Case Study: New Jersey Pine Barrens

With more than one million acres, the New Jersey Pine Barrens provides many unique places for residents and visitors alike to explore and enjoy. Located in the Atlantic Coastal Plain within the southeastern portion of the state, the New Jersey Pine Barrens is the largest open space on the eastern seaboard between Boston, Massachusetts, and Richmond, Virginia. As early as 1895, people were recommending that this unique area be protected for its water resources, recreational opportunities, natural beauty, forestry, and scientific importance.

The human history of the New Jersey Pine Barrens is tied to use of the region's abundant natural resources. It is believed that the earliest residents of the Pine Barrens, the Lenape Indians, arrived after the last glacier left New Jersey—about 12,000 years ago. The glaciers reached just north of the Pine Barrens, and the melted glaciers covered the sand and gravel of the Coastal Plain. When Europeans arrived in the mid-17th century, the Native Americans whom they encountered lived a foraging and farming existence. The Lenape used many of the area's resources by hunting, trapping, fishing, and gathering. They also moved seasonally throughout the region to fish shad from rivers in the spring and to tend gardens, and travel to the shore, hunt, dig or rake clams, and gather eggs in the summer.

Lumbering and Farming

The early European settlers were at first intimidated by the unbroken forest. It represented danger – from Native Americans, wild animals, and fires. Eventually, by the early 1700's, they established a forest industry in the Pine Barrens. They cut trees for cordwood, lumber, charcoal, paper, tar, and turpentine. Atlantic white cedar was the highly prized species for lumbering in the Pine Barrens, because the trees produce very lightweight, straight-grained wood that is rot, weather, and disease resistant. The wood was valuable throughout the region for framing and siding homes, fence posts, roofs, crates, furniture, boats, and even locally produced decoys—a traditional craft still carried on in the region today.

Farming for food and income is another traditional activity in the Pine Barrens that continues today. The different regions of the Pine Barrens have lent themselves to different types of farming, such as cranberry growing in wet, boggy areas and blueberry cultivation in damp, sandy areas. On the edge of the Pine Barrens on soils that could support fruit and vegetable crops, truck and row-crop farming were possible. Cranberries were first cultivated in logged over cedar swamps where bog iron had been mined out. The wild cranberry, *Vaccinium macrocarpon*, is a trailing evergreen vine that is native to sandy, peat bogs of North America. Cranberries grow naturally in open wetlands and along the rivers and streams in the Pine Barrens. Early agriculturists gathered the berries for domestic consumption and commercial use. The success of cranberry cultivation has turned the village of Chatsworth in the Pine Barrens into the cranberry capital of New Jersey. The cultivation of the blueberry also came from a small Pine Barrens village, Whitesbog. Elizabeth White, daughter of Whitesbog cranberry grower J. J. White, wanted to cultivate the wild blueberries that grew in the nearby swamps and bogs. Many other farmers

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had tried without success, adhering to the generally accepted belief that blueberries could not be cultivated from the forests. Still, Elizabeth White was interested, and she asked local woodsmen to collect blueberry plants from the swamps around the state. Her partnership with U.S. Department of Agriculture official, Dr. Frederick Coville, and several years of research at Whitesbog resulted in the first successof blueberries in 1916.

The history of lumbering and agriculture is vital to understanding the Pine Barrens, its ecology, the residents of the area, and the unique connection between the people and the land that leads to a sense of place. Resource-based communities in the Pine Barrens developed with the wood products industry and were sustained by regional advances in agriculture—especially advances related to cranberries and blueberries.

Iron

Other industries had a widespread effect on the region. Iron furnaces and glassmaking supported large populations in the Pine Barrens from the mid-1700s to nearly the end of the 1800s, with an economic peak in the 1840s. Iron forges and furnaces dotted the riverside from north to south in the Pine Barrens. The locations of almost all the furnaces are now known, although not much remains of them. Iron production required a tremendous amount of wood fuel, chiefly pitch pine, which was harvested from nearby stands and burned into charcoal. To make 12,000 bushels of charcoal, 6,000 cords of wood were needed. The charcoal was used to fire furnaces that produced from 700 to 900 tons of iron per year. The raw material was bog iron, or limonite, which was found in the swamps along the streams of the Pine Barrens. Once the ore was dug and transported to the furnace, it was crushed into small pieces and smelted over a hot fire. Some products of the iron furnaces in the Pine Barrens were cannon balls, cast-iron stoves, pots, pans, ax heads, shovels, and water pipes. Forges located near the furnaces smelted the iron from the furnaces into brittle pig iron (crude iron tapped from a blast furnace), which could be used to make stoves, kettles, sash weights, and fire backs. After repeated hammering and reheating, some of the pig iron was turned into more supple wrought iron, which could be used to fashion tools, horseshoes, and wagon tires.

Moving On

Natural resources in the Pine Barrens served a thriving economy, and industries prospered throughout the area. A decrease in the availability of raw materials contributed to the initial decline of Pine Barrens society. Communities moved from one area to another as the tree resource was depleted. At first, many people moved westward in search of success and wealth, leaving deserted stagecoach towns and once-booming industries to literally crumble or become susceptible to forest fires. Later, when the iron industry collapsed as a result of the over harvesting of the forest and the discovery of coal in western Pennsylvania, many more residents departed. Left behind were the deteriorating foundations of factories, forges, and villages that became known as the forgotten or lost towns of the Pine Barrens.

Pineys

Still, some people remained in the area, adapted to the change in lifestyle and pace of life, and found a source of income and economic survival elsewhere. Some of those people refer to themselves as "Natives", "Locals", or "Pineys." Typically, Pineys have lived in the region for their entire lives. Many Pineys are from multi-generational local families and are living resource-based lives to some extent. Some can find their way from the northern end to the southern end of the pines by using only sand roads. And some observe the seasonality of life in the pines, picking blueberries in the spring, fishing and clamming in the summer, picking cranberries in the fall, and

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harvesting pinecones and laurels in the winter. In the Pine Barrens, nearly all sand roads, streams, hills, and ponds have place names.

Protection of the Pine Barrens

Development pressure on the Pine Barrens increased as the population of New Jersey soared in the 1950s and 1960s; people fled from urban areas to the expanding suburbs and diminishing rural parts of the state. In 1978, after much debate and many local public hearings about proposals, President Jimmy Carter signed the National Parks and Recreation Act, whose reach extended to the Pine Barrens. This act designated approximately one million acres of the Pine Barrens area as the Pinelands National Reserve. A year later, the New Jersey Pinelands Protection Act took effect to implement the federal act and to ensure the protection of the Pinelands by establishing a regional planning and management commission. Then in 1983, the United Nations Educational, Scientific and Cultural Organization (UNESCO) designated the Pine Barrens as a Biosphere Reserve by the U.S. Man and the Biosphere Program.

Protection of Natural Resources

The Pine Barrens contains a rich variety of natural resources that have been used and appreciated for centuries by people living in the area. For example, water is a vital resource in the Pine Barrens—so vital that it prompted, in part, the original legislation to protect the area. The Pine Barrens is the site of the Kirkwood-Cohansey aquifer, an underground reservoir that contains 17 trillion gallons of fresh water. Bogs and streams form where the aquifer approaches the surface. The sandy, acidic soil contains iron, which combined with tannic acid from leaves, gives the water a rusty, tea-like color. The bogs and swamps of the Pine Barrens, provide suitable habitat for 21 northern plant species, including turkey beard (*Xerophyllum asphodeloides*), to reach their southernmost limits in the Pine Barrens. At the same time, 110 plant species that are typically found in the south, such as sand myrtle (*Leiophyllum buxifolium*), reach their northernmost limits in the Pine Barrens. Broom crowberry (*Corema conradii*) is an example of an endangered plant species that is limited to the upland Pine Plains because of frequent fires.

Many animals, including several protected and rare species, can be found in the area. Perhaps the most well known but seldom seen animal associated with the area is the elusive Pine Barrens tree frog, *Hyla andersonii*. This amphibian lives in seasonally wet areas of the Pine Barrens, and you can hear its call on warm humid spring and summer nights throughout the pines. White-tailed deer, red and gray foxes, rabbits, squirrels, and pine snakes also make their home in the Pine Barrens.

Fire plays a major role in the ecology of the Pine Barrens, creating periodic disturbances in the plant succession. Forest fires were once used as a tool by the Native Americans. The New Jersey Forest Fire Service now uses prescribed burns to control the threat of wildfires and to improve forest health.

Natural and cultural resources combine to create a unique sense of place in the New Jersey Pine Barrens. People from around the world have traveled to explore this special ecosystem that is found in the most densely populated state in the country. Generations of families still own and operate farms, while others hunt, fish, kayak, and lead tours of forgotten towns within the Pine Barrens. With greater understanding of its ecology and culture, more residents and visitors alike will be able to experience a sense of place in the New Jersey Pine Barrens.

For more information, please visit www.state.nj.us/pinelands, www.whitesbog.org, www.unesco.org/mab, and www.nj.gov/dep/parksandforests/forest/.