwara, while private vehicles can also be hired.

Visitors can also reach the park by rafting down the River Karnali.

#### **Basic Facilities**

There are several resorts and lodges that cater to the hundreds of visitors that arrive here. They provide excellent services that include food, accommodation and transport, and organize activities like nature walks, elephant safaris, jungle drive, rafting etc. Around Thakurdwara there are also restaurants, cyber cafes, souvenir shops, medical shops etc.

#### For Further Information

Bardia National Park Office, Thakurdwara, Bardia. Tel: 977 (84) 429712





## Chitwan National Park

Chitwan (means forests where leopards dwell), is the first national park of Nepal established in 1973. According to UNESCO, the World Heritage Site is "At the foot of the Himalayas, Chitwan is one of the few remaining undisturbed vestiges of the Tarai region, which formerly extended over the foothills of India and Nepal. It has a particularly rich flora and fauna. One of the last populations of One-horned Asiatic rhinoceros lives in the park, which is also one of the last refuges of the Bengal tiger."



(932 km2) and Buffer Zone (750 km2)

Chitwan (means forests where leopards dwell), is the first national park of Nepal established in 1973. According to UNESCO, the World Heritage Site is "At the foot of the Himalayas, Chitwan is one of the few remaining undisturbed vestiges of the Tarai region, which formerly extended over the foothills of India and Nepal. It has a particularly rich flora and fauna. One of the last populations of One-horned Asiatic rhinoceros lives in the park, which is also one of the last refuges of the Bengal tiger."

For its exemplary community-oriented conservation works, CNP has received wide acclaim as the "best managed park" at the 5th World Park Congress.

#### Climate

The park enjoys three main seasons: hot and dry summer, a hot and humid rainy season and a warm winter. Between October and February, the average temperature is 25°C ensuring a pleasant climate. From March through June, temperatures can reach as high as 43°C. The hot and humid days give way to the monsoon season that typically lasts for four months from June through September. The best time to visit is from October through March.

#### Flora and Fauna

The park has a rich flora that includes sal, Palash, silk cotton, Tree fern, Cycas, Screw pine and orchids. There are more than 50 different types of grass species, including the elephant grass, renowned for its immense height reaching up to 8m.

The park is home to 58 species of mammals, 539 types of birds, 56 types of reptiles and amphibians, and 124 species of fish. The mammalian species include the rhinoceros, tiger, elephant, antelope, leopard, wild boar, bear etc. while among the reptiles found here are the golden monitor lizard, python, crocodile etc. Some of the bird species found here are: Black Necked stork, the Lesser Adjutant stork, the Grey Headed Fishing eagle, the Brahmini ducks, the Bengal florican, the Lesser florican, the Giant hornbill etc.

#### Areas of Interest

The park is an example of ecological successions. Once inhabited by over 11,000 people, the Old Padampur area along with the abandoned farmlands, irrigation canals etc.has become a prime habitat for rhinoceros. A visit to the crocodile breeding center at Kasara, and an elephant breeding center at Khorsor near Sauraha can be both rewarding and educative. Monitoring of tigers, rhinoceros and birds is scientifically carried out in the park.

Wildlife sighting is more frequent during the annual grass cutting season in January.

During the months of September to November, February to April, thousands of migratory birds



arrive to join the residential birds providing bird watchers with spectacular view of a variety of birds.

Chitwan is known for shrines like that of the Bikram baba where newly weds come to pray for a good conjugal life and the Valmiki Ashram where the Ramayan epics are represented.

In Chitwan, tourism related festivals, fairs and events are organized by the local bodies while Tiger Tops' annual World Elephant Polo Championships is held at Meghauly during the winter.

There are information centers and wildlife museums in such places as Kasara, Khorsor, Sauraha and Tikauli. One can visit the Tharu museum and souvenir shop located at Sauraha. Basic information is also available at the various lodges.

Community forests, irrigation works, biogas plants, eco clubs and traditional dances are some of the communal activities worth seeing.



#### Activities

Depending upon the level of adventure and interests, visitors can participate in a variety of activities such as elephant rides, jungle drives, canoeing rides, nature/village walks, bird watching, cultural programs etc.

#### Access

Public buses, tourist coaches, and airlines services link Chitwan with Kathmandu and other parts of the country. Private vehicles can also be hired. The road journey from Kathmandu is about four hours long. Visitors can also reach the park by rafting down the Trishuli and Narayani rivers.

The Bharatpur airport, half an hour drive from Sauraha, is served by regular flights to and from Kathmandu and occasionally Pokhara.

There are nine entrance gates to the park:

- 1. Kasara via Jagatpur
- 2. Ghatgain via Patihani
- 3. Bhimle via Meghauli
- 4. Khagendra Malli via Bhandara

5. Sunachuri via Sunachuri along the east west highway

- 6. Sauraha via Tandi (Ratna Nagar)
- 7. Laukhani via Pragatinagar
- 8. Amaltari via Danda
- 9. Kujauli via Rajahar

#### **Basic Facilities**

There are seven high class resorts in the park, and over 60 different lodges mostly in Sauraha and other areas outside the park. The service provided by these lodges which include accommodation and food is excellent and they also organize a variety of activities (nature/village walks, elephant rides, jungle drives, canoe rides, Horse rides, camel rides, cart drives, folk dances etc) in and around the park. Bicycles and other means of transport are available on hire. Other facilities are restaurants, cyber cafes, souvenir shops and medicine shops.

#### For Further Information

Chitwan National Park Office, Kasara, Chitwan. Tel: 977 (56) 529405; 977 (56) 580072 (56) 621069; 977 (56)621071





Khaptad National Park

(225 km2) and Buffer Zone (216 km2)

Khaptad National Park, an isolated plateau, is at the junction of Achham, Bajura, Bajhang and Doti districts and includes Patans (moorlands), rivulets and the Khapar dah (lake), and forested slopes. As advised by late Khaptad Baba, the park was established in 1984 for the conservation of natural herbs and the habitat.



#### Background

Khaptad National Park, an isolated plateau, is at the junction of Achham, Bajura, Bajhang and Doti districts and includes Patans (moorlands), rivulets and the Khapar dah (lake), and forested slopes. As advised by late Khaptad Baba, the park was established in 1984 for the conservation of natural herbs and the habitat.

#### Climate

The spring (March-May) and autumn (October-November) are pleasant with temperatures ranging from 10°C to 20°C when trekking can be enjoyed in the pleasant sunny weather. The monsoon begins in June and lasts until September. The winter months, December to February bring snow and chilly winds.

#### Flora and Fauna

The park has about 355 species of vascular plants of which 135 species are distributed in moorlands. The blooming flowers consist of primulas, buttercups, wild berries and bistortas. The pristine forests are comprised of fir, oak, hemlock, laurel and rhododendrons in the upper belt, and Chir pines, Nepalese alder and rhododendrons in the lower belt.

The park is home to about 287 bird species both migratory and residents, such as the Impeyan pheasant, partridges, flycatchers, bulbuls, cuckoos, Peregrine falcon, White rumped vulture, and eagles. A wide variety of butterflies, moths, and insects are also an important part of the Khaptad ecosystem. Among the 23 mammalian species, the common ones include leopards, musk deer, barking deer, wild boar, goral, Himalayan black bear, Yellowthroated marten, wild dog, and Rhesus and Langur monkeys.

#### Areas of Interest

The park offers a variety of attractions depicting natural heritage enriched with cultural traditions.

The 22 moorlands demonstrate the dynamic process of transhumance in Nepal. Thousands of freely grazing cattle can be observed in the meadows. Seasonal cattle sheds dot the rolling hills.

The park is ideal for spiritual experiences like meditation in the tranquil surroundings. Tobacco products, alcohol, and animal sacrifice are prohibited here.

The Khaptad Baba hermitage is the focal point here, with many shrines within walking distance. The popular shrines are the Tribeni confluence, Khaptad dah, Shiva temple, Sita paila, Ganesh temple, Nagdhunga, Kedardhunga, and Sahashra Linga (highest point at 3,200m)

Thousands of pilgrims arrive at the plateau during the festivals of Ganga Dashahara in May and Janai Purnima in August.

There is a small museum and a view tower near the park headquarters. To the north one can see the Saipal Himalayan range. In the other direction, the vast green mid-hills of Nepal can be seen clearly.

#### Activities

With the assistance of guides and tour operators, visitors can participate in a variety of activities

in and around the park. Depending upon the level of adventure and interests, visitors can go for nature hikes, bird watching, village walks, cultural programs etc.

#### Access

The most popular entry point is from Silgadhi (in Doti) which is reached after a six-hour uphill trek to Jhingrana, the park entrance, and another seven hours to the park headquarters.

There are numerous trails leading towards various moorlands in the park, and the most frequently used are:

- a. Lokhada Khaptad Jhingrana
- b. Kudaun Khaptad Jhingrana
- c. Rato Mato Khaptad Jhingrana
- d. Balelto Sahasraling Khaptad Jhingrana

There are airstrips around the park, such as Chainpur in Bajhang, Kolte in Bajura, Sanfebagar in Achham, and Dipayal in Doti. Of these, the best option is to fly from Nepalgunj to Dipayal and take a local bus to Silgadhi. The other options are: fly to Achham or Bajhang followed by a two-day walk, or fly to Bajura followed by a four-day trek to the park headquarters. Note: these airports are seldom in operation.

#### **Basic Facilities**

Only limited subsistence facilities are available in the area. The local lodges can accommodate only a few people at a time. Visitors must bring their own tents, food, fuel and all other supplies including first-aid kits.

#### For Further Information

Khaptad National Park Office, Chhedi Patan, Bajura. Tel: 977 (94) 690358, 019- 460001



(1,710 km2) and Buffer Zone (420 km2)

The park lies along the trade route between Nepal and Tibet (China). The historical site of Rasuwagadhi, a medieval period fort, lies at the border.

#### Background

The Langtang National Park, lying in the central highland, is the first Himalayan national park of the country. Forming the upper catchments of the Trishuli and Betrabati rivers, its topography ranging from subtropical to alpine zones are the meeting points of Indo-Malayan and Palearctic realms.

The park lies along the trade route between Nepal and Tibet (China). The historical site of Rasuwagadhi, a medieval period fort, lies at the border.

#### Climate

The period of September through May is relatively dry except in January-February when there is occasional snow fall. By April, bursts of red, pink, and white rhododendron blooms form towering canopies amidst the fir and oak forests. From June through August, the skies are heavy with monsoon rains. Autumn (September-October) is the best time for trekking within the park.

#### Flora and Fauna

The park represents eighteen ecosystems ranging from the Hill sal and pine forests in the lower belt to the alpine belt of glaciers, snow and rocks. The main tree species are sal, Chir pine, *Schima wallichii, Castanopsis indica* in the lower belt; oak, laurel and blue pine in the middle belt; and larch, fir, birch and rhododendron in the higher belt.

Of the 1,043 species of vascular plants recorded, 15 are endemic species including *Rhodondendron cownianum, R. lowndesii, Larix nepalensis.* Langtang's expansive high meadows provide summer habitat for numerous ungulate species such as musk deer and Himalayan tahr.

The park is home to 46 mammalian species including red panda, snow leopard, clouded leopard, musk deer, Himalayan tahr, and over 345 species of birds including the Impeyan pheasant, Ibis bill, White-winged redstart, Snow partridge. There are 4 herpeto and 30 fish species.

#### Areas of Interest

Its landscape comprises mountain peaks, glaciers, glacial lakes, rivers, hot water spring, gorges, cliffs, pastures and forests. Within this landscape are settlements and cattle sheds etc.

The three main trek routes in the park, namely 1) Langtang Valley, 2) Helambu and 3) Gosaikunda Lake cover much of the park and the southern Helambu region. Langtang and Helambu regions are connected through Lauribina La. Along the trek routes there are many locally operated hotels, teahouses, and campsites for trekkers.

Significant wilderness sites include Ghora Tabela, Kyanjin, Panch Pokhari, Helambu, toe of Langshisa glacier, and Ganja La pass. Among the cultural sites are: Langtang village, Melamchighyang, Tarkeghyang and Shermathang which are worth visiting.

The Langtang-Helambu trails are rocky and slippery after rain or frost. Caution must be taken against rockfalls at certain sections of the trails. Hiking alone is not advisable. Hiring local guides is strongly recommended for treks to Ganja La (5120m) and Lauribina La (4,600m) during winter.

Among the rich cultural heritage of Tamangs and Sherpas, one important aspect is the indigenous knowledge of herbal medicine, transhumance system and cheese production. Some community works include garbage management, trail management, heritage conservation etc.

#### Langtang Valley Trek (Dhunche-Kyanjin)

Starting Point	Destination	Hours	Altitudes
Dhunche (1950m) Thulo Syafru Syafrubensi Bamboo Lama Hotel Ghora Tabela	Thulo Syafru Syafrubensi Bamboo Lama Hotel Ghora Tabela Langtang	4-5 3-4 4-5 3-4 3-4 3-4	2,120m 1,420m 1,975m 2,581m 3000m 3,307m
Langtang	Kyanjin	2-3	3,800m

Trekking hours may vary among visitors.

#### Helambu Trek (Sundarijal-Melamchi)

Starting Point	Destination	Hours	Altitudes	
Sundarijal (1350m) Chisopani Kutumsang Tharepati Tarke Gyang	Chisopani Kutumsang Tharepati Tarke Gyang Sermathang	3-4 4-5 4-6 4-6 3-4	2,300m 2,470m 3,490m 2,620m 2,620m	
Sermathang	Malemchi Pul	4-5	8,46m	
		1		

Trekking hours may vary among visitors.

#### Dhunche Gosainkunda Sundarijal (Kathmandu)

Starting Point	Destination	Hours	Altitudes
Dhunche (1950m)	Thulo Syafru	4-5	2,390m
Thulo Syafru	Sing Gompa	3-4	3,350m
Sing Gompa	Gosainkunda	4-5	4,381m
Gosainkunda	Lauribina pass	3-4	4,609m
Lauribina pass	Ghopte	3-4	3,430m
Ghopte	Thare Pati	4-5	3,600m
Thare Pati	Kutumsang	4-5	1,850m
Kutumsang	Chisopani	4-5	2,134m
Chisopani	Sundarijal	3-4	1,350m

Trekking hours may vary among visitors.

Information centers and museums established at Dhunche are very useful to the visitors. Lodge owners can also provide basic information.

#### Activities

With the assistance of guides and tour operators, visitors can participate in a variety of activities in and around the park. Depending upon the level of adventure and interests, visitors can go trekking, climbing, bird watching or go on nature walks, village walks and visit hot springs etc.

#### Access

From Kathmandu the easiest means of reaching the park is to take a public bus or hire a car to reach the park headquarters at Dhunche (1,950m). Road continues all the way to Syafrubensi (1,420m). Chartered and specially arranged helicopters fly to the Gosainkunda area during the festival season.

#### **Basic Facilities**

There are several hotels, lodges and teashops at Dhunche and Syafrubensi. The communities have arranged for a home-stay in the villages beyond these places. In the alpine areas of the park, only limited subsistence facilities are available. Visitors must bring their own tents, food, fuel and all other supplies including firstaid kits.

#### For Further Information

Langtang National Park Office, Dhunche, Rasuwa. Tel: 977 (10) 540119/540219





## Makalu Barun National Park

(1,500 km2) and Buffer Zone (830 km2)

The skyline is made up of a chain of rugged Himalayan peaks, including Mt. Makalu (8,463m) fifth highest mountain in the world and fourth highest in Nepal. Mt. Chamlang (7,319m), Mt. Baruntse (7,129m) and Mera Peak (6,654m) are the other wellknown peaks in this region.

#### Background

The Makalu Barun National Park lies in the northeastern Himalayan region of Nepal adjacent to Sagarmatha National Park. It is the only protected area on earth with an altitude gain of 8,000m from the low tropical forests along the Arun valley to the lofty, icy mountain summits. The skyline is made up of a chain of rugged Himalayan peaks, including Mt. Makalu (8,463m) fifth highest mountain in the world and fourth highest in Nepal. Mt. Chamlang (7,319m), Mt. Baruntse (7,129m) and Mera Peak (6,654m) are the other well-known peaks in this region.

#### Climate

Precipitation during the monsoon is over 70% between June and September. Pre-monsoon rain falls in April and May and supports biomass production. Great variations in temperature and precipitation can be expected due to extreme differences in altitude and slope within the area. The best time to visit are: Spring (February-April) and Autumn (October-November).

#### Flora and Fauna

The park represents 20 different ecosystems ranging from the Hill sal forests to the alpine zones which consist of glaciers, snow and rock. The major tree species are sal, Chir pine, *Schima wallichii, Castanopsis indica* in the lower belt, and oak, maple, magnolia, sorbus in the middle belt, and fir, birch and rhododendron in the higher belt.

Of the 284 species of vascular plants recorded from the park, 8 are endemic. The park is recognized for its tremendously rich floral diversity signified by 25 species of rhododendrons and 47 species of orchids.

The park is home to the snow leopard, red panda, musk deer, wild boar, and Himalayan Black bear among 88 mammal species. Among the 440 species of birds, the important ones are Spiny babbler (endemic to Nepal), Impeyan pheasant, Rufous throated wren babbler, Slety-bellied Tesia etc. The park is also inhabited by 59 reptile/ amphibian species and 78 species of fish.

#### Areas of Interest

The landscape consists of mountain peaks, glaciers, glacial lakes, rivers, hot water springs gorges, cliffs, pastures, forests etc. Mt Makalu (8,463m) is the major landmark of the park. The Makalu base camp and the Mera peak (6,654m) are popular trekking destinations.

Most trails are quite rocky, and become slippery after rain or overnight freezes. Until April or May, winter snows generally cover the passes and high altitude trails approaching Shershong. One particular hazardous area is the trail between Mumbuk and Yangle Kharka, an area of unstable and dangerous rockfall. Trekkers in this area should move quickly and watch out for falling rocks.

Another interesting aspect of the park is the community lifestyle. Traditional resource management systems such as community control led grazing and forest guardianship are worth observing.

#### Activities

With the assistance of guides and tour operators, visitors can participate in a variety of activities

in and around the park. Depending upon the level of adventure and interests, visitors can go for treks, climbing, nature hikes, bird watching, village walks or attend cultural programs etc.

#### Access

The nearest airport as well as the gateway to the park is Tumlingtar. There are daily flights from Kathmandu and Biratnagar.

Tumlingtar could also be reached from Biratnagar or Dharan. It is a seven-hour drive to Hile, followed by a three-day trek. The Inkhu valley of the park can also be reached from Lukla or Phaplu. Both are connected with regular flights from Kathmandu.

The park headquarters is located at Murmidanda, Seduwa which is a day's journey from Tumlingtar.

#### **Basic Facilities**

Campsites have been designated along the trek route for minimizing impact on natural vegetation and to conserve aesthetic values. Seven campsites have been designated in (Khongma 3,500 m, Dobato 3,500m, Yangle 3,570m, Neghe 3,700m, Langmale 4,100m, Shershong 4,600m) for visitors.

Only limited subsistence facilities are available in the park. Visitors must bring their own tents, food, fuel and all other supplies including first-aid kits. Kerosene depots are operated in the park to supply alternative fuel. Similarly, kerosene stoves and blankets are also available on rent for porters.

#### For Further Information

Makalu Barun National Park Office, Seduwa, Sankhuwasabha. Tel: 977 (29) 560136

# Rara National Park

(106 km2) and Buffer Zone (198 km2)

The landscape includes the towering snow-capped peaks around the lake namely Chuchemara peak (4,039 m), Ruma Kand (3,731m) and Malika Kand (3,444m). The lake drains to Mugu-Kamali River via Nijar Khola.



#### Background

The Rara National Park is located in the north-western Himalayan region of Nepal. Rara (2990 m) is the biggest lake (10.8km2) but the park is the smallest one. The landscape includes the towering snow-capped peaks around the lake namely Chuchemara peak (4,039 m), Ruma Kand (3,731m) and Malika Kand (3,444m). The lake drains to Mugu-Kamali River via Nijar Khola.

#### Climate

Summers are pleasant, but winters are very cold in the park. From December through March, the temperature drops to below freezing, and heavy snowfalls occur up to one meter, closing high passes. April to June is warm but the season gives way to monsoon from June to August. The best time to visit the park is September-October and April-May.

#### Flora and Fauna

The park is characterized by sub-alpine and high temperate vegetation. It represents 11 types of forest ecosystems in which the major species are Chir pine, Nepalese alder, walnut, maple, oak, cypress, spruce, Blue pine, fir, birch, rhododendron etc. Of the 88 vascular plants recorded, 16 are endemic.

The park is home to 51 species of mammals, 241 species of birds, 2 herpeto and 3 species of fish. They include Musk deer, Himalayan black bear, leopard, jackal, Himalayan tahr, Yellow throated marten, otter, Wild dog, Common langur, Rhesus macaque and Red panda. The bird species include coots, snow cock, and different species of pheasants, grebes, mallard, common teal, red-crested pochard and gulls. During winter, many migratory birds join the residential gallinaceous birds.

Of the six endemic fish species found in Nepal, three species of Asala (snow trout) have been recorded only in the Rara Lake. They are *Schizothorax macrophthalmus, Schizothorax nepalensis* and *Schizothorax raraensis*.

#### Areas of Interest

The major landmark of the park is the Rara Lake (2990m) which provides spectacular views to visitors. The oval shaped lake (5 km  $\times$  3 km) is 167m deep. Its radiant blue water is home to the snow trout, the only fish recorded in the lake.

A circumambulating trail along the lake side has been developed for visitors. Boating services has also been introduced in the lake. The other areas of interest for visitors can be wildlife-bird watching and botanic excursions.

Community lifestyle is of interest in the buffer zone. Transhumance systems still exist in the surrounding areas and seasonal migration is common in the area. There are several temples and shrines in the surrounding areas. The Nepali language is believed to have originated in this region.



#### Activities

With the assistance of guides and tour operators, visitors can participate in a variety of activities in and around the park. Depending upon the level of adventure and interests, visitors can go for treks, nature hikes, wildlife/bird watching, village walks, pony rides or attend cultural programs etc.

#### Access

The park can be reached by flying to the Talcha airstrip which is only a few hours from the park headquarters. Chartered and other occasional flights are arranged from Nepalgunj. The other reliable airport is at Jumla which is two and half days journey from park headquarters. There are regular flights from Nepalgunj.

An interesting and rewarding means of reaching the park is by doing a 10 day trek from Surkhet, or a 5 day trek from Dailekh.

#### **Basic Facilities**

Only limited subsistence facilities are available in the park. The local lodges can accommodate only a few persons at a time. Visitors must bring their own tents, food, fuel and all other supplies including first-aid kits.

#### For Further Information

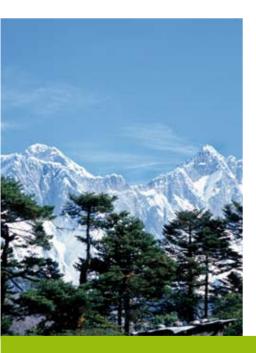
Rara National Park Office, Hutu, Mugu. Tel: 977 (87) 450101



### Sagarmatha National Park

(1,148 km2) and Buffer Zone (275 km2)

"The Sagarmatha National Park is an exceptional area with dramatic mountains, glaciers and deep valleys, dominated by Mount Everest, the highest peak in the world (8,848 m). Several rare species, such as the snow leopard and the lesser panda, are found in the park. The presence of the Sherpas, with their unique culture, adds further interest to this site."



#### Background

The Sagarmatha National Park is located in the north-eastern Himalayan region of Nepal. According to UNESCO, "The Sagarmatha National Park is an exceptional area with dramatic mountains, glaciers and deep valleys, dominated by Mount Everest, the highest peak in the world (8,848 m). Several rare species, such as the snow leopard and the lesser panda, are found in the park. The presence of the Sherpas, with their unique culture, adds further interest to this site."

#### Climate

During the autumn months of October and November, the weather is pleasant but much colder at night. During winter months from December through February, the weather is very cold and daytime temperatures do not exceed 5° Celsius. During spring the days are warm. From June through September, monsoon rains make travel difficult. The best time to visit the park are autumn (October-November), and spring (March-May).

#### Flora and Fauna

The park represents eight ecosystems in the High Himalaya ranging from the juniper forests in the valleys to the alpine areas with glaciers, snow and rock. The forests consist of Blue pine, birch, rhododendrons, and fir etc. Of the 160 vascular plants that have been recorded here, 21 are endemic species. The park is home to the Red panda, snow leopard, Musk deer, Himalayan tahr, marten, Himalayan mouse hare (pika) and over 208 species of birds including the Impeyan pheasant, snow cock, Blood pheasant, Red billed cough, lammergeyer etc. The current faunal checklists include 33 mammals, 5 herpeto and 1 species of fish.

#### Areas of Interest

Along with the highest peak, Sagarmatha, the park offers incredible views of Himalayan peaks such as Lhotse (8,516m), Cho Oyu (8,201m), Thamserku (6,623m), Nuptse (7,861m), Amadablam (6,812m), Pumori (7,161m) and Island peak(6,189m). Vibrant with the sounds of rivers and the wind, features like lakes, glaciers, forests and pastures are mesmerizing

and thrilling. Over 60 settlements add a human dimension to the park.

Trekking within the park in the alpine areas is a thrilling experience. The trek from Namche to Kala Pathar is one of the most popular. The Gokyo Lake and Chukung valleys also present spectacular views to the trekker. The Thame Valley is popular for Sherpa culture while Phortse is famous for wildlife viewing. There are some high passes worth crossing.

The park is also known for 'Trekking Peaks' that offer hobby climbers an opportunity to climb a Himalayan summit and experience the 'white wilderness'. Most of these trips can be completed within a short period of time.

#### From Namche Bazar to Kala Pathar

From	Destination	Hours	Altitude	
Namche Bazar (3,440m)	Tengboche	4-5	3,800m	
Tengboche	Pangboche	3-4	3,920m	
Pangboche	Dingboche/Pheriche	3-4	4,360m	
Dingboche/Pheriche	Lobuche	4-5	4,930m	
Lobuche	Kalapatthar	5-6	5,554m	
Kalapatthar	Base Camp	7-8	5,360m	

#### Namche Bazar to Gokyo Peak

From	Destination	Hours	Altitude	
Namche Bazar (3440m)	Khumjung/Khunde	2-3	3,780m	
Khumjung/Khunde	Dole	5-6	4,090m	
Dole	Macherma	3-4	4,410m	
Macherma	Gokyo	4-5	4,750m	
Gokyo	Gokyo Peak	3-4	5,357m	
Gokyo Peak	Thaknak	3-4	4,690m	
Thaknak	Phortse	5-6	3,850m	
Phortse	Pangboche	2-3	3,920m	
Pangboche	Namche	7-8	3,440m	

The famous Tengboche and other monasteries (Thame, Khumjung and Pangboche) are common gathering grounds for spectacular festivals like Dumje and Mani Rimdu. The community activities include *ngawa* system, garbage management, microhydro power, trail maintenance, tree plantation, forest nursery, school eco clubs etc.

Information centers and museums established at Namche and Lukla are very informative for visitors. However, basic information can also be garnered from knowledgeable Lodge owners.

#### Activities

Depending upon the level of adventure and interests, visitors can go for treks, climbing, nature hikes, bird watching, village walks and attend cultural programs etc.

Mountain flights to this region are regularly operated from Kathmandu.

#### Access

The most convenient way to reach the park is by flying to Lukla and walk for two days to reach Namche (Park Headquarters). There are several flights a day from Kathmandu to Lukla. The Phaplu airport is a 5-day trek from Namche, and the Tumlingtar airport is a 10-day trek from Namche.

Another popular approach to the park is via Jiri (the old route taken by Tenzing and Hillary to Mt. Everest) from where it is a 10-day trek to Namche. Jiri is an 8-hour bus ride from Kathmandu.

#### **Basic Facilities**

There are several hotels, lodges and teashops along the trekking routes to Namche and beyond. Choices depend upon the level of services and facilities desired.

Renting of field gear is available for the porters at Lukla.

Medical advice could be sought from Kunde Hospital or Pheriche Health Post.

There are cyber cafés at Namche for communication.

In the alpine zone, visitors must be selfsufficient in tents, food, fuel and all other supplies including first-aid kits.

#### For Further Information

Sagarmatha National Park Office, Namche Bazar, Solukhumbu. Tel: 977 (38) 540114





### Shey-Phoksundo National Park

The park has been proposed for a World Heritage Site for its unique trans-Himalayan flora and fauna and the ancient Bonpo culture.



#### Background

The Shey-Phoksundo National Park, lying in the Trans-Himalayan region, is the largest national park in the country. The Phoksundo Lake, a major landmark, drains out in the form of a waterfall that reflects sunlight and throws rainbow colors. It is famous for sightings of snow leopards and their prey, the blue sheep, as well as musk deer and other mountain species. It is a storehouse of alpine medicinal herbs including *Yarsa Gumba*.

The park has been proposed for a World Heritage Site for its unique trans-Himalayan flora and fauna and the ancient Bonpo culture.

#### Climate

Most of the precipitation occurs during the monsoon (July-September), although the Dhaulagari and Kanjiroba Himals form a rain shadow. The annual precipitation varies from 1,500 mm in the south (Suligad) to 500mm in the arid northern slopes. Winters are quite severe, with frequent snowfalls above 2,500m and temperatures remain below freezing at the altitudes above 3,000m through much of the winter. The best time to visit the park is in spring-summer from April through September.

#### Flora and Fauna

The park contains 21 types of ecosystems composed of trees like cypress, cedar, spruce and Blue pines in the lower belt, and that of Mountain oak, fir, birch, juniper, Blue pine and rhododendron to *Caragana steppes* and alpine scrubs in the upper belt. There are hundreds of plant species of high ethnobotanical importance. The park is home to 35 species of mammals, 208 species of birds and 3 herpeto. The symbolic mammal species are Snow leopard, Blue sheep, Musk deer, Wild dog and Tibetan wolf. Bird species include Himalayan griffon, White breasted deeper, monal pheasant, cheer pheasant etc. It is home to 29 species of butterflies, including the highest flying butterfly in the world, *Paralasa nepalaica*.

#### Areas of Interest

The lake Phoksundo (meaning a confluence of three rivers) is famous for its magnificent turquoise color and the spectacular scenery and is clearly one of the most scenic mountain views in the world. Many beautiful glaciers can be found near and above the lake. The Tibetan village of Ringmo is scenically nestled in the lake area. The Pal Sentan Tsoling Gompa beside the lake was built about 900 years ago to combat wildlife poaching.

The name of the park is derived from the famous monastery Shey (meaning Crystal Mountain) which was established in the 11th century. The park has hundreds of Gompas (Monasteries).

With 9,000 people residing here, the park has the distinction of having the highest settlements on earth. Most of the people follow Bonpo. They live off agriculture and trade with Tibet. The famous salt trade caravans pass through the park.

Individual trekkers are permitted to do a trek to Ringmo or Phoksundo Lake but the Tran-Himalayan region of inner Dolpa, beyond the lake, is restricted to group trekking only.

Most trails are quite rocky and fragile, hence prone to rock falls. Passers-by are advised to watch for falling rocks and should move cautiously but quickly.

The community here is knowledgeable especially on ethno-botany. The traditional Tibetan

healers, *Amchis* are still practicing their craft and use medicinal herbs. People practice transhumance system of grazing which keeps them away from home for long periods of time.

#### **Activities**

With the assistance of guides and tour operators, visitors can participate in a variety of activities in and around the park. Depending upon the level of adventure and interests, visitors can go for treks, climbing, nature hikes, bird watching, village walks, pony rides or attend cultural programs etc.

#### Access

The easiest way to reach the park is by air to the Juphal airstrip in Dolpa from Nepalgunj and then do a half-day trek to the park entrance at Suligad. There are occasional flights to Pokhara from this airport. Helicopters and small airplanes can also be chartered to reach the area.

It's a three-day journey to the Park Headquarters from the Suligad entrance. However, there are also other routes to enter the park. Visitors can follow the trade routes from Jumla in the west or approach from Jomsom further north-east.

#### **Basic Facilities**

Accommodation is available in Dunai, Sangta, Chhepka and Ringmo. Campsites with rubbish pits, toilets, and shelters are available throughout the park. Trekker's lodges can be found in Dunai, Chhepka, and Ringmo where food and limited supplies are provided. Park offices are located at Suligad, Chhepka, Palam Ringmo and Toijem. At the headquarters in Palam there is a small visitors' center. For long treks, visitors must bring their own tents, food, fuel and all other supplies including first-aid kits.

#### For Further Information

Shey Phoksundo National Park Office, Palam, Dolpa. Tel: 977 (87) 550104

### Shivapuri Nagarjun National Park

This national park is the only walled park in the country, surrounded by an 111 km long brick wall. There are two villages namely Mulkharka and Okhreni in the vicinity of the park.

#### Background

The Shivapuri Nagarjun National Park, situated on the northern fringe of Kathmandu valley, is the nearest park (12 km) from the capital city. It is the major catchment area of the Bagmati and Bishnumati rivers that flow through the Kathmandu valley. The catchments are the main sources of drinking water for Kathmandu Valley providing almost 40% of the water supply which amounts to about 30 million liters of water a day. The highest point is the Shivapuri peak (2,732m).

This national park is the only walled park in the country, surrounded by an 111 km long brick wall. There are two villages namely Mulkharka and Okhreni in the vicinity of the park.



#### Climate

The park has sub-tropical to warm temperate climate and the variations in temperature and precipitation is quite high. The weather station at Kakani has recorded the maximum average temperature of 22.7° C in May-June and the minimum average temperature 0.30° C in December-January. The mean annual precipitation was 2,727mm mostly occurring during the monsoon period (June-September). The park can be visited throughout the year.

#### Flora and Fauna

The park lies in a transition zone between subtropical and temperate climates. It houses five forest ecosystems containing the Mountain oak, Collinean oak, *Schima wallichii, Castanopsis indica* and *Pinus roxburghii*. Of the 449 vascular plant species recorded in the park, 16 are endemic.

The symbolic mammal species found in the park are leopard, Wild boar, Himalayan Black bear among the 19 species recorded. Among the 311 bird species, 227 are residents, 48 are migrants and 36 are both residents and migrants. The symbolic species are Slender billed scimitar babbler, White-gorgetted Flycatcher, Barred Cuckoo dove and Golden-throated barbet.

#### Areas of Interest

The park is ideal for outdoor activities and many local festivals are celebrated here. On the Nepalese New Year's Day in mid-April, pilgrims flock to Baghdwar and Bishnudwar. The other popular shrines are: Bajrayogini, Manichud, Budhanilkantha and Nagi gomba. Panoramic views of the snow-capped mountains and the wide Kathmandu valley are enchanting.

The park offers exciting destinations for trekking. Some of the popular treks are:

- Panimuhan, Park HQ Shivapuri peak (12 km)
- Nagigumba Baghdwar Chisapani (18 km)
- Nagigomba Shivapuri Nagarjun peak (6 km)
- Kakani Shivapuri nagarjun

- Jhule Chisapani (12 km)
- Sundarijal Chisapani (22km)

Trekking routes to Nagarkot, Gosaikunda, Helambu and Langtang National Park also pass through the park. Several religious sites for Hindus and Buddhists lie within the park.

There are several sites within the park where plant succession can be studied. Various species including rhododendrons have been introduced and community plantation, soil conservation and other conservation activities are worth observing.

The park is excellent for bird watching throughout the year.

#### Activities

With the assistance of guides and tour operators, visitors can participate in a variety of activities in and around the park. Depending upon the level of adventure and interests, visitors can go for treks, nature hikes, mountain biking, wildlife/bird watching, village walks etc.

#### Access

The park is easily accessible from Kathmandu. There are four major routes leading to the park from the city center through: Budhanilkantha, Kakani, Sundarijal and Tokha.

The park headquarters at Panimuhan is just seven kilometers north of the city's Ring Road. Besides the headquarters, the park can also be entered through Sundarijal, Tokha, Kakani, Jhule or Chisapani.There is a 95 kilometer gravel road and an 83 kilometer walking trail suitable for trekking and village walks.

#### **Basic Facilities**

There are hotels and restaurants near the park.

#### For Further Information

Shivapuri Nagarjun National Park Office, Panimuhan, Kathmandu. Tel: 977 1 4374830; 977 1 4370355

# WILDLIFE RESERVES

Men.

### Koshitappu Wildlife Reserve

(175 km2) and Buffer Zone (173 km2)

The Sapta Koshi (unification of seven rivers by the hermitage of Kaushik) is a major tributary of the river Ganges. It was declared a Ramsar Site on December 17, 1987 and is the first one in Nepal. The reserve supports more than 20,000 waterfowls.



#### Background

The Koshitappu Wildlife Reserve lies in the southeastern lowlands (tarai) of Nepal and is composed of the alluvial floodplains of the Sapta Koshi River. The landscape includes grasslands, forests as well as the embankments and spurs on either side of the river. By 1979, about 12,000 people were evacuated from the reserve.

The Sapta Koshi (unification of seven rivers by the hermitage of Kaushik) is a major tributary of the river Ganges. It was declared a Ramsar Site on December 17, 1987 and is the first one in Nepal. The reserve supports more than 20,000 waterfowls.

#### Climate

The reserve enjoys three distinct seasons. Summer (February through May) is intensely hot with minimum precipitation. Temperatures in the shade can reach 40°C. The monsoon starts in late May or early June and lasts until September, bringing heavy, frequent rainfall. Winter (October through January) is the best time to visit and is characterized by clear blue skies and moderate temperature, but can still get quite cold at night.

#### Flora and Fauna

With vegetation mainly composed of tall grasslands, the reserve is a storehouse of 514 species of flora including trees like sissoo, silk cotton trees, sal, khair, palash, and grasses such as *Saccharum* species, *Phragmites* species, *Typha* species, *Imperata* species etc. The aquatic plants include water hyacinth, *Hydrilla* species, *Azolla* species and *Lotus* species.

The reserve is home to 485 species of birds of which 12 species are globally threatened. The notable ones are watercock, Indian nightjar, Dusky Eagle owl, Black-headed Cuckoo shrike, White-tailed stonechat, Straited grassbird, Large Adjutant stork, Pallas's Fish eagle, Common Golden-eye and Gull-billed tern. There are at least 114 species of water birds, 176 species breed in the reserve and 180 species are passage migrant or winter visitors. It is the only area in Nepal where the watercock and Abbott's babbler are found.

The reserve is inhabited by 31 mammalian species, 45 amphibians/reptiles and 200 fish species (91 residents, 26 migratory). Nepal's last remaining population of wild water buffalo (Arna) inhabits the floodplain, and the critically endangered Gangetic dolphin is found in the waters of the Koshi river. Some of the other mammals within the park are: wild elephant, wild boar, deer, otter and jackal.

#### Areas of Interest

The reserve is an extremely important restingplace for migratory birds and many species are seen nowhere else in Nepal. Migration of birds starts in late December and reaches a peak between mid-February and mid-March. The number of migratory birds exceeds 50,000 of which waterfowl and common pintail are notable.

The Arnas are a special attraction of this area and they can be seen during a walk, elephant ride or while driving. Domestic buffaloes sometimes mingle with the Arnas in the grazing areas. Herders believe that their livestock can be more productive by cross-breeding with the wild progenitor.

The reserve is a natural corridor for wild elephants which move up from West Bengal, India. Dolphins can also be seen in the Koshi river.





The river is remarkably beautiful especially at sunrise and sunset. The clear skies allow for beautiful sights of several Himalayan peaks including Makalu (8,463m), the world's fifth highest peak.

The reserve demonstrates dynamics of ecological succession of plants due to shifting of the Koshi river, and impacts of human activities like burning and grazing.

Local villagers are permitted to collect grass from the park once a year for their household use. Large boats ferrying people and grass loads on the river are a wonderful sight.

Community activities like forestry, biogas, fish ponds, eco clubs, traditional dance, and weekly markets (*Hat* bazaar) are worth visiting. A visitor information center at the reserve headquarters provides details of the area.

#### Activities

With the assistance of guides and tour operators, visitors can participate in a variety of activities in and around the park. Depending upon the

level of adventure and interests, visitors can go for elephant ride, jungle drive, boating, nature walk, bird watching, village walk, cultural program etc.

#### Access

There are daily buses available from Kathmandu to Kakarbhitta and Biratnagar. The nearest bus stop is at Jamuha, 4 km from Laukhi. One can reach the Reserve Headquarters at Kusaha (2.5 kilometer from Jamuha) by rickshaw.

The nearest airport is in Biratnagar where several daily flights are available for Kathmandu. Biratnagar is 57 km from Kusaha.

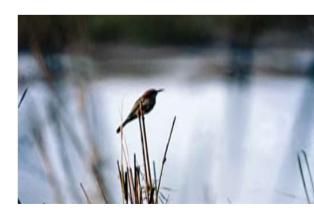
#### **Basic Facilities**

There are a few lodges and teashops around Kusaha. Better accommodation can be found in Biratnagar, Dharan and other towns near the reserve.

#### For Further Information

Koshitappu Wildlife Reserve Office Kusaha, Sunsari Tel: 977 (25) 530897; 977 (25) 620667





### Parsa Wildlife Reserve

(499 km2) and Buffer Zone (298.2 km2)

The Parsa Wildlife Reserve, situated in the southern central lowlands of Nepal, comprises the Siwalik range, gullies, dry streambeds, and very porous foothills. Named after the 18th century Parasnath Monastery, it is contiguous to Chitwan, and forms the eastern component of the Tarai Arc Landscape.

#### Background

The Parsa Wildlife Reserve, situated in the southern central lowlands of Nepal, comprises the Siwalik range, gullies, dry streambeds, and very porous foothills. Named after the 18th century Parasnath Monastery, it is contiguous to Chitwan, and forms the eastern component of the Tarai Arc Landscape.

#### Climate

Winter (October-December) provides pleasant temperatures with clear skies. Night time temperatures can drop to 0°C. During spring (January-March) temperatures rise and water becomes scarce. During



summer (April-June) the days become hot and humid with temperatures reaching 40°C. Monsoon (July-September) brings cooling rains. The best time to visit is from October through March.

#### Flora and Fauna

The reserve is a storehouse of nearly 300 vascular plants and the dominant trees are sal (90 percent of the reserve's vegetation), and pines in the slopes.

The reserve is home to 37 species of mammals, 503 bird species, 13 types of reptiles/ amphibians, and 8 species of fish. It supports a large population of wildlife including elephants, tigers, sloth bear, leopards, blue bull etc.

Symbolic bird species are Crow-billed drongo, Thick-billed green pigeon, Long-tailed Broadbill, and Red jungle fowl. Species like White breasted kingfisher, Paradise flycatcher, Large racquettailed drongo, Golden backed woodpecker, etc are commonly sighted. Giant hornbill, one of the endangered bird species is found in some forest patches. The reserve is also famous for reptiles and the many kinds of snakes found here include the Common cobra, Common and Banded krait, python and King cobra.

#### Areas of Interest

Wildlife watching is the major attraction in the reserve. Near the headquarters is a machan (view tower) that provides excellent opportunities to catch glimpses of many birds, deer and leopard as well as wild elephants.

The religious site of Kailas Bhata (about 30 km from Adabhar) is perched on a hill from where lush forests of the Tarai can be seen.

An elephant stable known as Hattisar is maintained at Amlekhgunj, about 5 km north of the reserve headquarters.

Information can be gathered from the reserve headquarters at Adhabar.

#### Activities

With the assistance of guides and tour operators, visitors can participate in a variety of activities in and around the park. Depending upon the level of adventure and interests, visitors can enjoy elephant rides, jungle drives, nature walks, bird watching, village walks, cultural programs etc.

#### Access

The reserve is easily accessible by road. The main entrance to the reserve is at Adabhar along the main highway between Kathmandu - Hetauda – Birgunj. Simara Airport, only eight kilometer from Adhabar, is served by regular daily flights to and from Kathmandu. The flight time is only 20 minutes.

The reserve can also be approached via Mahadev Khola post, Charbhaiya post, Gaduwaline post, Nirmalbasti post, and Amlekhgunj post, located at the boundary of the reserve. The reserve is accessible from the southern section through a network of gravel roads, except during monsoonal flood.

#### **Basic Facilities**

There is a small four-room guesthouse at Adhabar. A local teahouse provides simple Nepali food. In Hetauda and Birgunj however, there are a range of hotels and lodges to chose from.

#### For more information:

Parsa Wildlife Reserve Office, Adhabar, Parsa. Tel: 977 53 521051

### Shuklaphanta Wildlife Reserve

(305 km2) and Buffer Zone (243.5 km2)

The Shuklaphanta Wildlife Reserve located in the southwestern corner of Nepal, occupies the largest grassland in the lowland Tarai. Along with the Shuklaphanta (dazzling, fresh and open grassland), the reserve consists of forests, riverbeds and wetlands (such as Ranital).



#### Background

The Shuklaphanta Wildlife Reserve located in the south-western corner of Nepal, occupies the largest grassland in the lowland Tarai. Along with the Shuklaphanta (dazzling, fresh and open grassland), the reserve consists of forests, riverbeds and wetlands (such as Ranital).

#### Climate

The reserve experiences four different seasons namely spring, summer, monsoon and winter. In the spring (February-March), the mean minimum temperature is 17°c and 26°C in the summer (April-May). Over 90% of the annual precipitation falls during the monsoon between June and September. Mean maximum temperatures are 40-42°C in summer (April-May), when hot westerly winds blast the region. The winter (December-January) is fairly cold and misty with occasional frost with mean minimum temperatures varying from 10° to 12°C. In February and March, the maximum temperature rises up to 22° to 25°C. The best time to visit is from October through March.

#### Flora and Fauna

The major vegetation types are the Chir pine forest and the Hill sal forest in the north, and the sal and Mixed Broadleaved forest in the south. It is a storehouse of some 553 vascular plants including tree species like sal, Vijaya sal, khair, sissoo and the grass species like *Phragmites karka*, *Saccharum spontaneum* and *Sclerostachya fusca*.

The reserve is home to 46 species of mammals, 351 species of birds, 7 herpeto (amphibians and reptiles)

and 28 types of fish. The reserve is famous for magnificent species like Royal Bengal teger, and Asiatic elephant, and the Hispid hare. Among the birds, the Bengal florican, Black-capped kingfisher, Finn's weaver etc are noteworthy.

#### Areas of Interest

Watching herds of hundreds of swamp deer in the Shuklaphanta grassland can be enchanting. The Ranital and other wetlands are vibrant areas where numerous birds and also mammals can be seen. The park is home to five rhinoceros of which four were translocated from Chitwan. An elephant stable near the reserve headquarters at Majhgaon offers valuable insights for visitors.

Chances of encountering a tiger within the reserve is quite high given the fact that there are about 18-22 breeding adult tigers inside an area which is not very big. Monitoring of tigers and other wildlife species is carried out using camera-traps and other methods.

The local villagers are allowed to collect grass from the reserve at the end of January because at this time the tall grass is cut and some grassland set on fire. The burning grassland is by itself a fascinating spectacle, but after the burning visitors have better chances of viewing wildlife.

In the buffer zone, the local community carries out conservation activities such as forestry, biogas production and school eco clubs. Visitors



also have the opportunity to observe local festivals, and traditional dances etc.

#### **Activities**

With the assistance of guides and tour operators, visitors can participate in a variety of activities in and around the park. Depending upon the level of adventure and interests, visitors can go for elephant rides, jungle drives, nature walks, bird watching, village walks, cultural programs etc.

#### Access

There are regular public buses to Mahendranagar from Kathmandu and other parts of the country. The journey by road takes about 20 hours from Kathmandu. Mahendranagar is about eight kilometers from the Reserve Headquarters at Majhgaon.

A convenient way to reach the park is via Dhangadi which is served by regular flights from Kathmandu. Public buses take about three hours from Dhangadi to Mahendranagar. Private vehicles can also be hired. Visitors can also reach the reserve via Tanakpur, India.

#### **Basic Facilities**

Better accommodations with basic facilities are available at Mahendranagar.

#### For more information:

Shuklaphanta Wildlife Reserve Office, Majhgaon, Kanchanpur. Tel: 977 (99) 521309



### Dhorpatan Hunting Reserve

(1,325 km2)

The Dhorpatan Hunting Reserve adjoins Rukum, Myagdi and Baglung districts in West Nepal. Established in 1987 as the only hunting reserve, its northern boundary extends to the ranges of Putha, Churen and Gurja Himal. Its landscapes are characterized by Dhor (marshland) and Patans (moorland) above the tree line (4000 m).



#### Background

The Dhorpatan Hunting Reserve adjoins Rukum, Myagdi and Baglung districts in West Nepal. Established in 1987 as the only hunting reserve, its northern boundary extends to the ranges of Putha, Churen and Gurja Himal. Its landscapes are characterized by Dhor (marshland) and Patans (moorland) above the tree line (4000 m).

The Department of National Parks and Wildlife Conservation in Kathmandu issues hunting licenses.

#### Climate

The monsoon lasts until the beginning of October. Day time temperatures are very low during winter due to strong winds. Higher elevations remain covered with cloud in the morning; later clouds are cleared by the wind. Snow may occur even at low elevations until early April. However, it soon melts. The best time to visit the reserve is in March-April.

#### Flora and Fauna

The reserve comprises 14 types of forest ecosystems which are characterized by Chir pine, walnut, maple, alder, oak, juniper, fir and rhododendrons. Higher altitudes are characterized by alpine scrubs.

The reserve serves as a prime habitat for blue sheep, a highly coveted trophy. Of the 18 mammal species recorded, the commonly found species are leopard, goral, serow, Himalayan tahr, Himalayan black bear, barking deer, wild boar, rhesus macaque, langur and Mouse hare. Similarly, of the 137 species of birds recorded, pheasants and partridge are common and their viable population in the reserve permits controlled hunting. Musk deer, wolf, Red panda, Cheer pheasant and Danphe are enlisted as endangered species and hunting them is banned in Nepal.

#### Areas of Interest

Dhorbaraha, a Hindu shrine on the banks of Uttarganga River near Dhorpatan, is in the Fagune block. Every year on the day of "Janai Purnima" in August, a religious fair is held here which many local devotees attend.

The reserve is divided into six hunting blocks. The magnificent view of Dhaulagiri Himal from Barse, Dogari and Gustung blocks is remarkable. The Seng and Sundaha blocks are rich in wildlife.

The reserve is surrounded by villages inhabited predominantly by Magar, Thakali and Gurung communities and near the reserve headquarters is the Tibetan refugee camp. Local people practice transhumance system of livestock rearing and they are on the move from February till October. More than 80,000 livestock enter the reserve for grazing.

#### Activities

With the assistance of guides and tour operators, visitors can participate in a variety of activities in and around the park. Depending upon the level of adventure and interests, visitors can go hunting, trekking, wildlife/bird watching, village walks etc.

#### Access

Public bus service is available from Kathmandu to Tansen-Tamgash Gulmi from where the reserve headquarters at Dhorpatan is a three-day walk via Burtibang.

A bus ride from Pokhara to Baglung is followed by a 4 day-trek via Baglung Beni-Darbang-Lumsung and Jaljala to reach Dhorpatan.

Chartered helicopter service may be available on request from Kathmandu.

#### **Basic Facilities**

There are two hotels at Chhyantung near Dhorpatan that serve simple Nepali food. Elsewhere, only limited subsistence facilities are available within the reserve. The local lodges can accommodate only a few persons at a time. Visitors must bring their own tents, food, fuel and all other supplies including first-aid kits.

#### For Further Information

Dhorpatan Hunting Reserve Office, Dhorpatan, Baglung. Tel: 977 (68) 521112

## CONSERVATION ARFAS

### Annapurna Conservation Area

The area is globally recognized with various prestigious awards such as the Deutscher Rieseburo-Verband Award of Tourism and Environment; the Tourism for Tomorrow – Worldwide; the Tourism for Tomorrow – Asia Pacific; WWF's J. Paul Getty Conservation Award; and UNESCO's Global 500 Award.



#### Background

The Annapurna Conservation Area, located in northwest Nepal, is the largest protected area in the country. Within its boundaries lies the famous Annapurna I (8,091m) first climbed by the French. It forms the watershed of the rivers like Kali Gandaki, Seti and Marshyangdi.

The area is globally recognized with various prestigious awards such as the Deutscher Rieseburo-Verband Award of Tourism and Environment; the Tourism for Tomorrow – Worldwide; the Tourism for Tomorrow – Asia Pacific; WWF's J. Paul Getty Conservation Award; and UNESCO's Global 500 Award.

#### Climate

The area has two distinct climatic regions. The cis-Himalayan region in the south receives annual precipitation of 3000mm, and the trans-Himalayan regoin in the north receives less than 500mm. The region near Pokhara is known for the heaviest rainfall in the country.

The best time for trekking is between October and December and during spring from February to May. There is less rain in the mountains, especially in the rainshadow areas north of the range of Annapurna and Dhaulagiri. These areas are very dry throughout the year.

#### Flora and Fauna

The area has an entire habitat gradient from subtropical sal forest to perennial snow harboring 28 ecosystems. The species include sal, *Schima*, *Castanopsis* in the lower belt, oak, laurel, Blue pine, cypress, spruce and fir in the middle belt, and, birch, rhododendron, *Caragana* and other alpine scrubs in the higher belt. So far, only 456 vascular plants have been recorded here including 38 orchid species and 9 rhododendron species.

The reserve is home to 101 species of mammals, 478 species of birds, 41 species of reptiles and 23 types of amphibians. The symbolic mammal species are snow leopard, musk deer, Tibetan argali, and Tibetan wolf, Wild ass, Tibetan antelope and birds species found here are Golden eagle, demoiselle crane and pheasants.

#### Areas of Interest

The landscape comprises mountain peaks, alpine pastures, trans-Himalayan valleys, forests, lakes, glaciers, rivers, caves and cultivated lands. Along with the highest peaks in the Annapurna range, the virgin peak of Machhapuchhere (6,993m) stand majestically in the area.

The area offers the most fascinating routes for trekking. The 21-day Annapurna Circuit Trek takes the visitors right around the Annapurna range giving them an unforgettable experience of the cis-Himalayan and trans- Himalayan ecosystems. It also takes the visitors across Thorung La Pass (5,416 m).

Along the route are strategic viewpoints like the popular Poon Hill above Ghorepani from where trekkers enjoy a fascinating panoramic view of the Annapurna and Dhaulagiri ranges to the north. Many of the trekking routes have unique viewpoints for stunning views of Himalayan peaks.

The Machhapuchhre base camp can be reached in 3 to 4 days from Ghandruk, and the Annapurna Sanctuary and Base Camp in 6-7 days trek.

There are several hot-water springs in the area, such as in Tatopani along the trek from Ghandruk to Jomsom, and another at Jhinu towards Chhomrong. The hot water springs are excellent places to relax and bathe.

The Kali Gandaki River flows through the world's deepest river gorge, and Tilicho (4,949 m) is one of the world's highest lakes. Another high altitude lake, Damodar Kund (4,890 m), is believed to be the source of the Kali Gandaki river.

The area includes numerous settlements and enclaves inhabited by over 120,000 people representing 10 ethnic groups (Tibeto-Burman: Gurung, Thakali, Bhotia, Ethnic Tibetan and Magar and Indo Aryan: Brahmin, Kshetri, Kami, Damai and Sarki).

The more culturally rich areas lie towards the north at Kagbeni, from where one can continue on to explore Upper Mustang - the once forbidden Kingdom. Or trek towards the Muktinath Temple, the Hindu pilgrimage site at a height of almost 4000 m.

Some exemplary community works here include natural resource management, alternative energy, conservation education, community development, agriculture, livestock, women empowerment, tourism, cultural heritage, health etc.

Day	Program	Altitude
Duy	riogian	multuue
1	Kathmandu - Besi Sahar drive	823m
2	Besi Sahar - Bahundanda	1,311m
3	Bahundanda - Chamje	1,433m
4	Chamje - Bagarchap	2,164m
5	Bagarchap - Chame	2,713m
6	Chame - Pisang	3,173m
7	Pisang - Manang	3,540m
8	Manang Acclimatization	3,540m
9	Manang to Letdar	4,250m
10	Letdar to Thorang Phedi	4,420m
11	Thorong Phedi to Muktinath	3,800m
12	Muktinath - Jomsom	2,713m
13	Jomsom - Tukuche	2,591m
14	Tukuche - Ghasa	2,013m
15	Ghasa - Tatopani	1,189m
16	Tatopani - Ghorepani	2,835m
17	Ghorepani - Tikhedhunga	1,577m
18	Tikhedhunga -Nayapul to	
	Pokhara drive	915m
19	Pokhara - Kathmandu by air	1,350m

Approximate five trekking hours a day may vary among visitors.

#### **Activities**

With the assistance of the guides and tour operators, visitors can participate in a variety of activities in and around the park. Depending upon the level of adventure and interests, visitors can go for trekking, nature walks, mountain biking, wildlife/bird watching, village walks, cultural program, pony rides etc.

#### Access

The nearest town is Pokhara, some 30 km to the south. Pokhara is well connected by air and road with Kathmandu as well as to other parts of the country. Access is by road from Pokhara to Nayapool or Naudanda, or on foot towards Lwang, from where Ghandruk can be reached via Landruk. An alternative route starts with a bus/taxi journey to Phedi followed by a one and half day trek to reach Ghandruk via Dhampus and Landruk.

The districts of Manang and Mustang have been recently linked by a road from Pokhara and other towns. However, there are plenty of trekking routes that will not be disturbed by this road.

Jomsom, a major town in the Mustang district in the northern part of the area, is linked with Pokhara by several flights a day. The area can also be entered from the Tibetan border which is linked by road all the way to Lo Manthang in upper Mustang.

#### **Basic Facilities**

The area is well developed in terms of tourism facilities. Visitors have adequate choice of hotels and lodges, or camping. Along the trekking routes there are numerous tea houses.

Considering the energy shortage and pressure on the natural forests, tented camp visitors are requested to ensure they are self-sufficient in fuel (Kerosene) before entering the area.

#### For Further Information

Annapurna Conservation Area Office, Hariyo Kharka, Pokhara. Tel: 977 61 431102

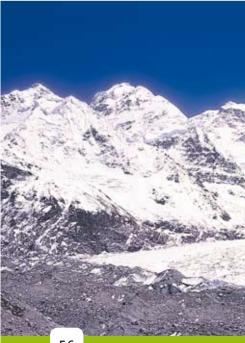
#### National Trust for Nature Conservation

P.O. Box: 3712, Jawalakhel, Lalitpur, Nepal. Tel: 977-1-5526571, 5526573, Fax: 977-1-5526570 info@ntnc.org.np, http://www.ntnc.org.np

### Kanchenjunga Conservation Area

(2,035 km2)

Envisioned as a tri-national peace park linking the Khangchenzonga Bioshphere Reserve in Sikkim, India and the extension of Qomolungma Nature Reserve in Tibet, China, it is a Gift to the Earth declared in April 1997.



#### Background

The Kanchenjunga Conservation Area is located in the north-eastern corner of Nepal. Named after the world's third highest peak, Mt Kanchenjunga (8,586m), the area has eleven peaks higher that 7000m and several glaciers.

Envisioned as a tri-national peace park linking the Khangchenzonga Bioshphere Reserve in Sikkim, India and the extension of Qomolungma Nature Reserve in Tibet, China, it is a *Gift to the Earth* declared in April 1997.

#### Climate

The area receives early showers of the monsoon rains in June since it falls in the eastern Himalayan climatic region. The climate is generally described as monsoon type, where more than 70% of the precipitation occurs between June and September. Pre-monsoon rain is common during the months of April and May. Great variations in temperatures and precipitations can be expected due to extreme differences in altitudes, slopes and other aspects within the area. The best time to visit the park are autumn (October-November), and spring (March-May).

#### Flora and Fauna

The area houses 12 types of forest ecosystems containing tree species like sal, *Schima wallichii, Castanopsis,* fir, larch, rhododendron, maple, laurel etc. The area is especially known for its richness in rhododendrons of which twenty-three species have been identified.

The area is home to 15 species of mammals including the endangered snow leopard, musk deer and Red panda. Among the 280 birds found in the area, the symbolic species are Goldenbreasted fulvetta, snow cock, blood pheasant, Red-billed chough etc.

#### Areas of Interest

The area comprises some of the most stunning scenery in all of Nepal. It is not only identified with Mt Kanchenjunga, but also represents a global hotspot for plant bio-diversity. The alpine meadows of colorful flowers are within a few days of walking. Local communities practice transhumance system of cattle rearing which includes yaks.

The area carries traditional subsistence lifestyles of various ethnic groups through their cultural and religious practices. Shrines like Olangchung Gola and Pathibhara are sources of inspiration.

The area demonstrates a model of people-led integrated conservation and development practices. Several committees and user groups

have been formed for specific management interventions in the area.

#### Activities

With the assistance of guides and tour operators, visitors can participate in a variety of activities in and around the park. Depending upon the level of adventure and interests, visitors can go for trekking, nature walks, wildlife/bird watching, village walks, cultural programs etc.

#### Access

The nearest airport located at Suketar is a 30minute walk from Phungling bazaar, the District Headquarters. It is a 3 to 4- day journey to the Conservation Area headquarters at Lelep. The Phungling Bazaar is also connected by road. There are regular buses from Biratnagar via Ilam. Small vehicles can be hired from Biratnagar.The area can also be entered from the Indian border through the state of Sikkim.

#### **Basic Facilities**

Only limited subsistence facilities are available in the area. The local lodges can accommodate a few persons at one time. Visitors must bring their own tents, food, fuel and all other supplies including first-aid kits.

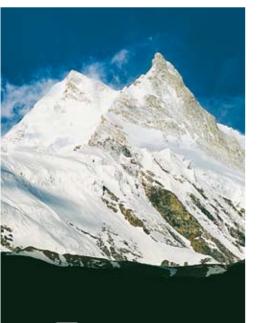
#### For more information:

Kanchenjunga Conservation Area Office, Lelep, Taplejung. Tel: 977 (24) 460081; 977 9932245002

### Manaslu Conservation Area

(1,663 km2)

Inhabited by over 7000 people in seven villages, the area is known for Gurung traditions with a flavor of Tibetan lifestyle.



#### Background

The Manaslu Conservation Area is located in the mountainous region of north-western Nepal. Its landscape includes the Budhi Gandaki River, the eighth highest peak in the world Mt Manaslu (8,163m), and many other places of natural beauty.

Inhabited by over 7000 people in seven villages, the area is known for Gurung traditions with a flavor of Tibetan lifestyle.

#### Climate

The average summer and winter temperatures are between 31°C to 34°C and 8°C to 13°C respectively in the belt between 1000m and 2000m. In the temperate zone (2000m-3000m), summer temperatures fluctuate from 22°C to 25°C, and winter temperatures range from -2° to 6° C. Frost and snowfall are common during winter (January and February). The sub-alpine zone (3000 m and 4000 m), snowfall occurs for about four to six months (December to May). In this zone, winter is severly cold and even in summer the temperature is not high with a mean annual temperature of 6°C to 10°C. The alpine zone between 4000 and 5000m is mostly open meadows. The arctic zone lies at elevations above 4,500m.

The monsoon rains fall from June to September providing about three-fourths of the total rainfall. The post-monsoon period (October to November) and the winter months (December to February) are usually dry. The average rainfall is around 1,900 mm per annum. In general, the southern part of the region remains cloudier and wetter than the upper subalpine and alpine areas. The snow line is at about 5000m. Precipitation is in the form of snow and the temperatures drop far below freezing. The best time for trekking is in the autumn from October to December and spring from February to May.

#### Flora and Fauna

The area houses 19 types of forest ecosystems characterized by tree species like Chir pine, *Schima, Castanopsis, Englehardtia*, oak, spruce, Blue pine, rhododendron, hemlock, fir etc. The high altitude is characterized by birch and scrublands. The area is rich in medicinal and aromatic plants.

The floral checklist includes 587 vascular plants that have been recorded in the area. The faunal checklist includes 33 species of mammals, 110 species of birds and 3 species of reptiles/ amphibians. The symbolic mammal species are snow leopard, musk deer and Himalayan tahr, ground squirrel, whereas the symbolic bird species are Vareigated laughing thrush, grandala, Northern goshawk.

#### Areas of Interest

The Manaslu region from Arughat to Larkhe La (Pass) has six climatic zones: tropical, subtropical, temperate, sub-alpine, alpine and arctic. The extreme climatic contrasts within the 100 km trail between Arughat and Samdo are associated with tremendous differences in elevation, topography and precipitation.

The area retains traditional subsistence lifestyles of the diverse ethnic groups through their cultural and religious practices.

The area demonstrates a model of integrated conservation and development under the community management. Several committees and user groups have been formed to cater to specific management interventions in the area.

Some exemplary work that are worth observing here include: Access Improvement, Alternative Energy, Nature Conservation, Sustainable Tourism, Community Development, Heritage Conservation, Women Development, Agriculture and Livestock etc.

#### Activities

With the assistance of guides and tour operators, visitors can participate in a variety of activities in and around the park. Depending upon the level of adventure and interests, visitors can go for trekking, nature walks, wildlife/bird watching, village walks, cultural programs etc.

#### Access

The mountain ridges and valley glaciers offer feasible approaches from all directions, and culminate in a peak that towers steeply above its surrounding landscape, and is a dominant feature when viewed from afar.

The trek starts from Gorkha, home of the legendary Gorkha soldiers, and follows the meandering Budhi Gandaki River or the Darundi River before reaching Larke Pass (5,106m) and crossing over into Manang District in the Annapurna Conservation Area.

#### **Basic Facilities**

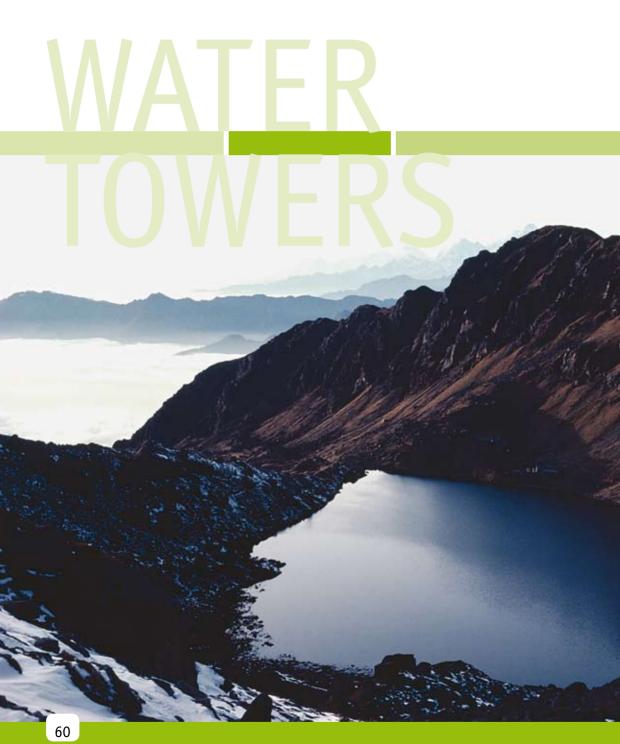
Only limited subsistence facilities are available in the area. The local lodges can accommodate a very few persons at a time. Visitors must bring their own tents, food, fuel and all other supplies including first-aid kits.

#### For further information

Manaslu Conservation Area Office Gorkha Tel:: 977-64-20284

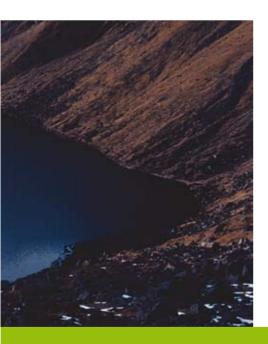
#### National Trust for Nature Conservation

P.O. Box: 3712, Jawalakhel Lalitpur, Nepal. Tel: 977-1-5526571, 5526573, Fax: 977-1-5526570 info@ntnc.org.np http://www.ntnc.org.np



### Lakes, Wetlands and Rivers

Glacial lakes like Gosainkund, Gokyo and Panch Pokhari are crowded with thousands of devotees during religious summer festivals such as Ganga Dashahara in May and Janai Purnima in August. Similarly, the lowland sites like Barahakshetra, Dev Ghat, Tribeni and many other river banks and confluences attract thousands of pilgrims during the winter solstice and other holy days.



Known as the 'Water Towers of South Asia', Nepal's water bodies include about 200 lakes, 3,252 glaciers, 2,315 glacial lakes, and over 6000 rivers. Providing aquatic niches for wildlife, these water bodies form the major landmarks of the protected areas, such as the flood plains of the Koshi, Gandaki, Babai, Karnali and Mahakali rivers, lakes like Rara, Phoksundo and Gosainkund, and glaciers like Khumbu and Kanchenjunga.

Water being the essential component of the Nepali culture and tradition, these water bodies carry immense spiritual value for the diverse communities in Nepal. Glacial lakes like Gosainkund, Gokyo and Panch Pokhari are crowded with thousands of devotees during religious summer festivals such as Ganga Dashahara in May and Janai Purnima in August. Similarly, the lowland sites like Barahakshetra, Dev Ghat, Tribeni and many other river banks and confluences attract thousands of pilgrims during the winter solstice and other holy days. Along with the numerous water related activities like fishing, angling, rafting, canoeing, kayaking etc, the water bodies offer various other cultural attractions relevant to the lifestyles of river and lake communities such as Bote, Majhi, Tharu and Machhuwar.

#### Lakes

Major lakes, rivers and their surroundings have been globally recognized as Ramsar sites. There are also other important lakes that have spiritual value and natural attractions.

#### Lakes in Pokhara

The Pokhara valley is popular for a number of lakes, namely Phewa, Begnas, Rupa, Deepang,

Khaste and Maidee. Phewa (area 4.43 km<sup>2</sup> and altitude 784m) offers a spectacular reflection of the towering Annapurna range especially the Machhapuchhre peak (6,993m). Another landmark is the holy Barahi Mandir (temple) situated on an island in the lake. It is fed with rain, springs, and streams originating from the Panchase and the surrounding watershed. The lake discharges into Harpan Khola and finally disappears into an underground cave, Patale Chhango. A hydroelectric power plant is operated at the bottom of the Phusre Khola gorge about 110m below the lake surface.

Two other lakes of significance are located about 15 km east of Pokhara. They are Begnas and Rupa. These lakes are adjacent to each other and separated by a forested hill called Pachbhaiya. The lakes are open throughout the year, except when there is heavy rain or stormy weather. The lakes are popular for boating and fishing activities. The eastern and northern banks of Phewa Lake cater to tourism with their lodges, shops and restaurants. Boating services are available near Baidam across the Barahi temple island.

#### Tilicho lake

Tilicho lake (4,949 m), one of the highest lakes in the world, lies in the Annapurna range. The surrounding terrain is extremely inhospitable, and its accessibility is difficult for normal trekking. The right time to visit the lake is during the monsoon (June through August), although the lower belt is not friendly in terms of turbulent rivers, landslides, leeches etc.

#### Damodar kund

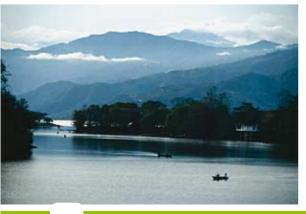
The Damodar Kunda (4,890m) is located in the cold and windy region in the rain shadow of the Annapurna range. The surrounding hills have great viewpoints for a grand view of the Tibetan plateau and Damodar Himal to the north and the Annapurna massif to the south. The surrounding area is also known as Charang 'the land of hilly lakes'. River Kaligandaki has its source in Damodar Kund.

The lake lies in the restricted region of upper Mustang between Kagbeni and Muktinath, and is a three-day walk north-east of the main Mustang trekking route, near the Nepal-Tibet border. The period from April through September is a favorable time to visit the place, and the best season is during the full moon of August when Hindu and Buddhist pilgrims arrive to pay homage there.

#### **Glacial lakes**

The selected glacial lakes are Lower Barun (4,570m), Imja (5000m), Tsho Rolpa (4,580m), Thulagi (4,146m), Dig Tsho (4,365m) and Tam Pokhari (4,432m). Their average area is 0.72 km2. Of the 2,315 glacial lakes in Nepal, twenty-six are identified as potentially dangerous for glacial lakes outburst floods – commonly known as GLOF.

Five GLOF events have occurred in Nepal between 1977 and 1998, at least 12 in the Tibetan area of the Himalaya since 1935. To dissipate the



risks, the water level of Tsho Rolpa has been lowered by 3m with the aim of eventually lowering it by 20m.

#### Ramsar Sites: Wetlands of Global Significances

Nepal's wetlands account for only 5 percent of the total land mass, but possess globally significant bio-diversity values. They include 78 lakes, 13 marshes, 5 swamps, 53 floodplains, 6 reservoirs and 8 canals totaling 163 distributed across the country. Nine wetlands are globally recognized as Ramsar sites. Four sites from the Tarai are the Koshitappu Wildlife Reserve, Beeshazarital in Chitwan National Park, Jagdishpur Reservoir in Kapilvastu and Ghodaghodital in Kailali. The four sites in the mountains are Gokyo in Khumbu, Phoksundo in Dolpa, Rara in Mugu and Gosaikunda in Rasuwa and Mai Pokhari (Illam) in mid-mountain region .

The Ghodaghodi Lake Ramsar Site comprises a large and shallow oxbow lake with associated marshes and meadows and surrounded by forest in the Siwaliks. There are around 13 associated lakes and ponds, and some streams separated by hillocks on the periphery. It serves as a wildlife corridor between the Tarai and Siwaliks. They support threatened species of turtles, otters, crocodiles, birds (e.g. stork), and mammals (e.g. tiger, deer) along with plants like orchids, lotus, and wild rice. It is near Darakhnidi, Kailali along the East-West highway.

The Jagadishpur Reservoir Ramsar Site is fed from the Banganga River. It is surrounded by cultivated land, community forests and a few smaller lakes serving as a buffer zone for bird



movements. It provides important resident, wintering and stopover habitats for waders, other water-birds, and small passerines. Noteworthy species are grebes, cormorants, herons and egrets, storks, ducks and geese, terns and gulls, birds of prey, rails, coot and waterhens, Jacanas, as well as cranes and kingfishers. It is located 10 km south of the East West highway in Jagdishpur, Kapilvastu.

The Beeshazar and Associated Lakes are mainly an oxbow lake system fed by the Khageri irrigation canal. Its water is supplied to the canal during the dry season. Situated between the Mahabharat and Siwaliks, this forested wetland provides excellent habitat as a watering hole and corridor for tigers, rhinoceros and other mammals. It is home to birds like White-rumped vulture, Lesser Adjutant stork, Ferruginous duck, and Band-tailed fish eagle and other species such as otter, Sloth bear and crocodile. It is located 8 km south of Tikauli, Chitwan.

The Koshitappu Wildlife Reserve, a Ramsar site is a section of the Sapta Kosi River and its floodplain. Formed by the Koshi barrage near Nepal-India border, it is an important staging area for water birds. It supports several notable bird species including Large Adjutant stork, Pallas's Fish eagle, Common Golden-eye and Gull-billed tern, and mammals like Arna and Gangetic dolphin.

The Rara Lake (2,990m) is 5.1 km long, 2.7 km wide, 167m deep, has a 14.0km long shoreline, and carries 1.039km3 of water. It is an alpine fresh water lake and is rich in nutrients. It is the largest lake in Nepal and is a unique and rare example of natural wetland type in the high Himalayan bio-geographic region. It



contains a rich invertebrate aquatic fauna supporting snow trout and migratory wild fowls. Some significant bird species are Ruddy shelduck, coot, Eurasian woodcock, Brown dipper, Little grebe and Wood snipe among many others. The three endemic species of snow trout (*Schizothorax macropthalamus, S. nepalensis, S. raraensis*) are reported from the lake as well as an endemic frog *Paa rarica*.

The Phoksundo lake (3,612m) is a Y-shaped alpine oligotrophic fresh water body of water that is 5.15 km in length and 800m in breadth in the Shey Phoksundo National Park. It drains into the Phoksundo River in the form of a waterfall in the south. The catchments are the winter habitat of snow leopards and musk deer. The wetlands birds found in and around the lake are Red-crested pochard, Ruddy shelduck, Common moorhen, Common coot, Eurasian wigeon, and Bar-headed goose among many others.

The Gosaikunda lake system is an alpine freshwater oligotrophic lake series with alpine meadows, bogs, lakes/ponds, streams, wet steep slopes creating a unique and representative wetland in the Langtang National Park. The site is a popular destination for pilgrims in May and August because of its relevance to Hindu mythology. It supports a number of bird species such as Ruddy shelduck, common teal, Barheaded goose, Tufted duck, Common merganser, Northern pintail and Brown dipper among others. The lower section of its catchment area is the winter habitat of red panda and musk deer.

The Gokyo lake (4,750m) is an oligotropic water body system in the Sagarmatha National Park. Partially fed by the Ngozumpa glacier, it lies at



the head of the Dudh Koshi river which descends from the world's 7th highest mountain peak, Cho Oyo (8,201m). It represents the world's highest freshwater lake system comprised of six main lakes including Thonak Lake (4,834m). It is a sacred site for both Hindus and Buddhists, and also one of the most popular destinations on the way to Everest Base Camp. Wetland birds found in Gokyo are Ruddy shelduck, Eurasian wigeon, Northern pintail, Common pochard, Common coot, Wood snipe, Eurasian woodcock, and Great Crested grebe among many others. Its lower catchment area is the winter habitat of musk deer.

Mai Pokhari (2,121 m) is a pristine lake surrounded by dense forest of fir, juniper, birch, pine and a variety of flora and fauna. It is a religious and historical area with a 9-cornered and lush vegetation. The lake is considered the sacred abode of Goddess Bhagawati. Literally meaning 'mother pond', it lies in the hill district of Ilam in the eastern region of Nepal.

Different species of medicinal plants, herbs and orchids, mostly for research and experimental purposes, are cultivated in the Mai Pokhari area. It lies in the eco-tone of Schima-Castanopsis and Oak-laurel vegetation providing habitat for significant epiphytic orchids. It contains protected species such as white-rumped vulture, leopard cat and Eurasian otter, and endemic species like Hariyo chheparo (Japalura variegata). Rare animals like the musk deer, leopard, porcupine, jackal as well as numerous migratory birds and rare insects are also found in the area.

The area's 2 ha permanent freshwater pond is recharged from natural springs and rainwater from the 12 ha watershed area. It is a major source of fresh water for the local communities. People from different parts of Nepal visit Mai Pokhari in Ilam for an annual festival on Kartik Ekadasi which falls in October or November. Mai Pokhari is about an 1 ½ drive from Ilam Bazaar.

#### For more information

Department of National Parks and Wildlife Conservation, Babar Mahal, Kathmandu. Tel: 977-1- 4220912/4220850/4227926 Fax 977 1 4227675

### Other Wetlands

Of the 6000 rivers flowing in the country, the Mahakali, Karnali, Narayani, and Koshi Rivers fed with snow and rain water originate in the Himalaya and the Tibetan plateau. The medium-sized rivers like Babai, West Rapti, Bagmati, Kamla, Kankai, and Mechi Rivers generally originate in the Midlands and the Mahabharat range, and are rain-fed.



In the tarai, 10 wetland sites have been merited for legal protection.

The Bedkot Tal in Daiji, Kanchanpur is a scenic lake on a hilltop surrounded by dense sal forests. It is home to mammalian fauna including Wild dog, Asiatic Black bear, Bengal fox, Himalayan goral, and ungulates.

The Padereni Tal, in Krishnapur, Kanchanpur is a shallow (1-3 m. deep) eutrophic ox-bow lake surrounded by Syzigium forests supporting a small resident and migratory population of waterfowls.

The Deukhuria Tal in Dhangadi, Kailali is a shallow (1.5m) rain-fed lake in a very scenic environment. It supports a large number of waterfowl of many species.

The Rampur Tal in Urma, Kailali is a medium-sized oxbow lake surrounded by dense sal forests. It is a wintering and staging area for a number of waterfowl species. Seven species of fish have been recorded here.

The Nakhrodi Tal in Sandepani, Kailali is fed by rain, a few springs and inflow from Kauwa Khola canal. With an island in the center, its water body is surrounded by dense sal forest. It is among the cluster of the Ghodaghodi lake system.

The Badhaiya Tal in Soraka, Bardia is surrounded by rice fields on all sides. It is a large marshy natural depression supporting a large number of resident and wintering populations of waterfowl.

The Gaindahawa Tal in Bishnupura, Rupandehi is a rain fed ox-bow lake regulated through an irrigation in-take structure. Surrounded by dense forest, it is an important watering hole for a remnant population of Blue bull and small resident and wintering populations of several species of waterfowl, egrets and herons.

There are a number of glacial lakes and wetlands in the alpine region.

The Kyangjing Wetland Series (2,550m) in the Langtang National Park is an alpine fresh water river discharged from the Langsisa and Langtang glaciers. Its cultural and religious value is associated with Milarepa and is evident during the celebrations of Lhoshar (Tibetan New Year) and Janaipurnima festivals.

The Panch Pokhari Wetlands (4,039-4,069m) spread in the Langtang National Park is a permanent alpine fresh water lake in a small valley surrounded by ridges. They form one of the important sources of water of the Indrawati River. Its cultural and religious value is reflected during Janaipurnima festival in August. The Singjema Wetland Series (4,671m) in the Kanchenjunga Conservation Area is an alpine fresh water oligotrophic lake (835 meter long) with steep slopes. It is a source of the Tamor River. Traditionally, it is considered a wishfulfilling lake.

#### Rivers

Of the 6000 rivers flowing in the country, the Mahakali, Karnali, Narayani, and Koshi Rivers fed with snow and rain water originate in the Himalaya and the Tibetan plateau. The mediumsized rivers like Babai, West Rapti, Bagmati, Kamla, Kankai, and Mechi Rivers generally originate in the Midlands and the Mahabharat range, and are rain-fed. A large number of seasonal streams, mostly originating in the Siwaliks, flow across the tarai.

Nepal is a country of turbulent rivers descending further and faster than anywhere else in the world. As a result, many rivers have cut steep valleys thousands of meters deep, creating enormous, unstable hillsides. They are the ever flowing source of beauty, inspiration, abundance and infinite adventure. The rugged topography,





extreme variations and excessive snow melting, heavy monsoon rainfall make this country an obvious choice for river adventure.

The raging rivers passing through mountain gorges, exotic valleys and jungles provide ample opportunities for thrilling and adventurous activities. Rafting, kayaking and angling are some of the popular adventure sports along Nepal's rivers.

Out of the 16 major rivers, some popular ones for rafting and other activities are:

River	Location (Region)	Start	Finish	Duration (Days)	Grade
1.Arun River	Eastern	Tumlingtar	Chatra (Sabaiya Khola)	5	III-IV
2.Bheri	Mid-Western	Samjhighat	Bardia National Park	4	III-IV
3.Bhote koshi	Central	95 km east of Kathmandu	Lomasangu Dam	2	III-IV
4.Kali Gandaki	Western	Near Beni	Mirmere	4	III-IV
5.Karnali	Mid-Western	Sauli	Chisapani	11	III-IV+
6.Marshyandi	Western	Nagdi	Bimal Nagar	5	III-IV
7.Seti	Western	Damauli	Narayanghat	2	III
8.Sun Koshi	Central	Dolalghat	Chatara	8-10	IV-V
9.Trishuli	Central	Charaundi	Simaltal	1,2,3	III

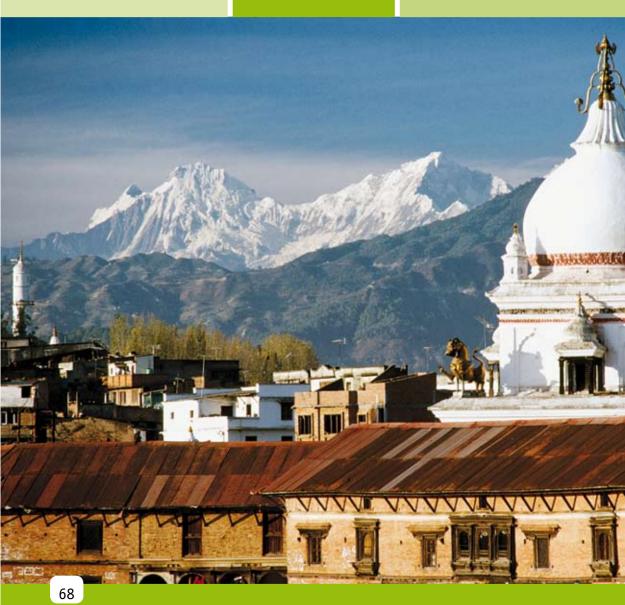
The other rivers that are also open for rafting and other activities are Tama Koshi and Tamur in the eastern region; Balephi Khola, Budhi Gandaki and Dudh Koshi in the central region; and Seti and Karnali in the far-western region.

The three main seasons suitable for rafting activities in the rivers of Nepal are Winter-Spring (January through May), Monsoon (June through August), and Autumn-Winter (September through December). Grading of the rivers vary with the seasons, since their discharges vary. They are turbulent and wild during the rainy season, and become mild in winter.

#### For further details:

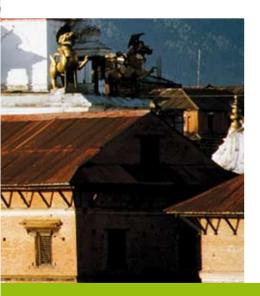
Nepal Association Rafting Agents (NARA) PO Box: 3586, Jyatha,Thamel, Kathmandu, Nepal. Tel: 977 1 4244048 Fax: 977 1 4221197 nara@enet.com.np http://www.raftingassociation.org.np/nepal\_ river.htm

## SITES



### World Heritage Sites

The four sites that are inscribed in the UNESCO's World Heritage List are two natural properties namely Sagarmatha and Chitwan National Parks, the two cultural properties namely the Kathmandu Valley with the seven monumental zones, and Lumbini, the birthplace of Lord Buddha.



The four sites that are inscribed in the UNESCO's World Heritage List are two natural properties namely Sagarmatha and Chitwan National Parks, the two cultural properties namely the Kathmandu Valley with the seven monumental zones, and Lumbini, the birthplace of Lord Buddha. References have been separately made on the natural properties of Sagarmatha and Chitwan National Parks.

Lumbini and Kathmandu valley possess natural values although they are primarily recognized for their cultural standards.

On Lumbini, the UNESCO notes that as the birthplace of Lord Buddha, the sacred area is one of the holiest places of one of the world's great religions, and its remains contain important evidence about the nature of Buddhist pilgrimage centers from a very early period.

The biological significance of Lumbini gardens have been enhanced with the creation of artificial wetlands. The gardens comprise grassland, forest plantation and open water bodies. The area has become a nesting ground for about 100 Sarus Cranes, a shelter of 100 blue bulls along with 26 species of mammals, 207 species of birds, 39 herpeto (amphibians and reptiles) and 44 types of fish. On Kathmandu valley, UNESCO mentions that: At the crossroads of the great civilizations of Asia, seven groups of Hindu and Buddhist monuments, as well as the three palace squares of Kathmandu, Patan and Bhaktapur, illustrate Nepalese art at its height.

The bowl shaped valley with the rivers and surrounding forested hills have high biological significances. As early as in the 18th century, Brian Hodgson collected from the valley and its surroundings, specimens of 672 bird species of which 124 were previously unknown to science. The valley is home to 550 residential and migratory species of birds.

Of the seven monumental zones, Swayambhu, Pashupatinath and Changu Narayan are located in natural settings with biodiversity of significance. The other natural spots of the valley are Gokarna, Bajrabarahi, Ranibari, Sallaghari, Bansbari on the valley floor, and Suryavinayak, Nagarkot, Telkot, Shivapuri, Kakani, Nagarjun, Chandragiri, Hatiban, Godavari and Phulchoki in the valley rim.

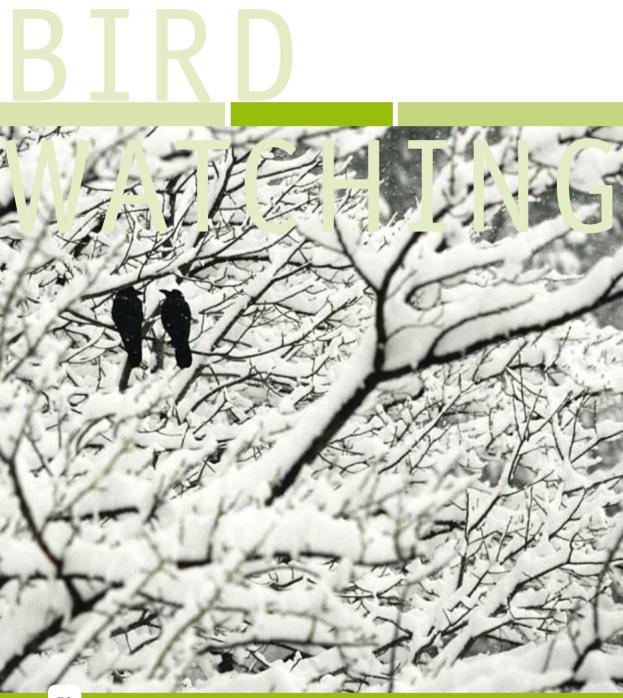


The Swayambhu area is a type locality for the 27 flowering plants discovered by Francis Buchanan-Hamilton in 1802-03. The dominating tree species are mainly chir pine and *Schima wallichi*. Swayambhu is often referred to as the Monkey Temple by visitors because of the presence of around 300 *Rhesus Macaques*.

The Pashupatinath area, lying on the banks of the Bagmati River, contains natural forests and is home to about 200 *Rhesus Macaques*. In 2004, thirty-two ungulate species including Barking deer, Spotted deer and blackbucks were translocated to the area from the Central Zoo.

The Changu Narayan area is a hillock covered with native trees of over 100 year-old Champ trees (*Michelia champaca*) from which the local name Changu derived. The natural forests on the hillock is composed of *Schima wallichii*, *Engelhardia spicata, Castanopsis tribuloides, Alnus nepalensis, rhododendron arboretum.* The plantation forest is dominated by *Pinus roxburghii*.







# Bird Watching

The hills around the valley especially Nagarjun, Godavari and Phulchowki are popular birding areas and the Tauda lake on the way to Dakshinkali is fabulous for watching migratory water fowl during the winter months.



Nepal and specially the Koshi Tappu Wildlife Reserve in the eastern tarai is a bird watcher's paradise. Nepal boasts of more than 850 species of birds, and a surprisingly large number of these birds can be spotted in the Kathmandu valley alone. The hills around the valley especially Nagarjun, Godavari and Phulchowki are popular birding areas and the Tauda lake on the way to Dakshinkali is fabulous for watching migratory water fowl during the winter months. In the higher Himalayan regions are found the raptors and birds of prey of which there are numerous species. The various national parks like Chitwan and Bardia harbor a wide variety of birds. But Koshi Tappu has better sightings of an incredible variety of both resident and migratory birds that come from as far away as Siberia. Nepal's national bird is the Daphe or the Impeyen Pheasant which is found in the Himalayan region. Bird watching trips are organized by most resorts and are accompanied by experienced naturalists.



Mustang is known for countless caves that have been discovered on the sheer cliffs near Lo Manthang (4,500m).



## The Maratika Cave (also known as Haleshi)

In Khotang is a venerated site of pilgrimage associated with both Buddhism and Hinduism. It is associated with Mandarava and Padmasambhava who attained a state beyond life and death. The area is revered by Hindus as the abode of Shiva.

### The Siddha cave (750m long)

is a half-hour uphill walk from Bimalnagar along the Kathmandu-Pokhara Highway and about a one and half-hour walk from Bandipur town. The inner part of the cave resembles a large hall. Geological formations like stalactites and stalagmites are the attractions within this cave.

The Pokhara valley is also known for caves namely; Bat Cave (Chamero Gupha) (150m), Gupteswar Cave (3km long), Mahendra Cave, Patale Chhango (Devi's Falls), and others. The caves are easily accessible.

#### The Bat cave

The Bat cave lies 10 km north of Pokhara. It is home to over 15,000 bats of various species. The entrance to this U-shaped cave is narrow, but its inner part is wide enough. There are carved images of gods and goddesses on the walls.

#### The Batulechaur cave

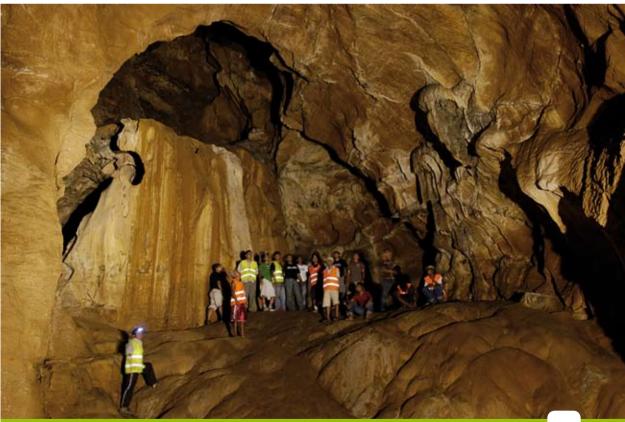
The Batulechaur cave, about 10 minutes walk from the Bat cave, is a natural tunnel which is provided with artificial lighting systems. It is rich in rock types and varies glimmering stones. There are many resident bats here. Its entrance is located at the deepest point, at the foot of a cliff face.

#### The Gupteswar Cave

The Gupteswar Cave is a sacred underground shrine. It is about 2 km south-west of Pokhara Airport on the Siddhartha Highway. Its entrance is just across from Devi's Fall. It has large hall-size rooms and some narrow passages where visitors have to crawl. One passage leads 20m below the surface to the nearby river, right behind the popular site Patale Chhango. It is possible to see the falling water from behind.

#### The Patale Chhango

The Patale Chhango (Devi's fall) is an underground natural tunnel where the Harpan Khola disappears. Located near the Gupteswor Cave, the falls is worth a visit during the rainy season when the Harpan Khola receives the maximum volume of water released from the Phewa Lake. Mustang is known for countless caves that have been discovered on the sheer cliffs near Lo Manthang (4,500m). Among them Luri and Tashi Kabum caves contain ancient murals and chhortens that date back to the 13th century. The Luri and Tashi Kabum caves are very similar. At the narrow ravine to the east from Yara the trail bifurcates with one track climbing the ridge to the left and going to Gara. The trail to Tashi Kabum is to the right and goes over a ridge to the Puyon Khola valley. Tashi Kabum is an hour's walk above Yara. Access to Tashi Kabum is difficult and visitors have to crawl on their stomach to enter the cave.



# MOUNTAIN PEAKS



# Mountain Peaks

Nepal occupies the central part of the Himalayan arc (2,400km), the highest mountain range in the world that lies in South East Asia.

Nepal occupies the central part of the Himalayan arc (2,400km), the highest mountain range in the world that lies in South East Asia. The Himalaya, 'the Abode of Snow' in Sanskrit, is a vivid record of the most dramatic and visible creations of tectonic forces in modern times. As the strong Indian continental shelf subducts beneath the relatively weak Tibetan shelf, it pushes up the Himalaya, creating the highest peaks in the world. Eight of the fourteen eight-thousanders are located in Nepal.



#### Mount Everest

Mount Everest (8,848m), the highest mountain peak in the world stands as a natural 'boundary pillar' on the border between the Sagarmatha Zone, Nepal and Tibet in China. Its surroundings extend into the Sagarmatha National Park of Nepal to the south and the Qomolungma Nature Preserve of Tibet (China) to the north.

The peak is popularly known by its three names. The official Nepali name, Sagarmatha (meaning a forehead reaching the sky), was given by the Nepalese government in the early 1960s. The Tibetan name, Chomolongma or Qomolungma (Mother Goddess), has been widely known in the local community for centuries. The English name, Everest, was dedicated by the Royal Geographical Society of London in 1913 in honor of the former Surveyor General of India, George Everest (1887-1900).

In March 1856, the peak was declared as the highest on the earth following several years of field surveys and calculations. It has been a source of inspiration and a life-time destination to many adventurers, mountaineers, explorers, trekkers and nature lovers ever since it has been identified as the highest peak. The first successful ascent of the peak was made by Edmund Hillary and Tenzing Norgay on May 29, 1953. By 2007, there had been 3,679 ascents to the summit by 2,436 individuals with 210 casualties.

The Khumbu region where Everest lies is considered to be the most rugged landscape on earth. It is said that the peak along with the entire Himalayan range is rising 4mm per year due to plate tectonics. Its surroundings include glaciers, ice falls, lakes, rivers, cliffs and gorges.

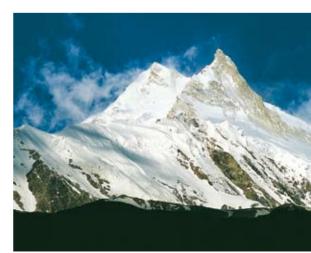
For its stunning topography including the other eight thousanders, the Sagarmatha National Park has been inscribed in UNESCO's list of the World Heritage Sites.

Mountain flights operating from Kathmandu are very popular among visitors for aerial views of the world's highest peaks. A convenient means of reaching the Khumbu region is to take a 25 minute flight from Kathmandu to Lukla airport.

#### Kanchenjunga

Kanchenjunga (8,586m), the third highest mountain peak in the world lies on the border





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between Nepal's Taplejung district and the Indian state of Sikkim. Kanchenjunga means a snowy land containing mines of five precious materials namely Kang (snow), Chen (Big), Ju (Store), Nga (Five) materials such as salt, gold/ coral, religious book/property, weapons/bones and cereals/medicinal herbs (Tibetan).

The five peaks of the Kanchenjunga range are Kanchenjunga Main (8,586m), Kanchenjunga West (8,505m), Kanchenjunga Central (8,482m), Kanchenjunga South (8,494m), and Kangbachen (7,903m).

The huge Kanchenjunga massif is buttressed by great ridges running roughly east to west and north to south, forming a giant 'X'. Its surroundings are extended in the Kanchenjunga Conservation Area of Nepal to the west and the Khangchendzonga Biosphere Preserve of Sikkim (India) to the east, and the extended Qomolungma Nature Preserve of Tibet (China) in the north. With its geographical position at the junction of the three countries, the protected areas have been proposed as a trinational peace park.

In 1854, Joseph Dalton Hooker, the famous British botanist, explored the surroundings of Kanchenjunga region. The first ascent to the peak was made by Joe Brown and George Band on May 25, followed by Norman Hardie and Tony Streather on May 26.

Kanchenjunga is accessible from the Suketar airstrip and the road head at Phungling Bazaar in Taplejung District. Because of its remote location in the three countries, the Kanchenjunga region has remained largely unexplored by conventional trekkers, and, thus, has retained much of its pristine beauty.

#### Lhotse

Lhotse (8,516m), the fourth highest mountain peak in the world, is connected to Mount Everest at the South Col. Lying at the border between Tibet (China) and Nepal, its range also includes Lhotse Middle (8,414m) and Lhotse Shar (8,383m). Best known for its proximity to Mount Everest, it is a dramatic peak having the steepest south face that rises 3.2 km in only 2.25 km of horizontal distance. The western flank of Lhotse, also known as the *Lhotse Face*, is a 1,125m high wall of glacial blue ice. This face rises at 40 and 50 degree pitches with the occasional 80 degree bulges.





#### Makalu

Makalu (8,463m), the fifth highest mountain peak in the world, lies on the border between Nepal and Tibet (China). It is an isolated peak that has a four-sided pyramid shape. It has two notable subsidiary peaks: Makalu II also known as Kangchungtse (7,678m), lying about 3 km north-northwest, and Chomo Lonzo (7,804m) connected by a narrow, 7,200m saddle.

Among the eight-thousanders, Makalu is one of the tougher ones to climb, and is considered one of the most difficult climbs in the world. Its first ascent was made by Lionel Terray and Jean Couzy of a French expedition on May 15, 1955 led by Jean Franco.

The mountain peak is a major landmark of the Makalu Barun National Park. It is accessible from Tumlingtar airport.

#### Cho Oyu

Cho Oyu (8,201m), (Turquoise Goddess" in Tibetan) is the sixth highest mountain peak in

the world and lies 20 km west of Mount Everest at the border between China and Nepal. It is just a few kilometres east of Nangpa La (5,716m), a glaciated pass that serves as the main trading route between the Tibetans and Sherpas. Due to its proximity to the pass and the generally moderate slopes of the standard north-west ridge route, some climbers consider Cho Oyu to be the easiest 8,000 metre peak to climb, and it is a popular objective for professionally guided expeditions. The first ascent was made by Austrians Joseph Jöchler and Herbert Tichy along with Pasang Dawa Lama (Nepal) on October 19, 1954.

#### Dhaulagiri

Dhaulagiri (8,167m) (meaning 'white snowy mountain'in Nepali) is the seventh highest mountain in the world. It is located north-west of Pokhara.

The peaks of Dhaulagiri and Annapurna rise 7000m over the Kali Gandaki river gorge in about 30km of horizontal distance. The Dhaulagiri





mountain system consists of six prominent peaks ranging from Dhaulagiri VI (7,268m) to Dhaulagiri I (8,167m), three peaks of Churen Himal – Main (7,385m), East (7,371m) and West (7,371m), the Putha Hiunchuli (7,246m), and the Gurja Himal (7,193m).

The first successful ascent of the peak was made on May 13, 1960 by Kurt Diemberger, Peter Diener, Ernst Forrer, Albin Schelbert, Nyima Dorji and Nawang Dorji, members of a Swiss/Austrian expedition.

#### Manaslu

Manaslu (8,163m), (meaning 'Mountain of Spirit' in Sanskrit) is the eight highest mountain peak in the world and is located in the Gorkha district of Nepal. It is linked to the long ridges and valley glaciers offering feasible approaches from all directions. It towers steeply above the surrounding landscape, and is a dominant feature when viewed from afar.

Manaslu was first climbed on May 9, 1956 by Toshio Imanishi and Gyalzen Norbu, members of a Japanese expedition.

#### Annapurna

Annapurna (8,091m) is the tenth highest mountain peak in the world. The Annapurna range is a 55 km long massif with its highest peak, the Annapurna I (8,091m). The five other prominent peaks are Annapurna II (7,937m), Annapurna III (7,555m), Annapurna IV (7,525m), Gangapurna (7,455m), and Annapurna South (7,219m). The word 'Anna' means paddy or grains and 'Purna' means mound in Sanskrit.

Annapurna I was the first eight-thousander to be climbed. Maurice Herzog and Louis Lachenal of a French expedition reached the summit on June 3, 1950. It was the highest summit attained on earth for three years, until the first successful ascent of Mount Everest.

Machhapuchhare (6,993m), also popularly known as the 'Fishtail Mountain' for its unique shape, is an important peak of the Annapurna range, though it is just below 7,000m.







The slightest negligence and misunderstanding on the part of the visitors can directly have a jarring cumulative impact on the delicate balance of nature. Under the National Parks and Wildlife Conservation Acts, the following activities are prohibited in the Protected Areas:

- hunting or damaging any animal
- building or occupying any form of shelter or house
- occupying, clearing or cultivating land
- grazing or watering any domestic animals
- damaging, felling or removing any tree or other plant
- mining, quarrying or removing stone, minerals or earth
- carrying or using any weapon, ammunition or poison
- carrying any domestic or other animal or trophy,
- blocking or diverting any river, stream or other sources of water flowing into a national park or introducing any harmful or poisonous substance therein
- damaging or removing any boundary marks, signposts or notices

The entry fees collected by the protected areas offices are recycled through the local community based organizations for nature conservation and community development.

# General precautions

While trekking in Nepal, the visitors ultimately enter the wilderness. The slightest negligence and misunderstanding on the part of the visitors can directly have a jarring cumulative impact on the delicate balance of nature.

Campfires are discouraged in order to save trees, and also to avoid possible impacts on the environment.

Visitors are not allowed to collect any wild flowers, plants, fossils, orchids, rocks etc., unless and until they have permission from the concerned authority for scientific research.

Trade in wildlife animal products is totally banned in Nepal.

There are prescribed and managed camping sites at various locations. If there is no arrangement as such, open ground, or a river bank can be chosen. Clearing bushes will damage the local environment.

Garbage management is an essential part of trekking. No plastic bottles and non-degradable items are allowed within the protected areas. Garbage bins and pits are kept at various points along the trekking routes.

The mountain parks management has introduced the policy of "Pack It In and Pack It Out" for the reduction of refuse (including tins and cans) disposal along the routes to some extent.

In some areas, local communities have established their own conservation practices, such as forest management, energy saving etc. Visitors may observe their practices upon receiving prior permission.

With your help, our natural beauty will be kept alive for generations. In turn, Nepal's gift to you will be vibrant living memories.

The geologically fragile mountains of Nepal are prone to soil erosion triggered by heavy monsoon rains in June through September following the dry period in April-May. At places, visitors may have to be extra careful while crossing the exposed slopes along trails. In the alpine regions, falling boulders may pose dangers. Similarly, 26 glacial lakes have been red-marked for their potential outbursts due to heavy accumulation of melted water from glaciers.

In the case of jungle safari in the Tarai protected areas, visitors are expected to follow certain procedures and rules. Elephant ride, jungle drive, nature walk and similar activities need special care and precautions. It is advisable that all visitors follow the instructions of their guides and they should consult them if there be any confusion.

# **High Altitude Sickness**

When traveling in the high altitude regions, visitors need to be careful about high altitude sickness. As the atmospheric pressure decreases, the amount of oxygen in the air also decreases exponentially as altitude is gained. At an altitude of 5,500m, the atmospheric pressure will be approximately half that at sea level and 70% at 3,000m. High altitude sickness can affect a person if elevation is gained too rapidly and without proper acclimatization, especially above 3000m. The symptoms are - headache, difficulty sleeping, breathlessness, loss of appetite and general fatigue. If anyone develops these symptoms, he/she must immediately stop ascending; and if the symptoms persist, the only proven cure is to descend to lower elevations. Generally, the risk can be minimized by gaining not more than 300m per day. A Gamow bag can be used under proper supervision to counter the effects of high altitude sickness.

## For more information:

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