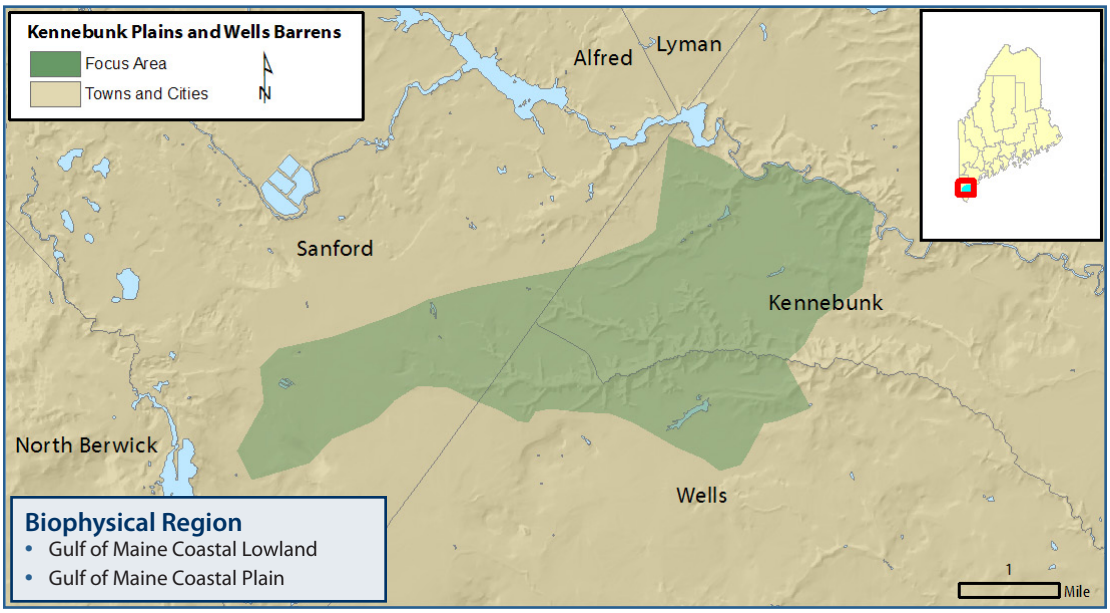
Beginning *with* HABITAT

Focus Areas of Statewide Ecological Significance

Kennebunk Plains and Wells Barrens



WHY IS THIS AREA SIGNIFICANT?

Formed by the melting of glaciers about 14,000 years ago, this unique barrens complex is one of the top-priority areas for conservation in Maine. The Focus Area supports high-quality examples of four natural community types: sandplain grassland, pitch pine-scrub oak barrens, pitch pine-heath barrens, and red maple alluvial swamp forest. These natural communities support a large number of rare birds, reptiles, insects, and plants. Kennebunk Plains is notable for its grasslands, which are among the rarest natural communities in New England.

OPPORTUNITIES FOR CONSERVATION

» Work with willing landowners to permanently protect remaining undeveloped areas.
» Encourage town planners to improve approaches to development that may impact Focus Area functions.
» Use prescribed burns and careful mowing techniques to maintain populations of rare plants and animals.
» Educate recreational users about the ecological and economic benefits provided by the Focus Area.

For more conservation opportunities, visit the Beginning with Habitat Online Toolbox: www.beginningwithhabitat.org/toolbox/about_toolbox.html.

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Rare Animals
Grasshopper Sparrow
Upland Sandpiper
Wood Turtle
Spotted Turtle
Northern Black Racer
Ribbon Snake

Rare Plants
Small Reed-grass
Upright Bindweed
Northern Blazing Star
Pale Green Orchis
White-topped Aster

Rare and Exemplary Natural Communities
Pitch Pine–Heath Barren
Pitch Pine–Scrub Oak Barrens
Red Maple–Sensitive Fern Swamp
Little Bluestem–Blueberry Sandplain Grassland

Significant Wildlife Habitats
Inland Wading Bird & Waterfowl Habitat
Significant Vernal Pools

Public Access Opportunity
» Kennebunk Plains Wildlife Management Area, MDIFW
» Kennebunk Plains Preserve and Wells Barrens Preserve, TNC

The Kennebunk Plains and Wells Barrens Focus Area provides habitat for rare species such as Blanding's Turtle (below left) and Pale Green Orchis (below right), and recreational opportunities for people (above). *The Nature Conservancy (above and below right), Jonathan Mays (below left)*

FOCUS AREA OVERVIEW

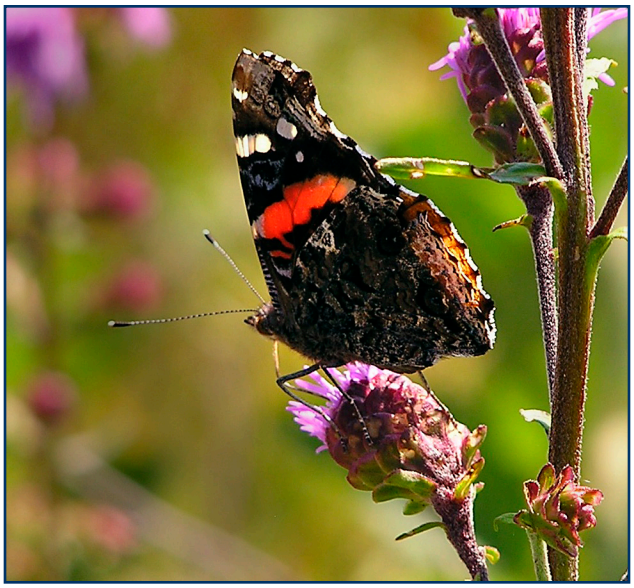
Kennebunk Plains and Wells Barrens together comprise one of the top-priority conservation areas in the state of Maine. This unique barrens complex was formed by the melting of glaciers about 14,000 years ago. Meltwater streams formed outwash plains of well-sorted sand and gravel. As a result, the soils have little capacity to hold water and nutrients, and the vegetation is subject to recurring drought and fire. The natural communities include plant and animal species adapted to these conditions. The Focus Area supports high-quality examples of four natural community types: sandplain grassland, pitch pine-scrub oak barrens, pitch pine-heath barrens, and red maple alluvial swamp forest. These natural communities support a large number of rare birds, reptiles, insects, and plants.

The topography of Kennebunk Plains and Wells Barrens is flat to gently rolling, dropping off steeply in the drainages of Branch Brook, which separates the two sites, and Cold Water Stream. The larger of the two sites, Kennebunk Plains is notable for its grasslands, which are considered to be one of the rarest and most threatened natural communities in New England. The grasslands have changed over time due to natural and anthropogenic causes. Historical human activities at the site have included Native American camps, logging, blueberry production, and limited agriculture, which have helped maintain the plains in an early successional stage.

Aerial view of Kennebunk Plains Pond. *The Nature Conservancy*

CHARACTERISTIC SPECIES

The complex of Kennebunk Plains and Wells Barrens supports populations of 14 rare plant and animal species. The grasslands harbor the state's only viable populations of northern blazing star. With more than one million stems, it is probably the world's largest population of this plant. Other rare plants include toothed white-topped aster (only 1 documented site in the state) and upright bindweed (only 4 documented sites in the state). The grasslands, together with the Sanford Airport, support the best mainland nesting population of grasshopper sparrows and provide nesting habitat for upland sandpipers. Other grassland-nesting species of note include the vesper sparrow and eastern meadowlark. The site is also only one of few known locations for the black racer snake in Maine. Two reptiles listed by the state as species of special concern—ribbon snake and wood turtle—also occur here. Two rare moth species have been observed on the Plains: the broad sallow and trembling sallow. Studies in the Focus Area found eight insect species never recorded elsewhere in the state.



A Red Admiral butterfly on Northern Blazing Star. *Margaret Pizer*

Grasshopper Sparrow. *Jonathan Mays*

Northern Blazing Star. *Jonathan Mays*

Spotted Turtle. *Jonathan Mays*

Red Maple–Sensitive Fern Swamp. *Jonathan Mays*

RARE AND EXEMPLARY NATURAL COMMUNITIES

Sandplain grassland occurs on sandy glaciofluvial deposits and is characterized by native bunch grasses mixed with ericaceous shrubs. It is an early successional stage of a pitch pine-scrub oak barrens. Characteristic plant species include northern blazing-star, little bluestem, poverty grass, woodland sedge, sand jointweed, stiff aster, lowbush blueberry, sweet-fern, and bearberry. The flora of this community is fire adapted.

Pitch pine-heath barrens are open-canopy woodlands in which pitch pine dominates, without an extensive tall shrub layer. Scrub oak, if present, is at low cover. The extensive herb layer features lowbush blueberry and woodland sedge, with scattered bracken fern and forbs. Bryoids are virtually absent. The absence of tall shrubs gives these barrens a park-like appearance. This type occurs on well-drained to excessively drained soils on outwash plains. The flora of this community is also fire adapted.

Pitch pine-scrub oak barrens occur in patches around the margin of the grassland. Characteristic species include pitch pine, scrub oak, blueberry, and huckleberry. Like sandplain grasslands and pitch pine-heath barrens, the flora of this community is fire adapted and without periodic fire, it will eventually become a pine-oak forest.

Ecological Services of the Focus Area

- Protects a large underlying sand and gravel aquifer
- Provides a buffer to several headwater streams
- Significantly contributes to regional biodiversity

Economic Contributions of the Focus Area

- Destination for ecotourists
- Scenery of undeveloped plains raises local property values
- Recreational open space attracts walkers, blueberry pickers, and hunters

Red maple alluvial swamp occurs on the slopes adjacent to the plains, where laterally flowing groundwater emerges from layers of outwash soil in broad seeps. Characteristic species include red maple, cinnamon fern, skunk cabbage, and sedges.

Listed by the State of Maine as a species of special concern, the Eastern Ribbon Snake is among the rare animals found in the Focus Area.
Jonathan Mays

CONSERVATION CONSIDERATIONS

» Both the grasslands and the pitch pine-scrub oak barrens require periodic management to prevent succession to the more common oak-pine forest type. The Nature Conservancy currently conducts prescribed burns on the grasslands. Burning is supplemented with mowing in an effort to provide nesting habitat for grassland birds, to encourage reproduction of rare plants, and to reduce encroaching shrub cover. Burning is essential to the maintenance of the sandplain grassland community, as it reduces litter depth, increases the amount of bare ground available for seed germination, and provides a flush of nutrients to the normally depauperate soil. Although The Nature Conservancy has been able to use prescribed burning as a management tool on the grassland, they have yet to burn within the pitch pine-scrub oak barrens. Currently, this is due to the high priority placed on management of the grassland and nesting bird habitat. Future management may need to focus on the pitch pine-scrub oak barrens. Smoke management from prescribed burning may eventually become an issue. At present, the size of the site allows relatively good smoke dispersal. However, as additional homes are built in the vicinity of the site, this may become more of an issue.

» Known grasshopper sparrow nesting areas should be placed in long-term habitat protection, maintained as grasslands, and not converted to other land uses.

» Avoid mowing areas with nesting grasshopper sparrows between May 1 and August 5, especially since the sparrows may have a second brood in late summer. If mowing is essential prior to this date, mark nest sites or locations of young birds and leave patches of unmowed grass.

» Several additional smaller patches of pitch pine–heath barren and sandplain grassland community types exist in surrounding private lands. Further impacts to these natural communities should be minimized through local project review, and conservation of these areas should be encouraged.

» Pitch pine–heath barrens are quickly invaded by white pine, which can out-compete pitch pine in absence of fire. Landowners should be encouraged to manage for persistence of pitch pine through selective harvesting when possible.

» Mining is a potential threat because of deep sand and gravel deposits underlying both the Kennebunk Plains and Wells Barrens.

» The Kennebunk Plains and surrounding areas, including Cold Water Farms to the west of the Plains, have been rapidly developed for residential use in recent years. The largest impacts of development are likely to be increased recre-

ational use of the Plains, an increase in domestic dogs and cats within the grassland and associated impacts on ground-nesting birds, loss of barrens habitat, and increased concerns about smoke management during prescribed burns.

» Many of the sand roads throughout the sandplain are heavily traveled by ATVs and other vehicles. Most use is limited to the existing roads, but some areas, such as the slope leading into the Branch Brook drainage, are heavily eroded from vehicular use. In some instances, vehicles travel across the grassland, leaving deep ruts during spring and fall when soils may be excessively wet. In addition to damaging the vegetation, vehicle use during bird nesting season can have a detrimental impact on the productivity of grassland-nesting birds. Vehicles are prohibited from the roads at Kennebunk Plains from May 1 to September 1 due to nesting birds. Vehicle use of Wells Barrens Preserve is prohibited.

» Dumping is an ongoing problem on the Plains, particularly construction debris and appliances. The most heavily used area is the slope leading to the east-west arm of the CMP powerline. Personnel from the Kennebunk, Kennebunkport, and Wells Water District remove materials that they consider to be hazardous to the aquifer. The Kennebunk Conservation Commission and the Kennebunk Fish and Game Club sponsor an annual cleanup of the Plains. "No Dumping" signs have been posted at all road entrances.

» Dogs are allowed at Kennebunk Plains, but they must be leashed between May 1 and September 1. Many locals bring their dogs to the plains for exercise, training for hunting, or dogsled training. Cats from neighboring houses could potentially impact the bird population. Horses are allowed, but they must stay on existing roads and are prohibited between May 1 and September 1. These issues should be brought to the public's attention during outreach events. Pets and horses are prohibited at Wells Barrens Preserve.

Wild blueberries in bloom. *Jonathan Mays*

Visitors enjoy a field of Northern Blazing Star in the Focus Area. *Margaret Pizer*

For more information about Focus Areas of Statewide Ecological Significance, including a list of Focus Areas and an explanation of selection criteria, visit **www.beginningwithhabitat.org**

RARE SPECIES AND EXEMPLARY NATURAL COMMUNITIES OF THE FOCUS AREA

	Common Name	Scientific Name	State Status*	State Rarity Rank	Global Rarity Rank
Animals	Grasshopper Sparrow	*Ammodramus savannarum*	E	S1	G5
	Upland Sandpiper	*Bartramia longicauda*	T	S3	G5
	Wood Turtle	*Clemmys insculpta*	SC	S4	G4
	Spotted Turtle	*Clemmys guttata*	T	S3	G5
	Northern Black Racer	*Coluber constrictor*	E	S2	G5
	Ribbon Snake	*Thamnophis sauritus*	SC	S3	G5
Plants	Small Reed-grass	*Calamagrostis cinnoides*	SC	S3	G5
	Upright Bindweed	*Calystegia spithamaea*	T	S2	G4
	Northern Blazing Star	*Liatris scariosa*	T	S1	G5
	Pale Green Orchis	*Platanthera flava*	SC	S2	G4
	White-topped Aster	*Seriocarpus asteroides*	E	S1	G5
Natural Communities	Pitch Pine–Heath Barren	Pitch Pine–Heath Barren		S1	G3G5
	Pitch Pine–Scrub Oak Barrens	Pitch Pine–Scrub Oak Barrens		S1	G2
	Little Bluestem–Blueberry Sandplain Grassland	Sandplain Grassland		S1	n/a
	Red Maple–Sensitive Fern Swamp	Red Maple Swamp		S4	G3G5

State Status*

- E — Endangered: Rare and in danger of being lost from the state in the foreseeable future, or federally listed as Endangered.
- T — Threatened: Rare and, with further decline, could become endangered; or federally listed as Threatened.
- SC — Special Concern: Rare in Maine, based on available information, but not sufficiently rare to be Threatened or Endangered.

**State status rankings are not assigned to natural communities.*

State Rarity Rank

- S1 — Critically imperiled in Maine because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres).
- S2 — Imperiled in Maine because of rarity (6–20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- S3 — Rare in Maine (on the order of 20–100 occurrences).
- S4 — Apparently secure in Maine.
- S5 — Demonstrably secure in Maine.

Global Rarity Rank

- G1 — Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation.
- G2 — Globally imperiled because of rarity (6–20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- G3 — Globally rare (on the order of 20–100 occurrences).
- G4 — Apparently secure globally.
- G5 — Demonstrably secure globally.