

## Achieving Longevity in Ecological Restoration



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What makes some ecological restoration projects persist over long time periods while other projects fail quickly? Restoration projects have finite and variable temporal scales, and differences in restoration longevity have important implications for biodiversity and ecosystem services, which accrue gradually over time. Some influential factors include project ownership, effective irreversibility of restoration actions, regional political and economic stability, market incentives for long-term management, and competition for alternative land uses. Social factors are probably more important than ecological ones for predicting the persistence of restoration outcomes, though the two can interact. Slow ecological recovery, for example, can discourage landowners and make alternative land uses more attractive. A field experiment in tropical forest restoration demonstrates the importance of site ownership for project persistence. From an initial pool of 18 experimental restoration sites, 15 persisted for three years, 13 persisted for eight years, and 12 persisted for ten years. Overall, half of rented sites converted to alternative land uses, whereas all project- or NGO-owned sites persisted. This experience provides some support for the prediction that short-term projects persisting over short time periods have an increasing likelihood of continued persistence. Increasing availability of historical aerial imagery is providing new opportunities to study recovering ecosystem longevity over longer time scales. All else being equal, a restored ecosystem that persists for a century will accumulate greater biodiversity and functionality than an ephemeral restoration. Effectively addressing the temporal dimension will extend the benefit of contemporary restoration initiatives.