

Habitat Restoration & Erosion Prevention (Overview)

This section provides only a *brief* overview of these topics. You *must* get help and technical information for your site from qualified experts. (See list below.)

If you take on such a project, **you must commit for the long term.**

wild plants and animals, improve water quality – all while creating pleasant green spaces. They often also offer unsurpassed opportunity for students to observe and analyze life in nature.

One of the most powerful long term contributions young people can make toward water quality is to restore native habitat. When carefully planned, such projects can prevent flooding and erosion, support



- **Erosion Prevention** - Look for... undermined embankments or streambanks, construction dirt, washed out gullies, or bare soil. You can stabilize and improve these sites with plantings, other landscaping, retention walls, or structures to slow runoff. For example, youth could plant deep-rooted native plants to stabilize a steep hillside. Or they could fill washouts on hilly trails and divert runoff with buried pipe or logs.
- **Habitat Restoration** - Look for... areas of turf grass or non-native weeds (along highways, for example) that could be restored to native prairie or forest; or substantial low areas (including by lakes or next to streams) that could be restored to native wetlands. Nurturing wild ecosystems offers students powerful learning experiences, but should not be taken on lightly. What makes for desirable landscaping may not be obvious at first glance. For example, native prairies do not display their gorgeous array of wild flowers until they are established. Expert

ACTION STEPS

(This section is distilled in part from the School Nature Area Project's, "A Step by Step Guide for Creating School Nature Areas." See listing on page 25.)

1. Choose Your Focus

We combined several types of projects in this section. Decide which best fits your situation.

help is essential. Restoration projects demand a serious commitment to long term follow-through, including watering, weeding, additional plantings, etc.

- **School Nature Area** - Look for... land (of just about any size) that is accessible for ongoing study, where you might be able to secure long term permission to restore native habitat or to manage existing native habitat.

2. Get a Qualified Partner

Secure the support of a qualified biologist, horticulturalist, forester, hydrologist, etc. You will need help to identify existing plants, to plan plantings for soil and other conditions, to get necessary permission, and to demonstrate the best planting methods. See “Habitat Restoration Resources” below and inside back cover.



3. Organize a Planning Team

You must have broad support to restore and maintain native habitat. This must include affected landowners. In addition to educators and students, bring together maintenance staff, administrators, city parks and recreation and public works staff, business leaders, volunteers, and any other interested stakeholders. Set a regular meeting time to discuss the steps below.

4. Gather and Map Site Information

Get or make a large map to record significant features of your chosen site. Possible sources of basic maps include, the land owner, city or county planning office, highway department, or local builders. The Department of Natural Resources may be able to provide aerial photographs of your site.

On the map, draw and label...

- a. Property lines and neighbors.
- b. Measurements of distance, with appropriate scale.
- c. Slopes, hills, high and low spots. For large areas, you may wish to show topographic relief. For topographic maps, contact the Minnesota Geological Survey. (See inside back cover.)
- d. All buildings, roads, parking lots, and other structures.
- e. Utility lines (buried and overhead). Call Gopher State One Call (800) 252-1166. (Required by law before digging.)
- f. Streams, lakes, ponds, down spouts, and storm sewer openings and outlets. Show direction of flow. (Call city public works for storm sewer maps.)
- g. Sports fields, play areas, bicycle racks, bus waiting, outdoor equipment storage, snow piling, etc.
- h. Soil types. Contact the county Soil and Water Conservation District for a soils map of the area.
 - i. Existing vegetation: gardens, shrubs, flowers, trees, aquatic plants, native and non-native. Identify and label each variety or type of ecosystem or plant.

Make special note of any rare or threatened species.

- j. Paths, animal and human. Indicate the condition of trails.
- k. Animal habitat and homes, both existing and potential.

5. Analyze the Information

- a. How can you enhance the biological diversity of the site? What plants or animals are “missing” that were likely there prior to development?
- b. How can you reduce the fragmentation of nearby habitat, creating wildlife corridors?
- c. What plants are native to the area? Native plants are hardier, support Minnesota wildlife, and have natural “checks and balances” to keep them from taking over. Eliminate non-native or “exotic” plants, especially aggressive ones such as buckthorn or purple loosestrife.
- d. Can you nurture any species that are endangered or threatened in your region?

- e. How will you provide access for study and enjoyment of the area while keeping the impact on wildlife and water quality to a minimum? Design and creation of trails requires much care. The organizations below can help you identify guides to trail design.
- f. How will you interpret the site for others? Signage should be durable, age-appropriate, engaging, attractive, and unobtrusive.
- g. How will you create access to food, water, breeding areas, and homes for wildlife?
- h. What is the history of the site? Make a time line of fires, building, farming, or other ways the site was used historically. What is the likely natural succession of plants over the years, past and future?

HABITAT RESTORATION RESOURCES

- The School Nature Area Project (SNAP) publishes a superb guide to creating school nature areas, “Notes on Benefiting the Biomes.” SNAP also has an excellent video and case studies on many existing school nature areas. SNAP, St. Olaf College, 1520 St. Olaf Ave., Northfield, MN 55057 (507) 646-3599 Web: www.stolaf.edu/other/snap/index.html
- The School Forests program of the Department of Natural Resources works with 90 schools, mostly in Northern Minnesota, which manage public lands. Laura Ringold, School Forests, DNR, Box 518, 405 Lakeview Blvd., Coleraine, MN 55722 (218) 245-3981.
- Twin Cities Tree Trust, originally focused on trees, has also helped many schools organize teams to create nature areas. Has worked primarily in the Metro area. 6300 Walker St., St. Louis Park, MN 55416 (612) 920-9326 v. 920-4558 fax
- You may secure the aid of a biologist, horticulturalist, forester, etc. through your city, county, local university, gardening store, extension service, watershed district, or state resource agency, etc. (See inside back cover.)

6. Choose Projects

- a. Inventory all plants and animals in the area under consideration. Publish it.
- b. Monitor water quality. Analyze the impact of your efforts.
- c. Stabilize bare soils, gullies, or sagging slopes. Consider how you will hold them in place until root systems develop. Always use erosion control measures around construction.
- d. Establish buffer zones of native vegetation around wetlands, streams, and lakes.
- e. Plant native trees, shrubs, aquatic plants, and grasses – as appropriate to the site.
- f. Eliminate non-native “exotic” species such as buckthorn.
- g. Build dikes to create or restore ponds or wetlands. Upstream from lakes or wetlands, create ponds where pollutants can settle out.
- h. Use fertilizers, pesticides, and herbicides sparingly and properly.
- i. Create signs, brochures, tours, videos, web pages... to interpret the site to others.
- j. Build the necessary trails, bridges, board walks, observation blinds and platforms to allow access.
- k. Organize necessary maintenance, including watering, weeding, burns, mowing, etc.

7. Plan the Details

Habitat restoration involves many small projects over time. Good management is essential. Rely on the planning team.

- Budget. Include donated “in-kind” labor and equipment as well as cash.
- Funding. Property owners or agencies may be willing to cost share. Also contact agencies listed inside back cover.
- Safety. Analyze all likely risks. Develop plans to head off or respond to each. Make sure everyone knows these procedures.
- Materials and equipment. Quality will pay off in the long run. Borrow tools to avoid costs and storage. Volunteers and agencies are likely sources. The resources listed below suggest several suppliers of native plants.
- Maintenance. Lack of watering and worse – careless mowing – are the bane of habitat restoration projects. Work closely with maintenance staff in advance.
- Evaluation. Monitor implementation of the plan, and revise as necessary.