

Flagstaff Region Management Plan – Part B - Resources and Management Issues for the Bigelow Preserve and Surrounding Properties

IV. Resources and Management Issues of the Flagstaff Plan Region

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Resources and Management Issues of The Bigelow Preserve and Surrounding Properties

This section will provide background information on the Bureau's lands in the vicinity of Flagstaff Lake, including, most prominently, the Bigelow Preserve. They are grouped together in this report because of the common and related recreational activities they provide – from lake boating and camping, to hiking and snowmobiling on the Bigelow Preserve, with trails linking to adjacent non-Preserve lands.

The Bigelow Preserve is the only property in this group to have had a previous management plan. Because of its history, and the previous work on the management plan, much more information exists for the Bigelow Preserve than for the other properties. In addition, the Bigelow Preserve is the only one of this group of properties to have specific legislated management direction. Therefore, this section and subsequent sections of the Plan will include two subsections: the Bigelow Preserve, and the other surrounding properties.

The Public Reserved lands covered in this section in addition to the Bigelow Preserve include those lands that ring the impounded Flagstaff Lake, including the Dead River Peninsula/ Spring Lake parcel, Flagstaff Island, several islands in and the shoreline strip around upper Flagstaff Lake (former Flagstaff Pond), the former Public Lot in Flagstaff Twp (Myers Lodge lot), and the islands (or portions thereof) in Dead River Township; and three parcels abutting or near to the Bigelow Preserve: the Wyman Township lots, Carrabassett Valley lot, and Coplin Plantation lot at the trailhead to the Range Trail which approaches the Bigelow chain of mountains from the western side near Stratton.



The Bigelow Preserve

Character of the Land Base: The 35,843-acre Bigelow Preserve is located in Bigelow, Wyman, and Dead River Townships in both Franklin and Somerset Counties. The Preserve is an area of extraordinary scenic beauty, offering rugged mountains, backcountry forests, and high elevation ponds. The Bigelow Range, a rugged ten mile long ridge which trends almost exactly east and west in contrast to the surrounding mountains, rises dramatically from the southern edge of Flagstaff Lake. The West Peak of the Bigelow range, 4,145 feet in elevation (USGS 1989), is one of the five tallest mountain in Maine. The Bigelow Range harbors a large number of exemplary natural communities and rare plant species, especially in its alpine summit areas.

Because of the topography of the Preserve, distinct zones of vegetation exist with increasing elevation. The forest at lower elevations consists primarily of beech, birch, and maple. From 2,000-2,700 feet the forest gradually changes to one dominated by spruce, fir, and white birch. Above 3,000 feet the trees decrease in size until they become low and shrub-like. Near the highest peaks, alpine grasses and flowering plants occupy the treeless summits.

Most of the Preserve is covered by a healthy and productive forest, which at lower elevations (under 2,200 feet) grows excellent timber at average and above average rates for western Maine. Although dominated by hardwoods, past harvesting activities throughout much of the Preserve has created a relatively diverse environment, home to more than 300 plant and tree species, 100 species of birds, and 26 species of mammals.



The seven peaks of the Bigelow Mountain range are traversed by 17 miles of Appalachian National Scenic Trail (AT). In addition, there are many miles of blue-blazed side trails managed as part of the AT system. Hiking in summer and snowmobiling in winter comprise the most popular uses in the Preserve, although a wide range of activities occur, including camping, cross country skiing, mountain biking, sightseeing, wildlife watching, hunting, and fishing.

In 2000, the Bureau designated 10,561 acres of the Bigelow Preserve as The Horns Ecological Reserve. It includes the high elevation alpine areas and peaks, and two arms extending down the mountain, one on the north, to Flagstaff Lake, and the other on the south, to Stratton Brook (see insert).

The Horns Ecological Reserve

The Maine Natural Areas Program describes the Horns Ecological Reserve:

Extending about 3,000 feet in elevation above Flagstaff Lake (1146 feet) to West Peak (elevation 4145 feet), The Horns Ecological Reserve encompasses the highest elevational gradient of any of the 17 reserves. Seven rare plant species are found in the alpine zone of the Ecological Reserve, and its area of alpine ridge supports over 3,100 acres of subalpine spruce-fir forest. Some of this sub-alpine forest has been harvested in the past, depending on forest type and accessibility. Nearly all of the sub-alpine type shows evidence of natural disturbance, spruce-budworm mortality, and wind/ice damage.

Operable mid-slope forests extend both north and south of the main ridgeline, affording opportunities to study the influence of aspect on forest characteristics. Most of the low to mid-elevation forests in the preserve were harvested several times in the last century. However, the reserve also supports good examples of two common matrix-forming natural communities, Beech-Birch-Maple Forest and Montane Spruce-Fir Forest. These stands show little evidence of past harvesting and support many trees over 110 years old.

Wetlands in and around the floodplain of Stratton Brook provide excellent examples of successional wetland systems from broad graminoid and shrub meadows and a convoluted mosaic of acidic fen, shrub swamp, and various graminoid and herbaceous meadows. All of the wetlands sampled by the Maine Forest Biodiversity Project MFBP contractors had been influenced by beaver.



Natural Resources:

Geology and Soils: The bedrock geology of the area surrounding the Bigelow Preserve is complex, the result of plate tectonics and upwellings of molten bedrock eons ago. Granite underlies most of the area, with metamorphosed sedimentary rocks forming the mountains in the Bigelow Range. In the Bigelow Preserve, some 400 million years ago, sediments accumulated in an ocean basin between two continental plates. The layers of sediments were incorporated into a syncline (large-scale fold) of pelitic rock (mudstone) that was highly metamorphosed by heat from igneous plutons when they intruded the area. The Bigelow ridgeline follows this syncline, and metamorphosed mudstones can be seen on top of the mountain. The regional folding and igneous intrusions occurred as part of the Acadian orogeny, one of New England's three mountain building events. A northwest striking fault has offset many of the bedrock units on the Preserve. The fault intersects Cranberry Pond on the ridgeline and runs west of East Nubble. This fault, probably related to a network of faults known as the Dead River fault system, caused the northeast side of the fault to be uplifted relative to the southwest side (Caljouw 1981).

The surficial geology is the result of glaciation, with glacial Flagstaff Lake depositing fine sediments, till blanketing most of the area, and a prominent esker (linear deposit of gravel formed by meltwater from the receding glacier) skirting the base of the Bigelow Range. The Stratton Brook esker was designated a state registered Critical Area in 1980 (this state program has since been discontinued).

The soils on the slopes of Bigelow Mt. formed in loamy glacial till. They range from moderately to very deep and well to excessively drained. Soils on the mountain's ridgeline are shallow, often consisting of a thin mantle of organic soil directly on bedrock.

Ecological Processes: Ecological processes on the mountainous areas of the Preserve reflect the influence of high elevations and steep topography. Traveling up slope, the wind increases, precipitation increases, and temperatures decrease. These factors have conspired to create distinct habitats – and therefore distinct plant communities. Low elevation flats are softwood dominated. Hardwoods dominate on the lower slopes of the mountain, while spruce and fir communities become more prominent as elevation increases. The transition zone between hardwood and spruce/fir takes place at a lower elevation on the northern side of the mountain than on the southern side, because the northern side is cooler and more shaded than the southern side. Growing conditions continue to become harsher as one gains elevation - wind, and cold temperatures on the upper slopes of Bigelow limit the number of species that can successfully live there. Close to the summit, krummholz appears. “Krummholz” (meaning “crooked wood”) is the term used to describe the balsam fir, black spruce, and heart-leaf paper birch that populate this harsh environment. As the name implies, the growth form of these species under these conditions tended to be low, dense, and shrub-like, creating a virtually impenetrable dwarfed forest of trees up to ten feet tall. Lastly, few trees have survived Bigelow's exposed, windswept summit. Vegetation at the summit is characterized by small plants with specialized adaptations to cope with these challenging growing conditions.

The higher elevations of Bigelow Mt. show considerable spruce budworm damage. Although balsam fir is the preferred food of the budworm, the krummholz community dominated by fir has been an easy target for the pest. The most recent outbreak occurred in the 1980s, though budworm damage has been difficult to fully assess against the backdrop of wind and ice damage.

At higher elevations, the budworm damage combined with wind and weather effects to create larger and more frequent gaps.

Beavers have been active in the area in many of the lower elevation wetlands adjacent to Flagstaff Lake and at both of the higher elevation ponds (Horns Pond and Cranberry Pond). By creating and abandoning impoundments along the stream course, beavers have created a mosaic of habitats for other plant and wildlife species such as wading bird and waterfowl habitat, particularly along Stratton Brook.

Fire has played a role in natural disturbance on the Preserve, both in the northwest in an area that (was) burned in the 1940's (likely an escaped fire from the burning that was part of the land clearing prior to construction of the dam and the flowage of the river); and on the southern slopes (Caljouw 1981). Forest fires in New England historically have tended to be relatively small-scale events triggered by lightening strikes. The fires that occurred on the Preserve opened up patches of forest that are typically recolonized by fast growing, short lived species such as aspen and paper birch. This patchy disturbance contributed to the uneven and diverse forest canopy we now see. The forest landscape today, however, is not a fire-dependant ecosystem.

Natural Communities - Wetlands: Most of the wetlands on the Bigelow Preserve occur in association with Flagstaff Lake, and on the south side of the Bigelow Range along the Stratton Brook drainage.

An extensive Streamshore Ecosystem along Hurricane, Reed and Trout Brooks on the north side of Bigelow Mt. This exemplary ecosystem includes Alder Shrub Thicket, Spruce – Fir – Cinnamon Fern Forest, Tussock Sedge Meadow, and Northern White Cedar Woodland Fen natural communities. The slow moving streams that meander through the wetland are influenced by beavers.



A Tussock Sedge Meadow in Bigelow's Streamshore Ecosystem.

Jones Pond Inholding: An exemplary Mixed Tall Sedge Fen is located on the 270-acre Jones Pond inholding (held by the National Park Service as part of the Appalachian Trail).

Natural Communities: Uplands: Upland natural communities within the Bigelow Preserve include Spruce-Northern Hardwood Forest, Spruce-Fir Forest, Spruce-Talus Woodland, Beech-Birch-Maple Forest, and Fir-Heartleaf Birch Sub-Alpine Forest.

The section on Timber Resources following this section describes the overall distribution of hardwood and softwood stands on the Bigelow Preserve. The Maine Natural Areas program inventoried notable upland communities on the Preserve, a number of which were deemed “exemplary.” These are described below, as well as notable upland communities. Except for one exemplary natural community on Flagstaff Island, all of the exemplary upland communities documented to date in the Flagstaff/Bigelow Properties are within the Bigelow Preserve.

- A small but exemplary Spruce – Fir – Broom-moss Forest and an exemplary Spruce Talus Woodland were found on East Nubble, a rocky knob on the north side of Cranberry Peak. The Spruce – Fir – Broom-moss Forest covers the East Nubble Summit. Core ages of spruce trees ranged from 115 to 260 years, and total basal area was found to be 140 ft²/acre. The dominant understory species include fir, paper birch, and red spruce regeneration, and Canada mayflower (*Maianthemum canadense*). The Spruce Talus Woodland, on the north side of East Nubble, is mostly open talus with a 70% slope. Scattered red spruce and heart-leaved paper birch are present along with small patches of Labrador-tea (*Ledum groenlandicum*). A small (less than 5 acres) inoperable patch of ground on the north slope has been identified by the Preserve Manager as old growth.
- On the south slope of Bigelow Mt., within the Ecological Reserve between the Fire Warden’s Trail and the Horns Pond Trail, are two exemplary natural communities. A Spruce – Fir – Feathermoss Forest is dominated by red spruce with lesser amounts of white pine, balsam fir, and red maple. Most trees in this area are 12 to 16 inches in diameter, and one spruce was aged at 121 years. The exemplary Beech – Birch – Maple Forest is dominated by sugar maple, which comprises 75% of the basal area. Yellow birch (*Betula alleghaniensis*), hophornbeam (*Ostrya virginiana*), and beech (*Fagus grandifolia*) are also present in minor amounts. The oldest tree sampled in the community was 152 years old.
- An exemplary Beech – Birch – Maple Forest. The 1,236 acre exemplary Beech – Birch – Maple Forest on the north side of Little Bigelow was harvested lightly in the 1940s but retains many of the structural attributes of late successional forests. Two hemlock (*Tsuga canadensis*) stumps, both 21 inches in diameter at breast height, were found to be 175 and 200 years old. Sugar maple (*Acer saccharum*) is dominant in all strata, with occasional yellow birch (*Betula alleghaniensis*), red spruce (*Picea rubens*), and hemlock. Lichens associated with late successional forests are frequent throughout the area. In general, the area doesn’t show signs of enrichment, though one small seepy portion (less than three acres) includes some mild enrichment indicators such as Braun’s holly fern (*Polystichum braunii*), zig-zag goldenrod (*Solidago flexicualis*), and red baneberry (*Actaea rubra*). Further field work is needed to refine the boundaries of this exemplary forest.

While the western portion of the area scores high on Manomet’s late successional index, it does not meet BPL’s definition of old growth. The Maine Natural Areas Program has assisted BPL in creating a harvest plan that maintains the exceptional qualities of this mature forest.

- An exemplary Acidic Cliff – Gorge natural community. The southwest side of Little Bigelow Mountain is characterized by very steep and exposed vertical walls. The granitic cliffs have steep gullies cutting through them and areas of large, blocky talus below them in places. Rusty cliff fern (*Woodsia ilvensis*), common hairgrass (*Deschampsia flexuosa*), and pale corydalis (*Corydalis sempervirens*) grow among the talus, while fragrant wood fern (*Dryopteris fragrans*) (S3) was found on the seepy cliff walls.

A Beech – Birch – Maple Forest runs along the base of the cliffs down to the power lines. Portions of this forest have been harvested in the past; however, the steeper slopes show no evidence of recent harvests.



Searching for rare plants on the cliffs of Little Bigelow.

Natural Communities: Alpine. Alpine ecosystems area defined as areas above treeline, where elevation and exposure create extremely harsh conditions; typically restricted in Maine to mountains above 3,500 feet, although not all mountains above 3,500 feet have alpine vegetation. Alpine ecosystems have low and often sparse vegetation due to the harsh environment. Certain tree species may be present, but only grow as krummholz, not erect. The extensive and varied alpine communities on the Bigelow Range were the primary reason for the designation of Bigelow Mountain as a National Natural Landmark by the US. National Parks Service in 1975. The National Natural Landmarks Program describes Bigelow Mountain as “One of the best and most representative alpine vegetation zones among lower elevation New England Mountains.” (NPS website). The following exemplary alpine communities were documented by the Maine Natural Areas Program:

- An exemplary Fir – Heart-Leaved Birch Subalpine Forest tops Little Bigelow’s acidic cliffs, and is also found on Cranberry Peak and on an area that covers the Horns and West and Avery Peaks. This community consists of variously stunted to moderately sized balsam fir forests, depending largely on exposure. The shady understory is dominated by a dense growth of mosses with gold thread (*Coptis groenlandica*) and creeping snowberry (*Gaultheria hispidula*).
- An exemplary Dwarf Heath – Graminoid Alpine Ridge tops Avery and West Peaks. The area is dominated by dwarf shrub heath and krummholz associates and is surrounded by sub-alpine spruce-fir forests.
- Horns Pond is considered an exemplary tarn, or small lake formed by glaciers. The steep sides of the pond and a shallow lip at the outlet have contributed to relatively stable water levels.
- Cranberry Pond is as a monomictic, mesotrophic lake, a shallow lake with moderate nutrient levels and water that doesn’t mix or turn over with changes in the seasons. The pond’s bouldery shoreline and shallow, organic lake bottom have been influenced by beavers in the past. The shallow grade of the pond created large areas of emergent aquatic plants that alternate with the mucky, unconsolidated pond bottom.

Rare Plant Species¹: A large number of rare plants are known on the Bigelow Preserve, including aquatic and alpine species. Both water awlwort (*Subularia aquatica*) (S2) and Vasey’s pondweed (*Potamogeton vaseyi*) (S1) have been found in the shallow margins of Flagstaff Lake. Little shinleaf (*Pyrola minor*) (S3) was found in the drainage just west of East Nubble, and lesser wintergreen was found to the south of East Nubble. A population of alga pondweed (*Potamogeton confervoides*) (S2) has been found in the Horns Pond. West Peak and Avery Peak host alpine species including boreal bentgrass (*Agrostis mertensii*) (S2), Bigelow’s sedge (*Carex bigelowii*) (S2), mountain sandwort (*Minuartia groenlandica*) (S3), dwarf rattlesnake root (*Prenanthes nana*) (S1), alpine sweet-grass (*Hierochloe alpina*) (S1), and alpine blueberry (*Vaccinium boreale*) (S2). In all, ten populations of rare plants are located on West Peak and Avery Peak. Fragrant wood fern (*Dryopteris fragrans*) (S3) was found growing on seepy cliff walls on the south side of Little Bigelow.

¹ (S1): Critically imperiled in Maine because of extreme rarity or vulnerability to extirpation. (S2): Imperiled in Maine because of rarity and vulnerability to further decline. (S3): Rare in Maine.

Wildlife Resources:

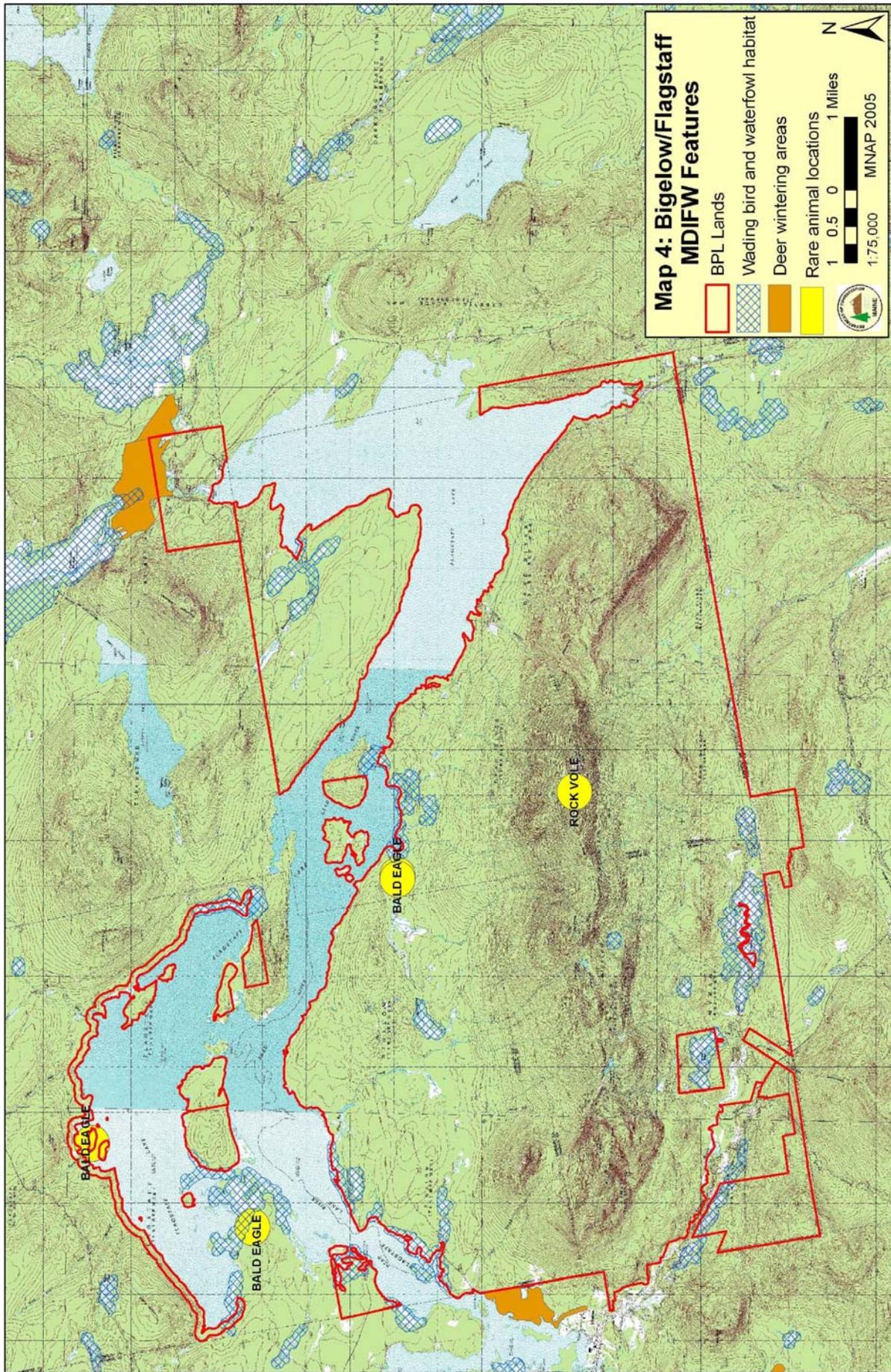
Rare, Threatened, and Endangered Animal Species: An active bald eagle's nest is found near Hurricane Brook on the Preserve. There is a historic peregrine falcon nesting site at Old Man's Head west of Safford Notch. This site is monitored frequently for nesting peregrines, although none has been documented for some time.

Species of Special Concern: The alpine and subalpine habitats along the spine of the Bigelow Range provide critical habitat for high elevation songbird species, including Bicknells thrush, and boreal chickadee. Bicknells thrush requires large, unfragmented sub-alpine areas for nesting and is only known from 66 sites in Maine (Vermont Institute of Natural Science), including the Bigelow Range. This species is the focus of a volunteer monitoring project coordinated by the Vermont Institute of Natural Science. A high-elevation bird survey route is run annually by a volunteer on the mountain.

Rock voles, a species of Special Concern, live in deep, cold, moist crevices in talus areas, typically at elevations above 3,000 feet in Maine. Also known as yellow nosed voles, rock voles are similar to meadow voles except for their distinctive yellow nose and different surface pattern on their molars. They feed on vegetation, roots, and berries, and their range is often restricted by water availability. Their range extends along the spine of the Appalachians, north to Labrador, and west to northern Minnesota. Rock voles have been found in the talus of the Bigelow Mountain ridgeline, which is their preferred habitat.

Deeryards: There are no mapped deeryards on the Bigelow Preserve, although staff continue to aerially monitor for this activity. A deer yard has been mapped adjacent to the Preserve in Stratton. Deer are common on this west side of the mountain where several Stratton residents have had feeding stations.

Wading Bird and Waterfowl Habitat: Wetlands associated with streams draining into Flagstaff Lake provide good waterfowl habitat - especially Reed Brook and Hurricane Brook. The Bureau has placed waterfowl nesting boxes at Hurricane and Stratton Brooks, which are used primarily by hooded mergansers and common goldeneyes.



Historic and Cultural Resources

Native Americans: The presence of Native Americans was evident along the historic footprint of the Dead River, as determined by archaeological site excavations undertaken by the Maine Historic Preservation Commission. Archeological research conducted in the region by others also has recovered artifacts at a number of sites along Flagstaff Lake and what would have been the edge of the post-glacial lake in the Flagstaff Basin. All shorelines are potentially sensitive for artifacts.

Arnold Trail Historic District: The area that lies in proximity to the original course of the Dead River prior to the construction of Long Falls Dam creating Flagstaff Lake, including the shoreline abutting the Preserve, is likely to contain important archaeological resources. There is potential for historic artifacts throughout this region (See the overview in section IV. for additional details on the Arnold Expedition).

Bigelow Fire Tower: A wooden fire tower was built on Avery Peak in 1905, and was replaced by a 38' steel tower in 1917. The tower was lowered to 20' in the 1930's due to the severe winds. A wooden ground house and stone foundation was constructed in 1965 to replace the existing tower; the remains of which are still found on the summit. The Maine Forest Service decommissioned the tower in the late 1970's.

Nomenclature:

- Bigelow Mountain is presumably named for Major Timothy Bigelow of the Arnold expedition, who was said to have climbed the mountain in the hope of seeing the spires of Quebec.
- The Myron H. Avery Peak was named for a key figure in the establishment of the Appalachian Trail, who chaired the Appalachian Trail Conference from 1931 to 1952; and founded the Maine Appalachian Trail Club (MATC) in 1935, serving as Overseer of the Trail for that organization 1935 to 1949 and its President from 1949 to his death in 1952.
- Stratton Brook and Stratton Brook Pond located along the southern boundary of the Preserve are named after the Stratton family who were early settlers in the region.
- Safford Brook, which flows into the lake from the south, was named for the Safford family who settled there in the 1880s. Ben Safford would grow up to be one of the many fire wardens stationed at Avery Peak.
- The Round Barn camping area was named after a barn located in that location prior to the construction of Long Falls Dam.

Recreation and Visual Resources

The Bigelow Preserve offers a wide variety of recreational opportunities, from vehicle accessible areas to backcountry areas. The goal of the recreational use program is to provide activities consistent with the natural and undeveloped character of the Preserve as prescribed in the Bigelow Act. Such recreational activities include backpacking, camping, hiking, snowmobiling, hunting, fishing, boating, snowshoeing, cross-country skiing, and mountain bike touring. ATV's are prohibited on the Preserve by administrative decision.

Hiking in the Preserve is one of the more popular activities. The Maine Appalachian Trail Club (MATC) maintains 17.6 miles of the Appalachian Trail (AT) through the Preserve, and an additional 14.8 miles of side trails in connection with the AT. Side trails include the Fire Wardens Trail (4.6 miles), Horns Pond Trail (2.4 miles), Range Trail (4.6 miles), and the Safford Brook Trail (2.2 miles). The popularity of the trailhead and heavy use of the Fire Warden's Trail and Horn's Pond Loop may call for developing alternatives to this section of trail.

There are 6 trailheads providing access to this system, with four located off the Bigelow Preserve as it is presently defined. Those outside of the Preserve include the Range Trail trailhead to the west (on the Coplin Plt lot), an AT northbound trailhead on the west side of Route 27 (on the National Park Service AT corridor), and two trailheads on the Wyman Lot south of Stratton Brook serving the Fire Wardens/Horns Pond Trail trailhead and the AT trailhead. Those located on the Preserve include the trailhead to Little Bigelow off the East Flagstaff Road, and the Safford Brook Trail trailhead to the north, also off the East Flagstaff Road.

Camping: Campsites include vehicle drive-to/walk-to access at Round Barn (9 individual sites, 1 group site), Stratton Brook Pond (2 sites), Stratton Brook Pond (1 site, access by 4-wheel drive), Little Bigelow Gravel Pit (1 site), Trout Brook North (4 sites) and Trout Brook South (1 site). Dispersed camping without fires is also allowed away from developed sites and trails. There is hike-to camping in conjunction with the Appalachian Trail system, including Cranberry Stream (4 sites), Horns Pond (2 lean-tos, 7 sites, caretaker site), Moose Falls (3 sites), Avery Col (5 tent platforms), Safford Notch (2 tent platforms, 7 sites), and Little Bigelow (1 lean-to, 4 sites)

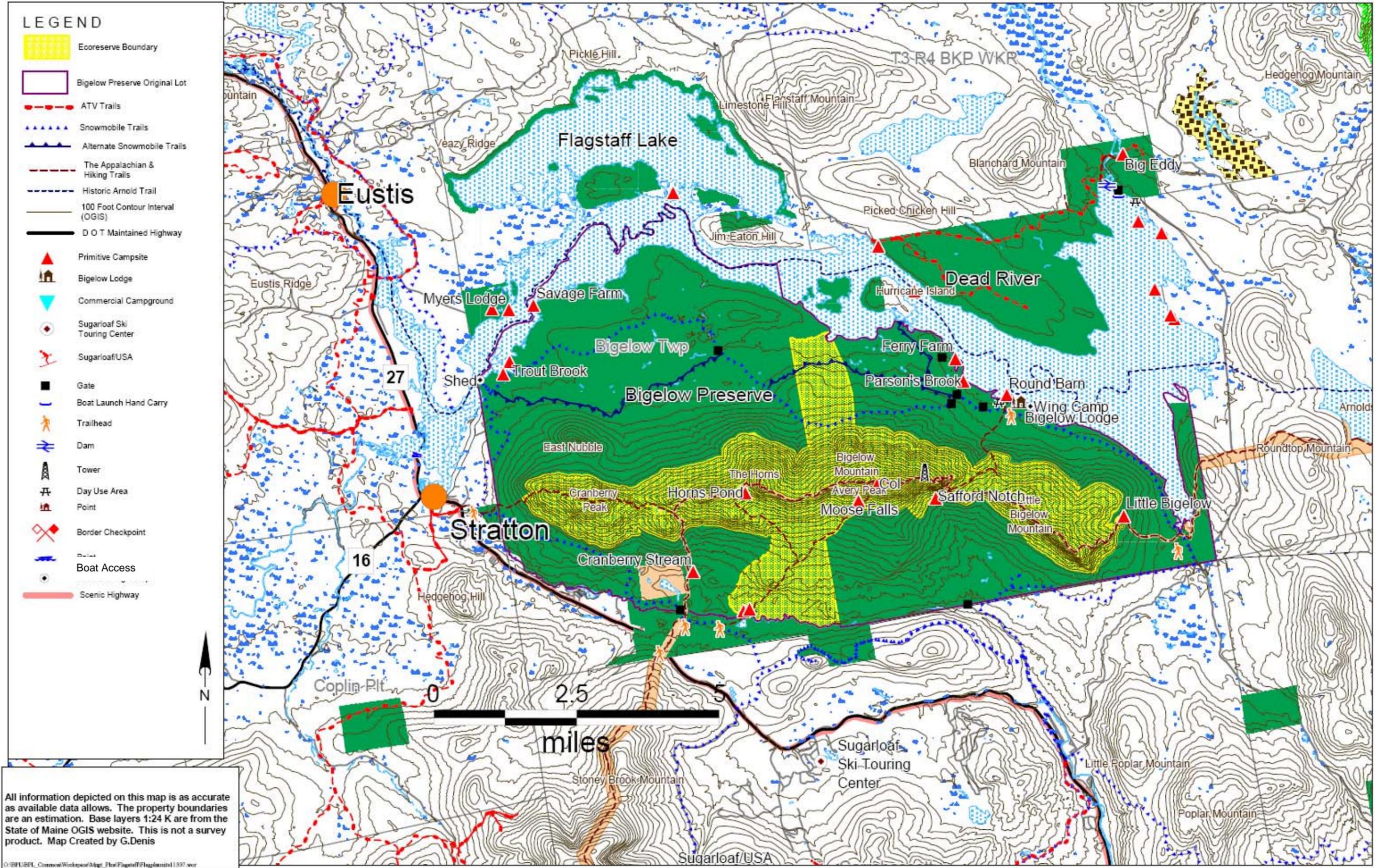
Water access camping is available on Flagstaff Lake at Savage Farm (4 sites), Ferry Farm (2 sites) and Parson's Brook (group site). Ferry Farm and Parson's Brook can also be accessed on foot. Camping without fires also is allowed along other areas of the shoreline in undesignated areas.

Mountain biking occurs on the Preserve mostly along the 1960's haul road, and is becoming more popular. Mountain biking is a use that did not exist in 1976 when the Bigelow Preserve was created; and was not a use that the 1989 Bigelow Preserve Management Plan addressed.

Cross-country skiing: There are approximately 6 miles of mapped ungroomed cross-country ski routes including, on the south side of the range, along the 1960's haul road that runs along the north side of Stratton Brook; skiing into Jones Pond is also a popular route; and on the north side, a route following the West Flagstaff Road (shared as a snowmobile trail) and a management road to the north of this road which provides access to Flagstaff Lake.

Flagstaff Lake / Bigelow Preserve Infrastructure

February, 2007



LEGEND

- Ecoreserve Boundary
- Bigelow Preserve Original Lot
- ATV Trails
- Snowmobile Trails
- Alternate Snowmobile Trails
- The Appalachian & Hiking Trails
- Historic Arnold Trail
- 100 Foot Contour Interval (OGIS)
- D O T Maintained Highway
- Primitive Campsite
- Bigelow Lodge
- Commercial Campground
- Sugarloaf Ski Touring Center
- SugarloafUSA
- Gate
- Boat Launch Hand Carry
- Trailhead
- Dam
- Tower
- Day Use Area
- Point
- Border Checkpoint
- Boat Access
- Scenic Highway

All information depicted on this map is as accurate as available data allows. The property boundaries are an estimation. Base layers 1:24 K are from the State of Maine OGIS website. This is not a survey product. Map Created by G.Denis

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Snowmobiling in the Preserve is limited to designated trails. Approximately 31 miles of the 42-mile loop trail around the Bigelow Range is within the Preserve. Access to this loop is located on private land off Route 27 in Carrabassett Valley, and to the west in Stratton. Access points and winter trail grooming and maintenance are provided by the J.V. Wing and Arnold Trail Snowmobile Clubs.

Snowmobile trails in the Bigelow Preserve are built to take advantage of the spectacular scenery and remoteness that is inherent in the rugged mountain terrain of the Bigelow Preserve. As such, the trails meander across the landscape near shorelines, through beaver meadows, into dark cedar swamps and mature hardwood stands and climb to just shy of 2000 feet in elevation to capture outstanding vistas across Flagstaff Lake to the north and beyond, into the north woods of Maine. To ensure a safe passage, while protecting the opportunity for trail users to travel at a pace that allows for observation, the trail is constructed about twelve feet wide to facilitate speeds not to exceed 25 miles per hour. The trail is full of challenging dips and curves and carefully constructed to allow for good drainage come spring runoff. For this reason a majority of the trails are not useable until there is sufficient snow. This usually requires two storms, the first laying down a base layer to freeze in and a follow up storm to provide enough snow to create the trail bed. Major stream crossings have bridges built to protect not only the riders from the steep slopes and rocky bottoms but the streams so come the inevitable spring floods the streams flow unimpeded. Caution is advised when traveling the trails as they are shared with cross country skiers and even novices on snow-shoes who have yet to develop the skills to take them deep into the surrounding forests. Snowmobile riders may want to consider taking along a pair of snowshoes or skies themselves to enjoy an adventure to areas that come summer are far less accessible.

The Bigelow Lodge is open weekends during the winter, and is a popular lunch spot for winter recreationists, most of which are snowmobilers as the snowmobile trail passes by the lodge. In the summer months, the lodge is available for use by organized groups who have objectives in keeping with the objectives the Department of Conservation. These groups may rent the lodge, including for overnight use.

Boating: A hand-carry boat access site at the Round Barn camping area is the only designated site in the Preserve. This site is also available for trailered launching during the goose hunting season beginning October 1st. Within the Preserve, informal launching occurs off the West Flagstaff Road at Trout Brook and Cold Stream. These areas are only suitable for use of hand-carried watercraft as the shoreline is comprised of soft muck and deep sand.

Visual Resources:

Bigelow Mountain has been designated by the U.S. Department of Interior as a National Natural Landmark. One of the primary considerations for the establishment of the Preserve was to maintain its visual quality. Public enjoyment of the Preserve is dependent upon the assurance that views from the lower elevations looking up at the ridgeline, as well as views from the higher elevations looking over the Preserve, are of the highest quality possible. Along with background views, visual quality of the foreground areas as seen from public roads and public use areas is also important in managing the natural character of the Preserve. Visual management is also an important consideration when planning timber management activities.

EXISTING BIGELOW PRESERVE RECREATION FACILITIES

I) CAMPSITES

i) VEHICAL ACCESS

(a) DRIVE TO –WALK-IN

1. Round Barn (9 sites, 1 group site, 5 outhouses, day use, access road, 2 parking lots, kiosk)
2. Stratton Brook Pond (2 sites, 2 outhouses)

(b) DRIVE IN

1. Trout Brook North (4 sites, 1 outhouse, access road)
2. Trout Brook South (1 site, access road)
3. Little Bigelow Gravel Pit (1 site)
4. Stratton Brook Pond (1 site, access 4-wheel drive road, kiosk)

ii) REMOTE

(a) HIKE (MATC)

1. Cranberry Stream (4 sites, 1 outhouse)
2. Horns Pond (2 lean-to, 7 sites, Caretaker Site, 2 composting outhouses, day use historic CCC shelter, kiosk)
3. Moose Falls (3 sites, 1 outhouse)?
4. Avery Col (5 tent platforms, 1 outhouse)
5. Safford Notch (2 tent platforms, 7 sites, 1 outhouse)?
6. Little Bigelow Lean-to (1 lean-to, 4 sites, 1 outhouse)

(b) WATER

1. Savage Farm (4 sites)

(c) WATER/HIKE

1. Ferry Farm (2 sites, 1 wet willie)
2. Parson's Brook (1 group site, 1 wet willie)

II) TRAIL HEADS

- 1) Range Trail (parking lot, access road, outhouse, kiosk, winter parking)
- 2) AT North Bound (unimproved parking, kiosk)
- 3) AT South Bound (gravel pit parking, kiosk)
- 4) Fire Wardens Trail (parking lot, access road, kiosk)
- 5) Safford Brook Trail (parking lot) (lower portion to be relocated)

III) TRAILS

i) HIKING

- 1) Appalachian Trail (MATC) 17.6 miles
- 2) Fire Wardens Trail (MATC) 4.6 miles
- 3) Horns Pond Trail (MATC) 2.4 miles
- 4) Range Trail (MATC) 4.6 miles
- 5) Safford Brook Trail (MATC) 2.2 miles
- 6) Additional spurs (i.e. North Horn) 1 mile

ii) SKIING

- 1) 1960s Haul Road
- 2) Hurricane Cut-off

iii) MOUNTAIN BIKE (unauthorized)

- 1) 1960s Haul Road

iv) SLEDDING

- 1) West Flagstaff Road Option A
- 2) East Nubble Road Option B

- 3) North Connector Option A
- 4) North Connector Option B
- 5) East Flagstaff Option A
- 6) East Flagstaff Road Option B
- 7) West Boundary Connector
- 8) Compartment 14 Log Road, Wyman
- 9) Penobscot Bypass at Little Bigelow
- v) CAMPSITE TRAILS
 - 1) Round Barn
 - 2) Parson's Brook
 - 3) Ferry Farm
 - 4) Horns Pond (MATC)
- vi) OTHER
 - 1) Jones Pond Access
 - 2) Incidental use of logging roads for hunting, walking, biking, horseback riding, dog sleds, etc.

IV) BOAT LAUNCH

- 1) Round Barn – hand carry summer, boat trailers in October
- 2) Bog Brook – low quality boat trailers, FP&L
- 3) West Flagstaff Road – hand carry
- 4) Stratton Brook Pond - hand carry

V) BUILDINGS

- 1) Bigelow Lodge
- 2) Fire Warden Cabin
- 3) Fire Tower
- 4) Wing Camp
- 5) Old Boom Shack-ownership claim by FP&L

VI) PUBLIC USE ROADS

- 1) Bog Brook Road, County Road
- 2) East Flagstaff County Road
- 3) East Flagstaff Road
- 4) East Flagstaff Road Extension
- 5) West Flagstaff Road
- 6) East Nubble Road
- 7) Range Trailhead Road*
- 8) Stratton Brook Pond Road*
- 9) AT spur road off Stratton Brook Pond Road*

VII) GATES

- 1) West Flagstaff Road
- 2) East Flagstaff Road
- 3) Compt 14, Wyman West end Log Road
- 4) Jones Pond Road
- 5) 60s Road east end
- 6) Penobscot Bypass at Little Bigelow, west end.
- 7) Parson's Campsite
- 8) Parson's North Connector Option A
- 9) Ferry Farm Campsite

* Not on the Bigelow Preserve

Timber Resources

Bigelow Preserve: This description includes the Bigelow Preserve, not including those lands in Wyman Township proposed to be added to the Preserve. Bigelow Mountain dominates the landscape, but most of the timber acreage is on lower slopes and the surrounding flatter land.

The following table shows a comparison of the Bigelow Preserve forest types, in acres and as a percentage of all forested acres in the Preserve. In 2000 some of the regulated and unregulated forested land became part of the Horns Ecological Reserve, with a resulting reduction in the total acres available for active timber management (regulated acres), of 4,301 acres. These forested acres are of a quality, species mix, and volume comparable to the adjacent regulated area. While this reduces the potential timber revenues from the Bigelow Preserve, the decision to create ecological reserves acknowledged the significant non-monetary values created through the system of ecological reserves, including protection of habitat that is uncommon in the state, and the creation of totally unmanaged systems against which the ecological changes resulting from management and climate will be measured.

Forest Type	Regulated Acres	Unregulated Acres Due To A Variety Of Allocations or Site Limitations	Previously Regulated Acres Prior To Ecological Reserve Allocation	All Forested Acres
Hardwood	10,920 (48%)	810 (12%)	1,655 (38%)	13,384 (40%)
Mixed Wood	8,756 (39%)	3,104 (47%)	1,928 (45%)	13,788 (41%)
Softwood	3,052 (13%)	2,693 (41%)	718 (17%)	6,463 (19%)
TOTAL	22,728 (100%)	6,607 (100%)	4,301 (100%)	33,637 (100%)

Note: These figures reflect a more accurate inventory of timber resources on the Preserve than existed in 1989; consequently, the figures on regulated and unregulated acres provided in the 1989 Plan are not comparable to the figures provided in this table.

Harvest History: As previously described in the Overview of Historical and Cultural Resources of the Region, lumbering in this area did not begin until the mid-1800's. A report issued in 1981 by the Maine Critical Areas Program on the Bigelow Preserve (Caljouw, 1981) provides the following description of the history of logging operations on the Preserve:

“North of the Range Trail, below 2,500 feet, the forest has been cut over roughly four times; above 2,500 feet to 3,400 feet, once or twice. The southern slopes between cold Brook and Little Bigelow seem to have been cut over once or twice. The slopes above 2,000 feet between the western edge of Little Bigelow and Cranberry Peak seem to have been cut over once; below 2,000 feet two to four times. Areas on Cranberry Ridge near Stratton seem to have been cut over two to four times.

Most of the southern slopes and upper elevations of the Preserve were clearcut by Great Northern in the early 1900's. They were interested in obtaining spruce and fir. . . The company constructed two major tote roads up the southern slopes of the Preserve to the Cranberry and Horns Ponds, where remnants of old woods camps are still found. By 1928, three sluices were constructed on the southern slopes of the mountain to transport

timber from the steep upper elevations to the more level lowlands. Both the Stratton Brook Pond and Jones Pond were dammed as holding ponds.”

Prior to state acquisition, most of these lands had been harvested in the 1960s and 1970s, with the heaviest cuts taking place in Bigelow Township. However, some north-facing portions of Dead River Twp. have not been harvested since 1957 or before, about the time the land was cleared in preparation for Flagstaff Lake. This involved several large wildfires which established aspen stands covering hundreds of acres near the lake. Timber harvest operations began on the Preserve in late 1982, and have continued almost every year since. Nearly all harvests have been of the selection variety, designed to create or maintain multi-aged stands. The 23-year harvest volume of 82,000 cords is barely half of the maximum sustainable harvest level determined for the regulated portion of the Preserve.

Current Stocking and Silvicultural Needs: The Preserve acres hold relatively high inventories, averaging almost 25 cords per acre, with 40% of the regulated forest in types with stocking near or above 30 cords per acre. Though a large number of low quality trees remain, often the result of high-grading cuts prior to State ownership, most stands have a solid proportion of high quality stems, often of large size. Due to the extent of careful Bureau harvesting, there are no major silvicultural “emergencies.” However, many stands would best have been treated 10-20 years ago, and though the opportunity to benefit these stands remains, it needs to be accomplished soon. The major area in this condition is the north slope on Dead River Township. The access is mainly in place, with only branch roads needed for future harvests. The forest here holds fine opportunity to manage late successional stands for high value timber products while maintaining or enhancing the ecological characteristics of such stands.

Stand Type Characteristics and Management Objectives (regulated acres only): Softwood types cover about 3,050 acres, or 13% of the regulated acres. Most are found on moderately well to somewhat poorly drained sites, with a lesser amount in areas of poor drainage, and some pines with excessive drainage. Most are reasonably well stocked, with spruce (nearly all red spruce) making up about half the volume. Cedar and fir share another 30%, with white birch, pines (mainly white pine), and red maple at 4-6% each. Most softwoods, except cedar are of good quality; though significant fir and some spruce is mature to overmature. The cedar, like most in the Bureau’s Western Region, is generally of low quality. Spruce is the key management species except on droughty sites where pine should be favored (pine should be encouraged in all stands), and in cedar swamps, which will receive less frequent management activity. Areas currently in softwoods should usually be managed to stay in the type, and some mixedwood (and aspen/fire) type are on sites better suited to growing spruce, fir, and pine.

Mixedwood types are found on about 8,756 acres, 39% of the regulated area. They are found on all sites but the wettest and driest. The mixedwood types average a bit less volume per acre, about 24 cords, while softwoods run 25 cords and hardwoods 26 cords, but quality is usually good. Spruce is 28% of type volume, and another 27%-28% is split between fir and red maple. White birch, cedar, yellow birch, and sugar maple area next, descending from 9% to 6%. Hemlock is only 4% of the type volume, but is much more abundant in some areas, especially north of the ridgeline. Management should favor spruce in most areas, pine where it occurs, and northern hardwoods (yellow birch, beech, sugar maple) on the more fertile soils. Much of the fir is mature, but a lot of the sapling stocking is fir, so its representation is likely to remain significant. Though important in northern hardwood stands, red maple should usually be discriminated against elsewhere, in favor of spruce/pine/more valuable hardwoods.

Hardwood types cover about 10,920 acres, 48% of the tract. There are two distinct subtypes within the broad type. About 12% is intolerant hardwoods, labeled as aspen or fire type. Most were established around 1950 by wildfires connected with land clearing for the impoundment, though there are occasional older aspen stands. Most of this type is dominated by quaking aspen approaching maturity, past maturity on poorer sites, and often holds abundant spruce, fir, and pine saplings in the understory. White birch and big tooth aspen are also significant components, with frequent pockets of spruce and fir, and occasional pine. Nearly 300 acres of this type, 25%-30% of its occurrence on the Preserve, was thinned during 2004 to release the desirable regeneration while taking advantage of the excellent aspen markets. This subtype has a volume per acre lower than the tract average, due to some occurrences on softwood sites with low fertility. However, it also holds over 600 stems per acre of 2-4" diameter fir and spruce, a sign of where many of these acres are headed. Management in this type should concentrate on recovering much of the value of the mature aspen and birch in a way that protects the Bigelow view sheds, and that retains most of the desirable softwood regeneration. If these stands were not on the Preserve, some progressive patchcuts for ruffed grouse would be recommended, which might still be possible on a smaller scale.

The remainder of the hardwood type is essentially all northern hardwood acres with heavy volumes, often above 30 cords per acre. Both site and tree quality are usually good to excellent; there are numerous lower quality stems but almost all areas in this type have tall, straight, sound trees in quantity. If there is a characteristic type for the Preserve, and for the Flagstaff Plan area, it is these stands. Sugar maple is the key species, making up a third of subtype volume. Beech and yellow birch split another 25%, but are quite different in character. The beech average stem diameter is just under 9" while yellow birch is 11.6", a very large average stem and similar to the sugar maple, which averages 11". After the three northern hardwood species comes spruce at 10% of volume, followed by red maple at 8%, white birch at 6% and fir at 5%. These stands often have a significant number of trees larger than 20", and most acres would qualify as late successional forest. Careful selection harvests can readily accomplish and maintain successional quality, while growing and selling high value timber.

Old Growth Forests: The Bureau's working definition of an Old Growth Stand (at least 5 acres) is that at least 50% of the overstory consists of trees that are long-lived or late successional (having achieved 50% of the maximum age - which is 150 years for most long-lived species and 200 for cedar, hemlock, and white pine), with characteristics such as large snags, large downed woody material, multiple age classes, and in which evidence of human-caused disturbance is absent or old and faint. This would cover forests that have not been harvested since the mid-1800's. Caljouw (1981) estimated only 5% of the total area of the Preserve to be unlogged forest and scrubland, noting that in the old days, the upper limit for cutting was about 3400 feet. See Harvest History section above for more information.

The Bureau has not identified any Old Growth stands on the Bigelow Preserve although trees aged at least 150 years are present. The East Nubble spruce-fir forest had ages ranging from 115 to 260 years (MNAP, 2006) and is designated a Special Protection area in this Plan. MNAP also identified an exemplary Beech – Birch – Maple Forest on the north side of Little Bigelow, noting that it was harvested lightly in the 1940s but retains many of the structural attributes of late successional forests. Two hemlock (*Tsuga canadensis*) stumps, both 21 inches in diameter at breast height, were found to be 175 and 200 years old. While the area scores high on Manomet's late successional index, it does not meet BPL's definition of old growth. This area was harvest

in 2006 in accordance with a harvest plan developed with MNAP that maintains the exceptional qualities of this mature forest.

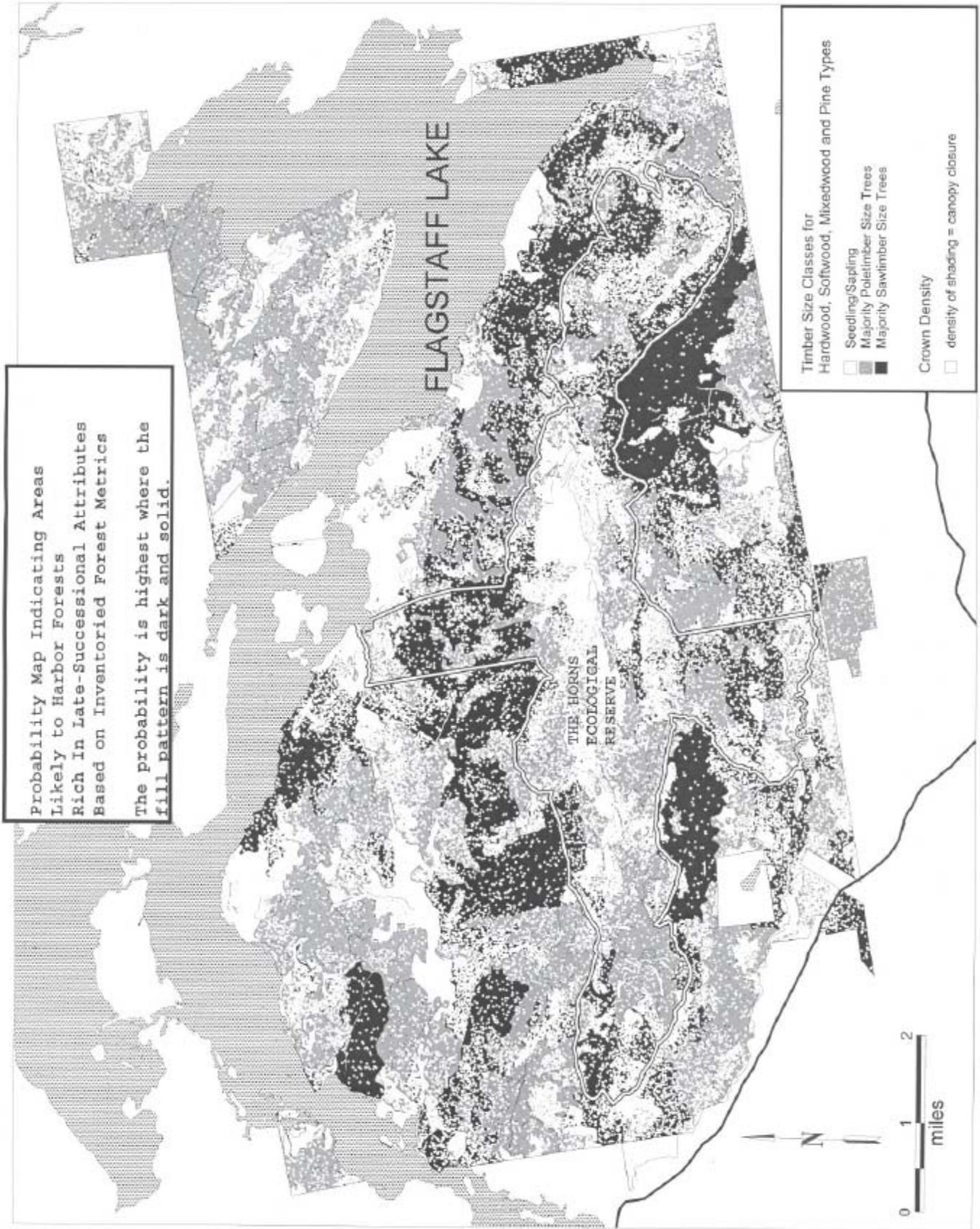
The Bureau has a policy for managing individual or groups of very old trees (less than the 5 acres needed to qualify for special protection) – called old growth component. Our current policy for old growth component, sketched out in the IRP and more fully discussed in guidance provided through the Bureau’s Legacy/Reserve Tree document, is to retain this feature (where feasible) at similar proportions in the residual stand as it occurred pre-harvest, including species diversity.

Late Successional (LS) Forests: The Bureau has not conducted an inventory of late successional forest on its lands, or the Bigelow Preserve. However, the Bureau has inventoried and characterized the Public Reserved Lands according to standard forest management metrics. Bureau foresters have characterized the types of trees, their size, and extent of canopy closure on the Preserve. Stands are identified by size according to classification as seedling/sapling; majority poletimber, and majority sawtimber, where sawtimber size trees have a minimum diameter of 12 inches. The extent to which the forest canopy is open or closed is also a measure that is used in the Bureau’s characterization of its forests. Canopy closure is ranked A to D with A having the highest percent closed (85-100% crown closure) and D the lowest (less than 33% crown closure).

While this existing data cannot be used to identify late successional forests, it can be used to estimate the probable occurrence of late successional forests. Statewide data have been interpreted this way to estimate that, based on the most recent Forest Inventory data, approximately 3% of the state’s forest may be of late successional character (Ken Laustsen, presentation at the LSOG Manomet conference held in April of 2005). Applying this method to the 485,000 acres of public reserved land inventoried by the Bureau in 1999, using data for trees with diameters of 16”+ and other data, Public Reserved lands appear to have approximately 20% late successional stands, while the Bigelow Preserve is estimated to have from 30 to 35% in late successional forests (see attached map showing the probability of LS forests on the Bigelow Preserve).

The Bureau is refining its guidance on the management of late successional forests as the proportion late successional forests has increased over time (due to Bureau management) and interest in late successional forests has increased in the conservation community. In most of the Bureau’s prescriptions, staff foresters consistently favor those tree species most commonly found in LS stands. This trend combined with an explicit policy similar to the Old Growth Component policy of no proportional loss, without documented cause will result in a continued increase in the proportion of Bureau forest land being LS. For the Bigelow Preserve the following guidance will ensure that the trend toward increasing amounts of LS forests:

- Identify existing and "soon"-potential LS stands through the prescription process.
- Retain sufficient large, old trees, and younger stems of long lived species.
- Avoid removal of disproportionate amounts of LS-character trees.
- Avoid major reduction of crown closure, while managing within the bounds of good silviculture. Note that some areas of the Preserve are in need of silvicultural treatments that might require variance from this guidance – for example, in old burn areas, restoring the forest to a healthy, multi-aged structure.



Access:

Roads - Public Access: Public Use and Management: In 1976, at the time of the Bigelow Act, there was vehicular access to and use of the lands now included in the Bigelow Preserve using various private woods roads, and old farm roads and deteriorated town ways that had existed prior to the flowage of Flagstaff Lake. The attached map², Public Access/Use in 1976, shows that in 1976 there were just over 99 miles of road footprints in the Preserve; and of these roughly 49 miles were assumed actively used by the public³. However, the Bigelow Act mandated that public vehicular access to the Bigelow Preserve lands be limited to roads that were “easily accessible to automobiles as of the effective date of this Act.” Roads determined by the Bureau to have likely met this definition in 1976 may have totaled 18 miles (estimated to include those roads shown as Reg_Maint and Light_Maint on the attached 2006 road status map). The mandate contained in the Bigelow Act to reduce traditional access by vehicles to a limited number of roads on the Preserve was not achieved instantaneously. Rather, it was achieved through a gradual process, beginning with identifying those roads that would continue to be available for public vehicular use according to the Bigelow Act; providing information in a variety of ways to the public about the new restrictions on access; and as needed, installation of gates and barriers.

Character and Use of Roads in 1976: Two documents from the early days following the acquisition phase variously addressed the condition and accessibility of roads on the Preserve.

1. A report issued in 1979 - “Final Recommendations of The Bigelow Coordinating Committee for the Bigelow Preserve” - prepared by an ad hoc committee composed of representatives of The Natural Resources Council, Appalachian Mountain Club, Maine Appalachian Trail Club, and Friends of Bigelow and funded through those organizations (not a committee established by the Maine Department of Conservation) considered the following roads as easily accessible to automobiles: The Stratton Dump Road extension approximately one-half mile beyond the dump; the Stratton Brook Pond Road as far as the trailhead of the Firewarden’s and Horns Pond (formerly the Appalachian Trail) trail; and the Flagstaff Road as far as the gate before the Flagstaff Lake Lodge. This group apparently considered both the condition of the road, and its accessibility in terms of being open to the public, and used a consensus process in determining which roads were easily accessible, as reflected by the following definition contained in the 1979 report: “those roads which could be traversed by an average passenger car as evidenced by the congregation of such vehicles at certain points along the roads or as agreed to by general consensus.”
2. A 1981 report issued by The Department of Conservation Bureau of Parks and Recreation – “Bigelow Preserve, Policy Issues/Guidelines” – and approved by the Commissioners of the departments of Conservation, and Inland Fisheries and Wildlife which said, in a section on the Character and use of existing roads, “There are four roads which traditionally have been passable by two-wheel drive vehicles: The Flagstaff Road (which will be called the East Flagstaff Road in this paper), the Old Flagstaff Road (which will be called the West Flagstaff

² Note that this map is based on current knowledge and subject to revision if additional old roadbeds are found during the forest management prescription process.

³ Actively used roads are assumed to have included “light maintenance” roads (brown solid line) – roads that would have been relatively recently constructed or improved access roads (as in the case of the East Flagstaff Road), some only accessible by vehicles with a high clearance; and roads passable by “4Wheel” roads would have been older or less developed woods roads requiring a 4wd vehicle, shown as dashed orange lines.

Road), the Stratton Brook Road, and the Huston Brook Road,” although it was noted that this last road was probably impassable at about where it crosses the Preserve boundary. Note that only the portion of the Stratton Brook Road north of Stratton Brook was actually on the Preserve. This report described the East Flagstaff Road as ending at a point on the shore of Flagstaff Lake near an island owned by David Guernsey and the Scott Paper Company; and describes the West Flagstaff Road as extending “several miles into the North One-Half of T4 R3 BKP WKR” (aka Bigelow Township). The report also noted a side road off the West Flagstaff Road that leads to hiking access to East Nubble. A map showing these roads depicted the West Flagstaff Road as auto passable to just past Hurricane Brook, and the East Nubble Road extending about 1 mile in from the West Flagstaff Road.

Roads Accessible to Automobiles as defined in the 1989 Bigelow Preserve Plan: The most recent plan, the 1989 Bigelow Preserve Management Plan, depicted roads that were “auto passable” at the time of the Act (Map # 8 of that Plan) which included what is now known as the West Flagstaff Road to a point beyond Hurricane Brook; the East Flagstaff Road to the Round Barn Road and beyond, with two forks leading to the lake, one at Guernsey Island and the other to Ferry Farm; the East Nubble Road; and the Stratton Brook Road to a point past the Dead River Township line.

Roads Designated for Vehicular Access in the 1989 Bigelow Preserve Management Plan: The following roads were designated as public use roads in the 1989 Plan. The Plan stated that they would be maintained to a standard which allows careful travel by pick-up and most automobiles:

- West Flagstaff Road, terminating at Hurricane Brook.
- East Flagstaff Road to the Round Barn campsite area. The road extending beyond the Round Barn campsite area will not be maintained for public vehicular traffic, but will remain open provided there is no environmental damage or inappropriate use resulting from its use.
- East Nubble Road.
- Stratton Brook Road, terminating at or near the outlet of Stratton Brook Pond (actually outside of the Preserve in 1989).

The 1989 Plan noted that the Huston Brook Road was on private land and called for it to be blocked at Cold Brook (just inside the Preserve) and not maintained.

Status of Road Use in 1989: The attached map showing the status of public access in 1989 shows roads both designated for public use by the 1989 Plan and actually used at the time of the Plan (including sections of roads that, although not designated for public use, were kept open by private parties and used by the public). Actual use in 1989, including roads not authorized for public use, is estimated to have included approximately 48 miles of roads on the Preserve. This includes temporary access to and use of about 4 miles of woods roads actively used by the Bureau in 1989 and open to the public until timber management operations were completed and the roads were either “put to bed” (made impassable by vehicles) or gated. Roads designated for public access in the 1989 Plan, as described above, not including the East Flagstaff Road extension beyond Round Barn, totaled approximately 13.5 miles. Including the extension to Guernsey’s island, the total miles of roads open for public use in 1989 was approximately 16.5 miles.

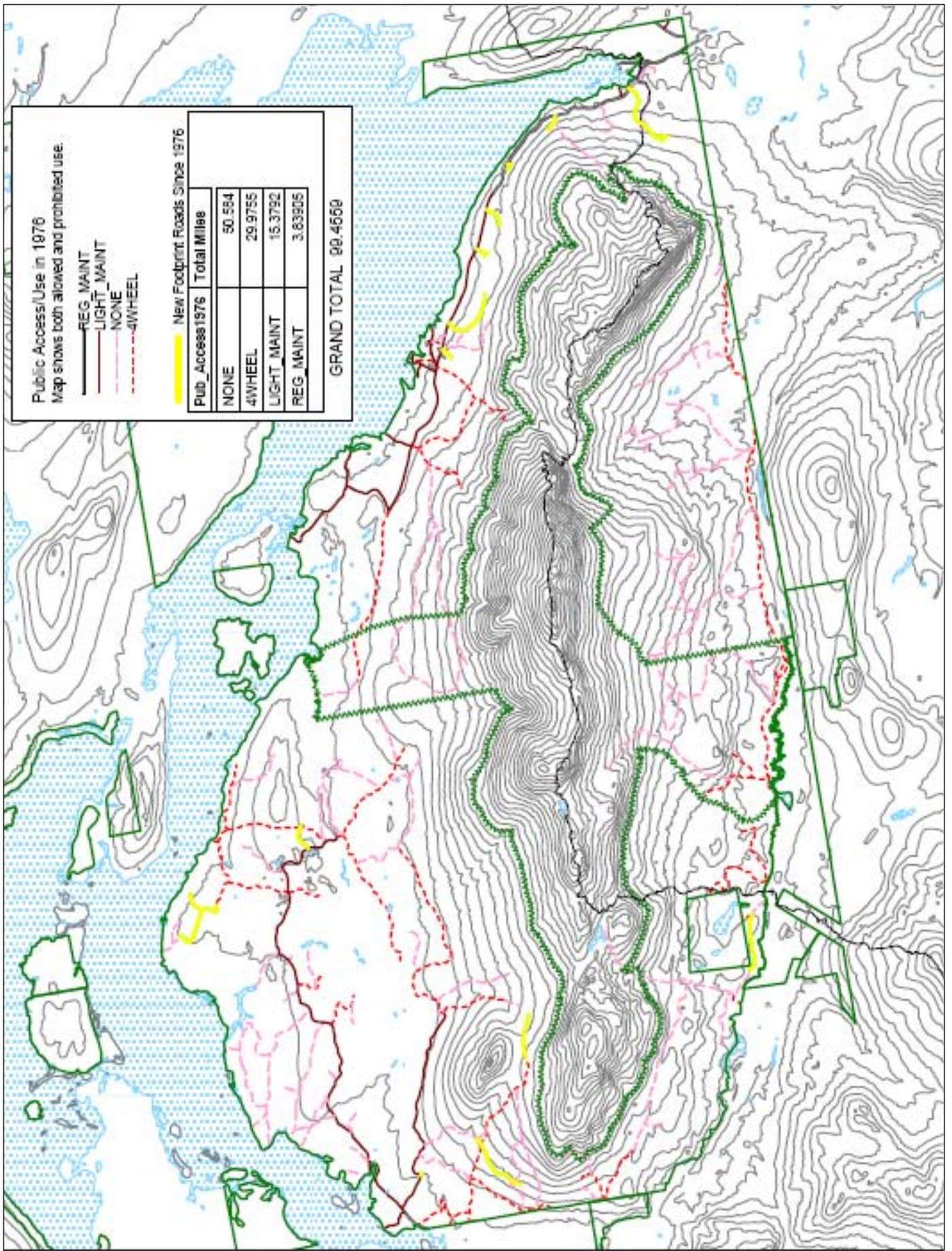
Status of Road Use in 2006: By 2006, there was nearly complete compliance with limitations on vehicle access. As shown on the attached map, there were 105 miles of roads on the Preserve in 2006 (see footnote 2 above). This is an increase since 1976 of 5.5 miles – consisting of woods

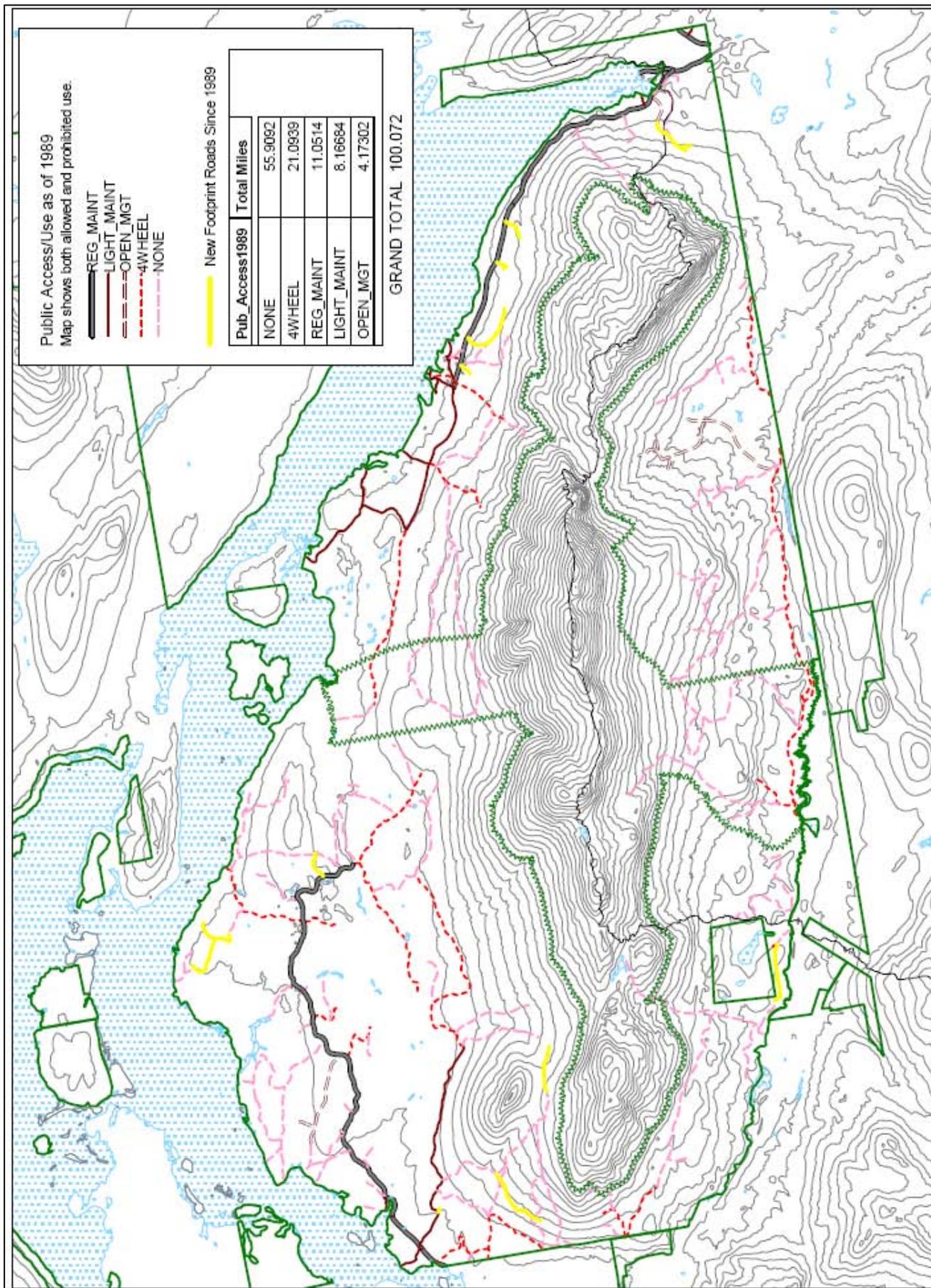
management roads built for temporary access for timber management and then closed. The average length of these new sections of road is about one-third of a mile. Public use of unauthorized roads is down to an estimated 2 miles of woods roads located at the western edge of the Preserve. The Bureau will continue to address unauthorized access and take appropriate measures to ensure compliance.

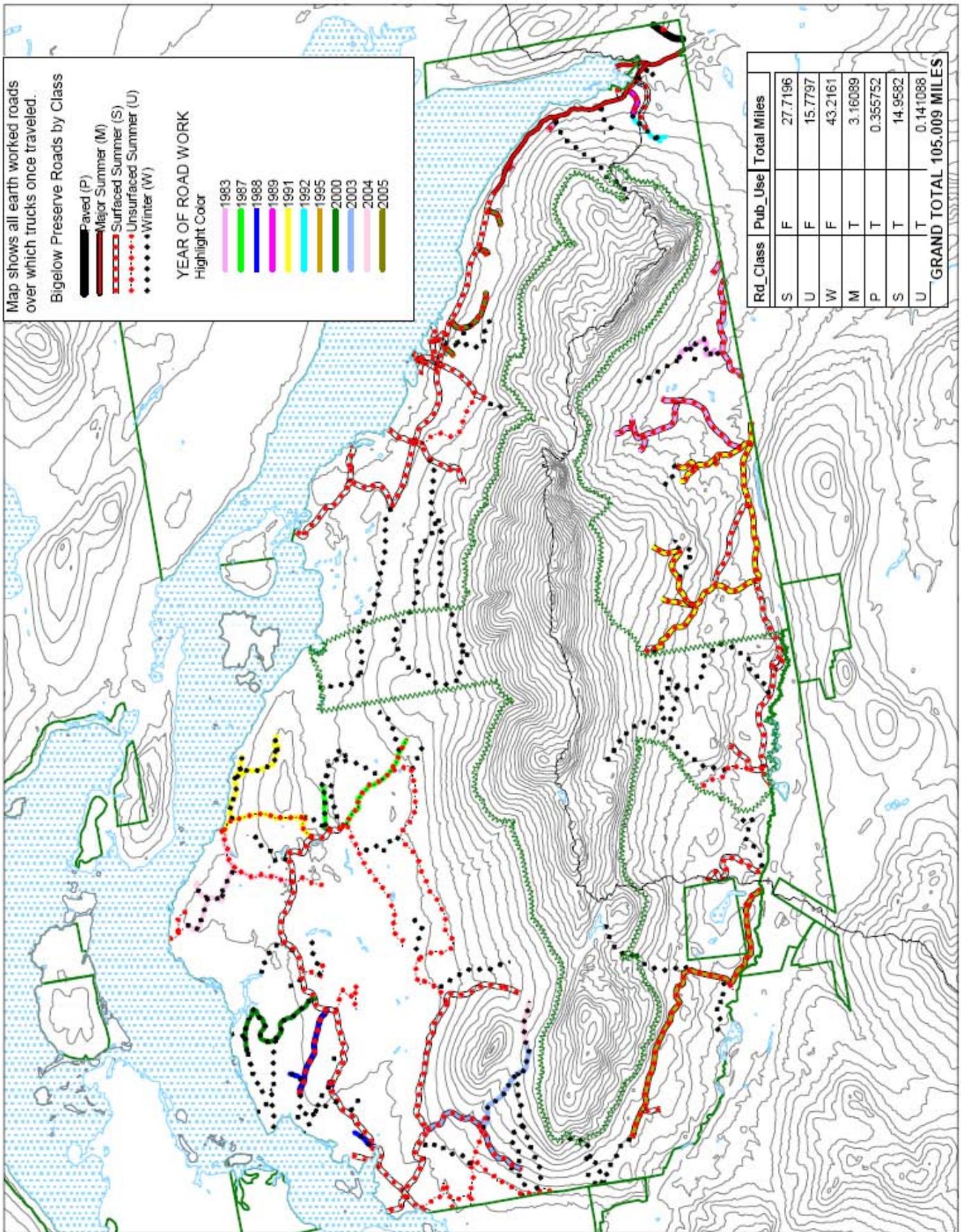
Bureau Use of Roads and Expansion of the Woods Road System on the Bigelow Preserve:

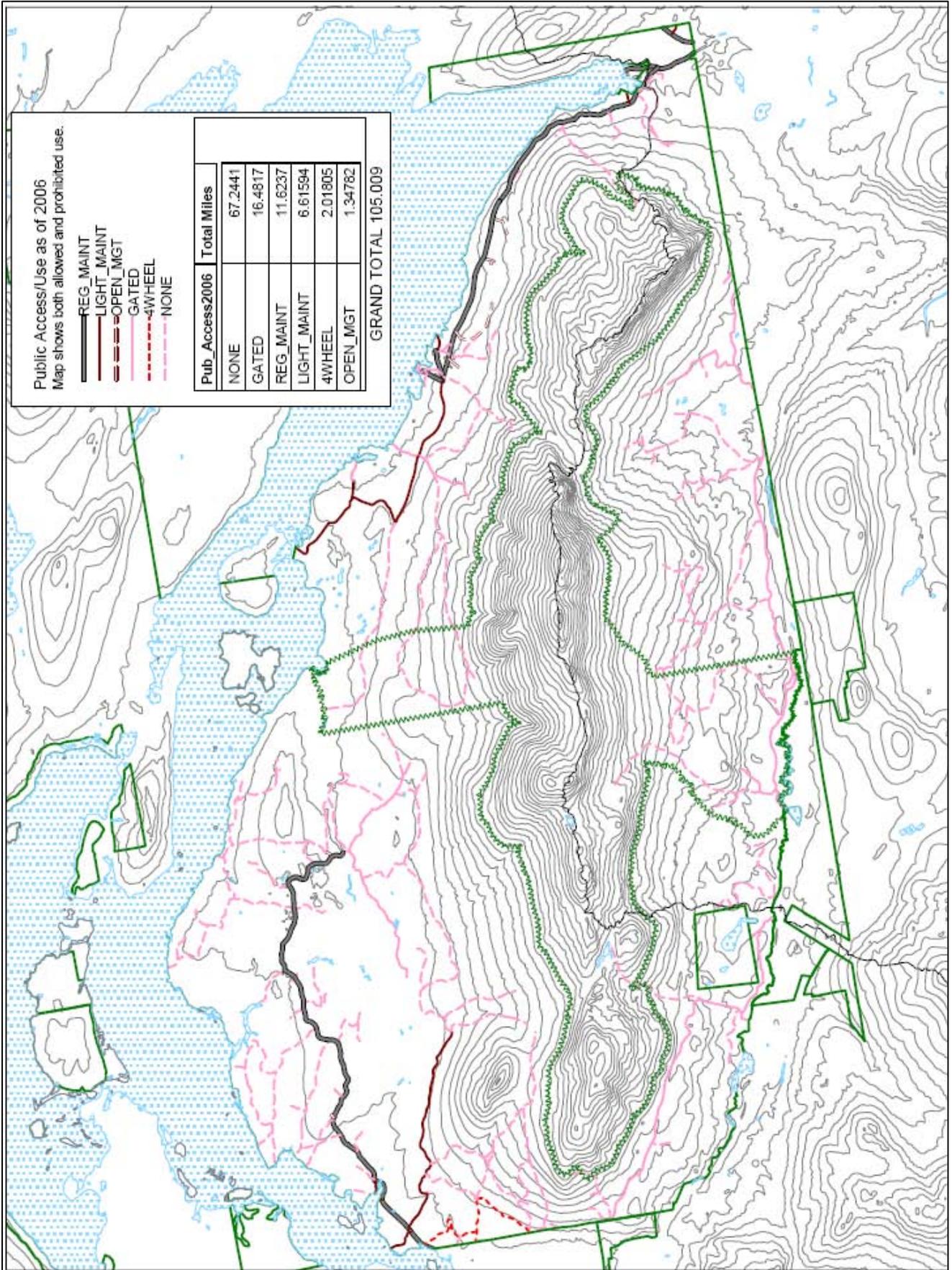
There are 105 miles of road footprints known to exist on the Preserve today. This includes currently used roads and old roadbeds that pre-existed the Preserve. The attached map showing “all earth-worked roads over which trucks once traveled” provides the footprint of the woods roads and public use roads known on the Preserve. There is one small segment of a paved road on the Preserve – the Long Falls Dam road in the southeast corner, .36 miles long. Major summer roads include the first section of the East Flagstaff Road and the Bog Brook Road (together 3.2 miles). These are designated for public use. Summer surfaced roads include a variety of roads that are either used for Bureau timber management (27.7 miles) – all being closed to public use after operations cease; or are available to public vehicular use as designated public use roads (14.6 miles). The attached map shows, by color, when the road was in use for timber harvesting. Unsurfaced summer roads are used for timber management (15.8 miles); hiking trail sections follow these roads in a few short sections (.14 miles). Winter roads are those used for timber harvest only in the winter (43.2 miles).

Summary Data on Roads on the Bigelow Preserve - 2006	
Type of Road	Miles
Public Use Roads	
Paved (Long Falls Dam Road)	.36
Major Summer	3.16
Summer Surfaced	14.64
Subtotal	18.16
Timber Management Roads	
All management road footprints	86.70
New since 1976 (including relocations)	5.55
Actively used since 1976 (see attached map)	
Total Miles of Roads – all types	105.01









Administrative Concerns

Fire Control: The Bureau is currently working with the Maine Forest Service on a fire control plan for the Preserve.

Administrative Structures: The Bigelow Lodge is used as a base of operations to accomplish the management objectives of the Preserve, and more, broadly, of the Bureau. It is used as a warming hut for snowmobilers and cross-country skiers in the winter, and in the summer, for land stewardship and management training and education by state agencies and allied conservation interests.

Leases and Agreements: The privately owned “Wing” camp, east of the Bigelow Lodge, has been located on the property since the late 1930’s. No lease or agreement is in place for this structure, which was initially believed by the owner to be on CMP ownership, below the 1150 foot elevation line, and later determined to be on Bureau lands.

The Bureau has a utility line lease with Somerset Telephone for an underground cable that extends from the Long Falls Dam road to the camps on the Bog Brook Road. This is a 25-year lease, which ends in 2014, although there are provisions within the current lease for its renewal.

The right-of-way to the privately owned portion of Guernsey’s island, located more than three miles past the Lodge, was purchased by the Bureau.

Inholdings: A number of parcels exist under other ownership than by the Bureau within the bounds of the area defined for the Bigelow Preserve by the Bigelow Act. These include:

- Camp lots at Bog Brook
- Turner Camp Lot
- FP&L Lease near Round Barn
- National Park Service lands near the AT (both at Jones Pond area and near Bog Brook)
- Five acres north of Stratton Brook
- CMP peninsula in Dead River Twp (tip of east shore)
- Camp along the powerline west of Bog Brook Road
- Lands north of Stratton Brook in the southwest corner of the Preserve

Management Issues and Concerns for the Bigelow Preserve:

During the development of this Plan, a number of issues were raised, both related to the larger issues of the direction being proposed for the future management of the Preserve, and lesser issues related to specific management needs at specific locations. The following section summarizes the larger issues, and presents the Bureau’s perspective on these issues as the basis for the recommendations which follow.

Additions to the Bigelow Preserve: A number of interests raised the issue that parcels acquired by the Bureau and adjacent to the Preserve should be added to the Preserve. These requests included the Wyman lots south of the Preserve, on both sides of Route 27, the Carrabassett Valley lot, and the lot in Coplin Plantation at the Range Trail trailhead.

The Bureau’s interpretation of the Bigelow Act is that there are no existing contiguous “Public Lots” as defined by the Bigelow Act that have not already been incorporated in the Preserve

boundary. However, the Bureau agrees that contiguous lands that contain sensitive ecological resources, add value to wildlife habitat, or are important to protect or expand recreation opportunity should be acquired as available, and should be considered for inclusion in the Preserve. These lands would be managed to be compatible with the Preserve.

Recreation Management Direction and Cumulative Changes to the Preserve: An over-arching concern expressed by a number of interests relates to how the Preserve will be managed in the future. There were concerns that, little by little, the nature of the Preserve could shift from a backcountry area to an intensively managed recreation destination, which would be contrary to the purposes for which the Preserve was established. A concern is that the Bureau will overdevelop the Preserve with trails, additional camping facilities, and new uses. There were concerns about allowing mountain biking on the Preserve, and the compatibility of this with other uses and the backcountry character of the Preserve. In addition, a coalition of interests under the umbrella name of the Northern Forest Alliance Caucus requested, in 2003, that significant areas of the Preserve be set aside new Backcountry Non-Mechanized areas (where timber harvesting is not allowed) to address what was perceived a shortage of these opportunities in Maine and on public lands.

Cumulative Changes to Recreation Facilities: The Bureau has been very conservative in the addition of recreation facilities to the Preserve, instead focusing on improving the existing facilities to avoid environmental degradation. For example, the 1989 Plan called for development of the Round Barn area with up to 15 individual campsites and 1 group site, and a day use area. The Bureau developed 9 individual sites and one group site, plus a day use area. All sites are walk-to from a parking area (the Plan gave discretion to the Bureau to design these as drive-in sites). At the same time, it designated two areas nearby for walk-to or water access (gating a previous road access) at Ferry Farm (2 individual sites) and Parson's Brook (1 group site). Two traditional camping areas at Trout Brook were allowed to continue as drive-in sites, as was the Savage Farm water access site (4 sites). The Bureau also worked closely with the MATC to relocate and redesign camping opportunities on the AT. Two new camping areas were created to alleviate problematic crowding and impacts at the Horns and Bigelow Col sites – sites were added at Cranberry Stream and Moose Falls. No new hiking trails were constructed, although some relocation occurred, while one trail, the Parson's Trail, was discontinued. An inventory of existing facilities was included in Section IV (see page 49).

Addition of Mountain Biking as an Allowed Use on the Preserve: Much guidance is provided in the Bigelow Act on the management of recreation uses on the Preserve. However, the Bigelow Act does not include an exclusive list of allowed uses; rather it contains a list that is suggestive of the types of uses to be allowed. Mountain bikes did not exist in 1976 when the Bigelow Preserve was created (the first prototypes for mountain bikes were developed in 1977 and the first commercial production and marketing of "mountain bikes" began in 1979 in California). In 1989, when the first comprehensive management plan was developed for the Preserve, mountain biking may have occurred on the Preserve, but was not addressed in the Plan. Hence this is the first management plan to acknowledge and plan for this use. It is the Bureau's view that mountain biking, as a backcountry touring experience, can be compatible with the quiet backcountry recreation opportunities that are currently provided on the Preserve in the non-winter seasons; and that the potential conflicts that could occur relate primarily to the proximity of hiking and mountain bike trails, and potential conflicts with off-trail backcountry uses such as hunting or trapping, and orienteering. Proper planning can address these issues. Areas where mountain bikes will be allowed will be limited and clearly defined. Current Bureau policy does not allow off-road travel by wheeled vehicles of any sort (DOC Rule 04-059 Chapter 51: Use of

“Public Lands;” defined as public reserved lands and non-reserved lands; last amended March 2004; subject to legislation related to allowing ATV trails on public lands). This Plan will allow mountain bikes only on designated public use and management roads.

Designation of Snowmobile Trails on The Horns Ecological Preserve: The Bureau is proposing to designate a primary and an alternate snowmobile trail crossing the north arm of the Ecological Reserve. Some interests have requested that the Bureau examine alternatives that would avoid crossing the Ecological Reserve, or would limit the number of trails to one permanent snowmobile trail. The Bureau’s Integrated Resource Policy (IRP) guidelines state that existing snowmobile trails and roads are allowed in Ecological Reserves where (1) they are situated in safe locations, (2) have minimal adverse impact on the values for which the reserve was created, and (3) cannot be reasonably relocated outside of the reserve. When the ecological reserve was created in 2000, there was already an established primary snowmobile trail through the north arm, following an existing winter woods road, and the alternate trail, and a previously used trail to the north of this trail at a lower elevation was designated as an alternate trail, to be used only when the primary trail could not be used due to logging in adjacent areas. This alternate trail follows, for the most part, another winter road at the bottom of the mountain (the map on page 64 shows the winter road network that existed prior to ecoreserve designation). The Bureau is proposing to continue these two snowmobile trails, with the higher elevation trail designated as the primary trail and the lower elevation trail serving as an alternate trail, based on the following:

- (1) both trails are designed to be safe;
- (2) there is minimal adverse impact on the values of the reserve – by using existing roads, there is no new footprint from the trails (except for a short section on the alternate trail); and
- (3) the trails cannot be relocated since the ecological reserve goes to the lake, and the Bureau has a policy of not locating any snowmobile trails on lakes.

Two other issues were raised regarding the snowmobile trails: whether a single trail could be designated, and whether the lower elevation trail would have less impact by being closer to the edge of the reserve. In order to have only one trail, the Bureau would have to upgrade the road network in the adjacent area to a summer road, which would have a significant impact on the adjacent area, and add unnecessary cost. As to making the lower trail the primary trail, this would have more impact on wildlife, as it would travel through wetlands and near an active eagle’s nest (eagle’s begin nesting in March). By keeping the primary trail on the upland area, this impact would be minimized since the lower trail would only be used perhaps once every 15 or 20 years.

Expansion of Backcountry Non-Mechanized Recreation areas on the Preserve: Management of the Bigelow Preserve is subject to special management conditions outlined in the Bigelow Act, including that snowmobiling is allowed on designated trails, and the Preserve is to be managed for timber production sensitive to recreation and natural values. As such, it would be contrary to the Act to designate a majority of the Preserve as a no-cut area, which is what would result by adopting the NFA caucus recommendations. Further, the Bureau’s forest management on the Bigelow Preserve is subject to visual considerations that retain the appearance of an undisturbed forest when viewed from hiking trails (the vast majority of which are already within the 35,000-acre Ecological Preserve, which is also a Backcountry Non-Mechanized Recreation area as a secondary allocation). More distant areas seen from trails and roads are also managed to avoid any obvious alterations to the landscape. In addition, except for the burn regeneration area north of Hurricane Brook, the Bureau is limiting its management to multi-age management with an objective of growing large quality trees (generally producing late successional character). In

other words, the visual experience will be very close to a natural unmanaged forest in the eyes of most recreationists. Because motorized recreation is already very limited, with the snowmobile trail system largely established, it is possible to designate areas of the Preserve as non-mechanized, and substantially achieve the objectives of the Backcountry Non-Mechanized allocation, without the elimination of timber harvesting. The Bureau has designated a new allocation specific to the Preserve to achieve this.

Timber Management and Related Management Roads: Concerns were expressed related to the Bureau's timber management and related improvement or construction of roads. This included a perception that the number and size of management roads on the Preserve is increasing; and that the Bureau is embarking on a more intensive timber management approach that will alter the character of the Preserve, and diminish the late successional forests on the Preserve. A number of interests requested that the Bureau develop a set of management guidelines for late successional forests, and that some of the late successional forests be allowed to progress to old growth status by designating them for no further harvesting. In addition, the Northern Forest Alliance Caucus requested that significant areas of the Preserve be set aside as additions to the Ecological Reserve (in addition to the request for significant no-cut Backcountry recreation areas – see above), prompted by a concern that the forests of Maine lack late successional and old growth stands due to the differing management objectives of private timber management companies.

Cumulative Changes to Roads. Section IV of this Plan, Character and Resources of the Flagstaff Region, describes the character and uses of roads on the Bigelow Preserve since 1976 (see page 57). There was an existing network of woods management roads on the property in 1976 totaling approximately 99 miles. The Bureau has used these existing roads to provide public access consistent with the Bigelow Act, and to manage timber on the Preserve. Approximately 18 miles of these roads provide public access; the remaining roads provide access for timber management and serve as trails for snowmobiling and other allowed recreation uses when there is no conflict with timber management. The Bureau has added only 5.5 miles to the original network of roads, some of these to relocate roads that were not in keeping with the Bureau's environmental standards. The vast majority of these added roads were very short segments (the average length was one third of a mile) and were located at the periphery of the Preserve, with the exception of a short extension to the East Nubble Road. Bureau standards are consistent with the direction provided in the 1989 Management Plan for the Bigelow Preserve - that is, new road construction is kept to the minimum necessary; roads are kept as narrow as possible and built to conform with the terrain. When no longer needed, the roads are either gated or "put to bed" – with culverts removed and the exposed surfaces seeded or otherwise stabilized. In a short period of time, vegetation regrows in areas cleared for proper drainage, and the opening associated with the road is allowed to narrow until the road is needed again in the future.

Late Successional and Old Growth Forest Management. In a previous section (Section IV page 55) the Bureau's approach to management of late successional and old growth forests was described. Overall, the Bureau's management will increase the amount of late successional forest on Public Reserved Lands over time, and protects old growth stands (5 acres or larger) and smaller old growth components in a mixed age stand. It is estimated that late successional forest represent 30 to 35% of all forests on the Bigelow Preserve. Further, the 4,300⁴ acres of

⁴ The Horns Ecological Reserve is predominantly wooded, with approximately 10,000 acres in forests. The 4,300 acres is that portion considered to have been "operable" or harvestable. Another 5,700 acres are inoperable due to steep or rough terrain or low growth rates. These contain the krummholtz and subalpine fir and spruce forests.

forests included in The Horns Ecological Reserve within the Bigelow Preserve represents some of the best late successional forest in the state, and will be allowed to mature unmanaged and uncut – with many of those acres having the potential eventually reach old growth status. In a report issued in June of 2005 by the Maine Natural Areas Program on comparative measurements of the forested areas within the BPL Ecological Reserves (Cutko, 2005), the forests in The Horns Ecological Reserve as having “an abundance of well-stocked northern hardwoods and spruce-fir forest . . . with a higher average basal area and more large trees than the overall Reserve average.” Mean tree age of canopy trees for this reserve was 105 years, compared to 107 years at Big Reed, the largest known old growth forest in the state (~5,000 acres held by The Nature Conservancy).

What has not been determined is how much late successional and old growth forest is needed to provide the full range of ecological values in a forested system. In terms of wildlife habitat, late successional and old growth forests provide much the same values according to a recent publication (DeGraff et. al, 2005). “Landowners Guide to Wildlife Habitat”). Both provide habitat for large cavity nesters like pileated woodpeckers, and provide large downed wood which is beneficial for reptiles, amphibians, small mammals and insect species. Species most dependent on old growth are certain mosses, lichens and fungi. In terms of wildlife habitat, DeGraff recommends less than 10 percent of the forest be managed for large sawtimber and old growth. A related question is, what is the appropriate scale of the mosaic of forested conditions, including early successional to old growth, that should be represented on the landscape? Interspersion of habitats provides benefits to many species; others need large blocks of a specific habitat type. Should the Bureau’s management of small public lots scattered throughout an industrially managed forest be different than how it manages large blocks like the Bigelow Preserve and the Dead River Peninsula?

The Bureau’s management of Public Reserved Land forests for multiple uses, including timber production for revenue, recreation, and wildlife habitat results in a different forest than found on most industrially managed forest lands. Further, because of the unique characteristics of each of the Public Reserved Lands, and the differing context of surrounding land uses, recreation opportunities, and forest conditions, there is no single management regime that should be applied to all Public Reserved Lands. The Bureau is in the process of developing a forest management model that will enable it to more accurately predict the future of the forest under various management regimes, and through a variety of other means, is constantly evaluating and adjusting its management in light of new research and an expanded understanding of the science of forest management. The ability to adjust to new findings and new concerns, including how the Bureau should be managing its lands in light of climate change, is key to the Bureau’s ability to continue state of the art land management.

Specific Recreation/Visual Management Issues: In addition, a number of other, more specific management issues were identified in during the planning process, including the question of whether additional trails and campsites are needed; how the Bigelow Lodge will be managed; the future of the fire tower, and the future of the small building near the former logging boom at the narrows south of Trout Brook. These issues are addressed in the management recommendations contained in Section VII of this Plan.

Some of these higher elevation forests were harvested in the past. As part of the ecological reserve, they may develop into “old growth” for this type of forested system (at least one absent any human alteration).

Properties Surrounding The Bigelow Preserve and Flagstaff Lake

Character of the Land Base:

Dead River/Spring Lake lot. This includes 4,191 acres on the peninsula in Dead River Twp., including an original public lot, together with lands acquired from Diamond International Corporation in 1978 as part of a larger land trade, and an original 960-acre public lot in Spring Lake Township (T3 R4 BKP WKR), for a total area of 5,151 acres. Except for the steep land along and near Long Falls on the Spring Lake parcel, the terrain on this tract is flat to gently sloping, in contrast to almost all the rest of the Plan area.

The Spring Lake parcel is dominated by the Long Falls Dam and the Dead River and includes a popular fishing and camping spot called The Big Eddy below Long Falls Dam. The entire lot was leased from the Bureau by Central Maine Power Company as part of the development of Flagstaff Lake as a storage reservoir for downstream power production. Florida Power and Light now holds that lease and maintains a boat access facility and picnic area at the dam as part of its federal hydropower license.

The Dead River peninsula has some areas of hardwood in addition to abundant softwood and mixed wood stands. Softwood covers 27% of the property; mixed wood covers 61%; and hardwood covers 12%. Spruce budworm outbreaks in the mid-1980s prompted the state to conduct the second largest clearcut (200 acres) ever managed by the Bureau. The property has



been primarily managed for wildlife, timber, and to a lesser extent for recreation. There is extensive, undeveloped shoreline on the lake, and a large waterfowl impoundment on Blanchard Brook flowage, developed in cooperation with the Department of Inland Fisheries and Wildlife and International Paper. ATV trails follow the public use road that crosses the top of this parcel, and the area is also popular for hunting.

Flagstaff Lake northern shoreline and islands. The northern shoreline of Flagstaff Lake and a number of small islands in the same vicinity were acquired from Plum Creek in 1999. This property consists of approximately 1,316 acres abutting the northern shoreline of Flagstaff Lake in Flagstaff Township. The exact acreage has not been determined because the property was conveyed as a 500-foot wide strip immediately inland from the high water mark of the lake (defined as the 1,146-foot elevation contour); however, the deed excludes lands owned by

Florida Power and Light (FP&L) which generally owns to the 1150-foot contour around the lake, except where there is state ownership that preceded the Flagstaff Project (original public lots). The forest is mostly mixed wood and softwood, and has not been harvested in several decades. Eagles are known to nest on the near-shore islands. There are no public roads to this shoreline. The land is primarily accessed by water, and is available for water-access camping. With a predominantly southern exposure and views of the Bigelow range, it provides great camping opportunities.

Flagstaff Island. This 530-acre parcel is located in Flagstaff Lake north of the Preserve, at the western end of Flagstaff Lake. This predominantly wooded island, located near to the former village of Flagstaff, has a gentle topography, with only slightly more rise than the Dead River Peninsula. The western end of the island is predominantly a Spruce – Northern Hardwood Forest that transitions to an exemplary White Pine – Mixed Conifer Forest further inland (see further description under Natural Resources – Upland Natural Communities). Facing the south with spectacular views of the Bigelow Range, and located on the leeward side of prevailing winds, it is well suited for water access camping.

Flagstaff Lake Islands in Dead River Township. The Bureau owns the entirety of two islands located just offshore of the mouth of Hurricane Brook, and the western half of the large island directly east of these.

Myers Lodge Lot in Flagstaff Township. This 290-acre parcel is part of a larger original public lot located on the west side of Flagstaff Lake. Access to the parcel is over a 2-mile stretch of gravel road that used to be the road to Flagstaff Village. It joins with Route 27 about 4 miles north of Stratton, just above the Cathedral Pines (a grove of large red pines that is now a campground). The Myers Lodge parcel is almost entirely flat, with small differences in elevation resulting in major changes in vegetation. The 60 acres of open bog which abuts the beach is only a couple feet lower than the nearby forest stands of spruce and pine (mostly white with some red) on well-drained sand, with spruce and cedar on wet sites in between. There is also some fire origin forest and near the campsites, many trees have the limby appearance typical of old farm areas. The parcel contains five designated drive-to campsites and a swim beach, and is popular for day use and camping, and is used as an informal boat access. There are remarkable views of the Bigelow Range from the property. The shoreline is also attractive from the lake.



Wyman Township lots. In 1999, the Bureau acquired from Huber Resources Corp. a 2,075-acre parcel in Wyman Township which included, part of an original public lot that had been sold. The 1999 acquisition included lands on both sides of Route 27 southwest of the Bigelow Preserve. Since then, a portion of this lot has been conveyed, with Legislative authorization, in trade for lands surrounding Katahdin Lake. The remaining land is in two parcels: one is adjacent to the Appalachian Trail parking area on the south side of Route 27; the other includes lands directly



across Route 27 and south of Stratton Brook with the powerline forming the southerly boundary. These are relatively small parcels, but add great value to the Preserve as they include the wetland complex associated with Stratton Brook; and an old growth stand on the parcel adjacent to the AT parking area. It also provides further protection to areas in proximity to the AT that have been used as informal camping areas for hikers that arrive at the trailhead too late to start the imposing climb up Bigelow Mountain. In addition, it secures a portion of the Bigelow Loop snowmobile trail located on the Stratton Brook parcel.

Carrabasset Valley lot. As part of the 1999 Huber lands acquisition, an additional 397 acres adjacent to the powerline in the Town of Carrabasset Valley was also acquired. This parcel is a hillside on the south side of the Stratton Brook drainage, and is within the viewshed of the AT on Bigelow Mountain. A piece of the Bigelow Loop snowmobile trail crosses this parcel.

Coplin Plantation Lot: In 1998 the Bureau acquired 112 acres along Curry Street north of Route 27, needed to provide access to the recently reconstructed Range Trail trailhead. This trailhead provides access for dayhikers to Cranberry Mountain and connects to the AT.

Natural Resources:

Geology and Soils: The bedrock geology of the Flagstaff/Bigelow area is complex, the result of plate tectonics and upwellings of molten bedrock eons ago. Granite underlies most of the area. The surficial geology is the result of glaciation, with glacial Flagstaff Lake depositing fine sediments, and till blanketing most of the area. Soils on the Dead River-Spring Lake property are glacial till or glaciofluvial deposits, and tend to be very deep, ranging from somewhat poorly to excessively well drained.

Ecological Processes: Beavers have been active in the area in many of the lower elevation wetlands surrounding Flagstaff Lake. The hydroelectric storage dam that created Flagstaff Lake is drawn down in the winter to a maximum depth of 35 feet (the lake has a maximum depth of 50 feet). This limits the development of aquatic plants and emergent vegetation. Spruce budworm also caused mortality, particularly on the Dead River Peninsula.

Natural Communities: Wetlands: Wetlands occur in association with Flagstaff Lake, at the Myers Lodge parcel, on portions of the northern Flagstaff Lake Shoreline, and on the Dead River Peninsula. Of particular note are those on the Dead River peninsula.

Dead River Peninsula: This lot has several wetlands, though none rises to the level of exemplary due to relatively small size, including a Northern White Cedar Swamp in the center of the peninsula. In addition to northern white cedar, there are areas of dense balsam fir and red maple regeneration, but neither of these species is in the canopy. There are also small openings in the canopy that are dominated by a dense growth of mountain holly. A wetlands drainage cuts through the north-central portion of the peninsula and drains into Flagstaff Lake at a cove on the east side of the peninsula. This beaver controlled area consists of Alder Shrub Thickets alternating with Mixed Graminoid Shrub Marshes. A Spruce – Fir – Cinnamon Fern Forest was documented on the north side of the drainage, while a Leatherleaf Boggy Fen is south of the drainage.

Natural Communities: Uplands: Upland natural communities in the Bigelow/Flagstaff Properties include Spruce-Northern Hardwood Forest, Spruce-Fir Forest, Spruce-Talus Woodland, White Pine-Mixed Conifer Forest, Beech-Birch-Maple Forest, and Fir-Heartleaf Birch Sub-Alpine Forest.

Flagstaff Island: The western end of Flagstaff Island is a Spruce – Northern Hardwood Forest that transitions to a White Pine – Mixed Conifer Forest further inland. This mature, upland forest is interrupted by significant patches of blowdowns, resulting from natural disturbance events in the last ten years. The forest has 60% canopy cover and is dominated by red maple, red spruce, paper birch, and white pine, with dense pine and fir regeneration. Two large red spruce trees were determined to be 115 and 120 years old, with 14 inch and 17 inch diameters, respectively. The canopy is approximately 65 feet high, with the diameters for all species ranging from a 12 inch paper birch to a 31 inch white pine in the supercanopy. The central and eastern portion of the island is characterized as an exemplary spruce-fir forest, described below:

- An exemplary Spruce – Fir – Broom-moss Forest of roughly even-age was documented on the central and eastern portion of Flagstaff Island, occasionally grading into patches of White Pine – Mixed Conifer Forest. This 300 acre, mature, closed canopy forest is spruce dominated with scattered white pine, paper birch, and red maple. Large aggregations of *Lobaria pulmonaria* lichen (a species associated with late successional forests) are prevalent on many of the red maples. Most spruce is in the 12 to 16 inch diameter range, while white pine ranges from 16 to 25 inches in diameter. Two large spruces were found to be 155 and 125 years old, and a white pine was aged at 125 years old.

Flagstaff Peninsula/Myers Lodge Lot: The uplands of Flagstaff Peninsula on the west side of the lake, contains a transitional White Pine – Mixed Conifer Forest that shows evidence of a harvest roughly 60 years ago followed by a burn. Scattered aspen and red pine are in the overstory, while the understory is comprised of red spruce, fir, and white pine.

Wyman Parcel West: The Wyman parcel to the west of Route 27, southwest of Bigelow, consists of mature hardwood forests on the upper slopes that grade into spruce – fir forests in lower elevations. The Beech – Birch – Maple Forest in the southern portion exhibits old

growth characteristics including late successional indicator lichens and mature trees such as a 275 year old hemlock, though the late successional index was not calculated.

Wildlife Resources (see map in previous section):

Rare, Threatened, and Endangered Species: Several bald eagle nest sites are located on or near to the property that the Bureau holds along the shorelines and islands of the lake in Flagstaff Township. In 2006 there were none known to be used by an active nesting pair on Bureau lands, but in the past there have been active nests on Flagstaff Island, and on an island near the northern shoreline in Flagstaff Township (the latter site may be use this year – it was not clear at the time of the aerial survey conducted by MDIF&W.

Species of Special Concern: Wood turtles (species of special concern) have been found in the Dead River and females occasionally utilize the gravel road bank as nesting areas.

Deeryards: The Bureau manages a small but mapped deer wintering area on the north edge of the Spring Lake Lot in cooperation with MIF&W. Timber harvesting on this lot has focused on improving the softwood shelter for deer.

Wading Bird and Waterfowl Habitat: Significant winter draw downs limit the development of aquatic wetlands and marshes on Flagstaff Lake, and the fishery as well, with most species being of the warm water variety, along with occasional brook trout. As a result, the lake generally provides poor waterfowl habitat, except for the sedge meadows at the inlet of the North Branch to Flagstaff Lake. However, a resident Canada goose population on the lake is heavily hunted in September.

In addition, the Bureau manages, in cooperation with MIF&W, an impoundment on Blanchard Brook on the Dead River peninsula created to enhance the habitat for waterfowl. The impoundment was created in 1985 by installing a water control device at the culvert on the Flagstaff Road. Approximately 20 acres were flooded with one to two feet of water, creating ideal waterfowl rearing habitat. Waterfowl nest boxes placed within the flowage have helped produce consistently high occurrences of hooded merganser and common goldeneye broods, making this area one of the more successful in the state. The surrounding wetland is frequently used by moose, great blue heron, osprey, and beaver.

Grouse and Woodcock Management: The Dead River peninsula, dominated by early successional tree species due to sandy soils and a history of fire, has been managed for ruffed grouse and woodcock. Timber harvests in the 1990's created a patchwork of small openings beneficial to grouse. The Bureau has also conducted grouse drumming counts during the spring breeding season to determine populations.

Historic and Cultural Resources

Native Americans: The presence of Native Americans was evident along the historic footprint of the Dead River, as determined by archaeological site excavations undertaken by the Maine Historic Preservation Commission. Archeological research conducted in the region by others also has recovered artifacts at a number of sites along Flagstaff Lake and what would have been the edge of the post-glacial lake in the Flagstaff Basin. All shorelines are potentially sensitive for artifacts.

Arnold Trail Historic District: The area that lies in proximity to the original course of the Dead River prior to the construction of Long Falls Dam creating Flagstaff Lake is likely to contain important archaeological resources. There is potential for historic artifacts throughout this region.

Nomenclature:

- The origin of the word “flagstaff” is presumed to have come from the Arnold Expedition, when Benedict Arnold planted a “flagstaff” outside his tent in an area near what is now called Flagstaff Lake.
- Jim Eaton Hill, on a peninsula in the lake, is named for a farmer who once lived in that area.
- Streams along the north bank of the lake include Butler Brook, named for William Butler, an early settler who came to the area during a minor gold rush.
- Nearby Becky Inlet is named for Becky Butler whose two children are said to have drowned there.
- Viles Brook is named for another family of early settlers.

Recreation and Visual Resources

Spring Lake Lot: Most of the recreational use of these lots is related to use of the Big Eddy camping area on the Spring Lake parcel. Located on the banks of the Dead River about a half mile downstream from Long Falls Dam, and just off the County Road (Long Falls Dam Road), the site is accessible by all types of vehicles including large Recreational Vehicles. A variety of sites are available including waterfront, wooded, and open gravel pit. These sites are often used as a base from which to hunt and fish. The site can accommodate 10 to 12 parties comfortably, and is typically crowded on holiday weekends. The Bureau has maintained contracts with the County Sheriff to provide law enforcement services at the site, particularly on holiday weekends.

Also on the Spring Lake lot, a portage trail, now part of the Northern Forest Canoe Trail, is maintained by Florida Power and Light as part of the hydro license agreement.

Florida Power and Light also manages a day use, picnic, and primitive boat launching site just east of Long Falls Dam, also in connection with the hydro license.

Dead River Peninsula: On the Dead River Peninsula, hunting is a popular activity. In addition, the public use road on this parcel has been maintained as a multi-use trail and is a designated trail for ATV riders, connecting to a loop that extends around Spring Lake. There is one primitive campsite on the western edge of the peninsula. The road leading to it is in poor condition, and the Bureau will have to decide whether to continue to allow public vehicular access to this site or to make it a walk-to or water-access site. Because of the southerly aspect of the shoreline, and its

leeward position for prevailing winds, the shoreline of the Dead River peninsula is an ideal location for additional water access campsites to serve the Northern Forest Canoe Trail.

Myers Lodge Lot: The parcel contains five designated drive-to campsites and a swim beach. Three campsites are located on the north side of the access road several hundred yards from the shoreline; the other two are located near the beach area. Most of these sites see heavy use throughout the camping season; portable toilets have been placed in this area as a temporary solution to ongoing sanitation issues. A proliferation of camping also occurs during lake drawdowns when considerable beach area is exposed. Informal launching of hand-carry and trailered boats also occurs on the beach; canoeing to and camping on the Savage Farm campsite area on the Preserve from this location is a popular activity. The proximity of trailered boat launching to the swim beach, and the used of the beach for camping and parking cars, is in conflict with the use of the beach as a day use and swimming area. The Bureau is considering how to manage this site more appropriately.

Other Flagstaff Lake Shorelines and Islands: The state-owned properties on the shorelines and islands of Flagstaff Lake presently have no designated campsites, but may be used for camping without fires. All are presently water access only, although the Bureau is seeking to obtain access rights over Plum Creek roads to the northern shoreline of Flagstaff Lake in Flagstaff Township. This could provide ATV access to designated areas of this shoreline for camping. Care would be needed to site these well away from any active eagle or loon nests in this area of the Lake. Additional designated water access primitive campsites may be appropriate on Flagstaff Island, and the islands in Dead River Township, again, sited away from known eagle nests or loon nest sites. Florida Power and Light is monitoring loon nests as part of its Federal hydropower licensing.

Timber Resources

Dead River Peninsula/Spring Lake Lots: Only 6% of the forest in the Dead River/Spring Lake property is unregulated (not suitable for timber harvesting). While soils here are generally not as fertile as those on the Bigelow Preserve, they are still adequate for growing softwoods, and in some places fertile enough to produce quality hardwoods. Inventory volumes on the parcel are considerably less than those on the Bigelow Preserve, averaging about 17 cords per acre.

Harvest History: Since the budworm salvage cuts of the mid-1980s, over 38,000 cords have come from the Dead River/Spring Lake lot, a rate that slightly exceeds the sustainable harvest level for the tract. This occurred because spruce budworm salvage resulted in nearly 200 acres of clearcuts in 1985, the second largest clearcut ever managed by the Bureau. The broad scale harvests of the early 1990s took considerable mature aspen, and removed low-grade hardwood left by harvests of the 1960s and 1970s conducted under previous ownership. Over 70% of the total harvest came during the period from 1992 to 1995. Except for the grouse management patches with their 10-year interval, these stands were prescribed for re-entry in 20 years, and by 2012 the long-term harvest rate will have decreased to less than the Sustainable Harvest Level.

Stand Type Characteristics and Management Objectives (regulated acres only): Softwood covers 27% of the property, 50% of that being spruce, 19% fir, and 9% each pine (almost all white pine) and red maple. The recent harvesting captured most of the low quality or high risk stems, leaving the better trees with room to grow while establishing desirable

regeneration with an increased proportion of pine. Management has been (and should continue to work) to increase the pine component while maintaining spruce in at least its present abundance. Near-future harvests will likely target trees declining in health - such as maturing fir - providing more room for regeneration.

Mixedwood is by far the most common type. The Sackett & Brake (S&B) timber typing put it at 71% of the regulated acres, but the prescriptions identified only 61%. Though the S&B work was post-cut and the prescription was (of course) pre-cut, observations and harvest volumes (57% hardwood from 1992 on) support the prescription percentages. Within the type, spruce makes up one third of the volume, with red maple at 21%, fir %14, and aspen 9%. Pine, cedar, and white birch are 7,6, and 5% respectively. Although a few areas are fertile enough to grow quality hardwoods (and show it by having healthy yellow birch and hemlock), most of this type should be managed to encourage softwoods, especially spruce and pine. Given the preponderance of softwoods in the understory, the softwood/mixedwood type percentages might be switched 20-30 years from now. Two stands that were typed as mixedwood deserve special mention: The combined 150-acre area was budworm-damaged softwood, clearcut in 1985, with 32 acres planted in 1985 to white and red pine, and another 54 acres to all white pine in 1986. About 20 acres of plantation received release treatment (some mechanical, most herbicide) in 1988-1990 with varying effectiveness, though the largest trees are 40'+ tall and 9" in diameter (dbh). The rest of the planted area has enough pine to be an important part of the stand, but some areas have become aspen type.

The hardwood type on the property is almost all aspen, clearing-for-lake fire origin near the shoreline, and 20-30 years older near the north boundary. Patchcuts of 1-3 acres have been made throughout this type, mostly occurring from 1992-1994, some on the far south in 1998, and a second series in the north in 2002. Non-aspen hardwood stands occur in scattered pockets, with most heavy to red maple. Only one stand with "normal" northern hardwoods (beech, yellow birch, and/or sugar maple) is found on the Spring Lake lot. Management should probably retain all present hardwood type but not try to increase it, given the soils present. Most aspen should continue to regenerate if small patchcuts, timed to benefit grouse, are used. Other hardwood stands would benefit from a reduction of the red maple component while promoting sugar maple and yellow birch. The very scarce beech should be retained unless it is high risk.

Myers Lodge Lot: This relatively flat parcel has 60 acres of open bog, with nearby forest stands of spruce and pine on well-drained sand, and spruce and cedar on wet sites in between. There is also some fire origin forest and some, near the campsites, where many trees have the limby appearance typical of old farm areas. The 1985 prescription called for harvesting on nearly 200 acres, but the actual harvest in the summer of 1987 treated only 71 acres, concentrating on thinning, while not conducting patch cuts in the spruce-cedar and spruce-fir stands as prescribed. It is probable that the fir, the target species on the un-entered sites, had already died by the time of the harvest.

Northern Shoreline of Flagstaff Lake, Flagstaff Township: The forest is mostly mixedwood and softwood, and resembles Dead River Peninsula in species composition, but with greater volumes because it has not been harvested in several decades. The parcel is entirely unregulated forest (acres not designated for timber management), due mainly to the difficulty in getting there, and the uncertain boundary between FPL and the Bureau within the 500 foot shoreline.

Wyman Lot south of Route 27: The Wyman parcel to the west of Route 27, southwest of Bigelow, consists of mature hardwood forests on the upper slopes that grade into spruce – fir forests in lower elevations. The Beech – Birch – Maple Forest in the southern portion exhibits old growth characteristics including late successional indicator lichens and mature trees such as a 275 year old hemlock. This area, though remarkable for its age and structure, is quite small – around 24 acres in size. Any timber management will seek to retain the current species mix and foster or maintain late successional forest values.

Coplin Plt Trailhead Lot: This lot consists primarily of early successional forests. Any timber management in this area will be aimed, over the long term, at improving the stand to a multi-aged status, and will be subject to the visual class I standards in the vicinity of access road, trailhead and parking area.

Administrative Management

Leases and Agreements: The Long Falls Dam lease, originally with Central Maine Power in 1940 and assigned to Florida Power and Light in the 1990's, is located on Flagstaff Lake at the outlet of the Dead River on the Spring Lake public lot. The lease, issued by the State of Maine as provided in Private and Special Law in 1923 (and amended in 1927), allowed for the construction of the dam and resulting impoundment on Flagstaff Lake. The lease also permits administrative use of the remaining upland area of the Spring Lake public lot where it is necessary to the ongoing management of the dam. This provision does not interfere with timber management or the recreational use of the property.



A mature yellow birch in Wyman.

A lease for a one third-acre parcel along the Long Falls Dam Road on the Spring Lake parcel is in place with Nestle Waters North America, Inc. The lease provides additional space for an off-road loading area in conjunction with spring water extraction activities taking place on adjacent private lands.

Management Issues and Concerns

Coordinated Planning for Water-based Recreation Opportunities on Flagstaff Lake

- A number of Public Reserved Lands abut Flagstaff Lake. In developing a management plan for these Public Reserved lands, consideration should be given to the range of opportunities to be provided on these lands, and ensuring as full a complement of uses as possible.
- Planning for all the lands surrounding Flagstaff Lake as related to each other also makes sense in the context of the hydropower license for the Long Falls Dam (The Flagstaff Project, FERC No. 2612) which is held by Florida Power and Light (FPL). The Federal Energy Regulatory Commission routinely required licensees to develop recreation plans for project lands – and in this case, FPL owns the lands surrounding the lake to elevation 1150 feet (4 feet above the normal high water level for the lake), except in areas that were original Public Lots (where the State ownership would include the entire shoreland to the water). Typically, a FERC recreation plan would involve providing boat access and campsites and other recreation facilities such as day use areas.
- Another related issue is how erosion of the shoreline is affecting natural resources and recreation opportunities.
- Collaborating with FPL and other stakeholder interests in developing a coordinated plan for use and stewardship of the shorelands of Flagstaff Lake should be a management objective for the Plan.

Other Specific Recreation Management Issues

Dead River/ Spring Lake Lot:

- Improvements are needed at the Big Eddy campsite area, particularly for sanitation.
- A route is needed for a portion of the Western Mountains Foundation ski trail on the parcel.

Myers Lodge Lot:

- The heavy use and proliferation of camping on the Myers Lodge parcel, along with its popularity for boating and day use, has created negative impacts to both the physical and social environment of the use area. Sanitation issues need to be further addressed.

Wyman Lot:

- A portion of this lot is needed to provide a connection for the ATV network in the area between Stratton and Carrabassett Valley.

Flagstaff Lake Northern Shoreline:

- There is interest in having an ATV accessible camping opportunity on Flagstaff Lake in a location that will minimize potential conflicts with the Northern Forest Canoe Trail.

Historic-Cultural Management Issues

- Ground disturbance near Flagstaff Lake could impact historic or archeological resources. The Flagstaff Lake area has a long and complex geologic history that complicates identifying areas of potential archeological sensitivity including (1) a post-glacial lake that has lake levels near to the present lake (approximately 30 meters higher); (2) a vast floodplain and meandering river following the breach of that lake (potentially an ice-dam that eventually melted); (3) glacial deposits such as eskers, which provided vantage points for Indian camps, (4) early Euro-American settlement and logging of the area, including using the Dead River for log drives; and (5) the relatively recent impoundment

of the Dead River with widely fluctuating lake levels and drawdowns, with water and ice action capable of scouring and redepositing artifacts to other locations including nearshore areas. Further, it is possible that early use and occupation of the area by Indian peoples could have occurred at multiple locations, including along the old lake shores, along the shores of the Dead River (and its shifting course over time), and in association with glacial deposits such as eskers that would have provided a high ground advantage point for camps in proximity to a watercourse. Given all these factors, any ground disturbance near the present shoreline, or on higher grounds close to the shoreline, especially where the original course of the Dead River is close to the shoreline or where streams enter the impoundment, should be considered archeologically sensitive.

Administrative Issues

Northern Shoreline, Flagstaff Township

- The boundary line along the northern shoreline needs to be established.
- The Bureau needs to secure deeded management access to the properties acquired from Plum Creek on the northern shoreline of Flagstaff Lake.

Dead River Peninsula

- The North Flagstaff Road (aka Picked Chicken Hill Road) on the Dead River Peninsula has not been formally designated for public use. The 2002 aspen harvest managed patches to the roadside (a departure from policy regarding the management of public roads), in part due to the frequent blowdowns blocking the road. Future patch cuts may also be required near or directly on the road for the above reasons. This will affect the Bureau's ability to manage for a visual buffer along this road.