

ABBOTT MARSHLANDS



Trail Steward Handbook



**FRIENDS FOR THE
ABBOTT MARSHLANDS**

Thanks for volunteering to be a Trail Steward for the Abbott Marshlands. Since you have volunteered to help, you probably already care about the environment. We hope this handbook will add to your enjoyment and knowledge as you fill the important role of being a good steward of this natural treasure.

Abbott Marshlands - Valuable Habitats

The Abbott Marshlands encompass varied habitats, including the northernmost tidal freshwater wetlands on the Delaware River. Overall, there are more than 3,000 acres of open space including:

- 1,300 acres of wetlands consisting primarily of tidal waters, with some non-tidal areas including ponds created by beaver.
- 1,700 acres of surrounding uplands that are mostly wooded and include some mountain laurel and rhododendron thickets.

Tidal freshwater marshes are among New Jersey's rarest, yet most valuable habitat type. *This type of ecosystem rivals tropical rainforests in the amount of plant matter produced each year.* Freshwater marshes in the Abbott Marshlands occur along Crosswicks Creek and Watson's Creek.

More than 925 plant species and 245 bird species, including 108 nesting species, have been identified in the marsh. Remarkably, the marshlands are home to some relatively uncommon species, such as river otters, bald eagles and cliff swallows, as well as many other more familiar species. On their migrations along the Atlantic Flyway, passerines, raptors and wading birds use the Abbott Marshlands as a vital stop for food and rest. Species inventories for marsh plants and wildlife may be found on the marsh website under Ecology.

The Abbott Marshlands wetlands are tremendously important because of the essential services they provide of groundwater recharge, removal of pollutants from the water and air, and containment of floodwaters, as well as habitat for wildlife.

In addition to the Marsh's significant ecological roles, it is an important historical and archaeological site, being one of the most significant sites on the East coast for its habitation by Native Americans beginning approximately 13,000 years ago. In recognition of its significant history, natural history and archaeology during the prehistoric and industrial periods, much of the area was designated as the Abbott Farm National Historic Landmark by the Federal Government in 1976.

Yet because of population density and past uses, this ecologically rich ecosystem and precious habitat continues to be vulnerable to degradation. By signing on to be a Trail Steward, you can provide significant support to help preserve and protect the marshlands and surrounding habitats.

Friends for the Abbott Marshlands

Although the marshlands appear as a unified green space from the air, the lands have many owners and only some of the land is preserved as open space. The owners of the open space are often large organizations with multiple properties beyond the Abbott Marshlands (e.g. Mercer County, NJ DEP, NJ DOT) and therefore have limited stewardship staff available to monitor ongoing conditions in the marshlands. To help fill that void, the Friends for the Abbott Marshlands, a nonprofit organization, was created to protect, promote and preserve the Abbott Marshlands. Trail stewards contribute to the Friends' goal by submitting regular trail reports to keep trail owners informed of current needs and conditions. Stewards also assist the Friends in planning and conducting volunteer stewardship activities.

Threats and what we can do

There are a number of environmental concerns, such as air and water pollution, erosion, invasive species and potential deer overpopulation, that threaten the Marshlands. We will focus on three of these dangers, invasive species, pollution, and erosion:

Invasive Species

Definition

An invasive species is defined by the National Invasive Species Council as “a species that is:

- 1) non-native (or alien) to the ecosystem and
- 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health” (<https://www.invasivespeciesinfo.gov/>).

Invasive species typically result in a reduction of biodiversity and may cause native species to be eliminated in a region.

Damage

Invasive species are considered the second greatest threat to global biodiversity after habitat destruction. Invasive plant species present a threat to native plant populations on which local wildlife relies for food and habitat. Massive costs are associated with removal of invasive species, by one estimate, \$120 billion dollars annually for agriculture, forestry and recreation.

For example, Japanese barberry was introduced in the U.S. in 1875 as an ornamental shrub that has been a popular landscaping plant for its adaptability and range of leaf color. Birds and other wildlife feeding on its red berries have spread the seed extensively in natural ecosystems. The shrub's adaptability has allowed it to become established and its leaf litter changes the chemistry of the surrounding soil, which kills native vegetation. Although several states have now banned its sale, we will be fighting with this invasive plant in the marshlands for the foreseeable future.

Many invasive plant populations exist throughout the marsh, posing a threat to valuable marsh plants and the ecosystem in general. The table below contains invasive plant species identified in a 2010 survey of the marshlands.

Invasive Plant Species found in the Abbott Marshlands

Scientific Name	Common Name
Acer palmatum	Japanese Maple
Acer platanoides	Norway Maple
Acer pseudoplatanus	Sycamore Maple
Ailanthus altissima	Tree of Heaven
Albizia julibrissin	Mimosa / Silk Tree
Alliaria petiolata	Garlic Mustard
Ampelopsis brevipedunculata	Porcelain Berry
Artemisia vulgaris	Mugwort
Berberis thunbergii	Japanese Barberry
Buddleja davidii	Butterfly Bush
Celastrus orbiculatus	Oriental Bittersweet
Centaurea maculosa	Knapweed
Chelidonium majus	Greater Celandine
Clematis terniflora	Japanese Clematis
Commelina communis	Asiatic Dayflower
Cynanchum louiseae	Black Swallowwort
Elaeagnus umbellata	Autumn Olive
Euonymus alatus	Winged Euonymus
Hedera helix	English Ivy
Humulus japonicus	Japanese Hops
Iris pseudacrus	Yellow Iris
Lespedeza cuneata	Chinese Bushclover
Ligustrum vulgare	Privet
Lonicera japonica	Japanese Honeysuckle
Lonicera maackii / tatarica	Bush Honeysuckle
Lythrum salicaria	Purple Loosestrife
Microstegium vimineum **	Japanese Stiltgrass **
Morus alba	White Mulberry
Pachysandra terminalis	Pachysandra
Paulownia tomentosa	Royal Paulownia
Phalaris arundinacea	Canary Reed Grass
Phragmites australis	Phragmites
Polygonum cuspidatum	Japanese Knotweed
Polygonum perfoliatum	Mile-a-minute-vine
Pyrus calleryana	Callery Pear
Ranunculus ficaria	Lesser Celandine
Rosa multiflora	Multiflora Rose
Rubus phoenicolasius	Wineberry
Viburnum sieboldii	Seibold Viburnum
Vinca minor	Periwinkle
Wisteria floribunda	Japanese Wisteria

Species in **BOLD** are priority species of concern.

Trail stewards do not need to be able to identify all of these invasive plant species. Each trail has some invasives that are already known and widespread (e.g. phragmites, Japanese honeysuckle). There may be little action we can take for these species that will have a significant impact, while other species may be less prevalent and just getting established in a particular area (e.g. mile-a-minute). These are the species that we will most often target for removal.

Further training and guidance about invasives on each specific trail will be provided to volunteers. Our primary objective with invasive monitoring is to identify new and emerging threats before they become widespread and well established.

Pollution Threats

Not as much can be done about some forms of pollution as with invasive species, but it is important to continuously monitor and track its existence with the goal of minimizing the impact.

Examples of pollution to look for include litter, dumped trash and pollution caused by stormwater run-off.

Erosion Threats

The nature of the sandy soils and the steep bluffs surrounding the marsh make the area especially prone to threats from erosion. While we may not be able to take steps to directly impact erosion problems on a large scale, e.g., along the bluffs, erosion on or adjacent to a trail may be able to be addressed. In either case, it is important to report to landowners any instances of new or significantly increased erosion so they can determine whether and how to address it.

Role of a Trail Steward

As a Trail Steward, your role is to preserve, protect and advocate for the Marshlands with the goal of improving the ecological health and biodiversity of the area.

You will be asked to “adopt” one of the trails in the Marshlands (relevant landowner is listed in parentheses):

- Roebing Memorial Park – Spring Lake Loop (Mercer County Park, Hamilton Twp.)
- Roebing Memorial Park – Island trails (Mercer County Park, Hamilton Twp.)
- Roebing Memorial Park – Watson Woods (Mercer County Park, Hamilton Twp.)
- Northern Community Park Trail (Bordentown Twp, part D&R Canal State Park)
- Bordentown Bluffs Trail (D&R Canal State Park, Bordentown Twp.)
- Tow Path Trail (D&R Canal State Park, Hamilton Twp.)
- Tidal Water Trail – between Bordentown and Watson Woods
- Created Wetland Trail i.e., Duck Island, to the Delaware River

Trail adoption means you will monitor and track the condition of the trail through periodic visits – monthly is recommended - and submit reports of your visit. Trail adoption can be done either individually or with another person, such as a friend or colleague, or as a family.

Remember the trails in the marshlands have different owners and depending on the location, they may be patrolled by the landowner only rarely. The Trail Steward program provides a valuable service by collecting data concerning the condition of the trails and identifying potential trail hazards such as downed trees. Submitted reports are automatically forwarded to the Friends' Stewardship team and the appropriate landowners.

The Friends for the Abbott Marshlands will also utilize information obtained from trail steward reports to set priorities for volunteer stewardship workdays, that is, scheduled events attended by a group of volunteers working together to tackle a specific identified problem such as removing an infestation of mile-a-minute vine.

An example Trail Steward Report is included at the end of this document. The report form is designed to help standardize and guide the reported information, highlighting potential observations in the following areas:

- Parking Area Condition
- Trail Condition
- Other Problems
- Invasive Species
- Actions taken by Trail Steward
- Suggested Future Projects
- Trail Usage
- Fun Stuff / Observations

Specific Duties and Responsibilities

The primary responsibility of a trail steward is to visit the site once a month to monitor your trail and document situations that need attention. When conducting the site visit, bring pruners, work gloves, a trash bag and a blank Trail Steward Report (or a copy on your phone).

Using the Trail Steward Report as a guide, walk the length of the trail to:

- Assess any maintenance or improvement needs.
- Perform light trail maintenance, such as pruning shrubs that are encroaching on the trail.
- Report poison ivy that may be infringing on the trail.
- Pick up trash in the parking area or along the trail.
- Note any other items to report; feel free to add monthly or seasonal observations, such as spring wildflowers, seasonal vista changes, bird or wildfowl migrations and other seasonal wildlife observations.
- Document findings and items of interest with photographs. While the online report limits the total photos submitted to 4, feel free to email any additional photos
- Remember to include specific location information when appropriate.

We prefer the online form for submitting your report but a paper copy of the report can be emailed if necessary, along with photographs, to marshtrails@abbottmarshlands.org.
Online Report Link: <https://abbottmarshlands.org/trail-monitors/>

NOTE: The report is password protected to prevent spam entries. The password will be shared with all trail monitors.

Reports will be reviewed by a member of the stewardship committee and forwarded to the responsible stewardship person for the landowner. (Mercer County Parks, D&R Canal State Park, NJ DOT, etc.)

Abbott Marshlands Rules

Trail usage rules and regulations may vary on different trails within the Marshlands because of different ownership and conditions. Here are a few general rules to consider.

1. No motorized vehicles
2. No horses
3. Bicycles are permitted on some Roebling Park trails (around Spring Lake, from Spring Lake to Watson Woods, to the Tulpehaking Nature Center), and on the D&R Canal Tow Path trail on Duck Island. Elsewhere, bicycles are not permitted on trails.
4. Dogs must be on a leash
5. No fires
6. No camping
7. Trash should be carried out and placed in receptacles if provided or taken home.
8. No picking, digging or cutting of vegetation.
9. No digging for artifacts is permitted.

Dealing with Confrontations - Call 911 for emergencies.

In your role as Trail Steward, don't feel you need to enforce Abbott Marshlands rules. Certainly, avoid getting into a confrontation. You may politely offer rule guidance in a non-confrontational manner, state that you are a volunteer, and relay the incident on the monitoring report. Alternatively, you may choose to avoid mentioning the problem and simply note it on the monitoring report.

Additional Background: Rich History

The rich natural history of the Marsh is complemented by an extraordinary cultural history, with evidence that Native Americans lived here 13,000 years ago in the largest and most significant Middle Woodland Native American village of its type on the East coast. Connections to the Declaration of Independence, Revolutionary War, and the Civil War abound.

Notable Bordentown residents through history include Thomas Paine, Patience Wright, who was a spy while living in London, and Clara Barton, who launched free schooling. Joseph Bonaparte, brother of Napoleon and one-time King of Spain, lived at Point Breeze near Bordentown for 22 years.

To recognize the important archaeological legacy of the marsh and of Charles Conrad Abbott, a 19th and early 20th century archaeologist and naturalist who lived on the bluffs near the marsh and wrote extensively about it, the name for the marshlands was changed to Abbott Marshlands, from Hamilton – Trenton – Bordentown Marsh.

The Abbott Farm National Historic Landmark, which includes the 1708 Watson House, the oldest structure in Mercer County, recognizes the Native American legacy and the contributions of archaeologists, including Charles Conrad Abbott and Dorothy Cross.

In October 2014, the Abbott Marshlands' Tulpehaking Nature Center (TNC) at 157 Westcott Avenue was dedicated. Prior to renovation that property, an archeological survey was conducted to assess and preserve archeologically important artifacts.

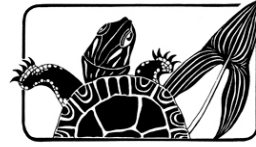
Tulpehaking, meaning Land of the Turtles, was chosen for the nature center to honor the Native American legacy. Marshland displays and artifacts can be viewed at the nature center and the NJ State Museum. Additional information is available on our website. <https://abbottmarshlands.org/>

Designations:

- Abbott Farm National Historic Landmark, Department of Interior, 1976. It is the largest known Middle Woodland (ca. 500 B.C.-500 A.D.) village site in the coastal Mid-Atlantic/New England region. Charles Conrad Abbott, for whom the landmark is named, was an important 19th century archaeologist whose studies brought renown and controversy to the area.
- Very Important Bird and Birding Area - NJ Audubon. This recognizes the high quality and diversity of bird habitats.
- NJ Natural Heritage Priority Site – NJ DEP, Office of Natural Lands Management. This designation recognizes the marshlands as some of the best remaining habitat for rare species and rare ecological communities in the state.
- Within Crossroads of the American Revolution National Heritage Area - 2006.

This handbook is provided by Friends for the Abbott Marshlands.

Friends for the Abbott Marshlands
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Mission Statement

Engage and inspire a diverse community to experience the unique nature and history of the Abbott Marshlands.

Priorities for Action

1. Expand the community of people who cherish the Abbott Marshlands and take part in their stewardship.
2. Advance the Tulpehaking Nature Center as the Gateway to the Abbott Marshlands and the center for education and recreation programs that offer people various ways to connect to the Abbott Marshlands.
3. Increase our organizational capacity so that we may better serve people who care about and benefit from the Abbott Marshlands.
4. Work with the Abbott Marshlands Council in its Cooperative Stewardship efforts.
5. Serve as a “Voice for the Marshlands” advocating for protection, preservation, and stewardship for the whole of the Abbott Marshlands.

Special thanks to: Priscilla Light, Jillian Stark, and Mary Leck for the development of the original version of the Trail Steward Handbook.

Trail Name _____

Date _____

Stewards Name _____

Volunteer Time (Hrs:) _____

A Parking Area

Please review the conditions in the parking area and note any problems below:

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

- Is there Litter?
- Is the parking area in good condition?
- Does the area look well maintained?
- Are the trailhead signs in good condition?
- If there is a map, is it consistent with currently marked trails?
- If present, is the kiosk in good condition and up to date?

Problems observed in the Parking Area:

B Trail Condition Problems

Please check any problems with the trail conditions:

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

- Litter
- Downed trees across the trail or trees leaning precariously over the trail
- Excessive vegetation encroaching on the trail.
- Trail Hazards such as roots, rocks, deep ruts, or potholes.
- Erosion of the trail, stream banks or bluff edge.
- Consistently wet or mucky sections of the trail.
- Signs of unofficial trails being created.
- Insufficient trail markers (from one marker - unable to see the next)

Additional notes for Trail Condition:

C Other Problems:

Please note any other problems you encounter:

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

- Poor water quality indicators such as oil film or algae blooms
- Litter
- Unnatural (non-marsh) odors
- Vandalism
- Unauthorized use (ATV's, evidence of parties such as fire rings, etc.)
- Activities of neighbors with negative impact (dumping, cutting, etc.)

Additional notes for Other Problems:

D Invasive Species:

Many trails have existing populations of invasive species that have not been addressed. The priority for trail stewards is to identify invasives that are new to an area or rapidly spreading. Some specific species to be alert for in new areas are Mile-a-minute, Japanese Knotweed, and the Spotted Lantern Fly.

Invasive Species noted:

E Actions Taken By Trail Steward:

Please describe any actions taken during your trail inspection such as pruning or trail clearing, removal of invasive plants, or picking up litter.

F Future Projects:

Describe any projects you think might benefit the site. Are there areas that would benefit from a boardwalk or wooden stairs? from improved trail markers? Is this a project that could be done by you alone, or with the help of a trail crew? Note that all projects must be approved by the trail owner in advance.

G Trail Usage:

Did you see people using the trails? How many? What kinds of activities were they doing?

H Fun Stuff / Other Observations:

Did you see any unusual or exciting species of plants or animals?

NOTE: Please take photos and note specific location information to illustrate problems when possible. Up to 4 photos may be included with report, but additional photos can always be emailed to marshtrails@abbottmarshlands.org. Fun photos for sharing on social media are also welcome!