

Prioritizing Forest Conservation Strategies Using a Multi-Attribute Decision Model to Address Concerns with the Survival of the Endangered Dragon Tree (Dracaena ombet Kotschy and Peyr.)

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Abstract : The globally endangered *Dracaena ombet* is one of the ten dragon multipurpose tree species in arid ecosystems. Anthropogenic and natural factors are now impacting the sustainability of the species. This study was conducted to prioritize criteria and alternative strategies for the conservation of the species using the analytical hierarchy process (AHP) model by involving all relevant stakeholders in the Desa'a dry Afromontane forest in northern Ethiopia. Information about the potential alternative strategies and the criteria for their evaluation was first collected from experts, personal experiences, and literature reviews. Afterward, they were validated using stakeholders' focus group discussions. Five candidate strategies with three evaluation criteria were considered for prioritization using the AHP techniques. The overall priority ranking value of the stakeholders showed that the ecological criterion was deemed as the most essential factor for the choice of alternative strategies, followed by the economic and social criteria. The minimum cut-off strategy, combining exclosures with the collection of only 5% of plant parts from the species, soil and water conservation, and silviculture interventions, was selected as the best alternative strategy for sustainable *D. ombet* conservation. The livelihood losses due to the selected strategy should be compensated by the collection of non-timber forest products, poultry farming, home gardens, rearing small ruminants, beekeeping, and agroforestry. This approach may be extended to study other dragon tree species and explore strategies for the conservation of other arid ecosystems.

Keywords : conservation strategies, analytical hierarchy process model, Desa'a forest, endangered species, Ethiopia, overexploitation

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