The study investigates the influence of anthropogenic disturbances on the pollinator insect abundance, species richness and their activities of the study area, Rani Reserve Forest, Assam, India. The aim of the thesis is to know the status and extent of the effects of human disturbance and habitat fragmentation on the pollinator insect abundance, richness and diversity and upon their behaviour and activities, daily and seasonal variation and also to find out the most important pollinator group and species which can be considered as the indicator group or species of the forest condition and delineating any conservation strategies and tactics if conservation and preservation of the habitat and the pollinator species are needed. The comparison between the three habitat types selected for the study, HD, MD and UD habitats are detailed here. The chapters of the thesis deal with the following questions: 1) How diversity and abundance of plants and insects are influenced by human disturbances? 2) How many pollination systems are available in the study area? 3) What is the number of potential pollinators of a plant community? 4) Are only the most frequent and abundant insect visitor species the potential pollinators of the plant community? If not, what other insect species can be also be regarded as potential pollinators? 5) What are the effects of the climatic factors on the potential pollinators' diversity, abundance and visitation rate? 6) Which plant species will suffer most from pollinator species loss? 7) Can the potential pollinators of the study area be called indicator species of the forest health? 8) What are the habitat requirements of the potential pollinators? 9) How will pollination systems help in developing conservation and management strategies of the pollinators as well as the forest?, and hypotheses: 1) Diversity and abundance of flower visiting insect species changes due to habitat fragmentation or anthropogenic disturbances; 2) Pollination syndromes can be used for finding out the pollination systems present in the study area; 3) The most abundant and frequent visitors are the most efficient and potential pollinators of the entire plant community in the study area; 4) Abiotic factors affect pollinator abundance, activities and visitation rates.

The study indicates that highest species and individual numbers are recorded from the order Lepidoptera and Hymenoptera and average numbers from Diptera and
Coleoptera. Probable reasons for these differences have been thoroughly discussed here. Regarding the three habitat types, the unsuitability of HD habitat for the successful pollination as because of inadequate pollinator species diversity, richness and abundance and its decline from the MD and UD habitats accepts the hypothesis that diversity of flower visiting insects changes due to habitat fragmentation and anthropogenic disturbances has been discussed with significant references. MD habitat with intermediate disturbance appears to be the most suitable habitat for the pollinator insects which is explained by the Successional theory of Brown and Southwood (1987) and rejects the hypotheses in case of abundance and richness of insect visitors. Greater number of random distributions of insect visitor species in the study area and its probable reasons are described here with proper supporting reference.

The study deals with the hypothesis that pollination syndrome can be used for the classification of pollination systems using insect visitor frequency and it has been accepted with the presence of two pollination systems, Melllitophily and Psychophily system found functioning in a plant community of 60 species. The floral traits syndrome are precisely described and discussed with significant references. It also explains how decline or loss of the responsive FGs affects the increase, decrease or loss of these plants and vice versa and how these pollination systems can be used in the conservation process.

It also deals about the importance of visitor behaviour as the decision levels for finding out the potential pollinators. 33 potential pollinators of 60 plants out of 270 insect visitors with the highest number of species from Hymenoptera and its probable reasons are discussed with supporting references. The hypothesis that the most abundant and frequent visitors are the most efficient and potential pollinators of the entire plant community is discussed here and it is not accepted, eventhough a majority of plant species in a community are pollinated by the most abundant and frequent visitors and also the fact that every plant species has their own choice of pollinator species (pollinator specificity) proves the hypothesis otherwise. The most important amongst the potential pollinators, *Apis dorsata* and the most efficient, *Xylocopa aestuans* and *X. latipes* has been discussed with its supporting data and references.

The pollination biology of potential pollinators which includes their feeding guild, major food source, pollination activity time table, pollination behaviour,
correlation of mouth parts, VR and RA of potential pollinators and flower types, plant-pollinator interactions, their seasonal variation and habitat requirements for the population built up has been highlighted. The abiotic and biotic factors influencing and affecting the potential pollinators is precisely described here. The positive significant correlation of potential pollinator with temperature, plant abundance and wind speed upto 8 km/hr and the negative significant correlation of potential pollinators with RH has been described and discussed with many significant references. The HD habitat appears to be deteriorating and found to be unsuitable for successful potential pollinators' population built up as compared to MD and UD habitats.

The study concludes with the significant findings: HD habitat is in a deteriorating condition and the pollinator species number and abundance available here are not adequate for the successful pollination and fruitful propagation of the entire plant community for this habitat; for the conservation of the plant community of 60 plants (in particular, plants with Mellitophily and Psychophily pollination systems), the Hymenoptera and Lepidoptera FGs should be considered as target groups; more specifically for developing conservation strategies and tactics for the conservation of the entire 60 host plant species, the 33 important potential pollinators should be considered as the prime focus species and they should be considered as indicator species of the forest health and condition of the study area; as the pollination biology of the potential pollinators and the effects of biotic and abiotic factors has already been thoroughly studied and understood it will be easier to implement any future conservation and preservation works; all the requirements for the survival and population built up of the potential pollinators are delineated in the study. Recommendation steps has been given with the importance of habitat restoration and stop of habitat fragmentation which will help in converting the unhealthy use of forest resources into sustainable utilization keeping the importance of good health of the forest and also recovering the forest cover which is equally important.