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## MAINE

The only systematic inventory of old growth across Maine was conducted during the early 1980s. In 1980-82 the Maine Critical Areas Program in the State Planning Office conducted a statewide inventory of old-growth forests. The staff sought information from timber corporations, government foresters, and the general public. Researchers field checked 104 of the leads received and recommended 68 of the sites for evaluation for Critical Area status. Most of the sites were less than fifty acres in size.

The publication describing the inventory, *Natural Old-Growth Forest Stands in Maine* (1993), stated that "additional work remains to complete the documentation of old-growth forests throughout Maine." The Critical Areas Program made up for some of the lacks in the variety of communities that it presented in *Natural Old-Growth Stands*, with subsequent reports on uncut stands on public lands, old growth in northern Maine, Jack Pine, and Pitch Pine-scrub oak. However, the Program never reported on floodplain forests (Cogbill 1993a).

In the later 80s and early 90s, field researchers stopped seeking out new old-growth sites, in part because of a reduction of funding for inventories. Most of the research underway involved studying in greater detail the sites already identified. Inventorying recommenced in 1995 but the target was ecologically significant areas "on public and private lands in Maine," not old growth in particular. The inventory was part of the Biodiversity Project, directed by individuals from a wide variety of backgrounds.

Drawing on the inventory, the Biodiversity Project designed thirteen Ecological Reserves on public land. The Maine legislature authorized their designation, and the Maine Department of Conservation's Bureau of Public Lands set them aside in January 2001. The reserves, which totaled 68,974 acres, are designed to protect "natural ecosystems that are relatively undisturbed" and "to retain plant and animal communities native to Maine in their natural condition" (Bureau 2001). Although the reserves are scattered across the state, significant portions are subalpine spruce-fir or wetlands (Cutko 2001). In fact, 69% of the reserved land is not suitable for commercial logging "because of elevation, slope or wetlands and water" (Bureau 2001). The reserves include old growth of as yet undetermined extent (Cutko 2002).

In the reserves, fishing and hunting are allowed, but commercial extraction of resources and construction of new all-terrain vehicle and snowmobile trails and use of existing trails that cause environmental damage are banned. The reserves will remain in place for at least ten years, but unfortunately are not permanent. A key part of the reserve program will be monitoring. The Maine Natural Areas Program (MNAP), working with the Department of Inland Fisheries and Wildlife and the state's scientific community, has established a monitoring plan (Bureau 2001).

The Maine Natural Resources Information Center sent us fact sheets on the reserves but declined to make available to us other results from the natural ecosystems inventory, on the grounds that the database does not keep track of old-growth sites (Pinkham 2001). We hope that information from the monitoring of the Ecological Reserves will be made available as monitoring progresses. In the meantime, we present a

few old-growth areas in the Ecological Reserves as described to us by individual researchers, land managers, and the fact sheets.

Many of our listings are drawn from the Maine Critical Areas publications of the early 1980s. The Critical Areas Program is no longer in existence, and the stands identified through the Critical Areas Program enjoy no formal protection. The field staff of the Maine Natural Areas Program told us that they think that, nevertheless, the old-growth stands described in the Natural Old-Growth Forest Stands of Maine still exist (Cutko 2001, Cameron 2001).

The Maine Natural Areas Program is, however, aware that property owners have sometimes clearcut around old-growth stands. Confidentiality agreements with landowners prevent the Program from making known which stands have lost their buffers (Cutko 2001). However, the logging of the periphery of Big Reed Pond in the late 1980s and early 1990s is well known. The logging, in fact, caused such a public uproar that property owners became unwilling to state that they owned old growth. "A lot of it is being cut," Mitch Lansky, author of *Beyond the Beauty Strip*, reported in 1993.

The field staff of the Maine Natural Areas Program tell us that they come across scattered stands of old growth in their field work. Don Cameron has noted numerous stands of what appear to be old growth on talus slopes in southern Maine. The stands are small, ranging from a few acres to perhaps 20 acres and are generally red oak. They occur from roughly the northern part of York County to south of White Mountain National Forest (2001). Andy Cutko finds apparently unlogged stands of spruce-fir--5, 10, or 15 acres—scattered here and there at elevations of 1000 to 2000 feet. Because of the poor growing conditions, a 6" or 8" tree may be 180-200 years old. He also occasionally comes upon Red Spruce stands in which a tree that he bores turns out to be as much as 150 years in age; and he finds in northern Maine, unlogged Northern White-cedar swamps (Cutko 2001).

The Critical Areas Program took up one large special group of communities prior to and separate from the 1983 report, peatland areas. Maine has an estimated 490,677 acres of peatland. According to Ian Worley, who studied the peatlands for the Critical Areas Program, these peatlands, which constitute 2-3% of the state's land area, seem to be "the least disturbed of [the state's] principal ecosystems, with an exceptionally high proportion of the sites in essentially natural condition." Since the arrival of the colonists, peatlands in southern and central Maine have been logged for personal use or for commercial purposes, usually selectively. Apparently the species most often cut have been White Pine, Northern White-cedar, and Black Spruce, although all species have been cut for one use or another. Yet, given that, except for Northern White-cedar and Atlantic White-cedar, trees growing on peatland are generally smaller and sparser than those growing on mineral soils and given the remoteness of parts of Maine, it appears likely that the peatlands as a whole support considerable old-growth forest and savanna.

Worley divides the peatlands into six classes, the first two of which are wooded: 1) low shrub class, including Black Spruce less than 20 feet tall and 2) forest class and low forest class. The forest and low forest class is subdivided, according to dominant species, into Atlantic White-cedar, scarce in Maine; Northern White-cedar, heavily logged; Black Spruce; Tamarack; Red Maple; Black Ash; and American Elm; and three types that may occur in Maine only as parts of peatlands of other types rather than as

entire peatlands: White Pine, Balsam Fir, and birch. Spruce-Tamarack peatlands are relatively frequent throughout Maine. Due to logging, draining, and other disturbances, much peatland with deciduous hardwoods is now in succession (Worley 1981).

Forest is more common on peatlands in central inland and southern inland Maine than it is on peatlands in the coastal region. In the coastal region any peatland forest area is likely to be adjacent to and smaller than open peatland areas. Nevertheless, most of eighteen coastal peatlands that Worley recommends for evaluation for Critical Area status include wooded areas (1980). Three of these peatlands are described below.

Small old-growth sites in Maine include Tunk Mountain, also known as Wizard Pond (Hancock County): old-growth Red Spruce, perhaps 20 or 30 acres in extent within the 5950-acre Tunk Lake Area Ecological Reserve (Cogbill 1993a, MNAP 2001); Prentiss Woods White Pine-Hemlock Stand (Penobscot County): 30 acres of old-growth White Pine-Eastern Hemlock and associated species from which only diseased pine have been cut (MCAP 1983a); No. 3 Pond Hemlock Stand (Penobscot County): an uncut 26-acre stand of pure Eastern Hemlock with trees up to 326 years of age in 1980, surrounded by a spruce-fir forest (MCAP 1983a); Pleasant Lake Red Oak (Aroostook County): a 30-acre stand dominated by small Northern Red Oak, aged 60 to 100+ years, apparently small and young because of natural disturbances (Pinette and Rowe 1987); Bonney Woods Preserve (Franklin County): a 20-acre preserve with towering Eastern Hemlocks among other species, owned and protected by The Bonney Woods Corporation (Kershner 2002); May Mountain--White Pine (Piscataquis County): a 20-acre stand of White Pine (40% of the cover) and Red Spruce (40%) with Red Pine (4%) (Pinette and Rowe 1987); Sugar Maple-Basswood-Ash (York County): a 20-acre stand on a mesic lower slope (Cameron 2001); Borestone Mountain: approximately 15 acres of 200-year-old Red Spruce within a 1600-acre preserve owned by the National Audubon Society (Merchant 1993, Dunstan 1993); Rocky Brook Old-Growth Cedar Forest (Aroostook County): a 9-acre stand of old-growth Northern White-cedar, uncut as of 1983 (MCAP 1983a); Cobbosseecontee hardwood stand (Kennebec County): 11 acres of privately owned northern hardwoods--American Beech, Sugar Maple, Northern Red Oak up to around 200 years in age--over which White Pine about 215 years old tower (MCAP 1983a, Cogbill 1993a); Ordway Pines (Oxford County): mixed old-growth forest of hardwoods with Eastern Hemlock and White Pine, owned and protected by the Twin Town Nature Club (Cogbill 1993a, Kershner 2000); a 6-acre privately owned Black Gum swamp in New Gloucester (Cumberland County), with Black Gum 400 to 450 years old (Vogelmann 1990).

#### Big Reed Forest Preserve, north-central Maine (Piscataquis County)

Some 5000 acres acquired by The Nature Conservancy in two transactions. The Conservancy's Keil Stockwell says that "most" of the acreage is old growth. The 5000 acres, which surround Big Reed Pond, constitute a natural mixed mosaic of the forest types in Maine, including spruce-fir, northern hardwoods, cedar swamps, and rich woods. In having the whole range in one area, the site is unique, according to Lissa Widoff, who helped the Conservancy make its purchase. She feels that Big Reed Pond is "definitely the largest" mid to low-elevation old growth in the state, and that it is probably virgin

(1990). Cogbill reports that the "area has a documented history showing only spotty removal of scattered pine and cedar 110 to 70 years ago."

"The nature of the original landscape" in the Northeast "can perhaps best be seen" at the Preserve, according to Cogbill. The forest is approximately 45% softwoods, 25% hardwoods, 25% mixed woods, and 5% cedar swamps. Red Spruce and Sugar Maple are dominants. The area has suffered major disturbances, including a widespread fire in 1816, insect infestation in 1805-10 and 1916-21, a hurricane in 1815, and more recent blowdowns. Thus the forest illustrates that "northern forests were always extensively disturbed" (Cogbill 1993b).

The land around the preserve "has been and is being intensively harvested" (Chokkalingam 2001). According to Cogbill in 1993, whether or not any old growth had been cut was unclear (1993a).

#### Upper Saint John River Watershed, northwestern Maine (Aroostook and Somerset Counties)

Almost 5000 acres of old growth, divided among a number of tracts, on 180,000 acres of land on the Upper Saint John owned by The Nature Conservancy. The Conservancy's Josh Royte and Keil Stockwell note that "some large pine or spruce" were likely "removed between 1870 and 1910 by horse." However, The Conservancy has not found any indications of "mechanized clearing." Maps dating back to 1926 and survey records from 1870-1880 indicate that the areas experienced natural fires and included pockets of "black growth," the old, dense stands of Black Spruce that remain today. The trees in the old-growth areas are not large, because growing conditions are poor and because the areas burned frequently until the late 1950s when fire suppression began. The Conservancy protects the old growth in ecological reserve units.

The old growth is divided among townships as follows:

- T 11 R 17 Wels (Aroostook County): 47 acres of hardwoods and 154 acres of Black Spruce and Northern White-cedar (in separate but nearby tracts);
- T 11 R 16 Wels (Aroostook County): 195 acres of spruce;
- T 9 R 18 Wels (Somerset County): 346 acres of Northern White-cedar;
- T 9 R 17 Wels (Somerset County): 2200 acres of spruce-fir and Northern White-cedar;
- T 8 R 17 Wels (Somerset County): 441 acres of spruce-fir
- T 8 R 16 Wels 250 acres of Black Spruce (divided among three areas) and 901 acres of northern hardwoods (in some four separate but nearby areas) (Royte and Stockwell 2002).

#### Baxter State Park, north-central Maine (Piscataquis County)

Old growth within and without the Scientific Forest Management Area in the 205,000-acre State Park. The Scientific Forest Management Area is to be used to demonstrate forest management. Therefore much of it is open to logging.

--Boody Brook Natural Area\*, in the Scientific Forest Management Area (SFMA)

About 451 acres of northern hardwood, mixed hardwood-conifer, and spruce forests in good condition, constituting the Natural Area or primary reserve, within the 29,537-acre SFMA. The Natural Area is traversed by the south branch of Boody Brook.

Trees south of the brook include Sugar Maple, Red Maple, Yellow Birch, American Beech, Eastern Hemlock, Red Spruce, and an occasional Eastern White Pine. No signs of past logging are found here. North of the brook, the forest is primarily Red Spruce with mixtures of Yellow Birch, Red Maple, White Pine, and Balsam Fir. Here can be seen decaying stumps of White Pine from selective logging prior to 1900. Wind and spruce budworm appear to be the main disturbances.

Around the primary reserve is the secondary reserve, 1213 acres of forest that have been subject to logging and fire. A 1567-acre tertiary reserve encompasses the remainder of the Boody Brook watershed (all three drainages).

The old growth was discovered in 1993, before roads or even trails had been constructed in or near it. The Design and Management Plan for the Natural Area specifies that the primary reserve is to “be protected from management disturbance” and from construction of trails. In the secondary reserve a trail has been constructed to assist visitors; but logging and road construction are forbidden. In the tertiary reserve road building (to within 1500 feet of the secondary reserve) and logging are permitted, but activities that could impact the old growth, such as planting non-native species, are forbidden (Bissel 2001; Baxter nd).

--Outside the SFMA, three types of old-growth communities are found: subalpine fir forest, Red Spruce, and Black Spruce.

The uncut subalpine forest, totaling 23,094 acres, consists almost entirely of Balsam Fir. Trees in subalpine forest are generally no more than 100 years old. In Baxter State Park the forest is comprised of alternating stands of dead and living fir, "fir waves," found nowhere else in Maine and few places in the world, some biologists say, and resulting partly from wind. Subalpine forest exists in the park between 2500 feet elevation and treeline. Documentation shows that in Baxter State Park, commercial logging did not take place above 2500 feet. Therefore, in the park the subalpine forest as a whole was spared. Balsam Fir subalpine forest is found in the following locations: Mount Katahdin, including North Peaks, Northwest Basin, Harvey Ridge, Hunt's Spur, Keep Ridge, and Great Basin (5470 acres); Mullen Mountain, Fort Mountain, North Brother, and South Brother (together 4263 acres); North Turner (2600 acres); The Traveler (2120 acres); Russell Mountain (985 acres); South Turner (665 acres); North Pogy Mountain (620 acres), Wassataquoik Mountain (385 acres); Center Mountain (90 acres); South Traveler Mountain (34 acres); and Black Cat Mountain (18 acres) (MCAP 1986).

Old-growth Red Spruce is represented by four sizeable areas:

North Turner Brook. Approximately 200 acres of Red Spruce. A tree cored at 400 years of age is the oldest known Red Spruce in the state. The median age of the canopy is greater than 200 years (Cogbill 1993a).

North Traveler Mountain. A couple of hundred acres of Red Spruce divided among stands of 20 to 30 or 100 acres each (Cogbill 1993a). The first stand identified was 25 acres in size, 230 to 300 years old, and at an elevation of 2000 to 2450 feet (MCAP 1983a).

Basin Ponds. Approximately 50 acres of old-growth Red Spruce (Cogbill 1993a). The first old-growth Red Spruce discovered at this site covered only 1.5 acres, were at an elevation of 2700 to 2800 feet, and were 300 to 360 years old.

Wassataquoik Mountain. Twenty plus acres of Red Spruce 200 to 250 years in age, at 1900 to 2400 feet.

Old-growth Black Spruce survives in two stands at the subalpine level, one of which is sizeable. The Klondike Black Spruce is comprised of 832 acres of "totally undisturbed" forest of Black Spruce 120 to 150 years old. The forest is in a bowl at an elevation of 2500 to 2800 feet (MCAP 1986).

Mahoosuc Mountains Ecological Reserve, on the border with New Hampshire (Oxford County)

A total of 2444 acres of uncut, subalpine Balsam Fir forest within the Maine Bureau of Public Lands' Mahoosuc Mountains Management Unit (MCAP 1986), now the 9974-acre Mahoosuc Mountains Ecological Reserve (MNAP 2001). Old Speck and Mahoosuc Arm together have 1089 acres. Fulling Mill and South Peck, Goose-Eye, and Mount Carlo account for 1355 acres. These figures for uncut fir forest include only spruce growing at an elevation of 3000 feet or more, because researchers have found "some evidence" of harvesting between 2700 and 3000 feet (MCAP 1986). Notch Two has 50 acres of Red Spruce forest, and Mahoosuc Arm a couple of hundred acres of montane spruce-fir (Cogbill 1993a). Mahoosuc Notch supports a beech-birch-maple forest, with no evidence of cutting (MNAP 2001).

Bradstreet Jack Pine, west-central Maine (Somerset County)

Approximately 2000 acres of uncut forest in which Jack Pine is prominent. A portion of the area is a Natural Area of the Society of American Foresters. The Jack Pine occupies from 10% to 90% of the canopy and is associated with Red and Black Spruce, Paper Birch, and poplar. The stand is thought to have originated after an extensive fire in 1888. Most of the trees cored around 1980 were 55 to 65 years old. The pine are taller and straighter than those in coastal areas. Apparently the tract is owned by Scott Paper Company (MCAP 1983b).

Big Spencer Mountain Ecological Reserve, northwestern Maine (Piscataquis County)

Extensive unlogged forest within the 4242-acre reserve. The summit of 3230-foot-high Big Spencer supports almost 200 acres of fir-birch subalpine forest plus krummholz of stunted Balsam Fir and Black Spruce. Although the existing vegetation is likely unlogged, it is interspersed with communication towers and their infrastructure and a snowmobile warming hut. From 3000 feet down to 2200 feet, fir-birch subalpine forest dominates. This subalpine forest, while showing signs of insect and ice damage, has not been logged. The eastern side of the mountain "falls off steeply with 150-foot-tall acidic cliffs." The northwest and southeast sides below 2200 feet support mixed hardwood forests, for the most part unlogged down to 1900 feet. The Nature Conservancy, the North Woods Wilderness Trust, and the Forest Society of Maine contributed funds to the purchase of the 4242 acres, which were transferred to the state's Bureau of Parks and Lands for management as an ecological reserve. The reserve is an addition to the original thirteen. (Sferra 2002).

**Bigelow Mountain Ecological Reserve, west-central Maine (Somerset County)**

Within the 10,540-acre reserve, 3100 acres of subalpine spruce-fir forest, only “some” of which have been logged. The forest shows the effects of spruce-budworm, wind, and ice (MNAP 2001). According to the Maine Critical Areas program, uncut subalpine Balsam Fir forest covers 1334 acres of Bigelow Mountain at over 3000 feet in elevation. Avery Peak-Horn is the location of 1322 of these acres. The fir average 70 years in age. The Preserve also has two small areas of old-growth lower-elevation forest: Little Bigelow Sugar Maple with 150-year-old trees (20+ acres) and East Nubble Red Spruce with 120- to 250-year-old trees (25 acres). The Maine Bureau of Public Lands manages this and other ecological reserves (MCAP 1986).

**Sugarloaf Mountain-Burnt Hill, west-central Maine (Franklin County)**

Uncut subalpine forests, predominantly Red Spruce and Balsam Fir, at an elevation of 3000 to 3300 feet, in the saddle between Sugarloaf Mountain and Burnt Hill. Reflecting natural forest dynamics, the area is a mosaic of stands of various ages, including pockets with very old trees. A cored Red Spruce was 260 years old; and a Balsam Fir 150 years. Adjacent to the saddle is alpine krummholz vegetation of stunted Red Spruce and Balsam Fir (MCAP 1983a). Charles Cogbill reports that the saddle contains a couple hundred acres of Red Spruce and a lot of high elevation fir. The land is in private ownership (Cogbill 1993a).

**Deboullie Ecological Reserve (Township T 15 R 9 Wels), northern Maine (Aroostook County)**

Uncut spruce-fir forest in the southeastern part of the Maine Public Lands Bureau's Deboullie Management Unit, now a 10,540-acre ecological reserve. The reserve is within the North Maine Woods, most of which is privately owned. MCAP describes five specific stands totaling 607 acres, but implies that the township may have additional uncut stands. Mountains in the area are no higher than 1981 feet, but some stands on isolated ridges and steep slopes escaped harvesting. Trees in the five documented stands are only 90 to 130 years old and small, due to severe growing conditions. The five stands are in the following locations: Gardner Mountain (212 acres), Crater-Denny-Galilee (140 acres), Black Mountain (130 acres), Deboullie Mountain (75 acres), Pushineer Pond (50 acres) (MCAP 1986). The Deboullie Ecological Reserve Fact sheet states that the “steep slopes of Deboullie and Black Mountains (and probably Whitman Mountain)” support several stands of unlogged spruce, which have been “heavily damaged by budworm and subsequent windthrow.” It also notes the existence of two cold air talus woodlands on Deboullie and Gardner Ponds, respectively ranked “A” and “AB” (MNAP 2001).

**Crocker Mountain, west-central Maine (Franklin County)**

Forest on the east side of the mountain at 3300 to 4000 feet that has probably not been cut, because the terrain is very steep. The area includes stands of Paper Birch that have grown up after blow downs, and, according to MCAP, pockets of old growth, with Red Spruce, Paper Birch, and Balsam Fir, particularly on the north face of Crocker Cirque, on the ridge between Crocker and Devils Kitchen and on Devils Kitchen (1983a). Charles Cogbill says that any older component appears to be ill defined and not homogeneous (1993a). MCAP did not estimate old-growth acreage (1983a).

#### Waterboro Barrens, southern Maine (York County)

A 780-acre privately owned Pitch Pine site, with one segment of mature Pitch Pine and another of young Pitch Pine, scrub oak, and Pin Cherry. The younger stand grows on a terrace that may previously have supported blueberries. The older segment has Pitch Pine about 100 years old and up to 60 feet tall. The understory is scrub oak, Gray Birch, and scattered groves of Pitch Pine. Low Sweet Blueberry dominates the ground vegetation. The south end of the older segment has been selectively logged. The history of the younger segment is not known. However, Widoff gives the site overall full marks for "maintenance by fire of natural community structure and composition" and "adequacy of buffer zone/no man-made disturbance." Two rare moths have been collected at the site.

A roadside strip of Pitch Pine and scrub oak community connects the Waterboro Barrens to the Shapleigh Barrens three miles to the west. The 1170-acre Shapleigh Barrens have unfortunately undergone strip cutting and establishment of small Red Pine plantations within it (Widoff 1987).

#### Fryeburg Barrens, southern Maine (Oxford County)

Four pine barren segments: Clays Pond Area (610 acres), Oak Hill/Round Pond (60 acres), Jockey Cap (10 acres), and East Brownfield Barrens (82 acres). Widoff describes the four as "mostly intact and natural," but unfortunately part of Clays Pond has been subjected to strip cutting to "improve" wildlife habitat. The East Brownfield barrens, which has a multilayered structure, appears to be the least disrupted of the three large segments. Pitch Pine and Gray Birch make up the overstory. Scrub Oak appears in the heath-sedge-lichen openings. A few Red Maple, White Pine, and Black Cherry are also present. The shrub layer is composed of Witherod and typical heath shrubs. Wintergreen and bracken fern are common in the herbaceous layer. The only apparent disruption is a snowmobile trail across the area. East Brownfield is at some distance from the other three sites, but is related to them geologically. The complex as a whole is 85% in public ownership (Maine Department of Inland Fisheries and Wildlife) and 15% in private (Widoff 1987).

#### Wassataquoik Stream Ecological Reserve, central Maine (Penobscot County)

Old-growth hardwood forest within the floodplain along the East Branch of the Penobscot River, in a 775-acre reserve. The floodplain forest extends for more than a mile. Near the stream, Silver Maple, some over 120 cm dbh (diameter at breast height), dominate. Green Ash, Silver Maple, and elm are regenerating in canopy gaps (Smith 2002; MNAP 2001).

#### Great Wass Island, eastern Maine (Washington County)

A 550-acre stand of Jack Pine in a 1500-acre preserve occupying the major part of Great Wass Island. The pine occur on bedrock outcrops, in some areas of deeper soil, and in a peatland. On the bedrock the pine are dwarfed, with growth rates as low as one inch in diameter per 40 years. Diameters in general range from less than one inch to 10 inches and trees reach only 20 feet in height. On the deeper soils, diameters range from 4 to 14 inches and trees are up to 35 feet tall. In the peatland diameters are 1 to 5 inches

and trees up to 15 feet tall. The pines are uneven-age, with trees on bedrock up to 110 years old and trees on deeper soil up to 126. The population includes many "dense stands of trees." Seedlings are fairly common in the peatland, scarcer elsewhere. The origin of the population is not known, but the area is "undisturbed." The Nature Conservancy owns the preserve (MCAP 1983b)

#### Schoodic Peninsula, Maine coast (Hancock County)

Several undisrupted populations of Jack Pine, the largest of which is some 300 acres on the east, south, and west flanks of Schoodic Head. This stand is 80% Jack Pine, with Red Spruce, Northern White-cedar, and Paper Birch. Tree heights range from only 4 to 6 feet on the summit to 40 feet at low elevations. Ages are up to 95 years. Growing conditions are difficult, since the glacial till soils are thin, and the sea brings storms and fog (MCAP 1983b)

#### Baldpate Mountain, western Maine (Oxford County)

Above 3000 feet, 332 acres of uncut Balsam Fir, averaging 60 years in age. Forest between 2700 feet and 3000 feet may also be undisrupted. Baldpate Mountain is within the Public Land Bureau's Mahoosuc Mountain Management Unit (MCAP 1986).

#### \*\*Big Wilson Stream Forest, north-central Maine (Piscataquis County)

A 360-acre old-growth forest, chiefly on the east side of Big Wilson Stream and adjacent to the National Park Service's Appalachian Trail Corridor. The forest, 215 acres of which are owned by Plum Creek Timber Company, has 295 acres of upland and 65 acres of floodplain. The upland portion is "an exemplary Spruce – Northern Hardwoods Forest Natural Community" with an understory dominated primarily by beech and a herbaceous flora characteristic of northern forests. The floodplain portion is a Hardwood River Terrace Forest, "a rare natural community type," with a mixture of hemlock and northern hardwood species, including Red Oak. The herbaceous layer is richer here than in the upland and includes "a wide variety of native ferns, grasses, and sedges." There are slight signs of past management of the uplands—"a few rotting cut stumps in several limited areas and a small pile of debris (rotting boards and tar paper), but the floodplain shows no signs of past management. In both portions of the forest, the larger trees are over two feet in diameter. Two cored Red Spruce are 263 and 195 years old respectively. The larger Sugar Maples and hemlocks may be as much as three hundred years old [Cameron 2008]. Roger Merchant, a forester with University of Maine Cooperative Extension, identified the forest as late successional and called it to the attention of the Maine Natural Areas Program, conservationists, and Plum Creek, which had planned to log it, but in mid-2008 removed it from its logging schedule [Merchant 2008].(Sept. 2008)

#### Yankeetuladi Hardwoods, northwestern Maine (Aroostook County)

Two hundred and forty acres of virgin Sugar Maple, American Beech, and Yellow Birch on a ridge 1200 feet in elevation. Scattered through the stand are big White Spruce and smaller Red Spruce, in addition to beech saplings and shrubs. The canopy covers 90% of the stand and averages 55 feet in height (MCAP 1983a, Selva 1993).

#### Acadia National Park, southern Maine coast (Hancock County)

A park of more than 46,000 acres on Mount Desert Island, Ile au Haut, and the Schoodic Peninsula, including the following old growth:

--Big Heath. A raised peatland of some 420 acres, of which more than 200 acres have "low and tall tree cover." Forest appears on the edges of the peatland, on most of the northern area, and on tree islands in the open southern portion. Scattered Common Juniper grow on the open peatland. The site is "in completely natural condition."

--Bernard Mountain Red Spruce. Twenty to thirty acres of old-growth Red Spruce, amid which grow Yellow Birch, Red Maple, Balsam Fir, and Paper Birch. The stand is on "exposed ridges and protected notches," on the southeast-facing, upper slope of the mountain. The elevation is between 700 and 1050 feet. Average age of the spruce is 150 years, but trees over 200 years old are present. The stand appears to have originated after a fire and never been cut. However, winds have toppled many trees (Cogbill 1993a, MCAP 1983a).

--Hunter's Brook Old Growth. The brook is lined for more than a mile with a forest of mixed composition, including Eastern Hemlock, Red Spruce, White Ash, and Yellow Birch. The stand supports much Lungwort (Wessels 2001).

--Dwarf Pitch Pine. The granite summits of Mount Desert Island support some dwarf Pitch Pine communities (Wessels 1999).

#### Nahmakanta Ecological Reserve (Piscataquis County)

A "large," fire-origin "red pine woodland" within an 11,082-acre reserve (Publicover 2002, MNAP 2001). The woodland has never been logged, and pockets of trees survived the fire (Smith 2002). Despite its classification, the woodland is dominated by White Pine. It has less than 25% tree cover, with an understory of heath shrubs. David Publicover writes that the Nahmakanta area has other "exemplary post-burn stands," but that they are outside the ecological reserve (2002). The reserve consists of two areas that are separated by the Appalachian Trail corridor. A mixed hardwood-conifer forest with the rank of "A" and a spruce slope forest with the rank of "AB" are partly within the reserve and partly within the Appalachian Trail corridor, where the National Park Service protects them (MNAP 2001). The reserve was purchased by the state under the Land for Maine's Future program (Smith 2002).

#### Kelley Point Peatland Complex, east-central Maine (Washington County)

Two hundred and fifty acres of "undisturbed" coastal plateau bog. A mosaic of peatland types: wooded, semi-wooded, thicket, and open, extends eastward from the plateau to tidewater. Waters descending from the plateau pass through one of several drainage ways, including Tamarack fens and other wooded fens (Worley 1980).

#### Musquacook Hardwoods, northwestern Maine (Aroostook County)

A 125-acre, uncut ridge, dominated by Sugar Maple and American Beech. Yellow Birch, apparently dying back, and fir are found throughout the stand; and Red Spruce and Red Maple are also present. The canopy is 60 feet high, and covers 90% of the area. The basal area of 27.3 square meters per hectare is the greatest for hardwood stands in the region. The stand illustrates the dynamics of hardwood forests, as it appears to have two even-aged components, about 115 years and about 200 years of age.

Apparently one part of the stand suffered a natural blowdown about 115 years ago; the older section may have grown up after a fire (MCAP 1983a, Selva 1993).

#### Great Cranberry Isle Heath, in the Cranberry Isles (Hancock County)

A raised peatland on about half the southwest corner of Cranberry Isle, with Common Juniper in the central sphagnum communities and Black Spruce islands scattered through the varied plateau areas. Trees on the islands are usually yellow from scarcity of nutrients and usually less than three feet in height, although some islands have trees six to eight feet tall. The site covers approximately 215 acres, of which 150 or more are open. It is "in excellent natural condition" (Worley 1980).

#### Hafey Hardwoods, northwestern Maine (Aroostook County)

One hundred acres of apparently uncut, predominantly small American Beech and large Sugar Maples (16 to 21 inches dbh [diameter at breast height]) on a ridge 1300 feet in elevation. The trees are more than 275 years old (MCAP 1983a)

#### Turtle Island Preserve, east-central Maine (Hancock County)

Some 90 acres of possibly virgin spruce-fir forest within a 136-acre island preserve. The remaining one third of the island was clearcut in the early 1960s. A local environmentalist, shocked at the lumbering, interested The Nature Conservancy in purchasing the island while much of the forest remained intact. According to core samples, the spruce and fir are at least 150 years old. A colony of Great Blue Heron and, from time to time, Osprey, inhabit the forest (Lannon [n.d.]).

#### T13 R11 (Dry Town) Old-Growth Spruce Forest, northern Maine (Aroostook County)

Old-growth spruce-fir and northern hardwood stands. The spruce-fir stand, which is dominated by Red Spruce, is in a flat, shallow saddle, 1400+ feet in elevation, between two ridge tops. The hardwoods are on the western ridge. The spruce-fir forest and the hardwood forest are each approximately 50 acres in size (Cogbill 1993a). The area has not been disrupted except for the cutting of White Pine in the 1860s. Whether White Pine was cut from the old-growth stands themselves is unclear. The spruce are of various ages up to 190 years and are reproducing. Hobble Bush, Stiff Clubmoss, and Snowberry form the ground cover in this stand (MCAP 1983a).

#### Gero Island Ecological Reserve, northern Maine (Piscataquis County)

Seventy acres of old-growth White Pine in the northeastern section of Gero Island, a 3175-acre reserve. The pines tower over Red Spruce and fir, which form the lower level of the two-story stand. The pines are 150 to 200 years old, 100 feet to 120 feet tall, and up to 38 inches dbh (MCAP 1983a, MNAP 2001). According to the Critical Areas Program, Gero Island was one of the few areas of the state where White Pine was "maintained in its natural presettlement condition" (MCAP 1983a).

#### Scraggly Lake Hemlock, northern Maine (Penobscot County)

A 65-acre mixed forest of conifers and hardwoods. Eastern Hemlock comprises 45% of the canopy. Red Spruce and Sugar Maple are next in importance. Red Spruce, American Beech, Eastern Hophornbeam, and Balsam Fir comprise the understory. The

hemlock range in dbh from 16 to 36 inches. The oldest hemlock without heart rot on which researchers did a tree ring count in 1976 was 243 years old. Striped Maple is common in the shrub layer in certain areas. Needles replace herbaceous species as ground cover in sections dominated by hemlock. Herbaceous species elsewhere include Goldthread, several trillium species, Partridge-Berry, and Corn Lily. As of 1986 the stand showed no evidence of disturbance, but had few hemlock seedlings. The site is owned by the state, and the Bureau of Public Lands has named it an old-growth preserve (Pinette and Rowe 1987).

#### Hedgehog Mountain, northern Maine (Aroostook County)

About 50 acres of northern hardwoods. Steve Selva, who studied the area says that, according to the lichens at the site, it is old growth. He suspects that the site may have been a sugar bush at one time, but saw no evidence of cutting (Selva 1993).

#### Mooseleuk Mountain, in north-central Maine (Piscataquis County)

Thirty-three acres of uncut Red Spruce on the steep east slope of Mooseleuk Mountain above 2000 feet in elevation, plus 20 to 30 additional acres of uncut forest on the south and southwest sides of the mountain. Pinette and Rowe do not make clear whether they are writing of one or two stands and do not describe the old growth on the south and southwest. The Spruce Budworm has killed most of the Balsam Fir that was in the east-slope stand; Yellow Birch and Paper Birch are still scattered through it. Most of the Red Spruce are 100 to 150 years old; spruce and fir seedlings abound. Pinette and Rowe visited the site in 1986 (Pinette and Rowe, 1987).

In 1980 John Grena found an estimated 200 acres of uncut spruce-fir forest on Mooseleuk Mountain at what he described as an elevation of 1500 to 2000 feet. He recommended further study of the site (MCAP 1983a). Whether the two visits were to the same stand is not clear.

Charles Cogbill suggests that the Mooseleuk Mountain site is less interesting than a site like Sugarloaf Mountain-Burnt Hill, because the trees are relatively young, albeit through natural causes. Maine has "hundreds of other sites" like Mooseleuk, he says (1993a).

#### Eagle Lake Stand, on the east shore of Eagle Lake, northern Maine (Piscataquis County)

More than 50 acres of old-growth White Pine, up to 130 feet tall. Under the pine are mature spruce and fir. The stand probably grew up after a windthrow. As of 1978, part was in the Allagash Waterway; part was privately owned (Conkling 1978).

#### Elephant Mountain, west-central Maine (Franklin County)

Old-growth Red Spruce-Balsam Fir in the saddle between Old Blue Mountain and Elephant Mountain. Acreage estimates vary. Cogbill considers the old growth to be limited to 50 to 100 acres, although estimates go as high as several hundred acres (Cogbill 1993a). The old-growth spruce grow on both sides of the Appalachian Trail. As a result, the National Park Service owns part of the stand (Cogbill 1993a). The 30 acres of old-growth spruce-fir first identified at this location are an uneven-aged climax stand. Spruce and fir are both regenerating, but fir predominates among the seedlings. The

oldest spruce is 310 years of age or older. Average dbh of the spruce is 19 inches; the largest, 28 inches (MCAP 1983a).

#### Southwest Branch--North--White Cedar, west-central Maine (Somerset County)

Forty-five acres of Northern White-cedar mixed with a few Black Spruce and Balsam Fir, at the edge of a bog. The trees are of various ages. Most trees cored by Pinette and Rowe were 100 to 150 years old, but the oldest was 223. The trees were as tall as 60 feet with dbhs of 25 inches. The south end of the stand, where the larger trees were located, was selectively logged about 1976.

In the same general area is a 35-acre stand, Southwest Branch--South--White Cedar, of Northern White-cedar (93%), Black Spruce (6%), and Balsam Fir (1%) with no signs of disturbance (Pinette and Rowe 1987).

#### Duck Lake Ecological Reserve (Hancock County)

A thirty or forty acre stand of Red Pine and White Pine within the 3870-acre Duck Lake Reserve. Most of the stand escaped logging, because the area was remote in relation to roads and the pattern of ownership. A Native American portage trail linking two river systems crosses the stand. The Reserve is almost completely forested and, like Maine's other Ecological Reserves, is owned by the state (Smith 2002).

#### Mark Island Preserve, Penobscot Bay (Knox County)

An undisturbed hardwood forest and an outer ring of spruce and fir that together cover a 36-acre island. Dominant hardwoods are Sugar Maple, Yellow Birch, American Beech, and Northern Red Oak. In the understory are baneberry, Canada Yew, and Alternate-leaf Dogwood, among other species. Mark Island is the only island in Penobscot Bay with an extensive hardwood forest (Lannon [n.d.]).

#### East Plummer Island (Washington County)

A 10-acre oceanic island that appears never to have been "farmed or timbered." Red and White Spruce mingled with Yellow Birch and Mountain Ash cover the area. Near the middle of the island is a stand of ash. Because the weather is wet, ferns, mosses, and lichens abound (Lannon [n.d.]).

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