



4-2010

Stewardship Plan for Garrity Reserve, Lee, NH

Ellen Snyder
Ibis Wildlife Consulting

Follow this and additional works at: <https://scholars.unh.edu/prep>



Part of the [Marine Biology Commons](#)

Recommended Citation

Snyder, Ellen, "Stewardship Plan for Garrity Reserve, Lee, NH" (2010). *PREP Reports & Publications*. 123.
<https://scholars.unh.edu/prep/123>

This Report is brought to you for free and open access by the Institute for the Study of Earth, Oceans, and Space (EOS) at University of New Hampshire Scholars' Repository. It has been accepted for inclusion in PREP Reports & Publications by an authorized administrator of University of New Hampshire Scholars' Repository. For more information, please contact Scholarly.Communication@unh.edu.

Stewardship Plan for the Garrity Reserve

Lee, New Hampshire



Prepared for the
Lee Conservation Commission

Prepared by
Ellen Snyder
Ibis Wildlife Consulting

Maps prepared by
Pete Ingraham

April 2010

This Stewardship Plan was funded by a grant from the Piscataqua Region Estuaries Partnership,
as authorized by the U.S. Environmental Protection Agency's National Estuary Program.



Garrity Reserve Stewardship Plan

Table of Contents

Acknowledgments	3
Chapter 1 Property Description	4
Location and General Description	4
Recent History	4
Conservation Restrictions	5
Purpose of the Stewardship Plan	5
Chapter 2 Ecological and Cultural Features	6
Landscape Setting	6
Topography and Soils	7
Wetlands	8
Upland Habitats	8
Environmental Health	10
Public Access and Other Features	11
Chapter 4 Stewardship Recommendations	13
Stewardship Objectives	13
General Stewardship and Maintenance	13
Public Access and Information	14
Habitat Management	14
Summary of Stewardship Recommendations	17
Bibliography	18
Tables	
Table 1 Invasive plant species on the Garrity Reserve.....	11
Table 2 Summary of Stewardship Recommendations	17
Figures	
Figure 1 Oyster River Watershed showing approximate location of the Garrity Reserve..	6
Figure 2 Mapped soils on the Garrity Reserve, Lee, New Hampshire	7
Maps	
Locus Map	
Aerial Base Map	
Stewardship Map	
Appendices	
Appendix A Lee Tax Map 9	
Appendix B Warranty Deed	
Appendix C Property Survey	
Appendix D New Hampshire List of Invasive Species	
Appendix E List of Resource Contacts	
Appendix F Management Practices Cost Sheet	

Acknowledgments

A subcommittee of the Lee Conservation Commission provided guidance throughout the development of this Stewardship Plan. We met on several occasions to discuss management goals and stewardship issues. Thanks to the members of this group for their guidance: Bill Humm (Chair), Alan Eaton, Dick Weyrick, Fred Short, and Laurel Cox. In addition, two abutters, Fred Short and Kim Babbitt, each provided knowledge of the property.

Also thanks to the Piscataqua Region Estuaries Partnership (PREP), and its Director Jennifer Hunter, for funding the development of this Stewardship Plan through their Community Technical Assistance Program (CTAP).

Chapter 1 Property Description

Location and General Description

The 16.02-acre Garrity Reserve lies on the west side of Garrity Road in the northeast region of the Town of Lee, New Hampshire (Map 1). The Garrity Reserve is identified on the Lee Tax Map as Map 9 Lots 3-0 and 3-1 (Appendix A). The parcel has just over 790-feet of frontage on Garrity Road. There is no parking on the property; visitors park on the opposite side of Garrity Road, alongside the Gluke cemetery. The property is bordered by a residential subdivision to the west and rural residences to the north and south.

A large portion of the property was a former sand and gravel pit operated by the Town of Durham. The two entrances to the pit are gated and the “roads” into the pit are overgrown. The remaining land is upland white pine forest. A few pockets of wetland are found at the bottom of the pit, resulting from the excavation. Early successional species including gray birch and aspen, along with white pine and pitch pine are growing in the previously excavated area. Invasive species, including multiflora rose and Japanese knotweed, heavily infest the northern entrance road and the north slope of the pit. Piles of asphalt and a large boulder pile remain. A portion of the northern slope of the pit is laden with debris, similar to an old farm dump. The steeper areas of the un-reclaimed pit are exposed sandy slopes.

Recent History

The Town of Lee purchased the Garrity Reserve parcel from the Town of Durham on March 5, 2008. The Warranty Deed was recorded at the Strafford County Registry of Deeds as Book 3622 Page 0157 (Appendix B). The value of this parcel was used as a match for a grant from the New Hampshire Department of Environmental Services (NH DES) Water Supply Land Grant Program to protect the Lee Five Corners Reserve (which the Town of Lee also acquired from the Town of Durham). The Garrity Reserve was conveyed to Town of Lee subject to a set of conservation restrictions, which are discussed below.

The property was surveyed in 1998 by Atlantic Survey Co, Inc; the survey was recorded at the Strafford County Registry of Deeds as Plan 85-26 (Appendix C).

The Garrity Road property was purchased by the Town of Durham for use as a sand and gravel pit. The first parcel was acquired in 1928 from Leonard B. Bunker (Book 431 Page 494). Additional land was acquired from Albert and Alice Littlehale in 1942 (Book 518 Page 24) and 1962 (Book 760 Page 103). Since the early-1980s, the pit was not heavily used as the material was considered too fine and silty for most of the Town’s needs, including for winter road sanding. Durham evaluated the site for use a borrow source for construction projects, but that too was deemed of little value. The Town of Durham also concluded that any reclamation would be costly. The property was considered surplus property of the Town of Durham, and was therefore used as an in-kind match toward protection of the Lee Five Corners Reserve.

Conservation Restrictions

As noted above, the Garrity Reserve was conveyed to the Town of Lee by the Town of Durham; subject to the following conservation restrictions (see Warranty Deed in Appendix B for full text):

Prohibited:

- industrial or commercial activities, except in conjunction with a water supply, agriculture, forestry, or dispersed, passive outdoor recreation
- land alterations, unless for reclamation or for activities listed under allowed uses
- dumping or storage of wastes generated off-property
- storage or application of hazardous substances, unless for activities under allowed uses
- any activities that would compromise drinking water quality or quantity or harm rare species

Allowed Uses:

- community drinking water supply, agriculture, forestry, and dispersed, passive outdoor recreation
- allowed uses shall be conducted in accordance with a Stewardship Plan and New Hampshire best management practices

Purpose of the Stewardship Plan

The goal of this Stewardship Plan is to understand and appreciate the values of the Garrity Reserve and to guide the use and management of these public values and resources over time. This is achieved by identifying the soils, topography, plants, animals, habitats, wetlands, cultural features, and public uses that occur on the property. The surrounding landscape, including ownership patterns, affects this property, and therefore can influence management decisions.

Another important purpose of the Stewardship Plan is to meet the provisions of the Warranty Deed. As noted above, the Warranty Deed includes a set of conservation restrictions, and requires a Stewardship Plan to proceed with management activities, including provisions for public access and uses.

The Stewardship Plan includes the following chapters and materials:

- ❖ **Chapter 2 -- Ecological and Cultural Features** describes the landscape setting, soils, habitats, environmental health, and public access and uses of the Garrity Reserve.
- ❖ **Chapter 3 – Stewardship Recommendations** presents potential management actions that can be implemented on the Garrity Reserve to sustain and enhance its ecological features, environmental health, and the public benefits.
- ❖ **A set of maps** is included in the plan to further illustrate the ecological features, public uses, and other features of the Garrity Reserve.
- ❖ **Appendices A-E** provides additional background material and documents associated with the Reserve.

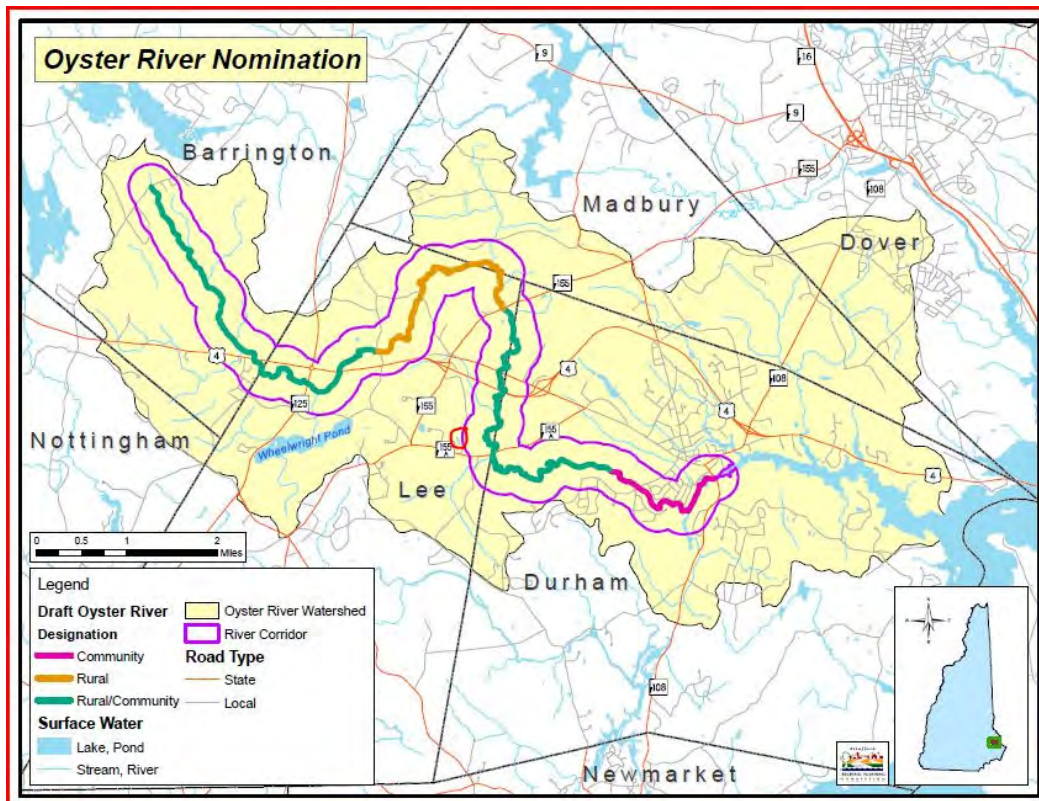
Chapter 2 Ecological and Cultural Features

Landscape Setting

The Garry Reserve lies within the Great Bay drainage, part of New Hampshire's coastal watershed. More specifically, the Reserve is within the Oyster River sub-watershed (Figure 1). The Oyster River is one of seven major rivers that flow into the nationally-significant Great Bay estuary. At 19,828 acres, the Oyster River watershed is one of the smallest watersheds in the entire coastal region. Portions of six towns occur within the watershed including 38% of Durham, 24% of Lee, 17% of Madbury, 15% of Barrington, 5% of Dover, and 2% of Nottingham. According to Ted Diers (New Hampshire Coastal Program), the Oyster River carries the highest sediment load of any river in the seacoast. The reason for the high sediment load is not yet known.

In 2000, local volunteers formed the Oyster River Watershed Association to protect the ecological integrity and environmental quality of the Oyster River watershed. The Association is now nominating the entire freshwater portion of the river for designation in the state rivers program, which stretches from the headwaters in Barrington to the Mill Pond Dam in Durham. The Watershed Association drafted a watershed management plan in 2001 that is available at www.lefh.net/orwa/. Figure 1 depicts the location of the Garry Reserve within the Oyster River watershed.

Figure 1 Oyster River Watershed showing approximate location of the Garry Reserve (see red circle).



The main stem of the Oyster River lies more than 1,000 feet to the east of, and on the other side of the road from, the Garrity Reserve. Because of the history of excavation on the Garrity Reserve, most surface drainage stays on the property, flowing into the excavated areas. There are no other stream drainages or wetlands on the remaining uplands on the Garrity Reserve. A large aquifer underlies the property (Map 1). Although no public water supplies tap into this aquifer, it does serve private wells. The Garrity Reserve functions as an aquifer recharge area given the permeability of the soils and the direction of surface flow into the pit.

Conserved Lands Network

The 10-acre Short conservation easement, which is held by the Town of Lee, abuts the Garrity Reserve to the north. The 75-acre town-owned Maude Jones Memorial Forest lies just north of the Short easement. Across the road lies a 35-acre open space associated with the Swan Drive development. Although not permanently conserved, the Gluke cemetery adds to this expanse of undeveloped open space in this region (Map 1).

Topography and Soils

The 2001 Soil Survey mapped the Garrity Reserve as Hinckley loamy sand—HaA, 0-3% slope and HaB, 3-8% slope (NRCS 2001). Much of the Reserve is classified as “gravel and borrow pits” (Gv) because of the history of excavation (Figure 2). Likely the entire property was originally all Hinckley soils.

Figure 2 Mapped soils on the Garrity Reserve, Lee, New Hampshire (NRCS 2001).



Hinckley soils are very deep and excessively drained. The parent material is glacial outwash, in which stratified material was “washed out” from a glacier by melt-water streams and deposited at the glacier’s margin. The excessive drainage maintains enough soil moisture for softwoods, especially white pine, but is limiting for hardwoods. White pine, aspen, paper and gray birches, and red maple are the most common successional species that grow on these soils.

The flatter, upland areas, where the Hinckley soils remain, were probably pastured historically. The topography is nearly level in the southern upland portion of the Reserve. The northwest corner slopes a bit more steeply, with a slope of 3-8%. Steep, exposed, sandy slopes remain around the pit, while other slopes are vegetated -- including some areas with dense coverage of invasive plants – and uneven.

Wetlands

The Garrity Reserve does not support any natural wetlands or stream drainages. This was likely all high ground prior to sand and gravel extraction. As a result of the disturbance, however, wetland areas were created in the bottom of the pit (Map 2). These wet areas function as emergent marsh and scrub-shrub wetlands, and vernal pool habitat for breeding wood frogs, spotted salamanders, spring peepers, American toads, and gray treefrogs (Kim Babbitt, UNH Professor and abutter to Garrity Reserve, personal communication). Silky dogwood and winterberry are native shrubs that grow in and around the wetland. White pine, gray birch, aspen, and shrubs have grown in around the wetland edges. These small trees and shrubs growing along the wetland edges are used by blue-winged warbler, song sparrow, northern yellowthroat, and other birds.

Another low, wet area in the pit surrounds a pile of asphalt, and is dominated by grasses and other herbaceous growth. All the wetlands retain water through the summer in normal precipitation or wet years and dry up during drought years. The amount of rainfall each year affects the ability of amphibians to reproduce. Amphibian populations will remain low on this property, and will fluctuate from year to year depending on annual precipitation. However, the site still supports a nice diversity of species as noted above.

Upland Habitats

Reverting Gravel Pit

The most prominent feature on the property is the reverting gravel pit. The Town of Durham stopped excavating from the pit in the early 1980s – about thirty years ago. Natural succession to shrubs and forests is underway. White pine, pitch pine, aspen, gray birch, willows, spirea, little bluestem, sweet fern are common within the previously disturbed areas of the pit. Invasive plants also dominate the pit. These are described further under Environmental Health on page 10.

The lack of topsoil in many places within the pit also slows the rate of natural succession. Shrub-meadow areas remain within the pit. Portions of the east and west-facing slopes in the pit remain as exposed, sandy slopes. This is a result, in part, of continued use of the slopes by animals, including deer, fox, and coyote, and perhaps by humans traversing the slopes. Other portions of the slopes are naturally re-vegetating with pitch pine, little bluestem, and white pine.

Early successional habitat includes grasslands, shrublands, young forest, and other openings such as reverting gravel pits. This habitat is by its nature dynamic and transitional. The proportion of the landscape in an early successional stage varies over time depending on natural and human disturbances. In the heavily developed southeast corner of New Hampshire land use changes and development have greatly limited the amount of this habitat in the landscape as well as the ability of natural disturbances and human management to create and maintain such habitat conditions.

The mix of “early successional” vegetation growing in the reverting pit includes warm season grasses, goldenrods, asters, and many other herbaceous plants, native and invasive shrubs, and small trees. The mix of herbaceous vegetation and woody shrubs and small trees in the gravel pit provides a diverse food supply for a mix of wildlife species. Insects are typically more plentiful in sunny, open areas, compared to forested areas. This in turn provides more food resources for migrating and nesting birds, foraging bats, frogs and toads, small and medium sized mammals. The rock pile and exposed slopes are ideal den sites for fox and coyote, which appear to be common on the property. Their tracks, notable in winter, crisscross the pit. Shrews, voles, mice, and chipmunks also use jumbled rock piles as cover. White-tailed deer use of the pit is evident from tracks and scat. A ruffed grouse was routinely flushed from areas on the property dominated by tree saplings.

In addition to the fruits and catkins, the shrubs can provide nest sites for several breeding birds, including song sparrow and northern yellowthroat. Migrating songbirds are particularly dependent on berry-producing shrubs and trees, shifting from a diet of mostly insects in summer to one of mostly fruits during fall migration. This shift is particularly noticeable in thrushes, vireos, warblers, and mockingbirds (Parrish 2000). Although small in area, this pit provides a patch of stopover habitat for migrating birds.

White Pine Forest

An upland white pine forest borders the pit to the south, west, northwest, and along Garrity Road. This pine forest is likely growing on old pasture. Associated species, primarily in the understory, include red oak and eastern hemlock. An old woods road/gravel pit road runs through the southern region of this forest, ending near the back (western region) of the pit. This back portion of the pit, still undulating as a result of the un-reclaimed pit, is reverting to a pine forest.

Until recently there was little fallen woody debris in the forest, which is typical of New England forests that were once pastured. However, recent storm events have toppled many large white pines, creating new habitats for small mammals and a recycling of nutrients as the trees decay. This pine forest is not particularly unique, but does support many year-round residents including barred owl, pileated, hairy and downy woodpeckers, nuthatches, chickadees, and several resident mammals find respite here as noted above.

Since the extent of mature forest is limited and borders abutting residential homes, it seems best to allow this upland forest to continue to develop and mature through natural processes, including allowing disturbances to create new openings. Invasive plant species, mainly glossy buckthorn and black locust, are growing in along the portion of the woods road that parallels the Reserve’s southern boundary.

Other Habitat Features

Fred Short, the abutter to the north, maintains a mowed meadow on his property. This meadow extends onto the Garrity Reserve along the upper ridge of the pit. The Conservation Commission has supported Fred’s efforts since it helps to knock back invasive shrubs, which are pervasive along the slope of the pit below. This meadow/edge habitat with a few apple trees that Fred prunes provides another microhabitat feature to the Garrity Reserve.

Environmental Health

Environmental health, or *ecological integrity*, can be measured in several ways, such as the quality and quantity of surface waters, degree of erosion and runoff, amount of impervious surface, quality of air, presence of forest pests or invasive species. Some environmental stressors, such as mercury deposition, air pollution, extreme weather events and climate change, are large in geographic scope and largely outside the influence of land stewardship decisions on individual ownerships.

The ecological integrity of the Garrity Reserve was greatly compromised as a result of the sand and gravel excavation. The pit was not reclaimed. Some materials that were stored in the pit remain, including numerous piles of asphalt. In addition, an old pile of household debris and other material remains on the north slope of the pit. An Environmental Site Assessment was not conducted on this property, so it is uncertain if there are any long-lasting effects from past land uses. The extensive coverage of invasive plant species is the most obvious effect from the past disturbance at this site.

The lack of public access to this site to date has probably helped minimize erosion on the exposed sandy slopes. There is little evidence of any new dumping or erosion from over-use. As the Town of Lee moves ahead to open this site to public access, it will be important to monitor public use impacts and provide information to the public on the site's values and uses.

Invasive Plant Species

The State of New Hampshire defines an "invasive species" as, *a naturalized, non-native plant taxon (species, subspecies, variety, form or cultivars) that invades native plant communities and proliferates, out-competes native species, disrupts ecological processes by threatening imperiled species and decreasing biological diversity. In addition, invasive species can also include plants, insects or fungi that cause economic harm to agricultural and forests crops or pose a serious health hazard.* In essence, it is any non-native plant, whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

One report estimated the economic cost of invasive species in the U.S. at \$137 billion every year (Pimentel et al. 2000). Up to 46% of the plants and animals federally listed as endangered species have been negatively impacted by invasive species (Wilcove et al. 1998, National Invasive Species Council 2001).

Invasive species typically have certain traits that give them an advantage over most native species. These traits include producing many offspring, early and rapid development, and being adaptable and highly tolerant of many environmental conditions. Studies show that invasives can reduce natural diversity, impact endangered or threatened species, diminish wildlife habitat, affect water quality, stress and reduce forest and crop production, damage personal property, and cause health problems.

The New Hampshire Invasive Species Act states that "*no person shall knowingly collect, transport, sell, distribute, propagate or transplant any living or viable portion of any listed prohibited invasive plant species including all of their cultivars, varieties, and specified hybrids.*" Appendix D includes the list of prohibited species referenced in this Act. For more information on New Hampshire's invasive species program see http://www.nh.gov/agric/divisions/plant_industry/plants_insects.htm and http://www.nh.gov/agric/divisions/plant_industry/documents/booklet.pdf.

Invasive plant species are transported by humans and wildlife; many were planted purposefully in the past for wildlife, erosion control, or as landscape plantings. Others came in via international commerce. Many

invasive plants appear first in disturbed areas such as along roadsides and trails, in gravel pits, or edges of fields. They can be moved along roadways by plowing, mowing or other roadwork.

Unfortunately the Garry Reserve is heavily infested with several invasive plant species that are on the New Hampshire prohibited species list and are, therefore, considered harmful to the environment (Table 1). Dense stands of invasive plants grow on the entire length of the old entrance road into the pit, along the northern slope of the pit, and scattered throughout the pit. As noted earlier, buckthorn and locust are growing in the uplands along the southern boundary. Black locust also grows on the eastern slope of the pit. Although many of the non-native shrubs also bear fruit, they are believed to be less nutritious for wildlife than the native shrub community.

Table 1 Invasive plant species on the Garry Reserve.

Common Name	Scientific Name
Autumn olive	<i>Elaeagnus umbellate</i>
Black locust	<i>Robinia pseudoacacia</i>
Bush honeysuckles	<i>Lonicera spp.</i>
Common barberry	<i>Berberis vulgaris</i>
Garlic mustard	<i>Alliaria petiolata</i>
Glossy buckthorn	<i>Rhamnus frangula</i>
Japanese barberry	<i>Berberis thunbergii</i>
Japanese knotweed	<i>Polygonum cupidatum</i>
Multiflora rose	<i>Rosa multiflora</i>
Norway maple	<i>Acer platanoides</i>
Oriental bittersweet	<i>Celastrus orbiculata</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Winged euonymous	<i>Euonymous alatus</i>

The Invasive Plant Atlas of New England (IPANE) maintains a more extensive list of invasive plants for the region. Some of these plants also occur on the Garry Reserve – such as black locust – but are not on the New Hampshire prohibited list, perhaps because they are not yet considered a threat to human or environmental health in this state. Visit <http://nbii-nin.ciesin.columbia.edu/ipane/> for more information on the IPANE list.

Public Access and Other Features

Access and Parking

The Garry Preserve was only recently transferred to the Town of Lee as a conservation area (2008). Prior to that, the property was used by the Town of Durham as a gravel pit for many decades. Throughout that period the property was closed to public access. Posted, no trespassing signs remain along the property boundary with Garry Road, although the property is now open to the public. Once this Stewardship Plan is adopted, these signs can be removed.

Some abutters access the property from their respective backyards. Others can walk onto the property from Garry Road, alongside a gate at the south end of the property. However, this “trail entrance” has not yet been developed as a public trail and is undefined and brushy. Ticks are common on this property;

educational materials will need to alert visitors to this and any new trail should be created such that pedestrians will not easily brush against vegetation. Parking to access this property is alongside the Gluke Cemetery.

There are no specific public uses allowed or prohibited according to the Warranty Deed. However, the deed does refer to “*dispersed, passive outdoor recreation*” as a permitted activity. The deed does not list any other permitted recreational activities. This may limit the extent of maintained trails that are created on this property.

Old Access Roads

As shown on Map 2, several old access roads into the pit are still visible, but are largely overgrown. The main access road descends gradually into the pit via a gated entrance off Garrity Road. This served as the main entrance to the pit for the Town of Durham. It is along this pit entrance road that Durham stored piles of asphalt (Map 2). The other old roads into the pit area are largely overgrown.

Other Features

Several piles of material remain in and around the pit. This includes many asphalt piles, a pile of large boulders, household debris on the slope, and a dilapidated structure remaining from the Durham’s sand and gravel operation. The latter is found in the re-forested, western section of the pit (Map 2).

Chapter 3 Stewardship Recommendations

As a community resource the Garrity Reserve offers public benefits, including quiet spaces, wildlife habitat, nature observation, clean air, and protection of water quality. Stewardship of this open space is a long-term commitment by dedicated community members working together. The Town of Lee is fortunate to have a strong tradition of volunteer service and commitment to land stewardship.

The Warranty Deed (Appendix B) provides general guidance for the stewardship of the Garrity Reserve. I conducted several site assessments during 2009 and early 2010, reviewed historic documents and town records, and met with a subcommittee of the Conservation Commission several times to develop these stewardship recommendations within the deed framework. Site-specific stewardship recommendations are shown on Map 3.

Most of these stewardship recommendations can be accomplished through a combination of town volunteers, grant funds from various state or federal programs, and assistance from the Lee Public Works Department. I spoke with Randy Stevens, the town's road agent, and he was supportive of helping to implement stewardship recommendations where feasible and approved by the Board of Selectmen. See Appendix E for a list of grant information contacts. Appendix F is a list of various management practices and associated costs from the Natural Resource Conservation Service cost-share programs. This is the best source of approximate costs for various practices. Unfortunately, government entities are no longer eligible for cost share through NRCS, but their cost estimates are valid and useful when applying for grants.

The following stewardship objectives were identified for the Garrity Reserve, based on the original intent to conserve the property, guidance contained in the Warranty Deed, on conversations with the Conservation Commission, and on the site's capability.

Stewardship Objectives

- ❖ To protect water quality
- ❖ To provide dispersed, passive outdoor recreation, such as walking, nature study, and snowshoeing
- ❖ To maintain native plants and animals and wildlife habitats

General Stewardship and Maintenance

- Blaze and paint the property boundaries and in combination with or instead of blazing, place Town of Lee conservation land signs along the boundary.
- Place more prominent markers on corners as needed. The southern and northern boundaries, in particular, should be properly marked to ensure long-term understanding of respective ownerships.
- Remove "no trespassing" signs along Garrity Road frontage.
- Erect small property sign near southern entrance along Garrity Road.

Public Access and Information

- Enhance locked entrance gates as needed. Place boulders in front of the southern gate as needed; a large boulder pile in the bottom of the pit offers a ready supply for this purpose. The northern gate should remain locked, but unblocked to allow for stewardship access into the property.
- Construct a small information kiosk inside the southern entrance at split in proposed loop trail. Include a map, information on public uses and sensitivity of slopes, awareness of ticks, etc.)
- Layout a loop trail as shown on Map 3. This proposed trail overlays most of the old pit access road; the southern portion of this trail will require installation of steps or other ways to address the relatively steep descent into the pit. The trail needs to enter the pit west of the large boulder pile to avoid any wetland crossing. The eastern leg of this loop trail would be a new path through the upland white pine forest along Garrity Road. This will avoid bringing the trail too close to the steep sandy, west-facing slopes. The northern leg of this trail would weave along the south side of the asphalt piles and then intersect with the main access road into the pit. Any trail layout will require removal and proper disposal of invasive plants, as described below.
- Portions of this new trail may need to be mowed periodically to deter invasive plants and to avoid too much human contact with ticks; volunteers could maintain this relatively short trail (less than 2,000 feet).
- Place small educational signs at the base and at the top of the exposed, sandy east-facing slope requiring people to stay off the slope. Monitor over time. If signs do not work to deter people from climbing or sliding down the slope, then place barriers at top and bottom. For this, use natural materials such as brush, boulders, or native plantings.

Habitat Management

Reverting Gravel Pit: Successional Habitat

The gravel pit on the Garrity Reserve was not reclaimed by the Town of Durham nor is it required now that the property is owned by the Town of Lee. Reclamation is not required by law, nor is there sufficient material to reclaim the pit. Much of the pit is naturally re-vegetating since it was last disturbed about 20 to 30 years ago. This natural vegetation is providing early successional and vernal pool habitat, benefiting a dozen or more native wildlife species. I recommend that little additional new disturbance be done within the pit, given the prevalence of invasive plant species. These plants will spread easily into any new disturbed areas. With that in mind, the following recommendations are provided:

- Work with the Lee Highway Department/Road Agent to remove the household debris and other material on the north slope of the pit. Volunteers could help gather the material at the bottom of the slope for the town staff to then remove. Care must be taken to avoid injury since some of the debris is bulky, including an old refrigerator, and on a steep slope.
- Work with the Lee Highway Department/Road Agent to remove the pile of asphalt that remains at the bottom of the pit, surrounded by wetland. In discussions with Randy Stevens, this material if clean could be taken to Pike Industries for recycling. Further digging into the pile is needed to determine if it is clean enough for recycling. If not, this pile could be brought up and added to the

other piles closer to Garrity Road. This way it would be removed from the wetland and, therefore, less likely to impact water quality.

- Maintain native early successional species – such as pitch pine, white pine, gray birch, aspen, native shrubs, and herbaceous vegetation – on the slopes, in the pit, and around the wetlands. No active management is required; allow natural succession to proceed.
- Manage invasive plant species as described below.

Invasive Plant Species Management

Non-native invasive plant species thrive in disturbed areas. Exposed soils offer prime sites for invasive species to colonize and spread. The Garrity Reserve offers such a place. Control and removal of invasive plant species is one of the most difficult management challenges. Mechanical, chemical, and biological techniques can be effective depending on the specific invasive plant. The use of chemicals to control invasive plants requires a pesticide applicators license and requires careful consideration, especially in wetlands. I recommend that the Town rely primarily on mechanical methods for invasive species removal. Physical (or mechanical) removal of roots or stems can be effective, but usually requires repeated cutting or pulling over several years. Volunteers are often eager to help with the latter.

Chemical application should be used only as a last resort and only after careful review and planning. However, Japanese knotweed is thought to be controllable only through chemical treatments and the Garrity Reserve has a dense population of this invasive plant. The Town should consider applying for a grant to assist with invasive plant control – that could include a mix of control techniques -- in conjunction with similar management at the Lee Five Corners Reserve.

Eleven state and federal agencies and nonprofit organizations formed an alliance called the **Coastal Watershed Invasive Plant Partnership** to work collaboratively on invasive species control. The mission is *to protect the ecological integrity of natural habitats and economic vitality of managed lands in New Hampshire's coastal watershed through activities that reduce the threat of invasive plants*. As part of their effort they have developed methods for mapping the distribution of invasive plants on their respective lands, and are developing strategies for controlling invasive plants in the region. For more information see <http://des.nh.gov/organization/divisions/water/wmb/coastal/cwipp/index.htm>

For more information on identifying invasive plant species in New Hampshire see the following publications and resources at <http://extension.unh.edu/forestry/Docs/invasive.pdf>; <http://www.nashuarpc.org/envplanning/documents/SoRLAC/invasiveplants.pdf>, and <http://nbii-nin.ciesin.columbia.edu/ipane/index.htm>.

- Engage volunteers in assisting with physical removal of invasive plant species. Given the propensity of these species to spread, proper removal and disposal is essential. Plants should be bagged and disposed of in landfills or burned and should not be cut or moved while they are fruiting. All vegetative parts, including the roots, should be removed. Repeated cutting is often required. Focus initial control efforts on and along the main access road into the pit and the proposed loop trail. If possible, avoid use of a brush hog or other mower to control invasives as this has the potential to cause further spreading, especially with Japanese knotweed. Use hand tools as much as possible. Small seedlings can be easily pulled, especially garlic mustard and glossy buckthorn. The multiflora rose, in addition to the knotweed, will be difficult, since the thorns are quite nasty. An initial treatment with a mower or brush hog may be needed, followed by hand pulling, cutting, and collecting of vegetative parts cut by the mower. Thereafter, conduct an annual volunteer invasive removal work day. Garlic mustard removal should occur in early spring after plant greens up but before it flowers and sets seed.

- Avoid introducing any non-native species onto the Reserve. Although it is not recommended here, if the town pursues any plantings in the future, several local or regional sources of native plants are available. Consult the New Hampshire State Forest Nursery (<http://www.dred.state.nh.us/nhnursery/>), New England Wildflower Society (<http://www.newfs.org/>), New England Wetland Plants Inc (<http://www.newp.com/>), or other sources of native plants.
- Given the extent of invasive plants on this property, any attempt at large-scale invasive removal will require financial assistance. Apply for a Moose Plate grant, USFWS Partners for Wildlife grant, or other funding sources to implement more extensive invasive plant removal, if desired. The north slope of the pit, along and between the main entrance road and the abutting Short property is particularly challenging. This area may need more aggressive treatment that combines invasive treatment, re-shaping the slope, and re-planting with native species. Since this is an expensive undertaking I am recommending it as an option pending availability of financial and technical assistance.
- If aggressive invasive plant removal is pursued then monitor effects of any invasive plant treatment. Annually monitor the known locations of invasive plants and check potential sites for new infestations. Potential new sites include any disturbed areas within the pit or along the forest and trail edges. Remove new invasive plants as soon as possible. Consider collaborating with UNH faculty or students to map the location of all invasive plants and to measure success at invasive control.

Upland Forest

As described on page 9, the upland white pine forest covers a relatively small portion of the property, much of which lies along the southern boundary and in the northwest corner. Allowing this forest to manage itself through natural processes seems the best strategy. Tree falls will create natural gaps in the forest, allowing new vegetation to sprout. The fallen trees and branches will provide habitat for wildlife and recycle nutrients back into the soil. The only recommended management action is to monitor and remove invasive plants, especially glossy buckthorn, which is seeding in along the southern boundary.

Black locust is also prevalent in the eastern half of the property, both in the pit, on the slopes, and in the upland. This species is not on the NH prohibited list, but IPANE lists it as invasive in this region. Some of the locusts on the Garrity Reserve are dying, so perhaps this species will not spread further here.

- Manage invasive plant species as described above.
- Monitor black locust to ensure that it does spread further. Avoid removal of black locust in places where it is dying out on its own or where removal would cause further soil disturbance and erosion.

Upland Meadow

A small section of the Garrity Reserve along the northern boundary is managed by the abutter Fred Short. He mows a larger meadow on this property, which extends to the lip of the gravel pit. He also maintains one or two wild fruit trees along the boundary. This provides another habitat component, not present elsewhere on the Reserve, and also helps keep invasive plants controlled in this area.

- Continue to allow Fred Short to manage this portion of the Reserve as a meadow.

Table 2 Summary of Stewardship Recommendations

Stewardship Activity	Who
Highest Priority	
Blaze and paint boundaries and corners and/or erect boundary signs	Lee CC
Remove no trespassing signs along Garrity Road	Lee CC
Erect property sign on Garrity Road	Lee CC
Enhance entrance gates as needed	If boulders needed, request assist from public works
Medium Priority	
Clear household and other debris from north slope	Lee CC with assist from public works
Erect information kiosk inside southern gate	Lee CC
Initiate invasive control along proposed loop trail; contact Coastal Watershed Invasive Plant Partnership for further guidance if needed	Lee CC and volunteers
Layout loop trail	Lee CC
Place information signs at bottom and top of exposed, steep sandy slopes	Lee CC
Remove asphalt pile from bottom of pit	Request assist from public works
Lower Priority	
Apply for grants to assist with large-scale invasive control and restoration with native plants, if desirable; hold annual volunteer work days	Lee CC, volunteers, and consultant if grant funded
Consider partnering with UNH to monitor invasive plant control success	Lee CC
Pursue removal of remaining asphalt piles, if clean enough for recycling	Request assist from public works

Bibliography

National Invasive Species Council. 2001. Meeting the invasive species challenge: national invasive species management plan. Washington, D.C.

Natural Resource Conservation Service. 2001. Strafford County Soil Survey Data. United States Department of Agriculture, Natural Resource Conservation Service.

New Hampshire Department of Agriculture Markets and Food, Plant Industry Division & New Hampshire Invasive Species Committee. 2005. Guide to invasive upland plant species in New Hampshire. Concord, New Hampshire.

Parrish, J. D. 2000. Behavioral, energetic, and conservation implications of foraging plasticity during migration. *Studies in Avian Biology*, 20:53-70.

Pimentel, D., L. Lach, R. Zuniga, and D. Morrison. 2000. Environmental and economic costs of nonindigenous species in the United States. *BioScience* 50:53-65.

Wilcove, D. S., D. Rothstein, J. Dubow, A. Phillips, and E. Losos. 1998. Quantifying threats to imperiled species in the United States. *BioScience* 48:607-615.

Referenced Websites

Oyster River Watershed Association

- Watershed map: www.trafford.org/cmsAdmin/uploads/OysterMap_mailout8_5x11.pdf
- Management plan and river nomination: www.lefh.net/orwa/

New Hampshire Invasive Species Program:

http://www.nh.gov/agric/divisions/plant_industry/plants_insects.htm and
http://www.nh.gov/agric/divisions/plant_industry/documents/booklet.pdf

Invasive Plant Atlas of New England (IPANE): <http://nbii-nin.ciesin.columbia.edu/ipane/>

Coastal Watershed Invasive Plant Partnership:

<http://des.nh.gov/organization/divisions/water/wmb/coastal/cwipp/index.htm>

Identifying Invasive Plants:

<http://extension.unh.edu/forestry/Docs/invasive.pdf>

<http://www.nashuarpc.org/envplanning/documents/SoRLAC/invasiveplants.pdf>

<http://nbii-nin.ciesin.columbia.edu/ipane/index.htm>.

New Hampshire State Forest Nursery: <http://www.dred.state.nh.us/nhnursery/>















New England Wildflower Society: <http://www.newfs.org/>

New England Wetland Plants Inc: <http://www.newp.com/>

MAP 3 - Stewardship Map

Garrity Reserve

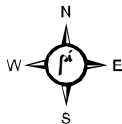
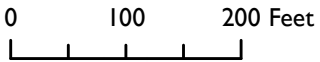
Lee, NH

-  Garrity Reserve
-  Other Conservation Lands
-  Gate
-  Wetlands
-  Management Access Road
-  Proposed Trail Loop
-  Proposed Kiosk
-  Early Successional Habitat
-  Exposed sandy slope
-  Invasive plants
-  Mowed meadow
-  Asphalt piles
-  Boulder pile
-  Old dump

Data Sources: Data provided by NH GRANIT except property features and trails produced by Ibis Wildlife Consulting.

Boundary and feature locations are approximate.

Map produced by Ibis Wildlife Consulting.
Cartography by Pete Ingraham.



April, 2010



MAP 2 - Base Map

Garrity Reserve
Lee, NH

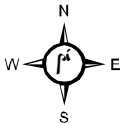
-  Garrity Reserve
-  Other Conservation Lands
-  Wetlands
-  Trails
-  Overgrown Pit Access Road
-  Gate
-  Old Structure
-  Asphalt piles
-  Boulder pile
-  Old dump

Data Sources: Data provided by NH GRANIT except property features and trails produced by Ibis Wildlife Consulting.

Boundary and feature locations are approximate.

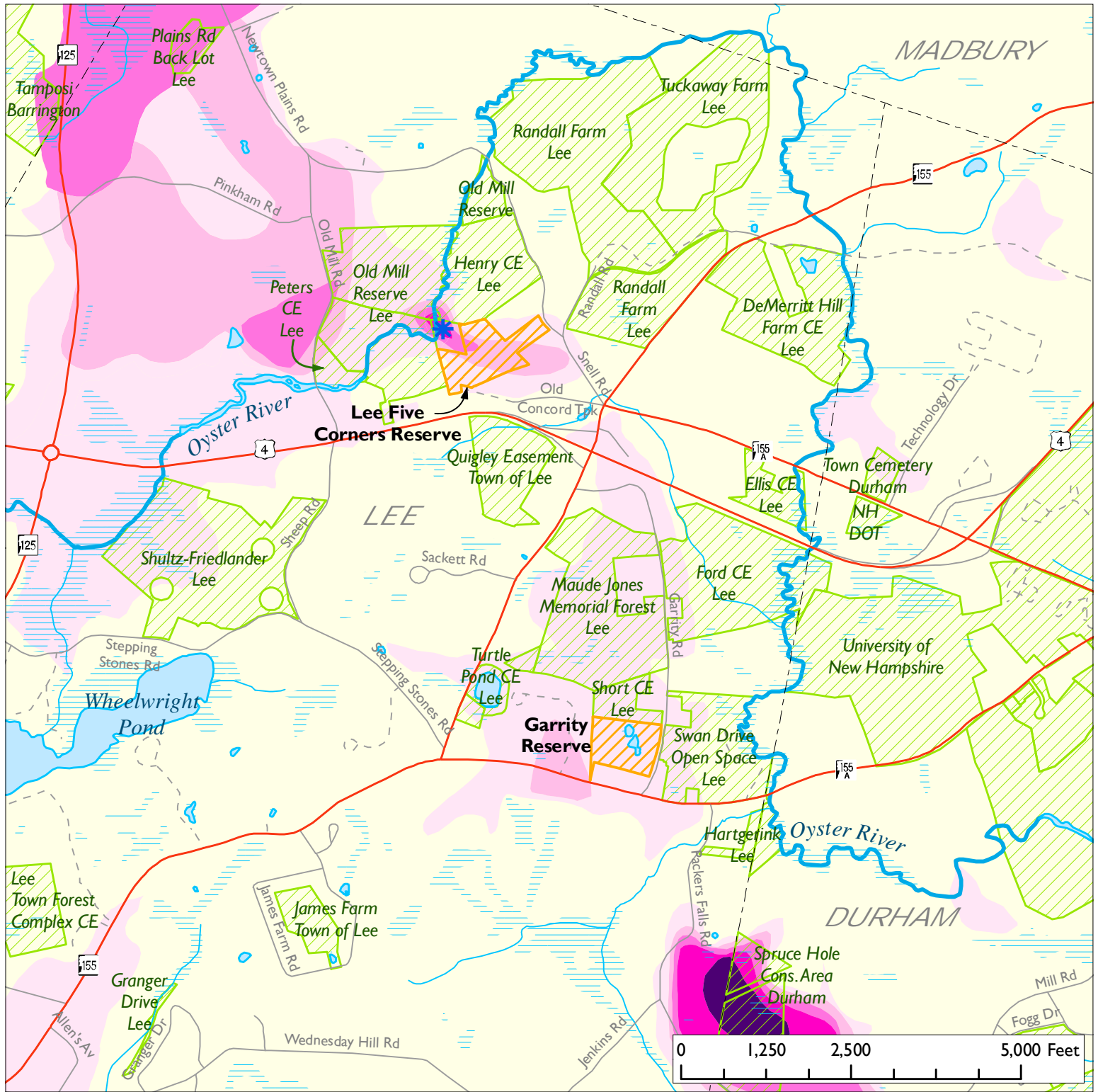
Map produced by Ibis Wildlife Consulting.
Cartography by Pete Ingraham.

0 100 200 Feet



April, 2010



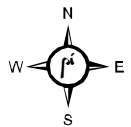


MAP I - Locus Map
 Lee Five Corners and Garry Reserves
 Lee, NH

- | | | |
|-------------------|------------------|--|
| Target Properties | Town Boundaries | Aquifer Transmissivity (ft² / day) |
| Other Cons. Lands | Water | 0 - 500 |
| Highways | Wetlands | 500 - 1,000 |
| Roads | Oyster River | 1,000 - 2,000 |
| Class VI Rds | Streams | 2,000 - 3,000 |
| | Durham Town Well | 3,000 - 4,000 |
| | | 4,000 - 6,000 |
| | | > 6,000 |

Data Sources: Data provided by NH GRANIT except: aquifers (NH Department of Environmental Services)
 Boundary and feature locations are approximate.
 Map produced by Ibis Wildlife Consulting.
 Cartography by Pete Ingraham.

April, 2010



2009 New Hampshire
EQIP Practice List
5/11/2009

Practice	Code	Cost of Typical Practice Scenario	Standard Payment Offered (Percentage of Allowable Practice Costs)	Payment - Historically Underserved (Percentage of Allowable Practice Costs)	Practice Life (Years)	Practice Use and Restrictions
Access Control (formerly Use Exclusion)	472	Heavy Steel Gate \$783.37 Ea	Heavy Steel Gate \$570.90 Ea	Heavy Steel Gate \$685.08 Ea	10	For restricting access to prevent erosion on forest trails and landings and access roads, or to protect sensitive wildlife habitat. Use in conjunction with Fence practice, if necessary.
Access Road	560	\$17.82/LnFt Level Rd <4% \$19.98/LnFt Sloping Rd, 4% and greater \$21.89/LnFt Level Rd., <4% w/geotextile \$24.05/LnFt Sloping Rd, 4% and greater w/geotextile	\$13.01/Ln Ft Level Rd, <4% \$14.59/LnFt Sloping Rd, 4% and greater \$15.98/LnFt Level Rd, <4% w/geotextile \$17.56/LnFt Sloping Rd, 4% and greater w/geotextile	\$15.61/ Ln Ft Level Rd, <4% \$17.50/ Ln Ft Sloping Rd, 4% and greater \$19.18/LnFt Level Rd, <4% w/geotextile \$21.07/LnFt Sloping Rd, 4% and greater w/geotextile	10	Use on farms and forestlands of 10 or more acres under management for heavy trucking. Use Forest Trails and Landings for access to forestlands for management activities and for erosion control on low standard forest access trails, including skid roads and trails.
Agrichemical Handling Facility	309	\$50.60/SqFt	\$36.30/SqFt	\$43.56/SqFt	20	
Animal Trails & Walkways	575	8 Ft Gravel \$21.34 Ln/Ft 12 Ft Gravel \$29.66/Ln Ft Improve Existing Laneway \$14.50/LnFt	8 Ft Gravel \$15.28 Ln/Ft 12 Ft Gravel \$21.23/Ln Ft Improve Existing Laneway \$10.38/LnFt	8 Ft Gravel \$18.34 Ln/Ft 12 Ft Gravel \$25.48/LnFt Improve Existing Laneway \$12.46	10	
Brush Management	314		Rotary Mowing \$106.61/Ac Brush Saw \$246.43/Ac	Rotary Mowing \$127.93/Ac Brush Saw \$295.71Ac	10	To establish or enhance prescribed grazing. Does not include land clearing. Area treated cannot exceed recommended stocking rates for existing livestock. <u>Maximum of two years.</u>
CNMP ACTIVITY PLAN	102	25 Ac or Less CNMP \$5,000 26 to 200 Ac CNMP \$7,500 Over 200 Ac CNMP \$10,000	25 Ac or Less CNMP \$3,750 26 to 200 Ac CNMP \$5,625 Over 200 Ac CNMP \$7,500	25 Ac or Less CNMP \$4,500 26 to 200 Ac CNMP \$6,750 Over 200 Ac CNMP \$9,000	1	Payment is for a CNMP Activity Plan. Must be the only practice in a separate contract, must be developed by a TechReg Certified Technical Service Provider (TSP), and must be completed in 12 months.
Composting Facility	317	Small Facility \$4.48/ CuFt Large Unroofed \$2.15/CuFt Large Roofed \$6.20/Cu Ft	Small Facility \$2.80/ CuFt Large Unroofed \$1.51/CuFt Large Roofed \$4.48/Cu Ft	Small Facility \$3.36/ CuFt Large Unroofed \$1.81/CuFt Large Roofed \$5.37/Cu Ft	15	Small facility approx. 15' X 30', Large facility Approximately 40' X 80'
Conservation Cover	327	Warm Season Grass \$1275.98/Ac Cool Season grass/legume \$1052.70/Ac	Warm Season Grass \$913.48/Ac Cool Season grass/legume \$767.59/Ac	Warm Season Grass \$1096.18/Ac Cool Season grass/legume \$921.11	3	For soil cover and wildlife habitat. Includes seedbed preparation, lime, fertilizer, seed and mulching, if needed.
Conservation Crop Rotation	328	2 Years Additional Hay \$396.36/Ac 5 Years Additional Hay \$487.16/Ac	2 Years Additional Hay \$304.16/Ac 5 Years Additional Hay \$394.96/Ac	2 Years Additional Hay \$353.55/Ac 5 Years Additional Hay \$444.35/Ac	1	Payment to add 2 or 5 years of hay to crop rotation that has been in continuous tillage for more than 5 years
Constructed Wetland	656	\$11.66/Cu Yd	\$8.34/Cu Yd	\$10.01/Cu Yd	15	For treatment of contaminated runoff and wastewater.
Contour Farming	330	\$87.10/Ac	\$55.50/Ac	\$66.60/Ac	1 Nat'l 5	<u>One Time Payment</u> at Establishment
Cover Crops	340	Grain \$98.07/Ac Legume \$140.17/Ac Vegetable Living Mulch \$607.64/Ac	Grain \$73.55/Ac Legume \$105.13/Ac Vegetable Living Mulch \$601.03/Ac	Grain \$88.26/Ac Legume \$126.15/Ac Vegetable Living Mulch \$604.37	1	Requires nutrient or pest management unless planted with another crop or into an established crop. Legumes must be planted before Sept. 1. Legumes include grass/legume mixtures and legume interseeding. Maximum of three years.

Practice	Code	Cost of Typical Practice Scenario	Standard Payment Offered (Percentage of Allowable Practice Costs)	Payment - Historically Underserved (Percentage of Allowable Practice Costs)	Practice Life (Years)	Practice Use and Restrictions
Critical Area Planting	342	\$1,606.66/Ac	\$1,171.52/Ac	\$1,405.82/Ac	10	Includes grading and shaping, seedbed preparation, seed or plant materials, fertilizer, lime and mulching. Use obstruction removal as separate practice if needed. NOT TO BE USED TO SEED LAND BEING BROUGHT INTO PRODUCTION.
Diversion	362	\$8.69/Ln Ft	\$6.40/Ln Ft	\$7.68/Ln Ft	10	
Early Successional Habitat Development/ Management	647	Delayed Mowing \$100/Ac Clear Openings, Average Site \$840/Ac Clear Openings - Difficult Site \$1976/Ac Rotary Mowing \$146.28/Ac Brush Saw \$338.14/Ac	Delayed Mowing \$100/Ac Clear Openings, Average Site \$630Ac Clear Openings - Difficult Site \$1482/Ac Rotary Mowing \$106.61/Ac Brush Saw \$246.43/Ac	Delayed Mowing \$100/Ac Clear Openings, Average Site \$756Ac Clear Openings - Difficult Site \$1778.40/Ac Rotary Mowing \$127.93/Ac Brush Saw \$295.71Ac	15	<u>Maximum of three years for delayed mowing of grassland.</u> Minimum of 5 contiguous acres for grassland management. EQUIP PAYMENT INCLUDES FOREGONE INCOME, WHIP DOES NOT.
Fence	382	Permanent \$4.57/Ft Movable Temporary \$1.44/Ft Special Use \$13.75/Ft	Permanent \$3.27/Ft Movable Temporary \$1.03/Ft Special Use \$9.84/Ft	Permanent \$3.92/Ft Movable Temporary \$1.24/Ft Special Use \$11.81/Ft	20	To facilitate prescribed grazing, excluding livestock from surface waters and wetlands. Special use fence is for safety fencing around manure storage facilities and other purposed approved by the ASTC-Technology or State Engineer.
Field Border	386	Cool season grass \$0.63/Ft Pollinator habitat \$0.78/Ft	Cool season grass \$0.60/Ft Pollinator habitat \$0.70/Ft	Cool season grass \$0.62/Ft Pollinator habitat \$0.74/Ft	10	A 20 foot wide by 2,178 foot strip of permanent vegetation will be established at the edge a field. Use "cool season grass" for wildlife habitat/cover & sediment/nutrient capture.
Filter Strip	393	\$663.78/Ac	\$497.84/Ac	\$597.40/Ac	10	Use for filtering sediment. Use Vegetated Treatment Strip practice for filtering runoff containing agricultural wastes.
Firebreak	394	Partially Wooded \$4.54/LnFt Open \$0.76/LnFt	Partially Wooded \$3.26/LnFt Openland \$0.55/LnFt	Partially Wooded \$3.91/LnFt Openland \$0.66/LnFt	10	Used in conjunction with Prescribed Burning
Fish Passage	396	Arch Culverts 20' x 8' 3.5" \$1214.85 LnFt Arch Culverts 16' x 6' 7.5" \$785.40 LnFt Fish Ladder \$180,892.95 each Dam Removal \$6398.39/ LnFt	Arch Culverts 20' x 8' 3.5" \$867.75 LnFt Arch Culverts 16' x 6' 7.5" \$561 LnFt Fish Ladder \$129,209.25 each Dam Removal \$4570.28/ LnFt	Arch Culverts 20' x 8' 3.5" \$1041.30 LnFt Arch Culverts 16' x 6' 7.5" \$673.20 LnFt Fish Ladder \$155,050.10 each Dam Removal \$5484.34/ LnFt	15	Small Arch Culvert Approx. 16' Wide X 6' 7.5" Tall Or Smaller. Large Arch Culvert Approx. 20' Wide X 8' 3.5" Tall or Larger
Forest Management Plan (Activity Plan)	106	10 to 25 Acres \$1250/Plan 26 to 99 Acres \$2,000/Plan 100 to 199 Acres \$3,900/Plan 200 to 350 Acres \$5,087.50/Plan 351 to 499 Acres \$6,375/Plan 500 to 999 Acres \$7,500/Plan 1,000 + Acres \$9,000/Plan	10 to 25 Acres \$937.50/Plan 26 to 99 Acres \$1,500/Plan 100 to 199 Acres \$2,925/Plan 200 to 350 Acres \$3,815.63/Plan 351 to 499 Acres \$4,781.25/Plan 500 to 999 Acres \$5,625/Plan 1,000 + Acres \$6,750/Plan	10 to 25 Acres \$1125/Plan 26 to 99 Acres \$1,800/Plan 100 to 199 Acres \$3,510/Plan 200 to 350 Acres \$4,578.75/Plan 351 to 499 Acres \$5,737.50/Plan 500 to 999 Acres \$6,750/Plan 1,000 + Acres \$8,100/Plan	1	For producers with 10 or more acres of forestland. Payment is for a Forest Management Activity Plan. Must be the only practice in a separate contract, must be developed by a TechReg Certified Technical Service Provider (TSP), completed in 12 months, and meet NRCS criteria and UNH Extension plan requirements

Practice	Code	Cost of Typical Practice Scenario	Standard Payment Offered (Percentage of Allowable Practice Costs)	Payment - Historically Underserved (Percentage of Allowable Practice Costs)	Practice Life (Years)	Practice Use and Restrictions
Forest Stand Improvement	666	Dense Softwood \$686.40/Ac Hardwood & Softwood \$514.80 Storm Damaged Stands \$1,796.96/Ac	Dense Softwood \$491.40/Ac Hardwood & Softwood \$368.55/Ac Storm Damaged Stands \$1,286.46/Ac	Dense Softwood \$589.68/Ac Hardwood & Softwood \$442.26 Storm Damaged Stands \$1,543.75/Ac	10	For pre-commercial weeding and thinning and thinning of stands where removal of low grade products is at or near a break even cost. Storm damage payment is to prepare severely damaged stands with little salvageable timber to meet identified regeneration, wildlife or carbon sequestration goals. Storm damage must meet established criteria and be assessed in the field by NRCS Biologist or UNH Extension Forester.
Forest Trails & Landings	655	Average Sites \$4,740/Ac Moderately Difficult Sites \$10,942.64/Ac Difficult Sites \$15,135/Ac Landings \$2,472.00/Ac	Average Sites \$3,393/Ac Moderately Difficult Sites \$7,823.45/Ac Difficult Sites \$10,818/Ac Landings \$1,773.00Ac	Average Sites \$4,071.60/Ac Moderately Difficult Sites \$9,388.15/Ac Difficult Sites \$12,981.60/Ac Landings \$2,127.60/Ac	5	Soil erosion control and water quality protection on surface area of forest roads, trails and landings. Use Stream Crossing practice for culverts larger than 18 inches and Critical Area Planting or Conservation Cover practice for establishing vegetation.
Grade Stabilization Structure	410	Bioengineering \$237.42/Ln Ft Gabion Weir \$336.87/Ln Ft Rock Lined Chute \$154.94/Ln Ft Concrete Drop Structure \$439.54/Ln Ft	Bioengineering \$170.32/Ln Ft Gabion Weir \$241.17/Ln Ft Rock Lined Chute \$111.15/Ln Ft Concrete Drop Structure \$315.32/Ln Ft	Bioengineering \$204.39/Ln Ft Gabion Weir \$289.40/Ln Ft Rock Lined Chute \$133.38/Ln Ft Concrete Drop Structure \$378.39/Ln Ft	15	
Grassed Waterway	412	\$13.55/Ln Ft With Stone Center \$33.50/Ln Ft	\$10.16/Ln Ft With Stone Center \$24.68/Ln Ft	\$12.19/Ln Ft With Stone Center \$29.62/Ln Ft	10	
GRAZING PLAN ACTIVITY PLAN	110	\$2,150/Plan	\$1,612.50/ Plan	\$1,935/Plan		Payment is for a Grazing Activity Plan. Must be the only practice in a separate contract, must be developed by a TechReg Certified Technical Service Provider (TSP), and must be completed in 12 months.
Heavy Use Area Protection	561	Gravel \$1.27/Sq Ft Asphalt \$3.35/Sq Ft Concrete \$8.19/Sq Ft Concrete Roofed \$32.31/Sq Ft	Gravel \$0.91/Sq Ft Asphalt \$2.40/Sq Ft Concrete \$5.88/Sq Ft Concrete Roofed \$23.18/Sq Ft	Gravel \$1.09/Sq Ft Asphalt \$2.89/Sq Ft Concrete \$7.05/Sq Ft Concrete Roofed \$27.81/Sq Ft	10	<u>Maximum of 100 square feet per animal unit.</u> Roofs only allowed where site conditions preclude use of vegetated treatment strips, or constructed wetlands for treatment of effluent.
Irrigation Storage Reservoir	436	\$17.60/Cu Yd	\$12.60/Cu Yd	\$15.12/Cu Yd	15	
Irrigation System - Microirrigation	441	Drip \$1,013.91/Ac Greenhouse \$20.48/Sq Ft	Drip \$727.37/Ac Greenhouse \$14.63/Sq Ft	Drip \$872.84/Ac Greenhouse \$17.55/Sq Ft	10	Only on land meeting EQIP irrigation history requirement.
Irrigation System - Tailwater Recovery	447	\$60.48/Cy Yd	\$43.39/Cu Yd	\$52.07/Cu Yd	20	
Irrigation Water Conveyance	430 DD	3 Inch HDPE \$6.41/Ft	3 Inch HDPE \$4.60/Ft	3 Inch HDPE \$5.52/Ft	25	Approved for buried high pressure plastic pipeline to supply irrigation water to microirrigation systems only.
Irrigation Water Management	449	IWM Payment \$10.00/Ac	IWM Payment \$7.50/Ac	IWM Payment \$9.00/Ac	1	
Lined Waterway or Outlet	468	\$176.28/Ln Ft	\$126.46/Ln Ft	\$151.75/Ln Ft	15	

Practice	Code	Cost of Typical Practice Scenario	Standard Payment Offered (Percentage of Allowable Practice Costs)	Payment - Historically Underserved (Percentage of Allowable Practice Costs)	Practice Life (Years)	Practice Use and Restrictions
Mulching	484	Small Fruit & Vegetables \$489.30/Ac	Small Fruit & Vegetables \$349.50/Ac	Small Fruit & Vegetables \$419.40/Ac	1	Adding residue to control erosion on small fruit and vegetable crops. One-time payment for producers that are not currently using this practice to reduce erosion and increase soil organic matter.
Nutrient Management	590	No Compost/Manure \$52/Ac With Compost/Manure \$80/Ac Soil Health \$93/Assessment	No Compost/Manure \$39/Ac With Compost/Manure \$60/Ac Soil Health \$69.75/Assessment	No Compost/Manure \$46.80/Ac With Compost/Manure \$72/Ac Soil Health \$83.70/Assessment	1	<u>Maximum 3 year payment</u> to begin implementing an NRCS approved nutrient management plan. <u>Soil Health Assessment</u> is a one time payment. The Soil Health Assessment requires that the producer is following a current NRCS approved nutrient management plan or will follow a newly developed NRCS nutrient management plan.
Obstruction Removal	500	Tree and Boulder Removal \$3,141.60/Ac Debris Removal \$2,490.40/Ac	Tree and Boulder Removal \$2,249.10/Ac Debris Removal \$1,782.90/Ac	Tree and Boulder Removal \$2,698.92/Ac Debris Removal \$2,139.48/Ac	10	To facilitate installation of prescribed grazing, erosion control, water conservation and waste management practices. <u>Maximum of one acre per contract.</u>
Pasture & Hay Planting	512	Pasture Planting \$740.50/Ac Corn to Past/Hay \$1434.74/Ac	Pasture Planting \$539.66/Ac Corn to Past/Hay \$1233.89/Ac	Pasture Planting \$647.59/Ac Corn to Past/Hay \$1341.82/Ac	10	For seeding down tilled land to permanent hay or in conjunction with prescribed grazing. Includes seedbed preparation, seed, fertilize, lime (to soil test.)
Pest Management	595	IPM \$183.75/Ac Deer Exclusion \$13.75/Ft INVASIVE PLANT CONTROL Invasives - Hand Tools \$580/Ac Invasives - Cut Stem \$1,335.40/Ac Invasives - Difficult Mowing \$2,016/Ac Invasives - Average Mowing \$840/Ac Invasives - Difficult Chemical \$1,980/Ac Invasives - Lite treatment \$110/Ac Invasives - Average Chemical \$357.50/Ac	IPM \$131.25/Ac Deer Exclusion \$9.84/Ft INVASIVE PLANT CONTROL Invasives - Hand Tools \$435/Ac Invasives - Cut Stem \$956.03/Ac Invasives - Difficult Mowing \$1,512/Ac Invasives - Average Mowing \$630/Ac Invasives - Difficult Chemical \$1417.50/Ac Invasives - Lite treatment \$78.75/Ac Invasives - Average Chemical \$255.94/Ac	IPM \$157.50/Ac Deer Exclusion \$11.81/Ft INVASIVE PLANT CONTROL Invasives - Hand Tools \$522/Ac Invasives - Cut Stem \$1,147/Ac Invasives - Difficult Mowing \$1,814/Ac Invasives - Average Mowing \$756/Ac Invasives - Difficult Chemical \$1,701/Ac Invasives - Lite treatment \$94.50/Ac Invasives - Average Chemical \$307.13/Ac	1	Cropland, Orchards, Christmas Trees - <u>Maximum 3 year payment</u> to producers, if not used previously, to apply integrated pest management (IPM.) IPM must be conducted by properly licensed and qualified professionals. <u>Invasive and Non-Native Plant Species Control</u> -All agricultural and forest lands -invasive and non-native plant species control, maximum of three years treatment, does not need to be consecutive years.
Pipeline	516	1" Buried \$2.67/Ln Ft Surface 1" \$0.51/Ln Ft	1" Buried \$1.92/Ln Ft Surface 1" \$0.36/Ln Ft	1" Buried \$2.30/Ln Ft Surface 1" \$0.43/Ln Ft	20	For livestock water in conjunction with prescribed grazing.
Pond	378	Small Dugout \$20.15/Cu Yd Small Embankment \$17.76/ Cu Yd	Small Dugout \$14.45/Cu Yd Small Embankment \$12.74/Cu Yd	Small Dugout \$17.34/Cu Yd Small Embankment \$15.29/Cu Yd	20	Ponds for livestock water as part of a grazing system. New ponds only. Does not include dredging of existing ponds. Must be most economical water source.
Pond Sealing or Lining	521A	\$2.48/Sq Ft	\$1.77/Sq Ft	\$2.13/Sq Ft	20	Only for sealing and lining of Waste Storage Facilities
Prescribed Burning	338	Open Land Burning \$1415.87/Ac Pine/Scrub Oak \$4,876/Ac	Open Land Burning \$1015.73/Ac Pine/Scrub Oak \$3,498/Ac	Open Land Burning \$1218.88/Ac Pine/Scrub Oak \$4,197.60/Ac	5	Includes burning plan development and application by a qualified third party.

Practice	Code	Cost of Typical Practice Scenario	Standard Payment Offered (Percentage of Allowable Practice Costs)	Payment - Historically Underserved (Percentage of Allowable Practice Costs)	Practice Life (Years)	Practice Use and Restrictions
Prescribed Grazing	528	Adv Rotat Graze Yr 1 \$59.50/Ac Adv Rotat Graze Yr 2&3 \$27/Ac Basic Rotat Graze Yr 1-3 \$26/Ac Dairy Transition Yr 1-3 \$558/Ac	Adv Rotat Graze Yr 1 \$44.63/Ac Adv Rotat Grz Yr 2&3 \$20.25/Ac Basic Rot Grz Yr 1-3 \$19.50/Ac Dairy Transition Yr 1-3 \$549/Ac	Adv Rotat Graze Yr 1 \$53.55/Ac Adv Rotat Graze Yr 2&3 \$24.30/Ac Basic Rotat Grz Yr 1-3 \$23.40/Ac Dairy Transition Yr 1-3\$554.40/Ac	5	Requires Grazing Plan (developed by UNH EXT, TSP or NRCS) or EQIP Activity Plan Developed by a private TSP. Maximum of 3 years for applying the 528 practice. <u>Basic</u> Rotational Grazing is for 2-7 day rotation schedule. <u>Advanced</u> Rotation Grazing is for <2 day rotation schedule (Management Intensive Grazing) and/or multi-species grazing (following at most a 7 day rotation schedule). Dairy transition is for changing from confinement to a rotational grazing system with at most a 7 day rotation schedule.
Pumping Plant	533	Water Pump \$660 each Solar/Wind \$9,540.40 each	Water Pump \$472.50 each Solar/Wind \$6,844.20 each	Water Pump \$567 each Solar/Wind \$8,213.04 each	15	Pumps to facilitate Prescribed Grazing and Heavy Use Area practices. Solar and wind powered water pumps approved if only feasible solution. Electrical hookups are not cost shared.
Residue and Tillage Management, Mulch Till	345	Mulch Till Corn \$157/Ac	Mulch Till Corn \$142.50/Ac	Mulch Till Corn \$151.20/Ac	1	Maximum of 3 Years
Residue and Tillage Management, No-Till, Strip Till/Direct Seed	329	No-Till year 1 \$130.96/Ac No-Till year 2&3 \$86.96/Ac	No-Till year 1 \$120.22/Ac No-Till year 2&3 \$76.22/Ac	No-Till year 1 \$126.67/Ac No-Till year 2&3 \$82.67/Ac	1	Maximum of 3 Years
Residue Management, Seasonal	344	\$56.90/Ac	\$54.30/Ac	\$55.86/Ac	1	Maximum of 3 Years
Restoration and Management of Declining Habitats	643	Declining forest \$2,366/Ac Eelgrass Restoration \$42,550/Ac Oyster Bed Restoration \$50,025/Ac Barrens and Rare Forests \$1,680/Ac T&E Species Habitat \$2,625/Ac	Declining forest \$1,962/Ac Eelgrass Restoration \$30,525/Ac Oyster Bed Restoration \$35,887.50/Ac Barrens and Rare Forests \$1,200/Ac T&E Species Habitat \$1,875/Ac	Declining forest \$2,204.40/Ac Eelgrass Restoration \$36,630/Ac Oyster Bed Restoration \$43,065/Ac Barrens and Rare Forests \$1,440/Ac T&E Species Habitat \$2,250/Ac	15	
Riparian Forest Buffer	391	Zone 1 and 2 \$11,642.16/Ac Zone 1, 2, and 3 \$14,140.20/Ac	Zone 1 and 2 \$8,797.17/Ac Zone 1, 2, and 3 \$10,583.96/Ac	Zone 1 and 2 \$10,226.60/Ac Zone 1, 2, and 3 \$12,370.76/Ac	15	Includes shaping, seedbed preparation, soil amendments, seeding and tree/shrub planting stock and labor for establishing.
Roof Runoff Structure	558	Roof Gutters \$23.48/Ln Ft Ground Gutters \$35.37/Ln Ft	Roof Gutters \$16.84/Ln Ft Ground Gutters \$25.37/Ln Ft	Roof Gutters \$20.21/Ln Ft Ground Gutters \$30.45/Ln Ft	15	Only for clean water separation around livestock facilities
Sediment Basin	350	Drop Inlet \$23.22/Cu Yd Rock Check Basin \$18.35/Cu Yd	Drop Inlet \$16.53/Cu Yd Rock Check Basin \$12.81/Cu Yd	Drop Inlet \$19.83/Cu Yd Rock Check Basin \$15.37/Cu Yd	20	
Spring Development	574	\$2,930.69 ea	\$2,102.45 ea	\$2,522.95 ea	10	For livestock water or in conjunction with irrigation regulating pit or reservoir, or for creating artificial seeps for wildlife. Use Pumping Plant practice where necessary

Practice	Code	Cost of Typical Practice Scenario	Standard Payment Offered (Percentage of Allowable Practice Costs)	Payment - Historically Underserved (Percentage of Allowable Practice Costs)	Practice Life (Years)	Practice Use and Restrictions
Stream Crossing	578	Culverts 12" - 24" \$49.72/Ft 36" \$92.66/Ft >36" \$129.95/Ft Concrete Box Culv. \$511.95/Ft Stone Fords \$49.24/Ft Timber Bridge \$1,018.55/Ft Steel Bridge \$1300.79/Ft Pre Fab Bridge \$1,649.68/Ft	Culverts 12" - 24" \$36.30/Ft 36" \$67.65/Ft >36" \$94.88 /Ft Concrete Box Culvert \$373.77/Ft Stone Fords \$35.95/Ft Timber Bridge \$743.63/Ft Steel Bridge \$949.69/Ft Pre Fab Bridge \$1,204.41/Ft	Culverts 12" - 24" \$43.56/Ft 36" \$81.18/Ft >36" \$113.85/Ft Concrete Box Culvert \$448.52/Ft Stone Fords \$43.14/Ft Timber Bridge \$892.36/Ft Steel Bridge \$1,139.63/Ft Pre Fab Bridge \$1,445.29/Ft	10	Culverts, stone fords, and bridges required for farm and forest access.
Stream Habitat Improvement and Management	395	Culvert Removal \$2,173.31 Ea Riparian Management \$140/Ac Log Jam \$232 Ea Streambank Habitat \$88.13/Ln Ft	Culvert Removal \$1,412.51 Ea Riparian Management \$117.50/Ac Log Jam \$174 Ea Streambank Habitat \$64.20/Ln Ft	Culvert Removal \$1,695.01 Ea Riparian Management \$131/Ac Log Jam \$208.80 Ea Streambank Habitat \$77.05/Ln Ft	10	Log Jam DES restoration permit required
Streambank & Shoreline Protection	580	\$154/Ln Ft	\$110.25/Ln Ft	\$132.30/Ln Ft	20	Includes removal of fallen trees, shaping, revegetation, and rock protection of the toe of the slope. To protect critical fish or wildlife habitat or significant cultural resources.
Stripcropping	585	\$213.48/Ac	\$159.89/Ac	\$161.87/Ac	5	One Time Payment at Establishment
Structure for Water Control	587	Gabion Structure \$996.18/Ft In-line Water Control Level \$9,284.45/Ea Instream Rock Chute \$278.89/Ln Ft Pipe Replacement 12" - 18" \$15093.75 Pipe Replacement >21" \$26852.50	Gabion Structure \$714.65/Ft In-line Water Level Control \$6,552.98/Ea Instream Rock Chute \$200.07Ln /Ft Pipe Replacement 12" - 18" \$10828.13 Pipe Replacement >21" \$19263.75	Gabion Structure \$857.58/Ft In-line Water Level Control \$7,863.57/Ea Instream Rock Chute \$240.09/Ln Ft Pipe Replacement 12" - 18" \$12993.75 Pipe Replacement >21" \$23116.50	20	Use Stream Crossing practice for culverts, fords and bridges
Subsurface Drain	606	Channel Drainage \$16.49/LnFt	Channel Drainage \$11.83/LnFt	Channel Drainage \$14.20/LnFt	20	Allowable when required to ensure proper functioning of other practices. NOT FOR LAND DRAINAGE
Terrace	600	Gradient \$4.20/Ft Parallel \$5.26/Ft	Gradient \$2.10/Ft Parallel \$2.63/Ft	Gradient \$2.52/Ft Parallel \$3.16/Ft	10	
Tree/Shrub Establishment	612	Softwoods \$1,185.84/Ac Hardwood \$1,451.52/Ac Hardwood-Deer Protection \$3,330.72/Ac Native Shrubs \$1,965.60/Ac Wildlife Shrubs \$27.04/Ea	Softwoods \$848.21/Ac Hardwood \$1,038.24/Ac Hardwood-Deer Protection \$2,382.39/Ac Native Shrubs \$1,405.95/Ac Wildlife Shrubs \$20.28/Ea	Softwoods \$1017.85/Ac Hardwood \$1,245.89/Ac Hardwood-Deer Protection \$2,858.87/Ac Native Shrubs \$1,687.14/Ac Wildlife Shrubs \$24.34/Ea	15	Not to be used to plant grassland or cropland to forest. Maximum stocking density for wildlife habitat improvement is 70 Trees/Ac or 450 Shrubs/Ac.
Tree/Shrub Pruning	660	Mast Tree Pruning \$50.88/Tree	Mast Tree Pruning \$37.08/Tree	Mast Tree Pruning \$44.50/Tree		For pruning fruit trees for wildlife food production
Tree/Shrub Site Preparation	490	\$582.00/Ac	\$423.00/Ac	\$507.60/Ac	1	Was Forest Site Preparation. May be used for scarification to encourage natural seeding of white pine, aspen or other native species. May also be used to prepare a site for Tree/Shrub Establishment.
Underground Outlet	620	Concrete Drop Inlet and 8" PVC Pipe \$17.58/Ln Ft	Concrete Drop Inlet and 8" PVC Pipe \$12.61/Ln Ft	Concrete Drop Inlet and 8" PVC Pipe \$15.14/Ln Ft	20	
Upland Wildlife Habitat Management	645	Hardwood Mast \$617.12/Ac Softwood Retention \$216/Ac Brush Piles \$261/Ea Large Bird Houses \$410.30/Ea Small Birdhouses \$36.60/Ea	Hardwood Mast \$445.44/Ac Softwood Retention \$187/Ac Brush Piles \$195.75/Ea Large Bird Houses \$293.74/Ea Small Birdhouses \$27.45/Ea	Hardwood Mast \$534.53/Ac Softwood Retention \$204/Ac Brush Piles \$234.90/Ac Large Bird Houses \$352.49/Ac Small Birdhouses \$32.94/Ac	1	Large bird houses (target species Purple Martins) for installation only where there are known populations in the state. Maximum of 1 Large Birdhouse/landowner, unless approved by NRCS Biologist. Small birdhouses - maximum 4/landowner.

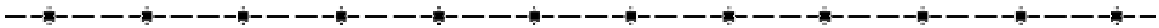
Practice	Code	Cost of Typical Practice Scenario	Standard Payment Offered (Percentage of Allowable Practice Costs)	Payment - Historically Underserved (Percentage of Allowable Practice Costs)	Practice Life (Years)	Practice Use and Restrictions
Vegetated Treatment Area (formerly Wastewater Treatment Strip)	635	Vegetated Treatment Area \$5,131.30/ac	Vegetated Treatment Area \$3,681.15/ac	Vegetated Treatment Area \$4,417.38/ac	10	Used for treatment of runoff containing agricultural wastes
Waste Facility Cover	367	Flexible Covers \$13.80/Sq Ft Rigid Covers \$20.70/Sq Ft	Flexible Covers \$9.90/Sq Ft Rigid Covers \$14.85/Sq Ft	Flexible Covers \$11.88/Sq Ft Rigid Covers \$17.82/Sq Ft	25	Includes hoop roofs
Waste Storage Facility	313	Liquid Manure Storage \$210.02/AUM Dry Stack \$186.71/AUM Roofed Dry Stack \$346.62/AUM	Liquid Manure Storage \$154.37/AUM Dry Stack \$136.88/AUM Roofed Dry Stack \$256.82/AUM	Liquid Manure Storage \$185.24/AUM Dry Stack \$164.26/AUM Roofed Dry Stack \$308.18/AUM	15	Payment is based on Animal Unit Months (AUM.) Roofs only allowed where site conditions dictate, as determined by NRCS.
Waste Transfer	634	Concrete Push Off Pad \$7,904.41/Ea Gravity Pipe \$33,791.60/Ea Transfer Pump \$32,257.50/Ea	Concrete Push Off Pad \$5670.56/Ea Gravity Pipe \$24,241.80/Ea Transfer Pump \$23,141.25/Ea	Concrete Push Off Pad \$6,804.67/Ea Gravity Pipe \$29,090.16/Ea Transfer Pump \$27,769.50/Ea	10	Formerly Manure Transfer
Waste Treatment	629	\$30.80/Gal/Day	\$22.05/Gal/day	\$26.46/Gal/Day	10	Use this practice for <u>milkhouse waste water treatment</u>
Water Well	642	Dug Well \$3,850.00/Ea Well \$15.89/Ft	Dug Well \$2,756.25/Ea Well \$11.40/Ft	Dug Well \$3,307.50/Ea Well \$13.68/Ft	20	Only when part of grazing system, or when used in association with other practices to protect water bodies from damage by livestock. Use with Pumping Plant practice. NOT FOR IRRIGATION WELLS
Watering Facility	614	Insulated Tank \$1,174.95/Ea Water Tub w/Float Valve \$2.71/Gal Nose Pump \$693.53/Ea	Insulated Tank \$839.25/Ea. Water Tub w/Float Valve \$1.95/Gal Nose Pump \$495.38/Ea	Insulated Tank \$1,007.10/Ea. Water Tub w/Float Valve \$2.34/Gal Nose Pump \$594.45/Ea	10	Tanks and Troughs. For livestock watering as part of a grazing system or to manage livestock to prevent degradation of surface and groundwater. Use in conjunction with Pumping Plant, Pipeline, and Heavy Use Area Protection practices, if needed.
Wetland Enhancement	659	Broadcast Native Wetland Mix \$2,827.10/Ac Native Wetland Plugs \$6,138.00/Ac Hydrologic Improvement \$42.41/Cu Yd	Broadcast Native Wetland Mix \$2,023.50/Ac Native Wetland Plugs \$4,394.25/Ac Hydrologic Improvement \$30.31/Cu Yd	Broadcast Native Wetland Mix \$2,428.20/Ac Native Wetland Plugs \$5,273.10/Ac Hydrologic Improvement \$36.37/Cu Yd	15	Use to enhance wetland functions in degraded wetlands, including vernal pools. Does not include dredging of existing ponds.
Wetland Restoration	657	Salt Marsh \$54.57/Cy Fresh Water Wetland \$13.72/Cy Ditch Plugs \$2,642.22/Ac	Salt Marsh \$39.07/Cy Fresh Water Wetland \$9.82/cy Ditch Plugs \$2,056.67/Ac	Salt Marsh \$46.88/Cy Fresh Water Wetland \$11.79/cy Ditch Plugs \$2,408.00/Ac	15	
Wetland Wildlife Habitat Management	644	Wetland Wildlife Habitat Management \$636/Ac	Wetland Wildlife Habitat Management \$463.50/Ac	Wetland Wildlife Habitat Management \$556.20/Ac	1	Mechanical Manipulation of Wetland Vegetation
Windbreak Establishment	380	\$3,356/Ac	\$2517/Ac	\$3020.40/Ac	15	

NOTE: The above list of practices include all practices that may be used in EQIP contracts.

NEW HAMPSHIRE PROHIBITED PLANT SPECIES:

(* indicates that the species is currently regulated by the Department of Environmental Services [DES])

<i>Ailanthus altissima</i>	Tree of Heaven
<i>Alliaria petiolata</i>	Garlic Mustard
<i>Berberis vulgaris</i>	European Barberry
<i>Butomous umbellata*</i>	Flowering Rush
<i>Cabomba caroliniana*</i>	Fanwort
<i>Celastrus orbiculatus</i>	Oriental Bittersweet
<i>Cynanchum nigrum</i>	Black Swallow-wort
<i>Cynanchum rossicum</i>	Pale Swallow-wort
<i>Egeria densa*</i>	Brazilian elodea
<i>Elaeagnus umbellata</i>	Autumn Olive
<i>Heracleum mantegazzianum</i>	Giant Hogweed
<i>Hydrilla verticillata*</i>	Hydrilla
<i>Hydrocharis morsus-ranae*</i>	European Frogbit
<i>Iris pseudacorus</i>	Water-flag
<i>Ligustrum obtusifolium</i>	Blunt-leaved Privet
<i>Lonicera x bella</i>	Showy Bush Honeysuckle
<i>Lonicera japonica</i>	Japanese Honeysuckle
<i>Lonicera morrowii</i>	Morrow's Honeysuckle
<i>Lonicera tatarica</i>	Tartarian Honeysuckle
<i>Lythrum salicaria*</i>	Purple loosestrife
<i>Myriophyllum aquaticum*</i>	Parrot Feather
<i>Myriophyllum heterophyllum*</i>	Variable Milfoil
<i>Myriophyllum spicatum*</i>	European Water-Milfoil
<i>Najas minor*</i>	European Naiad
<i>Nymphoides peltata*</i>	Yellow Floating Heart
<i>Phragmites australis*</i>	Common Reed
<i>Polygonum cuspidatum</i>	Japanese Knotweed
<i>Potamogeton crispus*</i>	Curly-leaf Pondweed
<i>Rhamnus cathartica</i>	Common Buckthorn
<i>Rhamnus frangula</i>	Glossy Buckthorn
<i>Rosa multiflora</i>	Multiflora Rose
<i>Trapa nutans*</i>	Water Chestnut



JANUARY 1, 2007

**THE FOLLOWING NEW HAMPSHIRE PROHIBITED PLANT SPECIES
WILL BE BANNED:**

<i>Euonymus alatus</i>	Burning Bush
<i>Acer platanoides</i>	Norway Maple
<i>Berberis thunbergii</i>	Japanese Barberry



PROPOSED
NEW HAMPSHIRE PROHIBITED INSECT SPECIES:

<i>Acarapis woodi</i>	Honeybee Tracheal Mite
<i>Adelges tsugae</i>	Hemlock Woolly Adelgid
<i>Aeolesthes sarta</i>	City Longhorned Beetle
<i>Anoplophora glabripennis</i>	Asian Longhorned Beetle
<i>Callidellum rufipenne</i>	Cedar Longhorned Beetle
<i>Dendrolimus sibiricus</i>	Siberian Silk Moth
<i>Fiorinia externa</i>	Elongated Hemlock Scale
<i>Hylurgus lingniperda</i>	Redhaired Bark Beetle
<i>Ips typographus</i>	European Spruce Bark Beetle
<i>Lymantria dispar</i>	Asian Gypsy Moth
<i>Popillia japonica</i>	Japanese Beetle
<i>Pyrrhalta viburni</i>	Viburnum Leaf Beetle
<i>Rhizotrogus majalis</i>	European Chafer
<i>Symantria monacha</i>	Nun Moth
<i>Tetropium fuscum</i>	Brown Spruce Longhorn Beetle
<i>Varroa destructor</i>	Varroa Mite