

Geological History

As the Wisconsin glacier, the last in a series of major continental glaciers to cross Ohio, slowly lumbered south out of eastern Canada, northern plants as well as animals were forced southward. The glacier moved so slowly that a wide belt of Canadian forest was able to move along well in advance of the ice. By the time this massive ice sheet caught up to, pushed over and buried the mature seed-producing plants, their offspring farther south of the glacier were already producing seedlings on their own. Thus, the boreal forest was able to remain a step ahead of the glacier.

For thousands of years during the Ice Age, these Canadian plants, including a host of bog plants, occupied a place in our landscape along with woolly mammoths, mastodons and giant elk.

As climates warmed and the last of the glaciers began to retreat northward, the Canadian forest, dominated by spruce and fir, was displaced by more southern forests that had previously occupied the site. Yet at the same time this was happening, the Canadian plants were able to colonize the newly exposed wet glacial soils, which emerged from beneath the receding wall of ice, as well as around the lakes, ponds and marshes left in the glacier's wake.

By the time of European settlement, most of the Canadian vegetation had long since vanished from America. In a few isolated sites however, special environmental conditions have allowed

individual species, and in the case of bogs, entire plant communities to linger. Cranberry Bog is one such site in Ohio. Today, more than 11,000 years after the final retreat of the Wisconsin glacier, this bog community of highly diverse Canadian plants still remains as a living tribute to the Ice Age.

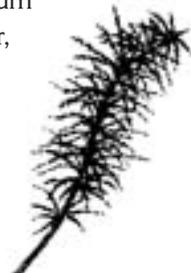
The Bog Environment

Like all lakes and ponds that eventually fill with sediments, glacial lakes were doomed to disappear from their very beginning. By the time the first settlers reached Ohio, countless shallow bog depressions had filled to such an extent that they were totally recolonized by marsh plants and swamp forests more typical of these latitudes.

Only in the deepest of lakes, such as that in the Buckeye Lake basin, had this natural filling process been retarded enough to enable the bog mat community to survive. Even at that, the mat could have been overtaken by marsh vegetation had it not been for the very harsh environment of the bog, an environment inhospitable to most marsh plants.

The key to this condition is a simple, yet fascinating plant called sphagnum moss. As it grows, sphagnum releases acid into the water, a byproduct of its growth process. The exceptionally

sphagnum moss



large quantity of sphagnum, upon which the entire bog community is based, releases a staggering quantity of acid, often creating a pH condition of less than 4.0. Consequently, this environment becomes too acidic for the survival of most plants, other than those that have adapted to the bog community.

Sphagnum moss also has an unusual cell structure, enabling it to hold many times its own weight in water. On hot summer days, it acts like a giant sponge, evaporating large quantities of water, which cools the surface of the bog while at the same time maintaining a high humidity, a condition absolutely critical for the survival of many bog species. This thick, spongy covering of sphagnum moss also acts like a huge blanket of insulation, keeping root level temperatures well below air temperatures. This dramatically reduces the length of the growing season and seed germination in the bog, as compared to surrounding environments.

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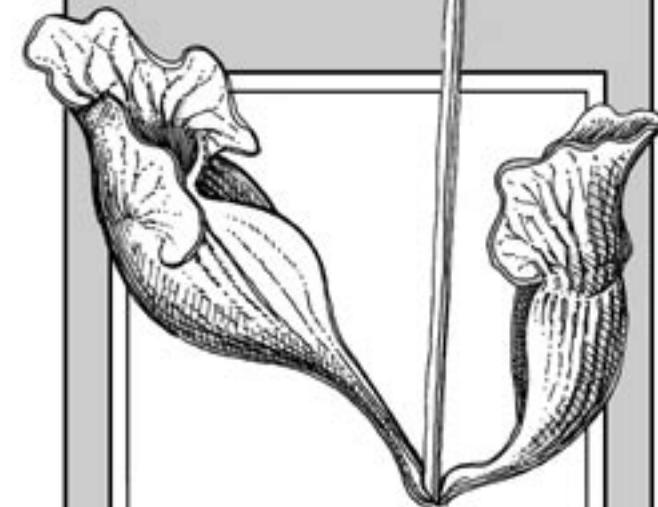
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Cranberry Bog State Nature Preserve



Pitcher Plant



The Canal

With the advent of the Ohio and Erie Canal, the Big Swamp was an excellent site for the construction of a larger reservoir to furnish the water needed to lift canal passenger boats and barges over the divide between the Licking and Scioto river basins.

At the invitation of Ohio's Governor Jeremiah Morrow, New York Governor DeWitt Clinton turned the first spadeful of earth for Ohio's canal system on July 4, 1825. By the following year, the Ohio Canal Commission began work on an earthen dike 4 miles long around the west end of the swamp. The dike was completed and the reservoir was filled in 1830. Unfortunately, it was discovered that this shallow reservoir lacked sufficient capacity to supply enough water for two-way barge traffic, especially during the dry season, so two years later it was enlarged by 50 acres.

The resulting lake, comprised of both the old and new reservoirs, covered about 4,300 acres. Thus, the Licking-Summit Reservoir was born and the Big Swamp was no more.



large cranberry

The Birth of Cranberry Island

Oddly, it was the impoundment of the Big Swamp in 1830 which made Cranberry Bog so unique. As the waters backed up behind the dike, all of the

swamp was inundated and destroyed, except for the very youngest, and therefore more buoyant, segment of the bog mat. Instead of disappearing beneath the waters, as did most of the adjacent swamp forest, a 50-acre upper segment of the bog mat along the north shore stretched and expanded like a giant water-logged sponge and rose 6 feet with the new water level.

No longer did the floating bog mat surround the glacial lake, as is typically the case with such bogs. Now the lake surrounded the bog mat, making Cranberry Bog the only known occurrence of its kind in the world.

Buckeye Lake

Canal traffic rapidly decreased with the arrival of the railroads. By 1900, the Ohio and Erie Canal was finished as a commercial waterway. In May 1894, even before the demise of the canal system, the Ohio General Assembly officially abandoned the reservoir as a canal feeder and proclaimed it a public park. Its name was changed to Buckeye Lake and recreational use of the lake grew as transportation to the area improved. By the early 1900s, Buckeye Lake had become a popular resort spot.



calopogon orchid

In 1949, Buckeye Lake and adjacent state lands, including Cranberry Island, was officially dedicated as Buckeye Lake State Park. In May 1973, Cranberry Island was dedicated as a state nature preserve.

Cranberry Bog State Nature Preserve is a permit-only site managed by the Ohio Division of Natural Areas and Preserves.

The Island's Future

Located in Licking County, Cranberry Bog has undergone considerable changes since 1830. When the bog mat originally surfaced, there were no trees on it. Since then, red maples and common alders have colonized the margin of the island; their shade has adversely impacted the other bog vegetation.

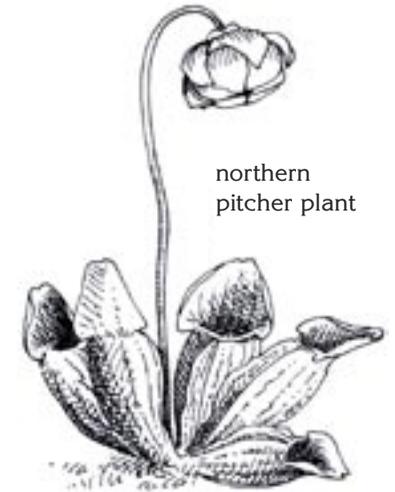
The most startling change has been the deterioration of the island itself. When the island first surfaced, it was about 50 acres in size. By 1910, only 45 acres remained. By 1955, the island had deteriorated to 23 acres. In 1963, the island had lost more ground and was less than 20 acres.

More than 40 years later, the island has dwindled to less than 11 acres. In all probability, Cranberry Island will continue to shrink, possibly disappearing altogether.

Why is the island disappearing? The force of man, not nature, created the island. Now the forces of man and nature are combining to slowly destroy it. Unfortunately, this little island is at the mercy of severe wake and ice action coming off a very large, shallow and highly used lake.

Another significant factor is that while the highly acidic stagnant waters of bog lakes typically help perpetuate the sphagnum mat, the well-oxygenated, slightly alkaline waters of Buckeye Lake allow and accelerate the natural decomposition of the mat.

The waters of the man-made Buckeye Lake enable trees and marsh vegetation to invade the edges of the island where bog acid has been sufficiently diluted and oxygen is readily available. Although



northern pitcher plant

this dense ring of trees and shrubs has somewhat stabilized the margins of the island, it has also shaded out adjacent bog plants. Besides shading the bog vegetation, occasionally when trees are blown over, large clumps of peat clinging to the trees' shallow root system are torn away from the island and lost. In recent years, two fairly large chunks have simply torn off and floated away. This will most likely continue as the island continues to feel the impact of natural wave action and the wakes of passing boats.

Due to the fragile condition of the preserve, a no-wake zone has been posted for the waters around the island and access to the preserve is restricted to small, well-supervised groups who must remain on the established boardwalk trail. To learn more about obtaining an access permit, visit the Division of Natural Areas and Preserves' website at www.ohiodnr.com/dnap.

Unfortunately, there is no practical way to stop the deterioration without changing the character of the bog environment. Just how much time the island has before it disappears is unknown. Cranberry Bog State Nature Preserve remains today as one of the most unique and fascinating natural areas in the nation.