

NEW JERSEY

Tom Breden, Coordinator/Ecologist with the New Jersey Natural Heritage Program, reports that the program has not made a concerted effort to identify all the old growth in New Jersey. They have put more emphasis on endangered species and their habitat (2002). The state may, however, have a fair number of old and mature forest patches, including small tracts with trees over 100 years old, he pointed out in 1990. To date, only three sizable, largely uncut and ungrazed sites have been delineated, and they are not in the Pine Barrens, the area most familiar to people outside the state.

The Pine Barrens has “nothing that fits into the primeval category,” Breden says, because of both natural and anthropogenic disturbances. Natural fire is common in the Pine Barrens; and people have exploited the area’s resources (Breden 1990). As the New York-New Jersey Trails Conference puts it, “First to move in were the loggers, who cut clean. Pine and cedar lumber moved steadily to shipyards and nearby towns for years before, during, and after the Revolution” (NY-NJTC 1984). Charcoal production and iron ore mining were two local industries for which trees were cut. Southern New Jersey once had extensive Atlantic White-cedar swamps, but the trees were valuable as timber, and now only pockets remain (Breden 1990).

Independent researchers Bruce Kershner and Robert Leverett have recently identified a number of small old-growth sites in New Jersey. In several of them hemlock plays a major role (Kershner and Leverett 2002). Unfortunately the hemlock sites do not appear to be destined to remain intact for long. New Jersey is severely impacted by the Hemlock Woolly Adelgid, which reportedly has infected ninety percent of the state’s hemlocks in only eleven years. Dan Palmer, a researcher with the New Jersey Department of Agriculture, has been quoted as saying, “The groves are considered to be doomed. If we find a control measure, at least we can reforest.” His laboratory has sent the beetle *Pseudotsugus tsugae*, which preys on the adelgid, to selected sites in New Jersey in a pilot eradication program (Associated Press 2002, Breden 2002). Both the Hemlock Woolly Adelgid and its intended beetle predator are exotic species, belonging in Japan.

Small areas of old growth include **Tillman Ravine Natural Area*** in Stokes State Forest (Sussex County): a 25-acre selectively cut hemlock-mixed hardwood forest in a ravine within a 500-acre Natural Area (Kershner and Leverett 2002, Stern 2002); **Bull’s Island (Cook) Natural Area*** within Bull’s Island Recreation Area, in turn within Delaware and Raritan Canal State Park (Hunterdon County): 24 acres of probable old-growth floodplain forest comprising the Natural Area (Kershner and Leverett 2002; Williams 2002); **Valhalla Hemlock Glen** (Essex County): a 30-acre preserve with unlogged hemlock along a stream and gorge and a mixed oak woods, owned by Montclair State College; **Greenbrook Sanctuary*** (Bergen County): 10 acres of possible old growth within a second-growth forest near the rim of the Palisades, owned by the Palisades Nature Association (Kershner and Leverett 2002); **Laurel Pond*** in Wawayanda Swamp Natural Area in Wawayanda State Park (Sussex County): an “essentially virgin” hemlock stand of perhaps 5 acres (Kershner and Leverett 2002, Foley 2002). We print descriptions of two other sites of less than 40 acres below, as well as of larger sites.

Delaware Water Gap National Recreation Area,* northwestern New Jersey (Warren County)

Undetermined acreage of Eastern Hemlock, pine, and Sweet Birch on cliffs that tower above the Delaware River. The trees are 150-300 years old (Kershner 2002). Hemlock in the area have been particularly hard hit by the Hemlock Woolly Adelgid, and *P. tsugae* beetles have been sent to the Water Gap in hopes of stemming the loss of hemlock.

Bear Swamp West, southwestern New Jersey (Cumberland County)

A hundred acres of old-growth broadleaf swamp forest within Bear Swamp West. Dominant trees are Black Gum, Sweetgum, Red Maple, and Sweetbay Magnolia. The Black Gum are up to four feet in diameter and, according to Kerschner, are 400 to 600 or more years old; the Sweetgum, up to four feet in diameter and 300 years old. Many of the Red Maple are more than four feet in diameter. Other trees include American Beech, Swamp White Oak, and American Holly, the last with trees 22 inches in diameter and 80 feet tall (Kershner 2002). A three-layered structure of woody plants--closed canopy (A), semi-closed canopy (B), and shrub and small trees (C)--is among the indications that the forest “has never been cut, or at most that it has been cut only minimally and selectively” (Heckscher 1994).

**As of January 2005 the Natural Lands Trust owned about 350 acres of Bear Swamp including approximately one-fifth of the old growth. In 2005 the Natural Lands Trust acquired from U.S. Silica Co. 800 acres of Bear Swamp West, including the balance of the old growth. The Natural Lands Trust’s acquisition of the 800 acres was a part of a total purchase of 1550 acres. The trust has added the swamp to the adjacent Glades Wildlife Refuge. Two other areas, totaling 253 acres that were part of the purchase, have also been added to this refuge, which encompasses some 6000 acres of tidal marshes, wooded uplands, and beaches along Delaware Bay. Funding for the purchase was provided by the New Jersey Department of Environmental Protection’s Green Acres program, The William Penn Foundation, and the North American Wetlands Conservation Act program (Natural Lands Trust 2005, Urgo 2005). [Updated 12/24/05]

Bear Swamp East, in Belle Plain State Forest, southwestern New Jersey (Cumberland County)

Within the 1438-acre Bear Swamp East, 115 acres of old-growth broadleaf swamp forest dominated by Black Gum, Sweetbay Magnolia, and Red Maple. Bear Swamp East, which is part of a 15,660-acre state forest, is separated from Bear Swamp West only by gravel mines and roads but it is wetter than Bear Swamp West (Breden 1990, 1993, Lawrence 2002). The vegetation is similar except that Bear Swamp East includes large Tulip Trees, scattered about the swamp on hummocks. The trees are up to five feet in diameter and 300 to 400 years of age. Only one Tulip Tree had been found at Bear Swamp West as of 1994. Before the advent of the Gypsy Moth, Bear Swamp East had larger Swamp Chestnut Oak than did Bear Swamp West. In both areas mortality among the species has been high (Heckscher 1994). Bald Eagles nest at Bear Swamp East (Kershner 2002, Heckscher 2002).

William L. Hutcheson Memorial Forest, formerly known as Mettler Woods, east-central New Jersey (Middlesex County)

A 65-acre tract of mixed oak forest, surrounded by 173 acres of abandoned fields, young woods, and research plots. The mixed oak forest and the surrounding land comprise the Hutcheson Memorial Forest Center. The oak forest "has been uncut since 1790" (Johnson 1990). The canopy is dominated by White Oak, Black Oak, and Northern Red Oak, with some trees almost 400 years of age. American Beech, White Ash, Shagbark Hickory, and Pignut Hickory are also present. A 1950 storm, by felling many large trees, accelerated the growth of the dogwood and oak understory, now more than 40 feet tall (Johnson 1990, Breden 1993). The forest is owned by Rutgers University, and is open for scheduled tours on Sundays. Contact Dr. Edmund Stiles, J. B. Smith Hall, Rutgers University, New Brunswick, NJ 08901 for information.

Kershner writes that the forest is suffering because alien invasive plants such as multiflora rose and honeysuckle are spreading in openings created by trees that have blown down after storms. Growth of tree seedlings is coming to a halt. The policy of Rutgers University is "to allow only natural process to occur." "If nothing is done to control the invasives, the future of the forest is in doubt," Kershner points out (2002). The director of the forest confirmed that the university has a hands off policy as regards the old growth (Stiles 2002)

Great Cedar Swamp, southern New Jersey (Cape May County)

Possibly isolated patches of old growth. Probably at one time the area was an Atlantic White-cedar swamp, the bulk of which was cut and converted to hardwood forest. Most of the cutting was clearcutting, but some small patches of cedar swamp remain. In addition, the swamp has hardwood areas that have not been cut for 200 or 300 years, in particular two patches of Red Maple-Sweetgum forest, 100 acres each in size (Windisch 1993). The US Fish and Wildlife Service has acquired approximately 5500 acres of Great Cedar Swamp for the Cape May National Wildlife Refuge, which currently totals some 11,000 acres. The agency is working to acquire land within the swamp that is still privately owned although within the proclamation boundary of the refuge. It has not done any logging on the land in the swamp that it has acquired (Schlegel 2002).

High Point State Park, northwestern New Jersey (Sussex County)

Pitch Pine-scrub oak communities on ridge tops within and without the 10,935-acre park in the Kittatinny Mountains. Windisch says that the ridge top forest was probably not logged, because it would have been without commercial value; but he does not consider it old growth, since severe growing conditions cause the trees to die young (1993). Whether or not the forest can be called undisrupted by Euro-Americans is, in any case, debatable, because it burned, and the fires were sometimes caused by logging operations elsewhere. The bigger Pitch Pine are about 70 years old and have dbhs of 8 to 10 inches. Pine comprises 76% of the open tree layer, with Red Maple, Gray Birch, Smooth and Downy Serviceberry, and Sweet Birch also present. The canopy is only about 18 to 20 feet high. Under it is Bear Oak and below that heaths and a sparse herbaceous layer (Niering 1953). According to Kershner, the **Dryden Kuser State Natural Area*** within the park probably has old-growth Atlantic White Cedar, which would be one of the only old-growth occurrence of that species in the world (2002).

Frank G. Helyar Woods,* in East Brunswick (Middlesex County)

Likely mixed hardwood old growth within a 41-acre woods. Kershner and Leverett write of “a 30-acre ancient forest” (2002). Whether the entire 30 acres is unlogged is unclear. A brochure on the nature trail through Helyar Woods, printed by Rutgers University, owner of the woods, suggests that “an example of an uncut virgin forest” occupies less than half the acreage (Rutgers [nd]). The director of Hutcheson Memorial Forest, when asked about Helyar Woods, said that it has many old trees but that its history is unknown. Therefore the university does not know whether it is old growth (Stiles 2002). The woods supports twenty-three tree species with oaks—White, Black, Northern Red, Scarlet, and Swamp White—dominating (Kershner and Leverett 2002). It adjoins Rutgers Gardens, a series of botanical collections arranged in garden settings and spread over 50 acres (Rutgers 2002).

MacArthur Woods* (also known as Saddlers Woods), in Haddon Township, six miles from downtown Philadelphia and three from Camden (Camden County)

A thirty acre woods that includes old growth. State forester Dave Johnson measured seven of the larger trees in the old growth. The youngest of the seven was a 178-year-old Black Oak with a circumference of almost 12 feet; and the oldest, a 298-year-old American Beech with a circumference of 13 feet (Graham 2002). Additional tree species include Tulip Tree; Chestnut, White, and Northern Red Oak; and Red Maple (Kershner 2002). Spicebush and other native species are in the understory (Largess, 2002).

The thirty acres are divided into three tracts, each with a different owner. Haddonview Associates owns the northern 4.4 acres. The Associates would like the forest to be preserved. The Diocese of Camden owns the southern 10.5 acres. According to the Township, the Diocese has refused to sell a portion of its holding to the Township for purposes of preservation and has threatened to build athletic fields on the land. The Township of Haddon owns the central 15.3 acres. It is planning to clearcut six of them to make space for athletic fields (Dill, 2002). The portion that would be cut is young, but is needed as a buffer for the old growth (Kershner 2002, June 10). As of September 2002, the outlook for the old growth was uncertain, all the more so because the woods are surrounded by schools, shopping centers, a water tower, and high-rise apartments (Largess 2002).

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