

Chapter 2

STUDY AREA

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An important inclusion in the National Parks family, **Gorumara National Park** (GNP) is famous for its prestigious inhabitant one-horned great Indian Rhino. This is one of the last few small pockets in Eastern India harboring natural population of *Rhinoceros unicornis* L., along with other mega and majestic herbivores like Indian Elephant, Gaur or Indian Bison and is covered with rich vegetation. GNP had been a wild land sanctuary (Vide notification no. 5181-FOR, date: 02.08.1949) and a reserved forest since 1895 (notification no. 3147- FOR, date: 2nd July, 1895 with corrections later on), under the Indian forest act (VII of 1878). Formerly, an area of 2129 acre was first declared as Gorumara Wild Life Sanctuary (GWLS) vide Gov. Notification no. 5181-For, date: 02.08.1949. Subsequently, the notification under the Wildlife (protection) act, 1972, [vide no. 5400- For, date: 24th June, 1976] covering a total area of 8.62 sq km declaring the area as GWLS. In 1994, with Govt. notification no. 319_ For, dated 31st January, 1994 was issued with the intention of declaring the area as GNP, with major extension of the existing GWLS and now it covered a total area of 79.99 sq km. On 21st November, 1995, following a reorganization of the forest directorate of West Bengal, the total area of the GNP, curved out of the Jalpaiguri forest division was handed over to the Wild Life Division – II under the Conservator of Forest, Wild Life Circle [vide GOV. of West Bengal notification no. 4983-For, date 25th September, 1995]. The National Park presently consists of two territorial ranges, one mobile range, six beats and three camps.

2.1 THE LOCATION AND SIZE OF THE STUDY AREA

Gorumara National Park is one of the recent introductions to the National Parks map of India. Through the memo number 413/1 L.A. dated 12.07.1996, principal secretary, Department of Forests and Environment, Government of West Bengal declared the area as an *in situ* conservatory.

The National Park is presently consists of two territorial Forest Ranges (North and South), one mobile Forest Range, six Beats (Dhup Jhora, Gorumara, Bichhabhanga, Ramsai, Murti and Khunia) and three camps (Fig. 2.1).

In one earlier memo, G.O. No. 319 – For dated 31.01.1994, Department of forest, Government of West Bengal declared that the then proposed Gorumara National Park is covering an area of 7945.28 hectares. The boundaries of the Park are as follows:

North: Batabari – Nagrakata Public Works Department road and Selka line.

East: Jaldhaka River belt up to the Eastern boundary of North–Eastern junction with Gorumara 2 and then Eastern boundary of Madla Jhora 3 and Batabari 3.

South: Bichhabhanga road.

West: Lataguri Chalsa Public Works Department road, Baradighi Tea garden and Dakshin Dhup Jhora private lands and West bank of Murti River.

The GNP bears its significance in the international context for providing shelter and protection to various species of wild life included in the Red Data Book (RDB) of the IUCN and the appendices of CITES (Convention of International Trade in Endangered Species of wild flora and fauna).

The Park belongs to the Bio-Geographical zone 7B (Lower Gangetic Plain) as recognized by Rodgers and Panwar (1988). Total area of this bottle shaped National Park is 79.99 sq km. It is

located in the flood plains of Jaldhaka and Murti rivers and other medium and small rivers and rivulets those have created a pocket of grassland (Figs. 2.1 & 2.2). Gorumara National Park is located in the district of Jalpaiguri in the Northern part of West Bengal and geographically it is located at $88^{\circ} 45' 19''$ to $88^{\circ} 51' 18''$ E Longitudes and $26^{\circ} 48' 05''$ to $26^{\circ} 41' 20''$ N Latitudes. It is nearly a flat area with few small undulations which is the characteristic of this region and covering an altitude of 100 m to 136 m only. The National Park spreads in between the prominent localities like Lataguri, Chalsa and Nagrakata beside the National high way 31 that connects Siliguri with Guwahati. Siliguri (Airport: Bagdogra) is well connected by air from Kolkata, Delhi and Guwahati. And, from Siliguri GNP can be approached by Rail or road. The distance by road is only about 70 km.

The GNP and its nearby reserve forests [Lataguri, Sursuti, etc.] are very popular tourist destinations in Duars and numerous visitors enter its permitted areas almost round the year.

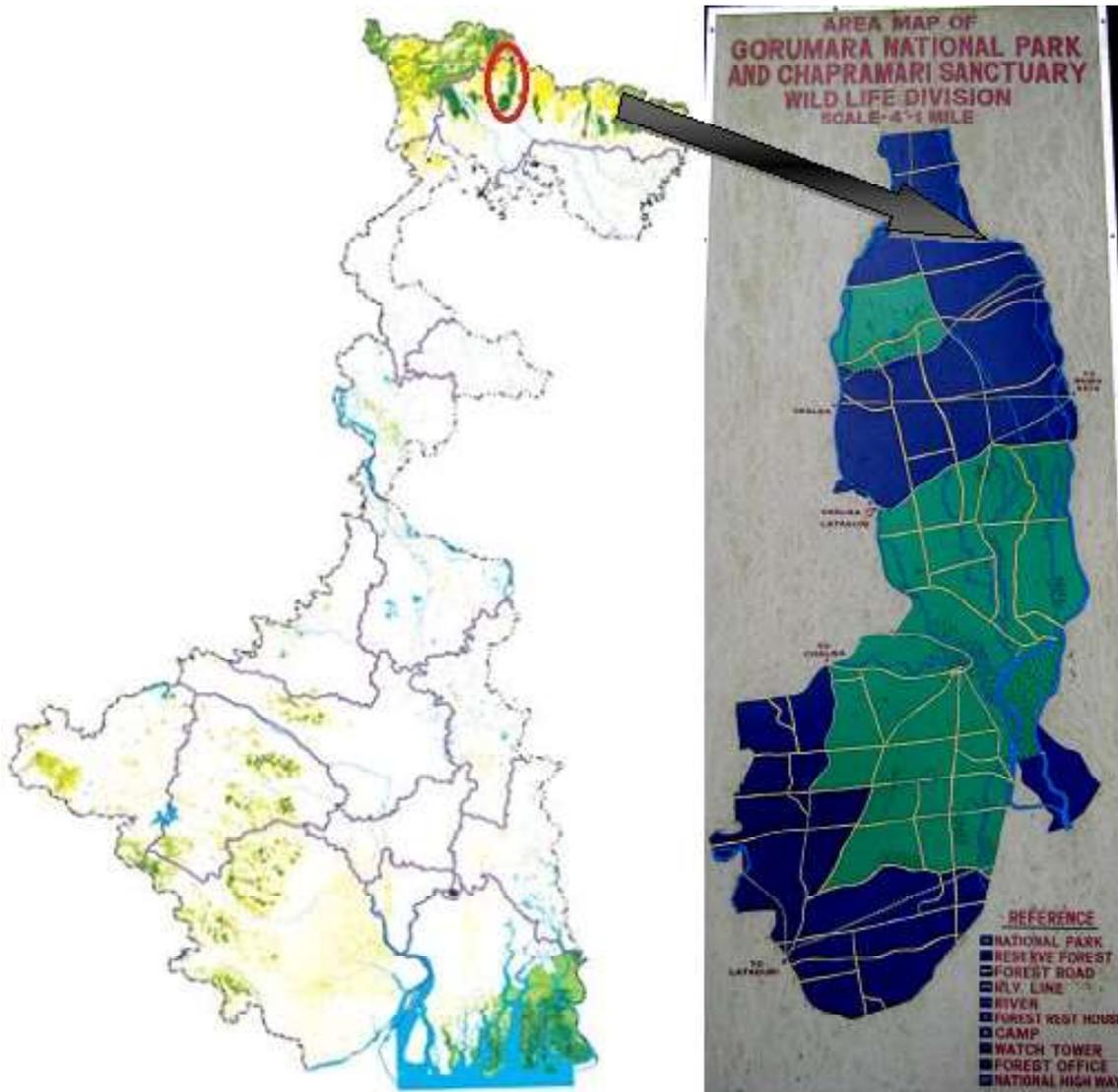


Fig. 2.1. Location of Gorumara National Park (GNP)

2.2 BOUNDARY AND DEMARCATION OF THE NATIONAL PARK

As presented under 2.1, the National Park is demarcated on North by the Batabari-Nagrakata PWD Road. The southern boundary runs along the compartment boundary between Batabari and Bichhabhanga compartments i.e. the Bichhabhanga Road. In the eastern side it is the Jaldhaka River, however, there is some land beyond Jaldhaka River adjacent to the Jadabpur Bamandanga and Tondu Tea Gardens. Towards the west, National Highway 31 acts as the boundary upto South Indong 2

compartment and boundary runs across Dakshin Dhupjhora mouja and meets the Batabari-Nagrakata PWD road.

2.2.1 Ecological Boundaries

Practically, it is not possible to restrict the movement of wild animals like Rhinos, Gaurs and Elephants within the legally demarcated boundary of the National Park. It is seen that the ecological boundary extends up to the Sibchu, Khumani and Jaldhaka blocks of Jalpaiguri and Kalimpong Forest Divisions. In the South too, it extends into the Bichhabhanga, Lataguri and Ramsai areas of Jalpaiguri Forest Division. The ecological boundary in the eastern fringe extends well beyond Gairkata, Central Diana upto Moraghat blocks of Jalpaiguri forest division whereas in the western part it assumes an area beyond Sursuti, Lataguri blocks of Jalpaiguri forest division and up to the Apalchand and Kathambari forests of Baikunthapur forest division.

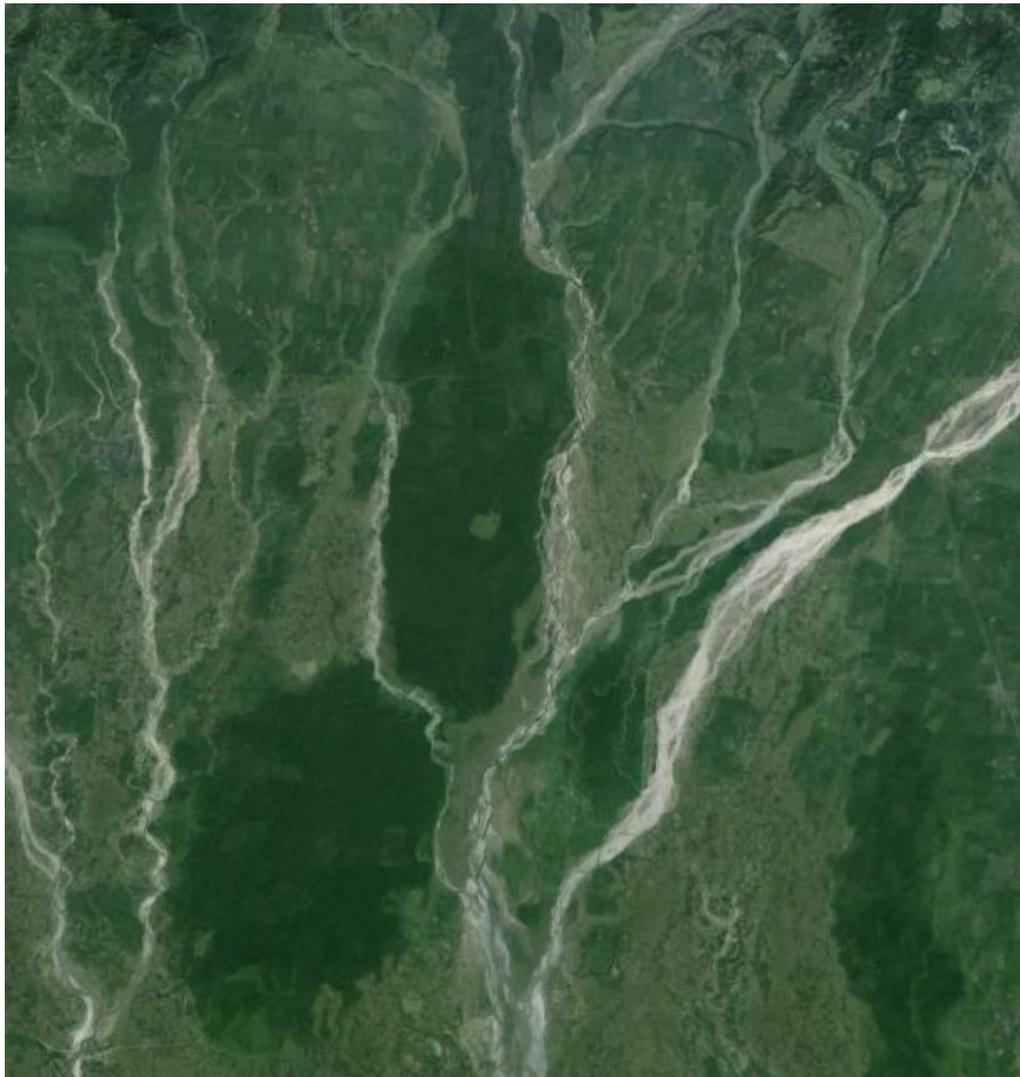


Fig.: 2.2. GNP area showing in Google Earth Imagery

2.3 TOPOGRAPHY

The geological formations normally encountered in this tract are one of sub-recent to recent origin and comprise of the following-

- a. *Alluvial Formation*: It is mainly represented by slit and clay without much gravel or boulder and constitute the flat plains under extensive cultivation outside the National park.

b. *Bhabar Formation*: This formation is represented by loose gravels, boulders and river deposits and are highly variable in composition and texture. This is also known as older alluvium. Sub-surface data indicate that clay is mixed in varying proportion and the demarcation of distinct clay bed cannot be made. Except during monsoon, the formation is apparently devoid of water and the streams carrying volume of water disappear within the porous structure of the formation and reappear towards south in the form of springs.

2.4 DRAINAGE

The main important river running at the boundary or through the National Park is Jaldhaka. It becomes shallow and remain almost with no water during dry season and remains full and fierce during monsoon. The river-bed is rising continuously as a result of the deposition of large quantity of slit, pebbles, boulders and detritus material carrying from the hills. However, sometimes Jaldhaka maintain a flow throughout the year. Other rivers passing through GNP include Murti, Garati and Indong (Fig.2.3). Few other rivulets and streams are also passing through this Park. Some of these rivulets and streams passing through GNP are seasonal in nature, carrying water only during monsoon and remain dry for rest of the year.

Though not of regular occurrence but floods do sometimes affect the National Park. In recent times, severe rainfall on 12th July, 1996 caused substantial damage to the natural habitat, wild animals and plants of the National Park.



Fig. 2.3: Drainage map of Gorumara National Park
Source: <http://Google map//Gorumara National Park>

2.5 SIGNIFICANCE OF THE STUDY AREA

2.5.1 General significance

In view of the ever dwindling number of great Indian one-horned rhinoceros, any area harbouring its natural population assumes immense significance, even if the population is small. The increasing population of rhinoceroses in west Bengal is taking place mostly in Jaldapara National Park (JNP) with over a population of 200, and is followed by GNP (over 50) and Chapramari Wildlife Sanctuary (recent personal communication with senior forest officials). Besides rhinos, GNP serves as an important corridor between Teesta and Torsa rivers for sustaining the population of wild elephants in north Bengal. A large number (over a thousand) of Indian bison also utilize this national park along with other herbivore species. Though the number of Royal Bengal Tigers is not much but the national park is the home of a good population of leopards and few other small carnivores. The area also has a great significance in the forested landscape of the district of Jalpaiguri along with its forest and riverine ecosystem.

2.5.2 National level significance

GNP belongs to the Biogeographical zone 7B (lower Gangetic plain) as recognized by Rodgers and Panwar (1988). Major significance of the national parks being the habitat for a number of schedule 1 animals which are given maximum protection in the national and international levels. The main protected animal of the park is rhinoceros. Some of the animals belonging to the schedule 1 of the wild life (protection) act, 1972 found in this National Park.

Apart from these Working Plan for GNP has recorded the occurrence of a rich flora in Gorumara National Park.

2.5.3 Significance at international level

The GNP bears its significance in the international context for providing shelter and protection to various species of wild life included in the Red Data Book of the IUCN and in the appendices of CITES. Das and Yadav (2011) recorded the occurrence of *Gnetum montanum*, both male and female plants, in Gorumara National Park.

2.5.4 Significance at local level

The GNP has immense significance in view of it being situated in the middle of the elephant migratory route between the rivers Teesta and Torsa in North Bengal. Gorumara can become one part of the Managed Elephant ranges for hosting and sustaining the wild elephant population of North Bengal. Especially, the Tondu, Selka, Gorumara, Panjhora and Indong blocks serve as their major habitat areas. With more scientific management on the peripheral regions for developing better wilderness and improved fodder supply, which, in turn, also improve the water relation of the habitat. Man – animal conflict is a major problem in this area and the presence of such sustainable habitat is showing positive effects on elephant depredation problem in the entire region.

The same is true for the ever increasing population of gaurs in the area. However, inspire of having a good habitat for large carnivores, with plenty of food, water and covered habitat in the area and not having many tigers, which was quite high earlier, helping the increase of their population. Though, even today, the herbivore population is controlled by the good Leopard population in these Protected Areas.

2.5.5 Scientific significance

Being one of the few pockets with natural population of great Indian one-horn Rhinoceros (besides Nepal, Assam and Jaldapara National Park of west Bengal), GNP provides an excellent opportunity for studying the habitat, behavior, food, population genetics, and reproductive biology of the this unique and endangered animal. However, the major component of a habitat is its vegetation and flora. And, so far, no appreciable data is available to us on these aspects. National Parks are meant for

the conservation of the habitat as well as all the biological elements living in it. For the conservation of all such elements the first requirement is a near complete knowledge on the flora, different formations, their societal aspects and importance in the vegetation.

GNP has approximately 48 species of carnivores and herbivores, approximately 193 species of birds, 22 species of reptiles, 7 species of turtles, 27 species of fishes and other macro and micro fauna (Forest Working Plan, 2005). However, for the survival of all these animal species, proper knowledge on their close interaction with different plant species and vegetation is the first requirement.

2.5.6 Economic significance

The Government is trying to develop the area as one intensive hub for tourism that will improve the economy of the local people. Moreover, conservation activities related mainly to Rhino and Elephant and different other maintenance works inside the National Park as well as in the fringe areas will certainly uplift living status and benefit the local people. Local people of the fringe areas are taking part in such works as per the present practice of Participatory Forest Management (PFM).

Inhabitants of the fringe areas of the National Park who have become the members of the Eco-Development Committees (EDCs) have started getting NTFPs like thach, semul floss, fodder-grass, fire wood etc. in recognition of their voluntary services rendered to protect and conserve the flora and fauna of this important Biodiversity Protected Area.

In the Bio-geographical zone 7B (Lower Gangetic plain) as recognized by Wildlife institute of India, Dehradun (Rodgers and Panwar, 1988, subsequently revised in 2000).

2.6.2 The Forest Types

The entire forest tract of Gorumara National Park comes under the North Indian Moist Tropical forest of Champion and Seth's (1968) Indian Forest Type classification. Gorumara National Park falls under the 2B/25 (Sal dominated mixed forests), 5B/152 (Sal, Khayer, Sissoo associated deciduous forest), 3C/C1b and 3C/C1c (Sal dominated deciduous forest). The species which is commonly found within the forest and is most important from the economic and ecological standpoint is Sal (*Shorea robusta*). This species occurs with its usual associates, namely chilauni (*Schima wallichii*), Chikrasi (*Chukrassia tabularis*) Champ (*Magnolia champaka*) and Bahera (*Terminalia bellirica*).

The other important species which are also seen are Sidha (*Lagerstroemia parviflora*), Panisaj (*Amoora rohituka*), Kainjal (*Bischofia javanica*), Simul (*Bombax ceiba*), Khair (*Acacia catechu*), Sissoo (*Dalbergia sissoo*) and Siris (*Albizia spp.*)

The working plan for the Gorumara National Park has recorded a total of 326 identified plant species that includes 158 species of trees, 35 species of herbs, 77 shrubs, 32 grasses, 15 species of climbers and 9 orchid species [Forest Working Plan, 2005].

Table 2.1. Major Forests types in Gorumara National Park

Types	Champion and Seth's classification (1968)	Principal localities
Riverine forests	Northern dry deciduous Seral Sal Khair Sissoo Association (5B/152)	Tondu – 1, 2, 3, 4a, 4b, Selkapara – 1b.
Sal Forests	Eastern Bhabar Sal and Eastern terai Sal (3C/C1 b and 3C/C1c)	Gorumara, South Indong 1, 2, 3, Bhogolmardi.
Wet mixed forests	Sub – Himalayan Secondary Wet mixed Forests (2B/25)	Barahati – 1, 3, Central – 1, Medlajhora – 1, Dhup Jhora – 1b, 2, Kakur Jhora 2.
Savannah forests: Lower alluvial Savannah	Sal Savannah (3C/DS)	Jadhaka – 1b, Dhup Jhora 1a, 1b, 1c.

Source: Forest Action Plan, 2002

Riverine Forests (5B/152) are seen on the bank of river Jaldhaka and other parts of the National Park. It is a deciduous forest and is dominated by Khair, Sissoo and grasslands. Primary grassland vegetation is invaded first by Khair and Sissoo, and create home for the entry of Simul, Sidha and many other seral species like Toon (*Toona ciliata*), Gamar (*Gmelina arborea*), Kainjal (*Bischofia javanica*) Pithali (*Mallotus nudiflorus*) and Kadam (*Neolamarckia cadamba*) etc. with successive changes in edaphic conditions and progressive stability as one moves away from the river front.

Tanki (*Bauhinia purpurea*) is fairly common in the neighborhood of river beds where the permanent water table is quite deep. Harra (*Grewia asiatica*), Kainjal, Chalta (*Dillenia indica*) and some other seral species like Toon, Gamar etc. appear to do well where the water table is not low.

Sal Forests (3C/C1) includes both Eastern Bhabar (3C/C1b) and Eastern Terai sal (3C/C1c). Sal forests occur on the well drained alluvial soil. Course gravels and boulders in the bhabar area carry a fair percentage of sal in admixture of various deciduous species chiefly by Bahera, Sidha, Tartari, (*Dillenia pentagyna*), Odal, (*Sterculia villosa*), Kumbhi (*Careya arborea*) and Chilaune. The numerous other species those are found there include Parari (*Stereospermum tetragonum*), Kowla (*Machilus villosa*), Angari (*Phoebe attenuata*) and Bahera (*Terminalia bellirica*).