

Kennebunk Plains and Wells Barrens Focus Area

Kennebunk, Wells, and Sanford, Maine

Description:

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 a very limited capacity to hold water or nutrients, and the Plain's vegetation is subject to recurring drought and fire. The natural communities that have evolved here include plant and animal species adapted to periodic drought and fire. This site supports high quality examples of four natural community types including the sandplain grassland, pitch pine - scrub oak barrens, pitch pine - heath barrens, and red maple alluvial swamp forest. These natural communities provide habitat for a large number of rare species including birds, reptiles, insects, and plants.



The topography at Kennebunk Plains and Wells Barrens is flat to gently rolling, but drops off steeply in the Cold Water Stream drainage and the Branch Brook drainage. Kennebunk Plains and Wells Barrens are separated on the landscape by the Branch Brook drainage. The grasslands at Kennebunk Plains is the larger of the two sites and is considered one of the rarest and most threatened natural communities in New England. The grasslands have evolved due to natural and anthropogenic causes. Historic 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.

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, sweetfern, and bearberry.

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 to excessively drained soils on outwash plains.

Pitch pine - scrub oak barrens occur in patches around the margin of the grassland. Characteristic species include pitch pine, scrub oak, blueberry, and huckleberry. The flora of this community is fire adapted, and will eventually succeed to a pine - oak forest with out periodic fire.

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



Northern blazing star



Upland sand piper

The Kennebunk Plains and Wells Barrens complex supports populations of 14 rare plant and animal species. The grasslands harbor the state's only viable populations of northern blazing star. The northern blazing star population on the Plains is probably the world's largest

population of this species totaling more than one million stems. 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 state special concern reptiles, ribbon snake and wood turtle also occur here. Two rare barrens moth species have been observed on the Plains: the broad sallow and trembling sallow, both listed as special concern species. In limited insect sampling on the Plains eight insect species were recorded for the first time ever for the state.

Rare Species/Natural Community Table for Kennebunk Plains and Wells Barrens:

Common Name	Latin Name	Status	S-Rank	G-Rank
Exemplary Natural Communities				
Sandplain Grassland		n/a	S1	G2G3
Pitch Pine – Heath Barren		n/a	S1	no rank
Pitch Pine - Scrub Oak Barrens		n/a	S1	G2
Red Maple Alluvial Swamp		n/a	S4	no rank
Rare Plants				
Small reed-grass	<i>Calamagrostis cinnoides</i>	SC	S2	G5
Upright bindweed	<i>Calystegia spithamea</i>	T	S1S2	G4G5
Wiegand’s sedge	<i>Carex wiegandii</i>	SC	S2	G3
Northern blazing star	<i>Liatris scariosa</i>	T	S1	G5T3?
Pale green orchis	<i>Platanthera flava</i>	SC	S2	G4T4
White-topped aster	<i>Seriocarpus asteroides</i>	E	S1	G5
Rare Animals				
Grasshopper sparrow	<i>Ammodramus savannarum</i>	E	S1	G5
Upland sandpiper	<i>Bartramia longicauda</i>	T	S2S3	G5
Trembling Sallow	<i>Chaetagnalea tremula</i>	SC	S2S3	G5
Wood turtle	<i>Clemmys insculpta</i>	SC	S4	G4
Northern black racer	<i>Coluber constrictor</i>	E	S2	G5
Vesper Sparrow	<i>Pooecetes gramineus</i>	SC	S3	G5
Ribbon snake	<i>Thamnophis sauritus</i>	SC	S3	G5
Broad Sallow	<i>Xylotype capax</i>	SC	S3	G4

*see last page for explanation of ranks

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.
- Approximately 40% of the vegetation cover (preferably native bunch grasses) should be kept at a height of 4 – 12 in. with minimal litter and grass cover. Maintain patches of bare ground, scattered tall forbs (8-25 in.) and short shrubs for song perches. Keep grazing animals off fields during the critical nesting period (May 1 to August 5).
- Avoid mowing areas with nesting grasshopper sparrows between May 1 and August 5, especially since they 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.
- Maintain some areas of fields with patches of bare ground or sparse cover.
- Use conservative mowing techniques. Raise mowing bar to >6 in. to prevent destroying nests and young.
- Manage multiple contiguous fields for conservation. Provide a mosaic of grassland types by rotational mowing or burning.
- Burn fields every 5 – 7 years after September 1 or before May 1, and do not burn >50% of a grassland within a year.
- Mining is a potential threat because of deep sand and gravel deposits underlying both the Kennebunk Plains and Wells Barrens. A four acre gravel mine is operating on the Wells Blueberry land. Aerial photos indicate that three gravel mines have become operational within the site since 1962, including the Wells Blueberry pit.
- 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 recreational 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 appears to be lower perhaps because the grassland is less apparent from the nearest major road.

- 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. The Kennebunk, Kennebunkport, and Wells Water District removes 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.
- At times, other activities have occurred at Kennebunk Plains that are prohibited. Radio control airplane enthusiasts frequently use the Plains for flying and have been asked to leave. Sanford airport is located adjacent to the Plains and serves as a base for flight instruction. On occasion, planes and helicopters have practiced maneuvers over the Plains. A helicopter once practiced landing on the grassland and was reported to the FAA.
- 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.

Protection Status:

The Kennebunk and Wells Plain focus area includes substantial conservation ownership by both the Division of Inland Fisheries and Wildlife and The Nature Conservancy. However, most of the conservation ownership is on the east side of the focus area and there is still substantial private non-conservation ownership of important habitat especially to the south and west.

STATE RARITY RANKS

- S1** Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
- 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.

Note: **State Ranks** are determined by the Maine Natural Areas Program.

GLOBAL RARITY RANKS

- G1** Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
- 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.

Note: **Global Ranks** are determined by The Nature Conservancy.

STATE LEGAL STATUS FOR PLANTS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's endangered and threatened plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

- 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 considered Threatened or Endangered.

Visit our web site for more information on rare, threatened and endangered species!
<http://www.state.me.us/doc/nrimc/mnap/factsheets/mnapfact.htm>