Project Update: July 2011

There are three objectives in this study. A brief write up of the progress so far in as follows:

Objective 1
Finding historical distribution of red sanders by species distribution modeling (SDM)
Status: Completed.

The studies of the Deccan plateau suggest the occurrence of red sanders in a geo-botanically restricted landscape. The information regarding the extent of a species is vital for restoration planning. SDM enables the forest managers and ecologists to identify the distribution of the species and therefore, the areas where the species can be restored.

For developing a distribution model for red sanders, variables pertaining to climate, soil, landcover, elevation, and presence from various sources was imported into ArcGIS 9.x and processed into ASCII files. In all, 25 variables were used for developing the MaxEnt model. All the data layers were projected to WGS 1984, re-sampled to same cell size and clipped to study area. From the digital elevation model (DEM), Slope and Aspect layers were developed. The variable files and sample data was incorporated into MaxEnt (Maximum Entropy Modeling) and resulting data (ASCII) were again imported into ArcGIS 9.x and reclassified. From the WorldClim data (19 variables) only eight variables were found to be significant. The land-cover, aspect and slope data were not significant. Soil data was found to be too coarse to be used. The distribution of red sanders was found dependent on temperature and precipitation variables. The model results show significant shrinkage in the overall distribution and area under red sanders in northern Tamil Nadu and north-eastern Karnataka. The information on the historical distribution of this endangered species especially from the areas where from the species has become locally extinct is possible may be useful for restoration planning.

Objective 2
Identification of best silvicultural restoration technique for improving survival and growth of Red sanders seedlings in degraded forests:
Status: In progress

Red sanders seedlings are known to suffer high mortality in wild on account of wildfire, drought and grazing. For successful restoration, high survival of red sanders seedlings must be ensured. This study evaluates the effect of silvicultural treatments on survival and growth of red sanders seedlings in an effort to enhance the over story establishment. Prescribed fire (PB), in combination with disking (DPB), singling (SPB), and singling + disking (SDPB) and control (NT) were the silvicultural treatments under study. For this study, using randomised complete block design, four blocks with 15 subplots each and five treatment replicated thrice within the block has been set up in Kadapa district of Andhra Pradesh. After collection of baseline data, treatments were applied and post treatment data was also collected in July 2011. The analysis of data is under progress.

Objective 3

Stakeholder's perception analysis towards the best management option for restoration of red sanders in Andhra Pradesh

Status: Completed

Past studies have shown better chances of restoration success with active involvement of local communities. The landscape level restoration of red sanders can be implemented by many agencies. However, the agency with maximum support from people is likely to have greater chances of success.

In this study, I used Analytic Hierarchy Process (AHP) stakeholders' preference for the most appropriate restoration management strategy in Andhra Pradesh. Amongst the various stakeholder groups, I selected 'administrators' (senior members of Andhra Pradesh Forest Department-APFD), 'field officers' (field functionaries of APFD), 'community' (members of village forest protection committees) and 'others' (NGOs and academia) as the main stakeholder groups. The perception of these groups were used to identify the most suitable management options from amongst Government Management (e.g. APFD), Quasi Government Management (e.g. Andhra Pradesh Forest Development Corporation - APFDC), Quasi Non-Government Management (e.g. Community Forest Management - CFM) and Private Management (PM). My analysis indicates that stakeholder groups were divided in their choice of restoration management agency and even the CFM which has been the mainstay of forestry operations since 1992 is not a unanimous choice. The AHP results shows clear preference of 'administrators' and 'field officers' for APFD which reflects their scepticism towards the potential of community based management. The 'community' preference though leaning towards CFM is clearly shared by APFD as well, which, reflects the faith of underprivileged groups on government driven programmes. The preference of 'NGO & others' for CFM shows their social and ecological awareness. In conclusion, across all the stakeholder groups, the CFM with 34% preference emerged as the best management option followed by APFD with 31% preference. Incorporation of the perception of different stakeholders brought out by this study may be helpful in successful landscape level restoration of red sanders.