

**MANAGEMENT PLAN**

**OF**

**LAWALONG WILDLIFE SANCTUARY**

**PART – I**

**THE PROTECTED AREA : THE EXISTING SITUATION**

# CHAPTER – 1

## INTRODUCTION OF THE AREA

### 1.1 Name, Location Constitution and Extent :

This block of forests, falling in north-western part of the State of Jharkhand was previously owned by the Tikait of Kunda Estate, who once upon a time used to organize big shikars here. This glimpse of history suggests that the hilly-forested terrain constituting the present sanctuary has been a favourite abode of wild variety of animal species since long. Subsequent to zamindari abolition in the year 1952, the ownership of these forests got vested in the state, who declared them as Protected Forests (PF) in 1953-1954. Latter on, owing to high density of wild life therein, the area consisting 64 Protected Forests (PF) was notified as '**Lawalong Wild Life Sanctuary**' vide Bihar Government **Notification No. S.O. – 1077 dated : 07-08-1978** under the provision of **section 18 (1) of Wild Life (Protection) Act 1972.**

This Sanctuary lies in the western part of the Chotanagpur plateau lying between **latitude 23<sup>0</sup>59' to 24<sup>0</sup>12' North** and **longitude 84<sup>0</sup>33' to 84<sup>0</sup>47' East**. This area falls in the south- west corner of newly created Chatra district and within the territorial limit of Simaria thana. It is at about 35km distance from the District Headquarter, Chatra and is surrounded by **Amanat River** in the South. **Chako River** in the West and North and **Lilajan River** in the North-East side.

The notified area of the Lawalong Wildlife Sanctuary included a part of the Lawalong Range of Chatra South Forest Division. After the Sanctuary was brought under the charge of separate **Wild Life Division, Hazaribagh**, it was reorganized and fell under the newly created **Wild Life Range, Chatra**. The range earlier was divided into **2 beats** and further sub-divided into **13 sub-beats**.

Lawalong Wild Life Sanctuary was constituted vide Bihar Government **Notification no. : S.O. – 1077 dated 07-08-1978** under section 18 (1) of wild life (protection) Act, 1972.

The total area of the Sanctuary is 21103.34 Hac. The sanctuary area falls between Chako river in the North and Amanat river in the South. In the North side the boundary villages are Tigda, Narainpur, Banwar, Bisunpur, Samhe, Baheradih and Chukru. In the southern side boundary villages are Rimi, Rechag, Nasodag, Pasagam, Hosir, Sulma, Sikni, Hutru, Horam. In the Eastern side Harhad, Mungadih, Chani, Hurdag, Madandih, Paramatu, Araatu and Kalyanpur are boundary villages. In the West side Sehda, Matli majhdiha, Bishrampur, Jhardag are boundary villages.

## 1.2 Approach & Access :

**The Nearest Railway Station** on the southern side of this sanctuary is **Tori**, situated at a distance of 66 km from Lawalong on Daltonganj- Ranchi – Muri – Jamshedpur – Gomoh railway line. From the northern and western side of this sanctuary, the nearest railway station is **Daltonganj** situated at a distance of 50 km from the Sanctuary. A loop line of the eastern railway, branching from Dehri-on-sone of Hawarah – Mughalsarai grand chord line, passes through Chandawa (Tori railway station) and finally meets the grand chord line at Gomoh via Barkakana Junction, from where one can travel by the southeastern railway .

The Gaya- Ranchi state highway passes by the eastern fringes of the Lawalong sanctuary. Hazaribagh – Simaria – Bagra Mor P.W.D. Road leads to Lawalong. The buses for lawalong and Kunda ply on these roads and halts at important places like Lutidih, Bagra Mor etc. Forest road connecting Gaya-Ranchi state highway leads to Lawalong and passes through the sanctuary area connecting Loharsi to Daltonganj road.

The nearest airport is at Ranchi, which is at about 145 km from Lawalong. An international airport is also under construction at Gaya (Bihar), which is about 100 km from Lawalong and 80 km from Chatra.

**1.3. Statement of significance :** The main objective behind creation of Lawalong Wild Life Sanctuary was to conserve the rich fauna and flora of this area for scientific, economic, aesthetic, cultural and ecological purposes.

The Sanctuary has almost a complete set of large mammals. It possesses Leopard, Barking deer, Spotted deer, Sambhar, Wild boar, Fox, Jackal, Porcupine, Mongoose and numerous other important species of animals.

Lawalong Wild Life Sanctuary has wide range of biological diversity. It is located in Deccan Peninsula Biogeographic zone, in the Chhotanagpur Plateau Province (6D). Leopard & deer species are the main species of vital importance. Although the population of leopard and other animals, as local people say, has gradually decreased during the last 20-25 years due to various reasons, but presence of many endangered species like Python, Pangolin etc. in the area increases its significance.

In addition to the above it is catchment of three rivers-Amanat river, Chako river and Lilajan river. Forests of the Sanctuary protect the rivers, streams against siltation by minimising soil erosion. It intercepts rainfall and increases ground water recharge.

The forest of the sanctuary also act as corridor for the internal movement of elephant connecting forest of Palamau, Hazaribagh and Koderma.

The Sanctuary is rich in biodiversity and various wildlife species found in this area have been included in Red data book of the IUCN (International Union for Conservation of Nature and Natural Resources) and the appendices of CITES (Convention on International Trade in Endangered Species of flora and fauna).

The people living in and around the Lawalong WLS gets their requirements of fuel-wood, fodder, small timber, bamboo, edible mushroom, honey, tendu leaves, medicinal plants, etc. In lieu they protect and preserve the flora and fauna of the reserve. The forests of the sanctuary acts as resource for recreation and for wilderness experience for the people residing in an around the sanctuary area. Earlier employment was available to the villagers in forest extraction works. They were engaged in extraction of timber, bamboo and Kendu leaves etc.

It has very wide range of bio-diversity and endangered, rare and threatened species of flora and fauna are found here as appended in annexure.

- ▶▶ 27 Species of mammals
- ▶▶ 93 Species of birds
- ▶▶ More then 100 species of trees
- ▶▶ 37 Species of Srubs & climbers
- ▶▶ 11 Species of Bamboo and Grasses etc.
- ▶▶ More then 100 species of valuable medicinal plants have been recorded from the PA.

#### **1.4 CONSERVATION VALUES :**

1. The forest type is Northern Dry Sal Forest (5BC<sub>1</sub>) as per revised classification of forest types by Champion and Seth. Dry bamboo brakes are also found in the north side of river Amanat in some areas. In the sanctuary area many miscellanies species like Asan, Sidha, Pandan, Siris, Kendu, Salai, Dhaura, Jamun, Bijasal, Gamhar, in top canopy, Mahua, Bauhinia species, Bhelwa, Beri, Dudhkoraiya etc. in middle story are found. In under story Phuldhawai, Galphulli etc. are found. The common climbers are Mahulan, Latpalas and Arar.
2. Supports significant population of wild life species specially Leopard, many species of deer, wild boar etc. which are endangered species.
3. Catchments conservation of three rivers - Amanat river, Chako river, Nilajan river and its tributaries. Stable Eco-system with tremendous regeneration, self supporting system.
4. Supports local population.
5. Immense scope for Wildlife Research and education.
6. Excellent habitat for top carnivore –leopard.
7. Potential for Wildlife tourism, Aesthetic value, Nature interpretation and education to tourists.

## CHAPTER – II

### BACKGROUND INFORMATION AND ATTRIBUTES

#### 2.1 Boundaries :

Boundaries of Lawalong WLS are contiguous with Latehar-Chatra district boundary (Amanat river) in the southern side and Chatra-Daltanganj district boundary in the western side. In the north Chako river is the boundary of the sanctuary. Boundaries can be seen in the maps attached with this plan.

#### Legal Boundary :

In the north, sanctuary boundary touches with Margoda PF, Hisatu PF, Nawadih PF, Lawalong PF, Bhurha PF, Chaya PF, Pinja PF and Baniadih PF, of Kunda Range of Chatra North Forest Division. In east side boundary of the sanctuary touches with Bandaru PF, Lutusingh PF, Mali PF, Katia PF, Potam PF, Konchi PF, of Lawalong Range of Chatra Forest Division; in the southern side the boundary up the sanctuary touches way the Haranhopa, Dahdiria, Endua, Karapur, Dhawabar, Mari, Katoria & Echak forests of Balumath Range of Latehar Forests Division and in western side the boundary touches way the Gari, Amatanr, Teldiha, Jolhabigha and Kakarwatari forests of Daltanganj Division.

#### 2.1.2 Ecological Boundary :

The sanctuary area is surrounded by Amanat, Chako & Nilajan rivers by almost three sides. So it forms a separate physical entity. But since the catchment area of three above mentioned rivers spread outside the sanctuary area both in north and south sides, so ecological boundary covers much more area in the north side and south side of the PA.

#### 2.2. Zone of Influence:

There are altogether 64 Protect forests inside the sanctuary area. But the zone of influence of the PA is wide spread around the boundaries of the PA. Altogether 86 villages including of Pratappur, Chatra, Simaria, Balumath, Panki and Manatu thanas has been included in the zone of influence. Zone of influence can be seen in the map attached with this plan.

#### 2.3. Geology, rock and soil :

The Geomorphology of the Sanctuary area can be classified as below:

(i) **Achaeans:** The Achaeans composes of two rock groups

a. Metamorphic rocks associated with extrusive leaves and basic igneous rocks and,

- b. **Granites:** Quartzite and granite are common in the sanctuary area. It varies from biotitic granite to hornblend granite and is coarse grained; coarse porphyritic types are also found. The prevailing color is that of feldspar i.e. pink to purple.
- (ii) **Gondwanas:** The Gondwanas rocks occur mostly in the southern part of the sanctuary with inter-bedding of coal seams, sand, stones or shale.

#### **2.4. Terrain:**

The area is undulating. The usual direction of metamorphic-hill ranges is from east to west. Some isolated hills of gondwana origin also occur. The general draining pattern is from south to north towards the Lilajan River, which passes through the central part of the district. The area is drained by three major river system viz. Lilajan, Amanat and Chako. These rivers carry large volume of water in the rains but dry up during the summer season.

#### **2.5. Climate:**

The tropical climate characterizes the area with

- (i) **Winter Season:** Mid November to Mid February
- (ii) **Summer Season:** Mid February to Mid June.
- (iii) **Rainy Season:** Mid June to Mid September.
- (iv) **Autumn Season:** Mid September to Mid November

**Winter:** From mid November to mid February. The temperature falls up to 4<sup>0</sup>C in the month of December/January. During November and early part of December, the season is pleasantly cool but it becomes severe in the later part of December and whole of January, when occasional frost occurs in this pocket. During February the nights are cold but the days become progressively warmer.

**Summer:** From middle of February to middle of June. The temperature progressively rises up to 45<sup>0</sup> C in the month of June. During this period desiccated hot westerly wind locally termed as “Loo” blow over the area and frequently causes sun-strokes but in the forest area nights remain pleasant.

**Rainy:** From the Mid of June to Mid of September. The average rainfall during the season is 900 mm and most of the rainwater is drained out through rivers.

**Autumn:** From middle of September to middle of November, the forests are green and pleasant looking.

### 2.5.1 Rainfall:

Rains occur mostly during the period of southwest monsoon i.e. from June to September. The average yearly rainfall is about 1100 mm in the area. A chart showing the rainfall pattern during 2001, 2002 and 2003 is given below:

#### Rain-fall (mm.)

Month	2004	2005	2006
January	0.2	0.0	11.3
February	0.0	3.5	25.0
March	11.4	7.2	10.8
April	4.0	0.0	24.2
May	8.4	9.7	0.0
June	312.5	51.7	184.4
July	256.8	203.3	283.3
August	237.4	243.4	260.0
September	94.1	214.6	224.6
October	61.0	73.5	146.9
November	0.0	3.1	0.0
December	0.0	0.0	0.0

### 2.5.2. Temperature:

The temperature in the area varies from a minimum of 5<sup>0</sup> c in the peak of winter to a maximum of 48<sup>0</sup> c in the summer.

#### Temperature (degree centigrade)

Month	2004		2005		2006	
	Max	Min	Max	Min	Max	Min
January	21.6	5.9	23.8	6.4	23.3	4.9
February	26.9	11.0	23.7	9.4	27.9	8.9
March	31.6	13.9	30.4	17.0	30.1	13.3
April	38.5	19.9	37.1	17.9	34.8	19.3
May	36.6	21.9	36.6	18.1	35.9	22.0
June	46.0	23.3	47.5	23.6	47.0	23.1
July	32.6	23.0	31.2	23.2	32.0	23.7
August	28.5	22.6	29.6	22.9	29.8	24.2
September	28.2	21.2	28.2	21.7	30.3	23.5
October	27.8	13.7	29.5	18.3	29.4	20.7
November	25.0	11.6	27.3	11.9	26.7	13.1
December	23.9	7.3	23.0	5.6	25.5	8.5

### 2.5.3. Humidity:

It varies from a maximum of about 90 percent during monsoon to a minimum of around 10 percent, during March/April of the year. Humidity pattern in different months during the last 3 years is given here under:

#### Humidity in Percentage

Month	2004		2005		2006	
	Max	Min.	Max	Min.	Max	Max
January	77.5	28.4	79.6	73.8	83.7	55.6
February	72.8	40.8	86.0	68.9	73.7	40.6
March	63.3	33.6	64.2	25.8	64.5	26.7
April	51.2	11.4	49.0	17.8	54.7	18.2
May	70.2	33.3	66.7	40.5	70.3	38.2
June	81.8	41.8	84.1	63.6	86.7	71.3
July	89.3	74.6	90.1	73.2	90.5	79.7
August	90.9	73.07	82.7	75.7	90.3	74.5
September	91.7	72.8	92.0	76.7	92.1	68.3
October	90.2	61.6	87.8	64.2	89.1	61.7
November	79.3	44.8	81.6	54.5	88.4	45.0
December	86.4	50.6	83.2	61.7	85.0	55.1

**2.5.4. Wind:** A hot westerly wind generally known as “Loo” blows during the summer months on the northern fringes of the Sanctuary, though within the sanctuary it is not so hot to affect the wild animals or the people. As one proceeds southwards the temperature goes down and the wind loses its severity, because the forest acts as the wind-break and also has cooling effect. Some times, strong wind blows during early part of monsoon as well..

**2.5.5. Fog:** Fog occurs for few days during January/February, when visibility may get limited to about 50 meters. The Forests and hills become hazy during evening and morning.

## **2.6. Water Sources :**

Three rivers viz. Lilajan, Amanat and Chako flow in rainy season but dry up during summer. The river flows become subterranean at places during dry season. Other small rivulets also generally dry up during summer.

There is no permanent water source in the sanctuary area, which can contain water through out the year. In the year 1993-94, 50 temporary water holes were dug out and were not maintained properly. Hence, all of these are facing siltation problem.

After the creation of this sanctuary, a survey was carried out in all the rivers/rivulets to find out the possible places where water is available throughout the year. There were some pockets, which contained water through out the year, and some other pockets which retain water up to March only. In the year 1993, deepening of such 50 spots was done to retain water in them till the month of June, when monsoon generally breaks. However, for want of maintenance, these water holes have got filled up with silt.

### **2.6.1. Water Management:**

To provide drinking water to wild animals as well as villagers the following water management scheme and budgetary provision has been made available during last three years.

<b>S.N.</b>	<b>Financial Year</b>	<b>Name of Scheme</b>	<b>Allotment</b>
1	2004-2005	Drinking water facility	266000.00
2	2005-2006	Water hole	206943.00
3	2006-2007	Pond & hand pump	187840.00

### **2.7. Distribution of Natural Salt Licks:**

A kind of soil is available in the forest area that is salty. The wild lives lick it to slake their thirst for salt. This type of soil that may be called as natural salt licks occurs at a few places like Hosir, Banwar, Rimi etc. in the sanctuary area.

## **2.8. Range of Wild life Status, Distribution and Habitat:**

### **2.8.1. Vegetation:**

#### **2.8.1.1 Biogeography Classification:**

From the point of view of biogeography, the area falls in the Oriental Realm (Wallace). Good (1953) describes the area on the basis of flora under Palaetropical. The palaetropical was divided into three sub-divisions - The African, The Indo-Malaysian and the Polynesian.

Udvardy has modified Wallace's formal regions in 1975. It does not differ much from Wallace's original classification, except that it takes into account the distribution of both plant and animal life. The biogeographical realms as given by Udvardy (1975) together with Wallace's terminology are given below in relation to this area.

<b>Realm</b>	<b>Wallace's terminology</b>	<b>Area included</b>
Indo Malaysian	Oriental	Indian sub continent and South East through Celebes and Sunda Islands.

#### **2.8.1.1. The Forest Type:**

With reference to the "Forest Types of India" by Champion and Seth, the Sanctuary falls under the main classification of Northern Tropical Dry Deciduous Forest having following sub types:

- (i) Tropical Dry Deciduous Forest
- (ii) Dry Sal Forest
- (iii) Boswellia Forest
- (iv) Dry Bamboo Breaks.

The forests of the Sanctuary are mostly of miscellaneous nature, where the canopy is moderately close with trees attaining good height and diameter growth. In some forests the presence of pure patch of Asan (*Terminalia* spp.) is available. The following types of forest are found in the Sanctuary:

- i) Mixed miscellaneous with bamboo

- ii) Inferior miscellaneous scrub forest
- iii) Salai forest
- iv) Inferior quality of Sal forest on hill.

The flora that are mainly available in the sanctuary area are enlisted in appendices:

#### 2.8.1.2. Other Vegetations:

Besides the above four main types of forest, other available types of vegetation deserve a special mention due to their importance from the food and cover point of view. They are as follows :

##### i) **Lantana Infestation:**

Lantana weed has infested in menacious proportion at many places of the sanctuary, wherever degradation has taken place. Though it acts as good cover for small fauna, it does not allow other natural vegetation and grasses to come up in the area and thereby decreases the food base of the wild animals. These areas need greater managerial attention for eradication of this ever proliferating weed and the growth of natural vegetation.

##### ii) **Under story vegetation:**

Almost in the entire area, except in pure patch of sal, the under storey vegetation consists of *Ziziphus*, *Nyctanthes arboritristis*, *Woodfordia fruticosa*, *Ixora parviflora*, *Casissa spinarum* etc. These species act as important food source of hervivores besides grass, especially during dry periods.

##### iii) **Climbers:**

Common climbers of the area are *Bauhinia vahli*, *Combretum decandrum* *Butea superba*, *Smilax spp.* etc.

##### iv) **Grasses:**

Main grasses of the area are *Heteropogon contortus*, *Chrysopogon spp.* *Dicanthium spp.* *Cynodon dactyolon* *Chrysopogon aciculatus* etc. that occur in open patches (blanks) and abandoned cultivated lands. Some of these grass spp. are important sources of food for herbivores. However wide stretches of grasslands are difficult to find in the P.A.

##### v) **Sub terrestrial vegetation:**

The species having roots, rhizomes, bulbs tubers etc. find a mention in this category. These are important sources of food for Wild boars, Porcupine, Rodents, Monkeys etc.

The *Salmalia malabarica*, *Asperagus recemosa*, *Dendrocalamus strictus* and a few other species having tuberous roots., come under this category.

### **2.8.1.3. Species and Communities of Conservation Importance, Key Areas :**

#### **2.8.1.3.1. Rare Plants which needs special care for conservation:**

The reserve has many rare and threatened species of plants. Detail extensive survey has not been conducted, however, the following species are rare in the area have been identified

Some fern spp.

Dalbergia latifolia

Salix spp.

#### **2.8.1.4.2. Key areas of Conservation importance :**

- 1) **Riparian Zones** - On the banks along the Amanat, Chako and Lilajan rivers, especially in Pasagam, Hosir, Sulma, Banwar, Narayanpur, Harhad etc. very good riparian zone exists. A wide variety of birds, ungulates, reptiles etc. utilize these area. These areas have very wide range of flora and fauna. Syzigium, Siris, Semal, Terminalia arjuna, Tamarix, etc are the species abundantly found.
- 2) **Dens, holes, sangs** – Dens of Leopard, bears, dholes have been identified in some areas. There are many holes in trees. Snags are also found in the sanctuary area.

### **2.8.2. Animals:**

**2.8.2.1. Vertebrates: Their status, distribution and habitat :** Among the vertebrates, documented information is available only for Mammalian and Avifauna. However, other vertebrates like Amphibians (Frogs, fishes) and Reptiles (Rock Lizard and a variety of snakes like Python, Cobra, Karait, Viper, Rat Snake etc.) are also often sighted in the sanctuary area.

#### **2.8.2.1.1. Main Mammalian Species their distribution and feeding habits:**

**Rhesus Macaque (*Macaca mulatta*, Hindi-Bandar):** These animals have orange red faces and rumps and occur in large troops near villages. They are not found deep inside the forest. Local religious sentiments protect the species from hunting.

**Common Langur (*Presbytis entellus*, Hindi-Langur):**

These black faced monkeys occur over the entire area in troops, and are frequently seen in miscellaneous forests particularly in the vicinity of fruit bearing trees at certain seasons. Leopards prey them upon. They have religious significance for local people but Birhors and Bhuiyas do sometimes catch them for food.

**Indian elephant (*Elephas maximus*, Hindi–Hathi):** The Sanctuary is visited by the herds of elephants in the month of July and August during rainy season, when water is available in abundance in the Sanctuary area and maize crop is about to mature in the agriculture fields.

They are course feeders and damage the vegetation more than they eat. Bamboos are pulled down and quite large trees of preferred species are uprooted or ring barked. Bel trees are commonly uprooted by them for reaching thier fruits.

**Sambhar (*Cervus unicolor*, Hindi–Sambhar):**

The sambhar is the largest deer in India. It is well distributed throughout the forest area of the Sanctuary. Its food consists of leaves and shoots of woody species, various kinds of fruits and grasses. It feeds mainly at night and retires in a heavy cover during daytime. They are generally encountered in a herd of 7 to 11. Solitary stag roams extensively.

**Leopards (*Panthera pardus*, Hindi–Tendua):**

Leopards occupies the top position in food chain as consumer. They do not require dense forest and exist in areas with sparse cover. It has also been seen at about 200 to 300 meter distance from the forest rest house at Lawalong. It has a wide range of preys i.e. Chital; Sambhars, Kotras, Monkeys, Langurs, Birds, Reptiles and cattle.

**Spotted deer (*Axis axis*, Hindi – Cheetal):**

This is, by far, the most abundantly found species of wild ungulates in this Sanctuary. They commonly occur in groups of 10-25 animals. They usually feed in open areas of forests or in woodlands in which monkeys, langurs or elephants have failed to utilize the total vegetation and fruits that are available. They do need proper cover for rest. Large concentration of this animal is seen around water holes during summer. The cheetal population would probably increase substantially if water holes with open grassy blanks with shrubs and scattered trees were better distributed. They constitute a major prey for the leopard and tigers.

**Barking Deer (*Muntiacus muntjak*, Hindi – Kotra):**

Barking deer resides in thickly wooded areas but comes out to graze in the outskirts of forest at dawn and dusk. Preference of dense cover makes it difficult to see.

**Sloth Bear (*Melursus ursinus*, Hindi – Bhalu):** During track census in 1993 one sloth bear was seen in the sanctuary. The sloth bear is catholic in food habits but likes fruits, vegetables etc. as its regular diet.

**Jungle Cat (*Felis chaus*, Hindi – Jangali Billi):**

It is rarely seen in the Sanctuary area, which preys upon small rodents, birds and insects.

**Common mongoose(*Herpestes edwardit*, Hindi–Newla):**

The mongoose is quite common near villages and preys upon rats, snakes, lizards and insects. It digs in moist soil for earthworm and also eats eggs of ground nesting birds.

**The Dhole (*Cuon alpinus*, Hindi – Koia):**

Wild dogs or dholes were found in the sanctuary area till few years back, but in recent years their presence has not been confirmed by the villagers. Generally they restrict themselves to the limits of sanctuary forests only.

#### **2.8.2.1.2. Birds:**

**Common Peafowl:** Peafowl are found over the entire area of the Sanctuary. It roosts in trees and feeds upon seeds, shoots, insects and lizards. Its nest is a shallow scrape in the ground normally in dense thicket.

**Partridges:** Its two species are found in the Sanctuary. The black partridges and the common gray partridges. Both prefer open thorny areas. They commonly feed on grain shoots and insects.

**Quails:** The jungle bush quail is seen most commonly in the Sanctuary. It usually lives in groups of 5 to 20, which roosts together in grassy patches. The nests consist of scrape at base of grass tussocks in scrubs.

**Hornbills:** Two species, the malabar pied hornbill and the common grey hornbill, occur in the Sanctuary. They are seldom seen on the ground and commonly occur on fly laden banyan and peepal trees, flying from one tree to another. Their nest is a natural tree-hollow that is walled up with bird's droppings after the female has settled inside, leaving only an arrow slit through which the male feeds her.

**Vultures:** The white backed vulture and the king vulture are the commonest species in the Sanctuary. They generally nest on the top of banyan or similar trees.

**Habitat, Quality and Quantity:**

**Classification of Habitats:**

Classification of habitats require several parameters such as cover, density, height of the forest, soil factor, food productivity, plant indicators etc. All these factors, have not been considered while classifying the same, as it will require a lot of time and cost. Only the height of the forests, its composition and density of the cover are considered hereby. The main habitat types based on above considerations are:

- (I) Sal Forest
- (ii) Miscellaneous forest
- (iii) Bamboo forest and
- (iv) Grassland

**Sal Forests:** Sal is found all over the sanctuary area. In some of the PFs of Lawalong Sanctuary, the age of Sal species varies from 5 to 60 years. The Sal is found with its associates like *Terminalia tomentosa*, *Pterocarpus marsupium*, *Adina cordifolia* etc. as upper canopy. *Indigofera pulchell* *Muchanania* spp. *Mallotus*. *Phillipinesis* *Randia uliginosa*, *Holarrhena antidysentrica* and others occur in the shrub, and *Desmodium* and grasses like *Bothriochloa montena* *Apiuda mutica*, *Chrysopogon montanus*, *Themeda* spp., *Chloris* spp. and *Heteropogon Contortus* occur as ground vegetation.

**Miscellaneous Forests:** These occur through out the Sanctuary area. Herein, upper canopy mainly consists of species such as *Terminelia tomentosa*, *Pterocarpus marsupium*, *Adina cordifolia*, *Boswellia serrata*, *Anogeissus latifolia*, *Aegle marmelos* *Albizzia procera*, *Diospyrus malanoxylon*, *Buchanania lanzan*, *Bridelia retusa*, *Bauhinia* spp., *Cholroxylon Switenai*, *Lagerstromia parviflora*, *Cliestanthus colinus*, and *Mitraguyna parviflora*. Trees such as *Syzigium* spp. and *Terminalia arjuna* occur along water courses. There are some grass lands with shrubs. The grasses are mainly of *Hetropogon contortus*, *Alpuda mutica* and *imperata aruninacea* species. Miscellaneous forests occur with bamboo at a number of places.

**Bamboo :** Bamboo is found all over the area. Its density is high in the western part of the sanctuary. It is found with miscellaneous forest spp. Undergrowths are usually those spp. which mainly occur in association with the miscellaneous forests.

**Grass Land :** Grass lands do not cover extensive area in the sanctuary, but semi permanent grassy spp. are widely scattered within the sanctuary. The main grasses are *heteropogon*, *contortus*, *Alpudumutica sachharam* and *Munja sachharam spontaneum*. These small grassy lands are favourite grazing grounds for wild ungulates.

**Species Specific habitats like, Dens, Burrows, Trees hollows etc.** : A den of tiger has been identified near Pitchri Nala at Ranipahad in Pasangam PF. Burrows & tree hollows are found in multitude. However, the dens of Leopards and Sloth bears have not been identified in the sanctuary area due to lack of proper survey work.

**Limiting Factors:** Many animal species that occur in the sanctuary are in significantly less number specially due to following factors.

1. Overgrazing by the domestic cattle, leading to food shortage for herbivores.
2. Habitat degradation and disturbance by large number of human settlements in the P.A. leading to limitations of space, food, water and cover.
3. Soil erosion and siltation of water bodies leading to scarce availability and distribution of drinking water especially in summer.
4. Insufficient infrastructure, staffing pattern and fund availability are making management helpless in bringing any significant improvement by active intervention.

### **2.8.2.3 Important invertebrates, their status distribution and habitat:**

As regards invertebrates, there is no documentation whatsoever. However a number of invertebrates exist in the area ranging from Annelids (earthworms, centipedes, millipedes) Molluscs (snails and slugs) to a variety of insects including beetles, bees, butterflies, bugs, moths, crickets, grasshoppers, termites etc., which are not only abundant but diverse in nature.

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## CHAPTER-III

### HISTORY OF MANAGEMENT AND PRESENT PRACTICES

#### 3.1. General :

Initially all the forests of Lawalong Wild Life Sanctuary were under private control of Raja, Ramgarh and other lords until 1924, when the govt. took over its charge , In the year 1947, the agreement under section 38 of Indian Forest Act 1927 was done and accordingly all the forests of Ramgarh Estate were declared as Private Protected Forests under Bihar private Forest Act, 1947. With the enforcement of Land Reforms Act, 1950, the ownership of these forests got vested in the state and subsequently they were notified as protected forests under section 29(3) of Indian Forest Act vide Notification No. C/PF-10171 (52-28R) dated : 02.01.1953 of the Govt. of Bihar.

The forests of the Ramgarh estate, whose management had been taken over by the state, were looked after by state forest officers attached to the different divisions till 1943. The Hazaribagh Forest Division was created on 01.11.1943 for managing the forest in the districts of Hazaribagh and Ranchi vide notification no. 4754-VIF-40-40R dated the 14<sup>th</sup>Oct,1942. After the enforcement of the Bihar Private Forest Act in 1947, a forest sub-division called the Chatra Forest Sub-Division under the Hazaribagh Forest Division was created vide Revenue department notification no. 2017 BIF-306/49 R dated 11.05.1949. This Sub-Division was converted into a full fledged Chatra Forest Division on 01.06.1952 The Chatra Forest Division was further splitted into two separate divisions namely, Chatra South and Chatra North Division from 01.04.1962.

Since the days of private ownership and untill the creation of Lawalong Wild Life Sanctuary, shikaries from other parts of the country used to come here for big games. Considering the importance of wild life and their abundance in this area, the Govt. of Bihar notified Lawalong Wild Life Sanctuary vide its notification No SO 1077 Dated 07 August 1978. It's management was looked the agreement after by Chatra South Division until 2002, when a separate Wild Life Divisions was constituted at Hazaribagh and whole of this sanctuary was brought under its administrative control.

#### 3.2 Timber Operation including bamboo and firewood harvest :

##### 3.2.1. Silvicultural system & tending operation / old management practices :

Initially the forest areas of Lawalong Wildlife Sanctuary was under the Jurisdiction of Chatra South Division which were under private control of Raja of Ramgarh and other landlords. On the enforcement of Land Reform Act, the ownership of all the forest of this division was vested in the state and subsequently, all the forest were notified under Section 29(3) of Indian Forest Act.

The first working Scheme for Ex-R.Fs. (now P.F.) of Ramgarh Estate was prepared by Mr. W.G.C. Breasky. The Scheme was in operation from 1928- 29 to 1934-35. This has prescribed coppice system with a rotation of 40 years. Some improvement felling were also prescribed to free Sai from other miscellaneous species.

Mr. Breasky's scheme was revised by Mr. Gibson. His plan prescribed the following working Circles :-

- Coppice working Circle
- Selection working Circle
- Bamboo working Circle
- Khair working Circle

The accessible forest block were managed under coppice working Circle with rotation of 40 and 20 years and inaccessible block were managed under Selection working Circle. The Exploitable dia. for Sal, Asan, Satai was 4 ft. for paisar 3½' for Semal 6 ft and others 3 ft. In Khair working Circle the exploitation dia. was 18" and felling cycle was 5 years.

Mr. Gibson's plan was revised by Shri B.N. Prasad, I.F.S retired Deputy Chief Conservator of Forests. His plan came into operation in 1952-54. He prescribed only three working Circles :-

- Coppice working Circle
- Bamboo working Circle (over lapping)
- Khair working Circle (over lapping)

### **Coppice working Circle**

The Forests under the selection working Circle during Mr. Gibson's plan were brought under coppice working Circle. The same rotation of 40 years as in Gibson's plan was adopted.

### **Bamboo working Circle**

In the bamboo working circle the bamboo forests were worked on a 4 year cutting cycle. A set of bamboo cutting rules were prescribed.

## **Khair working Circle**

No felling under this working circle was prescribed as the khair forests were overexploited during Mr. Gibson's plan due to faulty prescription. The khair forests were given total rest.

The Forest were divided into two classes-surplus and deficit. The surplus portion of the annual coupes of the surplus forests were sold in the subsequent year while in the deficit Forests the entire annual coupe used to be handed over to the right holders. The deficit Forests were constituted into separate felling series for each village.

The first comprehensive plan for both Ex.R.F. and P.F. was written by Sri B.N. Prasad retired Deputy Chief Conservator of Forests he prescribed the following working Circle :-

Coppice working Circle

With rotation of 20 years

With rotation of 40 years

Protection working Circle

Afforestation working Circle

Bamboo (overlapping) working Circle

Khair (overlapping) working Circle

The plan could not be brought into proper operation due to Government order for laying out right holders coupes separately for each village. An attempt was, however, made to enforce the plan in selected area.

Another serious error was committed due to inclusion of scrub forests and blanks in coppice felling series. Annual coupes were laid out after deleting the scrub forests and blanks. This resulted in over exploitation so far area was concerned. In many felling series no standards were retained while in others the number of standard was inadequate.

The coppicing in coupe worked by contracted has generally been satisfactory but in the right holders coupe the coppicing has been generally very unsatisfactory. Cultural operations, climber cutting, cleaning and thinning have generally been neglected.

Mr. Prasad's plan was revised by Mr. R. Prasad. This plan covered both the Ex. R.Fs and P.Fs He prescribed the following working Circles :-

Protection working Circle

Coppice working Circle

Bamboo (overlapping) working Circle

Rehabitation working Circle

## Plantation working Circle

The Scheme for working the Khair trees prepared by Sri P. Mishra was adopted without any modification.

The first scheme for exploitation of Khair trees was prepared by Sri P. Mishra, I.F.S. The scheme was in operation till 1967-68. It constituted only two felling series namely, Chatra and Simaria. The felling circle was of 20 years and the exploitation dia was 6" d.b.h. All trees of 6" and up in dia and also pollarded and dead stems of smaller sizes were marked for felling. The yield was regulated by area.

### **KHAIR SCHEME**

The Khair trees of Chatra South Division are till recent past were worked under the scheme for exploitation of khair trees prepared by Sri A. Haidery. IFS. This scheme is in the operation since the year 1968-69. The felling cycle is of 20 year. The exploitation dia as per scheme is 15 cm.(6").

There are four series in place of two F.S. of Mr. Mishra's scheme one each for Lawalong and Simaria Range, one part of Chatra Range and another for piri and balance of Chatra Range. The coupes are sub-divided into several lots depending upon the number of khair trees available in the coupe. The number of trees in each coupe varies widely from years to years.

The above past management shows that the area presently covered by Lawalong Wildlife Sanctuary was exploited heavily for timber, bamboo & khair for katha production. The past management practices do not consider conservation of Wildlife or biodiversity as an important issue and hence nothing has been prescribed for their conservation and for protection of habitat of Wild animals.

#### **3.2.2 Fuel Wood extraction :**

As there are 64 villages situated in the sanctuary area, quite a heavy volume of firewood is collected out of adjoining forests on daily basis. On an average, each family requiring 10 kg of firewood per day or 36.5 quintal per year. Fuel wood is taken away as head load by the villagers. Only dry and fallen wood is allowed to be removed for this purpose. However, villagers often resort to illegal green felling as well for the same. It is very difficult to estimate the actual quantity of firewood removal by the villagers. Firewood, no doubt, is very essential for the local people as it not only provides energy for cooking but also helps them keep warm in winter.

There are many poor families which use fire for the whole night in winter to fight with the cold. The villagers also use firewood for scaring away the animals from their agricultural fields.

Non Wood Forest Products (NWFP) collection : Non wood forest produces like Kendu leaves, Mahua flowers and seeds and Sal seeds were allowed to be collected from the sanctuary area in past. These removals were done through the Government agency. There were thirteen Kendu leaf collection units a decade back, which yielded approximately 20,500 standard bags per year. Good quantity of sal seed also used to be removed every year, though good sal seed year is once in three years. Kendu leaf removal and sal seed removal used to help the villagers to earn livelihood specially during the lean agricultural period of the year. However, this practice has been legally suspended since last few years.

Collection of NWFP from the PA definitely has a negative impact, as it leads to habitat degradation and disturbance causing shortage of food and cover for wild animals. There are many incidences wherein the collection of Mahua flower has led to outbreak of forest fires. Even for the collection of kendu leaf, fire is lit in order to encourage new flush of kendu leaves, which is not in the interest of conservation.

**3.3 Leases :** No Lease of any kind does exist in the sanctuary area.

**3.4 Forest Protection :**

**3.4.1 Legal Status :**

Under section 38 of Indian Forest Act, the management of privately controlled forest of Raja Ramgarh was brought under the control of Bihar state in 1924 to 1943. In the year 1947 the agreement under section 38 of Indian Forest Act 1927 was done and accordingly all the forests of Ramgarh Estate were declared as Private Protected Forests under Bihar private Forest Act, 1947. After the commencement of Land Reform's Act, these forests were notified as protected forests under section 29(3) of Indian Forest Act, vide notification no. C/PF-10171 (52-28R) dated 2<sup>nd</sup> January, 1953.

Notification of the area & Settlement proceedings : The Lawalong Wild Life sanctuary, on account of it's ecological value, was notified by the state Govt. of Bihar vide it's Notification No. S O 1077 Dated 07.08.1978 under Wildlife Protection Act, 1972. A copy of the notification is annexed with this plan for ready reference. The proceedings for final notification under section 19-25 of the said Act is still underway.

**3.4.2. RIGHT & CONCESSIONS**

The former Ramgargh reserves are completely right-free, as against all the other protected forests which are heavily right- burdened. The rights and concessions as recorded in

khatian part II, are being allowed freely, and very liberally. Quite often people have rights in the forests of other villages also. With the passage of the years, since the time rights were allowed and admitted in Khatian part II, the number of right-holders has multiplied on the one hand and the area and density of forest has reduced on the other. The demands of the individual right holders have also increased. The result is that forests are required to support an increasing burden of rights, which is affecting them very adversely.

The existing rights generally entitle the right holders and villagers to free grazing and free timber and firewood. Some villages have customary rights also under which the people are entitled to take the requirements after payment of an annual fee. The right holders are not permitted to sell or barter any forest produce removed in the course of exercise of rights and concessions but the prohibition was very difficult to enforce. In spite of the best efforts of the forest department and very generous and liberal treatment, the right holders did not care for proper cutting in the coupes and used to leave high stumps and pollards. They hardly made any efforts to protect the forest from theft or grazing or fire.

The forest area of Lawalong sanctuary was considered significant for the purpose of protecting, propagating and developing Wildlife due to its ecological, faunal, floral, geomorphological and natural significance. So by exercising the powers conferred by sub-section (I) of section (18) of Wildlife (protection) Act, 1972 (No. 53 of 1972), the Governor of Bihar is pleased to declare the area as the Lawalong Wildlife Sanctuary. After declaration of the sanctuary, the procedure mentioned in section (19) to (25) of Wildlife (protection) Act, 1972, could not be completed till date and hence final notification of sanctuary under section (26) of Wildlife (protection) Act, 1972 could not be done.

### **3.4.3 Hunting :**

Prior to the vesting of the ownership of these forests in the state under the Land Reforms Act 1950, the erstwhile zamindars and hunters from different parts of the country used to come here for hunting, as the area was famous for its high density of wild life population. One of the owners of this area, Tikait of Kunda Estate, used to periodically organize "Shikar" here in a big way. However, since the Govt. take over, hunting was allowed only in a limited way until 1972, when it was completely banned under Wild Life Protection Act, 1972.

### **3.4.4 Poaching and other illegal activities :**

#### **3.4.4.1 Poaching :**

There has been no report of organized poaching for the purpose of trade. However scattered incidents of poaching of herbivores like Sambhar, Cheetal, Wild boar etc., for the purpose of meat by locals have taken place from time to time since 1954. But such incidents are

very rare. In the last 5 years there is no report regarding poaching of Sambhar, Cheetal etc in the Sanctuary area.

#### **3.4.4.2 Illegal cutting of Trees :**

There has been no report of organized illegal cutting of trees for the purpose of trade. However scattered incidents of illicit felling by locals have taken place from time to time.

#### **3.4.4.3 Illegal Removal of NWFPs:**

Non wood forest produces like Kendu leaves, Mahua flowers and seeds and Sal seeds are sometimes collected from the sanctuary area. Apart of this some medicinal plants are also collected from the sanctuary area by the local community.

#### **3.4.4.4 Encroachment and other illegal activities :**

Tendency to encroach upon the forest land of sanctuary area adjacent to the agricultural fields is found in the villagers.

The biotic pressure on the PA due to increasing populations, both human and cattle, in and around the Sanctuary and rampant poverty and unemployment among them result in habitat degradation for the Wildlife. The total number of household within the sanctuary is more than 11- thousand and total population is more than 65- thousand. such huge population with there livestock within the P.A. is not a good sign. for the health of sanctuary. The villagers has tendency to encroachment upon the forest land adjacent to there agricultural field. Beside the demand of poles for their katcha house causes illicit felling.

Due to paucity of fund for staffing patrolling , staffing pattern after creation of Wildlife Division & naxilite activities, the reporting of encroachment cases was almost negligible which is an illusion. The table shows the cases lodged after creation of this Division.

Sl. No.	Financial year	No. of cases for illegal activities			
		Encroachment		Illicit felling	
		No. of cases	Area (acre)	No. of cases	Quantity
1	2003-2004	-	-	-	-
2	2004-2005	-	-	-	-
3	2005-2006	3	0.35	-	-
4	2006-2007	2	0.25	1	pole -55 pieces

#### **3.4.4.5 Domestic Livestock grazing :**

In the best interest of the wildlife, grazing should not be allowed in the Sanctuary. However, in view of the large number of settlements existing in and around the PA, it is impossible to stop the grazing by domestic livestock completely. Therefore in the past, grazing was allowed in the buffer zone only as per the past management plans. An estimated cattle population of about 32,000 including cows, bulls, buffaloes and goats graze the PA every day, causing shortage of food and cover for wild herbivores. On account of this direct competition for pasture, the population of wild herbivores like cheetal, barking deer etc is not increasing. Excessive grazing also causes soil compactness which in turn causes soil erosion, runoff, siltation of water bodies, shortage of water, loss of vegetation etc.

Such habitat degradation due to domestic livestock grazing disturbs the wild fauna and it also spreads contagious diseases to adversely affect the health and population of the whole pyramid of wildlife in the Sanctuary.

#### **3.5 Wild Fires :**

In the past, there have been regular outbreaks of fire in the sanctuary, especially in the buffer zone. They were mostly intentional fires set by villagers for obtaining new flush of grasses for grazing and for the collection of Mahua flower or Sal seed. In addition, visitors cause some times accidental fires by throwing burning cigarette butts or bidi.

These fires naturally go against the conservation values of the sanctuary, as the food and cover base of the wild fauna is destroyed and the soil is exposed to the danger of erosion run off, weed infestation and as such, replacement of natural flora with unnatural and unpalatable species.

Fire lines are seen in some parts of the sanctuary. But, for want of sufficient fund, all the fire lines have not been cleared since last few years. Forest roads also serve as fire lines.

There is no watchtower in the sanctuary, nor is any firewatcher employed for early detection of the fire.

#### **3.6 Insect attacks and pathological problems :**

No documentation exists regarding the pest or disease attacks on flora or on fauna and, therefore, it seems that no preventive or curative measure to this effect has ever been undertaken in the sanctuary.

#### **Wild Life Health :**

No information is available regarding the wildlife health, disease, epidemics, etc. Immunization of domestic livestock in and around the Sanctuary had not been carried out in the past to prevent the spread of contagious diseases from domestic stock to the wild. Nor are there any efforts on the part of animal husbandry department to immunize the cattle and to familiarize the people with symptoms of diseases, to prevent the spread and to facilitate early cure.

The issue of wild life health, as such, has not been given much attention in the past by the Sanctuary authorities. But in last two-three years animal health camps have been arranged in different villages of the sanctuary.

### **3.7 Tourism :**

Since the creation of Lawalong wild life sanctuary in the year 1978, no regular planning has been done to promote tourism in this area. Though there is a lot of tourism potential in this sanctuary, this aspect has never been taken care of. There is only one forest rest house in this area which is located at Lawalong, that can provide accommodation to the officers as well as the visitors. There is a road from Lawalong which links the sanctuary to Betla National Park, Daltonganj. Presently due to the bad law and order situation in an around the sanctuary area there is no tourism activity.

To spread nature education among the visitors, signboards displaying slogans, information and graphics on conservation needs to be placed at different places inside the Sanctuary on both sides of roads. An enclosure with chain link fence all round, over an area of minium 10 ha. needs to be established. This enclosure, besides encouraging Eco-tourism, also helps in captive breeding as well as sheltering the rescued animals.

### **3.8 Research, Monitoring and Training :**

#### **3.8.1 Research & Monitoring :**

Not much information is available regarding the conducting of research and monitoring related either to forestry or wild life during private management of the Lawalong forests. For preparing previous management plans by the Forest Department, however, floral and faunal surveys were conducted and documented. Census of wild animals has been routinely carried out since then. Similarly, it has been a routine practice for the staff to petrol the sanctuary area to detect offences involving encroachment, illicit felling etc. and to make observations regarding the existence and movement of wild animals by direct sighting or through indirect means such as pallets, pugmarks, foot prints, hair, scratches or bark etc. Observations are also made from time to time on changes in habitat, availability of water in streams/water holes, occurrence of fires etc. But the important point to be mentioned here is that rarely are these observations documented.

### **3.8.2 Training :**

Not much information is available regarding training of personnel either by means of on the job training or by formal training courses related to wildlife. A wild life training school existed in the past in the late eighties at Pokhariya (Hazaribagh District) in which a 9-month training course was conducted for a few guards in 1989. Besides this, there is no other instance of any form of training. However, all the staff are given training in forestry and administration at the beginning of their service and in service training courses for a short period of about two weeks or so are also conducted now and then for general forestry and administration. However, from the overall perspective, it can be said that the training given to staff is too inadequate and unplanned to equip them with required skills for better management of the Wild Life Sanctuary.

### **3.9 Wild Life Conservation strategies and their evaluation :**

The area was declared as wild life sanctuary by the state Govt. in the year 1978. Since then it has been managed with the help of management plans and adhoc management schemes. But most of the strategies suggested therein remained unimplemented due to insufficient fund allocation, administrative support and lately insurgency problem.

No long-term effort has been undertaken till now to improve the water management viz. desiltation of natural sources and creation of new water sources. Fire management also remains neglected as existing firelines have not been cleared since long. No watch tower or fire extinguishing equipment is available. Other infrastructural requirements of the sanctuary management too remained unattended.

However, in spite of all the above genuine efforts, the objectives set have rarely been achieved. Habitat degradation continues to take place and there has been a significant decrease in wild animal populations. More and more offences have been taking place year after year in the PA. All this is mainly due to the following factors:

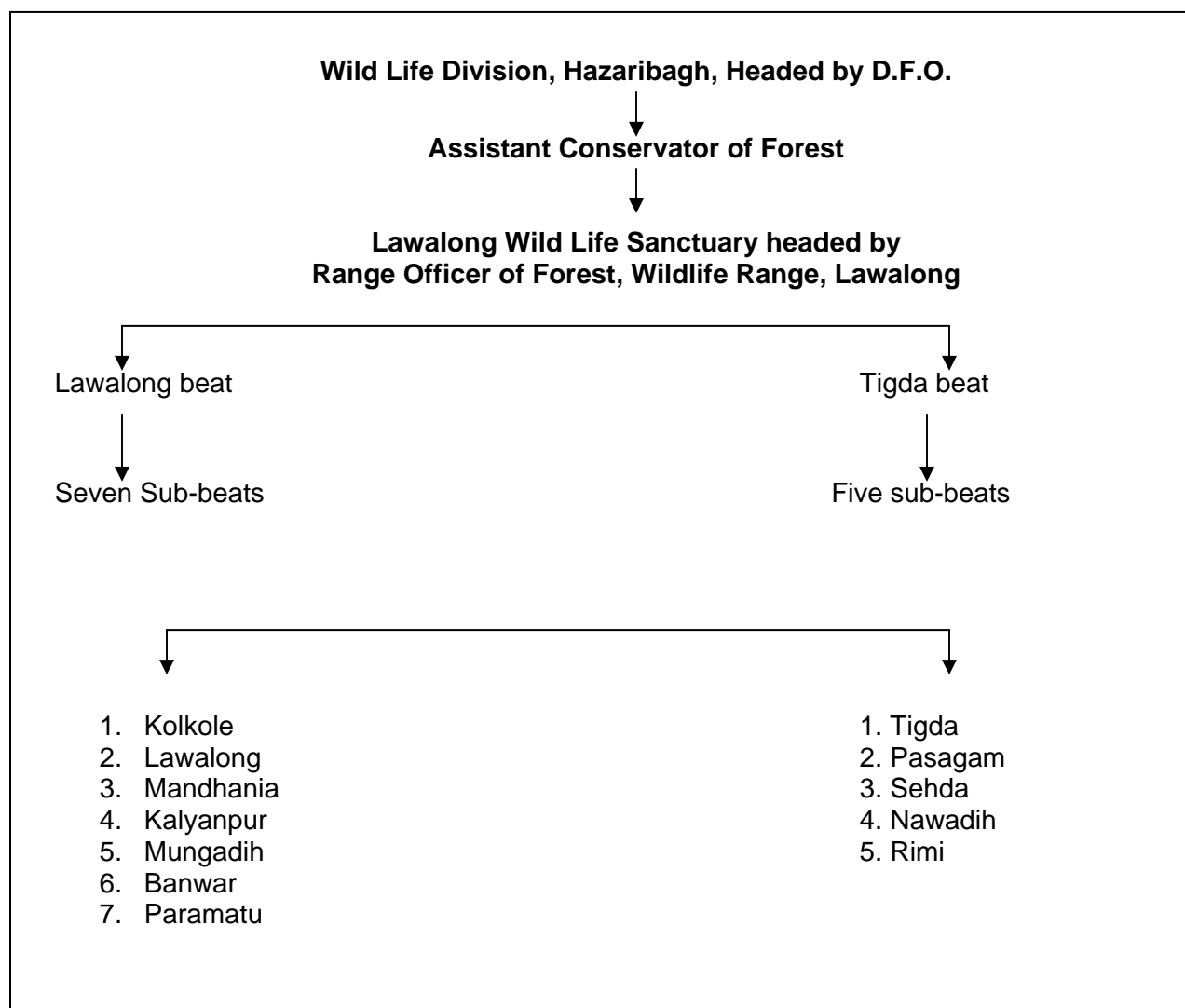
- (i) Ever increasing population both human and cattle and their increased dependence on PA in view of the lack of alternative employment opportunities
- (ii) Inadequate funding and apathy on part of the state government, that resulted in non-implementation or inadequate implementation of management plans/schemes by the Sanctuary authorities
- (iii) Inadequate no. of trained and efficient staff
- (iv) Extremist infestation of many areas of the PA, of late, has also curtailed the movement of staff, leaving those areas virtually unprotected

- (v) Lack of communication facilities like vehicles, wireless network etc.

### 3.10. Administrative setup :

Structural and functional Hierachy : The Lawalong sanctuary is presently managed as a Range of the Wild Life Division, Hazaribagh headed by Divisional Forest Officer (DFO). A Range Officer of Forests (ROF) is in-charge of the sanctuary. Its total area has been divided into beats, each under the charge of a Forester. These beats have been further subdivided into sub-beats, each under the charge of a forest guard.

#### Existing administrative setup



**Staffing and staff quarters :**

Out of the total no. of sanctioned posts, many remain vacant at present. There are not even sufficient no. of quarters for the staff. The following table will illustrate the above facts :

Sl. No.	Name of Post	No. of sanctioned Posts	No. of Staff posted	Vacancy
1	ROF	01	01	00
2	Forester	02	01	01
3	Forest Guard	12	02	10

**3.11 Staffing and staff quarters:**

Though on paper sufficient number of posts exists for the PA, many vacancies have remained unfilled. There is not even sufficient number of quarters for the staff.

The following table will illustrate the above facts.

S.N.	Post	Required strength	Sanctioned strength	Present Working	No. of house available
1	Range Officer of Forest	1	1	1	1
2	Forester	2	1	1	1
3	Forest Guard	12	12	2	2
4	Naka Guard	2	0	0	Nil
5	Wireless Operator	1	0	0	Nil
6	Range Clerks	1	0	0	Nil
7	Driver	1	0	0	Nil
8	Peon	1	0	0	Nil
9	Bangla Choukidar	1	0	0	Nil

**3.12 Communication :**

The Gaya-Ranchi state high way passes through the eastern fringes of the Lawalong sanctuary. Hazaribagh-Simaria-Bagra Mor P.W.D. Road leads to Lawalong, where the Beat office of Lawalong Beat of Wild Life Sanctuary is situated. The buses for Lawalong and Kunda ply on these roads and halts at important places like Lutidih, Bagra Mor etc. Road connecting Gaya-Ranchi state high way leads to Lawalong and passes through the sanctuary area connecting Loharsi to Daltonganj road.

Most of the Kachcha forest roads inside the sanctuary area are in bad shape. Some roads has been recently repaired. A list of the forest roads falling within the sanctuary area is given in the annexure.

The staffs of the sanctuary have not been provided with any vehicle for the purpose of administration. In last two years only three motorcycles have been purchased for the staff working in the sanctuary area. Similarly, no telephone or wireless network is available there. This coupled with lack of vehicles have been greatly responsible for inadequacies in protection and management of this wild life sanctuary.

### 3.12.1. The status of availability of equipment in Lawalong Wildlife Sanctuary.

The following tables illustrate the status as regards the availability of essential equipment and literature that a PA is supposed to have.

S.N.	Type of Equipment	Available	Working
1	Wireless sets (fixed)	Nil	Nil
2	Wireless sets (Mobile vehicle)	Nil	Nil
3	Wireless sets (Hand held)	Nil	Nil
4	Rifles/Guns	Nil	Nil
5	Binoculars	Nil	Nil
6.	Radio tracking equipment	Nil	Nil
7	Darting equipment	Nil	Nil
8	Infrared viewers/Night scopes	Nil	Nil
9	Tents	Nil	Nil
10	Telephone	Nil	Nil
11	Computer	Nil	Nil
12	Digital Camera	2	2
13	Moving Camera (Handy cam)	Nil	Nil
14	Slide projector	Nil	Nil
15	T.V.	Nil	Nil
16	V.C.R.	Nil	Nil



12	Vehicles for tourists	×	×	×	×	×	×	×	×
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### 3.13. Summary of Threats to wildlife in sanctuary area.

In the present context the main threats for the wildlife of the PA are as follows.

1. Ever intensifying biotic pressure on the PA due to increasing populations, both human and cattle, in and around the Sanctuary and rampant poverty and unemployment among them result in habitat degradation for the Wildlife. The total number of household within the sanctuary is more than 11- thousand and total population is more than 65- thousand. such huge population with there livestock within the P.A. is not a good sign. for the health of sanctuary. So the villages in core area needs to be relocated on degraded forest land outside P.A./ Forest land prone to encroachment or on G.M. land to reduce the dependencies of people on sanctuary.
2. Shortage of food, cover and water base of wild fauna. The entire sanctuary area including core zone is being heavily grazed by domestic cattles. Right of grazing in sanctuary area has adversely affected the available fodder resource for the wild life. Although there is no right exists in ex-reserve forest of 19 villages yet the incidence of grazing is common feature every where. So right need to be settled soon with alternative arrangement for villagers.
3. **Illicit felling & fuel wood collection:** The illicit felling by villagers residing in core as well as buffer zone for there requirement and for selling the same in the local market at Chatra, Pratappur & Kunda poses a great threat to the sanctuary. The hundreds of head loads are being collected by womens residing inside forest or in fringe villages
4. **Availability of water:** The water becomes an important threat to wild animals immediately after march. The condition remains same up to July. During this period water is localized at few places. Sometimes it leads to death of wild animals due to thirst or makes it vulnerable to poaching.

Such condition has arised due to siltation of all streams which has reduced their water holding capacity. Almost all old check dams have been either fully silted or damaged.
5. **Fire:** Since ages the area of the park have been subjected to annual fire which are mostly man made. These fires adversely affect the ground flora and the vegetation of this area.

Besides valuable soil moisture; nesting sites of innumerable birds & insects, several palatable species of grasses are lost due to fire. The total incidence of the fire in sanctuary area during last 5 years is being annexed.

6. **Encroachment:** The location of sanctuary near Chatra, Pratappur & Kunda makes it vulnerable to encroachment. The park particularly on the boundaries are always under threat of encroachment by the people of fringe village. In recent past due to paucity for funds patrolling and lack of staff, the extent of encroachment could not be ascertained.
7. **Poaching:** This park harbours some of the endangered species like Leopard, Sambhar, Wild boar, bear, cheetal, barking deer, etc. The animal and their product have a very high commercial value. So poaching and man-animal conflict is a real threat to this park.
2. **Lack of barriers:** Gradually many temporary kutchha roads has developed. Such roads are being used by unauthorized persons for collection & transportation of illicitly felled timber or fuel wood by bullock carts. Lack of unmanned barriers has intensified this problem
3. Inadequate manpower despite sanctioned strength and lack of proper training for management related issues.
4. Lack of infrastructures like vehicles, equipments, wireless network, watch towers, fire fighting equipments etc.
5. Presence of extremist in most parts of the Sanctuary is another important factor, that restricts free movement of staff in the Sanctuary for the fear of kidnapping and killing, leaving those areas unguarded and unmanaged.
- 12 **Wild Life Disease :** The occurrence of 64 villages with huge no. of cattle population within sanctuary area and on fringes pose threat of disease like foot & mouth, anthrax, rinderpest, canine distemper rabies etc. An outbreak of epidemic of any of the disease can wipe out the entire population of a species.

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## CHAPTER - IV

### THE PROTECTED AREA AND INTERFACE LANDUSE SITUATION

#### 4.1 The Existing situation in the zone of Influence:

##### 4.1.1 The location, extent, boundaries and natural attributes of the ZI:

There are altogether 64 Protect forests inside the sanctuary area. But the zone of influence of the PA is wide spread around the boundaries of the PA. Altogether 86 villages including of Pratappur, Chatra, Simaria, Balumath, Panki and Manatu thanas has been included in the zone of influence. Zone of influence can be seen in the map attached with this plan. Thanawise number of villages in the zone of influence is given below

Sl no.	Forest division	Thana	No. Of villages	Name of villages
1	Chatra North F.Div.	Pratappur	27	Tuthi Bargaon, Gendra, Durgi, Margora, Kutil, Jobia, Hesatu, Bariatu, Patamdohar, Pijni, Barudih, Madarpur, Nawadih, Bisunpur, Bajrahi, Kasilong, Lawalong, Bhurha, Chaya, Pinja, Bodhadih, Baera, Barnan, Kamil, Dunru, Daniadih,
2	Chatra South F.Div.	Chatra	4	Lutu, Sijhua, Tilaia, Kadle,
3	Chatra South F.Div.	Simaria	21	Bandaru, Lutusinga, Khangara, Tunon, Mali, Katia, Potam, Jojabari, Konchi, Bahagara, Sons, Ori, Banchatra, Karma, Anagara, Chandanpur, Ratnag, Sarhachia, Barwadih, Akouna, (Thana No.-78)
4	Latehar F.Div.	Balumath	16	Haranhopa, Dahdiria, Balumath, Gurbe, Gulom, Sirisandhia, Endua, Karapur,

				Chatnon, Salaia, Dhawabar, Kacha, Mari, Katoria, Harhanj, Echak.
5	Daltanganj N.F.Div.	Panki	6	Kakrwatari, Maranga, Jolhabigha, Satrum, Duintrika, (Thana No.-554)
6	Daltanganj N.F.Div.	Manatu	12	Amatanr, Teldiha, Khakhokhar, Garodih, Gargosa, Baloha, Balda, Titlaga, Hesatu, Loharsi, Geri, Ruhinanr.

#### **4.1.1.1 Eco- fragile zone:**

As per the guidelines of Govt. of India, a separate proposal for eco- fragile zone is under preparation. This zone extends maximum upto 10 Km. from sanctuary boundary. Within such zone proliferation of mining, crusher, hotels roads etc will be controlled. Increase in such activity 10km distance of Sanctuary Boundary will require approval of monitoring committee.

#### **4.1.2 Villages inside and outside of P.A., ethnic identities, traditions, customs, relationship between distinct groups of people, relationship with forest:**

There are 64 villages within the Sanctuary with total human population of about 65,000. People living in these villages belong to different religions- Hinduism, Islam and Christianity and castes or tribes like Ganjhu, Yadav, Mahato, Kurmi, Rajput, Santhal, Ho, Orano etc. these groups of people co-exist together forming heterogeneous society and generally have cordial relations among themselves. The demographic details and land details are being annexed.

Within the family, while men do the agricultural operations like ploughing, harrowing etc or go for outside jobs mostly as laborers; women do works like transplantation, collection of fuel wood and other forest produces from near by forest, making of brooms, mats or basket, milking of cattle etc., besides their usual household chores like cooking, child rearing, washing cloths etc.

Being unable to meet their basic needs by low productivity farming due to thin soil cover, fragmented farm lands and scarce water resources; the villagers have to partially depend on forests for firewood, cattle feeding and also a bit of direct income generation for their livelihood.

#### **4.1.3 The state of the people's economy. Vocation, landuse, use of forest and non-forest based natural resources by people and seasonal pattern :**

The economy of the surrounding villages is primarily agrarian as the villager's main source of living is farming, cattle rearing etc. They are mostly small or marginal farmers and agricultural laborers, as the land holdings are very small due to sub-division and fragmentation

on account of increasing population. Agriculture is mostly monsoon based and therefore, only one crop is annually feasible during rainy season. Productivity is very low as traditional and subsistence farming is practiced without much use of high yielding varieties, fertilizers, insecticides/pesticides, mechanization etc. Besides agriculture, villagers also work as labourers construction, brick making, mining sectors etc. Other occupations of the villagers include making of baskets, brooms, and mats from raw materials brought from forest and selling them in the nearby markets. Some collect herbs, which is abundantly available in this forest, and sell them in Chatra. Few of the villagers do small utility trades and fewer still are permanently employed in private and public sector jobs. Level of education in these villages is too low and, therefore, the villagers are mostly unskilled for alternative employment opportunities, which make most of them dependent on the immediate forest for subsistence.

#### **4.1.4 Implications of the land use and resource dependency for the conservation of the Sanctuary :**

The dependency of villagers on the Sanctuary has resulted in its degradation, especially near the villages. Thick forest growth has been replaced by bushes and routed waste and palatable grass species have been replaced by unpalatable species and weeds especially in the foot-hill area. As such, shortage of food, cover and water base has occurred for wild fauna of the Sanctuary. Soil erosion and runoff causes excessive siltation of water bodies. Illicit felling are increasing year after year. On top of that, by way of grazing within the Sanctuary, infected cattle transmit contagious diseases among the wild herbivores. All these have posed serious threat to the wild life conservation in the Sanctuary.

#### **4.1.5 Forest/PA management practices and their implications for people:**

Declaration of Wild Life Sanctuary and its management practices have reciprocal implications for people living in and around this area, as their rights have been seriously curtailed. As a result, they have little choice but to depend on the Wild Life Sanctuary by illegal means. As the wildlife habitat is shrinking year after year, wild animals are also forced to come out of their wilderness and cause damage and destruction to life and property of the villagers. For example, leopards, and wild dogs have killed cattle. Their agriculture crops are often damaged by some of the wild herbivores. Their employment in forestry operations was also affected in the past, as normal forestry operations like working, tending etc. were stopped in the Wild Life Sanctuary. At present, there is no working even in the areas outside the PA, as there is ban on green felling.

## **4.2 The Development Programmes and Conservation Issues:**

### **4.2.1 An evaluation of Govt. and Non Govt. agency programs for development. Implications for PA, people and the ZI:**

Rural development programmes like Indira Awas Yojana, NREGA, etc. are under implementation by the district administration in these areas. These developmental programmes have definitely helped the villagers to some extent, as roads are laid, some buildings are constructed for the homeless, drinking water supply through bore wells, wells etc are provided at some places. However, as in any other part of India, these programmes and measures of the government have not been able to solve the rural problems completely, due to many socio-economic and attitudinal reasons. Some NGOs and voluntary organizations also operate in the area and help the unemployed villagers in having alternative vocations like bee keeping, sewing, mushroom cultivation, embroidery etc. by arranging training, finance, marketing assistances etc. In spite of all this, the issues of poverty, unemployment etc remain alive in the area and villagers continue to deplete the PA and its surrounds.

### **4.2.2 The interplay of market forces and their impact on the subsistence economy of the local people:**

Market forces are attracted only to the regions from where they can derive profit by way of buying and/or selling some goods and services. But the villages in and around the PA are beset with low productivity farming and animal husbandry. Even forest produces having some market demand can't be legally collected by them. The average income level of the villagers, therefore, is too low. As such, for want of either sufficient productivity or purchasing power, market players have shown least of interest in these areas by now.

### **4.2.3 A summary of problems faced by people that affect the management of the PA and the ZI:**

The main problems of the villagers could be summarized as under:

1. Increasing population-both human and cattle.
2. Traditional and subsistence farming and limited small sized holdings.
3. Lack of education and consequent unskilledness.
4. Lack of basic civic amenities in the villages like drinking water supply, sanitation, roads, electricity etc.
5. Depleting natural resources – land, water, forest etc.

6. Lack of irrigation facilities leading to low productivity of agricultural land.

All the above problems have adverse impact on the conservation and, therefore, should be addressed with high priority to the extent possible, so that the remaining shrinking forests and the wild life therein could be saved for the posterity. Of late, forest department has adopted joint forest management as a tool for managing the forests. In this management approach forest department and villagers work for mutual betterment through co-operation and collaboration, being sensitive to each other problems and aspirations. Eco-development committees have been formed in many villages in the sanctuary area. Similarly outside the sanctuary areas village forest committees have been formed in many villages.