

Theme 5: Conservation, restoration and management of ecosystem

T5_Oral_09

EX-SITU CONSERVATION OF BIODIVERSITY BY USING SODIC LANDS UNDER ESTABLISHMENT OF GANGETIC TREE SPECIES GENE BANK

N. Nandini Gautam, Kripal Singh and Bajrang Singh

National Botanical Research Institute, Lucknow, UP, India

The present status of this experiment includes valuable results of a decade of study on *ex-situ* conservation of tree species. During the climatic and demographic changes we need to protect those species which are not coming in the que of RET (Red data list/Endangered/Threatened) but are most essential to maintain our ecosystem structure and function. They mediate flows of energy which are associated with the diversity of processes which include primary productivity of ecosystems, optimum levels of pollutants, global changes in increase and decrease of CO₂ & Oxygen, biogeochemical cycles, soil nutrient richness, erosion control, and spread of pest & diseases. *Ex-situ* conservation of species provides the flexibility to respond the unforeseen environment changes and consequent impacts on habitat conservation & utilization of wild plant species. The establishment of experimental design is a crucial step because collection of wild species from different forests is quite difficult due to unavailability of seeds, seedlings or vegetative germplasm in altering seasons. The collections consist of 64 tree species from their original habitat. To avoid the prolonged germination process we used the small seedlings of plants and after acclimatization upto certain stage of growth we planted them on barren sodic lands (pH 8.5 to 9.6) in set of 5 / 10 / >10 in randomized blocks. Mortality caused in many species due to high level of sodium salts and failure of adaptation to specific Electrical conductivity and pH conditions while regeneration of some species through sexual or asexual reproduction also takes place. The total number of trees is currently 365 in which 3 species showed complete failure for *ex-situ* conservation. The species with high number of plants representing new germplasm for adaptation to new ecoclimatic conditions. And through the use of such highly sodic lands we can emerge a new horizon for conservation of wild Phytodiversity simultaneously improving soil health.

Keywords: Biodiversity conservation, Tree species, Sodic lands