Acres Versus Outcomes: Criteria for Funding Wetland Restoration

Are funding decisions for wetland restoration projects made for the right reasons? Is science-based potential for success—both attainment and long-term sustainability of goals—given equal status with acres to be restored? Are projects that would explore new restoration methods, which could later be scaled up and replicated at many locations, funded if they do not restore many acres immediately? I wish I could say yes.

Although the modern field of restoration ecology has some old roots, as in the Curtis Prairie restoration that began at the University of Wisconsin-Madison Arboretum in 1934, restoration is still a relatively new endeavor. Practitioners continue the process of developing methods for restoring a variety of natural landscapes, including wetlands. Perceived success in wetland restoration has been reported and detailed numerous times, although with varied criteria and standards of achievement. Well-known, long-standing examples of restoration progress include the Des Plaines River project in Illinois, Tijuana Estuary and San Diego Bay's Sweetwater Marsh projects in southern California, and the Kissimmee River/Everglades project in Florida. The commonality that sets success stories apart is their history of research—experimenting and testing methods before full-scale implementation. Such restoration research involves career efforts, as in mangrove restoration work by Robin Lewis, salt marsh restoration research by Joy Zedler, sedge/grass wetland restoration research by Sue Galatowitsch, and peatland restoration research by Line Rochefort. The research process also creates a strong data base that can be used to begin monitoring, evaluate outcomes, and guide adaptive management. The very need for adaptive management suggests that achieving targeted objectives is never assured, and desired outcomes may be fleeting in nature, even with a strong research background.

Many attempts at wetland restoration also fail to meet or sustain the original goals. Causes for failure may include improper matching of sites and goals, improper planning, failure to recognize constraints posed by the landscape or stressors, targeting improper references and trajectories, poorly chosen or implemented interventions, and failure to control invasive plants and animals. Oftentimes, the failures result from seat-of-the-pants attempts by individuals or groups that lack sufficient knowledge, experience, or funding. Perhaps more frequently, failure results from not providing follow-up maintenance after the initial activity has been completed and all funds have been spent. Every wetland differs from others in some aspect of hydrology and resultant biogeochemistry and biological functioning, so every restoration effort has hidden caveats that can result in failure to meet specific objectives. The ability to recognize those possibilities and plan for them is critical. An experimental approach is necessary to increase chances of finding methods that can move the system toward the stated objectives and to explain the reasons for selecting those methods rather than others.

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Unfortunately, I am aware of attempts by well-meaning individuals, private organizations, and government agencies to restore some aspect of wetland function by methods that could result in accelerated degradation. Examples include dredging, grazing, introducing the wrong plant species or genetic stock, diking, and otherwise altering natural hydrology. Sometimes, funds may not be available to hire or contract experienced practitioners. Other times, the efforts are well-funded, in which case, the bigger problem may be intent. Individuals or private organizations may justly believe that it is better to try something than to do nothing at all, even though research has shown that doing nothing can sometimes be the best option. A group may propose restoration actions to enhance a favored wetland function or value while further destroying the natural integrity of a site or converting a wetland to a different type. Government agencies may be driven by targets to conduct a given number of wetland restorations or restore a given number of acres each year, irrespective of the quality of the effort. Some agencies may be driven by the need to develop cooperative ventures, as measured by the total of matching funds, or to use all budgeted dollars and ensure a similar budget the following year. Doing a project becomes more important than doing it right, and the resultant problems may never be identified or acknowledged.

Getting back to my earlier-stated questions, I recognize that many funding entities, be they federal agencies or consortia doling out mitigation dollars awarded following an environmental degradation, face a difficult task in deciding which restoration projects to sponsor. Restoration funds come sporadically and sometimes in large amounts. Existing staff can be overwhelmed by proposals to review, and it is not practical to retain more personnel on the off chance that funding becomes available. When funds do appear, the specific objectives can vary widely. Thus, even existing staff may not have in-depth expertise to review all proposals effectively. The process differs from National Sci-

ence Foundation (NSF) proposals that are disseminated to expert reviewers and often require repeated submission before funding. The NSF generally has a continuing funding line, but restoration proposals typically face a deadline for review and must be awarded before the funds expire.

Perhaps as a result of all those problems, restoration projects do get funded despite lack of underlying science to make them credible. Even if reviewers see the merit in a scientifically based proposal, they may be constrained to make recommendations based on the number of wetland acres to be restored or the congressional district in which a restoration site lies. It is much easier to use those metrics to justify project selection to nonscientific superiors than to explain the importance of an experimental restoration project that involves few acres but could change the nature of how we do restorations across broad acreage in the future. If the request for proposals does not allow for a research component, the reviewers have no choice.

So, I pose another question: How does the wetland feel about this? If I visit a doctor and complain about an ailment that is not life-threatening but has no standard treatment, I expect to be examined, tested, diagnosed, and run through a logical progression of treatments. I also do not believe that a single prescribed treatment should be dictated by administrators or my insurance company based on a cursory examination. If I were a wetland that needed to be restored, I would expect that doing the job right would be the first priority and that my health would not be further endangered by improper treatment. Therefore, my plea in this article is that the metrics used for awarding wetland restoration funding be broadened. Innovative, experimentally based restoration proposals that could change the way we conduct restoration projects should be included as options in requests for proposals. They should be given equal footing with proposals that involve many acres and be given higher priority than proposals that have little scientific foundation, especially those that might destroy natural wetland integrity for the purpose of enhancing favored functions or values. The developmental history of the field of restoration ecology suggests that this approach is necessary to advance both the science and the practice of restoration. ■

-Douglas A. Wilcox

MITIGATION

The Second Coming of In-Lieu Fee Mitigation Programs

Beginning in the early 1980s, in-lieu fee (ILF) mitigation programs were developed by many nonprofit groups, municipal parks, soil and water conservation districts, and other entities as a source of conservation dollars. ILF programs accept payments from permittees, which they use to develop surface water mitigation projects. Early ILF entities served prospective permittees seeking federal authorization for wetland and stream impacts, and many accepted funding from other sources as well. Clean Water Act (CWA) §§401 and 404 regulatory officials often referred applicants to ILF programs as a straightforward and flexible way to fulfill permitted mitigation requirements after avoidance and minimization had been adequately demonstrated. Probably the most valuable feature of ILF mitigation for permittees was that, like mitigation banks, ILF programs generally accepted all of the responsibility for siting, designing, and implementing mitigation, and also for monitoring and managing the mitigation to meet performance goals set in the permits. Federal guidance, although brief and somewhat vague, was available to ILF providers on establishing and maintaining their programs.[1] Many problems arose with ILF programs, as detailed in a 2006 Environmental Law Institute (ELI) study.[2] Early ILF programs did not always produce good wetland and stream restoration projects. In many cases, ILF programs accepted mitigation money to fund restoration projects that did not adequately perform ecologically, were built poorly, or never built at all. Financial planning, financial assurance, mitigation performance, and contingency mechanisms were often inadequate. In addition, most ILF providers were primarily concerned with preservation rather than restoration, while the CWA §404 program is charged with replacing lost aquatic resources with an overall goal of no net loss. Another persistent structural problem identified with ILF was the temporal lag between surface water impacts and mitigation completion. Federal guidance promulgated in 2000 considerably improved the structure of new ILF programs.[3] However, ILF programs generally remained in disfavor, and permit applicants were instead referred to permittee-responsible mitigation or mitigation banks.

The 2008 U.S. Army Corps of Engineers (the Corps) Mitigation Rule for the first time provided a mechanism for entities to gain interagency review team (IRT) approval for an ILF program using essentially the same standards of review, approval, performance, and financial assurance as mitigation banks.[4] The Mitigation Rule provides a consistent regulatory basis for establishment of ILF programs that promises to produce good quality mitigation projects, holding sponsoring entities responsible for objective and verifiable ecological performance standards, financial assurances, site protection, and adaptive and long-term management.

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The 2008 Mitigation Rule has sparked renewed interest in development of ILF programs from state governmental agencies and nonprofit conservation entities. This resurrection of ILF programs is driven in part by political winds, as more state governments look for ways to streamline and speed up the surface water regulatory process for both state and private entities. Implementation of ILF programs often requires changes to state rules to allow this mitigation mechanism. In Ohio, the new director of the Ohio Environmental Protection Agency (EPA)