

**FORMER GRISWOLD AIRPORT
A HABITAT MANAGEMENT PLAN for the
Town of Madison, Connecticut**



I. INTRODUCTION

Authors: Kenneth Metzler and Juliana Barrett in association with Anne Penniman Associates, LLC

Purpose: This plan describes the habitats of the former Griswold Airport in Madison, Connecticut and proposes site management and restoration objectives for the site. This 42-acre parcel contains the abandoned runway and infield grassland associated with the airport, a number of associated buildings, an intact dry coastal forest, and adjacent tidal wetlands. The town of Madison acquired this property in 2010 after negotiations between the Town, the Trust for Public Land, Audubon Connecticut, and LeylandAlliance, the former owner of the site. This plan details the natural resources of the former airport and proposes several management activities to maintain, enhance, and restore the area's significant coastal habitats. The objective of this plan is to balance the proposed recreational development of the site with the conservation of significant ecological features, all in the context of public use.

General property description:

Location and Access: The former Griswold Airport is located south of US Route 1, in Madison, Connecticut bordered on the north by Hammonasset State Park, to the south by Hammonasset Natural Area Preserve, and to the east by the Hammonasset River. The western boundary abuts a number of small private parcels, collectively known as Dud's Village. Access to the property is directly off U.S. Route 1.

Physical Description: This 42-acre parcel contains the airport's former runway and infield grassland, several associated buildings, an intact dry coastal forest, and 10 acres of tidal wetland.

Ownership: The Town of Madison owns the entire parcel in fee, acquired in 2010 after the passage of a public referendum.

Deed Restrictions: A conservation easement is held on part of the property and is managed by the State of Connecticut. This easement was signed by the Town in exchange for grant funds to help pay for the cost of acquiring the land. The easement contains 20.6 acres of the former Griswold Airport, protects most of the ecologically sensitive habitats from development, and allows passive recreation for hiking and wildlife observation.

II. GENERAL GOALS OF THE PROPERTY

Understanding the unique ecological value of the property, the Town of Madison is proposing development of the former airport for multi-use recreational opportunities in balance with the conservation of a significant part of the land. The primary focus of the property is active use of three multi-use playing fields, restoration of the north hanger for multi-functional use, the construction of a concession area with restrooms, and the construction of an amphitheater. The remainder of the property would be accessed by a number of hiking trails and several observation platforms would be constructed at focal points for wildlife observation. Conservation and restoration goals include the enhancement and maintenance of the coastal grassland, the removal of invasive plants from the coastal forest, and removal and restoration of old runway encroachments that occur in tidal wetlands. The conservation easement area will be maintained as open space for hiking and wildlife observation, wildlife habitat, and to preserve its scenic views and vistas.

With respect to the ecological significance of the site, the following goals for the property are proposed:

To maintain coastal forest, grassland, and tidal wetland habitat and biological diversity as part of the larger Hammonasset/Hammock River Estuary, a Long Island Sound Study Stewardship Area.

To manage the grassland habitat to retain the structural identity and floristic composition of a native, warm season grassland. Management activities will include the proactive removal and replacement of Japanese lawngrass with indigenous grass species that now dominate the site.

Replanting with native, warm season grasses and periodic mowing and/or prescribed burning will be necessary parts of the plan.

To restore tidal wetlands that have been encroached by the placement of fill for runway construction. The removal of *Phragmites* and minor ditching to allow tidal flow are necessary parts of the plan. Permits for this work are required by the Connecticut Department of Energy and Environmental Protection Office of Long Island Sound Programs.

To maintain the coastal forest and the tidal marsh borders as natural habitat for the indigenous biodiversity of the Hammonasset/Hammock River ecosystem. This includes vegetation management such as invasive species removal and replanting, if necessary, with appropriate indigenous species. Care should be taken not to significantly disrupt vegetation structure necessary for birds and mammals currently using the site.

To maintain the scenic vistas associated with these tracts for public enjoyment.

Open Space

The former Griswold Airport is part of the larger Hammonasset/ Hammock River Estuary ecosystem, mostly in the ownership of the State of Connecticut. This ecosystem is recognized by The Long Island Sound Study as a Stewardship Area containing extensive and exemplary coastal resources with a significant long-term focus on research. The Hammonasset/Hammock River tidal marshes are also recognized by Audubon Connecticut as an Important Bird Area of global significance due to its large population of salt marsh sparrows. The property abuts the Hammonasset Natural Area Preserve (NAP) and the combination of the NAP and The State of Connecticut Conservation Easement will protect in perpetuity the significant natural features of these areas and will minimize the environmental impact of activities associated with recreational development by the Town.

Public Use

The entire parcel is open to the public for active and passive recreation as deemed permissible by the Town.

III. CHARACTERISTICS OF THE PRESERVE

Natural Habitats

The former Griswold Airport is currently being proposed as a multiple-use town park with a balanced focus on passive recreational use and the conservation of unique natural features. The site contains six distinct habitats that reflect the ecological conditions of the site, such as the origin and drainage of its underlying soils, its close proximity to Long Island Sound, the influence of tides, and its land-use history. Dry coastal grassland is the dominant vegetation type, creating an open landscape with unparalleled vistas of the tidal marshes of Hammonasset State Park and Natural Area Preserve, the Hammonasset River, and the waters of Long Island Sound. The site also contains two areas of coastal forest, two tidal wetlands, a shrubby transition from the grassland to the tidal wetlands, and a small inland wetland created by previous sand and gravel excavation.

A map depicting the location of habitats can be found in the Master Plan and Appendix A contains a partial list of plant species observed on the site.

Coastal Grassland

The coastal grassland is visually dominated by warm season bunchgrasses that reach their maturity in late summer. In the early autumn, their three foot height and reddish-tan hue provide a magnificent visual contrast to the backdrop of coastal forests and tidal wetlands. Broomsedge is the predominant grass, interspersed with sheep fescue, redtop bent grass, and other European lawn grasses. Large patches of Japanese lawngrass occur on the edges of the old runway and perimeter road, forming a continuous lawn in the southern third of the site. Herbaceous species such as dwarf dandelion, yellow hawkweed, and old field toadflax provide yellow and blue floral color during the spring and early summer. Additional species are scattered throughout and include the bright-orange flowered butterfly weed, wild indigo, hairy bush clover, orange grass, and others.

A discontinuous area of sparsely vegetated sand occurs on the eastern border of the grassland that abuts the coastal forest. This area has a diverse cover of lichens, with sandwort *Cetraria*, the most abundant species, interspersed with a number of reindeer lichens, cup lichens, and hair cap mosses.

Coastal Forest

This forest habitat occurs in two separate areas on the Griswold Airport site. The largest is a dry, open forest with an open canopy of mixed oaks; white, scarlet, red, and black; intermixed with bitternut hickory, sassafras, black cherry, and red maple. Below the canopy is a nearly continuous shrub layer composed of sapling trees; shadbush, highbush blueberry, maple-leaf viburnum, arrowwood, and a tangle of roundleaf catbrier. Patchy black huckleberry and lowbush blueberries reflect the droughty nature of the site. Herbaceous plants are scattered throughout with velvet sedge, spotted wintergreen, bracken, and anise-scented goldenrod are representative.

A second coastal forest occurs as a small linear patch along the tidal wetland border on the southwestern perimeter of the property. This forest is developed on more mesic soils and is very different in floristic composition from the one previously described. The tree canopy is more closed, composed primarily of red maple.

Salt Marsh

The tidal wetlands on this property can be classified primarily as high marsh, dominated by three representative plants: salt marsh hay, spike grass, and black rush. Linear patches of salt marsh cordgrass occur along the former mosquito ditches that receive regular tidal flooding. The transition from the marsh edge to upland is dominated by a linear border of common reed.

Brackish Tidal Marsh

This small wetland area occurs as a transition between the northern edge of the former runway to the dense common reed patch that dominates the northeastern finger of the site. This habitat is distinguished by the sparse occurrence of stunted common reed, and the presence of black rush

and scattered salt marsh hay and additional species such as marsh straw sedge, rose mallow, switchgrass, and sea-side goldenrod. Brackish tidal marsh vegetation has a very limited distribution on this site.

Coastal Grassland - Shrub Transition

This habitat forms the transition from the coastal grassland to the adjacent tidal marshes. Shrubs and small trees predominate. Representative species include shadbush, groundsel tree, red cedar, bush honeysuckle, bayberry, chokeberry, and three species of sumac.

Excavated Inland Wetland

This small wetland area was presumably created by a former excavation that intercepted groundwater. It is currently vegetated with a low, open woodland of red maple with an dense shrub layer of common shadbush, winterberry, chokeberry, swamp white oak, high bush blueberry, and arrow wood.

Plants and Wildlife

The habitats that currently exist on the former Griswold Airport site have intrinsic ecological value being part of Connecticut's fragmented coastal ecosystem. Along Connecticut's coast few large tracts of land remain undeveloped and, of these, fewer contain such a diversity of imperiled habitats. In 1998, a draft document (Metzler and Wagner 1998) grew out of an effort to provide Governor John Rowland's Blue Ribbon Task Force on Open Space with a list of ecosystems that were perceived as being in greatest need of protection. To a large extent, the selections were motivated by the numbers of Federal- or State-listed plants and animals that were believed to be associated with each ecosystem. Coastal ecosystems and sandplain grasslands (*e.g.* warm season) were high on this list with sandplain grasslands and pitch pine-scrub oak barrens considered the two most imperiled habitats in Connecticut, and, possibly, throughout the entire northeastern United States.

Coastal woodlands/forests, warm season grasslands, and tidal wetlands, the major habitats that comprise the site, are also key habitats for species of Greatest Conservation Need (GCN) that are identified in Connecticut's Comprehensive Wildlife Conservation Strategy (CWCS, Department of Environmental Protection 2005). The CWCS was developed by the State of Connecticut in 2005, after an exhaustive two-year review of existing natural resources information and with input from other scientific experts. It is the most comprehensive wildlife conservation plan ever developed for Connecticut.

A primary ecological value of the former Griswold Airport is habitat for breeding and migratory species of wildlife. The grassland is likely a general stopover for migrant land birds and habitat for winter use by open country birds and migrants such as sparrows and raptors. The grassland is also habitat for numerous invertebrate species including several night flying moths associated with native grasslands. In September 2011 a large number of a Noctuid moth (*Apamea burgessi*) were collected in black light traps. This Connecticut Special Concern moth is an associate of little bluestem grasslands. Another moth often associated with airport grasslands, a Pyralid (*Thaumatopsis pexella*), was also collected. A third moth, the Texas gray moth (*Glenoides texanaria*) was an unexpected find. The Texas gray moth is a lichen feeder, and is likely expanding its range northward with warmer winter temperatures. This species has not been

previously collected in Connecticut; first found in New Jersey in 1970, on Long Island in 2005, and now found in Connecticut (2011).

The coastal forest and the shrub transition are also potential habitat for the New England cottontail. New England cottontails prefer dense shrub thickets similar to the ones that occur on the tidal marsh borders on the former Griswold Airport site. A winter survey should be conducted to determine if this cottontail occupies this site. The New England cottontail is currently under review for Federal listing by the U.S. Fish and Wildlife Service and is the focus of habitat management efforts throughout its range.

Cultural Resources

Airport structures:

Several structures exist on the property that were previously used in association with the airport operation, including the Griswold house and several cottages. All but the hanger will be razed as proposed in the Master Plan.

Archeological Resources:

Both Phase I and Phase II archaeological surveys were conducted at the Griswold Airport when it was proposed for development by LeylandAlliance. Very little of significance was located in the airstrip, but archaeological potential exist in the eastern most portion of the property that abuts the Hammonasset River, which was never tested. The Office of the State Archaeologist is currently requesting permission from the Town to survey this area.

IV. EXISTING ACTIVITIES IN THE PRESERVE

A. Current Recreational Uses (passive/active)

Grassland – There is currently little recreational use of the grassland other than unauthorized dog walking.

Coastal Forest – The maintenance road currently functions as an access trail for authorized and unauthorized use.

Tidal Wetlands – N/A

B. Research and Educational Uses

There is no current research or educational use of the site.

V. MANAGEMENT ISSUES AND CURRENT MANAGEMENT ACTIVITIES

A. Grassland

Existing site condition – When the airport was active, the grassland was maintained through mowing of the lawn areas and has not been mowed since the early growing season of 2010. The

grassland likely established through seeding during airport construction and by recruitment of native species from adjacent areas. The abundance of Japanese lawn-grass is undoubtedly a consequence of planting by the former owners.

Current management activities – N/A

Planned or desired future condition – To maintain this area as grassland, a site management plan will have to be developed and implemented. Since most of the native grasses will be removed during ball field construction, and much of the remaining grassland is dominated by *Zoysia*, a restoration and replanting plan is necessary. Once established, periodically mowing or prescribed burns of the grassland will need to be implemented to enhance the growth of native grasses and minimize woody plant establishment.

Potential climate change impacts – Warming air temperatures and a gradual shift to a longer growing season will likely stimulate the growth of native, warm season grasses. These species are well adapted to hot, dry conditions and have a photosynthetic adaptation that provides a competitive edge over European lawn grasses. Continued invasion of *Zoysia*, a non-native warm season grass, will likely be a long term concern. As sea levels rise, salt marsh vegetation will likely migrate into the low-lying edges of the grassland. More intense coastal storms may lead to higher storm surges, causing flooding at higher elevations.

B. Coastal Forest

Existing site conditions – The coastal forest is relatively intact with invasive shrubs occurring primarily along the grassland border and along the maintenance road. A linear border of *Phragmites* also occurs along the salt marsh edge.

Current management activities – N/A

Planned or desired future condition – An invasive species management plan should be developed to remove invasive species and monitor their potential re-invasion.

Potential climate change impacts - Unknown

C. Tidal Wetlands

Existing site conditions – The tidal wetlands are also intact with invasive species (*Phragmites*) occurring only on the upland edge and on higher pile of excavated soil along mosquito ditches and the “sea plane channel”.

Current management activities – N/A

Planned or desired future condition – Restoration of areas encroached by fill and dominated by *Phragmites*. These sites are depicted in the Master Plan.

Potential climate change impacts - As sea levels rise, salt marsh vegetation will likely migrate into the low-lying edges of the grassland and the Grassland – Shrub Transition. Low marsh species will also replace high marsh in areas where elevations receive diurnal flooding.

D. Coastal Grassland - Shrub Transition

Existing site conditions – This shrub thicket forms a linear border between the grassland and the tidal marshes. A number of invasive shrubs are intermixed with native species, providing structure and density that is attractive to nesting songbirds and small mammals.

Current management activities – N/A

Planned or desired future condition – An invasive species management plan to remove invasive shrubs and herbaceous plants in a manner that does not significantly change the structure and density of the vegetation.

Potential climate change impacts - As sea levels rise, salt marsh vegetation will likely migrate into the low-lying edges of the Grassland – Shrub Transition

E. Unmaintained Residential Boundary

Existing site conditions – In this part of the former airport, the property boundaries are unclear and poorly marked. A number of encroachments such as building extensions and vegetation management have occurred by several neighbors. Invasive species are also prevalent and the vegetation has not been managed.

Current management activities – N/A

Planned or desired future condition – The town needs to clearly mark its boundaries and determine what actions to take with encroachments and other unauthorized activities. An invasive species management and replanting plan also needs to be implemented that does not significantly change the structure and density of the vegetation, particularly in areas with dense vegetation.

Potential climate change impacts – N/A

F. Recreational/Educational Activities

Existing Trails – A perimeter road and the old runways provide access to the site. Informal maintenance roads also occur in the coastal forests that currently are used as trails.

Planned or desired trails, parking areas, etc. –New trails are planned for access into the conservation easement and as illustrated in the Plan

Planned educational activities - No educational activities are planned for this area. If any such activity is desired, it would be best to coordinate with the Town of Madison and develop an educational trail or trail guide for the conservation trails.

VI. MANAGEMENT RECOMMENDATIONS AND PLANNED ACTIVITIES

Natural Habitats/Plants/Wildlife

Grassland: Since most of the grassland that will remain after recreational development is dominated by Japanese lawn-grass, grassland restoration for this site will need to include removal of the Japanese lawn-grass using non-selective herbicides and replanting with indigenous warm season species. Broomsedge and little bluestem seed, an eastern ecotype native grass mix, and a warm season grass mix available from companies such as Ernst Conservation Seeds in Pennsylvania (<http://www.ernstseed.com>) or Colonial Seed Company in Windsor, Connecticut <http://www.colonialseed.com/> . Given the cost of broomsedge seed and the little difference between broomsedge and little bluestem as host plants for grassland invertebrates, a seed mix with little bluestem may be preferred.

Japanese lawn-grass is a difficult grass to eradicate with multiple treatments of a non-selective herbicide such as Roundup® necessary to ensure its removal. The plants need to be actively growing prior to treatment, with treatment most effective after a period of rain. The thatch should be removed either through mechanical means or a controlled burn, and as new growth emerges, treated again. Additional treatments may be necessary to be most effective. The area can be re-seeded with a warm season mix five to seven days following the final herbicide treatment following the protocols described by Rothbart and Cabel 2006 http://www.wildlife.state.nh.us/Wildlife/Northeast_Hab_Mgt_Guide.htm.

After establishment, a mowing/burning management plan should be implemented for the long-term maintenance of the grassland. Mowing should not take place between April 15th and August 15th to minimize impacts to wildlife. If prescribed burning is preferred, the entire site should not be burned at one time. The grassland should be divided into several areas with each area burned on 3 to 5 year rotation to maintain invertebrate breeding populations. Currently, poison ivy was not found in the grassland. Before considering a controlled burn, the area should be carefully surveyed to ensure that little, if any, poison ivy occurs.

Coastal Forest: Invasive shrubs that occur along the grassland border and the maintenance road can be individually treated with herbicide following the protocols outlined in various invasive plant factsheets: <http://www.hort.uconn.edu/CIPWG/>. Asiatic bittersweet will increase if no control measures are taken. Hand cutting and spraying the cut stems may be the most effective control method.

Tidal Wetlands: Restoration of the of southern end of the old runway encroachment that occurs in tidal wetlands can be conducted by removing the old pavement and fill to the 4 foot elevation as determined by field verification (See Master Plan), connecting the former ditch that was bisected by the runway construction, and allowing natural re-vegetation to occur. A Certificate of

Permission (CoP) will be required from CTDEEP Office of Long Island Sound Programs prior to commencement of the work. Adjacent areas that contain *Phragmites* should be treated with herbicides prior to restoration to minimize its recolonization. *Phragmites* control can be done as part of or prior to the CoP application.

The northern restoration area is located beyond the runway and is completely dominated by *Phragmites*. Removal of the *Phragmites* and regrading to an elevation that will receive tidal flooding can be proposed as part of the CoP application.

Grassland/Shrub Transition: Invasive shrubs that occur in this area can be individually treated with herbicide following the protocols outlined in various invasive plant factsheets: <http://www.hort.uconn.edu/CIPWG/>. Asiatic bittersweet will increase if no control measures are taken. Hand cutting and spraying the cut stems may be the most effective control method. An invasive species of particular note here is black locust that is difficult to control <http://www.nps.gov/plants/alien/fact/rops1.htm>.

Unmanaged Property Border: Invasive shrubs that occur in this area can be individually treated with herbicide following the protocols outlined in various invasive plant factsheets: <http://www.hort.uconn.edu/CIPWG/>. Asiatic bittersweet will increase if no control measures are taken. Hand cutting and spraying the cut stems may be the most effective control method. The control and/or removal of Norway maple and Sycamore maple trees will be determined at the discretion of the Town.

Recreational/Educational uses

Existing trails – N/A

New Trails – New trails accessing the coastal grassland, coastal forest, and scenic vistas are proposed as part of the development plan.

Research and Education – No research or education is currently planned for the site

VII. IMPLEMENTATION SCHEDULE

Implementation of recommended management activities will be determined by the Town of Madison and bid schedules. Recreational field development should be coordinated with management activities in the coastal grassland.

VIII. MANAGEMENT QUESTIONS

Deed restrictions of easement

Kayak launch site

Activities not allowed

IX. REFERENCES AND TECHNICAL RESOURCES

Connecticut Audubon Society

<http://www.ctaudubon.org/>

Connecticut Botanical Society

<http://www.ct-botanical-society.org/>

Connecticut Invasive Plant Working Group

<http://www.hort.uconn.edu/CIPWG/>

Department of Environmental Protection. 2005. Connecticut's Comprehensive Wildlife Conservation Strategy. Connecticut DEP Wildlife Division, Hartford.

http://www.ct.gov/dep/cwp/view.asp?a=2723&q=329520&depNav_GID=1719.

Metzler, K. J. and D. L. Wagner. 1998. Thirteen of Connecticut's most imperiled ecosystems. Internal report of the State Geological and Natural History Survey of Connecticut Department of Environmental Protection, 79 Elm Street, Hartford, Connecticut.

Rothbart, P. and S. Cabel. 2006. Maintaining and Restoring Grasslands. Chapter 3 in: Oehler, J.D., D.F. Covell, S. Capel, and B. Long (eds.). Managing Grassland, Shrublands, and Young Forests for Wildlife. A Guide for the Northeast. The Northeast Upland Habitat Technical Committee, Massachusetts Division of Fisheries & Wildlife.

http://www.wildlife.state.nh.us/Wildlife/Northeast_Hab_Mgt_Guide.htm

X. APPENDICES

Appendix A. Plant lists (not exhaustive)

TREES

| | |
|-------------------------------|-------------------|
| <i>Acer rubrum</i> | Red Maple |
| <i>Acer saccharum</i> | Sugar Maple |
| <i>Acer platanoides</i> ** | Norway Maple |
| <i>Acer pseudoplatanus</i> ** | Sycamore Maple |
| <i>Ailanthus altissima</i> ** | Tree of Heaven |
| <i>Betula populifolia</i> | Grey Birch |
| <i>Carya cordiformis</i> | Bitternut Hickory |
| <i>Catalpa bignonioides</i> | Catalpa |
| <i>Juniperus virginiana</i> | Red Cedar |
| <i>Pinus strobus</i> | White Pine |
| <i>Prunus serotina</i> | Black Cherry |
| <i>Sassafras albidum</i> | Sassafras |
| <i>Quercus alba</i> | White Oak |
| <i>Quercus bicolor</i> | Swamp White Oak |
| <i>Quercus coccinea</i> | Scarlet Oak |
| <i>Quercus rubra</i> | Red Oak |

| | |
|---------------------------------|--------------|
| <i>Quercus velutina</i> | Black Oak |
| <i>Robinia pseudo-acacia</i> ** | Black Locust |

SHRUBS & VINES

| | |
|---|--------------------------|
| <i>Amelanchier arborea</i> | Shadbush |
| <i>Amelanchier canadensis</i> | Common Shadbush |
| <i>Baccharis halimifolia</i> | Groundsel |
| <i>Berberis thunbergi</i> ** | Barberry |
| <i>Celastrus orbiculatus</i> ** | Oriental Bittersweet |
| <i>Cornus racemosa</i> | Silky Dogwood |
| <i>Elaeagnus umbellata</i> ** | Autumn Olive |
| <i>Euonymus alatus</i> ** | Winged Euonymus |
| <i>Gaylussacia baccata</i> | Huckleberry |
| <i>Hammamelis virginiana</i> | Witch-hazel |
| <i>Ilex verticillata</i> | Winterberry |
| <i>Iva frutescens</i> | High-tide Bush |
| <i>Juniperus horizontalis</i> | Creeping Juniper |
| <i>Lonicerna japonica</i> ** | Japanese Honeysuckle |
| <i>Lonicerna</i> spp. ** | Bush Honeysuckle |
| <i>Morella pensylvanica</i> | Bayberry |
| <i>Parthenocissus quinquefolia</i> | Virginia Creeper |
| <i>Photonia</i> sp. | Chokeberry |
| <i>Populus tremuloides</i> | Quaking Aspen |
| <i>Rhus copallina</i> | Winged Sumac |
| <i>Rhus glabra</i> | Smooth SUMac |
| <i>Rhus typhina</i> | Staghorn Sumac |
| <i>Rosa virginiana</i> | Virginia Rose |
| <i>Rosa multiflora</i> ** | Multiflora Rose |
| <i>Rubus flagellaris</i> | Dewberry |
| <i>Sambucus nigra</i> ssp. <i>canadensis</i> | Elderberry |
| <i>Smilax glauca</i> | Saw Brier |
| <i>Smilax rotundifolia</i> | Bull Briar |
| <i>Taxus baccata</i> | English Yew |
| <i>Toxicodendron radicans</i> | Poison Ivy |
| <i>Vaccinium augustifolium</i> | Low-bush Blueberry |
| <i>Vaccinium pallidum</i> | Early Low-bush Blueberry |
| <i>Vaccinium corymbosum</i> | High-bush Blueberry |
| <i>Viburnum recognitum</i> | Arrowwood Viburnum |
| <i>Viburnum acerfolium</i> | Mapleleaf Viburnum |
| <i>Vitis aestivalis</i> | Summer Grape |

HERBACEOUS

| | |
|-----------------------------|-------------------|
| <i>Achillea millefolium</i> | Yarrow |
| <i>Agrostis gigantea</i> | Redtop Bent Grass |

| | |
|--|----------------------|
| <i>Alliaria petiolata</i> ** | Garlic Mustard |
| <i>Anemone quinquefolia</i> | Wood Anemone |
| <i>Apios americana</i> | Groundnut |
| <i>Apocynum androsaemifolium</i> | Dogbane |
| <i>Andropogon virginicus</i> | Broom Sedge |
| <i>Aralia nudicaulis</i> | Wild Sarsaparilla |
| <i>Asclepias syriaca</i> | Common Milkweed |
| <i>Asclepias tuberosa</i> | Butterfly Weed |
| <i>Aster laevis</i> | Smooth Aster |
| <i>Baptisia tinctoria</i> | Wild Indigo |
| <i>Bulbostylis capillaris</i> | Tufted Hairsedge |
| <i>Carex hormanthodes</i> | Marsh Straw Sedge |
| <i>Carex pensylvanica</i> | Pennsylvania Sedge |
| <i>Carex vestita</i> | Velvet Sedge |
| <i>Chimaphila maculata</i> | Spotted Wintergreen |
| <i>Cyperus grayi</i> | Gray's flatsedge |
| <i>Dichanthelium dichotomum</i> | Panic Grass |
| <i>Dichanthelium</i> sp. | Rosette Grass |
| <i>Distichlis spicata</i> | Spike Grass |
| <i>Eragrostis spectabilis</i> | Purple Love Grass |
| <i>Erigeron</i> spp | Fleabane |
| <i>Fescue ovina</i> | Sheep's Fescue |
| <i>Helianthemum canadense</i> | Frostweed |
| <i>Hemorcallis</i> spp. | Daylily |
| <i>Hieraceum caespitosum</i> | Yellow Hawkweed |
| <i>Hibiscus moscheutos</i> ssp. <i>moscheutos</i> | Rose Mallow |
| <i>Hypericum gentianoides</i> | Orange Grass |
| <i>Hypericum perforatum</i> | Common St. Johnswort |
| <i>Juncus gerardii</i> | Salt Meadow Rush |
| <i>Juncus greenii</i> | Green's rush |
| <i>Juncus validus</i> | Soft Rush |
| <i>Krigia virginica</i> | Dwarf Dandelion |
| <i>Lespedeza hirta</i> | Hairy Bush Clover |
| <i>Limonium caroliniana</i> | Sea Lavender |
| <i>Linaria canadensis</i> | Blue toadflax |
| <i>Luzula acuminata</i> | Hairy Wood Rush |
| <i>Lycopodium digitatum</i> | Ground Cedar |
| <i>Lysimachia quadrifolia</i> | Whorled Loosetrife |
| <i>Maianthemum racemosum</i> | False Solomon's Seal |
| <i>Panicum clandestinum</i> | Deertongue grass |
| <i>Panicum virgatum</i> | Switch Grass |
| <i>Phragmites australis</i> | Common Reed |
| <i>Plantago aristosa</i> | Bracted Plantain |
| <i>Plantago maritima</i> var. <i>juncoides</i> | Salt Marsh Plantain |

| | |
|-----------------------------------|----------------------------|
| <i>Polygonatum biflorum</i> | Smooth Solomon's Seal |
| <i>Polygonum cuspidatum</i> | Japanese Knotweed |
| <i>Pteridium aquilinum</i> | Bracken Fern |
| <i>Salicornia depressa</i> | Glasswort |
| <i>Schizachyrium scoparium</i> | Little Bluestem |
| <i>Smilacina racemosa</i> | False Solomon's Seal |
| <i>Solidago graminifolia</i> | Flat-topped Aster |
| <i>Solidago odora</i> | Anise-scented Goldenrod |
| <i>Solidago sempervirens</i> | Seaside Goldenrod |
| <i>Solidago rugosa</i> | Wrinkleleaf Goldenrod |
| <i>Sorghastrum nutans</i> | Indian Grass |
| <i>Spartina alternifolia</i> | Smooth Cordgrass |
| <i>Spartina patens</i> | Salt Meadow Hay |
| <i>Spergularia marina</i> | Saltmarsh Sand Spurrey |
| <i>Symphyotrichum subulatum</i> | Salt Marsh Aster |
| <i>Symphyotrichum tenuifolium</i> | Perennial Salt Marsh Aster |
| <i>Uvularia sessilifolia</i> | Wild Oats |
| <i>Zoysia japonica</i> | Japanese Lawn Grass |

** invasive

Appendix B. Scientific and Educational Permits

Collection of plants, animals, minerals, water, and soil from this site is not allowed unless specific permission is sought from the Town of Madison. Permission may be granted based on the applicant's demonstration of how collection will contribute to and aid an education or research effort. In no case shall the collection of plants and animals, other than invasive species, exceed the quantity necessary to maintain a healthy and viable population of that species. Educational activities on the site require permission from the Town of Madison and will be reviewed on a case by case basis.

Photographs

