

NEW HAMPSHIRE

In the 1970s William Reiners and Gerald Lang studied the upper subalpine or fir zone in the White Mountains of New Hampshire. This zone extends from approximately 4000 feet to 4750 feet (from the upper limit of Red Spruce to treeline). They noted that "this vegetation affords an unusual opportunity for the study of natural stand dynamics because it is virtually untouched by logging" (1979). Due primarily to elevation and wind exposure and secondarily to such factors as hurricanes and avalanches, individual trees average only 50 years in age. Regeneration of a segment often begins before all the trees in the preceding generation have died. Tree species present are limited to Balsam Fir, Mountain Paper Birch, Red Spruce, Black Spruce, and Mountain Ash. Reiners and Lange state that "there is a high degree of similarity between the New Hampshire White Mountains, the White Mountains of Maine, the Green Mountains of Vermont, the Adirondack Mountains of New York, and upland areas of adjacent Canada" (1979). Unfortunately, the spruce-fir zone throughout the Appalachians and Adirondacks is being damaged by acid deposition and ozone pollution.

For a thesis at the University of New Hampshire, Lee Ellen Carbonneau identified and, in 1984, sampled 12 old-growth stands that showed no signs of cutting and were 10 or more acres in size. All had uneven-aged trees, and in each "the oldest cohort of trees was 150 years for hardwoods and spruce trees, and 200-250 for hemlocks" (1986). Her stands 40 or more acres in size and a 10-acre companion stand that she analyzed are included below. Carbonneau wrote that "undoubtedly there are other uncut stands remaining and many high altitude balsam fir stands will qualify as old-growth using [my] criteria" (1986). Dan Sperduto, Ecologist with the New Hampshire Natural Heritage Inventory, reported in 1993 that the Inventory was in the process of gathering information on potential old-growth sites. The Inventory would make the sites public, after it had determined whether they were indeed old growth.

The New Hampshire Inventory is financed only by funding designated for specific projects. Old growth has not been among the projects that have received financial support. Therefore, the staff has not been able to make as much headway on the inventory as Sperduto had hoped (Sperduto 2001). Also, because their time must be spent on the funded projects, they have been able to afford us only minimal assistance with revision of the survey.

The US Forest Service (USFS) is revising the management plan for White Mountain National Forest. In the spring of 2000 the agency received comments from the public as part of the scoping process. USFS has outlined for the public the conceptual basis of the alternatives that it is considering and, in late 2002, was developing the specifics of these alternatives. The agency hoped to release a draft management plan by the end of 2003 (Giles 2002). White Mountain National Forest is one of the few National Forests in which USFS is searching for and delineating old-growth stands.

The Lakes Region Conservation Trust has employed Rick Van de Poll of Antioch New England Graduate School to search for and delineate old growth on certain of its lands. The Trust hoped to continue to support old-growth research in 2003 (Curran 2002, LCRT 2003).

New Hampshire has three Pitch Pine/Bear Oak barrens: **Concord Pine Barren**, shrunk from 500 to 300 acres; **Nashua-Merrimack River Pine Barren**, 15 acres of a former 1000 acres; and **Ossipee Lake Pine Barren**, 2500 acres today but formerly 3500 acres. Ossipee is the only one of the three that is described as “intact.” Nevertheless, it is located in a landscape that would have been cut at least once in the mid- to late eighteenth century, was subject to at least three fires related to the arrival of the railroads in the early twentieth century, and has since been selectively logged (Anderson 1998). As of mid-2003, the Nature Conservancy owned 573 acres of the Ossipee Barren: 341 acres in its West Branch Pine Barrens Preserve, open to the public and 232 acres in its West Branch Pine Barrens (South) Preserve, closed to the public. In late 2002, The Conservancy purchased an additional 100 acres of barrens just north of Ossipee Lake (TNC Web 2002). The three barrens are subject to prescribed burns to the extent feasible in an attempt to prevent them from becoming White Pine-Northern Red Oak forest (Widoff 1987, Eckert 1993).

Swift Corwin, a consulting forester, told us that Black Gums up to 500 years old have been found in swampy areas (2002). Lionel Chute, coordinator of the Natural Heritage Inventory, to whom Corwin referred us, stated that he is familiar with small, old-growth tracts with Black Gum mostly on private land, but he did not follow up with any details (Chute 2002). An article in the *Concord Monitor*, in June 2000, describes a 700-year-old Black Gum in a swamp in Northwood in the southeastern part of the state (Strafford County). An estimated 300 Black Gum trees live in the swamp, “at least a dozen . . . more than 500 years old.” The author of the article describes the swamp as “undisturbed,” but does not say whether it completely escaped logging. In New England, Black Gum has not normally been cut for lumber (Graham 2000).

Sites identified as supporting or likely supporting small areas of old growth include: **Coolidge Point* (Carroll County)**: 37 acres (15 ha) of old-growth hemlock with Red Spruce within a tract owned by the Lakes Region Conservation Trust on the shore of Squam Lake (Van de Poll 2002); **Sheldrick Forest*** (Hillsborough County): about 20 acres of possible old growth within the 227-acre forest owned by The Nature Conservancy (Corwin 2002); **Red Hill*** (Carroll County): 9 acres (3.6 ha) of old growth northern hardwoods owned by the Lakes Region Conservation Trust on a mountain on which the Trust has protected a total of 2550 acres (Van de Poll 2002, Curran 2002); **Mount Cardigan*** (Grafton County): dwarf Pitch Pine on the north ridge of the 3121-foot-high mountain (Wessels 1999); **Hanover*** river shore (Grafton County): a strip of old growth on the banks of the Connecticut River that includes Eastern Hemlock, Sweet Birch, and “large and very old” White Pines and that is owned in part by Dartmouth College (Leverett 2001); **Stonedam and Five Mile Islands*** (Belknap County): pockets of possible old growth owned by the Lakes Region Conservation Trust on two small islands in Lake Winnepesaukee (Curran 2002).

WHITE MOUNTAIN NATIONAL FOREST

--**Great Gulf Wilderness** (Coos County). Extensive old growth including virgin forest within a 5552-acre Wilderness. The elevation varies from 1700 to 5800 feet. Approximately 1000 acres of the Wilderness are above tree line. The Wilderness supports some northern hardwoods; and the Maine Critical Areas Program, in a list of

New England old-growth sites, reports that old-growth hardwoods may be found along Great Gulf Trail in New Hampshire (1983). However, softwoods occupy most of the Wilderness. At medium elevations in the more remote areas are scattered virgin stands of Red Spruce and Balsam Fir, including Red Spruce-dominated stands along Adams Brook and Cascades Brook (Foster and Reiners 1983, MCAP 1983, Foster 1982). At higher elevations is fir forest, described as completely or partly undisturbed. Relaying the general view, the Maine Critical Areas Program wrote that "much of the subalpine area is short undisturbed fir forest" (MCAP 1983). Lyon and Bormann stated, "On the steep slopes of the ridges, and floors and headwalls of the ravines, all the forest is virgin but of reduced size" (1962). Cogbill pointed to the Wilderness as the site of old-growth softwoods (1993), and Foster went so far as to write that the Wilderness in its entirety consists of "virgin forests," much battered by natural disturbances (1982).

--**Presidential Range Dry River Wilderness** (Coos County). Possibly unlogged forest. Fred Kacprzyński of the White Mountain National Forest reports that this 27,380-acre Wilderness is alpine and very rough so may not all have been cut. In contrast, the 45,000-acre Pemigewasset Wilderness was the site of one of the largest railroad logging operations (Kacprzyński 1993).

--**Crawford Notch** (Coos County). An old-growth forest of 1650 acres that encompasses in whole or in part four watersheds: Gibbs Brook, Elephant Head Brook, Flume Cascade, and Silver Cascade (Foster 1982). Three vegetation zones cut across the watersheds: northern hardwood-spruce, subalpine spruce, and subalpine Balsam Fir (Foster and Reiners 1983). The watersheds of Gibbs Brook and Elephant Brook have been much studied, and Gibbs Brook has given its name to a 1600-acre (737 ha) Scenic Area and candidate Research Natural Area (RNA) site. Carbonneau sampled stands in 890 acres of Red Spruce-Balsam Fir (2300 feet to 4300 feet) and an adjacent 10 acres of Eastern Hemlock (2200 feet to 2300 feet) (1986).

Foster and Reiners describe the Crawford Notch old-growth site as unlogged (1983). However, Lyon and Bormann report that though "probably much of the area contains virgin forest," the land between the Gibbs Brook and Elephant Head Brook ravines appears to have been selectively cut. The Forest Supervisor told them that this area "was logged around the edges about 1890" (1962). In 2000, a USFS team studying the Gibbs Brook Scenic Area for suitability as a Research Natural Area determined that the Area would meet the goal of the RNA program to "preserve pristine habitats" and "maintain genetic diversity." They found a total of 102 species of vascular plants, three of them on the New Hampshire Rare Plant List, and numerous large trees, including Yellow Birch to 26.4 inch dbh (diameter at breast height), Red Spruce to 23.6 inch dbh, and Balsam Fir to 19.0 inch dbh (Fay 2002). Earlier, Foster found in Crawford Notch a Red Spruce 323 years old, Yellow Birch 261 years old, Paper Birch 187 years old, and Balsam Fir 150 years old (1982).

A portion of Crawford Notch's old growth is in Crawford Notch State Park rather than in White Mountain National Forest. The Park, which was established before the National Forest, lies between the Forest and US 302.

--**The Bowl** [Old Growth], within Sandwich Range Wilderness and partially within the Research Natural Area called The Bowl (Grafton County). Old growth covering the western side of a mountain valley. This side is generally believed to have suffered no disruptions (MCAP 1983, Lyon and Bormann 1962). Carbonneau analyzed

only hardwoods: 500 acres, at 1900 feet to 2500 feet in elevation (1986). The mountain, however, rises to around 4000 feet, and the vegetation clearly changes with elevation. As Carbonneau states, Sugar Maple, American Beech, and Yellow Birch dominate the gentle lower slopes. Between approximately 2500 and 3000 feet, Red Spruce is the dominant, sometimes occurring in pure stands. Above 3000 feet, Red Spruce and Balsam Fir share dominance (MCAP 1983, Lyon and Bormann, 1962).

The 510-acre Research Natural Area called The Bowl was established in 1937 to protect a portion of the old growth. The staff of White Mountain National Forest has since created a candidate RNA known as the Bowl Extension with about 925 additional acres of old growth (USDA 2001). The 925 acres are well protected, Stephen Fay of USFS reports (Fay 2002).

--**Nancy Brook** (Carroll and Grafton Counties). An unlogged forest dominated by Red Spruce and Balsam Fir within and adjacent to the 1385-acre Nancy Brook Research Natural Area. Carbonneau analyzed 1000 acres of old growth at an elevation of 2800 to 3900 feet (1986). The 2000 Monitoring Report for the White Mountain National Forest describes Nancy Brook as 2000 acres and states that the area "is believed to be the largest virgin mountain spruce-fir forest in New Hampshire and one of the few remaining large examples in the Northeast" (USDA 2001). According to Foster, Nancy Brook "boasts the finest example of virgin red spruce swamp flat forest in the White Mountains" (1982). Nancy Brook supports a documented total of 167 species of vascular plants and 29 species of mosses and liverworts (USDA 2001). Carbonneau found that Wood Sorrel was the most common species in the herbaceous layer of the New Hampshire spruce-fir stands that she studied. Additional elements were wood ferns, sphagnum moss and other mosses, lichens, and *Clintonia borealis* (1986).

--**Lafayette Brook Scenic Area**, in Franconia Notch (Grafton County). Small areas of old-growth hardwood and spruce-hardwood at the lower elevations and old-growth spruce-fir at the upper elevations, in a watershed that ranges from 1780 to 5249 feet in elevation (Pyles 1961). Carbonneau analyzed 62+ acres of hardwoods at 1900 to 2400 feet, and 15 acres of spruce-forest at 2000 to 2400 feet at Eagle Cliff (1986). Foster mentions a "fine virgin hemlock/spruce stand" in addition to an old-growth hardwood stand (1982). According to the Forest Service Order Establishing the Lafayette Brook Scenic Area, the entire upper half of the valley below tree line may be virgin, and Forest Service maps show approximately 75 acres of virgin spruce (Pyles 1961).

--**Mountain Pond North** (Carroll County). An old-growth northern hardwood stand that is a candidate for RNA status. Figures on the old growth vary. Leak characterized the area as containing 100 to 150 acres of old growth (1987); Fay, about 105 acres (Fay 2000). The 2000 Monitoring Report describes a site "of about 70 acres" (USDA 2001); but a USFS Region 9 list of actual and candidate RNAs says that the candidate is 300 acres in extent. Carbonneau analyzed 150 acres of old growth at 1600 to 1800 feet (1986). Sugar Maple and White Ash are up to 35" dbh (USDA 2001). By basal area, almost 80% of the stand is American Beech and Sugar Maple (Leak 1987). A smaller percentage of the area is in herbaceous cover than is the case for other stands Carbonneau studied, and Wood Sorrel and Canada Mayflower are absent. Carbonneau theorized that competition with large Sugar Maple seedlings may be the reason (1986). The January 1998 ice storm knocked over many of the trees. Candidate RNA status gives the stand informal protection. (Fay 2002).

--**Shingle Pond**, on the east slope of Kearsarge North Mountain (Carroll County). Old-growth mixed northern hardwoods and hemlock, at least 65 acres and probably considerably more. Forest types are Red Spruce-Balsam Fir, Sugar Maple-Yellow Birch-hemlock, Sugar Maple-beech, and hemlock. Red Spruce has been measured at 27" dbh, Yellow Birch at 29.2", White Ash at 31.8", hemlock at 37.5", and Sugar Maple at 38.4". An American Beech dates from 1773 and a Sugar Maple from 1775 (USDA 2001). Researchers have found 90 species of vascular plants; and, with one possible exception (*Hieracium* in the pit of a blowdown), no exotics. Shrubs and young trees, in particular Hobble Bush and Striped Maple, are growing vigorously in hardwood areas damaged in the 1998 ice storm (USDA 2000). Stephen Fay, a USFS ecologist and soil scientist, discovered the site (Fay 2000). The 2000 Monitoring Reports lists it as a "possible future RNA" (USDA 2001).

--**Mount Moosilauke** (Grafton County). Unlogged Balsam Fir forest between 3700 feet in elevation and tree line. Mount Jim and Mount Blue are two minor summits with old growth (Lambert et al. 1980, Lang et al. 1980).

--**Mount Stanton Cliff and Talus Area** (Carroll County). On talus, at an elevation of 700 to 1700 feet, a community that has probably never been logged. The talus has areas of large rocks and areas of gravel with soil. The drier portions of the latter support Northern Red Oak and Red Pine; the moister and richer portions, basswood and hophornbeam. Round-leaved Dogwood is common on the talus; and Harebell on the talus and adjacent cliffs. Eastern Red-cedar is scattered on the cliffs, which Lyon and Bormann described as the tree's northernmost known site in New Hampshire (1962). Talus and cliffs cover 250 acres. The woods below the talus are second growth (Lyon and Bormann 1962). Red Pine blew down some years ago, but only a narrow area along the river, not the old-growth area, was salvage cut (Leak 1993, Marx 1993).

--**Alpine Gardens Research Natural Area*** (Carroll County). A 300-acre arctic-alpine tundra community on the eastern shoulder of Mount Washington, between Huntington and Tuckerman Ravines, elevation 4750-5500 feet. The natural community includes "scattered pockets of krummholz and matted black spruce." The community supports 33 plant species that are on the state endangered, threatened, or rare list, four animal species on the state rare list, plus one plant that is a candidate for federal listing as endangered (USDA 2001).

Franconia Notch State Park (Grafton County)

--**Uncut Red Spruce-Balsam Fir forest** with some Paper Birch in "less accessible areas" above 2000 feet (Perry and Perry 1990). As in Crawford Notch, the state park is located on both sides of the highway, next to White Mountain National Forest.

--**Cannon Mountain**. Dwarf forest in gullies on the talus and possibly also on the cliffs on a slope of Cannon Mountain at an elevation of 2000 to 2500 feet. The forest is presumably unharvested, because of its location and character. The talus supports dwarf Mountain Maple, Pin Cherry, and Paper Birch. Beneath these trees are Red Baneberry, Purple Trillium, and currant. Lyon and Bormann do not mention trees on the adjacent cliffs, and describe the talus and cliffs as covering 320 acres (1962). Miner

characterizes 400 acres of cliff and talus as supporting old-growth Red Spruce, Balsam Fir, and Mountain Paper Birch (1993).

--**Charcoal Hearth.** Seventy-four acres of old-growth hardwoods at 1600 to 2000 feet. As in most of the other hardwood stands, the principal species in the herbaceous layer are Wood Sorrel, Mountain Aster, Shining Clubmoss, Wild Sarsparilla, wood ferns, and mosses (Carbonneau 1986).

Pisgah Forest, southwestern New Hampshire (Cheshire County)

Unlogged old-growth stands, scattered over a 5000-acre area, severely disturbed by the 1938 hurricane. Communities before the hurricane were pine-birch-hemlock, pine-hemlock-oak, pine-hemlock-hardwood, hemlock-hardwood, chestnut-birch (the chestnut trees were dead), and beech-Sugar Maple-Sweet Birch. Most of the old-growth patches are owned by the state and are in the 13,066-acre Pisgah State Park; but the Pisgah Tract of Harvard State Forest, a 25-acre tract within the park's boundaries, has been owned by Harvard University since 1927. The University obtained the site to protect it as a contiguous stand of high-quality old growth. Before the 1938 hurricane Harvard's Pisgah Tract was composed principally of Eastern Hemlock (50 to 60% of stems and basal area) and White Pine (40% of basal area) with some Sweet Birch, Red Maple, and Northern Red Oak. Now Eastern Hemlock have greatly decreased in number; White Pine have almost disappeared; and Sweet Birch, Paper Birch, and Pin Cherry have increased greatly in relative density (Foster 1988, O'Keefe 1993).

Norton Pool, in northeastern New Hampshire (Coos County)

A 427-acre virgin Red Spruce-Balsam Fir forest that belongs to The Nature Conservancy. The Spruce Budworm destroyed most of the fir trees in the mid- to late-1980s, but the forest is recovering (Hoose 1988, Benson 2002). The tract is believed to be the state's only "low-elevation, first-growth spruce-fir forest" (Hoose 1988).

Nash Stream Forest, northern New Hampshire (Coos County)

Old-growth hardwoods of uncertain extent within the 40,000-acre property. Tom Miner of the New Hampshire Bureau of Forestry reported in 1993 that upper Sugar Loaf Mountain had several hundred acres of old-growth northern hardwoods and that this was the only old-growth hardwood stand in the forest. On the other hand, Bob McGregor, the forester for Nash Stream Forest, told us ten years later that the only old-growth hardwoods with which he was acquainted were on Fitch Mountain (Number Three Mountain) in the northwestern corner of the property. McGregor thinks that the high-elevation spruce-fir forest was logged (2003). Nash Stream Forest was acquired through a joint effort in which the state of New Hampshire, the federal government, and the Trust for New Hampshire Lands participated. The state now owns Nash Stream Forest and the state's Bureau of Forestry manages it; but the US government holds a conservation easement, which White Mountain National Forest officials administer (Miner 2003).

Vickie A. Bunnell Preserve,* in Stratford, northern New Hampshire (Coos County)

Three hundred and fifty acres of old growth dominated by Red Spruce-Balsam Fir-Mountain Ash montane forest (formerly known as the Bean Tract), within a preserve

of approximately 11,000 acres. Many of the canopy trees are more than 200 years old, and some Red Spruce are more than 250 years old. Red Spruce, Balsam Fir, White Birch, and Yellow Birch reach two feet in diameter and almost 80 feet in height. Mountain Ash, usually only a tall shrub in New Hampshire, grows up to the canopy and attains 14-inch diameters. Seeps interspersed in the old growth converge to form the headwaters of West Branch Brook. The Nature Conservancy acquired the 350 acres in 2001, with help from Sweet Water Trust. They lie between and link the Bunnell Tract (the portion of the Bunnell Preserve that TNC previously owned) and Nash Stream State Forest (Benson 2002).

Ossipee Mountain Preserve,* in Tamworth, east-central New Hampshire (Carroll County)

Within and adjacent to the preserve, 160 acres (65 ha) of old-growth northern hardwoods-hemlock and hemlock-spruce-northern hardwoods, and, on what is known as the Sanger Lot, Red Pine. The understory is spruce-fir, northern hardwoods, Striped Maple, and hemlock, with, on the Sanger Lot, heath. The soils are Marlow stony and, on the Sanger Lot, Lyman rock outcrop; the slope is 0-45%. The only known direct human disruption has been light timbering on the upper elevations. Natural disturbances have included periodic floods, ice storms, and, on the Sanger Lot in 1874, fire. The oldest trees are 200-450 years old except on the Sanger Lot where they postdate the fire. The preserve is owned by the Lakes Region Conservation Trust, which is protecting it as “forever wild.” A family owns the old growth on land adjacent to the preserve (Van de Poll 2002, Curran 2002).

Harris Center Woods,* southwestern New Hampshire (Hillsborough County)

Some 100 acres of mature hemlock-northern hardwoods forest in pockets of soil among rocks and boulders within a 500-acre block of woods that belongs to the non-profit Harris Center for Conservation Education. The forest includes occasional large American Beech, Sugar Maple, and Eastern Hemlock; but the beech are suffering from beech bark disease. Neither the condition of the forest nor the historical record indicates logging; and the terrain suggests that logging did not take place. Nevertheless, a few small areas were cleared for pasture. The 1938 hurricane felled trees (Ferguson 1993, Cadot 1993).

Peirce Reservation* in Stoddard, southwestern New Hampshire (Cheshire County)

Seventy-seven acres (31 ha) of possible old growth within a 3576-acre reservation. The remains of a barbed wire fence on the site suggest that it may have been at least grazed, but no other signs of direct human disruption have been noted (Chute 2002). The cover type is northern hardwoods and northern hardwoods-Red Oak and the understory is northern hardwoods, Striped Maple, and Red Spruce. Soils are Berkshire and Monadnock with many boulders; the slope, 0-40%. Natural disturbances include a fire around 1818, a blow down of 15% of the area in the 1938 hurricane, and ice damage. The average age of the oldest trees is approximately 225-250 years (Van de Poll 2002). The Society of New Hampshire Forests, which owns the reservation, foresees making the 77 acres part of a much larger designated natural area (Alderman 2002).

Big Pines Natural Area, in Hemenway State Forest. east-central New Hampshire (Carroll County)

Old-growth White Pine intermingled with Eastern Hemlock and other species, within a 125-acre natural area. Leak characterizes the area as including trees over 200 years old; the Perrys write of 150-year-old trees, including White Pine 42 inches in diameter (1990). Carbonneau did not analyze the area, because she found that it had an "absence of wide ranges of tree sizes and ages" (1986).

Louis B. Thacher Memorial Forest, southwestern New Hampshire (Hillsborough County)

Five acres of virgin White Pine and 87 acres of selectively cut forest. The forest belongs to the New England Forestry Foundation (Kershner 1990). Carbonneau did not analyze it, because of an "absence of wide ranges of tree sizes and ages" (1986).

Heath Pond Bog, east-central New Hampshire (Carroll County)

A "thoroughly natural" open peat bog with a small pond near one edge. Ericaceous shrubs dominate the bog, chiefly Leatherleaf, Rhodora, and Sheep Laurel. Scattered through the bog are small Tamarack and Black Spruce, and an occasional small White Pine. Sphagnum moss and sedges form the ground layer. As of 1962, there were no signs of cutting. The state owns the bog, which Lyon and Bormann characterize as 70 acres in size (1962), and Miner as 240 acres (1993).

Thurston Williams Family Forest, southwestern New Hampshire (Cheshire County)

Two old-growth areas within a 379-acre forest, owned by the Society for the Protection of New Hampshire Forests. In the larger, 51-acre area, the trees are primarily Yellow Birch, Sugar Maple, and White Ash, with dbhs between 36 inches and 44 inches (Jones 1993). To the Society's knowledge, the 50 acres have not been cut; and, if they were cut, only softwoods were taken. The smaller area is five acres of old-growth hemlock, which Carbonneau sampled (1986). The Society, whose primary mission is to protect forest land, owns 132 tracts totaling 34,319 acres. They manage most of the tracts, but set aside 25% of what they own as natural areas (Jones 1993; Alderman 2002).

Mount Sunapee State Park,* southeastern New Hampshire, (Merrimack County)

Potential old growth composed of northern hardwood/Red Spruce forest with hemlock, Red Spruce or Sugar Maple/White Ash/basswood dominated inclusions on the upper slopes north and east of Mount Sunapee's ridge line. Ski trails now bisect portions of the forest, one notable exception being the 175-acre East Bowl composed of Yellow Birch/Sugar Maple with super-canopy Red Spruce. Red Spruce have been aged to 254 years; and Yellow Birch to 288 years. The ridge-line forest of Red Spruce/Balsam Fir has never been cut, according to Chris Kane, who rediscovered the site in 1997 and furnished the preceding description (Kane 2002). The New Hampshire Natural Heritage visited Mount Sunapee in the fall of 2002 to gather data in order to determine whether the forest is actually old growth. Dan Sperduto tells us that the staff found "older growth" there, and, in June 2003, was in the process of comparing it to other sites in the state in preparation for issuing a report (Sperduto 2003). Philip Ayres in his 1915 Manual of Mount Sunapee, published by the Sunapee branch of the Society for the Protection of

New Hampshire Forests, relates that conservationists prevented the logging of the forest in the early 1900s. The Society acquired much of the land and deeded it to the state in the 1950s (Kane 2002). In 1999 the state of New Hampshire leased a ski area on the mountain, previously managed by the state, to a private company. Concerned citizens created a Mount Sunapee Preservation Committee to monitor the lease, including any impact on potential old growth near the ski area (Crabtree 1999).

Mount Misery Ledges and Deciduous Forest, southeastern New Hampshire (Strafford County)

Old-growth forest on ledges and on a talus slope at 300 to 500 feet on Mount Misery. Oaks of various species occur on the dry ledge rim. The talus slope supports more varied hardwoods: Shagbark Hickory, American Basswood, White Ash, Eastern Hophornbeam, Sugar Birch, Sweet Birch, and Yellow Birch. Lyon and Bormann speculated that the tract was never cleared and that the forest is "probably the closest approach to a virgin hardwood stand in southeastern New Hampshire" (1962).

Pitch Pine Natural Area, in White Lake State Park, east-central New Hampshire (Carroll County)

A stand of old-growth Pitch Pine, under which Bear Oak are growing up, due to lack of fire. Lyon and Bormann described the site as 31 acres (1962); but the Natural Area is 70 acres in size (Miner 1993).

Castle in the Clouds/Ossipee Park,* eastern New Hampshire (Carroll County)

Within the 5400-acre tract on the eastern slope of the Ossipees, two old-growth stands with a total of 74-86 acres (30-35 ha) of old growth, plus additional stands. Rick Van De Poll was in the process of mapping the old growth on the tract in 2002 when he last communicated with us (Van De Poll 2002). In mid-2003 the Lakes Region Conservation Trust, on whose behalf Van De Poll was studying the old growth, was raising the final payment on the tract, which it is purchasing from a private owner (LRCT 2003).

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