Natural and Human History on Mount Beacon

Over millions of years Mount Beacon was shaped by natural forces—earth-shifting collisions, the heating and cooling of rock, the passage of glaciers. More recently, humans have changed the mountain landscape, adding structures and altering plant species. Today visitors to Mount Beacon can witness evidence of all of these impacts—as well as enjoy sweeping summit views.

Why we protected this place...

Many species rely on multiple habitats, which is why it’s critical to conserve large, unbroken spaces that allow these creatures to move about freely. On Mount Beacon and adjacent Fishkill Ridge, Scenic Hudson has preserved nearly 2,000 acres of one of the Hudson Valley’s most ecologically diverse landscapes, ensuring it always will be a prime destination for exploring nature.

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NatureNotes created by Susan Hereth and Kayla Hussey.
The Geology of Mount Beacon
Mount Beacon actually has two summits, North and South. At 1,635 feet, South Mount Beacon is the tallest peak in the Hudson Highlands. The Highlands are made primarily of metamorphic rock—rocks that change (or metamorphose) under heat and pressure. Metamorphic rock found in the Highlands includes gneiss, marble and quartzite (crystal rock fragments). Hundreds of millions of years ago, giant continental plates beneath the land and sea collided violently, thrusting coastal sediments far beneath the earth’s crust. (We call these movements plate tectonics.) Subjected to extreme heat, the sediments melted and then gradually hardened. This new rock eventually made its way to the surface. Then during another series of continental collisions that began about 450 million years ago, it was crumpled, broken and lifted into the Appalachian Mountains, stretching from Alabama to Maine and including the Hudson Highlands. Geologists surmise the Highlands once were as high as the Alps or even the Himalayas. Eons of erosion have worn them down to their current size.

Some of this erosion was caused by glaciers that moved across the land between two million and 12,000 years ago. The scouring action of these giant ice sheets rounded off the Highlands’ peaks and ridgelines, exposing rock. The glaciers also carved this part of the Hudson River estuary, squeezing between the mountains and creating the river’s narrowest yet deepest stretch. This is actually a fjord (pronounced fee-YORD), an inlet of the sea between high, steep slopes. Evidence of the glaciers is everywhere. Boulders that don’t resemble the native rock, called erratics, were randomly deposited by moving glaciers. You can also see scars where the glaciers scraped against the rock.

Human Impacts on Mount Beacon
During the American Revolution (1775-1783), a tall signal fire was constructed and maintained atop the mountain. Though never lit, it was intended to warn nearby communities of the approach of British troops. This beacon later gave its name to the mountain and city at its base. In the 1900s, Mount Beacon’s summit became a prime tourist destination. It was reached via the Mount Beacon Incline Railway, the world’s steepest passenger funicular. (The Mount Beacon Incline Railway Restoration Society is working to return the ride, destroyed in a 1983 fire, to its former glory.) Awaiting visitors on the mountaintop was a restaurant/dance hall and the impressive Beaconsconcrete Hotel, whose verandas offered a great place to relax and admire panoramic vistas. For a time the mountain also was an entertainment hub: Three silent films were shot there and in the 1920s it sported the Northeast’s tallest radio tower. The station transmitting from it was called “the Voice from the Clouds.”

Tough economic times and a series of fires eventually took their toll on Mount Beacon’s summit buildings and the railway. Today all that remains of the mountain’s heyday are the ruins of the railway’s wheelhouse and the magnificent views that still attract visitors from all over the world.

Mount Beacon Today
Thanks to the mountain’s rich natural and human history, there’s much to explore in Scenic Hudson’s Mount Beacon Park.

The most evident ecosystem on Mount Beacon is the northern hardwood forest. You can see the different stages that forests move through, a process known as forest succession. The tallest trees make up the canopy. Here they include oak, hickory, hemlock, chestnut, maple and birch. Shorter, more shade-tolerant trees and shrubs make up the understory. Small plants grow on the forest floor. Among these are the ferns and mosses lining Mount Beacon’s trails. Ferns and mosses are unusual because they use spores, instead of seeds, to reproduce. They are among the oldest plant species on the planet. Look at the underside of a fern leaf (called a frond) for small, hard dots—these are the spores. Also notice how moss doesn’t have roots or stems like most plants. It grows directly on rock. Since spore reproduction requires lots or water, ferns and mosses need moist habitats.

Along the trail you’ll also see lots of green-gray patches on rocks and tree trunks. That’s lichen, the result of what’s called a symbiotic—or mutually beneficial—relationship between a fungus and algae. Over time, lichen loosens the rock, creating soil in which mosses and ferns can grow. Because of its role in initiating forest succession, lichen is called a pioneer species. Eventually the mosses and ferns give way to annual and perennial herbs, shrubs and finally trees.

While hiking up Mount Beacon, it will be easy to spot birds, deer, squirrels and chipmunks. Look a little more closely and you might see a millipede or red eft. Though the word “millipede” means “1,000 feet,” these insects actually have two feet on each of their 20 to 200 segments, meaning they have a maximum of 400 feet. Millipedes are reddish-brown, slow-moving detritivores—they feed on decaying plant material. Red efts are land-loving juvenile newts. These amphibians begin and end their lives in the water, starting as aquatic larvae and returning there as adult spotted newts to reproduce.

Despite a century of human impacts, Mount Beacon Park now supports a healthy ecosystem. To keep it that way, ATV and other motorized vehicle use is illegal. These vehicles erode trails, damage plants and destroy wildlife habitat.

Reward at the Top:
Mount Beacon’s Spectacular Views
Andrew Jackson Downing (1815-1852), the “Father of American Landscape Architecture,” was born across the river in Newburgh. The well-traveled Downing claimed the view from Mount Beacon was “among the most powerfully striking and impressive landscapes on this continent.”

As you walk along the trail, look for:
• Glacial erratics (random boulders of “different-looking” rock)
• Quartzite (crystal rock fragments)
• Glacial scars (gashes in the rock)
• Serpentinite (a bright-green metamorphic rock, found mostly near the top of the trail)
• Lichens, ferns and mosses

On a clear day, from the summit you can see:
• The cities of Beacon and Newburgh
• The Newburgh-Beacon and Mid-Hudson bridges and Walkway Over the Hudson State Historic Park
• The Shawangunk Ridge and Catskill Mountains

What’s the Source of Beacon’s Drinking Water?
Located atop Mount Beacon is the reservoir that provides the city below with tap water. It is part of the Hudson River watershed, one of the water bodies in a five-state region that drains into the river.

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