

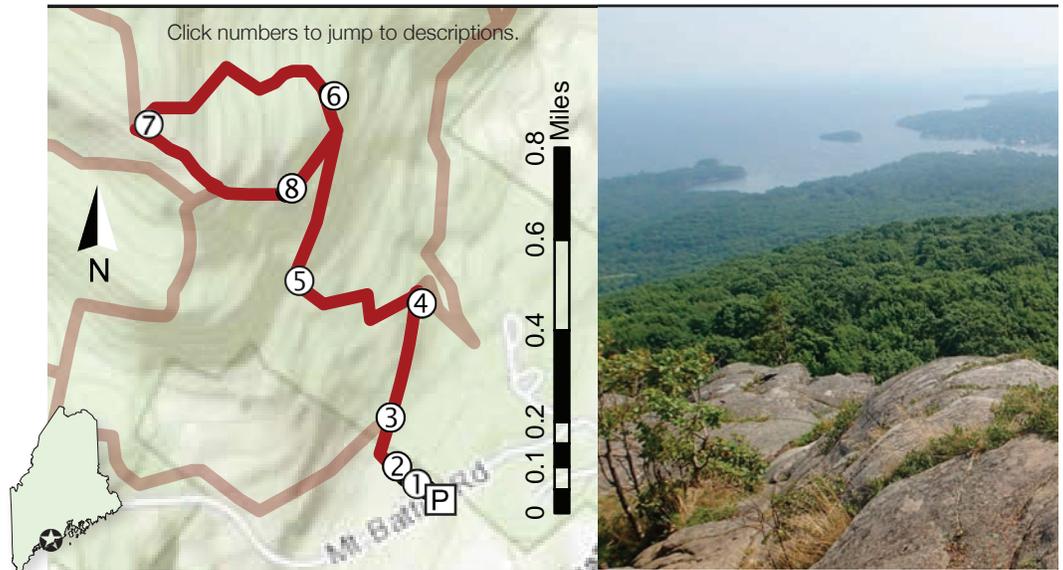
CAMDEN HILLS STATE PARK

Megunticook Trail, Adams Lookout Trail - 2.6 miles round trip, moderate

Tucked neatly into Maine's winding coastline, Camden Hills State Park includes several trails that wind through forests, along high ridges, and over the tallest peak in the park, Mount Megunticook. "Megunticook" is a Penobscot term referring to the swelling ocean, a feature that is reflected in forests covering this mountain's flanks and a reward for those who reach the summit. But an ocean view isn't the only perk of this hike; look along the trail for a pop culture icon, a gemstone, and a plant and an animal that both hold world records for speed.

Getting There

Follow US Route 1 approximately two miles north of downtown Camden. The main entrance to Camden Hills State Park and the park's campground will be on the left. Once inside, turn left just beyond the ranger station onto Mt. Battie Road. The parking lot and the trailhead are about 0.25 miles up Mt. Battie Road on the right.



① The State of Pines in the Pine Tree State

-69.054310, 44.229111

The information kiosk and trailhead are flanked by *eastern white pines* that stand out in a sea of hardwoods.

[A to map](#)



Towering eastern white pine

Imagine these pines twice as tall as they are today. When European settlers arrived in New England in the early 1600s, they were greeted by a scene more typical of California's towering sequoia stands than today's east coast forests. Groves of eastern white pine approaching 220 feet tall thrived along rivers and in damp ravines, where they were protected from lightning and toppling winds.

The King of England immediately deployed workers to begin marking the largest of these trees to claim them as masts for the British navy. These trees were harvested with such tenacity that onlooking natives assumed the British had abandoned their home country and journeyed to America because they had run out of trees.

Before long, nearly all of the enormous white pines on the east coast were cut down. Today, the tallest eastern white pine on record stands 186 feet tall in Great Smoky Mountains National Park, and the tallest in Maine are estimated to be near 150 feet. Given another two centuries of growth, some of Maine's white pines may reach their former grandeur. Because they colonize abandoned pastures with ease, the white pines that you see here are a sign of the agricultural history of this land.

② Twin Ferns -69.055325, 44.229493

[A to map](#)

Just beyond the trailhead, the trail follows a narrow boardwalk over a small wetland.

Most soils consist of a variety of different particle sizes and are described based on their relative proportions of sand, silt, and clay. Water moves very slowly through soils rich in clay, like the one you are standing above. In this case, water that would seep downward more quickly through a soil that is high in sand or silt has become “trapped” above this layer of clay, creating a wetland filled with a variety of trees and wetland plants including [red maple](#), [black ash](#), [paper birch](#), [yellow birch](#), [eastern hemlock](#), [balsam fir](#), and [red spruce](#). The lack of oxygen in persistently wet soils also slows down the decomposition of plant debris like leaves and sticks and creates a layer of partially decomposed matter referred to as muck or peat depending on speed of decay. This wetland has a thin layer of muck soil on top of the clay.

Look for cinnamon fern and interrupted fern here; both are large ferns that grow with their leaves (fronds) emerging from the ground in tight, circular clusters. To the untrained eye, these two members of the genus *Osmunda* look identical. Like all ferns, they reproduce using spores rather than seeds, but these two species can be readily distinguished by the location of their spore-bearing structures. Cinnamon ferns grow whole separate spore bearing fronds that are tall and narrow, and are cinnamon- or rust-colored. Interrupted fern’s spore bearing structures are found on its leafy fronds in gaps or “interruptions” between the green lobes. At first these structures are gray-green but as they mature they shrivel and turn dark brown ♀.



Leaflet of cinnamon fern (left) beside leaflets of interrupted fern (right).

Naturalist's Notes



Upon reaching the ground, spores from these ferns will develop into tiny leafy structures called gametophytes, which produce eggs and sperm. After fertilization occurs on these tiny gametophytes, a zygote is produced that in turn grows into a sporophyte or spore producer, like the large plants you see here.

③ Coastal Maine's Natural Heat and Air Conditioning

[A to map](#)

-69.055909, 44.230113

Turn right at the first junction (0.15 miles) and admire the red oaks in this forest as you begin to ascend.

Anyone who has jumped into one of Maine’s lakes on a warm day in May will know that come spring, water warms much more slowly than surrounding air. Large bodies of water like the Atlantic Ocean heat and cool so slowly that they moderate the climate of nearby land masses, protecting coastal towns from the more extreme temperatures experienced by inland communities.

This phenomenon is obvious to us on the hottest days of summer, when we head to the coast to find cooler air, or in winter, when we sometimes see rain along the coast while it snows further inland. This moderated winter weather benefits cold limited species like [red oak](#), which becomes less common and eventually rare the farther north we go in Maine, but thrives along sections of the coast, even on mountain tops like Megunticook, where the extreme winter cold is moderated by the ocean.

④ Mario Mushrooms -69.054694, 44.233305

[A to map](#)

At the second junction (0.6 miles), keep left toward the Ocean Lookout.



Northern red oak leaf and fruit (acorn).

[American beech](#) trees are usually recognized by their smooth, light gray bark and toothed, oval-shaped leaves. But these beech trees have been infected with beech bark disease, which creates cracks and pockmarks in the bark. The lesions weaken the tree and provide entrances for insects, which in turn makes a buffet for woodpeckers.



A cross-section of a veiled "button" reveals the structure of the developing mushroom.



A fully developed *Amanita* mushroom



A large block of talus



Marginal wood fern

Ultimately, these infected trees will weaken, begin to rot, and die.

In an [ecosystem](#), the death of one organism often brings life to another. Old stumps and fallen tree trunks quickly become food for insects and for decomposing fungi and microorganisms. Look on rotting wood and on the forest floor for mushrooms and other fungi. Most of a mushroom's life cycle takes place in decomposing wood or underground as a network of fine threads, called hyphae; the mushrooms and other aboveground forms are essentially the fruit of the fungus. Mushrooms reproduce by spores, which are typically released from the underside of the cap where they are protected from rain. Some mushrooms produce their spores on gills, some on teeth, and others in pores; all are structures designed to maximize the surface area of spore production.

During the growing season, especially after heavy rain, gilled mushrooms of the genus *Amanita* can be abundant on this trail; though they come in a variety of colors, you can recognize many of them by the white flecks on their caps. The white flecks are part of the veil that enclosed the *Amanita* "button" before it emerged from the ground. As a new mushroom pushes up through the soil, it breaks through the covering veil, and bits of the veil remain stuck to the cap. The spotted caps of *Amanita* mushrooms have inspired many folk tales and even modern pop culture, where they have become iconic in the various electronic worlds of Mario.

Though they are often pretty, some species of *Amanita* mushrooms are extremely poisonous. The death cap and the destroying angel, both of this genus, are two of the deadliest mushrooms in the world.

⑤ **Water Beats Rock** -69.057740, 44.234927

[A to map](#)

At 0.75 miles, the trail ambles across a rocky talus slope.

When water freezes, it expands. If it freezes within cracks in exposed [bedrock](#), the expansion is powerful enough to fracture off slabs and blocks. On steep slopes and cliffs, these often boulder-sized fractured pieces tumble down, and over very long periods of time accumulate to form sloping rock piles called talus or talus slopes. Unusual plant species that you might find here include marginal wood-fern, mountain maple, and gooseberries.

Look for wildlife around the talus. Caverns between the rocks remain relatively cool in the summer and warmer than surrounding air in the winter, buffering residents of these small caves against extreme temperatures. They also provide passageways to underground, where the temperatures may remain above freezing in the winter, making these slopes ideal for hibernating snakes. If you're afraid of snake bites, don't worry; not one of Maine's nine snake species is venomous.

Keep right at the junction for Adams Lookout Trail.

© **The World's Fastest Plant** -69.057388, 44.238010

[A to map](#)

At 0.9 miles, the canopy darkens and the trail passes a small, picturesque stream in a spruce forest.

Be careful not to trip over the many exposed tree roots that crawl over the ground



Bunchberries

Naturalist's Notes



The plants and trees here represent a community stunted by the coarse, shallow, dry soils often found on south-facing ridges. The red oaks, red maples, and spruces here are shorter than examples of the same trees growing on richer, more sheltered sites would be.

Blueberries, common juniper, and three-toothed cinquefoil, adapted to harsh growing conditions, crouch in the shade beneath them and are tucked into rock crevices.

surrounding the stream. If submerged in water, the roots of many tree species can't absorb nutrients. Like you or I might tiptoe through puddles to avoid getting our shoes wet, trees that grow near water often keep their roots near the ground surface. While this adaptation keeps the trees from drowning, it makes them less stable and prone to blowing over in strong winds.

The ground surrounding the stream is a good place to catch a glimpse of the world's fastest plant. Bunchberry is a low-growing herb that is easy to identify by its clusters of four or six leaves beneath white "flowers" or tight groups of red berries. From a botanist's perspective, the four white "petals" of bunchberry aren't really petals at all. They are actually white bracts, or modified leaves that grow directly beneath the flower. Look closely to find the true flowers, which are tiny, yellowish or greenish, and clustered above the bracts.

When it's time to reproduce, bunchberry's tiny true flowers burst open in just 0.5 milliseconds, catapulting pollen far and wide in hopes of landing on and fertilizing another bunchberry. For comparison, blinking your eye takes 100 to 400 milliseconds; your blink is at least 200 times slower than the bunchberry. As it is being launched, the pollen experiences two- to three-thousand times the force of gravity.

⑦ Peregrines and Poetry -69.063324, 44.237259

to map

At 1.3 miles, the trail reaches the summit , overlooking Camden and Mount Battie.

With undertones of poetry, war and fire, and with the potential to spot an exceptional raptor, the view from the summit of Mount Megunticook is a treat for history buffs and nature lovers alike.

Because it offers protection from many predators, the exposed cliff just beneath the summit is excellent nesting habitat for the world's fastest bird, the [peregrine falcon](#). While diving after prey, peregrine falcons have the ability to dislocate their shoulder joints, folding themselves into a more aerodynamic shape. They combine this adaptation with long, narrow wings and a special projection in the nostrils that prevents excessive air to the lungs. Together, these features allow peregrine falcons to dive at incredible speeds of over 200 miles per hour.

Beyond the cliffs, the large hill in the foreground is Mount Battie. The summit of Mt. Battie was the former site of hotel and clubhouse, "Summit House" built in 1898. In 1920, after it fell into disuse, it was torn down and a stone tower, still present today, was erected as a World War I memorial. Mt. Battie was also the inspiration for Camden native, Edna St. Vincent Millay's 1912 classic poem "Renesance," which contrasts the dimensions of the human heart and soul with the infinite scale of nature and the universe. Fire swept across Mt. Battie in 1918, and again in 1930. The 1930 fire burned for four days while thousands of people rallied on the scene to fight it.

At that time, it was believed that wildfires were universally bad, but research has since uncovered many ecological benefits of fire. In undeveloped areas, occasional small fires can help to return nutrients to the soil, promote germination of fire dependent species, and clear away accumulated wood that could fuel larger, more damaging fires.

Begin your descent using the Adams Lookout Trail, which parallels the cliffs.

⑧ Jewels of the Mountain -69.058654, 44.235821

to map

At 1.6 miles, the trail turns right into small woodland over patches of exposed bedrock.

Near the top of this rock exposure, look for small white circles in the rock about the same diameter as a pencil. Many of them have darker lines crisscrossing them in an x-pattern.

You're looking at part of the Megunticook Formation, a layer of bedrock that underlies most of Mt. Megunticook, Mt. Battie, and other nearby summits and ridges. This layer of rock originated as underwater sediments settling onto an offshore (continental) shelf in an ancient sea called the Iapetus Ocean. As the sediments accumulated, increasing pressure from above compressed the lower sediments into rock. Around 390 million years ago, the two continents flanking the Iapetus Ocean moved toward one another and eventually collided in an event called the Acadian **Orogeny**. The heat and pressure from this event wrinkled and deformed the rocks, creating mountains of metamorphic rock.



Chialstolite

What's the difference between a rock and a mineral? Minerals, like gold, quartz, and graphite, have a unique crystal structure; if you could see the atoms in a mineral, you could identify the mineral simply by looking at the pattern made by the arrangement of these atoms. Some minerals, like diamond, consist entirely of atoms of one **element** (carbon), while others, like calcite, consist of many elements (calcium, carbon, and oxygen). Rocks, on the other hand, are an aggregate of minerals or mineral-like substances; they don't have a defining chemical structure. The small white circles visible in this metamorphic rock are the mineral chialstolite, which is characterized by dark crosses visible in the cross-section. As the crystals of chialstolite formed, impurities were pushed aside and trapped, forming the dark crosses in the center. Because of this striking pattern, chialstolite has long been used as charms in inexpensive jewelry.

Turn right at the next trail junction and you will return the way that you came. To explore and share more of Maine's extraordinary natural features, be sure to check out the other Natural Heritage Hikes covering dozens of trails from the coast to the western mountains.

Naturalist's Glossary

Bedrock: The consolidated layer of rock beneath the soil and glacial till.

Ecosystem: A community of living organisms and their nonliving environment.

Element: A pure substance that can be represented by a single of atom. An element cannot be decomposed into a simpler substance by ordinary physical or chemical means.

Orogeny: A mountain-building event resulting from an interaction between tectonic plates.

Natural Heritage Hikes is a project of the [Maine Natural Areas Program](#) in partnership with the [Maine Trail Finder](#) website. For more Natural Heritage Hikes, please visit www.mainetrailfinder.com.

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Map sources: Esri, DeLorme, HERE, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community