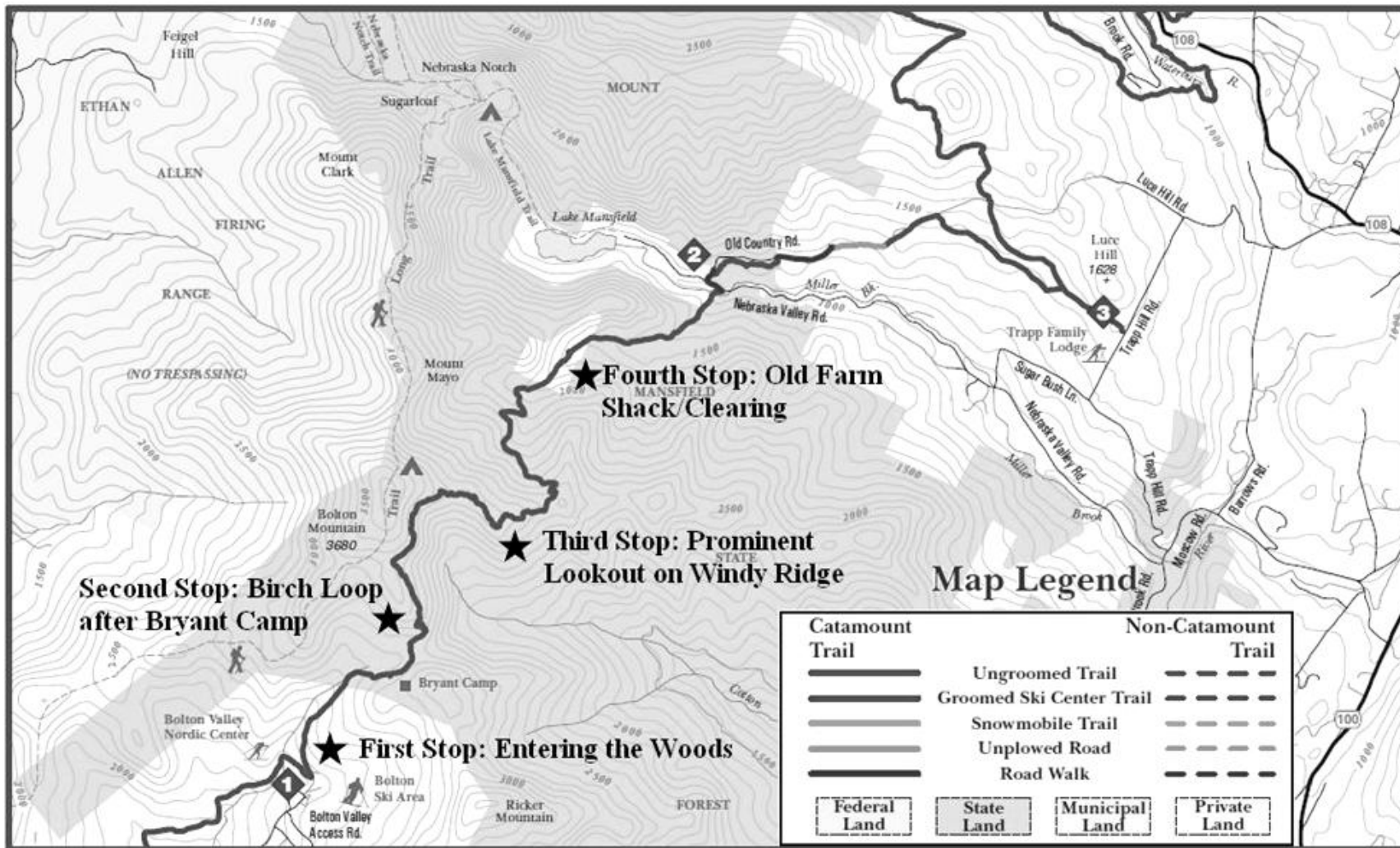


Of Moose and Men

A Journey Along the Bolton-
Trapp Section of the Catamount
Trail

Johannes Griesshammer





Second Stop: Birch Loop after Bryant Camp

First Stop: Entering the Woods

Third Stop: Prominent Lookout on Windy Ridge

Fourth Stop: Old Farm Shack/Clearing

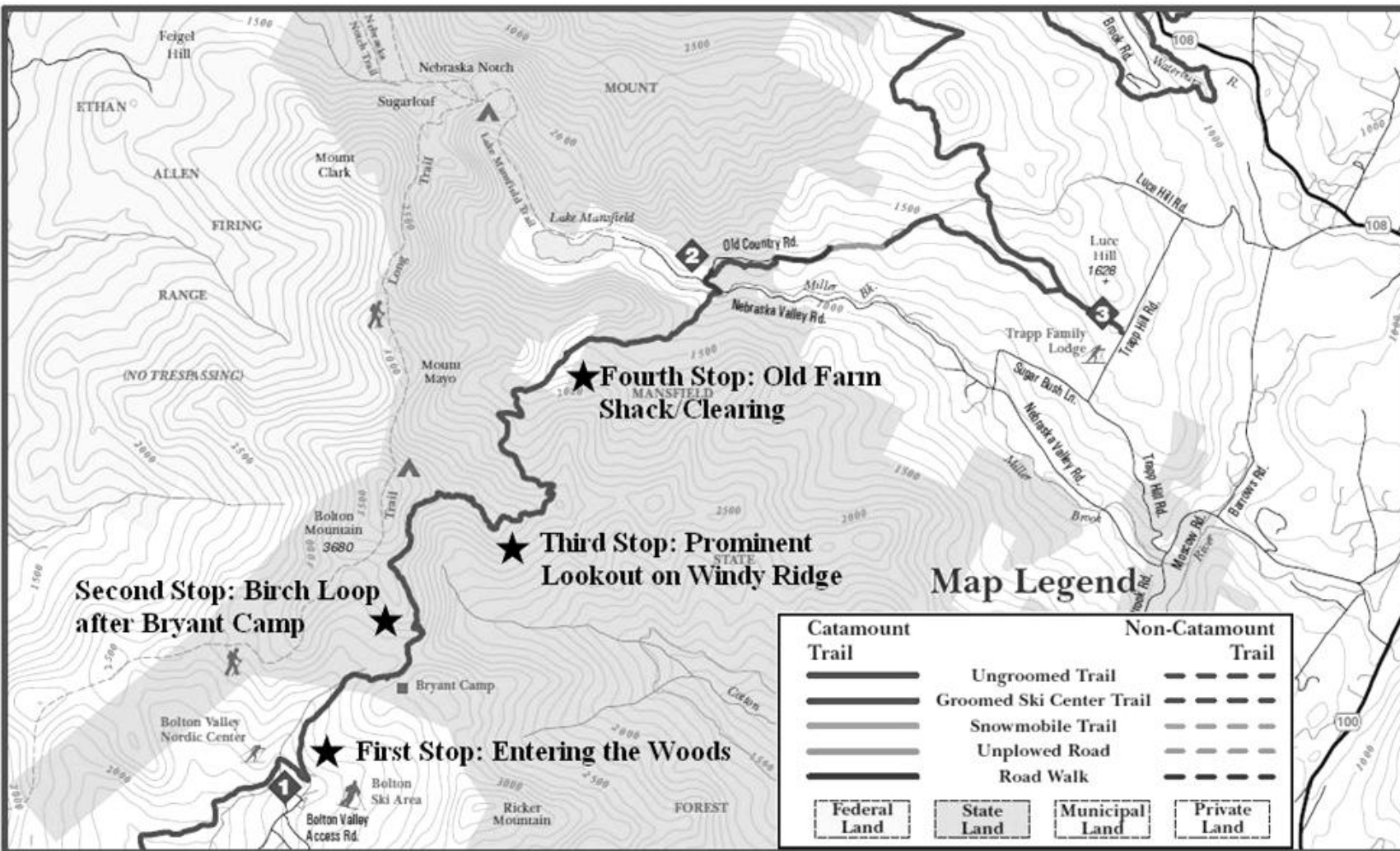


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Introduction

This guide is designed to be an introduction into the intricate relationship formed by humans and nature which you will be able to discover along this segment of the Catamount Trail. The layout of the guide has been to highlight a few key stations along the trail, with an easily identifiable landmark, which contain exemplary samples of the topics covered in the guide. The desire behind the guide is to instill a true appreciation for these forests, along with their inherent relations both between plants and animals, as well as man and nature. I hope you enjoy your time along the trail, and that you look forward to exploring these forests further.

Safety Precautions

A large section of this trail is in a remote, backcountry setting which is not groomed or patrolled. Weather and snow conditions can rapidly deteriorate. Rescue, if necessary, will be a lengthy process. Many stretches of this route are narrow, through densely spaced trees, with difficult route-finding existing during deep snow conditions. Ski with at least two companions for safety reasons, making sure to stay together. Plan ahead for your trip and be well-prepared.

Leave No Trace

Plan Ahead and Prepare

- Know the regulations and special concerns for the area you'll visit.
- Prepare for extreme weather, hazards, and emergencies.
- Schedule your trip to avoid times of high use.
- Visit in small groups when possible. Consider splitting larger groups into smaller groups.
- Repackage food to minimize waste.
- Use a map and compass to eliminate the use of marking paint, rock cairns or flagging.

Travel and Camp on Durable Surfaces

- Durable surfaces include established trails and campsites, rock, gravel, dry grasses or snow.
- Protect riparian areas by camping at least 200 feet from lakes and streams.
- Good campsites are found, not made. Altering a site is not necessary.

Dispose of Waste Properly

- Pack it in, pack it out. Inspect your campsite and rest areas for trash or spilled foods. Pack out all trash, leftover food, and litter.
- Deposit solid human waste in catholes dug 6 to 8 inches deep at least 200 feet from water, camp, and trails. Cover and disguise the cathole when finished.
- Pack out toilet paper and hygiene products.
- To wash yourself or your dishes, carry water 200 feet away from streams or lakes and use small amounts of biodegradable soap. Scatter strained dishwater.

Leave What You Find

- Preserve the past: examine, but do not touch, cultural or historic structures and artifacts.

- Leave rocks, plants and other natural objects as you find them.
- Avoid introducing or transporting non-native species.
- Do not build structures, furniture, or dig trenches.

Minimize Campfire Impacts

- Campfires can cause lasting impacts to the backcountry. Use a lightweight stove for cooking and enjoy a candle lantern for light.
- Where fires are permitted, use established fire rings, fire pans, or mound fires.
- Keep fires small. Only use sticks from the ground that can be broken by hand.
- Burn all wood and coals to ash, put out campfires completely, then scatter cool ashes.

Respect Wildlife

- Observe wildlife from a distance. Do not follow or approach them.
- Never feed animals. Feeding wildlife damages their health, alters natural behaviors, and exposes them to predators and other dangers.
- Protect wildlife and your food by storing rations and trash securely.
- Control pets at all times, or leave them at home.
- Avoid wildlife during sensitive times: mating, nesting, raising young, or winter.

Be Considerate of Other Visitors

- Respect other visitors and protect the quality of their experience.
- Be courteous. Yield to other users on the trail.
- Take breaks and camp away from trails and other visitors.
- Let nature's sounds prevail. Avoid loud voices and noises

First Stop: Entering the Woods at the Bolton Valley Nordic Center

As you first enter the woods around Bolton Valley, the forest is still one of maples and beeches, however, this will soon change. From this point until the next stop, which occurs above the Bryant Camp, the forest enters what is known as the transition zone. As the elevation increases, the weather these forests are exposed to change, and the forest itself begins to change as well.

Where you are currently, at approximately 44 and a half degrees north of the equator, you are actually south of Venice, which is subject to a warm Mediterranean climate. Why the difference in climate then between there and here? Why is it that in New England, the treeline can barely reach 4,500 feet above sea level, which is lower than most other areas in the world? The answer lies in the way weather systems get pulled through New England. Frequent low pressure weather systems pass up the Atlantic coast, which bring lots of moisture-laden air from the ocean into the interior of New England. Additionally, a large high pressure system often sits over the interior of Canada, which pushes cold air down into New England. This effect is enhanced due to the fact that low pressure systems rotate clockwise, while high pressure systems rotate counterclockwise. This creates a standard storm path which leads through New England, bringing lots of cold and moisture.

In addition to this, mountains have their own effect on climate. As elevation increases, temperature drops as well. With every rise of 1,000 feet, the temperature has a tendency to drop 3-5 degrees Fahrenheit on average. As air temperature drops, its ability to hold water moisture is reduced as well, aiding cloud formation. This is why often, on clear days in the valley, you might see clouds

hanging around the mountains. In fact, areas of northern Vermont and New Hampshire have a level of cloudiness comparable with the Olympic Peninsula of Washington state! In addition to decreasing temperatures and increasing clouds, mountains have a tendency to concentrate and increase wind speeds. Mountains decrease the amount of atmosphere which winds can pass through, tending to increase the wind speed drastically. This creates a trifecta of weather, with cold temperatures, lots of clouds, and high wind speeds. This shift in climate brings about a change in the kinds of trees found in the forests.



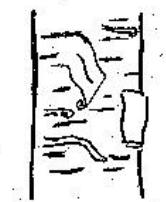
Hind Front
Snowshoe Hare

Animals also have their own unique adaptations. Small mammals such as the snowshoe hare have developed large, padded feet in order to stay on top of the deep snowfalls of winter. Look for their tracks scurrying through the woods as they go out in search of their favorite wintertime foods, including the buds and twigs of young hardwoods, and the needles of the various conifers in the forest.

Above the hardwoods, you will encounter the spruce-fir forests of the higher mountains, but first, you will pass through the transition zone. As you climb higher, notice how beeches and maples drop out to give way to birches and spruce trees. This is due to these tree species being better adapted to the cold temperatures and the shorter growing season available in the higher elevations.

Originally, the transitional forests of New England looked very different from today. Today, you will notice a lot of paper birch as well as yellow birch, most often with an understory comprised

mainly of red spruce. This is a direct relic of past land uses. As Europeans came into Vermont and saw the vast stands of timber, they were overwhelmed by the sheer quantities of resources. The red spruce was considered to be one of the most valuable species, both for its building qualities as well as other purposes. Bellows Falls, in southern Vermont, was actually home to one of the first paper mills which used wood pulp as a feedstock for paper production, as opposed to the traditional use of old rags. This eventually increased the rate of red spruce harvest.



Yellow Birch



Paper Birch

The transitional zone was once dominated by red spruce, but due to its economic value, the spruce was completely harvested. In the wake of intensive logging, birch trees were the primary species to establish themselves. Whereas red spruce needs shade in order to germinate, birch takes full advantage of the sunlight, as well as the freshly exposed mineral soil. This character explains the forests you will encounter as you climb towards Cotton Brook and the boundaries of the Bolton Valley Nordic Center. Keep your eyes open for a canopy composed mainly of birches, both yellow and paper, with an understory of red spruce growing in the shade of these trees. As time passes, and the birches die, these trees will once again dominate the transition zone of the Green Mountains.

Second Stop: Second Intersection with Birch Loop (after Bryant Camp)

From this intersection until you pass the high point of the tour, you will be immersed in the realm of the high elevation spruce-fir forest. This magical coniferous forest extends its vast reach around the circumpolar globe, that is, throughout Canada, Alaska, Siberia, northern Russia, and Scandinavia. The two primary types of trees throughout this region are fir and spruce. One important arm of the forest extends south of Quebec along the spine of the Appalachians, due to the climatic factors discussed earlier. Around the world, these forests are subject to a variety of harsh conditions, which result in a variety of unique adaptations.

Stop for a moment and take note of the temperature. You might feel slightly colder, because chances are the air temperature has dropped. As mentioned earlier, air temperature drops with elevation gain. Some other factors at play in these woods are the constant moisture, in the form of increased precipitation and straining water from clouds. These players contribute to a different game for plants to compete in. Growing seasons are severely reduced, with the chance of frost lingering long past the first flowers of spring have emerged in the valleys. The soils, being located on the tops of mountains, are much thinner than in the valley. Covered in snow, this is difficult to notice. Also difficult to see is the thick layer of acidic needles covering the forest floor, which help to drain nutrients from the already infertile soils into the valleys below. The decreased temperatures also decrease decomposition, inhibiting the amount of nutrients which can be cycled through the soil. This creates a difficult environment for these trees to grow in.

One adaptation for species growing this high has been to be evergreen, or holding on to their foliage throughout the year. This has a few distinct advantages over losing leaves every fall. If a tree must grow an entirely new set of leaves every year, a lot of energy must be used to grow this material. Due to the short growing season, trees at this elevation cannot gather enough energy to make this an effective strategy. In addition to using energy, regrowing leaves requires nutrients. As mentioned, the soils of the spruce-fir zone are nutrient poor. By keeping needles between years, the trees are able to retain a larger percentage of the nutrients contained within the foliage. The last distinct advantage of keeping foliage is the ability to begin photosynthesis more rapidly than trees which lose their leaves. Whereas the deciduous hardwoods at lower elevations have to wait for their leaves to grow before they can begin to gain new energy, coniferous trees that keep their needles are able to begin photosynthesis only shortly after temperatures rise above freezing in the spring. The difference of a week or two can make a large difference when the growing season has been shortened to a matter of June through September. The traditional “Christmas tree” shape of the trees is also due to the climatic changes in the mountains. Due to the large amount of snow received in these forests, a conical shape helps the trees shed excess snow, decreasing the chance of a branch snapping off.



Balsam Fir

To differentiate between red spruce and balsam fir, walk up to one of the trees and “shake its hand.” The feeling of balsam needles as opposed to spruce needles is clearly evident. The



Red Spruce

nicknames spiky spruce and friendly fir are readily differentiated. With this trick in mind, any chap can quickly tell which tree is which. When the trees are larger, and no needles can easily be observed, the bark of the two trees can be easily identified. Amongst the splotches of lichen growing on the trees, you will notice that spruce has a rough, flaky bark. In contrast, the fir has a smoother bark that is pockmarked with pockets of resin.

Other forms of life you might observe in these forests in winter include the lichens on the trees, as well as ravens floating above the tree tops.

Lichens are not only one form of life, but actually represent a symbiotic relationship between two organisms. These often oddly shaped splotches are in fact a combination of a fungus and either an algae or cyanobacterium. The relationship is often described as mutualism, as both organisms benefit from the relationship. The fungus provides both support and protection, creating a structure which the other organism can inhabit. The algae or bacterium, on the other hand, is responsible for gathering energy through photosynthesis. In some cases, the lichen may also extract nutrients from the surface it is growing on. One of the most common lichen species in these forests is the Old Man’s Beard, aptly named as it is usually a pale green color, growing in a tuft from the tree similar to a beard. Throughout the next section, keep your eyes open for the various lichens growing on the variety of trees along the trail.

An animal to keep your eyes open for is the common raven. This bird, with a rich black coat of feathers, can often be found floating on thermals rising off mountain tops. During the day, as the ground heats up, it emits warmth into the surrounding air, which proceeds to rise. This upward movement of air is known as a thermal, and will actually provide enough force to allow birds to float gracefully through the air. If you look above you and see a large bird with about a 2 foot wingspan, or hear it's metallic "gawk-gawk," you can be sure that thermals are occurring today, and the ravens are out and about, searching for prey and playing around.

The spruce-fir forest holds many secrets, and keeps its mystery locked up behind a dense understory of trees and needles. So keep your eyes and ears open on this next stretch, as you never know what you'll find around the next bend!

Third Stop: The Lookout on Top of Windy Ridge

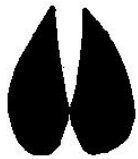
After traversing across Bolton Mountain, you will come out along what is known as Windy Ridge. At the top of one of the prominent knolls along this ridge, you will reach a great lookout in an area of dead spruce and fir trees. Looking out into the sprawling forest from this point, it is difficult to imagine a sprawling farming settlement in this valley during the 1800's. This all changed with the great flood of 1927, which led to the construction of a flood control dam on the Little River. Since then, the valley has reforested, and led to the current logging activity by the state. Along with the reforestation has come a re-emergence of a variety of wildlife species, including moose and black bear.

Cotton Brook and the neighboring valley, Ricker Basin, were once home to sprawling farm communities. Approximately 50 families called these valleys their home. To this day, intrepid explorers seek out old farm foundations, cellar holes, bridge and sawmill remains, and cemeteries which are scattered throughout these valleys. The farms primarily raised sheep, which being smaller and nimbler than cows are well adapted to the hillside terrain found here.

However, the face of Cotton Brook came to change around the early 20th century. October of 1927 was a very wet month, with some parts of the state receiving 2 to 3 times the average monthly rainfall. This was followed by a torrential downpour on November 3rd and 4th. Within a 36 hour period, 9 inches of rain fell across Vermont, leading to swollen streams to further overflow their banks, and raging rivers to tear through any structure in their way. Many roads and most of the state's 1200 bridges were washed

away in the rains and ensuing floods. Eighty-five people died, along with 9,000 people losing their homes. This flood spurred action by the US Army Corps of Engineers.

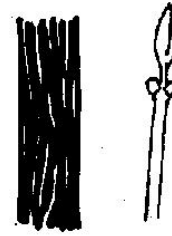
Both of the basins had been acquired by the Green Mountain Power Corporation during the 1920s, but now the focus shifted to flood control. The dam project was not begun until the formation of the Civilian Conservation Corp in 1933, but by 1938, the Waterbury Dam was completed. At this point, GMCP transferred the surrounding 10,000 acres to the state as part of the Mount Mansfield State Forest. Today, the Cotton Brook valley is managed by the state to protect its cultural resources while simultaneously producing high-quality sawtimber.



Moose

Since the regeneration of the forests, a variety of wildlife have come back to call these woods their home. Two large species which you might encounter signs of in the next stretch include the moose as well as the black bear.

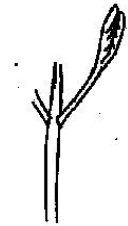
The moose is as well a symbol of the north woods as anything. These large, majestic animals inhabit many of forests across New England. Most often, moose can be found along open water in the forests, often old beaver ponds. The large mammals enjoy browsing various aquatic vegetation found growing in these shallow waters. However, once fall rolls around, moose tend to move uphill to browse on twigs, bark, and lichen. The animals are built to be able to easily move around in the deep snows of winter, with legs as long as the average human stands tall. Unencumbered by snow, these beasts can gallop up to 35 miles an hour, though some would claim while looking quite clumsy.



Striped Maple

Moose enter their breeding season, known as the rut, in the early fall, generally in September. At this time, males can be easily aggravated. However, once October comes around, the rut is usually over, and males leave their females behind. They will then eventually lose their antlers in November through January, making it possible to find a set of antlers in the forest at this time. Telltale tracks of blood in the fresh snow can be a telltale clue of a recently lost antler.

While farming in Vermont pushed moose out of the state by the late 1800s, regrowth of the forests has allowed these creatures to make a startling comeback. The first moose seen in Vermont since the 1800s was reported in the 1970s, in the Northeast Kingdom. Estimates in the early 2000s have placed the moose population at approximately 4700 moose statewide! As you descend this next portion of the trail, keep your eyes open for the signs of moose. As the spruce and fir open up into a beautiful birch glade, take a closer look at some of the understory vegetation. You might notice twigs and buds snipped off the ends of the hobblebush and striped maple shrubs, indicative of moose browse in the area. The browse will generally happen at around eye-level, and in areas of high browse pressure, the entire understory might be neatly trimmed to this level.



Hobblebush

Another species whose signs you might encounter is the black bear. Another species which was largely driven out of the state by farming and logging in the 1800s, the bear has also made a

spectacular recovery. Current estimates place the statewide population at 2500 individuals. While most humans think of bears as ferocious creatures, the black bear does not represent this very well. It is a timid creature, wary of humans. While black bears will

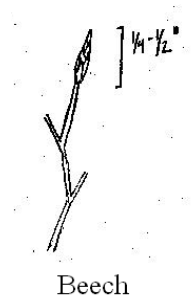


Hind Front
Black Bear

eat meat if given the opportunity, most of their diet consists of insects, seeds, green leafy plants, berries, and roots. In these forests, the true bounty is the supply of beech nuts. In August, when the beech nuts ripen on the trees, the bear has been

known to feast for 24 hours a day to get an energy reserve to last through the winter. At this point, the nimble bear will climb beech trees, leaving behind their clawmarks in the bark, to reach their favorite food.

Once the frosts of fall and snow of winter set in, the bear hunkers down for winter. The better the food supply, the longer the bear will eat. In a poor food year, bear will settle down in early November, or with a better food supply, will remain in the open through early December. The black bear is not a true hibernator, as most of us are taught, but can actually be awoken in the dead of winter. Their respiration and metabolism rates drop, but their body temperature stays close to normal. Bears will den in a variety of places, including the hollows of large trees, a brush pile, a sheltered depression, or a hole they have dug in a hillside. In the spring, the bears will emerge from their den, and the mother will begin to raise her new young.



As you descend, make sure to take note of the numerous bear signs. After crossing a prominent creek bed, you will enter an area dominated by beech. See how many trees you can find with bear claw marks on the bark; you'll be surprised at how common they are once you start looking.

Fourth Stop: Old Farm Shack Next to Stream

After this point, the rest of your journey will be through the northern hardwood forest. This is the land of fall colors, picture postcards, and maple syrup. The trees which are most commonly associated with this forest are American beech, sugar maple, and yellow birch. In addition to this, you might find paper birch, hemlock, and white ash. The area along the trail in the vicinity of the farm shack is part of the floodplain for the creek you recently crossed, and therefore has been enriched over the years with the nutrients which have drained from the surrounding mountains. It is here that you will find ash growing, and lots of rich sugar maple trees. Once the trail pitches downhill again, you will notice a distinct shift towards more hemlock trees. In this area, soils are shallower and steeper, favoring this species.

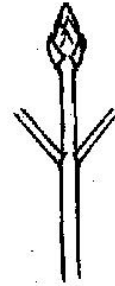


White Ash

However, more striking than the winter wonder of the hardwood forests is the impact which human settlement has had upon this stretch of trail.

The area surrounding Nebraska Notch belongs to the hamlet of Moscow, which itself is part of the town of Stowe. Stowe contains some of the best farmland in the county, as well as having well stocked timber reserves. The area around Nebraska Notch itself was settled in the mid-1800s by a variety of families, made up primarily of sawyers and farmers. Lake Mansfield, around the corner from the Catamount Trail, has long been seen as a vacation retreat. These are all various historical uses of the Nebraska Notch area.

Stowe was originally granted by Governor Wentworth of New Hampshire when the state of Vermont was divided up into townships in 1763. None of the original proprietors ended up settling in the newly created town. The first recorded settlement in the town was by the Luce family, in 1794. Over time, the town



Sugar Maple

began to grow. Settlers soon learned the value of the fertile lands along the Little River, which contained some of the best farmland in the county. The rolling hills were well suited to pasture, which soon became one of the most important aspects of farming in Stowe.

In addition to having great farmland, the town also contained plentiful timber resources. The most important timber species included hemlock, spruce, fir, beech, birch, and maple. This led to a variety of timber-related businesses. The town soon saw the rise of multiple sawmills along the plentiful mountain streams, as well as at the various falls along the Little River. Important industries for the town included the manufacture of butter tubs, broom handles, carriages, lumber, and shingles.

The area known as Nebraska Notch was settled in the middle of the 19th century. The farm site you are currently standing on was settled between the years of 1859 and 1878 by William D. Pratt, a farmer by trade, who tilled 50 acres of land. In addition to Pratt, this specific valley was also settled by Thomas Robinson, who was also a farmer, and who owned approximately 400 acres of land. The rest of the valley was owned by W.M. Bingham, who was an attorney at law as well as the president of the Vermont Mutual Fire Insurance Company. Bingham lived in town, but owned 3000 acres

of land in Nebraska Notch. In the year 1883, Nebraska Notch was home to 2 sawmills and one school.

Around the turn of the century, a man by the name of Orson Smith decided to open a summer retreat in Moscow. Smith lived in Moscow village, and was a carpenter, joiner, brick mason, farmer, and miller by trade. He also decided to open the Pleasant View House in town, along with a lake cottage containing eight rooms on Lake Mansfield. The hotel was built around 1902, and was open from June 1 until November 1 for the next few years. A brochure describes the Pleasant View House as being a place where one could go to “drive, row, fish for trout, play tennis, or simply loaf and do nothing” while still feeling civilized. The brochure also boasts about the hotel having 3 stories, high-ceiling rooms, two broad piazzas, a music room with a grand piano and a large fireplace. The ad also makes promise of good cooking, with an abundance of milk, cream, butter, eggs, and vegetables provided by the owner’s farm. The presence of the lake cottage is also listed in the brochure, which describes Lake Mansfield as “a peaceful little sheet of water confined on three sides by wooded mountains,” a statement which holds true to this day. Today, the lake is owned by the Lake Mansfield Trout Club, nestled in amongst the surrounding property of the Mount Mansfield State Forest.

At this point along the trail, you will start to notice strong signs and influences of previous human settlement in the area surrounding the trail. The shack you see towards the river is most likely an old farm shack, which has been maintained over the years. This parcel is private land, and therefore please do respect any property you find here. The clearing on the opposite side of the trail also present some interesting features showing previous

inhabitation of the area. Lining the southern edge of the clearing area a number of old apple trees, which most likely date back to the Pratt family settling at this point. These trees are very hardy, and when given proper sunlight will produce a crop of apples to this very day. Along the eastern end of the clearing, set back into the woods, there are also some stone walls. These further indicate the presence of farming, as stones were dug out of the ground to enhance to workability of the soil. From this point on, the rest of the trail is located on old farm roads. Examine the woods closely for signs of old farms; depending upon snow cover, you might find stone walls, old buildings, foundations, or other telltale apple trees located in the forest.

Parting Words

As you reach your end point, revel in the journey you have just taken. Starting in the hardwood forest, you have risen up through the transition zone to reach the high elevation spruce-fir forest. After traversing through its mysterious passageways, the forest once again has opened up again to reveal its secret and vistas. An exhilarating descent back down through the transitional zone and into the hardwoods has allowed for you to see the reverse. Your eyes have been opened to the various impacts humans have had upon the forest. More importantly, your eyes have been opened to the regenerative capabilities of the forest. Hopefully, by gaining some insight and knowledge into the history of these forests, you have gained some appreciation for their intricacy and complexity, and may come to realize that such wild places should be our most cherished and protected treasures.

Basic Identification for Common Trees and Shrubs Along the Trail

Sugar Maple: Has a flaky bark. Twigs are opposite. Buds are sharp and pointy, looking like a fleur-de-lis.

Yellow Birch: Bark is generally golden/yellow, but will turn flaky in older trees. Peels in very narrow strips when golden/yellow. Twigs are alternate. Buds will have brown at base, green at tip.

Paper Birch: Bark varies from off-white to slightly pinkish, especially at higher elevations. Bark peels in large blocks. Twigs are alternate. Buds are similar to those of Yellow Birch.

American Beech: Bark is smooth and grey, often compared to elephant skin. May have scars from bears or disease. Twigs are alternate. Buds are long and brown. May still have old leaves on branches.

Red Spruce: Bark is platy and flaky. Needles are very sharp and pointy, and grow in a circular fashion around the twig.

Balsam Fir: Bark is more solid than spruce, and may contain many resin "blisters." Needles are flat and dull, and grow on opposite sides of the twig, creating a "flat" surface. Three wax-covered reddish buds at the end of each twig.

Hemlock: Grows on steep streambanks at lower elevations. Bark is platy. Needles have two white lines on the underside.

White Ash: Bark has a diamondback characteristic to it. Twigs are thick and opposite. Buds are dark brown to black.

Striped Maple: A shrub that can grow to the size of a small tree. Bark will be green with white stripes, or grey with green stripes if older and larger. Twigs are opposite.

Hobblebush: A common shrub in the transition zone. Unique buds, with "praying hands" around a central bud. Twigs are alternate.