

# Napatree Point Conservation Area Ecosystem Management Study

Watch Hill, Rhode Island

July 2010



**Submitted to the Watch Hill Conservancy and the Watch Hill Fire District  
By Jane Buxton, Contract Ecologist, RINHS**



*Providing Ecosystem Science and Information*

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## **Napatree Point Conservation Area**

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### **Foreword**

Napatree Point, also known as the Napatree Point Conservation Area, is one of the most *outstanding* localities in Rhode Island. It literally stands out from the state geographically, reaching out towards Connecticut across Little Narragansett Bay and being just two miles from New York's Fishers Island. It is a standout in its ecological value, lying athwart the migration route of dozens of bird species and possessing rare dune habitats. Finally, it is an outstanding recreational resource, adding to the quality of life for residents of the nearby community who use it year-round and attracting significant economic activity year-round but especially during the summer.

In such an outstanding place, the obvious conservation and recreation uses could tend to work against each other. This does not mean, however, that one must necessarily make a hard decision and pick one use to sacrifice to the other. In fact, the hardest decision in such a case can be to undertake a delicate management regime that balances the two chief values. It is this very path that Napatree's managers, the Watch Hill Conservancy and the Watch Hill Fire District, have undertaken and to which end they have sought as precise information and as tempered advice as they can find. The Rhode Island Natural History Survey has been one contributor to Napatree Point planning, offering an ecological report in 2005 and the present report, but there have been many other steps undertaken in pursuit of the ideal win-win management outcome. Other steps have included partnerships with U.S. Fish & Wildlife Service, Rhode Island Coastal Resources Management Council, Rhode Island Department of Environmental Management, The Nature Conservancy, Audubon Society, and other agencies and organizations; close communication with municipal officials; and substantial investments in capacity building, monitoring and data collection, and public outreach and education. It is clear from our 2010 review of Napatree Point management that these steps are part of the

managers' coherent, strategic plan, informed by the best available information, intended to balance conservation and recreational values.

Based on the present review, the Natural History Survey recommends that the Watch Hill Conservancy and Watch Hill Fire District continue building a case for public support of its management strategy by continuing to gather data, track natural resources, and educate visitors and the community about the Point's conservation value. The naturalist and warden programs make important contributions to the long term success of a management strategy at Napatree Point that balances conservation and recreation values. In particular these programs: a) gather data to guide management actions, monitor results, and reinforce policies to the public; b) provide an important communication channel between the Conservancy and the Fire District and a broad spectrum of Napatree Point users; and c) build bases of support, both direct and indirect (e.g. political/social) for the Conservancy and the Fire District in the community.

The sure impacts of climate change and storm events on Napatree Point should not be taken as arguments against detailed active management. Responsible stewardship practices such as managing trail use, managing the impact of dogs, and managing invasive plant species will have short term benefits regardless of future events and, at any rate, will benefit ecosystem resilience, a quality that scientists know helps mitigate those very storm and climate change effects.

Environmental conservation and human recreation are related to each other through community quality of life, economic development, ecosystem services, and other complex connections. Cultivating ecological and economic interests together is the best approach for sustained long term advancement of both, though it may require investments in resources and understanding and patience among stakeholders. Public recreation has a chronic impact on Napatree Point's conservation values but public use also provides educational and other opportunities of considerable value to the Watch Hill Conservancy and other stakeholders. Prudent management should endeavor to mitigate the chronic impact of recreation on Napatree's conservation values while retaining the benefits and opportunities that diverse

recreational uses provide. Under a management regime informed by conservation science and with sufficient resources to engage directly with the public consistently over a long period, conservation and recreation benefit each other. The Napatree programs of the Watch Hill Conservancy and the Watch Hill Fire District and the funds the two organizations devote to those programs make a significant contribution to the long term stewardship of an important natural resource of Rhode Island and the East Coast.

David W. Gregg, Ph.D.

Executive Director

Rhode Island Natural History Survey

## **Napatree Point Conservation Area**

July 2010

The Napatree Point Conservation Area is a more than mile-long coastal barrier spit (Napatree Beach and Napatree Point), located at the southwestern tip of Rhode Island in the village of Watch Hill and the town of Westerly. The location is near the intersection of Rhode Island with the states of Connecticut and New York. Formed by glacial moraine, the area was heavily wooded until denuded of its forest by the Great Gale of 1815. Subsequently, at the end of the 19<sup>th</sup> century, a federal fort, Fort Mansfield, was built at the end of the point, and the beach between Watch Hill and the fort was developed with summer cottages. The fort was decommissioned in the early 20<sup>th</sup> century, and the Hurricane of 1938 swept the cottages away and returned the spit to a natural, though barren, undeveloped site.

Separating Little Narragansett Bay from the Atlantic Ocean, Napatree is home to a variety of birds, fishes, invertebrates, marine plants and occasional marine mammals, such as harbor seals. It is also one of the most important stopover sites on the East coast for migratory shorebirds<sup>1</sup>. It consists of a scenic ocean beach, a network of trails along and across dunes that form the spine of the spit, a bayside shore that provides access to boats temporarily anchored or moored in Little Narragansett Bay, and the remains of Fort Mansfield.

Those who love the breathtaking views, pristine beauty and conservation values of Napatree strive to protect this fragile environment. As in other areas of great natural beauty, questions arise about how to balance the impacts of human use with the needs of the natural communities.

The purpose of this study, being performed by the Rhode Island Natural History Survey (RINHS) under contract with the Watch Hill Conservancy (the Conservancy) and the Watch Hill Fire District (the District or WHFD), is to examine issues of concern and consideration in the management and protection of this natural treasure. The study is a follow up to one initially

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<sup>1</sup> The Coastal and Estuary Habitat Restoration Program and Trust Fund, R.I.G.L., Chapter 46-23.1, Projects Approved for Funding, RY 2003, Coastal Resource Management Council

performed for the two organizations by RINHS in 2005 and seeks to identify the effectiveness, after five years, of the conservation program the two organizations established in response to the earlier study, as well as to identify further steps which might be undertaken. Special thanks to the Alfred M. Roberts, Jr. Charitable Foundation for supporting this report.

## **Description**

Napatree Beach and Point is an environment with sandy and gravel beaches, maritime dunes, mudflats, shrubby areas, rocky shoreline, a brackish marsh lagoon, a tidal creek, salt marsh and the remains of a once substantial historic fort. It is part of a network of salt marsh and barrier island environments which span the eastern seaboard and which provide rich habitat for a variety of plants and wildlife. A string of nearby conserved coastal lands in the Rhode Island National Wildlife Refuge Complex consists of five National Wildlife refuges: Ninigret, John H. Chafee, Sauchest Point, Trustom Pond and Block Island. The complex was established in 1970 for the purpose of protecting and managing migratory birds and endangered species. To the north of Napatree, in Little Narragansett Bay, lies Sandy Point, now an island, formerly, until severed from Napatree in 1938, Napatree's northerly tip. Sandy Point, which is located partly in Rhode Island and partly in Connecticut, is managed for conservation by its owner, the Avalonia Land Conservancy, and, under a Memorandum of Understanding, by the United States Fish and Wildlife Service (USFWS).

The coastline of Napatree Point is a naturally changeable feature. Because Napatree remains undeveloped in terms of buildings and roads, the natural coastal processes are allowed to continue without disruption. Throughout its middle, sand from the ocean side is blown and occasionally washed across the dunes and deposited on the bay side. Sand from Napatree also finds its way into Little



*View of lagoon entrance*

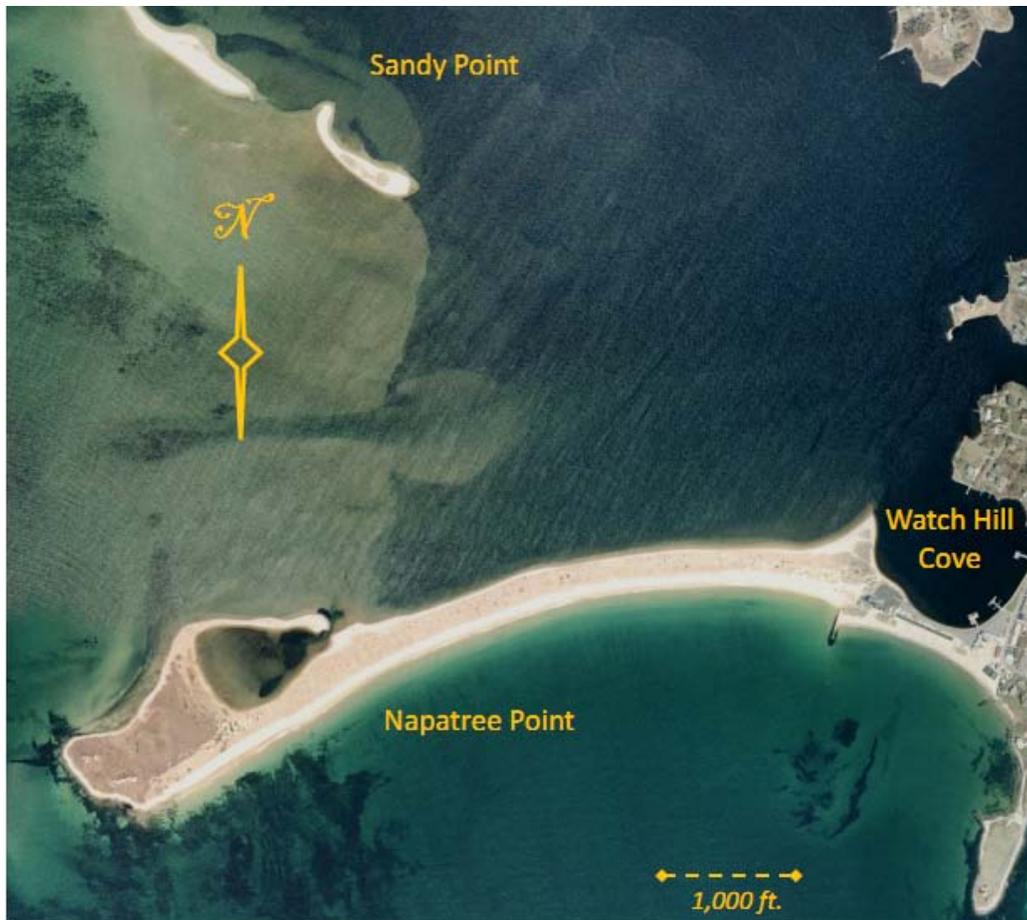
Narragansett Bay. The shape of the lagoon, located on the bay side near the tip of the point, is controlled by water currents, with erosion and deposition changing it over time. The trend, over recent decades appears to be towards a closed pond. Inevitable storm events create short-term disruptions and alternation to the geography and habitats of Napatree, but do not significantly impact, or represent departures from the more long-term effects of gradual aeolian and fluvial processes.

The Watch Hill Fire District owns 90% of the total Napatree Point Conservation Area, while the remaining portion is owned by the Watch Hill Conservancy, eight other entities, including the State of Rhode Island and the Town of Westerly, and six private individuals. The Watch Hill Fire District is a quasi-governmental organization chartered by the Rhode Island General Assembly in 1901. The Watch Hill Conservancy is a Rhode Island non-profit organization, incorporated in 1999 and recognized as 501(c) (3) by the IRS. The mission of the Conservancy is

*To promote the preservation of the natural and built environments of Watch Hill; to conserve, maintain and enhance the scenic, open space and historical values and the character of Watch Hill, and support the continued vitality and sustainability of the community; to educate the public concerning the same; and to acquire and preserve interests in real property.*

In 2005, the Fire District and the Conservancy initiated a joint management program for Napatree. While there is no formal agreement between the two entities, their respective governing bodies regularly review the joint management of Napatree, which is formally designated the Napatree Point Conservation Area.

In 2005, Kristen Puryear, of the Rhode Island Natural History Survey, conducted a study and produced an Ecological and Management Survey of Napatree Beach and Napatree Point at the request of the Conservancy and the Fire District (Puryear 2005). The survey contains extensive inventories regarding the natural communities of Napatree including soils, flora and fauna: mammals, birds, invertebrates, reptiles and amphibians. The study also included management recommendations, many of which were adopted by the two organizations. In 2008 Julia Royster, biologist, authored a baseline report for the Conservancy entitled the “Conservation Easement Documentation Report” which included information about the condition of the Napatree and



Napatree Point and Environs (image: RIGIS)



Napatree Point Locales (image: RIGIS)

management practices at the time (Royster, 2008). Ms. Royster also authored Napatree Beach Season Annual Reports for the years 2008 and 2009. The current management practices at Napatree include the following:

- a) Protection of nesting and feeding areas used by the piping plover (*Charadrius melodus*). The piping plover became a protected species under the Endangered Species Act in 1986, and along the Atlantic Coast it is federally designated as threatened. The Endangered Species Act provides penalties for taking, harassing or harming the piping plover. The U.S. Fish and Wildlife Service's (USFWS's) Piping Plover Recovery Plan (USFWS 1996) includes recommendations regarding protecting plovers and their habitat, managing beaches for piping plovers in New England, and other pertinent information. On Napatree, the USFWS protects the birds under Memoranda of Understanding with the Conservancy, the District, and the other owners.

In April of each year, following the spring migration, employees of the USFWS study the pattern of bird tracks at Napatree Point and use the tracks to predict where the piping plovers may nest for the season. Thereafter the public walking trails closest to these sites are closed for the nesting season. When a piping plover nest is located by USFWS employees, a large area around the nest is roped off and signs posted to reduce disturbance of the nest and incubating parents. Once the eggs hatch, the Napatree Conservation staff increases the frequency of their presence on the nearby beach to protect the chicks (Royster, 2008). During the season, USFWS also checks the status of nests of least tern and American oystercatcher, two species listed as rare by the Rhode Island Natural Heritage Program (Enser 2006). Nesting areas of the least tern are also roped off and sometimes overlap that of the piping plovers.

- b) Partially in response to the recommendations of the 2005 RINHS study, the WHFD and the Conservancy created a team of naturalists and wardens who work seasonally to record data, teach environmental education programs on site, and perform security duties, including informing the public about the applicable regulations and ordinances governing the area. These staff members, whose number is augmented, seasonally, by summer

college and graduate school interns, including University of Rhode Island Coastal Fellows, take weekly water samples, record the number of visitors, boats, dogs, specific and approximate numbers and species of birds, and the number and kinds of rule infractions (i.e. alcohol, open fires or grills, trespassing in USFWS roped-off areas or on sensitive dune grass). They also pick up trash on a daily basis and provide a daily visible presence to help ensure rule compliance. In general, their observations provide a record of the “mood” of public interactions at Napatree and the awareness of the public of the applicable rules. Much of the work of the naturalists involves interacting with visitors to answer questions and providing information that enhances their visits.

- c) The Napatree naturalist educators currently offer morning and afternoon children’s programs (“Napatree Investigators”), two days a week during the summer months, as well as Saturday morning walks for adults and children. The weekday Investigator program targets children ages seven to fourteen, and offers them the chance to interact with the ocean environment

while learning more about the importance of conservation. The Saturday walks often feature special themes such as nature photography or bird watching, and are each led by experts in their fields. Special walks are often offered throughout the



season, and the public is also invited to participate in the Conservancy’s horseshoe crab tagging program. All these programs, which focus on the flora and fauna of Napatree, provide a natural alignment of this special environment and the nearby communities and are designed to foster appreciation of Napatree and to increase public support for its protection. All programs are free.

- d) From April through mid-July the naturalists conduct horseshoe crab monitoring, including tagging and surveys, in conjunction with Project *Limulus* ([www.sacredheart.edu/pages/13692\\_project\\_limulus.cfm](http://www.sacredheart.edu/pages/13692_project_limulus.cfm)). Morning and evening surveys and crab tagging are conducted daily during the five-day cycle surrounding new and full moons.
  
- e) The Conservancy employees are developing a management plan based on the Conservancy baseline report (Royster, 2008), a comprehensive plant inventory done on the eastern end of Napatree in 2010, and a record of practices used by naturalists and wardens. Management practices are guided by rules and regulations of the Rhode Island Coastal Management Council (CRMC) for managing coastal flora, as most of the Conservation Area falls within the 200-foot inland coastal feature buffer boundary. Two naturalists have become CRMC-certified Invasive Species Managers.
  
- f) Signs are posted reminding dog owners about the Westerly ordinance prohibiting dogs from 8 a.m. to 6 p.m., May 1 to the day after Labor Day, and noting that at all times dogs must be leashed. Signage instructs all dog owners to pick up their dogs' waste, and small plastic bag dispensers are located at the pedestrian entrance to Napatree to encourage compliance. Unfortunately, a number of these bags are simply discarded on the beach. These bags, and unbagged dog waste, are counted and recorded by the naturalists and wardens. On the positive side, the staff reports that over the five years that the program has been in place, there has been a noticeable decrease in violations, and that public resistance to change has become less pronounced than it was when the program was initiated.
  
- g) Following recommendations of the 2005 study, some trails crossing the dunes have been closed to encourage regeneration of native vegetation. Other trails have been made more visible to reduce the number of crossings and manage pedestrian impact on the vegetation.

- h) The Conservancy funds participation in the water quality monitoring program managed by the URI Watershed Watch program. From late April through November, Conservancy employees take water samples from two areas of Napatree (the bay side and the ocean side) and test the samples for salinity and dissolved oxygen following strict Watershed Watch protocols. In addition, the Conservancy measures water temperature (at both shallow and deep locations) and prepares the chlorophyll samples for testing by Watershed Watch. The samples are tested for water clarity, chlorophyll, alkalinity, pH, algal density, dissolved oxygen and nutrients in the Watershed Watch laboratory, which is certified by the Rhode Island Department of Health. (The staff also takes samples from Foster Cove, across Little Narragansett Bay from Napatree, but also in Watch Hill; these are also reported to URI Watershed Watch).

### **Site Visit and Observers**

On July 28, 2010, RINHS convened an expert panel a) to review the RINHS Ecological and Management Survey of Napatree Beach and Napatree Point from 2005 (Puryear, 2005), b) to review the implementation of management strategies recommended in the survey and c) to make additional management recommendations. The participants were selected in consultation with the Conservancy for their familiarity with the site and with similar issues and conditions elsewhere and included: Peter August (Landscape Ecologist, URI), Rupert Friday (Director of the Rhode Island Land Trust Council), Scott McWilliams (Avian Ecologist, URI), Clarkson Collins (Land Management and Volunteers, South Kingstown Land Trust) and Hope Leeson (Botanist, RINHS). Following a visit to the Napatree site by the panel, Prentice Stout (Marine Education Specialist) joined the participants for further discussion. Stout also joined the naturalists at a subsequent session of the Napatree Investigators program. Expertise was also provided at a later date by Jon Boothroyd (URI Professor of Geology [ret] and RI State Geologist [ret]).

## **Existing Conditions, Observations and Recommendations**

The input from the expert panel, additional research, and expert interviews clearly indicate a need to consider Napatree Point as a complex site with interrelated natural features, and both conservation and recreational values. The issues and impacts discussed below in discrete sections of this report are not isolated from each other, but rather occur in combinations and in complex relationships. It is important to look at the entire environment of Napatree when making design and management plans, rather than only considering certain species, types of recreation or isolated environmental impacts. It was apparent to the panel that while public recreation has a chronic impact on Napatree Point's conservation values, public use also provides educational and other opportunities of considerable value to the Conservancy, the Fire District, and other stakeholders. A goal of careful management should be to mitigate the chronic impact of recreation on Napatree's conservation values while retaining the benefits and opportunities that diverse recreational uses provide. In the case of Napatree, not only are conservation and recreation not exclusive of each other, under a management regime informed by conservation science and with sufficient resources to engage directly with the public consistently over a long period, they can benefit each other.

### **Birds**

The most important conservation values at Napatree Point are related to its bird life. Due to the important avifauna at Napatree, the Rhode Island Department of Environmental Management's Division of Fish and Wildlife is involved in monitoring and management, and USFWS naturalists also monitor the bird population at Napatree daily in season. Two bird species of particular note are found at Napatree: the federally endangered piping plover (*Charadrius melodus*) and the state listed least tern (*Sterna antillarum*). These two bird species were impacted by hunting and habitat loss almost to the point of extinction in the early 1900s. In 2010, USFWS reported that nine pairs of piping plovers and twenty-three pairs of least terns nested at Napatree. The plovers fledged a total of twenty chicks, while the least terns fledged twenty-eight chicks. In 2010, two pairs of American oystercatchers (*Haematopus palliatus*) nested at the western end of the Point beyond the opening to the lagoon but did not successfully

reproduce<sup>2</sup>, though there have been successful nests in past years. Also in 2010, as in previous seasons, a pair of ospreys (*Pandion haliaetus*) nested successfully on one of the two artificial platforms erected on the site.

The invited experts commented on a number of impacts on birds by human recreational use of Napatree:

- a) Persistent disturbance of birds by certain human activities threatens birds and bird breeding success. Birds flushed from shelter, distracted from brooding or feeding or provoked to defense by dogs off leash, kite board sails, illegally landing aircraft or pedestrians are less likely to thrive. Activities of this type have a direct detrimental effect on this resource at Napatree.
- b) In addition, recreational use may introduce pollutants, litter, pathogens or unhealthy, non-natural food to these populations. Likewise, dog waste attracts predators.

## Flora

Floras at Napatree are distinctive to its geographical location and helps give it its unique character. The panel members made several observations about the site flora:

- a) Plants that grow in areas used for recreation are being trampled by people and dogs.
- b) In general, vegetation in trampled areas is smaller, more sparse and of different species than flora of non-trampled areas.
- c) Invasive plant species were observed at the eastern end of the dune and within the remains of the fort. The following species were observed: tree of heaven (*Ailanthus altissima*), beach rose (*Rosa rugosa*), Morrow's honeysuckle (*Lonicera morrowii*), Asiatic bittersweet (*Celastrus orbiculatus*), and purple loosestrife (*Lythrum salicaria*).

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<sup>2</sup> US Department of the Interior, Fish and Wildlife Service, letter to Westerly Harbor Management Commission Members, Appendix A (Charlestown, RI, 2010).

- d) Areas that face disturbances from recreational use are especially vulnerable to competition from exotic species, which are better adapted to disturbance than native species. The panelists observed many *Rosa rugosa* bushes on the beach dune areas, and while this species can be useful as a dune stabilizer, it is an invasive exotic. The panelists suggested some potential native alternative species, such as Carolina rose (*Rosa carolina*), beach plum (*Prunus maritima*), northern arrowwood, (*Viburnum dentatum*), and bayberry (*Myrica pensylvanica cerifera*), be used to stabilize and revegetate areas following any removal of non-native species.

## Trails

There is an extensive network of trails in the Napatree Conservation Area, some officially sanctioned, others created by visitors traveling on their own paths. There are currently some 29 crossover trails, from the gravelly cove beach on the northern shore, across the vegetated dunes, to the sandy beach on the southern, ocean shore. Of the 29 crossover trails, 13 were temporarily closed temporarily by USFWS during the 2010 plover mating season, while 16 remained permanently open. This includes one trail that bypasses the eastern jetty by connecting the Watch Hill Cove end to the Little Narragansett Bay side.

Trails at Napatree are not hardened with boardwalks or marked with permanent signage, but rather stay flexible so that they can be closed according to the needs of the nesting birds. The panel observed that while this low-key approach allows trail alignments to be changed in response to the nesting birds, it has created an environment where users may not be able to discern which trails they should use, and in which direction to turn to find a sanctioned trail along the long expanse of the Point.



The panel recommended that to minimize user impact on a sensitive natural environment it is desirable to encourage people to stay on planned traffic paths. To foster this, trails must lead where people want to go and people must be able to see that the trails will do so. When the desired behavior is clear to the user, the need for signs should decrease and they can be used more often as an educational rather than a prescriptive tool.

Panel members further discussed that the trails could be:

- a) Comprised of a material both substantial and flexible, such as a mat of degradable coconut fibers. This would more clearly delineate trails and encourage use of the designated trails by providing better footing while maintaining flexibility for potential path closures during nesting season;
- b) Sometimes delineated with more permanent signage, for example tall bamboo poles topped by flags. Such a sign would be visible over the dunes and from the water;
- c) Marked with educational content, for example, having kiosks at the end of the trails, displaying lessons in the succession of dunes to other kinds of vegetated areas.
- d) Possibly planned according to management zones. Panel members suggested closing trails in the vicinity of the lagoon (an area somewhat remote from the entrance and from bayside mooring area, where most visitors arrive), leaving trails closer to the eastern end (near the Misquamicut Club beach club), where plovers do not nest, permanently open and leaving the ones in between flexible for opening and closing by the USFWS, (according to the location of the nests).

## **Dogs**

Dogs are important companions and a near constant presence during American outdoor recreation activities. Currently, Napatree is the only beach in Westerly permitting dogs during the summer months. A greeter is positioned at the only pedestrian access to Napatree during the

daytime from May 1<sup>st</sup> to Labor Day to count the number of visitors and provide information to the public. While a Westerly ordinance prohibits dogs between the hours of 8 a.m. and 6 p.m., Memorial Day to the day after Labor Day, they are permitted during hours when Conservancy and USFWS staff are not generally present, and hence are frequently allowed to run free. In addition to the information that Conservancy staff, when present, provide to visitors, and information on signage, the Conservancy also attempts to prepare visitors by boat to comply through notices about the dog policy sent to all nearby marinas for posting.



*Greeter at pedestrian entrance*

The panelists suggested that:

- a) More education is needed regarding the effects of dogs — not only the impact of their feces (degrading the water, beaches and dunes) but also their potential to frighten birds and other wildlife.
- b) The Conservancy staff could meet boats mooring adjacent to the spit with a welcome packet containing information about the outstanding environmental features of the area, desired behaviors to protect the Napatree environment, and the dog policy. The welcome package could also contain membership information for the Conservancy and information on local services and businesses.
- c) Monitoring and careful record-keeping may provide data on basis of which changes in the Westerly dog ordinance might be supported.

## **Boats**

The northern shore of Napatree is adjacent to Watch Hill Harbor and is a natural and inviting area for temporary anchorage. It is also used extensively by boaters traveling along the New England coastline. The Conservancy staff keeps records of the number and types of boats at anchor and takes weekly and monthly water quality samples along the bay side of Napatree.



*Boats temporarily anchored along the northern shore*

A small lagoon is located on the bay side, near the western end of Napatree, north of the fort. A new Westerly ordinance regarding boats in the lagoon has recently been enacted. Previously no boats were allowed in the inlet, but the new ordinance now permits non-motorized boats to enter. This decision exposes this area to a new impact, and the panelists urged that the consequences be monitored and studied further.

The current deliberations of the Westerly Harbor Management Commission include discussions as to the location of mooring or anchorage fields in Little Narragansett Bay. The Conservancy, the USFWS and others have cautioned against the location of any such fields in areas now or historically the location of shellfish beds and eel grass fields, as well as the need for setbacks from the shore of Napatree and Sandy Point. The USFWS has expressed concern about any dredging activity that might be considered in the “cut” between Napatree and Sandy Point.

## **Fort Mansfield**

At the end of the nineteenth century, construction began on a fort at the most western most end of Napatree Point. Named Fort Mansfield, this was one of five forts built from Watch Hill to Long Island, to serve as defenses to Long Island Sound. At Fort Mansfield, at the tip of Napatree, three batteries were established, as well as numerous ancillary structures built nearby, including service buildings and

barracks to house the fort personnel.

Only a few years after it was built, Fort Mansfield was determined to be militarily ineffectual and redundant, and it was decommissioned. By 1928, the ancillary structures were razed, and the land was sold to private interests.

The Hurricane of 1938 swept away the summer cottages that had been built between Watch Hill Village and the



*Fort Mansfield remains*

fort, and all that is left today of prior structures are the partial remains of two of the batteries and a few of the pilings of the once extensive dock, located at the western tip of the Point.

The panelists observed:

- a) On balance, the value of the fort as a historic site, weighed with the attendant costs and impacts of reconstruction, likely do not outweigh the value of the area as a restored wild habitat. The current ramshackle condition of the fort appears to be a dangerous setting for people exploring the site. Steps should be taken to stabilize the structures and to mitigate hazardous elements.
- b) The fort site has also become a footing for invasive species. Revegetation of the fort site with native tree and shrub species could form a natural barrier to visitors exploring this area, and improve feeding and resting habitat for migratory birds. This would also recall the environment as it once was, a neck or “nap” of trees naturally growing at the western end of the spit.

## **Types of Impacts**

We can expect that there will be some degree of environmental impact by humans at Napatree, because it is a heavily used recreational resource as well as a vulnerable natural environment. In order to minimize the environmental impacts, certain questions should be considered, including:

- a) What kinds of recreational use will be allowed? Are there activities, such as jet skiing and kite-boarding, which conflict with the conservation of the natural communities on site? Are there regulations which might relate to the establishment of specific areas for access by boaters?
- b) What are the behavioral expectations of the public using the resource (e.g., what can be expected of dog owners in relation to control of their pets? Are there changes which should be considered in the dog ordinance?).
- c) What is the spatial distribution of use (e.g., does it make sense to concentrate the recreational use at the eastern end of the Point, away from the more sensitive areas further out, or can dog owners be directed to particular areas where they will have less impact on the environment)?
- d) What is the temporal distribution of use? Should the site be closed at sunset? Should the site be closed to dogs from March to September when the protected migratory birds are present?
- e) What is the role of visitor education on impact of use? For example, visitors may more easily accept fencing and trail closures if they understand that the nesting birds determine where the fencing is placed, not the USFWS or Conservancy staff (Royster, 2008).

## **Planning for the Unexpected and Managing for Flexibility**

The panel made a number of suggestions in order to manage for the unexpected and for flexibility:

- a) The location of Napatree along the Atlantic coast makes it vulnerable to hurricanes, other severe storms, and to the effects of climate change. However, the dramatic effects of inevitable storm events will not adversely affect the environmental values of Napatree and should not be given an unduly large place in management planning that should properly focus on chronic impacts.
  
- b) Conservation organizations frequently exchange easements in order to provide an additional level of protection for conservation land. This strategy is recommended by the Land Trust Alliance as a Best Practice in land protection.<sup>3</sup> At Napatree, long term preservation could be furthered by dividing the legal interests up among multiple parties with shared conservation interests: the Fire District could give a conservation easement to the Conservancy and the Conservancy could give a conservation easement to the Fire District on the property it owns. This strategy has been successfully employed at nearby Sandy Point. This would provide a system of checks and balances to help ensure the land will remain protected in the future if either organization should encounter fiscal or legal difficulties or if leadership changes result in priority changes and/or less interest in protecting the resource.
  
- c) Use ecosystem-based management instead of managing for individual species. Ecosystem-based management is an environmental management approach that emphasizes the health of the whole ecosystem ahead of the concerns of a single issue or species. For example, invasive species removal should only be done in full recognition of erosion risk and need for bird shelter. Given that most of Napatree is under the jurisdiction of the Rhode Island Coastal Management Plan, management will have to recognize that constraint.

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<sup>3</sup> Land Trust Alliance, *Land Trust Standards and Practice*, (2004)

## **Data Collection**

The Watch Hill Conservancy is already engaged in a methodical collection of pertinent data regarding Napatree, including an invasive plant inventory; number of visitors, boats, birds, educational program participants; water quality measurements; data showing how the shoreline is changing over time; and maps of active and closed trails. A GIS database is being compiled and reports are generated and housed centrally, on an annual basis. These activities have already proven valuable to the Conservancy's management efforts and the panel commends the Conservancy for their investment in this regard and recommends strongly that they continue to collect and use quantitative and other data relevant to ecological and management issues.

The panel noted that:

- a) These data will be very useful for long term tracking of sensitive species, to prioritize how best to use management resources, to track management trends, and for grant applications.
- b) The following information should continue to be collected: resident predators, pounds of garbage removed by the employees and volunteers; maps showing how the shoreline is changing over time; detailed elevation maps to help track and predict storm and sediment patterns; and weather information. To continue to build public support for management, data on the results of trail closures on plants and wildlife would be valuable. Children's educational programs should remain a focus.
- c) Additional relevant information collected by other agencies (e.g., piping plover and least tern nest locations and changes in beach topography at nearby sites, such as Sandy Point) should be compiled and summarized each year. Having this data from proximate areas would increase knowledge and understanding of Napatree within a regional context.

## **Conclusion**

### 1) General Recommendations

- a) Continue building a case for public support of management by gathering data, by tracking natural resources, and by educating through on-site interpreters and signs. The naturalist and warden programs make important contributions to the long term success of a management strategy at Napatree Point that balances conservation and recreation values. In particular these programs: a) gather data to guide management actions, monitor results, and reinforce policies to the public; b) provide an important communication channel between the Conservancy and the Fire District and a broad spectrum of Napatree Point users; and c) build bases of support, both direct and indirect (e.g. political/social) for the Conservancy and the Fire District in the community.
  
- b) The Conservancy and Fire District should continue active management, even with the understanding that climate change and storm events will impact Napatree, as indeed they have in the past. Responsible stewardship practices such as managing trail use, limiting the use of the area by dogs and managing invasive plant species will need to be ongoing active efforts to maintain Napatree for conservation and recreation.

### 2) Further Studies

The panelists recommended:

- a) Conducting a study on the ecosystem of the lagoon since it is a fragile and significant resource for nesting birds, fish, insects and aquatic invertebrates;
  
- b) Further exploration and possible studies of how best to manage the fort relic. This will need to be undertaken in consultation with the Rhode Island Historic Preservation and Heritage Commission and other cultural resource interests. We recommend that such a study take account of the cost/benefit equation of different strategies for managing the fort relic;

- c) Further study into the issue of legal structures to backstop the Conservancy and the Fire District and ensure long term protection in the event of organizational difficulties.
  
- d) That the Conservancy and the Fire District engage an ongoing scientific advisory board for Napatree to support conservation and management studies and goals. It was suggested that this board meet at least twice a year for briefings and discussions and ideally be comprised of experts in coastal geology, ornithology, submerged habitat biology, restoration ecology, plant ecology, entomology, and shellfish biology, member from the U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS), from the USFWS, and the Coastal Resource Management Council (CRMC), a member with knowledge of planning and coastal zone regulations, and a member with knowledge of Geographic Information Systems (GIS). The Board should also include representatives of the Napatree naturalists and the leadership of the Conservancy/Fire District program.

### 3) Potential Sources of Funding and Technical Assistance

Funding to date has come from the Conservancy, the Fire District and foundations.

The panel suggested as additional resources:

- a) The Wildlife Habitat Incentive Program (WHIP) grants from the U.S. Department of Agriculture Natural Resources Conservation Service (USDA-NRCS) because of the site's importance as a staging ground for migratory birds along the coast;
  
- b) U.S. Fish & Wildlife Service partnership program; and
  
- c) The National Parks Service Rivers and Trails Program, especially for technical assistance on trail design, trail surface materials, and marking.

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