

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
CONNECTICUT/RHODE ISLAND**

RESTORATION AND MANAGEMENT OF DECLINING HABITATS

(acre)

CODE 643

DEFINITION

Restoring and conserving rare or declining native vegetative communities and associated wildlife species.

Note: NRCS uses the term “wildlife” to include all animals, terrestrial and aquatic.

PURPOSE

General

- Restore land or aquatic habitats degraded by human activity
- Promote ecological processes that result in conditions such as natural, high quality fish habitat, wildlife habitat, good water quality, or other conditions that are both directly, or indirectly beneficial to humans and the associated ecosystem.
- Provide habitat for rare and declining wildlife species by restoring and conserving native plant communities.
- Increase native plant community diversity.
- Maintain or improve unique or declining native habitats.
- Reduce fragmentation of habitats.
- Improve the ecological quality and integrity of ecosystems.
- Improve the environmental conditions required for the long-term survival of threatened and endangered species.
- Develop long term carbon sinks (vegetation and soil organic carbon) to reduce the adverse effects of anthropogenic climate change (e.g. global warming).

ECOSYSTEM SPECIFIC PURPOSES

Aquatic Ecosystems

- Restore water bodies, watercourses, and associated wetlands.
- Improve aquatic habitats.
- Provide fish passage.

Beaver Dominated Wetlands and Uplands

- Restore a natural, long term, cycle of fluctuating water levels.
- Provide a variety of plant and animal habitats over time including, open water, emergent wetlands, mud flats, sedge meadows, scrub/shrub wetlands, forested wetlands, and uplands, and, standing dead timber in water.

Xeric Coastal Communities

- Restore and protect the ecological processes maintaining the characteristic sand ridge, heathland, coastal grasslands, and dune profile of Connecticut’s coast.

Early Successional Plant Communities

- Restore early seral stage forests, “grasslands”, old fields, and other plant communities lost because of fire suppression and other human activity.

Vernal Pool Habitat

- Restore and protect vernal pools and their adjacent vegetation for threatened and endangered species as well as other species of concern that depend on this habitat.

Fresh Water Wetlands and Waterbodies

- Restore all types of freshwater wetlands
- Increase biodiversity

Forests and Woodlands

- Restore a diversity of forest successional stages in a given area by promoting early successional and old-growth forests.
- Restore long term ecological cycles interrupted by timber harvesting and land clearing.

Riparian Buffer Areas

- Restore a highly productive and diverse ecosystem, where degraded by agriculture and development.
- Protect water quality by attenuating pollutants, such as sediments and excess nutrients, in surface and shallow ground water.
- Provide organic matter and nutrients to streams and rivers in the form of leaves and woody debris.
- Increase the density of tree roots within the stream bank.
- Increase shading of streams.
- Restore the natural habitat linking function of riparian corridors.

Vegetated Freshwater, Brackish, or Saline Tidal Marshes

- Restore tidal flow to degraded tidal marshes.
- Allow access to marsh for fish, which travel between fresh and salt water during their life cycles.
- Restore characteristic marsh plant community.
- Provide wildlife habitat, especially for highly adapted species (e.g. seaside sparrow *Ammospiza maritima*).
- Restore an important visual component of the Connecticut Coastal Area.
- Reduce mosquito populations using appropriate or open marsh water management.

CONDITIONS WHERE PRACTICE APPLIES

On any site which once supported or currently supports the habitat to be restored or managed.

CRITERIA**General Criteria Applicable to All Purposes**

- The establishment of the physical, chemical, and biological conditions necessary for developing and maintaining the biotic and abiotic components of the target ecosystem is a step towards ecosystem restoration. At a minimum, restoration is the significant improvement in at least one of these conditions such that there is a measurable improvement in ecosystem structure and function. For example, increasing tidal flow to a salt marsh.
- The level of detail of the planning process will be commensurate with the magnitude of the project. It is intended that the restoration plan and documentation described below will be incorporated into a

Conservation Management System described in the conservation plan and planning notes.

- A restoration plan and supporting data will be developed which will document project implementation and anticipated results. The restoration plan will include where necessary such things as:
 - The ecological history (how the ecosystem developed over time in response to changing climatic, edaphic, biological, and social forces) of the restoration site and surrounding landscape to the extent necessary to successfully restore the target ecosystem,
 - Baseline conditions and natural variability.
 - The anthropogenic stresses that have degraded or destroyed the target ecosystem and the practices which will be used to relieve the stressors,
 - Any special studies (e.g. flood studies, plant inventories, threatened and endangered species habitat identification, or cultural resource inventories,).
 - Plans for monitoring changes.
 - The following actions or practices:
 - ◆ Methods used will be designed to protect the soil resource from erosion.
 - ◆ Prescribed burning or mechanical, biological or chemical methods or a combination of the four can accomplish vegetative manipulations.
 - ◆ Spraying or other control of noxious weeds will be done on a “spot” basis in order to protect plants that benefit native pollinators and other wildlife.
 - ◆ Management practices and activities are not to disturb cover during the primary nesting period
- in each state. Exceptions could be granted for periodic burning or mowing when necessary to maintain the health of the plant community. Mowing may be needed during the establishment period to control weeds.
- ◆ Where feasible, use prescribed burning instead of mowing.
 - ◆ Species are adapted to soil-site conditions.
 - ◆ Species are suitable for the planned purpose.
 - ◆ Seeding rates are adequate to accomplish the planned purpose.
 - ◆ Only certified, high quality and ecologically adapted native seed and plant material is used.
 - ◆ Planting dates, and care in handling and planting of the seed or plant material are followed to ensure that established vegetation would have an acceptable rate of survival.
 - ◆ Site preparation shall be sufficient for establishment and growth of selected species.
 - ◆ Timing and use of equipment is appropriate for the site and soil conditions.
- Protect important ecosystems that might be damaged during restoration. For example, a vernal pool on the site.
 - Evaluate how the target ecosystem may change over time in response to climatic, edaphic, hydrologic, and other natural phenomena and how these changes will affect the restoration.
 - Evaluate the potential impacts of restoration on all mandated “red flag

features” such as endangered species, cultural resources etc.

- The restoration will be designed to be as self-sustaining as practical. For example, natural flooding is preferable to pumping.
- Properly trained personnel will carry out fire management. All necessary permits will be obtained.
- Livestock will be excluded from the site except where grazing is used as a restoration practice.
- Natural revegetation by native plants shall be encouraged.
- Invasive plant species will be controlled to the extent practical by methods documented to be effective in the scientific literature. All necessary permits for the application of herbicides will be obtained and only qualified people will apply herbicides.
- The cutting or removal of vegetation, snags or fallen debris will ordinarily not be allowed, except where it is done as a restoration technique (e.g. site preparation or to control of invasive species).
- Protect restored ecosystems to the extent possible from excess nutrients and other pollutants in surface and ground water
- Control erosion and sedimentation during practice installation and maintenance.
- All necessary permits will be the responsibility of the land user.
- Any approved NRCS practice may be used if it is necessary to achieve the restoration goals (e.g. sediment basin to protect a restored aquatic ecosystem).

ECOSYSTEM SPECIFIC CRITERIA

Aquatic Ecosystems

- Restoration sites will be in watercourses and water bodies

degraded by such human activities as fill placement, dam and dock construction, pollution, water withdrawal, and channelization.

- A qualified engineer will design fish ladders for a specific site.
- Other applicable practices may include Structure for Water Control (587), Riparian Forested Buffer (391), Riparian Herbaceous Buffer (760), Stream Channel Stabilization (584), Streambank and Shoreline Protection (580), Fencing (382), Pest Management (595), Sediment Basin (350) and Wetland Restoration (657).

Beaver Dominated Wetlands and Uplands

- Restoration sites will be in areas that can reasonably be assumed to have beaver in the past. Sites with high value ecosystems that would be damaged by beaver activity (e.g. bogs) will be evaluated on a case by case basis and avoided or protected by measures designed for that purpose.
- It is expected that over the long term, beaver populations will fluctuate in response to food supply, predation, disease, etc. During periods when beavers are absent, natural reforestation will be allowed to take place. Tree planting is allowed for wildlife purposes such as planting white pines to provide future nesting sites for Great Blue Heron (*Ardea herodias*).
- Because of reduced predation due to human settlement, beaver populations may be controlled as necessary by trapping or other means.
- The potential flood hazard of beaver activity will be analyzed using techniques commensurate with the complexity of the project and the severity of potential flooding.
- Where possible, beaver dams will control surface water elevations.

Where water levels must be controlled to prevent flooding or other reasons, control measures such as beaver pipes will be installed and maintained.

- Other applicable practices include Structure for Water Control (587), Riparian Forested Buffer (391), Riparian Herbaceous Buffer (760), Stream Channel Stabilization (584), Streambank and Shoreline Protection (580), Fencing (382), Pest Management (595), Sediment Basin (350), and Wetland restoration (657).

Xeric Coastal Communities

- Restoration will be sited on near coastal sites.
- Manipulate as necessary to favor desirable habitats (coastal shrublands / grasslands). Planting native species is encouraged.

Early Successional Ecosystems

- At a minimum, areas maintained in early succession herbaceous / grassland will be limed and fertilized according to a soil test and mowed annually after August 1. Such areas will be retested and amended at five-year intervals for the life of the management plan up to and including the last year of the planned period.
- Reseeding of herbaceous / grassland will be in a prepared seedbed. Seeding mixes will be formulated case by case based on site characteristics and project objectives.
- Trees and other vegetation cut as part of a management strategy for maintaining early successional habitats will be left on site. Brush piling and windrowing is allowed to maintain particular habitats (e.g. grassland).
- Manipulate as necessary, areas maintained as shrub land to favor

desired species. Planting of native shrubs is allowed.

- Other applicable practices include Fencing (382), Pest Management (595).

Vernal Pool Habitat

- Restoration will be on appropriate sites.

Fresh Water Wetlands and Waterbodies

- Restoration will be on hydric or formerly hydric soils.
- The plant community restored will approximate as closely as practical to a recognized plant community appropriate to the site. See Wetland Restoration (657).

Forests and Woodlands

- Restoration sites will be on well drained and moderately drained soils.
- The plant community restored will approximate as closely as practical a recognized forest type (e.g. Northern Hardwoods) appropriate to the site. Other applicable practices include Stream bank and Shoreline Protection (580), Fencing (382), Pest Management (595).

Riparian Buffer Areas

- Restoration will be on any sites bordering wetlands, watercourses and water bodies.
- The plant community will be restored to approximate as closely as possible a natural riparian community appropriate for the site.
- Other applicable practices include: Riparian Forested Buffer (391), Riparian Herbaceous Buffer (760), Stream Channel Stabilization (584), Streambank and Shoreline Protection

(580), Fencing (382), Pipeline (516), Trough or Tank (614).

Vegetated Freshwater, Brackish, or Saline Tidal Marshes

- Tidal flows will be restored to approximate natural conditions.
- Culverts and ditches installed to restore tidal flow will meet NRCS standard for water control structures (no. 587).
- Appropriate flood hazard studies will be made to insure that restoration does not increase the risk of flooding. If necessary, flood control measures such as self-regulating tide gates, protective dikes, and flood proofing will be installed as part of the restoration.
- Other applicable practices include Structure for Water Control (587), Riparian Forested Buffer (391), Riparian Herbaceous Buffer (760), Streambank and Shoreline Protection (580), Stream Channel Stabilization (584), Streambank and Shoreline Protection (580), Fencing (382), Pest Management (595), and wetland Restoration (657).

CONSIDERATIONS

Ecosystems are complex; their parts are connected in many ways that we do not fully understand. Be vigilant so that unintended consequences can be detected early and corrected.

Consider that our knowledge of ecosystems is incomplete but we must use the best available information when restoring ecosystems.

Consider the existing habitat value of the site prior to restoration.

Confer with other agencies and organizations to develop guidelines and specifications for conserving declining habitats.

In many cases threatened and endangered species or species of concern will benefit from conservation of declining habitats. Follow-up habitat assessments shall be performed on a regular basis.

Haying and grazing will be planned and managed as necessary to achieve and maintain the intended purpose.

All habitat manipulations will be planned and managed according to soil capabilities and recommendations for management will avoid excessive soil loss.

Consider that humans are now an integral part of most ecosystems. Ecological restoration does not necessarily mean removing people from the scene, rather it means reducing as much as practical the stressors that humans cause on natural ecosystems.

Consider using an adaptive management approach so that changes can be made and management strategies altered based on experience.

In accordance with NRCS Policy, follow procedures to evaluate the potential this practice has to destroy or devalue cultural resources listed on the National or State Historic Register(s). This includes cultural resources that may be revealed by an archeological review.

Consider any local and or state permit requirements.

Plant materials centers and commercial growers should be encouraged to develop plant materials for habitat restorations.

ECOSYSTEM SPECIFIC CONSIDERATIONS

Aquatic Ecosystems

- Consider the social implications of dam removal (e.g. loss of ice skating ponds etc.).
- Consider the habitat value of impounded water.

Beaver Dominated Wetlands and Uplands

- Consider the social impacts of beaver activity (e.g. the perception that beavers are a nuisance).

Xeric Coastal Communities

- Consider the potential impacts of surrounding areas on the restored site.

Early Successional Ecosystems

- Consider the potential for habitat fragmentation caused by permanent early successional habitats.

Vernal Pool Habitat

- Consider the loss of forest products when creating or restoring this habitat.
- Consider the potential impacts of surrounding area on the created or restored site.

Fresh Water Wetlands and Waterbodies

- Consider social impacts of the loss of agricultural land.

Forests and Woodlands

- Consider the loss of forest products.

Riparian Buffer Areas

- Consider the potential loss of the area for agricultural or other land uses.

Vegetated Freshwater, Brackish, or Saline Tidal Marshes

- Consider the social implications of restoration and non-restoration. For example, consider the increased mosquito populations in degraded marshes, potential for induced flooding of restoration and non-restoration).

PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each habitat type. Specifications shall be recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation. Wetland permits where needed will be secured before restoration activities begin.

OPERATION AND MAINTENANCE

An operation and maintenance (O&M) plan for the site shall be prepared. Prior to establishment, sufficient copies of the O&M plan shall be provided to the owner/operator, designer, and approving agencies. The owner shall sign the O&M plan to indicate an understanding of the requirements and a commitment to operate and maintain the practice.

As a minimum, the following actions shall be addressed in the operation and maintenance (O&M) plan to insure that this practice functions as intended throughout its expected life.

- 1) Use of fertilizers, pesticides and other chemicals.
- 2) Designation of base plots and periodic surveys conducted to monitor, as applicable, the target vegetation, the target animal(s), and target environmental factors.
- 3) Control of invasive plant species.
- 4) Removal of vegetation or replacement of dead or dying vegetation.
- 5) Control of erosion.

These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance).