CHAPTER III

MATERIAL AND METHODS
For the purpose of presentation of this work forest areas of Sagar were selected for fauna diversity study. The protected forest areas viz. Nauradehi wildlife sanctuary and Ramna reserve forest areas were selected. Unprotected areas selected were Garpehra, Rahatgarh, Gopalpura, Bandri and Patharia forest areas.

Field studies were conducted on a full time basis. All these areas were visited regularly from March 2002 to July 2004. The observations presented in this thesis are based on direct observation as well as identification and analysis of field symptoms. For a meaningful interpretation the most practical study has been keeping the wild animals under observation for a length of time. The field observation were made in certain definite points in the forest reserves. Time of observation was restricted to few hours in the morning and evening as well.

The basic methods used and time for recording field observation were as given by Gopal (1992).

**Time:**

Time was noted as follows:

Dn – Down (Two hour before sunrise)

Em – Early morning (up to Three hours after sunrise)

Fn – Fore noon (From one hours before sunset up to sunset)

An – Afternoon (Four hours before sunset up to sunset)
Ln – Lat afternoon (Three hours before sunset upto sunset)

Dk – Dusk (Period after sunset after till dark)

En – Euening (Two hours period after dusk)

Nt – Night (Period from evening till down)

Animals were photographed during field studies in the different seasons viz: summer, winter and Rainy season. Study of 2-4 days duration were conducted in July, August, September, October, November, December, January, February, March, April, May and June in unprotected forest areas. Unfortunately Nauradehi wild sanctuary is closed in July to October so studies were conducted during November, December January, February, March, April, May, June 2002-2004.

Technique and procedure of these observation is mainly based on keen observation to locate and identify the specific animals. Animal evidences are normally concentrated along the routes frequently visited by wild animals. Wild animals move along selected routes in the forest. Observation were facilitated by use of binoculars and cameras, diary and pen. Most efficient method of observing animals directly was from free plat forms or Machans. Basic field observations were based on direct observation, Identification and interpretation of field symptoms.

Animal signs are normally concentrated along the routes. Thus it becomes necessary for a field investigator to possess a sound knowledge of the habitat as well as the habitats of the wild animals.
Feeding signs in a wildlife habitat are very common in leaves and twigs and at times on the forest of large trees.

A good reconnaissance of the habitat, topography, vegetation and water source is of utmost importance prior to the field investigation. Local village people provided this information. It has been observed that certain paths were prepared by animals for their daily use which provides safety due to the presence of suitable cover for concealment and escape.

Recording basic field observation is of prime importance for wildlife studies. But unfortunately this is neglected by many because of the immense field work involved. Habitat has been featured into six types.

(a) Pure sagone forest
(b) Bamboo, sagone and mixed forest
(c) Mixed deciduous forest
(d) Early riverine forest
(e) Moist mixed forest

Habitat analysis, based on objective measurement is an essential pre-requisite for sound management. A survey has been done with the help of a hand compass and the exiting stock maps which facilitated delineation of the area into various terrain types. All the four types of delineation of the area into various terrain types. All the four types of cover viz. ground level, scrub, field and wood land level are present in
forest. Different types of vertical combination of cover are uniformly interspread throughout the cover.

Phenological changes observed in the study area were new leaves coming in January and emerging mature leaves falling, flowering and fruiting of trees and shrubs.

All plant have a definite flowering and fruiting period and these are important for the wild herbivores which depend on the plant material. From the monthly field observations photographs were collected.

In the present study description of the forest reserve habitat, protected sanctuary, and unprotected forests has been undertaken. Important plant species occurring in an area were recognized and their flowering, fruiting and other phenological attributes were recorded. The phenological observations were made on some species in the different forest cover types and grassland of the study area from February 2002 to December 2005.

The most important parameter of a habitat is the vegetation. It is inseparable from wild animals and plant have evolved together with animals and respond to changes in vegetation. During the present study different methods have been devised for animal biodiversity. The vegetal component of the forest vegetation is important in a habitat since it has both food as well as cover.
Many plants are consumed by wild animals as forage or browse. Grasses constitute a major portion and they are narrow herbaceous plant. Forage includes many broad leaved herbaceous plant called 'Forbs'. Another important group called 'browse' comprises of leaves, buds, newly grown shoots of shrubs and trees. Some time seeds are consumed by wild animals and these are termed at most. Habitat evolution in general require sampling of the various forage available in the forest. This requires clipping and weighing of all grass forbs and browse within small plant of known dimensions. However this is much time consuming and involve considerable cost. Various other methods suggested by Blair (1959) considered for the study.

The food use by wild animals is a very, complicated phenomun. It is dependent upon some factors viz. quantity, utilization; digestion; production and availability. The presence of food material in a habitat depend upon the production and production has to be considered with respect to quantity and quality. Quality requires proximal analysis. On the other hand if the food material has been consumed, then its weight, the preference and the habitats of animal, its adaptability, the necessity for consumption, the area available for feeding are all important in the field study. However, this involves considerable consist and time hence excluded during the field study.

Analysis of food quality is extremely important hence estimated by other device; During the present study food has been separated into
water and dry matter. The quality of food in a habitat seem to be dependent upon the soil, the climatic conditions, occurrence and rainfall. The vertebrate fauna diversity observations include Amphibians, Reptiles, Aves and Mammals. The birds were identified as done by Salim Ali (1969). The reptiles were identified by standard book by Allyn (1952), Perkins (1974), Grzimeks (1975). The Mammals, Aves and Amphibia were identified by wild Encyclopedia by Funk and Wagnalls (1970) and Mammals were identified by standard book by Whitfield (1985).