

CHAPTER-9

CONCLUSION

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The present floristic survey in the three MPCAs of terai and duars has recorded the occurrence of a rich spermatophytic flora that includes representations of primitive taxa like Cyatheaceae, Marattiaceae, Aristolochiaceae, Piperaceae, Lauraceae, Trochodendraceae, Annonaceae, Chloranthaceae, Magnoliaceae etc. in one hand and on other hand progressed taxa like Apiaceae, Araliaceae, Campanulaceae, Asteraceae. The three MPCAs are the storehouse for a good number of NTFP resources and most of which have high market potential and medicinal uses.

Over 35 percent of the resources of Himalayan hotspot are threatened due to various anthropogenic activities. Despite being the storehouse of medicinal and aromatic plants and the related traditional knowledge, their documentations especially of Terai and Duars region is still limited. Present study records 626 species of vascular plant species encompasses trees, shrubs, climbers, herbs, epiphytes and ferns. The most dominating family of three MCPAs were Fabaceae with 47 species followed by Asteraceae (31 species), Rubiaceae (25 species), Lamiaceae (23 species), Lauraceae, Acanthaceae, Malvaceae with same numbers of species (20 species).

Among the 626 recorded taxa, 537 indigenous species were found with an important medicinal role with different daily life activities. A good number of IUCN threatened taxa of trees, herbs and shrub were enlisted from all the three MPCAs and some important such species are *Piper peepuloides*, *Staria palmifolia* and *Curcuma caesia*, *Gloriosa superba*, *Asparagus racemosus*, *Codariocalyx motorius*, *Rauvolfia serpentina*, *Mucuna pruriens*, *Piper attenuatum*, *Drymaria cordata* and *Polycarpon prostratum* etc. Around 38 (34 %) of endemic species of monocot and dicot species were also listed and were that exclusively endemic to the Darjeeling foothills and adjoining area of Terai and Dooars region of West Bengal, like *Globba racemosa*, and other endemic elements such as *Carex filicina*, *C. decora*, *Amorphophallus napalensis*, *A. paeoniifolius*, *Calamus latifolius*, *C. erectus*, *C mahanandensis*, *Zingiber rubens*, *Hedychium densiflorum*, *H. coccineum*, *Curcuma aromatica* etc.

The vegetation of Himalayas and its foothill region is highly affected with exotic taxa and some of them are quite aggressive in nature. The community structure for the vegetation of three MPCAs of terai and duars, were understood through the phytosociological investigation by nested quadrature samplings. Phytosociological analysis data for Frequency, Density, Abundance, IVI for tree layer, shrubs layer and herb layers (monsoon and Post monsoon) were determined and results showing quite significant and satisfactory. The

diversity, richness and concentration of dominance for the species of each MPCAs were also found satisfactory.

It is important for the conservation of biodiversity and prioritizing areas for conservation planning for achieving sustainability for arboreal spermatophyte diversity with rich and diverse plant communities. Although these MPCAs are confined to conserve the threatened medicinal plants but the non-medicinal plants were also required conservational attention. Not only the MPCAs but the entire belt of terai duars region is rich and diverse in medicinal flora including different category of threatened species. Among the 77 IUCN threatened species, 45 were Least Concern (*Cryptocarya amygdalina*, *Litsea laeta*, *Machilus duthiei*, *Knema erratica*, *Acorus calamus*, *Calamus tenuis*, *Smilax ovalifolia*, *Murdania japonica*, *Curculigo capitulatae*, *Gloriosa superba*, *Asparagus racemosus*, *Codariocalyx motorius*, *Rauwolfia serpentina*, *Mucuna pruriens* etc.), 12 species were Near Threatened (*Actinodaphne sikkimensis*, *Cinnamomum impressinervium*, *Areca triandra*, *Daemonorops jenkinsiana*, *Monochoria hastata*, *Bambusa balcooa*, *Phrynium pubinerve*, *Alpinia calcarata* etc.), 10 were Vulnerable species (*Microsorium punctatum*, *Fimbristylis aestivalis*, *Schoenoplectiella juccoides*, *Sccharum arundinaceum*, *Saccharum spontaneum*, *Sporobolus diander*, *Cissus repens*, *Duchesnea indica*, *Hoya parasitica* etc.), 7 were Endangered Species (*Beilschmiedia assamica*, *Leucaena leucocephala*, *Morus indica*, *Drymaria cordata*, *Polycarpon prostratum*, *Justicia diffusa* and *Centella asiatica*) and most importantly *Piper peepuloides*, *Staria palmifolia* and *Curcuma caesia* were recorded as Critically Endangered and these all threatened species along with other important medicinal plants need to be conserved.

MPCAs play a very important role in livelihood of various ethnic as well as local communities since long back and plant parts have been broadly used as medicine, food, fodder, house building material, fishing and religious purposes etc. Present survey records a great diversity of uses of trees, herbs and shrubs species and it were recorded that they collect plant parts for medicinal use and practice from studied area sustainably. The MPCAs of terai and duars are small patches with quite rich and diversified flora. Among the 626 recorded species, 537 indigenous species have an important direct medicinal role in treating various ailments. The forest department should select more such dense and diversified vegetation patches within the various conservatories as Medicinal Plant Conservation Area and that initiatives gives double layer protection to the wild indigenous species.