CHAPTER IV
LOCATING THE GHNP WITHIN THE LARGER SOCIAL AND GEOGRAPHICAL CONTEXT

In the previous chapter we discussed research methodology and various qualitative and quantitative methods to attain the aims and objectives of the study. The present chapter is based on a detailed introduction to the study area, that is, the Great Himalayan National Park which includes its formation, location, geography and biodiversity. This chapter also includes the details of the biophysical setting of GHNP and significance at the global and local context, focussing on the background information and attributes of the field area.

4.1 Background Information

The majestic Himalayas have been source of inspiration for the people for time immortal. It is a center for the envy and admiration of all the nations of the world. The Himalayan Mountain ranges stretches from India, Nepal, Bhutan to Tibet. The Himalayan range literally means “abode of snow”. They are the largest, tallest and geological youngest mountains of our planet. They are considered as “Devbhoomi - the home of Gods” in India. They are one of the most fragile mountain regions of the world, and hold a vast range of endangered flora and fauna. The Himalayas have a unique biodiversity approach. It wouldn’t be wrong to say biodiversity is the greatest asset of Himalaya. The exceptional biodiversity, distinctive ecological and biological aspect of the western Himalayas, led to the creation of the Great Himalayan National park (GHNP) in Kullu district of Himachal Pradesh.

The Park is located in a low population density area and threatened by the medicinal plant collectors, grazers and mushroom collectors from adjoining areas. It was created to preserve the unique and pristine natural beauty of the Western Himalayan region. Its unparalleled altitudinal range includes the serrated peaks, shallow and steep river valleys, and the wildlife viewing opportunities, the varied recreational and interesting local culture, habitats that sustain an extraordinary variety of wildlife. Environmental conservation can succeed only if vying factions communicate and collaborate, environmental issues
have marvelous, yet underutilized, potential for diplomacy. It is the only place left in Kullu Valley that is unpolluted and un-crowded and far from the reach of commercial tourism.

Himachal Pradesh is a mountainous state located in northern India. The state is spread over 21,495 sq. km (55,673 km²) (Pandey, 2004b). The word Himachal derives its origin from two Hindi words; ‘Him’ and ‘Achal’ meaning snow and lap respectively. Thus etymologically Himachal Pradesh stands for the region which lies in the slopes and foothills of snow that is Himalaya. The literal meaning of Himachal Pradesh is region of snowy mountains. It is bordered by the Indian states of Jammu and Kashmir on the North, Punjab on the West and South-West, Haryana and Uttar Pradesh on the South, Uttarakhand on the South-East and Tibet to the East. There are many peculiar features which makes GHNP unique. Globally it is seen as a pilot site where the community based biodiversity conservation approach would be implemented.

4.1.1 Location

Mountains possess biophysical and cultural characteristics which merit special consideration and treatment – in the matter of preservation and conservation. These include their three-dimensional nature involving steep slopes, altitudinal belts of varying ecosystem in a short distance, their different exposures or aspects and climates, and their frequent characteristics of spirituality, remoteness, inaccessibility, and great cultural diversity-islands in a sea of tamed and transformed environment.

_IUCN Guidelines for Mountain Protected Areas, 1992_

The Great Himalayan National Park is situated in the upper catchments of the Sainj and Tirthan rivers in the state of Himachal Pradesh. It lies in the relatively isolated part of the Banjar Tehsil of Kullu District. The Park area is one of the Himachal Pradesh’s best stretches of the Himalayan Ecosystem, harbouring several endangered flora and fauna.

4.1.2 Legal Scenario

The main strategy for wildlife conservation in India is to provide legal and administrative protection to the ecosystem and the species within it. The declaration of sanctuaries, national parks and other protected areas under the
Wild Life (Protection) Act, 1972, has resulted in protecting a large number of areas from certain devastation by commercial, industrial or biotic forces. Legal protection against hunting and capturing given under the same act to listed species has also helped to safeguard threatened and rare species (Kothari, 1998). Similarly Forest Conservation Act has also helped to conserve natural habitats. The area was first notified under the section 35 (1) of the II Wildlife Protection Act 1972, by the Himachal Pradesh Govt. on 1st March 1984 vide notification number 6-16/73 SFII, on the basis of extensive wildlife surveys by national and international scientists (Pandey, 2004b). The criteria to choose it as a protected area was on the basis of its flora, fauna and comparatively low human pressure in the area, which made it an ideal location for a national park for the state. The Himachal Pradesh Wildlife Project (HWP) comprised of scientists from USA, UK and India, who surveyed the upper Beas region in 1980, in association with the Himachal Pradesh Department of Forest Farming and Conservation (DFFC) (Gaston, et al., 1981). As a result, an area comprising the catchments of Jiwa, Sainj and Tirthan rivulets was considered to constitute the GHNP in Kullu district of Himachal Pradesh (Pandey and Well, 1997).

4.1.3 Traditional Rights

Since 1886, the time of last settlement of Kullu forest, a number of villages located on the immediate border line of the Park (0 to 5 kms.) Those who are legal right holders in respect of grazing etc. also started with collection and selling of medicinal plants and mushrooms for some cash income. To fulfill day to days requirement their dependence on the collection and sale of medicinal plants largely increased. It is also because agriculture and pastorism is not income generating and can hardly fulfill the domestic needs. These people were neither prohibited by forest department nor by the present legal right holders from collecting these medicinal plants and mushrooms. On the contrary, their rights to do so were always admitted by the forest department who issued permits to the traders for buying and transporting the said material collected by these people (Table 4.1) (Kumar, et al.; 1999).
Table 4.1: Description of Various Rights

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Category of Rights</th>
<th>Type of Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Legal right</td>
<td>Minor forest produce</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Timber distribution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grazing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Human settlement and agricultural lands</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medicinal plants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Human settlement and agricultural lands</td>
</tr>
<tr>
<td>2.</td>
<td>Traditional /Di-Facto Rights</td>
<td>Collection of certain grasses, bamboos and branches of trees etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Collection and sale of medicinal plants and mushrooms.</td>
</tr>
<tr>
<td>3.</td>
<td>Natural /Human rights</td>
<td>Collection of a vide variety of floral species in highly sustainable quantities for meeting their bonafide domestic (Health care, food, fiver, spice etc.) cultural and religious requirements.</td>
</tr>
</tbody>
</table>


4.2 Physiography of the Park

The project area is in the North-Western Himalayas in Kullu district. The Kullu Valley lies in the inner part of the Himachal called lesser Himalayas. The valley is structurally and lithologically controlled and carved by glacial and periglacial processes in the upper region and higher slopes of its tributary valleys, and by fluvial processes in the main valley corridor to produce a landscape of spectacular nature (Sha and Mazari, 2007).

The existing Park including buffer zone which is also known as ecozone lies between 31°36'28" to 32°51'58" N latitude and 77°20'11" to 77°45'52" E longitude starting from an altitude of 1,700 meters above mean sea level. The highest peak within the park approaches upto 5,800 meters. The area of GHNP is 754.4 sq. km. The study area is bounded in the North - West by the Kunwar Wildlife Sanctuary, in the East by Rupi Baba Wildlife Sanctuary and Pin Valley National Park in the North-Eastern side. These four wildlife
conservation areas comprise the largest and well preserved area of wildlife habitat in India and possibly in the Western-Himalayas (Gaston and Garson, 1991). The area encompasses four main valleys namely Sainj, Tirthan, Parvati, and Jiwa Valley (See Map 4.1).

(i) Tirthan Valley

Tirthan valley is named after a sacred water spring called “Tirth”. The spring is the origin of Tirthan stream and this water is acclaimed as that of the pious Ganga river. The valley begins its domain from Largi, the place where Tirthan and Sainj streams merge with the Beas river. It is a motorable and an easily accessible road as compared to the other valleys. It is a very scenic valley full of secluded hamlets, waterfalls, cedrus and pine forests. The valley covers an area of 754.0 sq.km.

(ii) Sainj Valley

An area of 90 sq. kms. in Sainj valley encompassing the two villages of Shakti and Marore have been classified as Sainj Wildlife Sanctuary (WLS). These two villages although technically "outside" the National Park, are physically located between two parts of GHNP. Thus the total area under the National Park administration is 1,171 sq. km (GHNP official website).

(iii) Jiwanal Valley

It is on the Sainj valley road, about 35 km from Aut (diversion point from NH).

(iv) Parvati Valley

The valley is exceptionally beautiful. This is stating point to very popular treks up to Pin-Parvati.

The Park has a natural protection of high peaks and ridges on its northern, southern and eastern boundary whereas the western boundary has habitations, which are dependent on the Park’s natural resources.
To facilitate implementation of the World Bank aided Conservation of Biodiversity Project (1994-99), an area upto 5 km from the western periphery of the Park had been created as an Ecozone. There are about 141 village hamlets and 2,400 households with a population of about 14,000 people living in the buffer zone of GHNP (Pandey, 2004b). GHNP, SWLS, TWLS and Eco-development zone all together are referred to as the Great Himalayan National Park Conservation Area (GHNPCA). GHNPCA was selected as one of the first protected areas in India to demonstrate the approach of linking biodiversity conservation with local social and economic development broadly known as Eco-development (Pandey, 2007). Such kind of initiatives highlights the India’s conservation programmes and policies are heading towards more participatory processes. These participatory processes are broad based and link up with the grass roots rather than restricted to particular canopy.
4.2.1 Major World Bank Aided Projects in the Study Area: Conservation of Biodiversity (CoB) Project (1994-99)

The Forest Research Education and Extension Project (FREEP) was aided by the World Bank with an international assistance of US $2.5 millions, which started in 1994 and continued up to 1999, in order to test the people assisted biodiversity conservation in India. An additional sub-project on Conservation of Biodiversity (CoB) was formulated as part of the bigger FREE Project (Mathur, et al.; 2005). Under the CoB, two protected areas, one in the North, i.e., Great Himalayan National Park and the other in South (Kalakad Mundanthurai) were selected for funding (Melkani, 2001). This project has three main objectives:
(i) To improve Protected Area (PA) management.
(ii) To reduce people’s dependencies on Protected Area through village Eco-development and to organise and conduct research, monitoring and education programmes to support Protected Area management.
(iii) The research and monitoring area component under the major project was assigned to the Wildlife Institute of India (WII) Dehradun.

4.2.2 Park History

Inception to Present

It is one of newest national park of India. By the statutes of the Wildlife Protection Act, (1972) of India, the Park was established for protecting, propagating or developing wildlife therein or its environment. The following are the historical account of formation of Great Himalayan National Park (Table 4.2).
Table 4.2: History of Park Formation

<table>
<thead>
<tr>
<th>Year</th>
<th>Action</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>Survey for creation of a National Park in the Western Himalayas.</td>
<td>It was the first step towards the formation of National Park. Years back the Himachal Wildlife Project-1 (HPW-1) comprising of an international team of scientists surveyed the area.</td>
</tr>
<tr>
<td>1983</td>
<td>Second phase surveys: In 1983, the Himalayan Wildlife Project-2 (HPW-2)</td>
<td>Continued the wildlife surveys and finally recommended creation of Park in its present location.</td>
</tr>
<tr>
<td>1984</td>
<td>Notification of intention</td>
<td>The Government of Himachal Pradesh issued initial notification on 1st March, 1984 expressing its intention to constitute the Great Himalayan National Park with buffer zone.</td>
</tr>
<tr>
<td>1984</td>
<td>First revision of notification of intention</td>
<td>Because if there was no mention of the constitution of the buffer zone with a National Park in the Indian Wildlife Protection Act, 1972, the government of Himachal Pradesh revised its earlier notification dated 1st March 1984. The new notification dated 30th July, 1999 did not have mention of buffer zone.</td>
</tr>
<tr>
<td>1987</td>
<td>First management plan of the Great Himalayan National Park</td>
<td>The Chief Wildlife Warden, Himachal Pradesh had written the first management plan of the Great Himalayan National Park</td>
</tr>
<tr>
<td>Year</td>
<td>Description</td>
<td>Details</td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1988</td>
<td>Beginning of the settlement proceedings</td>
<td>In 1988, under the Indian Wildlife Protection Act, 1972 the settlement proceeding for settling of rights of local communities in the Great Himalayan National park were started. Settlement officer was appointed by the state government for this purpose.</td>
</tr>
<tr>
<td>1992</td>
<td>Continuance of wildlife surveys in GHNP.</td>
<td>In July 1992, The Himachal Wildlife Project-3, (HPW-3) re-assessed wildlife abundance obtained information on livestock grazing and herb collection and reviewed the existing management plan.</td>
</tr>
<tr>
<td>1994</td>
<td>Second revision of notification of intention.</td>
<td>On 22nd Feb, 1994, the government of HP revised the notification of intention to constitute the Sainj Wildlife Sanctuary. This was in suppression of the earlier notification.</td>
</tr>
<tr>
<td>1994</td>
<td>Third revision of notification of intention.</td>
<td>On 26th February, 1994 the state government revised the notification of intention to constitute the GHNP by including the upper Parvati Watershed. This was in suppression of the earlier notification dated 30th July 1990.</td>
</tr>
<tr>
<td>1994-99</td>
<td>Conservation of Biodiversity Project</td>
<td>From October, 1994 to December 1999, the World Bank aided Conservation of Biodiversity (COB) Project continued for five year duration at Park. During the Project, sixteen Village Eco-development Committees were set up for the participation of local community in the biodiversity conservation.</td>
</tr>
<tr>
<td>1994-99</td>
<td>Major research initiatives at the GHNP</td>
<td>During the duration of COB Project, 1994-1999, The Wildlife Institute of India, Dehradun conducted a research project at the Park. The research inputs contributed</td>
</tr>
</tbody>
</table>
In December, 1996 a Biodiversity Conservation Society (BiodCS) was registered to share the responsibility of the management of the Park. However, the state govt. gave financial powers to the BiodCS on 22nd May, 2001. Society functions to provide funds and flexible administrative measures.

In 1999, the settlement officer at Park completed the settlement proceedings at GHNP and in May, 1999 to extinguish rights of local communities in the Park. The award included monetary compensation for those who had written rights in the Settlement Report of the area.

The state Govt. accepted the award of Collector, GHNP and issued final notification on 28th May, 1999 of the GHNP.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>Registration of the Biodiversity Conservation Society (BiodCS)</td>
<td>In December, 1996 a Biodiversity Conservation Society (BiodCS) was registered to share the responsibility of the management of the Park. However, the state govt. gave financial powers to the BiodCS on 22nd May, 2001. Society functions to provide funds and flexible administrative measures.</td>
</tr>
<tr>
<td>1999</td>
<td>Declaration of awards upon completion of settlement proceedings</td>
<td>In 1999, the settlement officer at Park completed the settlement proceedings at GHNP and in May, 1999 to extinguish rights of local communities in the Park. The award included monetary compensation for those who had written rights in the Settlement Report of the area.</td>
</tr>
<tr>
<td>1999</td>
<td>Final notification of GHNP</td>
<td>The state Govt. accepted the award of Collector, GHNP and issued final notification on 28th May, 1999 of the GHNP.</td>
</tr>
</tbody>
</table>

Source: GHNP Management Plan, 2004 b
4.2.3 Current Scenario of Park

After 1993, because of the sudden incursion of mega hydro electric projects such as Parvati Hydel Project in the Ecozone of GHNP has triggered an unbelievable habitation in the area in the last decade. Besides the Paravati Hydel Project, there are many big and small projects on different rivulets which are changing the land use pattern in the Ecozone in a very big way thus further restricting the home range for diverse species. The tendency to accumulate more and more electricity would keep lifestyles beyond the sustainability limits (Kothari, 2007). The instantaneous and stretched impacts of these land use changes are massive. Due to the entry of the outside labour force which despite restrictions damaged the herbivores of the area and cleared the forest for firewood etc, the fringe areas of GHNP where these projects were located represented a degraded landscape. At the moment, there was hardly any study which gave quantified data to show this degradation. However, the fact remained that a degraded landscape affected the livelihood options of the poor in an adverse manner (Pandey, 2003). Climate change is another hassle which is affecting the ecology and biodiversity of area. Ecozone of GHNP has seen many changes in last few years. According to the WII Research Report, 1999, between 1961 to 1993, the area under habitation, orchards, agriculture has gone up by 9 km², while the forest area has declined by 4km².

4.3 Biophysical Setting of Park

In this section two themes would be presented: one is the ecological attributes of the park and the other its social attributes. The focus would be on the social and ecological units which constitute the Park (See Fig. 4.1). The major emphasis would be given to the local people, resource use, administrative units, forest cover, flora and fauna.
4.3.1 Social Attributes

GHNP lies in a zone that is developmentally and ecologically different from the rest part of country. The state has 90% of its population living in rural areas which depends on the forest and forest resources to fulfill their livelihood approach (Govt. of HP, 2001). Compared to the national average in terms of various development indicators such as per capita income, poverty alleviation, basic infrastructure, literacy and education, the state holds a higher rank. The basic developmental attributes comparing India, Himachal Pradesh and Kullu district are given in Table 4.3.

Local People

People of GHNPCA administratively come under 8 kothis (Eight to Ten Phanti together make-up a Kothi) and 13 phantis (revenue villages). There are 127 hamlets with a total of 14,025 people located in the buffer zone of study area (Kumar, et al.; 1999). However, the Park authorities for the implementation of the Eco-development programme, have recognized 141 villages including scattered hamlets. With the exception of 3 villages that are located in the SWLS, all others are concentrated in the ecozone, but their proximity to the park is within 5 km distance. Literacy rate of the local
population is only 17% (Negi, 1996) which was equally represented by both genders.

Table 4.3: Basic Developmental Attributes Comparing India, Himachal Pradesh and Kullu District

<table>
<thead>
<tr>
<th>No.</th>
<th>Attribute</th>
<th>India</th>
<th>HP</th>
<th>Kullu</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Area (sq. kms)</td>
<td>32,87,263</td>
<td>55,673</td>
<td>5,503</td>
</tr>
<tr>
<td>2</td>
<td>Density (persons/sq. km)</td>
<td>324</td>
<td>109</td>
<td>69</td>
</tr>
<tr>
<td>3</td>
<td>Urban population (%)</td>
<td>27.78</td>
<td>9.79</td>
<td>7.92</td>
</tr>
<tr>
<td>4</td>
<td>Literacy rate (%)</td>
<td>65.38</td>
<td>77.13</td>
<td>73.36</td>
</tr>
<tr>
<td>5</td>
<td>Female literacy rate (%)</td>
<td>53.67</td>
<td>68.08</td>
<td>61.24</td>
</tr>
<tr>
<td>6</td>
<td>SC literacy rate (%)</td>
<td>37.4</td>
<td>53.2</td>
<td>42.39</td>
</tr>
<tr>
<td>7</td>
<td>ST literacy rate (%)</td>
<td>29.6</td>
<td>47.09</td>
<td>68.21</td>
</tr>
<tr>
<td>8</td>
<td>Percent of Gross State Domestic Product spent on Education (%)</td>
<td>3.60</td>
<td>7.08</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>Poverty alleviation index</td>
<td>0.52</td>
<td>0.71</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Per capita income (in Rupees)</td>
<td>10,306</td>
<td>10,942</td>
<td>6,098</td>
</tr>
<tr>
<td>11</td>
<td>Villages with infrastructure (%)</td>
<td>24.14</td>
<td>45.93</td>
<td></td>
</tr>
</tbody>
</table>

Source: The National Human Development Report (Govt. of India, 2002)

Resources Use

Although agriculture has been the primary source of subsistence economy for the local people, they enjoyed unrestricted access to nearby forests for firewood, timber, bamboo and several medicinal herbs. It was in 1878 that the forests were classified and demarcated as the Reserved Forests.
and Protected Forest of different classes in accordance with the Forest Act, 1878. Mr. Alex Anderson, Commissioner of Kullu, submitted a monumental “Forest Settlement Report” in the year 1886, providing minuscule details of rights granted to the local people. The chief livestock usages described in this Settlement Report were:

1) Grazing was open to cattle, sheep and goat, except in a few fenced portions.
2) Trees could be lopped for fodder inside as well as outside the forest.
3) Grass could be cut wherever it was found (Anderson, 1886b).

It took exactly ten years (1886-1896) for the government to finally adopt the Anderson’s Report. However, people of the area continued to use the forested area of the park for timber, medicinal herbs, non-timber forest products (NTFP) and for pastoralism. Singh and Rawat (1999) and Kumar, et al; (1999) have given detailed information on the resource use by the local people.

Administrative Units

Administratively, the area has been divided into different management zones; the eco-development zone (EZ) is in the South-West, Tirthan in the Wildlife Sanctuary (TWS) in the South, GHNP in the center and Sainj Wildlife Sanctuary (SWS) in the North. GHNP is surrounded from all directions by sanctuaries. The Park directorate is at Kullu and the field estate at Sai Ropa. GHNP covers an area of 1,171 sq. km (Mathur, 2005). The Table 4.4 highlights the district wise distribution of forests in the state.
Table 4.4: District-Wise Forest Area in Himachal Pradesh

<table>
<thead>
<tr>
<th>District</th>
<th>Geo. Area</th>
<th>Forest Area</th>
<th>Tree Covered Area</th>
<th>% of Geo. Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Very Dense Forest</td>
<td>Moderately Dense Forest</td>
</tr>
<tr>
<td>Bilaspur</td>
<td>1,167</td>
<td>428</td>
<td>24</td>
<td>171</td>
</tr>
<tr>
<td>Chamba</td>
<td>6,522</td>
<td>5,030</td>
<td>853</td>
<td>773</td>
</tr>
<tr>
<td>Hamirpur</td>
<td>1,118</td>
<td>219</td>
<td>39</td>
<td>92</td>
</tr>
<tr>
<td>Kangra</td>
<td>5,739</td>
<td>2,842</td>
<td>310</td>
<td>1,221</td>
</tr>
<tr>
<td>Kinnaur</td>
<td>6,401</td>
<td>5,093</td>
<td>82</td>
<td>263</td>
</tr>
<tr>
<td>Kullu</td>
<td>5,503</td>
<td>4,952</td>
<td>586</td>
<td>789</td>
</tr>
<tr>
<td>Lahaul &amp; Spiti</td>
<td>13,841</td>
<td>10,133</td>
<td>15</td>
<td>32</td>
</tr>
<tr>
<td>Mandi</td>
<td>3,950</td>
<td>1,860</td>
<td>373</td>
<td>735</td>
</tr>
<tr>
<td>Shimla</td>
<td>5,131</td>
<td>3,418</td>
<td>739</td>
<td>1,037</td>
</tr>
<tr>
<td>Sirmaur</td>
<td>2,825</td>
<td>1,843</td>
<td>130</td>
<td>568</td>
</tr>
<tr>
<td>Solan</td>
<td>1,936</td>
<td>728</td>
<td>55</td>
<td>404</td>
</tr>
<tr>
<td>Una</td>
<td>1,540</td>
<td>487</td>
<td>18</td>
<td>298</td>
</tr>
<tr>
<td>Total</td>
<td>55,673</td>
<td>37,033</td>
<td>3,224</td>
<td>6,383</td>
</tr>
</tbody>
</table>

Source: Forest Survey of India Report, 2009
A comparative account of the area statistic for the constituents protected areas and eco-development zone prior to all the recent legal changes is presented in Table 4.5. Altitudinal zones in hectares and Area under different slope classes in GHNP given in Table 4.6 and 4.7.

### Table 4.5: Forest Cover in Park and Surrounding Areas

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Category</th>
<th>Area (sq. km.)</th>
<th>Forest Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>GHNP</td>
<td>754.0</td>
<td>17%</td>
</tr>
<tr>
<td>2.</td>
<td>TWLS</td>
<td>61.0</td>
<td>47.1%</td>
</tr>
<tr>
<td>3.</td>
<td>SWLS</td>
<td>90.0</td>
<td>35.1%</td>
</tr>
<tr>
<td>4.</td>
<td>EZ</td>
<td>265.0</td>
<td>74.6%</td>
</tr>
<tr>
<td>Total Area</td>
<td>1,170.0 sq. km.</td>
<td></td>
<td>173.8%</td>
</tr>
</tbody>
</table>

Sources: GHNP, the Management Plan, 2004b

### Table 4.6: Altitudinal Zone (m) Wise Area in Hectare

<table>
<thead>
<tr>
<th>Name of Area</th>
<th>Altitudinal Zone (m) wise Area in Ha</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;1600-2400</td>
<td>1600-2400</td>
</tr>
<tr>
<td>GHNP</td>
<td>-</td>
<td>1149</td>
</tr>
<tr>
<td>SWLS</td>
<td>-</td>
<td>235</td>
</tr>
<tr>
<td>TWLS</td>
<td>-</td>
<td>80</td>
</tr>
<tr>
<td>Eco dev. Area</td>
<td>505</td>
<td>8394</td>
</tr>
<tr>
<td>Total</td>
<td>505 (0.4)</td>
<td>9858 (8.4)</td>
</tr>
</tbody>
</table>

Source: Negi, 1996
Table 4.7: Area under Different Slope Classes in GHNP

<table>
<thead>
<tr>
<th>Name of area</th>
<th>Slope wise distribution of area In ha.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;33% (≤19°)</td>
</tr>
<tr>
<td>GHNP</td>
<td>23469</td>
</tr>
<tr>
<td>SWLS</td>
<td>112</td>
</tr>
<tr>
<td>TWLS</td>
<td>232</td>
</tr>
<tr>
<td>Ecodev Area</td>
<td>1127</td>
</tr>
<tr>
<td>TOTAL</td>
<td>24940 (21.3)</td>
</tr>
</tbody>
</table>

Source: Negi, 1996

Forest Cover

Great Himalayan National Park Conservation Area (GHNPCA) on the whole has 32.53% area under forest. The low percentage of forest area in GHNPCA is due to high altitude meadows, which are snow bound areas in the Park area.

4.3.2 Ecological Attributes

Climate

This part of the Himalayas has a moderate to less rainfall during the rainy season and the humidity is low. However, the higher ranges in the greater Himalayas are snowcapped and the winter is generally very cold during October to December. Rainfall is very low to nil. The alpine zone forms a maximum part of the study area. Rainfall at the middle altitude varies between 1000-2000 mm (Gaston, et al.; 1981). The maximum precipitation occurs during the monsoon season.
Biological Outline

Peace on earth depends on our ability to secure our living environment

Nobel peace prize citation

The GHNP has got some of the untouched and least disturbed areas of natural vegetation in state, including the catchment area of the Jiwa Nal, Sainj and Tirthan rivers. Altogether they encompass the upper catchment of the Beas river. There are several threatened species of wild flora and fauna. Some of them are quite unique, which forms only in the Park. Park’s complex geography and its altitudinal variation, the limited area of Park covers diverse range of flora of fauna. The flora of GHNP shows affinities with Mediterranean, Tibet as well as cis-Himalayan region. In addition, the Himalayas have evolved a high proportion of their own endemic taxa, for example several species of balsams, Impetience, Androsace primuloides, Hedysarum cachemirianum, Draba lasiophylla, etc. and Himalayan Tahr Hemitragus jemlahicus which are well represented in GHNP.

Floral Diversity

One third of park is covered by dense forests. Jiwa, Sainj, Tirthan and their tributaries in the western half of the park possess the major forest. An intense study was done by (Gaston, et al.; 1981) which highlighted:

- Subtropical pine forest characterized by the chir pine, found between 600 and 1700 mt.
- Subalpine forest dominated by birch and fir species, found between 3,000 and 3,400 m;
- Dry alpine scrub characterized by juniper species, found between 3,400 and 3,800 m.
- Himalayan moist temperate forest, characterized by both coniferous and broad-leaved species, found between 1,500 and 3,600 m;
- Moist subalpine scrub characterized by Rhododendron species, found between 3,000 and 3,5000 m.

Based on the dominance of species the following vegetation types can be recognized in Great Himalayan National Park Conservation Area (GHNPCA) Temperate broad leaved forest, Temperate conifer forest, Upper
temperate broad leaved and mixed conifer forest, Sub alpine (Rhododendron) forest, Alpine scrubs, Alpine meadows, Riverine forest, Temperate grassy slopes and Temperate secondary scrub. In general the Park has a very high floral diversity.

**Faunal Diversity**

More than 375 faunal species representing 31 mammals, 181 birds, 3 reptiles, 9 amphibians, 11 annelids, 17 mollusks, 127 insects belonging to six orders have been identified and documented. The prominent species of the landscapes are: the high altitude mammals viz; Blue sheep *(Pseudois nayaur)*, Himalayan Brown Bear *(Ursus arctos)*, Snow leopard *(Uncia uncia)*, Himalayan tahr *(Hemitragus jemlahicus)*, and Musk deer *(Moschus chrysogaster)* (Mathur, *et al.*; 2005). Galliforms in GHNPCA constitutes a very important and spectacular component of biodiversity. Following are the rare and endangered species are found in GHNP (GHNP World Heritage Site).

- Western tragopan *(Tragopan melanocephalus)* it is in the vulnerable category of IUCN’s Red List of Threatened Birds. This amazing bird is in the vulnerable category of IUCN’s red list of Threatened Birds. There is an extremely restricted area in world where this pheasant is found. This species is highly endangered and globally threatened.
- Chir pheasant *(Catreus wallichii)*
- Himalayan musk deer *(Moschus chrysogaster)*
- Brown bear *(Ursus arctos)*
- Himalayan black bear *(Selenarctos thibetanus laniger)*
- Himalayan Tahr *(Hemitragus jemlahicus)*
- Blue sheep *(Pseudois nayaur)*
- Serow *(Capricornis sumatraensis)*

The Park falls within one of the globally important Endemic Bird areas (DO II: Western Himalayas) identified by the ICBP Biodiversity project (1992). One hundred and eighty three bird species including 132 Passerines and 51 non- Passerines have been recorded in the Park which is substantially high compare to other areas of western Himalayas and suggests that the Park supports a substantial proportion of all

4.4 Legal Position of Forest

The villages, hamlets and cultivation are revenue lands under private ownership. Rests of the areas are either Reserved Forest or Protected Forest. The Reserved Forest is situated in remote areas and is free from rights (See Appendix J). The Protected Forests are further divided into Demarcated Protected Forest (DPF) class 1 and class 2 and Undemarcated Protected Forest also called class 3 forests. The class 1 forests are situated near habitation, the rights of users are less extensive but well-defined and comprise of valuable growing stock both for people and for producing timber for the market. The class 2 forests are situated above class 1 forests towards the ridge in a higher elevation. Besides supplying large quantities of timber to local requirement and export, class 2 forests are also used as summer grazing grounds. The Undemarcated class 3 forests are all government lands other than notified as Reserved Forest or Demarcated Protected Forests and private land. The class 3 forests are important to people as its wooded areas provide timber and firewood and its grasslands are grazed (Table 4.7) (Pandey, 2004b).

<table>
<thead>
<tr>
<th>Table 4.8: Demarcated and Undemarcated Forest Area in GHNP and WLS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GHNP</strong></td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Reserved Forests (sq. km)</td>
</tr>
<tr>
<td>DPF (sq. km)</td>
</tr>
<tr>
<td>UPF (sq. km)</td>
</tr>
<tr>
<td>Cultivation (sq. km)</td>
</tr>
<tr>
<td>Total (sq. km)</td>
</tr>
</tbody>
</table>

Sources: GHNP, the Management Plan, 2004b
4.5 Importance of National Park

- It is one of the only two national parks in the world to sustain a population of endangered Western Tragopan (*Tragopan malanoephalus*). To highlight the importance of the species the state had declared it the state bird of Himachal Pradesh in 2007 (Joshi, 2011).
- UNESCO has listed it under World Heritage site.
- In India it has been identified as the one of the five centers of plant diversity and endemism by the World Conservation and Monitoring Center.
- Great Himalayan National Park Conservation Area (GHNP) was selected as one of the first protected areas in India to demonstrate the approach of linking biodiversity conservation with local social and economic development broadly known as Eco-development. The project was launched in 1994 in GHNP, Himachal Pradesh and in Kalakad Mundanthurai Tiger Reserve (KMTR) in Tamil Nadu. The five-year project was the first World Bank sponsored attempt to test the tool of Eco-development, giving forests a new lease of life by improving the condition of the people dependant upon it.

On the basis of ICBP Biodiversity project (1992), the National park falls within one of the globally important Endemic Bird Areas (DO II: Western Himalayas). As compared to other areas of western Himalayas the Park supports a higher proportion of all the bird species occurring within its altitudinal range in Western Himalayas.

Next chapter focuses on the community based ecotourism management and effects of ecodevelopment projects.