

Season's Greetings



An early dusting of snow in October capped the club mosses at Hogback like little tufts of cotton.

Photo by Sara Anderson.

The Holiday season is in full swing now but October's early hint of winter remains to be fulfilled with the usual complement of snowy weather we expect in December. The cold however, has not failed us with area thermometers at near zero degrees recently.

As we reach for extra layers of clothing to fend off the deeper chills of December and approaching January, we sometimes marvel at the myriad ways nature has to ensure the survival of all the various plants and animals that share our climate.

In the following article Barbara Cole tells us a little about how trees cope with freezing temperatures to avoid cell damage.

Some Tree Strategies for Coping with Cold: As the days shorten and light reaches us at a lower angle in the sky, we anticipate the approach of the darker months of the calendar. Winter gear comes out of its summertime storage. The crisp, early morning air that reaches our nostrils holds a certain portent of colder, damper days to come, when morning frost will soon be blanketing the landscape. The thermometer will be dipping into the chilly registers of below -freezing temperatures.

These signals that occur over many days in the late summer and early fall, are sent not only to us, as animals, but to the plants with whom we share these winter months. We know how to prepare by dressing in layers that trap the warmth necessary for our survival. Our bodies change little, but the trees in the forest must undergo a significant transformation if they are to remain alive in subfreezing weather.

Bark offers some small degree of protection from sudden cold snaps, but the more complex strategy afforded by the process of acclimation is necessary if trees (and woody plants) are to survive without being injured by ice formation within their cells.

Trees contain over 60 % water and a good portion of it must be removed from the living cells before freezing weather sets in. This is accomplished (along with some other, more complicated, chemistry) with the help of the growth-inhibiting hormone, abscisic acid, which the tree produces as the growing season wanes and the daylight hours shorten. Abscisic acid increases the permeability of the cell membranes allowing water to pass more easily into the intercellular (between cells) spaces. In deciduous trees this happens primarily in the leaves before they drop, as the water transport is beginning. It then travels to the woody stems where it is necessary for the water to leave the living cells. This is really only a part of the process but is very important as the water has to leave the living cells or else they would freeze and rupture.

The water extracted from the cells is very pure, lacking nucleating particles that trigger ice crystal formation, and is able to reach well below freezing temperatures; down to minus 36.6 degrees F, before it will crystallize. Most of the water is extracted from the cell and ice will form in those intercellular spaces if impurities such as dust particles are present that can initiate crystallization. These crystals can rupture the outer, tougher, cellulose cell wall, but may not penetrate the more flexible, inner plasma membrane, thus the cytoplasm is protected from damage.

Sugars are also stored in the cells; ready food for spring's flowers and buds to utilize until leaves begin their work. The intracellular (within the cell) contents also become more concentrated thus lowering the cells freezing point, allowing them to withstand our colder winter temperatures. There is also some binding of water molecules to intracellular proteins thus keeping them in the cells but not able to crystallize.

Evergreens have a different strategy, but that is a topic for perhaps another day.

As we look at adaptations in the natural world, we see so many opportunities for exploration. When we take our walk to examine the array of winter twigs (see schedule) on Hogback later this winter, we can marvel at how the buds have adapted to the cold, and on such a tiny scale. We are curious to see how the trees might be affected by the unusual, warm fall and early winter weather we are experiencing.

(Barbara Cole)

Marlboro School Moves Classroom to Hogback

The bright windy September morning at Hogback Mountain buzzed with excitement and the sound of late summer insects, as Erica Morse settled her 3rd and 4th graders into a circle in the tall grass and announced, "The mountain is your classroom today. Make good choices." Each child had "adopted" a tree on a previous trip to Hogback, and Erica explained that over the course of the day they would get to visit their tree, write a poem about it, and paint a watercolor. Scattering off into the woods along the trail, the children found their trees as quickly as best friends on the playground.

"What's special about trees?" asked poet Ann Gengarely, introducing the outdoor poetry writing session. "What's special about *your* tree?" Children used a range of poetic voices to explore their connections to trees: becoming the tree (*I am a birch*); speaking to the tree (*Tree, I heard you calling my name*); imagining the tree (*If my tree were a friend, she would be shy*); and showing how the tree makes them feel (*I feel protected like a bird in its nest*). With vivid sensory descriptions, striking metaphors, and intense emotions, the poems communicate love, respect, and admiration for trees. Children's watercolor paintings, created with the guidance of local artist Susan Bull Riley, reveal other dimensions of paying attention to a tree, including dazzling colors of leaves against a blue sky, particular patterns of branches, and challenges of fitting a "mighty oak" onto a sheet of paper.

The ongoing dialogue between children and their trees is only one of many conversations taking place between Marlboro Elementary School, Hogback Mountain, Marlboro College, and community artists and naturalists. This fall at Hogback, Primary students went on a bird walk with Marlboro College Professor Bob Engel and Junior High students went on several biology field investigations. Hogback entered a global conversation about community-based resource management at a Marlboro College Symposium, where Dan MacArthur and Carol Berner were invited to speak about community conservation and education. Visitors from as far away as Vietnam saw the video of Hogback Mountain Day and heard the poem, "*My spirit is connected to the maple tree*" (see below).

Children are not the only ones paying attention to what's going on at Hogback. MES staff dedicated a November faculty meeting to looking closely at children's tree poems and watercolors as a way of exploring broader questions: "What can we learn from children's work in nature?" "How can we best support that work?" One conclusion was that children need time to "mess about" and play before settling down to work with any new material, whether it's clay or a 600-acre forest. Another theme of inquiry was the relationship between emotional connection, knowledge building, and stewardship. As Rachel Carson writes in *A Sense of Wonder*, "If facts are the seeds that later produce knowledge and wisdom, then the emotions and impressions of the senses are the fertile soil in which the seeds must grow." The 3rd/4th graders' poems and watercolors allow us to see the "fertile soil" of Hogback through the eyes of children who are discovering what it means to care for a tree.

(Carol Berner)

My spirit is connected to the maple tree,
I feel it is my brother.
Its arms sway as it talks to me
in a voice
as soft as a kitten's purr.
Its gray bark is like a rain cloud.
Its leaves are like a sunset.
Maple, I am
your brother.

~ Wes

If My Tree Were a Friend

If my tree were a friend, she would be shy
With long blond hair and you would usually
Find her sitting under an oak tree.
Her eyes would be turquoise.
Me and her would swing on a swing made of birch bark.
We would move through the air like a rollercoaster.

~ Frida

Trees

Tree, I heard you calling
my name
a long time ago.
But now I've come for you.
What do you need, tree?
Are you feeling well
or are you feeling sad
in your roots
Down
down
down
in a deep dark hole
darker than the night sky
no stars
no moon?
Tree, I heard you calling my name.

~ Mercer



Aleah

Link to tree watercolors on MES: <http://marlboroschool.net/gallery/album/72157622399155677/34-tree-paintings.html>

Tree

I am an oak tree.
No one thinks I am any different than any other tree, except for
one child,
Curious as the wind.
Now I am excited as a child, opening their first Christmas
present.
I wait. Expecting happiness.
But the little girl doesn't return for weeks. Finally, she arrives.
My branches relax.
I feel peaceful.
Happy.
Relaxed.
Warm.
Thankful.
Relieved.
I
Am an oak tree.

~ Izzy

Nature and Its Surprises - New Creatures Found: At first glance it looked like so much spilled cider on the flat rock. A closer look revealed a mass of swarming, tiny, reddish-colored little insects. A quick check with the Vermont Department of Forest, Parks and Recreation informed us that these little guys are springtails, a species of *Collembola* in the family *Poduridae*.



Photo by Barbara Cole

According to entomologist Trish Hanson, when asked if they were part of the *Collembola* Order, she noted, “There is one that is somewhat common in early spring when snow has melted that is reddish in color and is sometimes referred to as the ‘snowmelt snowfleas. They can occur in great ‘mats’, often floating in shallow water.”

Many of us are familiar with the black springtails we refer to as snowfleas that come out during a warm spell later in the spring, but we had never seen the reddish ones, particularly in the fall. Perhaps our heavy rains and the unusual warmer weather this fall triggered their early emergence.

The website www.bugpeople.org goes on to say “(They are) small forms (1-5 mm) with antennae and sometimes eyes (are) present. Some *Collembola* may be recognized by a forked appendages (furcula) extending from the tip to underneath the abdomen. The combination of antennae and a lack of cerci in this order distinguishes them from the other entognathous arthropods, the Protura and Diplura. Biology: Like other Entognatha, *Collembola* are soil and litter dwelling, preferring wet or damp sites. They may be found in a number of other sites, living in moss, ant and termite nests and even on the surface of water. Most species feed on decayed vegetable matter, but a few are predaceous.

(Bruce and Barbara Cole)

Management Plan for Hogback: HMCA has completed work on a draft of an Interim Management Plan for the Hogback Mountain Conservation Area. This management plan will be reviewed by the Vermont Land Trust and the Vermont Housing and Conservation Board, which will hold the development rights and conservation restrictions to the Conservation Area once the property is conveyed to the Town of Marlboro, and by the Marlboro Selectboard which will have ultimate legal authority to oversee the property.

The Interim Management Plan presents in detail the overall goals and objectives for the Conservation Area, which include the following: (a) conservation of wildlife, aquatic and plant habitat and scenic resources to ensure the Conservation Area's ecological and biological health for present and future generations; (b) maintenance of the Conservation Area's forest resources through long-term professional management which will endeavor to minimize to the greatest extent possible any negative impact of forestry activity on surface water quality, wildlife habitat, public recreational benefits, and other conservation values; and (c) provision of equitable and safe public-recreational access and educational opportunities in a scenic and healthy natural setting through low-impact, low-density, non-motorized, dispersed activities.

Once the town assumes control of the Conservation Area, the selectboard will determine what type of administrative structure will be put in place to monitor the Conservation Area, propose and review policy, prepare an annual budget and administer funds for the Conservation Area's ongoing operation, and periodically update this Management Plan as circumstances warrant.

We anticipate that the Hogback Mountain Conservation Association will continue its activities as a non-profit organization and will be involved in managing the Conservation Area on a day-to-day basis in conformance with town policy.

(Hal Himmelstein)

Upcoming Events

Tracking Event: Saturday, February 6, 2010. George Leoniak is again offering to lead his extremely popular winter tracking event. George's extraordinary tracking ability goes well beyond simple animal identification. He often divines what the animal was doing and why the animal may have been there in the first place.

There are several other events we're planning that are somewhat weather dependent. We hope to have a "twig" event led by Barbara Cole and a snowshoe hike which will not be strenuous. We're also considering a cross-country skiing event which again, will be aimed more at fellowship than strenuous exercise. We will announce more information and specific dates as we get closer to appropriate weather for these activities.

Trail Development and Mapping: As mentioned in the last newsletter we have our first trail on the northside property cleared and marked. It's just over a mile long and should be excellent for hiking, snowshoeing and even cross-country skiing..

It's a loop trail called White's Loop in honor of Hogback's founding White Family: Harold and Maude White, who had four children, Arnold, Joyce, Betsy and Diane. In time, Arnold with his wife Ruth, Joyce and her husband Dick Hamilton and Betsy with her husband Brandy Douglas, all became intimately involved in operating the Hogback Ski Area, the Hogback Mountain Gift Shop and the Skyline Restaurant which all had their beginnings back in the Forties.

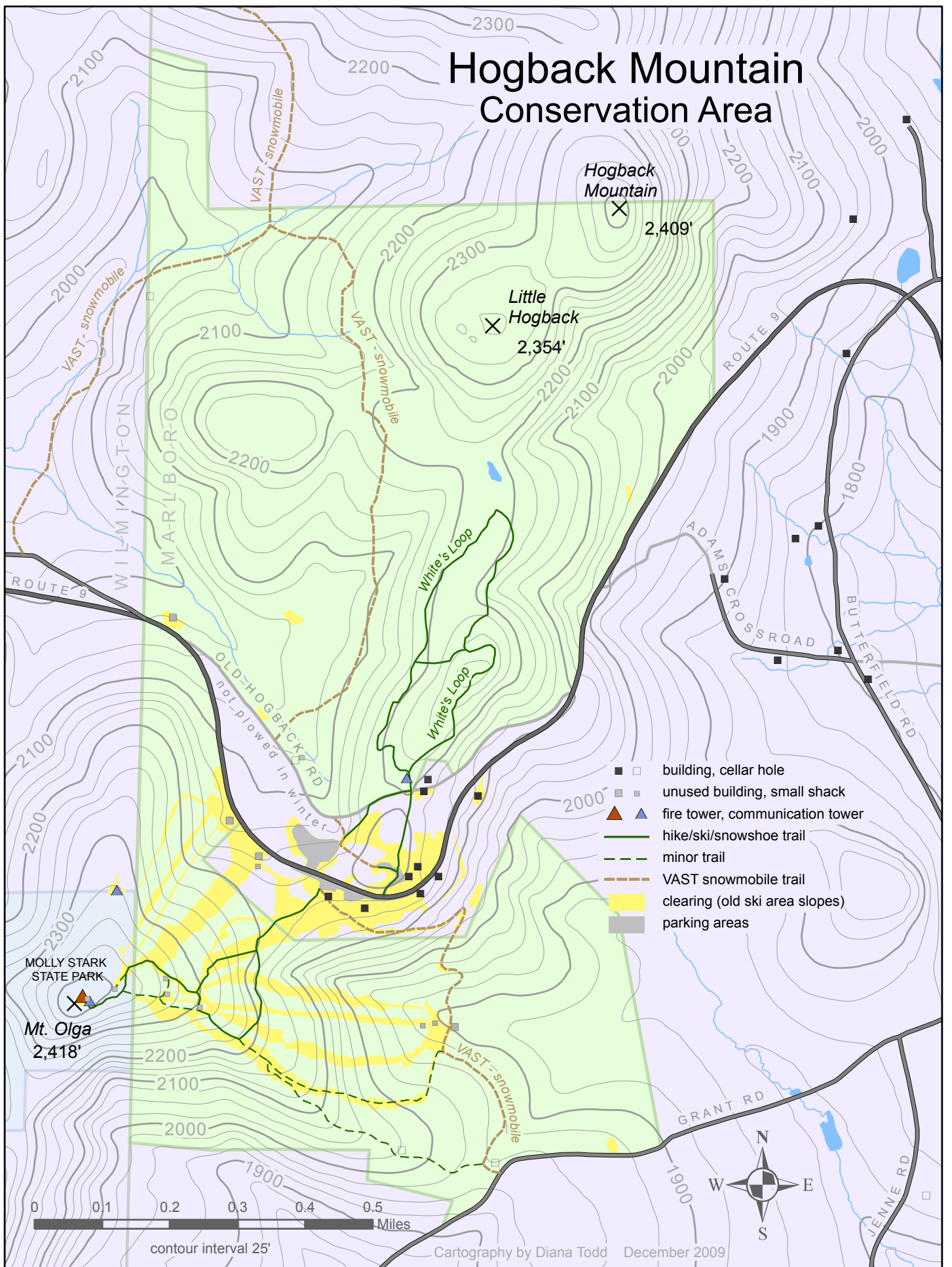
In the future there are plans to extend the trail system out to Hogback and then traverse the northwest side of the saddle on the return. Another trail will possibly move gradually out to the western-most hill that shares its western slope with Wilmington. We hope to end up with four or five miles of trails on the north side. Some trails already exist on the south side as do the old ski trails which haven't yet completely overgrown and make for excellent bird watching.

Be sure to let us know (if you haven't already) if you are interested in participating in trail development or clearing. You can email us at hogback1@sover.net.

Diana Todd has been developing a trail map with existing trails and topography of Hogback. An interim trail map is included in this Newsletter. This map will be expanded and updated over time as more trails and information about Hogback are developed.

Our continuing thanks to the Southern Vermont Natural History Museum and Hogback Gift Shop for gracious use of their facilities in support of many of our events.

Hogback Mountain Conservation Area



- □ building, cellar hole
- □ unused building, small shack
- ▲ ▲ fire tower, communication tower
- hike/ski/snowshoe trail
- - - minor trail
- - - VAST snowmobile trail
- clearing (old ski area slopes)
- parking areas



contour interval 25'

