



Introduction to Volume Three:

Restoration Programs

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The impetus to restore ecosystems within a landscape often occurs when natural remnants are very rare and when the consequences of environmental degradation have been difficult to remedy. Thus, restoring a few examples of an ecosystem will generally be insufficient for reestablishing lost ecological structure and function to a region. Only when hundreds or even thousands of restorations are undertaken is there a possibility to have a significant impact on environmental quality. Many programs have been established that seek to catalyze large numbers of restorations. In some cases, these programs focus on restoration of a single, very large ecosystem. More often, restoration programs support many separate restoration endeavors.

In all cases, restoration programs face challenges to link what is known about landscape-level needs to site-scale implementation. The students in this year's Restoration and Reclamation Ecology class (University of Minnesota) reviewed how restoration programs accomplish this linkage. In particular, they considered how sites are selected, how restorations are funded, how long-term commitment is maintained, and how programs gauge success. Some programs have clearly established mandates established by legislation; others have gradually developed a vision of what to restore by responding to community interest. Although goal-setting and site selection tended to vary widely, funding was universally more limiting to restoration than was finding adequate proposals to support. The fact that funding is limiting is not at all surprising but does indicate that one fundamental aspect of restoration program administration is ecologically based site selection. Unfortunately, little direction is available from the restoration ecology literature for most ecosystems to assist programs in developing site selection protocols.

Since restorations require commitment over decades (at least), programs need to have some way of supporting or encouraging long-term recovery activities. Since most programs base their success on how many projects they support, they emphasize quantity not quality. How a restoration program can balance support for projects over time with maximizing the numbers of projects is unclear. Some restoration programs justify their short-term involvement by assuming that letting "nature take its course" will be adequate. Others assume that their initial funding will make it possible for communities to find alternative support for restoration in future years. Usually, neither assumption is valid. Most restorations are done within a highly degraded context and require continual management (especially removal of invasive species) to resemble their undisturbed, natural counterparts. These long-term management efforts are seldom as glamorous as the initial construction and planting on restorations. Consequently, long term management is much harder to fund than is initial planning and implementation. There is a critical need for most of the programs highlighted in this issue to address support for long-term management - without it most of the restorations will likely fail.

If restorations fail because long-term management was lacking, most of the programs reviewed will not know it. Few have a way to gauge the effectiveness of their program based on the extent of ecological recovery. More often, restoration programs rely on public satisfaction to justify effectiveness. Again, the ecological literature provides little in the way of guidance to help programs strategically know what kinds of data are critical to gather.

In spite of the need to improve site selection protocols, improve long-term support for management, and establish monitoring programs, many of these programs are innovative in their approaches for educating the public, for activating volunteers, and for trying new technologies. Since restoration program management is relatively new, it is important to consider these accomplishments as models for new programs. Likewise, it is important to reflect on how we can ensure that efforts on behalf of all of these programs truly restore ecosystems.

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