



XIV: Restoration Ecology

Why do we need restoration?

■ Terminology:

- Restoration - to bring back into a former or original state.
- Rehabilitation - any attempt to restore elements of structure or function in an ecological system.
- Reclamation - rehabilitative work done on the most severely degraded sites; often falls short of complete restoration.
- Re-creation - attempt to reconstruct an ecosystem on sites completely destroyed.
- Ecological recovery - letting the natural system alone in the expectation that it will

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- Ecological recovery - letting the natural system alone in the expectation that it will regain all necessary function.**
 - Restoration may be required by law (mining reclamation, mitigation)**
 - Increased use of restorative procedures in civil engineering projects (utility corridors, watercourses, roadways)**
 - Interest in landscaping with native species.**

(continued)

- **The sheer levels of ecological disturbance make it inoperative that something be done.**
- **Steps to Guide Restorationists:**
 - **Identify and deal with processes leading to degradation.**
 - **Determine realistic goals and measures of success.**
 - **Develop methods for implementing goals.**
 - **Incorporate these methods into land management and planning strategies.**
 - **Monitor the restoration and assess**

Where are we now?

- **Aquatic habitats are easier to deal with than terrestrial ones:**
 - wetlands
 - streams
 - lakes
- **Most management procedures are designed either to shorten the natural successional sequence or to speed up succession.**

Examples of restoration projects:

- **Elkol-Sorenson Mine at Kemmerer, WY**
 - Shrubs were more successful than seeding.
 - Clumped planting more successful than random or regularly spaced arrays.
 - clumps trap organic matter and spores of mycorrhizal fungi
 - vertebrates colonizing respond more favorably to clumps than other arrays
 - **Guanacaste National Park - Costa Rica**
 - Fire suppression (tropical dry deciduous forest)
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- Enhancing seed dispersal by trees
 - Road closing/mow road edges or burn.
 - Restrict fires.
 - Feed horses seeds for dispersal.
- Native Prairies
 - Removal of exotics
 - Seeding Native Species
 - Walnut Creek 2800 ha
 - Aquatic Restoration
 - Eutrophication
 - Removal of structures.

aquatic restoration continued -

- Buffer zones
- Riparian restoration
- Fisheries practices (rotenone, stocking)
- Indicator Species of ecosystem health
 - microbes
 - ants
 - keystone species
 - species diversity
- *Restoration is not an alternative to conservation but a complement to and subset of conservation.*