The study emphasizes on the Diversity Distribution and Ecology of Chelonian Species in Orang National Park, Assam, India.

The main objectives of the present studies are as follows
1. To investigate the diversity and distribution of Chelonian species in Orang National Park and its surrounding area.
2. To analyse the habitat type of Chelonian species available in Orang National Park.
3. To analyse the habitat parameters related to the species distribution and abundance in the study area.
4. To evaluate the conservation threats of chelonian species in Orang National Park and to formulate the conservation recommendation.

Chelonians are incredibly diverse fauna. At present they are recognized as distinct group by specialist in turtle taxonomy and systematic. Diversity of chelonians described by various turtle experts are noted down in this study. Their present status, distribution in world as well as in India by various authors also has been reported in this thesis. Occurrence of turtle in different parts of the world and their different types of habitat also described in this chapter. The distribution of chelonian species in Asia along with North-East India described by different workers are reported here. Review of literature of various workers and their works on turtle in India, North-East region and in Assam also have been incorporated in this study. Due to lake of scientific information regarding the life history ecology and behaviour turtle has faced critical problems of conservational crisis. A view of turtle exploitation due to habitat loss by destructing forest, over fishing, illegal marketing for consumption of food, use of pesticides, irrigation, hydro electric power etc also mentioned here. Chelonians are highly diverse in Orang National Park and the habitat supports plenty of food resources and provide basking and nesting site also. However no detailed study on the diversity and ecology of turtle fauna in Orang National Park has been carried out. Only a few information is available regarding turtle species in Orang National Park. There fore it is an urgent need to extensive surveys and assessment of turtle fauna in Orang National Park. The study was conducted from 2010 to 2014 in Orang National Park. In the study area location and physiography has been describe including location map of Orang National Park. A glimpse of history and present status of Orang National Park are also incorporated with
study area. Annual climatic conditions differentiated into four distinct seasons showing the ecological parameters such as rainfall, temperature, humidity of three consecutive years have been represented through bar diagram. Description of vegetation in different types of habitats such as Grass habitat which contain tall grass land, short grass land, marshy land, woodland habitat which contain natural forest and plantation forest noted in the study area along with vegetation map of Orang National Park. Important wild life present in the study area have been mentioned here. We used different types of method for the survey of chelonian species in Orang National Park. Adapted Method (data recording technique) are VES, Direct sighting, Active searching as per Jeager (1978), Pough et al. (1987), Crumps and Pounds (1989), Llyod et al. (1968). Quadrature sampling method acquired are as per Llyod (1968), Scott (1976), Inger (1980), Lierberman (1986) etc. The study design has been prepared for the survey of aquatic and terrestrial species separately based on the species existence and divided in to five zones. Survey was conducted thrice in a month in different season of the year. For data collection multiple transects (5 meter length and width 5 meter) and a quadrates size (20 × 20m²) were plotted in different zones of the study area. It contains list of transects along with block map of Orang National Park. For data collection the surveys were made on foot as well as using motor boats. Surveys were conducted from the early morning and continued till after noon. For VES, Active search technique and Direct sighting methods, minimum equipments were used such as Data sheets, pencil, marker pen, Digital Slide callipers and spring balance (weighting up to 15 KG) and paper flags were used. For species identification all the specimens were systematically identified using diagnostic keys as per Smith (1935,1945), Field guide of Das et al. (1995) and as well as photographic guide of Ahmed et al. (2009). All the measured data were analyzed using standard statistical methods. The mean body parts viz. carapace length and breadth, plastron length, weight of the specimen etc. were done and standard deviations were calculated using MS excel. Data were represented in tabular form in all parameters. Species diversity and richness software was used for diversity analysis (May, 1988). All the measured data were analyzed using standard statistical method. MS Excel was used for statistical analysis, data were represented in the tabular from in all parameters. The outcome of this investigation shows the diversity and distribution of chelonian species in Orang National Park in various months of the year and in different habitat of the study area.
Altogether 12 chelonian species from different grassland and wetland habitat were reported in Orang National Park. Of the total 12 species 8 belongs to Bataguridae family viz. Assam Roofed-Turtle (*Pangshura sylhetensis*), Indian Roofed-Turtle (*Pangshura tecta*), Indian Tent-Turtle (*Pangshura tentoria*), Brown Roofed-Turtle (*Pangshura smithii*), Malayan Box-Turtle (*Cuora amboinensis*), Spotted Pond-Turtle (*Geoclemys hamiltonii*), Tricarinate Turtle (*Melanochelys tricarinata*), Indian Eyed-Turtle (*Morenia petersi*) and 4 species belongs to Trionychidae family viz Indian Softshell-Turtle (*Nilssonia gangeticus*), Peacock Softshell-Turtle (*Nilssonia hurum*), Indian Flapshell-Turtle (*Lissemys punctata*) and Narrow-headed Softshell-Turtle (*Chitra indica*). Each species found in this survey was described with detail notes on morphological characters distribution, behaviour and reproduction etc. with photograph in natural conditions. Three new records of species were documented in study area and it has been mentioned in the concerned chapter.

Analysis of chelonian species distribution in seven different habitat showed that Indian tent Turtle - *Pangshura tentoria*, Peacock Softshell Turtle-*Nilssonia hurum*, Indian Softshell Turtle-*Nilssonia gangeticus*, Assam Roofed Turtle-*Pangshura sylhetensis* and Narrow headed Softshell-*Chitra indica* were highly concentrated in the River Brahmaputra, whereas, the species Indian Eyed Turtle - *Morenia petersi*, Spotted Pond Turtle - *Geoclemys hamiltonii*, Malayan Box Turtle - *Cuora amboinensis* and Tricarinate Turtle - *Melanochelys tricarinata* were not recorded in Brahmaputra river. Again, the species Tricarinate Turtle - *Melanochelys tricarinata* was highly concentrated in grassland (GL) and muddy-land (ML) habitat, whereas, the species Brown Roofed Turtle-*Pangshura smithii* was highly concentrated in Natural Beels and Marshy-land habitat (MH). Analysis of Spearman rank correlation using proportional abundance data of Chelonian species in various habitat shows that, there was a significant negative correlation of the species those used grassland habitat with the habitat of River Brahmaputra.

Study encountered altogether 384 individuals belonging to 12 species of turtle in seven different habitat in Orang National Park. Diversity of chelonian species has been described based on habitat wise diversity and month wise diversity. Analysis of Shannon diversity index was done which showed that species diversity was highest in natural beels followed by marshy land habitat (MH) River Brahmaputra (BR), muddy
land habitat (ML) and Pachnoi river (PR). It also contains the analysis of species evenness and Margalef’s D index was higher in beel habitat than other habitats of the Orang National Park. Analysis of Diversity ordering using Right Tailed sum shows that, the beel graphs goes above all the habitat studies, indicating the higher diversity.

Comparison of diversity index in different sites in various months of the year also described by using Shannon diversity index. Habitat analysis was done which describes the use of different types of habitat by various chelonian species in the study area. Basking behaviour of Chelonian species in different season of the year monitored at different basking sites of the study zone and enclosed a list of basking time of different species. Conservation threats were evaluated based on questioning among fringe villagers and forest guard, visit of local market, observation of annual grass burning management, extensive fishing in the study area. On the basis of threats factor, conservation strategies have also been recommended in this study. At last we discussed about the findings and all outcome of the present survey. Distribution of chelonian species in different habitat of Orang National Park has been described in various locations of the study area. Species diversity has also been described in the last chapter. The existences of 12 chelonian species in different habitats of the study area are compared with literature available during study period. The findings of other workers in different locations of Assam was compared with the present result of the investigation.