Development of a Statewide Freshwater Wetland Restoration Strategy

Site Identification and Prioritization Methods

RESPONSES TO COMMENTS

Appendix G
of
Final Research Report

by

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Appendix G. Stakeholder questions and comments.

Throughout Phase I, project personnel actively sought input from stakeholders. A meeting was convened early in the project to inform stakeholders of the plan to develop a statewide freshwater wetland restoration strategy; attendees included representatives from State and Federal agencies, municipal governments, watershed associations, nongovernmental conservation organizations, and other interested parties. Results and conclusions from Phase I were presented at meetings of several groups, including the Rhode Island Habitat Restoration Team, the Woonasquatucket Watershed Council, and the Rhode Island Association of Wetland Scientists. In addition, an earlier draft of this report was circulated among stakeholders and DEM personnel; they were given the opportunity to review and comment on the report. The questions and issues that arose from those reviews and presentations are addressed below.

General Issues

Question: *Given limited funding for restoration activities, would it be better to restore several degraded sites rather than one destroyed site?*

Response: Restoration of destroyed (e.g., filled) wetland re-creates wetland functions and values where none currently exist. For that reason, the benefits gained per acre generally will be greater than for rehabilitation of degraded wetland (e.g., revegetation of adjacent upland), where existing wetland functions and values are enhanced. Re-creation of destroyed wetland usually will be more expensive than rehabilitation of degraded wetland, but given the greater benefits, it should be the first priority whenever funds are available. Both forms of restoration are important and both should be pursued aggressively. The balance between the two will ultimately be dictated by local restoration goals and availability of funds.

Question: *Preservation of existing wetlands should receive higher priority than restoration of destroyed or degraded wetlands. In addition to identifying restoration opportunities, could project personnel provide information about wetland complexes that should be highlighted for preservation?*

Response: Preservation of existing wetlands should be the cornerstone of any wetland management program, but identification of especially valuable, existing wetland complexes was not one of the objectives of this project. The functional assessment method designed for destroyed wetlands considers the characteristics of the destroyed wetland site and any contiguous (existing) wetland. Generally, the restoration sites that rank the highest for one or more functions will be those sites that are associated with the most valuable existing wetlands. So these results could be used to indirectly identify at least some of the most important wetlands in a watershed.

Question: *Did field work confirm remotely identified sites?*

Response: Roughly one-half of the sites identified via photo-interpretation were also visited in the field. The great majority of those sites were verified as actual wetland impacts. Therefore, we concluded that the methods presented in Task E provide a reliable means for identifying potential restoration sites.

Question: *Should alterations that have occurred since the Freshwater Wetlands Act be targeted, in the hope that landowners would be more cooperative?*

Response: All wetlands that have been impacted since 1939 will be considered potential restoration sites. One stakeholder suggested that an amnesty program could be developed for outstanding violations.

Question: *How would ongoing wetland violations be addressed?*

Response: In Phase II, the locations of potential restoration sites will be cross-referenced with the DEM wetland enforcement database to confirm the enforcement history and status. On a case-by-case basis, it will be determined whether a potential restoration site with an enforcement history should be considered in a proactive context. It is anticipated that active enforcement files will not be considered proactive restoration opportunities.

Comment: *Many wetland violations that occurred in the 1970's were never followed up on; these could have great potential for restoration.*

Response: See response immediately above. If an outstanding wetland enforcement action is resolved, that site would become eligible for proactive restoration.

Comment: *Sedimentation removal/restoration should be coordinated with nonpoint-source control demonstration projects.*

Response: We agree; however, water quality impacts stemming from nonpoint-source pollution were not targeted in this study.

Comment: *Sediment removal might be wise in ponds and vernal pools.*

Response: This is true; however, sediment removal could have major adverse impacts on habitat values if vegetation also needs to be removed. Soil disturbance and vegetation removal also may create ideal conditions for establishment of invasive plants. Generally, sediment removal should be limited to those sites where future sediment inputs can be controlled and invasive species managed.

Comment: *Urban wetlands that have been degraded should be protected on the bases of their educational and social values. Too often, these sites are regarded as unsalvageable or of limited value; therefore, permits often allow further degradation.*

Response: Urban wetlands should be given strong consideration for proactive restoration, as long as the potential to perform one or more key functions is evident. Stakeholders also should have the opportunity to recommend that low-ranked sites be restored, based on their local significance.

Question: *How will land ownership issues be addressed? When and how will this fit into the process?*

Response: In Phase II land ownership will be researched after potential restoration areas are identified. Landowners will be contacted by letter to inform them of the project, to describe the potential restoration opportunity that may exist on their property and to request permission to visit the property to confirm the restoration potential.

Comment: *Landowners may be very concerned about the potential for re-created wetlands to increase problems with West Nile Virus and EEE. We should be prepared to respond to this issue, or to address it up front.*

Response: RIDEM will prepare a response in the event someone raises this question.

Comment: *Identification of destroyed sites involves use of the 1939 aerial photographs of which there are only two known sets. Future application of this identification method in other watersheds is dependent upon the availability of these photographs through the University or the Department of Administration.*

Response: The 1939 aerial photographs are an excellent data source for determining prior wetland conditions and identifying areas where wetlands have been destroyed. Rhode Island is fortunate to have this dataset for restoration planning. It is true that application of this method in other watersheds will be dependent on availability of photos from URI or DOA. It may also be possible to locate the original negatives of these photographs and purchase additional sets.

Comment: *I didn't see anything about long-term monitoring of restored wetland sites being proposed for Rhode Island.*

Response: The Phase I objective was to develop a methodology to identify and prioritize restoration opportunities; we were not asked to address monitoring of restoration opportunities.

Comment: *The RIGIS wetland dataset should be used with caution because errors exist.*

Response: The project team is aware of the limitations of the RIGIS wetlands dataset. However, it provides an excellent baseline of wetland information. The RIGIS wetlands dataset was always used in conjunction with other datasets (e.g., 1988 aerial photographs, digital orthophotography, and soils data) to determine the location and extent of wetland impacts. Wherever possible, identified sites were verified in the field.

Comment: *Deer are not a wetland-dependent wildlife species.*

Response: The statement in the report does not mean to suggest that they are wetland dependent.

Prioritization Process

Question: *Was the likelihood of restoration success factored into the prioritization process?*

Response: Yes. Factors that influence restoration success are presented under Task C; they include the targeted wetland type, the targeted wetland functions, the impact type, the surrounding upland context, and others. Most of these factors were considered while developing the prioritization process. In our minds, success means ability to perform typical wetland functions. Because re-creation of a specific wetland type cannot be guaranteed, we did not incorporate the former wetland type into the prioritization process for destroyed sites.

Question: *The economic end of the [prioritization] assessment is critical. How can we assure that limited funding can provide the most functional gain?*

Response: The goal of the prioritization process presented under Task F was to identify those restoration opportunities that have the potential to provide the greatest functional gain. For that reason, this process was based on established concepts and principles of wetland ecology. During Phase II we will conduct feasibility studies – which will include cost analyses – at the highest-ranked sites in the Woonasquatucket watershed. Therefore, we will ultimately propose for restoration those sites that have the greatest potential to provide the most functional gain for the lowest cost.

Question: *Would a destroyed or degraded site that is in an area with few functioning wetlands receive higher priority than one that is in an area where other wetlands are functioning effectively?*

Response: For destroyed sites, the answer to this question depends on the wetland function of interest. For example, sites are ranked higher for the heritage function where wetlands are scarce (see Appendix F1). However, wildlife populations tend to be

more viable where nearby wetlands are available for dispersal and recruitment. Therefore, sites are ranked higher for the wildlife habitat function where wetlands are more plentiful. The methods described under Task F produce lists of sites ranked for individual functions in addition to a list ranked for multiple functions. Groups interested in restoring sites can choose to use any of those lists, and can also select any sites from within the lists according to their particular goals. Proximity to other wetlands was not factored into the prioritization process for degraded sites.

Comment: *Restoration opportunities in urban settings are often quite small, and yet very important to surrounding communities. Because the proposed prioritization process emphasizes the size of restoration sites to such a great degree, small urban restoration opportunities may not receive adequate attention.*

Response: In the Phase I test area we found that the majority of potentially restorable wetlands in urban settings are the result of wetland degradation, especially the "removal of adjacent upland vegetation." The size of a restoration site factors heavily into the ranking of destructive impacts, but plays a minor role in the ranking of most degrading impacts. Therefore, we feel that existing small urban wetlands will receive adequate attention during the prioritization process. In addition, groups interested in wetland restoration can select any sites from within prioritized lists according to their particular goals (e.g., restoring wetlands in urban areas).

Comment: *In an urban environment, scenic, open space, and green space values should be given equal weight to other functions [in the prioritization process for destroyed sites].*

Response: Our prioritization process ranks potential restoration sites for individual functions, including heritage values, as well as for multiple functions. If desired, heritage values could be given top priority in site selection in certain geographic areas.

Question: *On what basis are sites prioritized by impact type?*

Response: For the rationale behind ranking of destroyed sites above degraded sites, see the section entitled, "Prioritizing Opportunities Based on Impact Type," under task F. For the rationale behind further prioritization of specific degrading impact types, see Section 1 under Task C.

Question: *Is the functional assessment only for destroyed wetlands?*

Response: Yes. The assessment method assumes re-creation of wetland functions where none currently exists.

Question: *Would the same methods for ranking [that were developed in the Woonasquatucket watershed] apply to all watersheds of Rhode Island?*

Response: Yes. The methods presented in this report were intended for application in any watershed. For that reason, we developed a flexible prioritization process that accommodates varying stakeholder goals, watershed conditions, and data sources.

Question: *Were data and information about soils considered for the water quality improvement criteria [for the prioritization of destroyed sites]?*

Response: Yes. However, we decided not to incorporate that information into the prioritization process. Although denitrification hot spots occur in certain soils, research has not conclusively demonstrated that general information, such as soil type or drainage class, would allow us to determine the potential for a site to improve water quality (A. Gold, URI Dept. Natural Resources Sciences, pers. comm. 2000). In addition, restoration attempts cannot guarantee a return to a specific soil type.

Question: *Is water quality sampling conducted during the functional assessments?*

Response: No. The goal of the functional assessments is to quickly filter out the more beneficial restoration opportunities from among the hundreds that may exist within each watershed. To assess the potential for water quality improvement and other functions, we often rely on coarse data associated with existing GIS coverages (e.g., surrounding land use). More detailed, site-specific, analyses will be conducted as we perform feasibility studies at a smaller number of selected sites.

Question: *How would prioritization occur at wetlands where there is more than one impact?*

Response: Our prioritization process creates ranked lists of impacts, not ranked lists of entire wetlands. For example, if filling occurred at two distinct points within one wetland, we would record and rank two potential restoration sites. During Phase II, we will conduct further analyses based on, among other factors, the proximity to other restoration opportunities.

Question: *Grant opportunities may be available for restoration projects if they could be related to rare, threatened, or endangered (RTE) species. Could the presence of, or the potential for, RTE species be incorporated into the prioritization process?*

Response: If a RTE species is already present at a site, it seems inadvisable to change conditions that are suitable to support the species in question. For example, removal of fill, sediments, or invasive plants from a wetland already supporting an endangered wildlife species could stress that species or alter its environment in such a way that the habitat would no longer be suitable. Furthermore, while it might seem reasonable to try to re-create former conditions at a site in hopes of attracting or re-establishing RTE species that may have used the site historically, previous attempts have often been unsuccessful (see Zedler and Callaway 1999).

Most RTE species have very specific habitat requirements that may be impossible satisfy through restoration. There is one exception to the above statements. One of the criteria for prioritizing sites where adjacent upland vegetation has been removed is that the wetland type is rare or especially sensitive to human impact. Such wetlands are more likely to support populations of RTE species than more common wetland types. Attempts to restore RTE species habitat may be more feasible for this impact type, because restoration activities would only occur around the perimeter of the wetland rather than in the wetland habitat itself.

Comment: *The prioritization of destroyed sites is dependent upon landowner permission to access properties. As proposed, if permission to access properties is not gained, a destroyed site cannot be prioritized. Is there a secondary way to prioritize those restoration sites where permission is not granted possibly based on remotely sensed data alone?*

Response: In Phase II we will attempt to do as much remotely as possible. We hope to be able to conduct the functional assessment of destroyed sites with little or no field checking required.

Comment: *Please provide a response to two ecologists who do not support ecological assessment methods that assign or result in scores or rankings. Please describe why you developed and recommend the functional assessment to prioritize wetland sites.*

Response: We were contracted to develop a method for prioritizing all of the freshwater wetland restoration opportunities in a watershed. By its very nature, prioritization involves ranking, i.e., listing sites in order of their ability to meet certain criteria. Wetlands are valuable to society because of the functions that they perform. The purpose of wetland restoration is to re-create or enhance those functions that have been destroyed or degraded. For these reasons, we decided that the most reasonable way to prioritize restoration opportunities from a scientific perspective was (1) to determine the probability that a given wetland, once restored, could perform each of several key functions; (2) to consider the size of the site and the social significance of each of those functions performed at that site; and (3) to order the sites accordingly.

We chose a numerical approach for assessing functions and for ranking sites simply because it was the most objective, least biased approach that we could think of. Probability is a numerical phenomenon and we were attempting to determine how likely it was (or how probable it was) that a restored wetland would be able to perform a certain function or functions. [Note that we did not propose to estimate the magnitude of the function performed (e.g., amount of floodwater stored) or to compare wetlands on that basis.] We believe that this approach is based on good science and that that is where the prioritization should begin. We envisioned that functional assessment rankings would only be the first step in prioritization of restoration sites. Our intention always has been that these

objective results would be combined with information on landowner cooperation, stakeholder inputs, accessibility of sites, projected costs, and other factors to produce a final prioritization of sites.

Restoration Funding

Question: *Is it possible to obtain funding from the development community?*

Response: Although funding from any source is welcome, the goal of this project is to proactively restore wetlands outside of a regulatory context. Therefore, in-lieu fee payments will not be collected from developers to support wetland restoration.

Comment: *Corporations should be solicited to contribute funds for restoration activities.*

Response: A Corporate Wetland Restoration Partnership has been developed in Rhode Island similar to partnerships developed in other states. Local companies might also become interested in supporting restoration projects within their communities.

Comment: *In addition to the technical and planning efforts included in this report, concurrent efforts should be made to appropriate State-legislated funding for freshwater wetland restoration.*

Response: This will be taken into consideration.

Comment: *Ranked lists of sites are an important end-product; they can be used to leverage funds for restoration projects.*

Response: We agree.

Comment: *To obtain the cooperation of landowners, there will probably be a need for financial compensation (e.g., municipal tax abatement or a mechanism for easements).*

Response: This will be considered in future restoration planning, perhaps in conjunction with the RI Habitat Restoration Team.