Advancing Ecological Restoration Practice in Minnesota

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Susan Galatowitsch and Julia Bohnen, University of Minnesota

Overview: Aims of this evaluation: 1) glean "lessons learned" about the factors contributing to successful restoration outcomes, 2) make recommendations to improve the outcomes of future ecological restorations.

Evaluation approach: This study had 5 steps: 1) an initial review of all projects, 2) a review of plans and documents for selected projects, 3) field surveys of projects, 4) manager interviews, and 5) data analysis. We gathered information from LCCMR files, project manager files, project manager interviews, and field surveys of restoration sites. We used this information to figure out which organizational and ecological factors mattered most to restoration outcome.

Key Findings: Four factors (2 ecological, 2 social) are most important for determining the extent to which restorations will be successful (i.e., quality): 1) starting condition of the site, 2) the kind of ecosystem being restored, 3) internal capacity of the restoration team, and 4) whether the project was guided by a plan written by the team. Note that time was not a factor—restorations that don't begin well, don't get better over time.

Recommendations related to findings:

Restoration planning: Restoration teams that do not prepare their own plans may not have the knowledge to use a plan written by external experts. In addition, many restoration teams may not have thought through what they would consider a successful restoration outcome and do not maintain records critical for ongoing management. Fewer than 5% of projects had specific, measurable goals, and 59% had no goal beyond something very general like "restoring a wetland". Managers for many projects could not provide basic project information: 28% of projects could not provide a map of the project site. 56% of projects did not have a plan for ongoing management. Nearly half (43%) of the current managers for restoration projects in the study reported that a lack of project documentation hindered their current attempts to keep the project on track. ***Solutions: 1) Do not provide funding for ccontract planning services; 2) Provide teams with planning resources-see planning tool; 3) Require project teams maintain a minimum standard set of documents past the grant period and identify who is responsible for storing project records. Ensure compliance by random checks of records on completed projects as part of new project approval.***

Internal capacity: A team lacking sufficient internal capacity for restoration is more likely to restore an ecosystem that is low quality. The most common limitation to keeping projects on-track is staffing, which was reported by 60% of project managers as a reason critical restoration work was often not performed. A team's attempts to use external services (third party contractors) did not compensate for a lack of a team's internal capacity. Organizations requesting funding should have demonstrated organizational capacity to successfully implement the proposed restoration project. ***Solution: Use ecological outcomes on past projects as a funding criterion. Project teams can use the assessment methods provided by our study to gather data and compare to projects statewide. This assessment can be submitted as part of the random records check, as described under planning.***

Starting condition: Highly altered sites are riskier and require more effort over time than "remnants". The restoration plan should include a timeline commensurate with the complexity of the proposed restoration project. Less than half (46%) of restoration projects assessed for this evaluation were managed after the grant ended. Organizations receiving funding for restoration should commit to at least 5 years of post-implementation management. ***Solution: Two phase funding opportunities tied to favorable initial outcomes.***

Kind of ecosystem: Forest restoration is riskier than prairie or wetland restoration. Forests require much more time to recover and early in the process planted trees are vulnerable to competition from weeds and browsing by a variety of wildlife, such as rabbits and deer. ***Solution: Two phase funding opportunities tied to favorable initial outcomes.***

Ecological Outcomes for 59 Restorations. Nineteen (32%) (LOW) restorations evaluated ranked as high quality with Composite Invasive Species Abundance scores (CISA) ≤ the median of 50.5 and Potential Natural Vegetation (%PNV) ≥ the median of 44%. Sixteen (27%) (HIGH) of restorations ranked as low quality with CISA scores > than the median and %PNV < than the median.