

ENSC 201 – RESTORATION ECOLOGY

Spring 2011 Final Project

Your restoration project has three parts:

- (1) preparation of a detailed proposal to restore one of two possible sites at The Nature Conservancy's LaPlatte River Nature Preserve in Shelburne, VT. [guidelines for the proposal are outlined in the attached Request for Proposal (RFP)]
- (2) participation in a "work" day on May 2nd
- (3) an oral presentation to the class and invited visitors

The class will be divided into teams of 4-5 students per team. Each team has the latitude to develop its own restoration approach, so long as it is realistic and it uses the plant materials available for planting in May. Additional restoration strategies can be proposed for implementation later in 2011 and in subsequent years.

The following due dates apply:

- Friday, April 8: Submit a list of your team's specific goals and objectives (must relate to the general goals in the RFP)
- Friday, April 15: All groups submit a planting plan for the plant materials available for use on the site on April 30
- April 27 and 29: Oral presentations – each group will have 15 minutes to present and 5 minutes for discussion; each member of each group must speak on some aspect of the project in the presentation.
- Monday, May 2: Submit final draft of your proposal in class; Work day

All members of a team will receive the same project grade. Scoring of this grade will be based on the quality of the final written proposal (65%), the quality of the oral presentation (25%), and participation in the work day (10%).

Initial submission of the goals and objectives is meant to provide you with useful feedback to fine-tune your project. This submission will not be given a letter grade.

REQUEST FOR PROPOSALS

THE NATURE CONSERVANCY, VERMONT CHAPTER

Deadline for submission: Monday, May 2, 2011

The Vermont Chapter of The Nature Conservancy (TNC) interested in supporting projects aimed at restoring sites adjacent to and near their LaPlatte Rivermarsh Natural Area in Shelburne, VT. The proposal must respond to the interests of the landowner and address realistic restoration challenges.

Description of the LaPlatte Natural Area

[Modified from TNC's website]. "This rivershore natural area is 389 acres in size, providing an island of natural habitat in an otherwise fragmented landscape. An important habitat area for migratory waterfowl, this marsh complex is located at the end of the LaPlatte, a river that extends 16 miles from Lake Iroquois to Lake Champlain and drains 34,137 acres of Champlain lowlands. Encompassing 150 acres of the reserve, the marshes and floodplain forests are regularly flooded when the lake level rises and are inhabited by plant species that can endure these wet conditions. The moist soil of the bottomland is ideal for floodplain forests, and for tree species like black willow, green ash, and silver maple that thrive on the annual spring floods along the river. On the moist clay soils, above the level of annual flooding, is an example of the rare valley clayplain forest."

Restoration Projects

The Nature Conservancy is interested in receiving proposals on two possible projects as described below.

Project #1. TNC has a conservation easement over town of Shelburne-owned Blodgett field bordering the LaPlatte preserve (figure 1.). The field, a post-agricultural clay soil site, has been planted very thinly with the required minimum number of trees to meet a VELCO mitigation requirement. There is an existing restoration plan for the site, but it was governed by what minimum level of effort must VELCO do, not by what would be optimal for the site. The sites has scattered advanced natural regeneration in some areas, but patches of reed canary grass (an invasive clonal plant with allelopathic properties) have suppressed woody natives over large sections of the field. Applicants are asked to map natural regeneration patches and recommend where and what to plant to augment existing restoration efforts, including looking at coarse woody debris augmentation, and then perform spring plantings. Applicants are also like to survey invasive woody plants and recommend control measures.

Project #2. TNC holds an additional easement over more Town of Shelburne land, located upstream along the LaPlatte River next to the village of Shelburne, called LaPlatte Nature Park. This site is comprised of young floodplain forest and poor quality invaded uplands, encompassing over 80 acres in all. Much of the land has very open canopy cover, early post-agricultural fields, and degraded, poorly vegetated river banks. Applicants are requested to

recommend a reestablishment plan for woody plants, including a riverbank planting scheme benefitting water quality and aquatic habitat. The Town's Natural Resources Committee, chaired by Sean McFadden of the UVM spatial analysis lab, must give their permission before the project can commence. However, TNC has ecological management rights over the land and is willing to work closely as a project partner.



Figure 1. Location of Blodgette Field in Shelburne, site of proposed clayplain forest restoration project.

This RFP is soliciting three-year, phased proposals for one or both of the sites. Proposals can address a variety of terrestrial and aquatic restoration goals, but Phase 1 of every proposal must include the establishment of a natural forest cover in the spring 2011. The class will be provided with a list of plant materials at a later date.

Format and Content of the Proposals

Each proposal must be typed, double spaced, on standard 8-1/2 x 11 inch paper, with typing on only one side of the page. Margins must be 1 inch all around, type size must be 12 characters per inch or larger. All pages should be numbered and should include running headers of the proposer's last names, or a shortened project title.

Organize your submission as follows:

1. Cover page

Include the project title, investigators' names, addresses, telephone numbers, and e-mail addresses.

2. Table of contents with page numbers.

3. Project summary (no more than 250 words).

The project summary should be a self-contained, specific description of the activity to be undertaken and should focus on (a) overall project goal(s) and supporting objectives, (b) plans to accomplish project goal(s) and objectives, and (c) expected results and significance of the project. Center the project title at the top of the page, above the project summary.

4. Project description

The written text may not exceed 12 double-spaced pages. Figures and tables are not included in the 12-page limitation. The project description must contain the following components.

A. Introduction and Background. The introduction should present a clear rationale for the proposed project, including a statement of the long-term project goal(s) and supporting objectives. As background, present a summary of the information base you used to support the proposed project. All work cited should be referenced.

B. Restoration Methods. Explicitly state the methods you will employ to accomplish the project. More specifically, this section must include:

- a description of the work proposed, in the sequence in which tasks will be performed
- techniques that will be used to carry out the proposed project, and any limitations you perceive in these techniques
- results expected
- means by which the success of the project will be assessed and evaluated (a monitoring plan)
- pitfalls that may be encountered
- a tentative schedule for conducting major steps of the project

C. A monitoring table using the categories listed below (and discussed in class).

Indicator	Measurement Schedule	Acceptable Level	Management Response if Unacceptable
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D. Adaptive Management Plan

Adaptive management is a systematic process for continually improving management policies and practices by learning from the outcomes of practices and programs that are underway. Adaptive management was developed in the 1970s in part as a method for dealing with uncertainty, acknowledging that because scientific understanding of ecosystems and the potential

outcomes of management actions is incomplete, we should learn as we go. It is an information-based, iterative approach that is based on structured learning.

Adaptive management explicitly incorporates experimentation into the design and implementation of restoration projects. By adopting an adaptive management approach, restorationists acknowledge that their actions may need be modified over time as new information becomes available. As data accumulate, these data are evaluated to judge the effectiveness of the actions in achieving the desired outcomes. If outcomes are not being achieved as expected, then adjustments can made in the action plan. Using an adaptive management approach, restorationists have the opportunity to increase their understanding of the ecosystem regardless of the outcomes of the restoration. This increases the potential success of future restoration strategies.

Your adaptive management plan should build directly from the monitoring table you prepare for your site. For each indicator that is in your monitoring take, discuss what time frame is appropriate for evaluating your data, how you selected the acceptable levels for your indicators, and explicitly what you would do based on the analysis of your data.

E. A map (e.g., polygons drawn on an orthophoto) of the project site showing where restoration activities will occur.

5. References for the Project Description

All references cited should be complete and should conform to an accepted journal format.

6. Budget

The total project request should be as cost effective as possible. The total period shall not exceed 3 years. In addition to a summary budget for the entire project period, individual budget breakdowns are required for each year of requested support.

Format the budget page(s) in the manner suggested below:

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Total</u>
Personnel				
person/position a				
person/position b				
etc.				

Subcontractors (for example, if you need a bulldozer and operator)

Materials and supplies (including plant materials)

Equipment (itemize pieces of equipment that cost more than \$500)

Travel

Other expenses

TOTAL

7. Budget Justification

Use this section to explain why the budget items are needed and how you estimated the costs. Be realistic.