CHAPTER-III

STUDY AREA
LOCATION

As one of the nine Tiger Reserve in India, the Kanha Tiger Reserve represents the high potential Tiger habitat of the Central Indian Highlands region. These highlands constituted by the Vindhyas in the north and by the Satpuras in the south with mighty Narmada meandering through them, extend from east to west some 500 km across the state of Madhya Pradesh. They have some of the best and also the least molested Indian Forests, the sylvan cover stretching in a near continuous belt formed by large compact blocks interconnected by wooded corridors. In the eastern region of the Satpuras, cradled in the Maikal chain of hills lies the Kanha Tiger Reserve, Kanha Tiger Reserve falls in the Balaghat and Mandla districts of Madhya Pradesh. The Reserve is located on the following longitudes and latitudes:

<table>
<thead>
<tr>
<th>LONGITUDE</th>
<th>80° – 26’ – 10” to 81° – 4’ – 40”</th>
</tr>
</thead>
<tbody>
<tr>
<td>LATITUDE</td>
<td>22° – 1’ – 5” to 22° – 27’ – 48”</td>
</tr>
</tbody>
</table>

Youthful Banjar and curvaceous Halon along with a host of turbulent tributaries breaking through the Maikal gorges and meandering amid the rolling grasslands interspersed with groves of stately Sal in the valleys at different levels, bestow upon Kanha a delightful setting, which is happily accentuated by the multitude of captivating deer’s and antelopes, the savage beauty of the gaur, and the awesome majesty of the striped and the rosette beasts.

The Protected Area is comprised of two divisions, namely the Core zone (National Park) and the Buffer zone (Multiple use area). The area of the core
zone is 940 sq km and that of the Buffer zone is 1009 sq km, adding up to 1949 sq km as the total area of Kanha Tiger Reserve.

<table>
<thead>
<tr>
<th>ZONATION</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone</td>
<td>Area</td>
<td>Status</td>
<td>Control</td>
</tr>
<tr>
<td></td>
<td>(in sq km)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core Area</td>
<td>940</td>
<td>National Park</td>
<td>Kanha Tiger Reserve</td>
</tr>
<tr>
<td>Buffer Area</td>
<td>1009</td>
<td>Multiple use area</td>
<td>Kanha Tiger Reserve</td>
</tr>
<tr>
<td>Total Area</td>
<td>1949</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

District – Wise Breakup

Core zone
(Kanha Tiger Reserve)

<table>
<thead>
<tr>
<th>District</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandla District (Kanha &amp; Kisli Range)</td>
<td>409.825 sq km</td>
</tr>
<tr>
<td>Balaghat District (Mukki, Bhaisanghat &amp; Supkhar Range)</td>
<td>530.122 sq km</td>
</tr>
<tr>
<td>Total Core Area</td>
<td>939.947 sq km</td>
</tr>
</tbody>
</table>
FIG: 2. KANHA TIGER RESERVE (CORE AND BUFFER)
Buffer Zone
(Multiple Use Area)

<table>
<thead>
<tr>
<th></th>
<th>Reserve Forest area (in ha.)</th>
<th>Un-demarcated Forest Area (Orange Area)</th>
<th>Reserve Area (in ha.)</th>
<th>Total Area (in ha.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandla District</td>
<td>18473.520</td>
<td>3612.997</td>
<td>18486.010</td>
<td>40572.527</td>
</tr>
<tr>
<td>Balaghat District</td>
<td>27528.388</td>
<td>-</td>
<td>32869.480</td>
<td>60397.868</td>
</tr>
<tr>
<td>Grand Total</td>
<td>46001.908</td>
<td>3612.997</td>
<td>51355.490</td>
<td>100970.395</td>
</tr>
</tbody>
</table>

BRIEF HISTORY OF CONSERVATION

Kanha has an old conservation history. The name is derived after the name of a small forest village “Kanha” which still exists in the park. It is said that in ancient times, the enlightened saint “Kanva” had his ashram (preaching school) in this area. There is a legendary tank ‘Shravan Tal’, which reminds the mythological event of ‘Shravan’ who was mistakenly killed by king ‘Dashrath’ who came for hunting in the area. King ‘Dashrath’ shot sound monitored arrow from his perch on nearby hillock ‘Macha Dongar’ as ‘Shravan’ was filling water in his pitcher from the tank for his blind parents on pilgrimage. So, it can be believed that Kanha Tiger Reserve has been rich in wildlife since times immemorial.

Kumar, (1990) and Dwivedi, (1990) have mentioned that during the 17th century the plateau region of the Satpura was ruled by the Gond dynasty. The
progress of this dynasty resulted in clearing of large extents of forests for
cultivation and inhabitation. This dwindling of forest continued and witnessed the
transfer of power to the Marathas and later on in the year 1818 the vast area
came under the British administration. The early British administration also
exploited the forests for commercial purposes. The forests comprising the
Reserve have always been famous for their variety and abundance of wild
animals and birds. Forsyth's 'Highlands of Central India' give a graphic account
of the richness of the Banjar valley comprising the Reserve's western half.
Brander, (1923), who came to Banjar valley for the first time in 1902-3, revisited
the area in 1919-20. Describing his impressions of the change he says, "The
place was still full of game, but the glory had departed from Israel, and there was
no comparison with the earlier years". Such decline was apparent even in the
beginning of the century all over the state, in fact more so in other areas, owing
to the progressive clearance of forests for cultivation and ravage due to mounting
cattle populations, besides poaching. The State Government become concerned
with this situation and in order to give protection to the rich area now comprising
the Reserve, constituted in 1933 an area of 233 sq km from Banjar valley and in
1935 an area of over 300 sq km from Halon valley, into Sanctuaries Nath, (1967).
However, the set-back to the regeneration of valuable Sal owing to high deer
populations in the Banjar valley and the damage to agricultural crops from deer
and to cattle from predators in the Halon valley, caused in a few years the former
Sanctuary to shrink and the latter to be altogether disbanded. The sanctuary in
the Banjar valley area around Kanha maintained its status but its sanctity
fluctuated on forestry considerations and up to 250 deer females were shot every year to reduce damage to Sal regeneration. By and large, however, this remained a fairly well protected sanctuary until the late forties when its sanctity was seriously undermined. Between 1947 and 1951 a privileged hunting permit for tigers was given within the sanctuary and in the surrounding area. Under this permit 30 Tigers were shot during this period. This tragedy gives an idea of the rich wildlife status of the area as obtained just 50 years ago. Ironically it needed this reckless ravage to again focus the attention on the need for protection of this unique area, and in 1952 an absolute sanctuary was reconstituted with an area of 252 sq km. In 1955 this sanctuary was elevated to the status of a National Park under special status and given the name of Kanha Tiger Reserve. Since then the conservation effort in the Park continued to be intensified. In 1959 all forestry operations within the Park were given up. Two expansions in the area-by 65.4 sq km in 1964 and by 128.2 sq km in 1970 – extended the Park to 446 sq km. Forestry operations were stopped in the new area also on inclusion into the Park. In 1969 a village was relocated outside the Park and grazing was stopped over most of the area. Simultaneously an intensive programme for the saving of the threatened subspecies of Barasingha (Cervus duvauceli branden) was launched. In 1972 a full-fledged Division was constituted for the development and management of the Park, with considerable additional protection staff.

Under the Project Tiger in 1974 an area of 489 sq km adjacent to the Kanha National Park was taken up from the Halon valley and from the surrounding areas in Banjar valley. This was constituted into a sanctuary under
the Wildlife Protection Act, 1972 and given the name of Supkhar Sanctuary, which together with the Kanha National Park constituted into a Game Reserve under the Act. Impressed by the gains in the habitat condition as here in the area of the Supkhar Sanctuary by the reamelioratory works under the Project Tiger, and in consideration of the fact that the Halon valley and the Banjar valley were but integral parts of a single eco-unit, the State Government was continued that in order to ensure the uniformity on a long term basis, the statuary and management status of these two parts of the core of the Reserve should be identical. Accordingly on 1st October 1976, the Supkhar Sanctuary was merged into the Kanha National Park by a statutory notification under the Wildlife protection Act, 1972. Thus the entire core area of 940 sq km of the Reserve now has a legal status of a national park.

Sonph was the first village to be relocated in 1969. Later on management plan prescribed other existing villages for shifting and relocation from the core area Panwar, (1973). Up to 1981, 22 out of 46 villages were relocated from the reserve area Panwar, (1973). Thus all this arable lands could be converted into ideal wildlife habitat. As reflected from the history, the Kanha forests have been the key place in natural history of Central India in general and for wildlife in particular. Famous naturalists Rudyard Kipling also presented a vivid account of this area in their book "Jungle Books" respectively.
PRESENT MANAGEMENT

Under the Project Tiger in 1974, considering the potential of wildlife in the Kanha Tiger Reserve, declared about 940 sq km. All the rules and regulations as envisaged in the Indian Wildlife Protection Act, 1972, were enforced for the proper management of this game reserve (Panwar, 1979). Under proper protection and effective management, the above area gradually developed into a good wildlife refuge. Thereafter considering its sound ecological conditions, as envisaged for the management of a national park, no forestry operations are carried out in the Kanha Tiger Reserve. Grazing by domestic stock is also prohibited there. The Kanha Tiger Reserve has been under forest management, which is of course planned to cause as little disturbance to wildlife as possible. Unlike in a national park, grazing by domestic stock is permitted in the sanctuary area and restrictions are observed only in case of "Closed coupes".

BASIC WILDLIFE MANAGEMENT PRACTICES

Fire Protection

The disastrous effect of fire on wildlife habitat is well known. Only man made fires, both accidental and intentional, occur in the study area. The fire season sets in around the late February when most of the ground flora has turned dry and the ground is covered by litter, which adds to the inflammability. Apart from fire-line cutting and burning during the late winter, firewatchers constantly patrol the area and every effort is made to put out fires as soon as possible.
**Waterhole Management**

During the pinch period, the water in the study area is restricted to only a few perennial water bodies. Temporary waterholes are frequently dug up in order to maintain an equal distribution of water throughout the study area.

**Habitat Improvement**

Weeds are aggressive colonizers, which spread very rapidly, out competing other plant species Sale and Berk Muller, (1988). *Lantana camara, Butea monosperma* and *Lagerstroemia parviflora* a prickly weed, grow in very dense patches in some parts of the study area, suppressing the palatable grasses and obstructing the movements of wild herbivores. Under habitat improvement practices the *Lantana* bushes along with some other weeds such as *Xanthium strumarium* are uprooted in the month of August and September and later burnt.

**Artificial Saltlicks and Supplementary Food**

To attract wild ungulates, the placement of saltlicks is a common practice. Sometimes dairy salt blocks along with common salt is thoroughly mixed with clean earth and placed near waterholes of field in small trenches. During the pinch period, supplementary food like Mahua, Gram etc. is spreading near the waterholes frequently visited by wild ungulates.
Wood Poaching

The reserve lies in an interior forest area and the demands of the people on wood are reasonably met with from the forests near their villages. Thus no significant cases of wood poaching have occurred.

Grazing

Grazing by all out side cattle has been stopped and all the cattle camps have also been moved out. 20 villages have been relocated from the core and this has also further reduced the incidence. The combined result of all these restricting steps has been reduction in grazing incidence by about 25,000 heads.

Human Interference

With the protection staff having increased, anti poaching patrolling has been intensified. This has drastically reduced the entries and movements for villagers for honey and fruit collections, fishing etc.

Poaching

The state of Madhya Pradesh was the first to impose a total ban of hunting of tigers since 1970 and hunting of all types except pigs and ducks since 1971. Special efforts have been made at anti poaching in the Kanha Tiger Reserve and these have proved generally effective.

Biogeographic Locations

Kanha Tiger Reserve is a part of Indo Malayan Realm floristically and a member of oriental Region Zoo geographically. According to the biogeographic classification of the Wildlife Institute of India Rodgers and Panwar, (1988), it lies in zone 6E-Deccan Peninsula – Central Highlands. The shape of the park forms
figure of 8 east to west. It is about 80 km in length and 8 to 35 km in width with a chicken's neck dividing eastern and western parts of the park.

**Geology and Rock**

The geology of the area and field observation has been described by Nath, (1967). The main geological formation in study area is Deccan trap, occurring along with gneiss and crystalline schist's in the western part, and basaltic volcanic overflows in the eastern part of the Tiger Reserve, which was formed by the lava flows at the end of Cretaceous period. The lava erupted is chiefly flood basalt with intercalations of inter-trappings comprising volcanic tuffs, ashes and some sedimentary beds known as Inter-trappean beds. The out crops of granite, limestones and schist appear in some places on the hills and nullah's Nath, (1967). The basement rocks are completely folded and faulted between Kanha and Kisli Roy and Jugran, (1986). Several geological formations occur in the area comprised by the Park.

Deccan trap formation extends in Kanha and Mukki ranges along the long inter district ridges of Mandla and Balaghat districts. The texture of the rock is of homogenous crystalline variety. The topography of the formation is characterized by flat-topped hills and step like terraces.

Laterite is formed on the plateau region (locally called "dadar") on the trap. Laterite is a kind of vesicular clayey rock found frequently as a cap over the Deccan trap, formed as a result of leaching. It is chiefly composed of a mixture of hydrated oxide of aluminum, iron and sometimes manganese. The characteristic red colour is due to ferric compounds it contains. It is found in varying degrees of
disintegration from hard rock to fine gravel. It has become highly aluminous and carries rich bauxite.

Gneiss and crystalline schist's rocks occupy the largest area of Banjar river valley in the park. Granitic gneiss occurs exposed in plain areas. The chief rock is mica schist's, occasionally granitiferous or rich in hornblende with highly inclined cleavage planes. Mica is abundant in most of the areas. Best Sal forest occurs on this formation.

Lametas appear as a narrow bank of variable thickness and under lie trap rocks. It consists of silicified limestone. It appears in thin narrow discontinuous bands often forming a plateform below the steep trap slopes of some hills such as to the east of Dhaniajhor village.

**Terrain**

Terrain types have been identified according to the method described by Parihar and Kotwal, (1984) and using topographic maps of Survey of India on 1:50000 scales. Terrain is an important feature of wildlife habitat, which affects the animals directly, and indirectly through change in vegetation and other physical conditions of habitat. The wild sheep (Blue sheep, *Pseudois nayaur*), the wild goat (Himalayan thar, *Hemitragus jemlalicus*), the goat antelopes (Goral, *Nemorhaedus goral*) inhabit hilly rugged terrain in Himalayas. They got over the steepest hill sides with remarkable ease Prater, (1971).

Among the common animals of Kanha, the Barasingha prefer almost plain country. The spotted deer and wild pig also prefers similar topographic conditions but can also live in gently undulating conditions owing to their untenacious habits.
Sambar, barking deer, and gaur live in relatively hilly terrain. The Chowsingha and Nilgai prefer to live on plateau. Thus topography is an important habitat factor, which affects the distribution of animals. The topography of the park is quite undulating and consists of a rugged tangled mass of flat-topped hills and ridges enclosing valleys. Elevation varies from 450 m to 950 m above mean sea level. As such, the hills do not show a regular pattern. However the ridge system runs E-W producing spurs, which are generally projected, to the north. In broad morphological analogy it resembles an English letter “Y”.

**Soil**

The soil types of the park are described according to Singh (1986), which is based on the new system of soil classification contained in Soil Taxonomy. The soil is an important habitat parameter, which influence the vegetation and animal populations. Vegetation types, their distribution and nutritional values are greatly influenced by soil type in the area. A good fertile soil would harbor lush green vegetation, which in turn supports the animal populations. There are various types of soils in the park under different stages of development. The climatic parameters form an essential input in soil classification at various levels. The soil types in various areas depend upon the parent rock and terrain. These are described below:

**Black Cotton Soil**

This is obtained from weathering of trap rachis and collects in the low-lying areas beneath the hills formed by Deccan trap. These soils are highly clayey in character and are not conducive to tree growth. They however support excellent
grasslands. These are common in the low-lying areas of Bhaisanghat and Supkhar ranges and also in pockets in Mukki and Kanha ranges. These are extremely favorable to wild animals because of their fodder value.

Alluvium

This occurs on the banks of all major streams and is mostly a collection of fine-silt. It is extremely favorable to Sal, which attains best growth on them in Supkhar, Garhi, Mukki and Kanha ranges. In wide valleys e.g. the Kanha valley traversed by a number of streams, extensive areas come under this type. Such areas are favored sites for village settlements because of good soil and perennial water being available. Abandoned cultivated areas in such a tract develop into excellent pastures for wild herbivores as in most of Kanha maidans and most recently Sonph meadow in Kanha range. Many old forest villages, now relocated outside, were earlier situated in these areas.

Sahara

These are also alluvial in character but contain greater part of sand including some coarse sand and gravel. These occur in the upper peripheries of valleys and lower slopes and support good tree growth if moisture regime is favourable. These are found in most of the area occupied by gneisses and crystalline schists in Banjar valley. They support mixed forests, and where soil depth is good, quality of forest improves and bamboo predominates. Water holes in these areas are scarce but the fodder value on account of bamboo and regeneration of several tree species is quite high.
Barra

Large expanses of Barra soils are found on flat extensive dadars. These are good soils and support grasses, the tree cover usually being thin and scanty. The water holes, which exist nearby, offer good habitat for wildlife. At any rate except during summer they are favored abodes for Gaur.

The soil of the park is governed to a large extent by variation in slope angles and is erosive. Erosion is mostly geological. There are evidences of past degradation; attention should be given for soil and water management on a watershed basis Chakraborti (1985). Control of runoff shall not only reduce sediment losses but shall built as moisture regime, which greatly control forested areas and improve grassland yields.

Climate

The data for temperature, relative humidity and rainfall were collected from the meteorological observatory stationed at Kanha area: and the Temperature, Relative humidity and rainfall so greatly vary in these seasons that they regulate the vegetation as also the habits of animals.

Winter

November to February is reckoned as the winter, December and January being the coldest months. In severe winter, the night temperature comes down very low and severe ground frost occurs in the meadows and in the valleys, with the mercury dropping to 0°C or sometimes even to sub-zero temperature. These frosts can kill Sal seedlings on the periphery of grooves or in the opening and
### TABLE: 1 CLIMATOLOGICAL DATA FOR THE STUDY AREA

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Month</th>
<th>Temperature (°C)</th>
<th>Humidity (Mean)</th>
<th>Rainfall (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean min.</td>
<td>Mean max.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>July</td>
<td>21.2</td>
<td>29.41</td>
<td>86.84</td>
</tr>
<tr>
<td>2</td>
<td>August</td>
<td>22.03</td>
<td>32.86</td>
<td>88.25</td>
</tr>
<tr>
<td>3</td>
<td>September</td>
<td>20.06</td>
<td>29</td>
<td>85.07</td>
</tr>
<tr>
<td>4</td>
<td>October</td>
<td>15.65</td>
<td>32.4</td>
<td>83.7</td>
</tr>
<tr>
<td>5</td>
<td>November</td>
<td>10.06</td>
<td>28.66</td>
<td>83.58</td>
</tr>
<tr>
<td>6</td>
<td>December</td>
<td>2.35</td>
<td>22.55</td>
<td>85</td>
</tr>
<tr>
<td>7</td>
<td>January</td>
<td>2.4</td>
<td>24.43</td>
<td>85.68</td>
</tr>
<tr>
<td>8</td>
<td>February</td>
<td>7</td>
<td>32.2</td>
<td>78.94</td>
</tr>
<tr>
<td>9</td>
<td>March</td>
<td>14.72</td>
<td>33.56</td>
<td>75</td>
</tr>
<tr>
<td>10</td>
<td>April</td>
<td>15.73</td>
<td>37.08</td>
<td>70</td>
</tr>
<tr>
<td>11</td>
<td>May</td>
<td>21.4</td>
<td>40.93</td>
<td>80.2</td>
</tr>
<tr>
<td>12</td>
<td>June</td>
<td>22.86</td>
<td>33.27</td>
<td>86.6</td>
</tr>
</tbody>
</table>
also hasten the post seedling drying up of the grass in the meadows. The relative humidity reaches 100 percent during the night, and the incidence of dew is heavy. The leaf fall sets in towards the end of winter, and the deciduous trees remain leafless until shortly before the break of monsoon, while the Sal renews its foliage almost simultaneously with the fall. Rains are scanty, though the area may receive a few showers in winter. Winds are not common in winter and only the upper plateaus experience it.

**Summer**

The summer season sets in the month of March and lasts till around mid-June when the area receives the first showers of monsoon. The last fortnight of May is hottest, and the mercury may shoot up to around 45°C. The relative humidity is reduced to minimum (10-20%) winds start from late February but even in May, these are not very hot (Fig. No 3). The summer season is usually dry but instances of rains, hailstorm and thunder do occur in the months of March and April. The miscellaneous forests, which have been shedding their leaves, now wear a bleak look, and the lush green meadows turn yellowish-brown. Water level drops fast from March onwards and except in lower valleys the streams dry-up leaning only scattered and scanty water holes hear and there. In the intermediate and upper levels water is in bare quantities around springs in rocks (Table 1).

**Winter**

The advent of rainy season starts with pre-monsoon showers usually received in the second or third week of June, and regular onset takes place by
FIG: 1 MONTHLY VARIATION IN MEAN MINIMUM AND MEAN MAXIMUM TEMPERATURE
the first week of July. The wettest months are July and August, when around 90% of the total annual rainfall is received in the season, which is around 1400 mm. The onset of rains transforms the entire Kanha landscape very quickly, and the meadows as well as the forests are restored to their previous lush-green condition. This phenomenon results in the congregations of large herds of wild ungulates in the meadows of the Tiger Reserve. The temperature remains mild varying from 22°C to 31°C. The wind speed is not much, but at the onset of monsoons, the velocity of winds may be about 100km/hour. Sometimes the rains are heavy causing temporary flood in the streams, which carry some silt. The silt content in the floodwater of streams flowing within the park is much less compared to those flowing for outside the park. Obviously this is due to very good vegetational cover in the park, which prevents erosion, and flow of silt.

**Vegetation**

Several workers have described the vegetation of the park. According to Champian and Seth (1968), the following forest types have been identified in the Tiger Reserve.

1. **Moist Peninsular Sal Forests (3C/C2)**
   a. High level Sal (3C/C2 ci)
   b. Low level Sal (3C/C2 cii)
   c. Valley Sal (3C/C2 ciii)
2. **(A) Southern Tropical moist Mixed Deciduous Forest (3A/C2a)**
   (B) **Southern Tropical Dry Mixed Deciduous Forest (5A/C-3).**
The vegetation of the park can be conveniently categorized into three broad types. These are Sal forest, mixed forest and grasslands. Kotwal (1979) has classified the vegetation into following categories.

```
Vegetation
  ├── Forest
  │    └── Dadar (plateau) Grasslands
  │         ├── Sal Forest
  │         │    └── Sal with Bamboo
  │         │         └── Sal with Flemingia
  │         └── Mixed Forest
  │             └── Mixed forest on dadar (plateau)
  │                 └── Mixed forest on slopes
  └── Grasslands
     └── Valley Grasslands
```

According to Parihar and Kotwal (1986) the main land covers of the area are forest, grasslands and agricultural lands. Roy et. al., (1986) have categorized the vegetation into 15 forest cover types and 5 grassland types. This is based on the analysis of panchromatic black and white aerial photographs and sampling in the field. The 18 rare plants identified in the Tiger Reserve by Parihar and Kotwal (1989).
The vegetation was classified into 6 cover types:

- Sal Forest
- Sal Mixed Forest
- Dense Moist Deciduous Forest
- Open Moist Deciduous Forest
- Dry Deciduous Forest
- Bamboo Forest

Wild Fauna

The rich habitat diversity of Kanha Tiger Reserve supports abundant animal communities viz. mammals, birds, reptiles and the lesser life forms. The animals generally seen in the Tiger Reserve are the chital (Axis axis), Sambar (Cervus unicolor), Barasingha (Cervus duvauceli branden), Barking deer (Muntiacus muntjak), Chowsingha (Tetracerus quadricornis), Gaur (Bos gaurus), Langur (Presbytis entellus), Wild pig (Sus scrofa), Jackal (Canis aureus), Sloth bear (Melursus ursinus), Wild dog (Cuon alpinus), panther (panthera pardus), Tiger (panthera tigris). Kanha Tiger Reserve offers an ideal habitat for a variety of avifauna, reptiles and insects. The above typical fauna of the Central Indian Highlands, part of the oriental-zoological Realm, is amalgam of the Indo-Chinese, Ethiopian and Palaearctic elements (Prater, 1948; Roberts, 1977).
STUDY SITES

This study was conducted in the Kanha Tiger Reserve; however, the following 6 Forest Ranges were selected for intensive study to avoid, or at least keep minimum, the bias in different parametric observations. The Kanha (250 sq. km.), Kisli (160 sq. km.) and Mukki (115 sq km). Forest Ranges of the Core Division (National Park) constitute the study sites I, II and III respectively. Whereas the Khatia (164 sq km), Garhi (298 sq km) and Khapa (107 sq km). Forest Range of the Buffer Division (Multiple Use Area) are the IV, V and VI study sites respectively. Though the entire Tiger Reserve harbors a contiguous forest tract within the three forest types as mentioned above, the Core and Buffer Divisions have different management practices and mandates, and land use patterns resulting in the wildlife protected area status of the former and the otherwise of the latter.