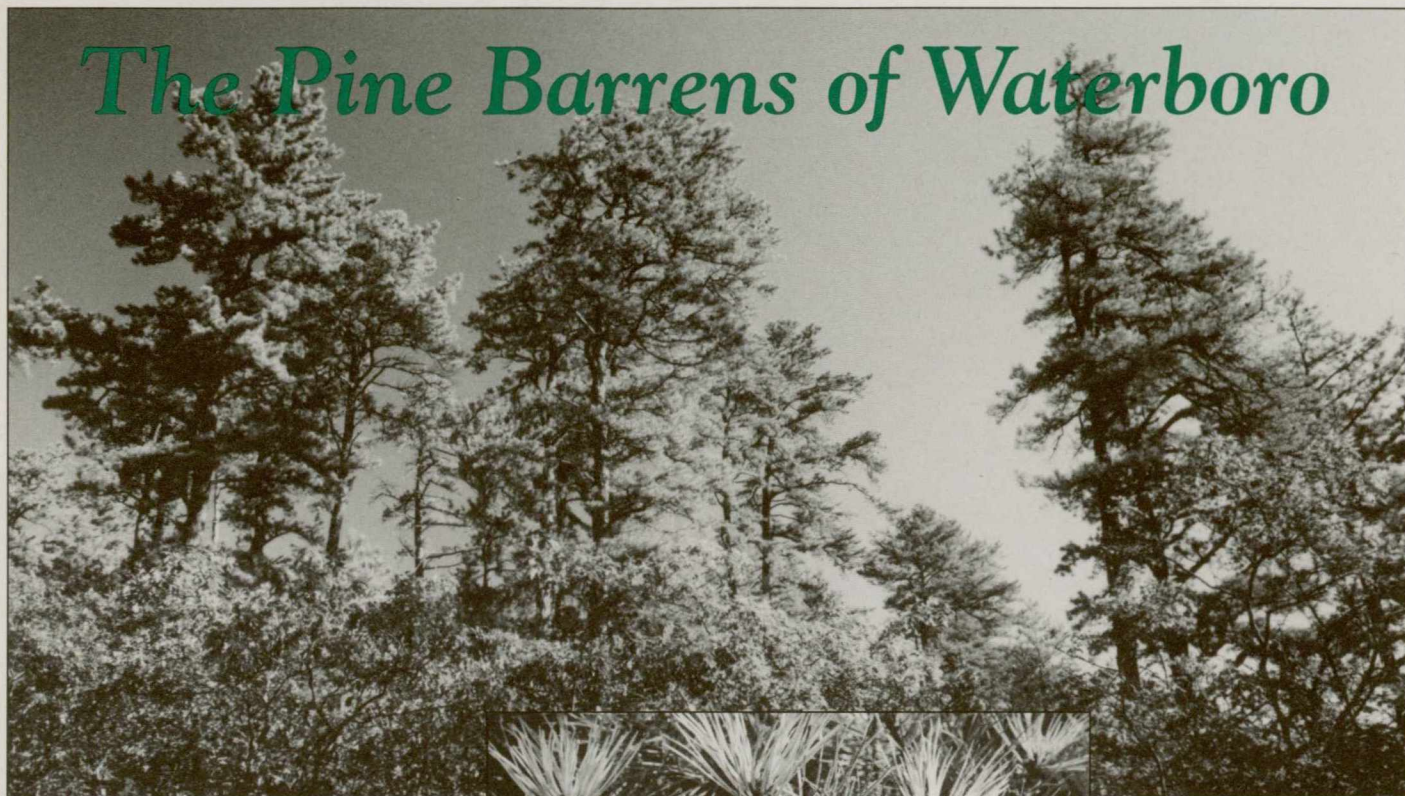


# Maine Legacy

## Storehouse

### THE NATURE CONSERVANCY

## *The Pine Barrens of Waterboro*



**I**n the heart of York County lies an expanse of wild and strangely beautiful woodlands, where pitch pines reach to the horizon in every direction. For the past 8,000 years, with the exception of periodic fires, little has changed within this sandy, silent landscape.

Deer and other wildlife pass the seasons quietly among the shrubs and tall, gnarled conifers. Countless butterflies and moths, including many rare species, add cyclical bursts of life to the dry hillsides.

Natural fires, a critical component of the pine barrens, periodically halt the encroachment of young hardwood trees and rejuvenate the surviving plants. Underlying the vegetation, a natural aquifer collects pure water filtrated through layer upon layer of sand and gravel. Pristine ponds, streams, and bogs provide



*Top: scrub oaks flank towering pitch pine trees at Waterboro Barrens; left: pitch pine needles; bottom: scrub oak acorns*

reliable surface water to resident and visiting wildlife.

But thousands of years of evolution are now threatened, and until recently it was unclear whether this extraordinary area

would survive into the next decade.

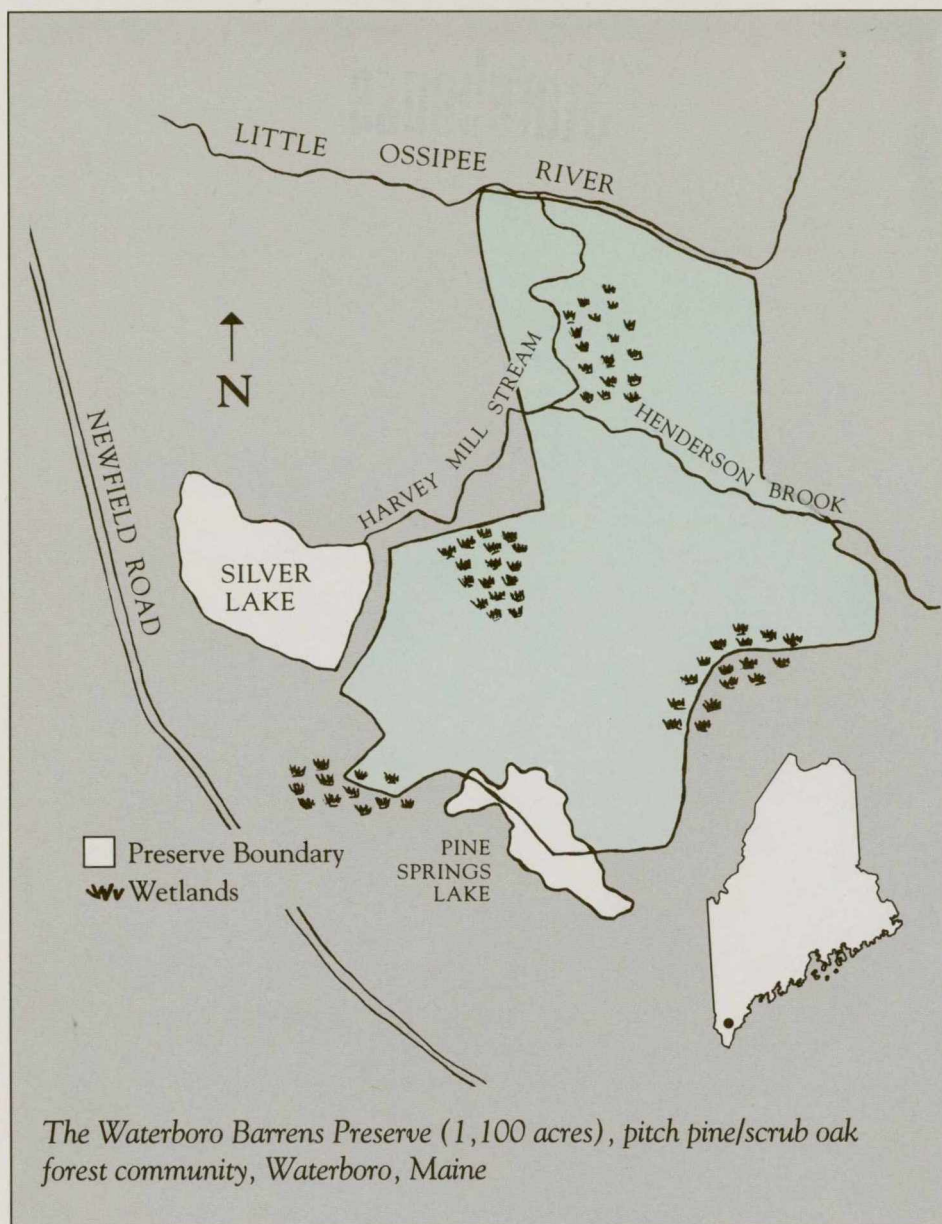
Located only 25 miles southwest of Portland, and near Maine's rapidly-developing southern coastal area, the land surrounding this serene pine barrens wilderness is under increasing pressure. Five miles north of the property is Lake Arrowhead, a development of over

— Continued on page 2 —

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## Waterboro Barrens

*Continued from page 1*

2,000 residents recently described by the Portland Press Herald as "one of Maine's largest and fastest growing subdivisions." In addition, active mining operations have already altered a portion of the northern barrens, which overlie substantial sand and gravel deposits.

Realizing that southern Maine's growing populations could impair the Waterboro pine barrens, The Nature Conservancy has secured an option to purchase 1,100 acres of this endangered natural community from a developer, who had envisioned a large recreational residential complex.

In the mid 1600s, at the time of early European settlement, there were tens of

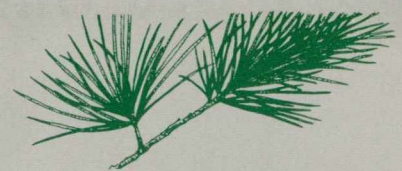
thousands of acres of pitch pine/scrub oak vegetation scattered throughout New York and New England.

Most barrens are seemingly ideal places for human settlement—occurring on deep, well drained soils with abundant water reserves, and located in lowlands near coasts, harbors, rivers, and lakes. In addition, they invariably occur on valuable sand and gravel deposits.

### A Threatened Natural System

Outright habitat destruction by land clearing, mining, and development, mostly during this century, has claimed over half of the original pine barrens acreage. Remnant pine barrens are now scattered in small and isolated pockets

*Continued on page 7*



## Fire and the Pine Barrens

Periodic fires are a critical component of the pine barrens ecosystem and, in conjunction with topography, soils, and climate, have shaped the vegetative communities we see today. The leaves of many pine barrens plants contain particularly flammable resins and oils, and leaf litter and other plant material are slow to decompose on the extremely well-drained, acidic soils. This results in the accumulation of a deep organic mat, or duff layer, that readily burns.

All dominant plants found on the pine barrens are tolerant of, and dependent on, fire. Pitch pine, for example, has fireproof bark, and, unlike white pine, can resprout from its trunk following crown damage. Scrub oak produces a burst of new growth after fire; according to John McPhee's *The Pine Barrens*, "scrub oaks put out so many acorns after a fire they look like over-decorated Christmas trees." Without fire, northern hardwood forest species would invade, eventually replacing the pine barren species.

The major stewardship challenge of the pine barrens is first to prevent and control the unintentional—but sometimes inevitable—wildfires that may threaten lives and property, and second to introduce controlled fires under carefully prescribed conditions in order to replicate the beneficial effects of natural fires.

An essential first step is to collect precise information on the area's vegetation, resident wildlife, current fuel load, fire history, and potential fire-breaks. The information will then serve as the basis for a wildfire containment plan. It will also be the foundation for monitoring the effects of both wildfire suppression and wildfires on the flora and fauna of this complex forest ecosystem.

In addition, the Maine Chapter Science and Stewardship staff will design an overall stewardship management plan for the future Waterboro Barrens preserve that will include provisions to guide and encourage compatible recreational use of this beautiful wildland.



# Soft Blizzard:

## *The Moths and Butterflies of the Pine Barrens*

By John Albright, director,  
Maine Natural Heritage Program

Picture in your mind a quiet, remote landscape with parklike stands of pitch pines, and ridge after ridge of pure scrub oak thickets covering thousands of acres. Picture dusk descending on this landscape in early spring when the evening air is full of the rich cool earthy scent of frost rising out of the thawing ground. And picture these pines alive with thousands of moths, fluttering in the invisible night like a soft blizzard, and you have pictured the Waterboro Barrens.

"Barrens" of course is an entirely inappropriate appellation, because pine barrens are as diverse and productive in their component species as other habitats in Maine. The Waterboro Barrens likely harbors more rare species than any other Nature Conservancy preserve in Maine.

The single group of animals that gives the barrens this distinction is the Lepidoptera, or butterflies and moths. At least 45 species of butterflies and moths in Maine are dependent enough on pine barrens habitats to be considered characteristic of barrens. Of these, 34 have been recently documented in Maine, and of these, 25 are rare species either globally or in Maine. Many of these have already been documented in Waterboro Barrens, and all can be expected with continuing survey work.

Most of the rare Lepidoptera require either pitch pine (*Pinus rigida*) or scrub oak (*Quercus ilicifolia*) as food for their larvae. Because these plants are dominant in the pine barrens, it makes sense that we find these Lepidopteran species

here. Other species may use host plants that are common elsewhere, such as blueberries or other heaths, but barrens remain one of the few habitats in Maine that have been spared the destructive use of pesticides or other effects of human intervention. Thus, barrens are a "last stronghold" for many Lepidopteran species. (By the same reasoning, we can expect that additional work on other pine barrens invertebrates will reveal many rarities restricted to or characteristic of barrens.)

Some of these species, especially the ones dependent on bear oak for food, are rare now because barrens have become so fragmented from destruction or alteration that only a few viable barrens habitats remain. The general perception among entomologists currently is that a barren must be on the order of five hundred or more acres in size to support the full complement of expected barrens' Lepidoptera.

The earliest moths to fly are the Noctuids. Moths in this family overwinter as adults hidden under tree bark. As the barrens thaw in early April, they emerge at dusk for a brief flight period, looking for nectar from willow and maple buds, and looking for mates. These species, such as the Acadian swordgrass moth and Thaxter's pinion moth will lay eggs

in spring. These will hatch in summer, and the larvae will transform to adults in late fall in time to overwinter until spring to complete the cycle.

One of the earliest flying moths in Waterboro Barrens is the Twilight moth, a species more commonly of central Canada and upper midwest, and one that is sometimes collected in driving snowstorms.

Other species adopt a more conventional approach, carrying out their life cycle in the course of one calendar year. Some are insignificant in size and color. Others are notable exceptions. The brilliant Underwings, or *Catacola* species sport brightly colored hindwings that flash in the beam of light of the collector.

Perhaps the most sought after moth of the barrens is the buckmoth, a large, hirsute species with bold black, red and white colors. The buckmoth flies for just a couple of weeks in late September before laying eggs and disappearing. The name was given to the species because its flight period coincides with the time of year for hunting deer that frequent the rich, acorn-laden ridge tops of scrub oak.

The Lepidoptera is just one group of interesting species that make their home in the pine barrens. As we look at other groups, we will undoubtedly find just as many rare species—pointing to the value of protecting unusual natural systems like the Waterboro Barrens.



## Seawall Beach Update: Piping Plover and Least Tern Management Continues

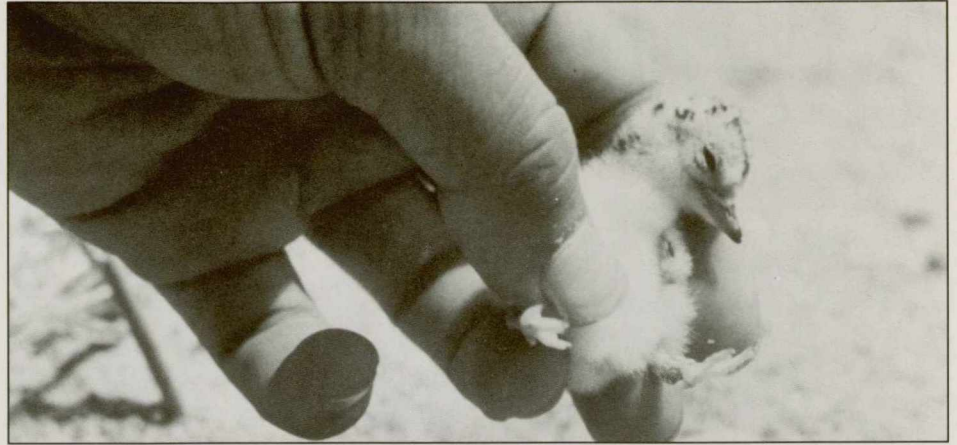
by Jacquelyn M. Howard,  
Seawall Beach Warden

Piping plover and least terns continue to be rare and ever more endangered coastal bird species in Maine. The birds' need for broad sandy beaches for nesting is in direct competition with beach goers, who use these same areas for recreation and relaxation.

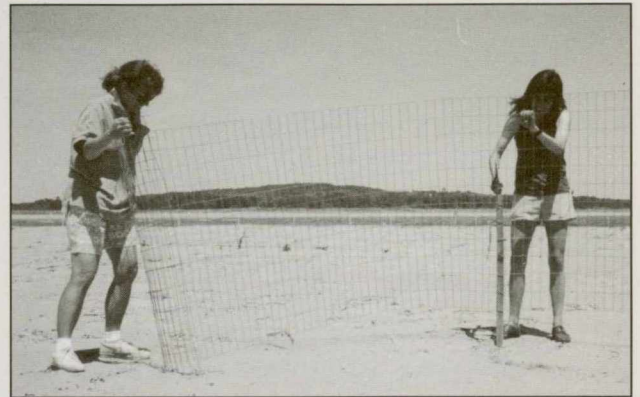
In Maine, piping plovers and least terns nest in only six locations. With increased development and recreational use of the beaches, habitat for these birds has decreased dramatically over the past decades, contributing to low population numbers throughout the state.

Piping plovers have been monitored closely in the state since 1981. During this time, numbers have fluctuated from a low of 7 pairs to a high of only 20 pairs. This year, of 16 pairs counted, 11 have attempted nesting. Of these 16 pairs, 6 have been seen on Seawall with 4 pairs actually nesting.

Least tern populations have been monitored since 1977 in Maine and numbers have ranged from a low of 39 pairs in 1982 to a high of 124 pairs in



*Above: a piping plover chick seems to embody the word "vulnerable," even when in the caring hands of a Conservancy steward; right: Jacquelyn Howard (Conservancy intern) and Justine Logan (Maine Audubon staff) put up fence to protect nesting shorebirds from foxes, skunks, and other mammals.*



1986. Seawall Beach historically has had the largest and most productive colony in the state. This year 42 terns have been sighted with 20 nests counted. Unfortunately, a combination of high tides and fox and crow predation has taken its toll on both the plover and tern populations at Seawall again this year. Approximately 13 tern nests and

1 plover nest were lost to June high tides. Two plover nests hatched only to have crow and fox predate the young. Happily, human and pet disturbance has caused less of a problem so far this summer due to increased awareness, cooperation and sensitivity to the birds' presence on the beach.

However, people can continue to help fight the odds facing these endangered birds. People often ask, "If foxes and crows are the main threats, why do I have to leash my dog?" Ironically, just the fact that people are asking that question underscores the progress that has been made in providing better management for plover and tern habitat. While natural factors like predators and beach processes may seem overwhelming, we can control human behavior and activities. By controlling human disturbances, we may better assess the natural stresses on the birds and develop the best possible management strategy.

As this newsletter goes to press, beach monitors are eagerly awaiting the fledging of the piping plover and least tern chicks on Seawall Beach.

### Wish List

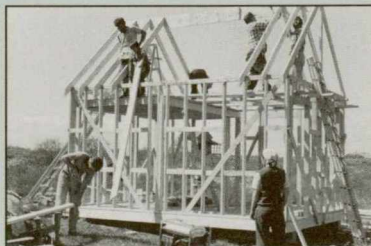
The Maine Chapter staff is wishing for the following donations:

- an orienteering-type compass for use by field staff, summer interns, and volunteers
- a propane gas refrigerator in good working condition for the Damariscove Island caretakers' cabin.

We also extend sincere thanks to the following individuals who made our wishes come true:

- Mr. Robert A. Marden of Waterville, who donated a new window for the Damariscove Island caretakers' cabin
- Mr. John Stroud of North Waterboro, who donated a door for the same cabin.

(With the help of generous members, we are making this cabin comfortable for our patient caretakers!)





## Good News for Bald Eagles: Four Pairs Newly Nest on Maine Chapter Preserves

For many years the Nature Conservancy has worked in cooperation with the Maine Department of Inland Fisheries and Wildlife (MDIFW) to protect nesting habitat for the bald eagle. A total of 20 traditional bald eagle nesting areas have been wholly or in part protected by the Conservancy; this is over half of all the nest sites in Maine that enjoy some level of protection.

Given our past efforts to protect this species, we were delighted to learn this spring that MDIFW had located new eagle nests on four Conservancy island preserves—Great Wass (Beals), Great Duck (Frenchboro), Placentia (Frenchboro), and Sheep (North Haven) - during their annual aerial survey. Eagles are also active at all but two of the other traditional nesting areas protected by the Conservancy.

Great Wass Island, protected for its boreal peatlands and jack pine forest, has no historical record of nesting eagles. The island is situated in an archipelago that provides prime eagle habitat, with several pairs nesting on adjacent islands. In fact, when the nest tree of one pair blew down, they simply commandeered a nest from a pair of ospreys on nearby Great Wass.

Although eagles had been seen on Little Duck Island around 1985, no nest had been found in the area until one was discovered this year on adjacent



*A newly-hatched bald eagle*

Great Duck. Eagles survive on such remote islands by taking advantage of the bounty of nesting gulls, eiders, and cormorants; the nest on Great Duck was seen to be adorned with the wings of several herring gulls...

Eagles were reported nesting on Placentia Island as early as the 1920s. In 1981, MDIFW constructed an artificial nest platform in the original nest tree to replace the nest that had blown down five years earlier. Used for several years, this nest also fell into disrepair until it was rebuilt this year by a pair of eagles who have produced two young.

The eagle nest on 25-acre Sheep Island off North Haven came as a total surprise to the Maine Chapter. Like the pair on Great Wass, this pair of eagles

took over an osprey nest on Sheep Island to replace their fallen nest on adjacent Burnt Island.

The Conservancy owns all or part of 55 islands in Maine. It is always rewarding when residents of the natural world unexpectedly take up residence on one of our island preserves - confirming not only our good judgment in selecting natural lands, but also the value of protecting sufficient habitat to accommodate unpredictable shifts in the natural world.

— Julie Henderson

## Grasshopper Sparrow Update

This summer there are 25 singing male grasshopper sparrows on the Kennebunk Plains, the highest since 1984, indicating this ecosystem is already on its way to recovery following drastic changes wrought by herbicide application in the last six years. The Nature Conservancy will be working with the Maine Department of Inland Fisheries and Wildlife to develop a management plan to maintain this habitat for the grasshopper sparrow and other resident endangered species.

*The endangered grasshopper sparrow*



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### Bald Eagle Nests on Maine Chapter Preserves, 1990

- Bradbury Island (Deer Isle, 170 acres)
- Coggins Head (Pembroke, 53 acres)
- East Plummer Island (Addison, 10 acres)
- Great Duck Island (Frenchboro, 245 acres)
- Great Wass Island (Beals, 1,579 acres)
- Little Hardwood Island (Jonesport, 10 acres)
- Long Island (Lubec, 109 acres)
- Long Porcupine Island (Gouldsboro, 125 acres)
- Mark Island (W. Penobscot Bay, 36 acres)
- Placentia Island (Frenchboro, 500 acres)
- Sheep Island (North Haven, 25 acres)
- Salt Island (Machiasport, 40 acres)
- Shipstern Island (Harrington, 8 acres)
- Stone Island (Machiasport, 60 acres)





*Peter Blanchard with gull chick*

## 1990 Maine Chapter Stewardship Award

Peter P. Blanchard, volunteer extraordinaire, received the Maine Chapter's annual Stewardship Award for his outstanding efforts in monitoring and caring for several Conservancy preserves in the Mount Desert Island area. Peter was honored recently with the prestigious President's Stewardship Award, only three of which are awarded nationally.

### GIVE AN EAGLE THE BUSINESS!



Industrial sites, office buildings, any surplus appreciated real property can be turned into a conservation contribution at The Nature Conservancy. Find out how your gift of real estate can help the Conservancy provide shelter for wildlife ... and for your income. Write or call our field office to learn more about "trade lands" today.

## Annual Meeting Thank You

A great thank-you to the 150 members and friends who attended the Maine Chapter's Annual Meeting on Saturday, July 14th at the Laudholm Farm in Wells. Your presence and the magnificent surroundings helped make the meeting a great success. Several talks and awards finished off a breezy day of field trips, business meeting, social hour, and dinner.

Dr. John C. Sawhill, new national president of The Nature Conservancy, offered his views on the future direction of the organization, noting the significance of the new landscape conservation (or "bioreserve") agenda and the urgency of conservation needs in Latin America and the Caribbean. He highly praised the Maine Chapter as a leading force and model for chapters across the country.

## Trade Land Gift

The Maine Chapter is please to announce the generous gift of land through The Nature Conservancy's Trade Land Program. Mrs. Ruth Searing of Sanibel, Florida, has donated a 36-acre parcel in Cushing, Maine, to the Conservancy in memory of her late husband, Joseph P. Searing.

The Trade Land Program offers supporters of the Conservancy's work a way to apply surplus land with no unusual ecological features toward the conserva-

tion of other exceptional natural areas. Gifts of trade lands are accepted by the Conservancy with the donor's agreement that the land may be sold and the proceeds used to acquire other land of greater ecological significance.

Mr. and Mrs. Searing had purchased this undeveloped land several years ago and had used it for nature hikes during their visits to Maine. After Mr. Searing passed away, Mrs. Searing decided she would like to do something with the land that would recognize her husband's affection of the natural world, this land, and the State of Maine. As a member of the The Nature Conservancy, she contacted the Maine Chapter.

A review of the Heritage Program database couple with an on-site evaluation of the land revealed no exceptional natural features that would make it appropriate for the Chapter to hold the land as a preserve. Mrs. Searing decided she wished to make a gift of the land to the Conservancy nonetheless, as a trade land. Understanding that the proceeds from the eventual sale of this land would be a fitting memorial for her late husband.

The Chapter is most grateful for this generous contribution to its work. Thanks to Mrs. Searing, more of Maine's exceptional natural heritage will endure for future generations.

(If you would like more information about the Trade Land Program, contact Jim Dow at the Chapter office, 207-729-5181.)

## We Are Grateful For...

### New Life Members

Any gift of \$1,000 or more to the Maine Chapter Land Preservation Fund provides a life membership for the donor and spouse in The Nature Conservancy. All such gifts furnish a long-term source of support to help save land here in Maine.

We are pleased to welcome as new life members:

Kenneth & Roberta Axelson  
Robert & Lynn Duplessie  
Mr. and Mrs. James E. Kuhns  
Sally Marki  
Dick and Maryanne Petrin  
Mr. and Mrs. Charles Saben  
Webster & Elise VanWinkle  
Elise Thomas Whalen

### Corporate Support

An annual gift of \$100 or more qualifies a business as a corporate member of the Maine Chapter. We are pleased to have received support from the following:

L. L. Bean, Inc.  
Cole-Haas  
Computer-Link Corporation  
The Greta Brown Layton  
Charitable Trust  
The David Rockefeller Fund, Inc.

### Foundation Support

We are grateful for the support of the following foundations:

Gerrish H. Milliken Foundation  
The Nine Wicket Foundation

### Memorial Gifts

Gifts in memory of the following individuals have been received by the Maine Chapter:

Scott R. Akscyn  
Iva Jane Baird  
Lettie Batson  
Fred Dudley  
Norman S. Goodwin  
David Kayser  
William B. Martz  
Margaret Moulton  
Mildred Perkins  
Vivian Smith  
Alice B. Stoodly  
Robert Woodbury



## Waterboro Barrens

*Continued from page 2*

in the East, and many are being rapidly destroyed. Consequently, pitch pine/scrub oak barrens are now considered globally endangered, and, after old growth forest (as protected by the Conservancy at Big Reed Forest Reserve), the single most threatened forest type in the entire Northeast. From New Jersey to Maine, pine barrens are a priority for protection by The Nature Conservancy.

Despite 20th-century development pressure, a few significant pine barrens remain in Pennsylvania, New Jersey, New York, and northern New England. Throughout this range, five distinct types of pine barrens occur, from the southern variant (exemplified by the famous New Jersey pine barrens) to the boreal variant, best represented by the Waterboro Barrens in Maine. To preserve the full range of variability in the pine barrens natural community, the Conservancy is working to protect the best examples in each state.

### An Exceptional Pine Barrens

Rare species occur in virtually every pine barren, and some of these species, like the pine barrens buckmoth, are considered globally rare. Conservancy and Natural Heritage Program inventories of Waterboro Barrens have already revealed occurrences of more than a dozen species of rare Lepidoptera (moths and butterflies), and the Waterboro Barrens is the only known location for the



*Though termed a "barrens," the Waterboro pine/oak community contains diverse wildlife, topography, and several riverine and wetland systems. Photo by Joel B. Dyer*

Maine-endangered Rattlesnake weed, or Poor Robin's plantain (*Hieracium venosum*). In addition, the dense pitch pine stands provide important deer wintering areas. Future inventories will undoubtedly reveal additional exciting discoveries.

Waterboro Barrens is exceptional among New England pine barrens because of its dramatic glacially-influenced topography, steep-sided sand hills and ridges, ranging in height from 20 to 90 feet. This topography supports a variety of vegetative communities, from

low-lying heath-shrub communities growing in frost pockets to old-growth pitch pines towering on the lee sides of hills. Dense stands of pure scrub oak, a shrub that grows to six feet in height, cover steep hilltops, while pine and scrub oak forests dominate the hillsides and flatlands.

Interwoven with the pine barren communities are beautiful leatherleaf bogs, streams, a small gorge, streamside thickets, aspen forests, black spruce swamps, bedrock outcrops, and miles of frontage on three ponds and the Little Ossipee River.

In April, 1989, a Conservancy ecologist made the trip to the Waterboro Barrens that brought it to the top of Maine Chapter protection priorities. A letter he wrote the following day expressed his enthusiasm about the property:

"I was awestruck by the expansiveness, topographic features, and vegetation associated with this new barren ....on an ecological basis, this pine barrens illustrates, in superlative fashion, all characteristic features of pine barren ecosystems. It is by far the best example I have seen of the boreal variant."

Based on this report, and on other pine barrens research conducted by the Conservancy and Maine Natural Heritage Program, the Maine Chapter land protection staff proceeded with negotiations to protect this outstanding natural area. Within six months, the Conservancy had obtained an option to purchase 1,100 acres of the Waterboro Barrens for \$825,000, an acquisition that will protect a significant portion of this prime natural community.



*Above: pitch pine bark detail; left: Waterboro Barrens contains frontage on the Little Ossipee River, Pine Springs Lake, Harvey Mill Stream, and Henderson Brook.*





# The Nature Conservancy

## Maine Legacy

Published six times yearly by the Maine Chapter of The Nature Conservancy, 122 Main Street, P.O. Box 338, Topsham, Maine 04086; telephone (207) 729-5181. Submissions of articles, illustrations and photographs are welcome.

Subscriptions to this newsletter are available to members. Membership dues are as follows: Life, \$1,000 (one-time); Acorn, \$100; Supporting, \$50; Contributing, \$35; Family, \$25; Subscribing, \$15. More than 13,000 households currently support the Conservancy's work in Maine.

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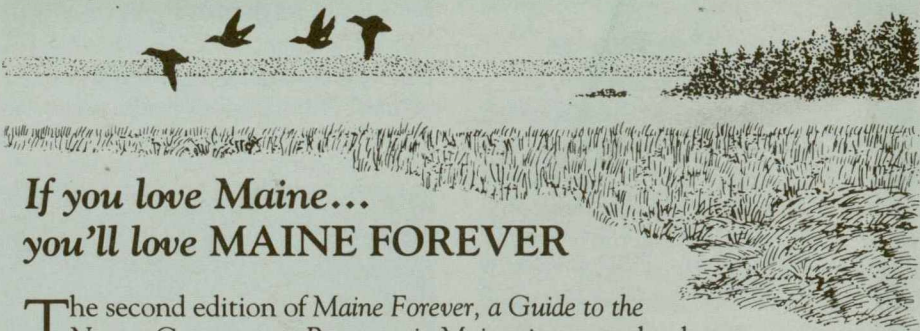


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JOHN ALBRIGHT

Population declines of the pine barrens buck moth (*Hemileuca maia*) serve as a strong indicator of what is happening to its special habitat. Buck moths always have been rare because they depend on plants found only in pine barrens—dwarf oaks that provide the caterpillars' only food. Today, more than half of the Northeast's pine barrens have been lost to development, along with significant numbers of this magnificent insect.



**If you love Maine...  
you'll love MAINE FOREVER**

The second edition of *Maine Forever, a Guide to the Nature Conservancy Preserves in Maine*, is a completely revised and expanded version, with information on more than 60 preserves including a special section on access and directions. Indexed for quick reference and spiral-bound for convenience, this book can guide you to many of Maine's most beautiful spots and show you what to look for there.

Price is \$17.95 plus \$2.00 shipping. For delivery in Maine, add 5% tax (\$1.00). Please contact our office for more information.

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