

Prenanthes

The Green Mountain Club

Winter 1996/ Volume 1 • No 2

Research Needed on Little Moose Island

When thinking of arctic-alpine habitats in New England, Acadia National Park does not usually come to mind. However, treeless rocky mountain summits, ranging in elevation from 800 to 1,530 feet and many windswept offshore islands within the park support sub-alpine vegetation. Heavy visitation at many of these areas causes similar problems to those found in alpine habitats on loftier peaks to the north and west. Uncontrolled recreation has led to the creation of multiple trails, vegetation damage and soil erosion.

One area of concern to park management is visitor damage on the twenty-two hectare Little Moose Island. Like other offshore islands in the Acadian Archipelago, high winds, strong ocean waves, fog, and consistently cool temperatures dominate the landscape; in many ways growing conditions for plants on Little Moose Island are similar to those at higher elevations. The southern part of the island supports a shrub and herb community. Eight state-listed rare plants call this part of Little Moose Island home. Three locally rare plants are also found on the island. To protect rare plants, Little Moose Island is registered as a Maine Critical Area.

Little Moose Island is connected to the mainland by a gravel bar that provides easy access to the public for eight hours each day around low tide. While visitation is not heavy, significant trampling and soil erosion are evident. All existing trails are "social" trails that have resulted from undirected use rather than being constructed by the National Park Service. Some trails meander through populations of rare plants. Visitor use is expected to increase. Protecting rare plants, preventing soil erosion, and stopping the proliferation of "social" trails are important park objectives for Little Moose Island.

The National Park Service is seeking the assistance of graduate students, researchers, and other interested individuals to help assemble a baseline of information about Little Moose Island. Needed tasks include monitoring rare plants, mapping and assessing the condition of trails, monitoring visitor use levels, and conducting an island usage profile. The collected information will be used to formulate a management plan for the island. Although funding is not available, some logistical assistance (housing, office space, use of vehicles) may be provided. Interested parties may contact David Manski, chief of natural resources, or Linda Gregory, park botanist, at Acadia National Park, P0 Box 177, Bar Harbor, Maine 04609; (207) 288-5463.

A Broad Perspective Is Healthy

As you settle into winter with data sets to crunch, classes to teach, and programs to budget, I hope this early winter issue of *Prenanthes* supplies you with valuable information on new and ongoing events in the world of arctic-alpine areas conservation. The response to the first issue of *Prenanthes* has been very positive. A number of readers requested additional copies to pass on to friends, colleagues, and students. This is just the type of seed dispersal, if you will, that we hoped to generate through the publication of *Prenanthes*. We are still in the germination stage, but as you will see in these pages, there is a diverse array of activities going on throughout the region.

While this newsletter focuses on the northeastern United States, we cannot ignore the work being done in the Rocky and Cascade Mountains and other areas. Researchers and land managers in Mount Rainier and Rocky Mountain National Parks have been addressing the impact of human use of the arctic-alpine zone and restoration techniques for years. *Prenanthes* can serve as a bridge between east and west. There exists also the opportunity to cover topics that relate to mountains in general, especially as these topics relate to the arctic-alpine zone. The article in this issue on the Adirondack Park High Peaks Unit Management Plan is a good example. Next year's editor will be charged with seeking information from a wider geographic region while keeping track of activities on the peaks.

In an effort to keep the job of producing this newsletter manageable, the responsibility for soliciting and editing articles will shift every year to a different organization. This means a new organization's message will fill this space in the spring of 1996. The Green Mountain Club is glad to have initiated the publication of *Prenanthes*. In the future, the GMC will continue to handle the mailing list and collect donations for the newsletter.

Let's keep talking'.

- Lars Botzjorns
Director of Field
Programs for the
Green Mountain
Club.

Alpine Flora in Grafton County

Grafton County, New Hampshire contains thirty (of the forty-eight total) 4,000 foot peaks in the White Mountains. However, the county has received much less ecological attention than the adjacent Coos County, which contains the Presidential Range. New Hampshire's Presidentials have seen extensive botanical exploration since 1784 and ecological work since the 1960s. Studies in the alpine zones of Grafton County didn't start until about 1840 when Edward Tuckerman made the first botanical survey of Mt. Lafayette (referred to as Great Haystack by Tuckerman). He returned in 1844 to scour the north peak and collect five rare species. The Franconia Range has in turn received more botanizing than other mountains in Grafton County.

The only documentation of the lesser summits" have been botanical collections from Cannon Cliffs starting in 1882, from the Twin/Bond Range in the 1950s and 1960s, and from Mt. Cardigan in the 1970s.

As the first piece of a quantitative study of the alpine flora of eastern North America, Dan Sperduto, of the New Hampshire Natural Heritage Inventory in Concord, New Hampshire, and Charlie Cogbill, a freelance ecologist of Plainfield, Vermont, have sampled the vegetation and compiled a flora and peak-specific plant community description for New Hampshire mountains, including sixteen Summits within Grafton County (see below). These studies cover more than seventy-two hectares with more than half the study area located outside the Franconia Range. A significant extent of alpine vegetation occurs on secondary summits, such as on Mts. Moosilauke, Cardigan, and Bondcliff. In addition many lower-elevation summits, like Mt. Lowell and Black Mountain, support alpine species. The flora at or above treeline in Grafton County consists of approximately seventy-four vascular species; Franconia Ridge contains seventy-one of these. This alpine species richness is much less than the approximately 140 species from the diverse Presidentials. Franconia, however, has comparable richness with other similar alpine sites such as the larger Mt. Katahdin in Maine (eighty-nine species), smaller Algonquin Peaks of New York (seventy species), and Mt. Mansfield in Vermont (sixty-five species). Most lesser peaks in Grafton County contain twenty-five to thirty-five species which is similar to the number of species in the Bigelow Range of Maine (thirty-nine species).

Significant vascular species recently documented on Grafton County peaks include *Potentilla robbinsiana* from south of Lincoln; *Pyhilotodoce caeurlea* from Lafayette; *Salix herbacea* from both East and West Lincoln; *Betula glandulosa* from the East Lincoln; *Cardamine bellidzjolia* from North Lafayette; and *Loisleuria procumbens* on Cannon Mountain below the Rim Trail. Interestingly eight species are apparently missing from historic stations, and three species are possibly extirpated from Franconia Ridge completely. Changes in the flora have been taking place over the past 150 years and the greatest change was early in this century. Of great surprise is the lack of introduced species on most of these summits, with Mt. Moosilauke and two species used in revegetation on Franconia Ridge as the exceptions. The most obvious recent change is intense trampling, erosion, and removal of much of the original vegetation cover on the smaller and unmanaged summits, particularly South Kinsman, South Twin, Mt. Bond, Mt. Osceola, and Mt. Liberty.

Distribution of the Treeline Flora of Grafton County, New Hampshire

Mountain	Treeline m	Area ha	Species
Lincoln	1554	5.00	63
Lafayette	1524	25.00	65
S.Twin	1501	0.06	24
Bond	1437	0.60	11
Moosilauke	1433	13.20	65
Carrigain	1426	1.00	6
Guyot	1399	5.20	18
Garfield	1368	0.40	28
Liberty	1359	<0.50	23
S. Kinsman	1330	0.20	26
Flume	1319	<0.20	11

Osceola	1318	0.60	25
Bondcliff	1300	7.75	29
Cannon	1243	2.50	35
CannonRim	1183	2.10	41
Cardigan	952	8.00	40

Treeline elevation range Total ha # species possible
 Summary 952-1554 : 72.31 74

Charlie Cogbill is a freelance forest ecologist who lives in Plainfield, Vermont. He also serves as adjunct faculty at both Sterling College and Community College of Vermont (CCV). For further information, he can be contacted at RD 2, Box 650, Plainfield, Vermont 05667.

Notes from the White Mountains Mountain Rescue Continues

Potentilla robbinsiana, one of the ~rarest alpine plants in the world and a federally listed endangered species, continues to rebound under a recovery plan formulated in 1983 and updated in 1991. The plant has always had a restricted range, the main population occupying a one-hectare area below the summit of Mt. Monroe in the Presidential Range. The Appalachian Mountain Club (AMC) Research Department has been implementing the recovery plan for the White Mountain National Forest and U.S. Fish and Wildlife Service. Management steps to control human impacts in the Mt. Monroe area were instituted in the early 1980s and included trail relocations, installment of scree walls, habitat closure, and passive education programs. Yearly censuses of reproductive plants begun in 1984 and continuing through 1995 have shown an over 100% increase, with a parallel increase in the number of juveniles -signs of a healthier main population. Efforts to reestablish several small backup populations to replace those previously expatriated are also encouraging; plants from native seed collected by the AMC, grown by the New England Wildflower Society, and transplanted during the past several years have successfully produced progeny in the field. Several of these progeny are themselves now of reproductive size. The one setback in this effort is that all transplants put in the field in 1995 succumbed to the prolonged summer drought. Because many of the criteria in the recovery plan are now being achieved, the U.S. Fish and Wildlife Service will be reviewing the species for potential downlisting from endangered to threatened status, possibly as early as next year.

Trouble on Goose Eye

Completion of a new trail on the eastern side of the Mahoosuc Range (Sunday River drainage) has brought a dramatic increase in hiker use of the range. This use has resulted in an increased widening of the trail along a ½ mile stretch just north of the Goose Eye summit on the Appalachian Trail. The Appalachian Trail Conference and the AMC are examining management options to improve this situation in

1996.

AMC Hut Permit Renewal

In September the AMC submitted to the White Mountain National Forest (WMNF) its master plan for permit renewal of the Pinkham Notch Visitor Center and hut facilities. Madison Springs Hut (which is on land owned by the AMC) and Lake of the Clouds Hut lie in the arctic-alpine zone. Greenleaf Hut lies just at treeline on the Franconia Ridge. These facilities serve as a major information and education center for visitors to the alpine habitat in the White Mountains, are the field stations for the AMC's alpine and air quality research, and treat the human sewage of many of the non-hut and hut users hiking above treeline. The master plan differs from the last Special Use Permit issued in 1965 in that it proposes a total cumulative reduction in public land under permit from 28.4 acres to 17.4 acres. No change in hut capacity is proposed. The acreage reduction request results from the smaller footprint size needed for water lines and other systems due to upgrades and the introduction of new technologies to treat human waste. The WMNF has since issued a one-year extension of the existing permit as it decides the process it will use to review the permit renewal.

Ken Kimball is director of AMC's Research Department. He can be reached at AMC, Box 298, Gorham, New Hampshire 03581; (603) 44-2721.

A Wilderness Plan for New York's High Peaks

New York's High Peaks Wilderness, a unit within the Adirondack Forest Preserve, contains 226,000 acres of high-mountain country and includes 32 peaks over 4,000 feet, Mt. Marcy, high elevation lakes, numerous waterfalls, a wide variety of vegetation, and a network of hiking trails are all within the wilderness boundaries.

At the direction of the Adirondack state land master plan, a broad-based Citizen Advisory Committee met between 1990 and 1992 to lay the foundations for a draft High Peaks Unit Management Plan. The most significant recommendation in the plan is to implement an overnight permit system to reduce the impacts of the high volume of overnight camping in the eastern High Peaks. This fall ended a string of open forums set for gathering public input. The

comment period on the draft plan ended on December 15, however, for more information, contact the New York State Department of Environmental Conservation, Natural Resources, Route 86, P0 Box 296, Ray Brook, New York 12977; (518) 897-1212.

How Can We Measure Impact?

*A Monitoring Methodology
Design for ArcticAlpine
Communities*

Management of the heavily visited Mt. Mansfield arctic-alpine zone

in north-central Vermont is a difficult task at best. It is a challenge to find a balance between visitation and the ecological integrity of plant communities surrounding the trail treadway. This challenge begs the question: "What is the relationship between visitation and change in the makeup (density; frequency; and cover) of plant communities near the trail?"

In the summer of 1995 the Photo-graphic Inventory Monitoring System (PIMS) was developed by Mark Haberle under the auspices of the University of Vermont (UVM) Natural Areas Program to provide quantitative data on the visitor-use plant-resilience relationship (see *Prenanthes*, Spring 1995, p.13). PIMS is designed to provide data for as long as the UVM Natural Areas Program remains in effect. The system is also designed to be easy to repeat, requiring little or no experience in botany or ecology.

A key to the success of PIMS is the ability to compare photographs over time to ascertain changes in plant communities. Therefore, ease of repeat-ability and accurate relocation of the camera is important. To meet these needs an adjustable quadropod was developed which can be easily and accurately repositioned to photograph permanent quadrants in subsequent years. The system does not compromise a visitor's backcountry experience, as it avoids placement of permanent pin locators within the trail treadway. Responsibility for monitoring and monitoring equipment will rest with UVM's Natural Areas Program. The slides will be archived by the Vermont Monitoring Cooperative.

PIMS is an effective, low cost, efficient, and reliable method of monitoring visitor impacts on the integrity of the arctic-alpine communities. For further information on the system and its development, contact Mark Haberle at 37 Russell St., Burlington, Vermont, 05401, (802)6584905, e-mail: mhaberle@moose.uvm.edu or the University of Vermont Natural Areas Manager Rick Paradis at (802) 656-4055.

Mark Haberle is completing his degree in environmental studies at the University of Vermont and has worked as a summit caretaker for GMC

Trail Protection in the Arctic Alpine Zone: A Case Study

The Appalachian Trail (AT) traverses 9.4 miles of Saddleback Mountain in Maine, actually a range of three mountain peaks: the Saddleback summit, the Horn, and Saddleback Junior. The

higher elevations include one of the largest alpine zones along the AT. This zone is considered unique due to its glacially polished bedrock, unusual arctic-alpine plant communities, and spectacular views. The historic route of the trail, now more than fifty years old, passes through this zone for about two and a half miles. This area is currently under contention due to development plans put forth by the Saddleback ski area.

In 1984, the new owner of Saddleback ski area proposed a multi-year expansion, including new lifts and trails within the alpine zone, along and across the AT; and within the foreground of the trail's viewshed. In the late 1980s, the National Park Service (NPS) performed an environmental assessment, and worked with the Appalachian Trail Conference (ATC) to create proposals that would eliminate the visual and other impacts of the proposed development plan, and establish a mutually agreed upon corridor design for the AT through the Saddleback ski area. Mean-while, a rezoning and development proposal had been submitted by the Saddleback ski area to the Maine Land Use Regulation Commission (LURC), representing the first phase of an overall development plan. After much discussion, in 1989 LURC approved Saddleback's rezoning proposal with significant conditions regarding the AT including no development in the alpine or subalpine zones, denial of a ski trail proposed to follow a portion of the AT and required visual analysis of impacts to the AT. Saddleback did not submit final protection plans regarding the AT or alpine zones in response to LURC's decision.

In April 1991, Saddleback's owner expressed interest in selling a great portion of the lands identified in the 1987 NPS environmental assessment, while retaining lands along the existing ski area and the ability to construct the controversial ski lifts proposed earlier. In 1993, the NPS forwarded an offer to Saddleback to purchase the Phase I" lands. Saddleback rejected this offer, and negotiations did not resolve the disagreement.

In the fall of 1994, LURC issued the final decision on the proposed 1991 amendment to the 1989 rezoning permit and incorporated virtually all of the trail community's concerns into the master plan. LURC requested that Saddleback submit a final development plan. Saddleback hinted that it may ask LURC to rescind the entire planned development sub-district, preferring to submit future development proposals piecemeal.

Currently, there are no new developments. Contact New England Regional Representative Kevin Peterson at the ATC's regional office, P0 Box 312, Lyme, New Hampshire, 03768; (603) 795-4935 for more information.

Sarah Whitney is the current Prenanthes Intern.

*The Northeast Alpine Stewardship Steering Committee
announces the third*

Alpine Stewardship Gathering

Whiteface Mountain
Wilmington, New York

September 13 & 14, 1996

Mark your calendars now!
Details available soon.

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Winter 1996

Volume 1 Number 2

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Prenanthes is published on a semiannual basis and is dependent on readership contributions. Contributions of research abstracts, photographs, event information, resource contracts educational opportunities, management issues, and any other information pertaining to arctic-alpine areas is welcome. The copy deadline for the fall issue is October 10, and for the spring issue March 10. MI contributions should be sent to *Prenanthes*, The Green Mountain Club, Route 100, RR 1 Box 650, Waterbury Center, Vermont 05677.

The opinions expressed by *Prenanthes* contributors do not necessarily reflect those of the Green Mountain Club. *Prenanthes* reserves the right to refuse any contributions that are not in keeping with the mission set forth by this newsletter. *Prenanthes* does not solicit advertisements.

Subscription costs serve to meet the administration needs of the newsletter and its network of public regional arctic-alpine information. We welcome any contributions that will help maintain this network.

Send address changes to *Prenanthes*, The Green Mountain Club, Route 100, RR1, Box 650, Waterbury Center, Vermont 05677.

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MISSION

The Mission of Prenanthes is to promote the preservation of arctic-alpine areas in the northeastern United States. To that end, the newsletter serves to: (1) to enhance management, education, and research activities in and about arctic-alpine areas; and (2) to facilitate the sharing of information about the alpine zone among interested parties in the Northeast and other regions.

The Green Mountain Club is a nonprofit organization founded in 1910. In a 1971 Joint Resolution, the Vermont Legislature designated the Green Mountain Club the founder, sponsor, defender and protector of the Long Trail System..." More than 6,000 GMC members and 400 volunteers work with GMC staff to promote respect for Vermont's wilderness and backcountry areas and maintain a primitive experience for hikers on the 440 miles of trails in the Long Trail System