

2. Multi-Species Plantation

2.1 Justification

Large scale plantations are appropriate for establishment on non-forest land, or in areas of forest that are so heavily degraded that it is no longer feasible to attempt rehabilitation efforts.

In some situations there may be advantages in establishing a mixture of species rather than monoculture. The mixture may be less susceptible to pests or diseases because of microclimate changes. Increased productivity may also arise from improved nutrition resulting from the use of nitrogen fixing trees, or the mixture may be more financially secure because early maturing species can be harvested comparatively quickly and so provide a quicker financial return. Although this approach is much more complicated to establish and manage, evidence suggests that properly constructed mixtures can have significant advantages.

Many functional benefits, to biodiversity conservation, to watershed protection, are only achieved when larger areas of landscape are reforested. This means higher biodiversity might be achieved via complex mixtures across the whole landscape or, alternatively, by a mosaic of different monocultures. Most biodiversity is probably best conserved by reforestation that involves a high number of plant species.

2.2 Implementation

High densities of many species: Plant many seedlings of many species of fast growing native trees with a dense canopy so that these can shade out weeds and attract seed dispersal wildlife to promote further regeneration of native species. This method can be applied for recovery of biodiversity. A minimum of 25 species is recommended. Direct sowing and supplementary plantings of many species is advisable when mineral soil is exposed or weeds can be eradicated and large seed volumes of many species are available. Promising results have been obtained using dense, species-rich plantings. However these are usually difficult to implement over large areas because of the difficulty of obtaining sufficient seed of many species and because of the costs involved.

High density plantings of few species: Plant seedlings of a small number of early pioneers when seed-dispersing birds and bats can transfer seed from nearby forest remnants. Direct sowing of a few early pioneer species is advisable when mineral soil is exposed or weeds can be eradicated and seed can be dispersed from nearby forest remnants. Biodiversity may recover once succession is initiated, if intact forest is nearby, and species from this are able to colonize the planted areas.

Please refer to the following Appendices and Annex below:

- Appendix 1 – Species selection
- Appendix 2 – Seed procurement
- Appendix 3 – Nursery operation
- Appendix 4 – Plantation operation
- Appendix 5 – Tending the plantation
- Appendix 6 – Guideline for decision making in reforestation
- Annex 1 – Seed requirement calculations