

Moosilauke Land Management Plan

As recommended by the Moosilauke Advisory Committee, February 22, 2000
With additional explanatory notes by David Hooke, January 26, 2001
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Moosilauke Land Management Plan	1
I. Statement of Purpose	2
II. Background.....	2
A. Description of the Property.....	2
B. Land-ownership History and Deed Limitations	3
C. Previous Policy and Planning Efforts	3
III. The Partnership and the Planning Process.....	3
A. Outdoor Programs Office (OPO).....	3
B. Dartmouth Outing Club	4
C. USDA Forest Service-White Mountain National Forest.....	4
D. Appalachian Trail Conference.....	5
E. Other Parties	5
IV. Issues and Policies - The Trail System.....	5
A. Trail Maintenance.....	6
B. Trail Design and Construction	7
C. Relocations.....	7
D. Signs.....	8
E. Bridges and Stream Crossings	8
F. Trailheads and Parking.....	9
G. Overnight Use.....	10
H. Drinking Water Supplies	10
I. Trails in the Alpine Zone	11
V. Issues and Policies - Public Use, Public Information, and Emergency Response	12
A. Hunting, Fishing and Trapping.....	12
B. Winter Use	13
C. Emergency Planning and Coordination.....	13
D. Special Events and Large Group Use.....	14
E. Public Information and Education Programs	15
F. Memorials.....	15
VI. Issues and Policies - Conflicting Uses and Competing Uses	16
A. Motorized and Mechanized Uses - ATVs, 4WDs, Bicycles.....	16
B. Leave No Trace and Sustainability	17
C. Horses and Pack Animals	18
D. Roads, Access Control, and Road Closures	18
E. Utilities and Communications Facilities.....	19
VII. Issues and Policies - Resource Management	19
A. Open Areas and Vistas	19
B. Commercial Timber Management.....	20
C. Pest Management.....	21

D. Rare, Threatened and Endangered Species	21
E. Wildlife	22
F. Vegetation Management and Reclamation	22
G. Cultural Resources	23
H. Pennington Haile Natural Area (including the Ross McKenney Forest)	23
I. Research	23
VIII. Policies and Current Practices - Ravine Lodge	24
A. Facilities to be provided.....	25
B. Service and ambience policies:	25
C. Limitations on use of the Lodge complex -	26
D. Life Safety requirements:	27
E. Additional policies for Lodge operations.....	27
List of Appendices.....	29

I. Statement of Purpose

This Management plan is an attempt to gather into one document the various policies, understandings and practices now in effect for the Dartmouth Moosilauke tract; to provide guidance to current managers and users; and to serve as a basis for future decision-making on land-use and other activities at Moosilauke.

II. Background

A. Description of the Property

The Dartmouth College ownership at Moosilauke consists of approximately 4,537 acres of land. The current ownership was assembled through the acquisition of five (5) separate parcels:

1. *Summit tract* (50 acres)—This circular tract (with the summit of Mt. Moosilauke at its center) was acquired by the DOC in 1920 through a gift from Charles and E.K. Woodworth.
2. *Parker-Young tract* (933 acres)—This parcel was acquired in 1933 with funds from the Dartmouth Alumni Outing Club. The parcels includes the site of the former Ravine Camp (and the current Ravine Lodge) and Gorge Brook ravine. It connects to the summit tract.
3. *Jobildunc tract* (930 acres)—This parcel includes the area around Jobildunc Ravine. It was acquired in 1965 through donations of Pennington Haile.
4. *South Peak tract* (249 acres)—This parcel, which includes the summit of South Peak, also was acquired in 1965 through donations of Pennington Haile.
5. *Blue Ridge/Hurricane Mountain/Big Brook tract* (2,375 acres)—This parcel includes the remainder of the Asquamchumauke (Baker) River watershed within the towns of

Benton and Woodstock. It was acquired in 1979 with funds donated by Pennington Haile and the Culpepper Foundation.

These tracts are shown on maps included as part of Appendix A, "Moosilauke Land Use Policy, 3/19/90."

B. Land-ownership History and Deed Limitations

Dartmouth College owns just under 4600 acres on Mt. Moosilauke, in Benton and Woodstock, N.H. This is the largest inholding in the White Mountain National Forest, as shown in Appendix A. Of the five tracts that make up the current Dartmouth College ownership at Moosilauke, several were conveyed with limited restrictions on their use. An analysis of the deed limitations and conveyances was prepared by H. Bernard Waugh '76 in 1981 (see Appendix B). The four tracts acquired through the generosity of Pennington Haile did not reserve to Mr. Haile (or the Culpepper Foundation, which provided funds to acquire the Blue Ridge tract) any specific interests in the land. However, on April 26, 1966, Mr. Haile and then-Treasurer and Vice President of Dartmouth College John Meck executed a "Memorandum on Mount Moosilauke Tracts" (see Appendix C) which described Mr. Haile's intentions for the protection and management of the land acquired with the funds he donated. The so-called "Meck-Haile Agreement" provides the foundation for management of a large portion of the College's ownership at Moosilauke.

C. Previous Policy and Planning Efforts

Following the completion of Bernie Waugh's review of deed restrictions (see above section), James B. Friday '82 completed a research project entitled "Mount Moosilauke: Data and Recommendations for Use" (see Appendix D). Both the Waugh and Friday reports were presented to the "Land Use Subcommittee" of the Moosilauke Advisory Committee. In the fall of 1981, the subcommittee provided a list of recommendations on land-use policy issues to the Moosilauke Advisory committee.

The Moosilauke policy-review initiative was renewed again in 1986 when the Moosilauke Advisory Committee prepared a draft list of policy issues and management direction. That draft was further refined into a working policy document. After several years of review, the "Moosilauke Land Use Policy" (see Appendix A) was adopted by the College Treasurer on behalf of the Board of Trustees on March 3, 1990.

This document provides further direction to the Director of Outdoor Programs, other Outdoor Programs Office staff, the Moosilauke Advisory Committee, members of the Dartmouth community and the public on how the Moosilauke property should be managed and used.

III. The Partnership and the Planning Process

A. Outdoor Programs Office (OPO)

Dartmouth College's Real Estate Office and the Treasurer's Office have delegated to the Outdoor Programs Office the responsibility for all land-management issues on the Moosilauke property, including recreation management, research oversight (shared with Biological Sciences Department), and visitor services. OPO coordinates with Facilities Operations and Management (FOM) on maintenance, repair and reconstruction of the Ravine Lodge and its associated outbuildings. FOM assumes financial responsibility for these activities, which are proposed and approved by OPO. Additions to the existing facility must be approved by the Facilities Planning Office. All real estate matters are coordinated by the Real Estate Office. A timber management plan has been prepared with the assistance of the Director of Woodland Operations, a member of the Vice President and Treasurer's staff.

The Director of OPO appoints the Moosilauke Advisory Committee and its various subcommittees (Land Management, Trails, Facilities Use, and Research and Education). Meetings are conducted twice per year. The purpose of the committee is to provide advice to the Director in all aspects of managing the Moosilauke complex.

B. Dartmouth Outing Club

The DOC has certain management responsibilities for the Appalachian Trail (pursuant to the A.T. Local Management Plan and in consultation with the WMNF and ATC). The DOC also is responsible for the maintenance and management of John Rand cabin, under the supervision of OPO. The DOC is also responsible for Great Bear and Ritchie Smith Cabins, which are on the flanks of Moosilauke but on properties separate from the main Moosilauke holding. DOC also coordinates various student-led programs, including DOC (First Year) Trips, hikes and outings, trail construction and maintenance, and other special programs. Both the President of the DOC and the Chair of Cabin and Trail are members of the Moosilauke Advisory Committee.

C. USDA Forest Service-White Mountain National Forest

Federal land managed by the White Mountain National Forest completely surrounds the Dartmouth ownership at Moosilauke. The Moosilauke tract is the largest privately-owned tract within the White Mountain National Forest(WMNF). The United States Forest Service recognizes Dartmouth College's overall management philosophy as consistent with its own. As such, the relationship has been one of cooperation and respect. It should be noted that at the national level the USFS has a standing policy of acquiring in-holdings whenever a willing buyer-willing seller arrangement is evident. However, there has never been any effort to pressure Dartmouth College into selling the Moosilauke property to the USFS. Indeed, the WMNF staff applauds the College and supports its management efforts.

The WMNF acquired a 363-acre easement along the northwest boundary of the property in 1995 to provide permanent protection for the Appalachian Trail, pursuant to the National Trail System Act. This easement restricts development and other activities near the A.T. (see Appendix E).

In addition, the College and the WMNF have exchanged easements to provide access to College ownership across FS ownership (along the access road from NH Rte 118) and to guarantee public access to the trailhead at the end of the road and parking (see Appendix F). The College and WMNF also have entered into a road-management agreement wherein the parties agree to share the various aspects of road maintenance (see Appendix G).

WMNF maintains a small radio repeater near the Dartmouth-WMNF boundary, east of the Benton Trail at timberline.

The WMNF maintains a cache of fire-fighting tools at the Ravine Lodge.

D. *Appalachian Trail Conference*

The Appalachian Trail Conference (ATC) is a nonprofit organization devoted to protection and management of the Appalachian Trail across its entire length from Maine to Georgia. ATC works closely with DOC, OPO, WMNF, state agencies, and others to coordinate protection and management activities within the DOC's Trail section, which extends some 75 miles from Kinsman Notch, New Hampshire to Woodstock, Vermont, including several miles that traverse the Moosilauke ridgeline. ATC assisted the Forest Service, OPO, and the Dartmouth Real Estate Office with developing a conservation easement across a portion of the ridgeline to provide permanent protection for the section of A.T. across Dartmouth's Moosilauke ownership (see Appendix E).

E. *Other Parties*

The New Hampshire Electric Cooperative maintains an easement for power line access from Breezy Point to the Ravine Lodge.

OPO cooperates with the Asquamchumauke Snowmobile Club (based in Warren) on maintenance and management of the Carriage Road, which provides both pedestrian and snowmobile access to the upper reaches of Mt. Moosilauke; snowmobiles are excluded from the conservation and trail easement area described in C. above.

IV. Issues and Policies - The Trail System

Historical Setting: Moosilauke trails were constructed for a variety of purposes. Here is a brief trail-by-trail account, for existing trails, partly or fully on the Moosilauke property, or under DOC management.

- Beaver Brook Trail (from NH 112 to Benton Trail near summit)—Constructed in 1916 as a hiking route. Cascades portion reconstructed c. 1975 by USFS. Upper portion relocated to avoid Deer Lake and be near WMNF boundary in 1992-93. New layout of upper portion intended to make that route skiable, which it is (barely). Beaver Brook Shelter relocated from Kinsman Notch to just above cascades in 1993-94.
- Carriage Road—Built c. 1859 to provide horse cart access to summit for Prospect House. Middle-Upper portion damaged by bulldozing for 1957 Winter Cabin construction. Lack of waterbars and subsequent neglect caused severe erosion. Reconstructed from Dartmouth line to 1000' below Glenciff Trail (roughly 2.8 miles) under direction of Put Blodgett in 1994 with ISTE grant. Will Brown and other '30s alumni provided funds for Camp Misery bridge and gate on Big Brook, also constructed 1994. The trail is cooperatively managed with the Asquamchumauke Snowmobile Club, which grooms trail to snowmobile

turnaround below South Peak. Trail now used extensively by backcountry skiers and snow boarders, in addition to snowmobiles.

- Benton Trail—Constructed c. 1840. While primarily on WMNF lands and maintained by the WMNF, the uppermost 0.4 miles (above the junction with the Beaver Brook Trail) became the AT route in 1993, when the Beaver Brook Trail was relocated. As a result, the top 0.4 miles of the Benton Trail is now maintained by the DOC as part of its AT management responsibility.
- Gorge Brook Trail—An extension of the lower portion of an early logging road (turn of the century) became the lower section of Hell's Highway in 1934. The upper portion (roughly above "Last Water") was cut in 1946 to provide a hiking route from the Ravine Camp to the summit, to aid in removing Summit Camp fire debris and provide a direct route to the summit. Upper portion (above "Last Water") completely relocated and hardened in 1989-91 under the direction of Put Blodgett. New upper route designed to accommodate backcountry skiing. Relocation and new bridge just below the new Snapper Trail junction to avoid bank washout was constructed in 1995-96 under the direction of David Hooke.
- Snapper Trail—Originally built as a downhill ski trail from the Carriage Road to the Ravine Lodge in 1939 under the direction of Ed Wells '39. Completely relocated as hiking/backcountry skiing trail in 1995 under the direction of Put Blodgett.
- Ridge Trail—Laid out as nature trail along Blue Ridge in 1948 by Al Gustafson. Section from Waternomee to Mt. Jim relocated with switchbacks in 1994-95 to accommodate skiing.
- Al Merrill Loop—Laid out by Al Merrill and finished in 1982 as Blue Ridge trail, using Parker-Young logging Roads.

A. Trail Maintenance

Background: Until the early 1990s, most of the trail system on Moosilauke was maintained by DOC students during two weekend work trips, one each during Spring and Fall terms, and by summer-seasonal trail crews hired by the DOC or the Outdoor Programs Office. In 1991, MRL Manager David Hooke established a fledgling Moosilauke Trail Adopter program, with the goal of having each trail or section of trail assigned to an individual "adopter" who would be responsible for doing basic maintenance (such as brushing, blazing, cleaning draining structures, clearing blowdowns, *etc.*) and identifying larger projects in need of more intensive work by a bigger crew. The adopter program is modeled on similar programs in place on numerous sections of the Appalachian Trail throughout New England. As of this edit, this program no longer exists and the trail system is being maintained by the DOC, DOC Summer Crew and Moosilauke Volunteer Trails Program.

Management Policy:

1. The trail system on Moosilauke is maintained by a collaboration between the DOC and the Outdoor Programs Office. Work is primarily undertaken by the DOC on volunteer weekends, the summer trail crew and by volunteers coordinated by MRL staff.
2. Larger trail construction/reconstruction projects will be supervised by the OPO staff, with financial assistance from the J. Willcox Brown trails fund.

3. The Appalachian Trail will be marked with 2" x 6" vertical white blazes according to the ATC Stewardship Manual. Other trails should not be blazed except where there are recurrent problems.
4. MRL will provide tools and equipment for use by volunteers for maintenance and construction projects on the mountain.
5. Trail workers will receive recognition from the MRL, such as free MRL services, volunteer trail-crew T-shirts, *etc.*

B. Trail Design and Construction

Management Policy:

1. Trails will be designed so that they wear lightly on the land and create the smallest possible impact on vegetation, soil, water quality, scenic quality, and other mountain resources.
2. All trails will be designed and constructed using the general principles described in the Appalachian Trail Conference's stewardship manual *Trail Design, Construction and Maintenance* or similar manuals.
3. To the maximum extent possible, the Moosilauke trail system and individual trail sections will be designed and constructed to accommodate four-season use. Clearing and brushing will be done to accommodate passage in winter by skiers and snowshoers.
4. In general, trail construction should be completed using hand tools (including motorized hand tools such as brush saws and chainsaws). Heavy machinery, such as bulldozers, backhoes, and excavators, should not be used except in extraordinary circumstances. A formal proposal for such use may be reviewed by the Moosilauke Advisory Committee.

C. Relocations

Background: Over the years, many sections of the Moosilauke trail network have been relocated for a variety of reasons. One of the most recent and ambitious of these projects is the relocated section of the upper Gorge Brook Trail from "Last Water" to the summit of Moosilauke via East Peak. Construction on the so-called "East Peak Trail" was begun in 1989 (as a special project to coincide with the 50th anniversary of the construction of the Lodge); the new section was opened in 1990. Several other relocations have been completed, including the Snapper Trail, portions of the Ridge Trail near Mt. Jim, and the Beaver Brook Trail (A.T.) from the Jobildunc Headwall to the Benton Trail.

Management Policy:

1. Relocation proposals must be reviewed by the Moosilauke Advisory Committee and approved by the Director of Outdoor Programs. The flag line for any proposed relocation should be walked by the Director of Outdoor Programs and at least two members of the MAC.
2. Relocations or new construction within alpine or sub-alpine vegetation zones must be reviewed by a qualified field biologist who will assess possible impacts to vegetative communities along the proposed trail. Relocations will avoid sensitive plant or animal communities.

3. Proposed relocations within the alpine zone (see Appendix H) must include a plan to close and rehabilitate old sections of trail.
4. Signs with a map depicting the new route and the old (closed) route will be posted at each end of a relocation for at least one full season after the relocation is opened. As soon as possible, maps, trail signs, guidebooks and other on- and off-trail information will be updated to reflect the mileage and description of the new route.

D. Signs

Background: DOC, the Outdoor Programs Office, and the U.S. Forest Service have designed and installed a variety of signs on Moosilauke to convey a variety of information, including trail mileage, camping and entry restrictions, alpine zone suggestions, *etc.* These signs are of different sizes, designs, colors and materials. An inventory of these signs was assembled in 1991 and was completely revised in the fall of 1998 (see Appendix I).

Management Policy:

1. Signs will be the primary means of on-trail information and education.
2. Outdoor Programs Office staff will develop and maintain a sign inventory and install/repair/replace trail signs as needed. Signs may be placed on trees or posts, as appropriate, depending on the situation. Care will be taken to limit the number of signs and consolidate signs as much as possible to prevent "sign pollution."
3. Outdoor Programs Office staff will work with the White Mountain National Forest and the Appalachian Trail Conference to develop sign designs that will be consistent with Forest and ATC guidelines. At a minimum, trail signs will be placed at the trailhead and at all trail junctions. Signs will include the trail name and appropriate mileages, noted to the nearest tenth of a mile.
4. Standard WMNF "Welcome to the Alpine Zone" signs will be maintained at appropriate locations just below the alpine zone on all trails that access alpine areas.
5. Trailhead or "gateway" bulletin boards will be maintained at appropriate locations near the Ravine Lodge. The signs will include information about the trail network, use regulations, the Lodge, Outdoor Programs, as well as general backcountry guidelines such as "carry in-carry out," "leave-no-trace," precautions regarding water and sanitation, and other information as appropriate.

E. Bridges and Stream Crossings

Background: There have been a number of bridges constructed over the Asquamchumauke (Baker) River, Gorge Brook, Big Brook, and other streams to provide access for timber management and recreation. Several existing trail bridges are located on or near abutments originally constructed for timber roads. With the exception of the Carriage Road, the primary purpose of bridges today is to provide pedestrian recreational access.

Management Policy:

1. Bridges will be constructed only where they are essential to hiker safety during the snow-free hiking season, or when they are necessary to protect sensitive resources, such as soils along a river's banks. Bridges should not be constructed to provide crossings during normal (seasonal or regular) flooding, such as during spring runoff.
2. On trails that are identified as important winter routes, bridges may be constructed to accommodate skiers and snowshoers.
3. Bridges may be constructed of native or non-native materials, depending on the availability of suitable on-site materials, bridge location, type of anticipated use, *etc.*
4. With the exception of the steel bridge over Big Brook on the Carriage Road (installed in 1994), generally all bridges should be designed so that they cannot accommodate motorized or wheeled vehicles. Exceptions may be granted by the Director of Outdoor Programs, in consultation with the Moosilauke Advisory Committee.
5. A bridge more than 20 feet in length and more than three feet in height should be inspected periodically by a qualified person to be identified by the Director of Outdoor Programs. Existing bridges (as of June 1998):
 - Gorge Brook Trail/Asquamchumauke (Baker) River, steel I-beam/PT deck, built in 1998
 - Access Road extension/Asquamchumauke (Baker) River ("ski bridge"), log, built in 1979; Stringers and rail replaced 1999
 - Ridge Trail/Asquamchumauke (Baker) River, log, built in 1997
 - Ridge Trail/Hatch Brook, log, built in 1992
 - Gorge Brook Trail/Gorge Brook (Snapper), log, built in 1996
 - Gorge Brook Trail/Gorge Brook (upper), log, built in 1995
 - Carriage Road/Big Brook, steel, built in 1994
 - Hurricane Trail/Gorge Brook, log, built in 1994
6. New bridges will be constructed only with the approval of the Director of Outdoor Programs and only after alternatives to bridge construction/reconstruction (s.a. relocations or fording) have been explored.

F. Trailheads and Parking

Background: There are five trailheads with trails departing for the summit of Mt. Moosilauke (and other parts of the Moosilauke area):

<u>Location</u>	<u>Ownership</u>	<u>Trail Name</u>	<u>Parking Available</u>
Glenclyff/Sanitarium Rd	State of NH	Glenclyff/A.T./Hurricane	6-8 cars in WMNF lot
Carriage Road/Breezy Pt.	WMNF	Carriage Road	6-8 cars at end of rd.
Kinsman Notch	WMNF/State	Beaver Brook/A.T.	25 cars in WMNF lot
Tunnel Brook Rd	WMNF	Tunnel Brook/Benton	6 cars on side of rd.
Ravine Lodge	Dartmouth	Gorge Brook/Ridge/Snapper	Unlimited-side of rd.

Traditionally, Ravine Lodge staff, guests and day hikers park along the western side of the access road. Because of the length and width of the road, there is almost unlimited parking near the Ravine Lodge. A "cul-de-sac" at the end of the road is designed to provide space for buses and other large vehicles to turn around. This area is signed to discourage parking, but often drivers do not heed the signs. During the winter season, the state of New Hampshire plows the

section of the access road between Route 118 and the iron gate to provide parking for skiers and other winter travelers.

Trailheads offer an important opportunity to educate users of a trail or a particular area about backcountry ethics, local regulations, and other helpful information. This is clearly the case at Moosilauke as well.

Management Policy (which apply to the Ravine Lodge parking only):

1. Parking will be provided on the west side of the MRL access road for Lodge guests, staff, and day users. In order to limit the likelihood of vandalism, people will be encouraged to remove valuables and lock their vehicles when left unattended. Parking will be actively discouraged within the turnaround area. Signs will be maintained advising drivers to park elsewhere.
2. In order to maintain the aesthetic character of the front of the main building, to the extent possible, vehicles (crew vehicles) will not be parked at the loading dock or anywhere else within view of the main building. The MRL Service vehicle will be parked in a designated spot.
3. On the Moosilauke property, major trailhead bulletin boards will be maintained in two locations: at the end of the access-road turnaround, and on the west side of Class of 1982 Memorial Bridge over the Asquamchumauke (Baker) river. On each bulletin board will be important visitor information, such as a map of the Moosilauke area, hiking/camping guidelines for the Dartmouth property, and other informational and educational messages (such as those promoting the "leave-no-trace" and "carry in-carry out" messages).

G. Overnight Use

Background: There is a long tradition of overnight use on the Moosilauke property, beginning with early logging camps, the summit house, the Ravine Camp, McKenney Cabin, and the current Ravine Lodge and associated bunkhouses and outbuildings. In addition, a DOC undergraduate cabin known as John Rand Cabin is located on the property. Since the early 1970s, a "no camping" policy has been in effect to limit resource degradation at places like "Last Water" on the Gorge Brook Trail, on the summit, near the junction of the Beaver Brook and Ridge Trails, and across from the Lodge along the Asquamchumauke (Baker) River. Currently, overnight use is limited to the Ravine Lodge and John Rand Cabin.

Management Policy:

1. Except as provided for below, overnight camping is not permitted on the Moosilauke property. All overnight use will be confined to the Ravine Lodge and associated bunk houses and outbuildings, and to John Rand Cabin.
2. Below the alpine zone (defined as areas where trees are less than eight [8] feet tall), winter camping is permitted where there is at least one (1) foot of snow cover. Within the alpine zone, winter camping is permitted where there is at least two (2) feet of snow cover. Winter camping should be at least 200 feet from roads, trails, and surface water courses. The Outdoor Programs Office may develop additional information to guide winter camping.

H. Drinking Water Supplies

Background: On the Moosilauke property, there are two basic sources of water: the state-approved, deep-well system that provides water for the Ravine Lodge; and open, surface-water

sources such as streams, brooks, and springs that naturally abound across the extent of the Moosilauke property. Water at John Rand Cabin is obtained from a small stream that runs past the cabin.

Management Policy:

1. The Ravine Lodge will continue to provide state-approved drinking water for Lodge guests, hikers and other visitors during the months it is open for business. Availability of drinking water from the Lodge will be publicized on trailhead/gateway signboards, regular Lodge brochures, and through other appropriate media.
2. Lodge guests, hikers, and other visitors will be advised that the purity of all open surface-water sources cannot be guaranteed. Visitors should treat, boil or filter water from open sources. This message will be publicized on trailhead/gateway signboards, regular Lodge brochures, and through other media.
3. Any additional development on the Moosilauke property (such as roads, cabins, shelters, *etc.*) will be carefully sited and designed in a way that does not impact existing surface waters.

I. Trails in the Alpine Zone

Background: The alpine and sub-alpine areas of Mt. Moosilauke have a long history of human activity. The first trail up the mountain, the Glencliff Trail, was constructed by Glencliff residents in 1840. In 1860, a hotel was constructed on the summit and a carriage road up the southern ridge provided access for horses, carriages, and hikers. In 1920, the Summit House was given to the Dartmouth Outing Club. DOC operated the renamed Summit "Camp" as a summer hostel (in the manner of the AMC huts) until the camp was destroyed by fire in 1942. In 1927, a winter cabin was built 75 feet east-northeast of the summit camp. In 1957, the winter cabin was torn down and an arctic-style cabin was constructed about 300 feet southeast of the summit. This cabin was subject to misuse and vandalism and was removed by helicopter in 1979; the concrete foundation remains. (For a full account of the history of trails on Moosilauke through 1986, see *Reaching That Peak: 75 Years of the Dartmouth Outing Club.*)

The summit area has become a very attractive destination for a broad spectrum of users, both experienced and novice. During sunny weekends in the summer and fall (without a doubt the busiest time of the year), hundreds of visitors have been observed on the summit hiking, berry picking, picnicking, exploring, even playing frisbee or kite-flying. Winter use is dominated by skiers and snowshoers. And, use in early-spring and late-fall is increasing. However, these activities do not appear to have had a major effect on the alpine plant ecology. Indeed, several alpine ecologists who have visited the area over the last decade suggest that the plant community is relatively stable and that, with some site-specific exceptions, the current system of trail management is adequate to protect the natural environment. Where damage is occurring, it appears to be limited to areas where trails are not well-defined, or where it is easy for hikers to wander off the footpath. Areas in which trails have been closed or relocated have shown signs of rapid regeneration and recovery once foot traffic is removed.

Several recent changes to the trail system have changed the pattern of use in the alpine zone. In 1989-90, the Gorge Brook Trail was relocated to approach the summit from East Peak. In 1993, the Appalachian Trail (the upper portion of the Beaver Brook Trail) was relocated to the northwest along the ridgeline west of Deer Lake, intersecting the Benton Trail just below timberline. The old routes were closed and use of those areas has dramatically decreased.

In 1994, Dartmouth hosted a biennial gathering of alpine managers at the Ravine Lodge. The feature of the weekend gathering was a case study of the Mt. Moosilauke alpine area, which resulted in recommendations for future management of the alpine area, including the trail system, which includes a portion of the Appalachian Trail.

As of 2005, an alpine steward position has been created to monitor usage on the summit and educate hikers about the fragility of the alpine eco-system. This was supported by the USFS and the Laura and Guy Waterman Fund for Alpine Stewardship. As of 2008, it is permanently endowed by the David Heald Alpine Stewardship fund. The position is part of the MRL staff rotation and orientation is provided as part of their training.

As of 2009, trail registers were placed at all major trailheads to monitor usage levels. These are maintained by the MRL staff.

(For additional information see Charlie Cogbill's '71 chronology of alpine-area events, Appendix J, and J. Hartness Beardsley's '37 history of the Summit Camp.)

Management Policy:

1. There is an adequate number of existing trails accessing the summit area (Ridge/Beaver Brook/Benton, Gorge Brook, Snapper/Glencliff/Carriage Road). No new trails will be constructed to provide additional access to the alpine zone. Hikers will be encouraged to stay on the existing trail system within the alpine zone.
2. Scree walls will be constructed and maintained where necessary to control hiker traffic in order to limit impacts to alpine vegetation. Scree wall width should be consistent and wide enough to allow two hikers to pass or walk side by side.
3. Cairns should be constructed and maintained a uniform distance apart and on the same side of all trails within the alpine area.
4. Summit house foundation rocks must not be used for trail construction (cairns, steps, scree walls, waterbars, *etc.*). The foundation is a Moosilauke icon and an archeological and historical treasure.
5. The Alpine Steward program is responsible for educating hikers and local groups about the fragility of the alpine ecosystem, as well as maintaining trail registers to monitor volume levels.

V. Issues and Policies - Public Use, Public Information, and Emergency Response

A. *Hunting, Fishing and Trapping*

Background: New England has a long tradition of hunting, fishing and trapping on public and private land, although there has not been much hunting on the Moosilauke property.

Management Policy:

1. Hunting, fishing and trapping is permitted on the Moosilauke property except that no trapping is permitted within the "Natural Area" (see Section 7B and Appendix A) and no

bear baiting is permitted anywhere on the property. This policy is consistent with the policy on the College Grant and other College lands.

B. Winter Use

Background: The Moosilauke area has a long tradition as being a center for alpine and cross-country skiing. In 1927, the first "down-mountain" ski race was held on the Moosilauke Carriage Road and in 1933 the first national downhill championship. In the 1930s and 40s, the DOC had cut several prominent ski trails on Moosilauke and established a ski area on the Blue Ridge, behind the Ravine Lodge. Indeed, until the 1960s, the Lodge was operated in the winter as a base for winter activities at Moosilauke. By the 1960s, the ski area was no longer actively maintained, although evidence of some of its elements, such as the cleared line for the rope tow and several ski trails, is visible on the landscape. Backcountry skiing continues to be one of the most popular recreational activities on the Moosilauke property. Many sections of the Moosilauke trail network are used by skiers (and snowshoers) during the winter months. In recent years, several trail sections have been reconstructed or relocated to permit easier access for winter users.

Management policy:

1. The trail system will be constructed, reconstructed and maintained to enable winter travel.

C. Emergency Planning and Coordination

Background: Dartmouth has a long tradition of providing assistance to state and federal agencies during backcountry emergency situations such as forest fires, missing person searches, and rescues/evacuations of injured people from the backcountry. The Ravine Lodge has perpetuated this tradition by stocking supplies and equipment for backcountry forest fire fighting and search and rescue.

There are several types of emergencies that might occur on or near the Moosilauke property which may require staff or resources provided by Dartmouth: structure fire, forest fire, search and rescue, and crimes against individuals or property.

Forest fire—In New Hampshire, forest fire control is the responsibility of the Bureau of Forest Fire Control of the Division of Forest and Lands, part of the N.H. Department of Resources and Economic Development. A regional forest-fire-control officer coordinates and supports the efforts of town-based forest fire wardens. Wardens are trained in forest fire fighting techniques and maintain supplies of fire tools and equipment, which can be supplemented by the state as needed. The Ravine Lodge maintains a cache of fire fighting hand tools. In addition, the White Mountain National Forest maintains an on-call network of trained staff and equipment available to assist with forest fires on national forest land (which completely surrounds the Moosilauke property). The forest service coordinates its activities closely with the state, local fire wardens, and others.

Management Policy:

1. A cache of hand tools for forest fire fighting will be maintained in a prominent and accessible place at the Ravine Lodge. These tools should be reserved exclusively for forest fire fighting.
2. In the event of a forest fire on the Moosilauke property, MRL or Outdoor Programs staff will immediately notify the Director of Outdoor Programs, the Warren Fire Warden, the appropriate N.H. Bureau of Forest Fire Control officer, and the WMNF District Ranger.
3. The Outdoor Programs Office will cooperate with the Bureau of Forest Fire Control and the White Mountain National Forest in implementing any forest fire plan for the Moosilauke property.
4. All MRL staff will be trained and oriented to the location and proper use of all forest fire-fighting tools and equipment stored at the Ravine Lodge, and procedures for notifying appropriate people about a fire on the Moosilauke property.

Search and Rescue—The New Hampshire Department of Fish and Game has statutory responsibility for all search and rescue operations in the state, regardless of land ownership. The Ravine Lodge maintains a supply of search and rescue equipment and can provide limited search and rescue capability and assistance to Fish and Game. In many cases of a rescue or evacuation of an injured person from somewhere on the Moosilauke property, MRL staff are the first to arrive on the scene and, with the help of volunteers, can move a person safely to the Ravine Lodge. The Dartmouth-Hitchcock Medical Center operates a "life-flight" helicopter service which could airlift seriously injured or sick individuals from either the Ravine Lodge or the alpine zone.

Management Policy:

1. The Ravine Lodge will develop and maintain a well-stocked "rescue room" as a permanent facility requirement, with appropriate equipment and supplies for search, rescue and evacuation operations on the Moosilauke property and adjoining lands.
2. In consultation with the N.H. Department of Fish and Game and the White Mountain National Forest, the Outdoor Programs Office will establish and maintain a search/rescue/evacuation protocol and develop and annually implement a standard curriculum for training MRL staff in basic safety/rescue procedures. The protocol will set out procedures for notifying Fish and Game officials of search and rescue operations on the Moosilauke property and the roles and responsibilities of Fish and Game, MRL and Outdoor Programs staff, local rescue squads, volunteers, and others.

D. Special Events and Large Group Use

Background: Unlike much of the surrounding White Mountain National Forest, Moosilauke is unique in that the property is limited primarily to day use, except for overnight use at the MRL and John Rand Cabin in the summer and winter camping below timberline. Large groups of users, such as the DOC (First Year) Trips program and alumni reunions, organize special events and hikes that traditionally have involved large groups of users.

Management Policy:

1. Visitors to the Moosilauke property, including those using the hiking trails, will be encouraged to comport themselves in a manner consistent with natural outdoor

experiences, including taking efforts to preserve and respect the solitude and quiet of the area's backcountry character.

2. During DOC First Year Trips, efforts will be made to confine the impact of the program to as small an area outside the immediate lodge as possible.

E. Public Information and Education Programs

Background: The mountain and trails on Dartmouth property have always been open to the public. In 1992 the MAC and OPO staff decided to open the doors of the Ravine Lodge to all comers, and to no longer require that guests have a Dartmouth connection. OPO has not actively promoted the Ravine Lodge beyond Dartmouth, but word has spread, and the Lodge sees an increasing number of outside visitors. This increased further in 1999 with the opening of the Ravine website; though primarily intended as a way to get client questions answered quickly, it has had the effect of opening the Lodge to an even broader audience.

In the last 20 years, and increasingly in the last 9 years, the Ravine Lodge staff has made various attempts to create evening and weekend programs for its guests. Evening programs have run the full gamut from storytelling to lectures on White Mountains history. All of these programs have been seen as primarily a way to get more guests to the Lodge, and there has not generally been an overt public outreach and education mission to these efforts. However, a series of Sunday nature walks organized by a crew member in 1998, using researchers in residence for the summer as guides, was well received and showed that guests would respond well to such programs if offered.

In addition, the Lodge crew have maintained a tradition of Dinner Talks, where the crew member in charge of hosting the dinner on a given evening is in charge of making a roughly five-minute presentation on some aspect of mountain history and lore. These have been well-received.

Management Policy:

1. OPO staff shall assign to a member of the Lodge staff the responsibility of developing and publicizing a varied schedule of day and evening educational programs for the benefit of Lodge guests.

F. Memorials

Background:

Over the years a number of memorials have been placed at various locations:

1. On the mountain:

Penn Haile '24 plaque on South Peak, placed 1966

Charles 1897 and E. K. Woodworth 1907 memorial on North (main) Peak, placed 1966, removed by unknown persons in 1998, replaced early 2000s.

Dick Sanders '29 and Summit Camp memorial, North peak, placed 1957

Ross McKenney Forest memorial plaque at Last Water on Gorge Brook Trail

Al Merrill Memorial plaque, placed at the information kiosk at the Turnaround, 1996

John Rand '38 memorial plaque and cabin, dedicated 1983

Class of 1982 memorial bridge over the Baker at Ravine Lodge, erected 1998, signed in 1999, dedicated to fallen classmates.

In addition, the brook that parallels Gorge Brook to the east was named Hatch Brook on June 24, 1989, in honor of Dan Hatch '28.

The overlook on the Merrill Ski Loop was signed in memory of fallen members of the 10th Mountain Division.

2. *Inside the Lodge*

Ross McKenney bust and plaque, bust created by June Brundage Cater, installed 1995
Martin Kryska '86 Stone, award and memorial plaque, installed 1993
Harold Leich memorial lounge, renovated 1984-85
Laurence Lougee Room, dedicated 1995
Everett Blake "Voice of the Lodge" Desk Area

While these people all represent major figures in the Moosilauke development for reasons of stewardship, financial contribution, or accomplishment, the Advisory Committee expressed concern beginning in 1998 that this proliferation of plaques in particular would change the character of the mountain. Accordingly, when seeking a suitable "living tribute" to J. Willcox Brown '37 for the the Moosilauke 60th Anniversary in 1999, the MAC proposed a Moosilauke Historical Quest, a guided tour of the Lodge and grounds.

Management Policy:

1. Permanent memorials (such as structures, plaques, *etc.*) should be discouraged. Exceptions may be made by the Director of Outdoor Programs, in consultation with the Moosilauke Advisory Committee.

VI. Issues and Policies - Conflicting Uses and Competing Uses

A. *Motorized and Mechanized Uses - ATVs, 4WDs, Bicycles*

Background: The history of motorized and mechanized uses on the Moosilauke property is most closely associated with the history of logging and timber management, mostly in the first half of the 20th century. (For more information on logging, see *A Forest History of Mt. Moosilauke* by J. Willcox Brown '37.)

Since the consolidation in 1979 of Dartmouth's ownership of the upper Asquamchumauke (Baker) River watershed, motorized and mechanized use of the Moosilauke property has been confined to the access road and service road near the Ravine Lodge, and to winter use of the Carriage Road by snowmobiles from the Dartmouth property boundary near Big Brook to near South Peak. For several years in the late-1980s, staff of the acid rain research project used a four-wheeled ATV to access the meteorological tower established on the Blue Ridge easterly of the Ravine Lodge. Occasionally, motorized vehicles are used to maintain the Al Merrill ski trail system and to haul wood to John Rand Cabin. To date, no other motorized or mechanized uses have been permitted on the property.

Management policy:

1. In order to preserve the primitive backcountry environment that characterizes the Moosilauke property, all motorized and mechanized vehicles (including bicycles/mountain bikes) are prohibited with the following exceptions:

Access Road—Any vehicle that is permitted to drive on state or town highways may use the access road during the regular Ravine Lodge operating season. This road is gated from late November through late April at a point approximately 400 feet from N.H. Route 118.

Carriage Road— Snowmobiles and snow-grooming equipment are permitted to operate on the Carriage Road from the Big Brook bridge to the turnaround southeasterly of South Peak. Big Brook gate should be kept locked except during snowmobile season.

Emergency Vehicles—In the event of a forest fire, rescue or other emergency situation, the responders may utilize emergency vehicles on other portions of the Moosilauke property.

2. Motor vehicle use for normal maintenance and administrative purposes may be authorized by the Director of Outdoor Programs. Other situations where motorized-vehicle use is needed must be reviewed and approved by the Director of Outdoor Programs, in consultation with the Moosilauke Advisory Committee.

B. Leave No Trace and Sustainability

Background: In the early days of development of backcountry facilities in New England, many hotels, inns and lodges maintained their own dump or refuse pile; hikers and campers planned on leaving behind any trash they generated during their trip into the woods. Over time, many hiking and outdoor organizations (such as the Green Mountain Club and the Appalachian Mountain Club and of course, the DOC) began encouraging users of their backcountry facilities to carry out all their trash. By the mid-1970s, "Carry in-Carry out" had become a ubiquitous term for backcountry recreation managers; since that time, the "carry in-carry out" ethic has become one of the most recognized and well-accepted guidelines for backcountry use. The experience at Moosilauke is no exception.

In recent years, the principles of Leave No Trace have become standard practice for outdoor expeditions in high use areas. The DOC and OPO encourage all users to use LNT principles.

Furthermore, the Moosilauke area is an excellent tool for educating Dartmouth students and the general public about sustainable environmental practices.

Management Policy:

1. The Outdoor Programs Office strongly endorses the "Leave No Trace" practices outlined by the LNT Centre for Outdoor Ethics. More information is available at www.lnt.org.
2. Ravine Lodge guests will be encouraged to assist the MRL crew in reducing the Lodge's waste stream by separating their trash into appropriately labeled containers (such as white paper, burnables, glass, aluminum cans, *etc.*) for recycling.
3. Occasionally, visitors abuse the Moosilauke property and facilities through graffiti and other acts of vandalism. In documented cases, vandals will be strongly encouraged to repair the damage and perform other related community service.
4. MRL and OPO will use whatever means available to them through the facility to educate about sustainable practices
5. All further facility development and renovation will consider the impact on the earth's resources before proceeding.

C. Horses and Pack Animals

Background: This history of horse and pack stock goes back to the mid-1800s when the summit hotel, and carriage road were constructed. The principal means of access to the hotel was via the Benton trail and Carriage road on horseback or by horse-drawn carriage. A separate building was maintained at the summit to house the horses and carriages. Horses also were used to haul logs and help construct the Ravine Lodge in the late-1930s.

Management Policy:

1. Horse and pack stock are not permitted on any part of the Moosilauke trail system due to the fact that most of the trails were not designed or constructed to accommodate horses, llamas, or other pack animals.
2. Horses, oxen or other draft animals may be used for timber management operations.

D. Roads, Access Control, and Road Closures

Background: The land-use history of the Moosilauke property is dominated by logging. In order to get logs out of the woods, an extensive road network was constructed, in most cases prior to Dartmouth's ownership.

The service road, followed in part by the later access road, was established to provide direct access to the old Ravine Camp and somewhat improved for construction of the Ravine Lodge.

The access road and an extensive road system on the Blue Ridge was built in the early 1940s by the Parker-Young Lumber Company (the previous owner of much of the Moosilauke area) to salvage old-growth spruce downed by the 1938 hurricane. Looking out over the Blue Ridge from the upper Gorge Brook Trail, for example, one can still see in the pattern of vegetation the extent of the road system stretching from the valley to the top of the ridge.

A section of the upper Gorge Brook Trail follows part of the East Peak road system which was constructed in the late 1950s by Parker Young to harvest second-growth timber in the Hatch Brook drainage. Portions of this road system, though overgrown, were readily cleared for use as a trail.

In 1989, a portion of the Blue Ridge road system was cleared and bulldozed to provide access to the top of the ridge for the meteorological station installed there as part of the acid rain research project. (Additional historical information can be found in *A Forest History of Mt. Moosilauke* by J. Willcox Brown '37.)

Currently, the access road and service road are the only two roads on the Moosilauke property actively maintained for vehicular travel. The access road is maintained under the terms of a cooperative agreement between the Outdoor Programs Office and the White Mountain National Forest. A gate is installed several hundred feet in from N.H. Rte. 118; the gate is closed and locked during the winter season. The Ravine Lodge service road is maintained by the Outdoor Programs Office.

Management Policy:

1. The access road and the Ravine Lodge service road will continue to be the only roads on the property maintained for summer-season vehicular traffic.

2. The access road will remain open to the public during the period when the Ravine Lodge is open for business. During times when the Ravine Lodge is closed for the season and there is snow on the ground, the access road gate should also be kept closed and locked.
3. The Ravine Lodge service road will be used only for deliveries, administrative purposes, and disabled access. Appropriate signs will be maintained at the junction with the Ravine Lodge Road. Vehicles (including crew vehicles) should not be parked at the Lodge. The service road gate will be kept closed when the Ravine Lodge is closed.
4. In order to preserve the backcountry character of the area, new roads will not be constructed and old roads will not be reestablished for use by wheeled vehicles unless a clear determination can be made that they are necessary to advance the educational, recreational, scientific, and forest-management mission of Moosilauke. Any proposals for new or reestablished roads may be reviewed by the Moosilauke Advisory Committee and must be approved by the Director of Outdoor Programs.
4. The extensive network of old logging roads on the property provides an opportunity to develop additional trails for pedestrian recreation, particularly cross-country skiing (see Section 7B and Appendices A & C).

E. Utilities and Communications Facilities

Background: Two facilities are currently located on the Moosilauke property: the power and telephone lines that generally follow or parallel the upper part of the access road; and the solar-powered radio repeater maintained by the White Mountain National Forest on the northern side of Mt. Moosilauke just below the alpine zone (and a hundred feet or so southeast of the Benton Trail/A.T.).

Management Policy:

1. Utilities and communication facilities are generally incompatible with the primitive backcountry character of the Moosilauke area.
2. Proposals for new facilities will be considered only if there is a clear and demonstrated need that is consistent with the educational and research mission of the Moosilauke property and if no other reasonable alternative exists. Proposals may be reviewed by the Moosilauke Advisory Committee for their overall effect on the character and management of the Moosilauke property and must be approved by Dartmouth College through the Director of Outdoor Programs. New facilities may be proposed only by programs officially affiliated with Dartmouth College. Private, commercial, or non-College proposals will not be considered.

VII. Issues and Policies - Resource Management

A. Open Areas and Vistas

Background: Because of the forested nature of the Moosilauke property, open areas are generally limited to the alpine zone, the Ravine Lodge complex, the area immediately surrounding John Rand Cabin, the site of the meteorological station on the Blue Ridge and several old logging landings. Vistas include several established on the upper Gorge Brook trail

and the Tenth Mountain Division Overlook. (The following management policies do not pertain to the alpine zone, the Ravine Lodge complex, or John Rand cabin.)

Management Policy:

1. Open areas provide important wildlife habitat and species diversity. Existing open areas will be inventoried and maintained by the most practical means, including hand mowing, brush hogging, and prescribed burning. (See Section IV.I Trails in the Alpine Zone for alpine management concerns.)
2. Existing vistas will be managed to maintain long-distance views for trail users. At each human-cleared vista, Outdoor Programs staff and volunteers will explore ways to "soften" the appearance of cleared areas, which may include limited additional clearing and limbing, feathering the edges of clearings, seeding, and other techniques.
3. Proposals for new vistas may be reviewed by the Moosilauke Advisory Committee and must be approved by the Director of Outdoor Programs.

B. Commercial Timber Management

Background: Timber has been harvested from the Asquamchumauke (Baker) River drainage for more than 100 years. As recently as the late 1950s, before Dartmouth College acquired several of the parcels that make up the current Moosilauke ownership, timber companies had actively managed the timber resource, including cutting and maintaining skid roads, log landings, and haul roads. There remain many signs of previous timber management; one need only to look out from the upper Gorge Brook trail over the hillside below the Blue Ridge to see the pattern on the landscape left by logging roads and skid trails, many of which were established to salvage timber from the 1938 hurricane. Since the consolidation of Dartmouth's ownership of the Asquamchumauke (Baker) River valley in 1979, no commercial timber harvesting has been done. The Meck-Haile agreement of April 26, 1966 (see Appendix C) established a "natural area" in which timber harvesting is limited to fire, pest control, or trail maintenance. The remaining property outside the "natural area" is enrolled in the state of New Hampshire "current use" assessment program, which requires a completed timber management plan (see Appendix K). This plan was prepared with the assistance of the Director of Woodland Operations, a member of the Vice President and Treasurer's staff. According to the plan, commercial timber harvesting for the purpose of deriving income is not likely to occur, although that option remains.

Management Policy:

1. Commercial timber harvesting is prohibited within the "natural area" as defined in the Meck-Haile agreement of April 26, 1966. The "natural area" includes the following tracts: The "Summit Tract," the "East Peak-Jobildunc Tract," and that portion of the "Parker Young" (or "Gorge Brook") Tract lying in the town of Benton. The natural area does not include the portion of the "Parker Young" (or "Gorge Brook") Tract located within the town of Woodstock, upon which the Ravine Lodge and bunkhouses are located, or the lower portion of the "Parker Young" tract in the town of Benton (see Appendix A).
2. Commercial timber harvesting is permitted outside the "natural area" with the approval of the Director of Woodland Operations and the Director of Outdoor Programs, in consultation with the Moosilauke Advisory Committee. Any commercial timber management activities must:
 - a) be conducted in accordance with currently recognized best management practices;
 - b) occur only at elevations and locations capable of sustained yield; and

- c) not interfere with ongoing educational, research, and recreational uses.
3. All eligible lands will be enrolled or remain in the current use program. Appropriate management plans for these lands will be prepared by the Director of Woodland Operations, in consultation with the Director of Outdoor Programs and the Moosilauke Advisory Committee (see Appendix K1).

C. Pest Management

Background: Throughout the Northeast, various insects and other pests have appeared, disappeared, and reappeared across the forested landscape. Insects such as the gypsy moth, saddled prominent caterpillar, hemlock woolly adelgid, and eastern spruce budworm are well known to foresters, landowners, and backcountry managers. Other diseases, such as Dutch elm disease, chestnut blight and beech blight have changed the makeup of New England forests and altered management strategies on thousands of acres of forestland. At Moosilauke, the most visible pest to affect the forest is the spruce budworm, which, despite its name, attacks primarily balsam fir. Attempts to control outbreaks of insects and plant disease through the use of chemicals can be a very controversial aspect of resource management.

Management Policy:

1. In order to protect human health and safety, as well as to maintain the predominantly uninterrupted function of natural ecosystems to the maximum extent possible, no chemical herbicides or pesticides will be used on the Moosilauke property unless control is deemed essential to the protection of the forest and no feasible and prudent alternative exists. If pest control activities are needed, preference should be given to a biological agent (such as *Bacillus thuringiensis*). A decision on pest management measures (if needed) will be made by the Director of Outdoor Programs.

D. Rare, Threatened and Endangered Species

Background: The history of the Moosilauke area includes a long-standing interest in the vegetation, particularly in areas above treeline, where plants of varying rarity occur (or used to occur). The Moosilauke property is home to several state-listed rare species, all of which occur in areas above timberline. These flora, and others that grow within the "alpine zone," have been extensively studied by students, professors, and amateur and professional researchers (see Appendices L, bibliography of research efforts on Moosilauke). Most recently, in 1992, the area along the Appalachian Trail was surveyed by the New Hampshire Natural Heritage Inventory. In 1993, freelance botanist and researcher Charlie Cogbill '71 conducted an intensive survey of the alpine zone to document plant occurrences (see Appendix M, list of known vegetation). And, in 1994, participants in the second Alpine Managers' Conference explored the summit as part of a one-day field exercise in alpine-areas management. These efforts provide a very comprehensive list of rare species on the summit. An extensive survey of the remaining acreage has not been conducted.

Management Policy:

1. No management, recreational, research or other activity will adversely affect any known rare, threatened or endangered species sites.

2. The Outdoor Programs Office will follow the recommendations of the NH Natural Heritage Inventory for management of natural-heritage sites and communities on the Moosilauke property.

E. Wildlife

Background: Wildlife sightings can be a memorable part of a visit to the Moosilauke property. The large, unfragmented area of forestland that makes up the Moosilauke property (and surrounding White Mountain National Forest) provides habitat for numerous species of birds and animals, including many game animals such as moose, white-tailed deer, black bear, and ruffed grouse. Wildlife is managed by the New Hampshire Department of Fish and Game (see also Hunting).

Management Policy:

1. Management, recreation, research and other activities will not harm important wildlife habitat (such as deer wintering areas and bear feeding areas) or interfere with wildlife during critical periods of their life cycles (such as peregrine falcon nesting and spring and fall bear feeding periods).
2. Any vegetation management activities should encourage a variety of wildlife species.

F. Vegetation Management and Reclamation

Background: Humans have been managing the vegetation in the Asquamchumauke (Baker) River valley for hundreds (if not thousands) of years. Most of this management has consisted of timber harvesting conducted within the past three hundred years or so. Major commercial timber harvests were undertaken as recently as the late-1950s, prior to the consolidation of Dartmouth's current Moosilauke ownership. Since that consolidation, the primary form of vegetation management has been to clear and maintain the trail system, construct new facilities such as John Rand Cabin, establish research plots, and maintain areas around the Ravine Lodge.

Management Policy:

1. In general, vegetation management should be limited to those activities required to maintain existing recreational facilities (such as the trail system). Other vegetation management proposals (besides basic maintenance of existing facilities) must be approved by the Director of Outdoor Programs, in consultation with the Moosilauke Advisory Committee.
2. Research projects which would include some kind of vegetation management must be located and conducted in a way that they do not have a negative impact on the aesthetic quality of the Moosilauke property or its visitors.
3. Active measures may be employed to restore a site to a natural condition in areas that have been adversely affected by prior human activity, such as former trails and overnight sites that have experienced severe resource damage.
4. The introduction of exotic (non-native) species can have serious consequences for natural communities. Prior to introducing exotic species into natural communities, the management objective, possible alternatives, and justification for use of non-native species must be thoroughly documented.

G. Cultural Resources

Background: As noted in previous sections (Commercial Timber Harvest, Vegetation Management and Reclamation), most of the human activity on the Moosilauke property is limited to generally undocumented use by native Americans and timber harvesting (beginning with European settlers in the 17th and 18th centuries). The trained eye can see an abundance of evidence of previous human activity, from logging roads and landings to old cables and portions of the bed of a railroad that was used to haul logs down the Asquamchumauke (Baker) River valley in the early 1900s. (Additional historical information is contained in *A Forest History of Mt. Moosilauke* by J. Willcox Brown '37.)

Management Policy:

1. The Moosilauke property will be managed in a manner that ensures the preservation of cultural and historic resources.
2. The Outdoor Programs Office will encourage student (and other) research to document cultural and historic resources on the Moosilauke property, and to interpret the results of the research in the Ravine Lodge and at other appropriate places.

H. Pennington Haile Natural Area (including the Ross McKenney Forest)

Background: Several portions of the Moosilauke property have been identified for their characteristics as natural areas, worthy of special recognition and protection. In the April 26, 1966 agreement between John F. Meck and Pennington Haile (known as the "Meck-Haile agreement") which accompanied the conveyance of portions of the Moosilauke property from Mr. Haile to Dartmouth College, a large area generally south and east of the summits of Moosilauke and South Peak was identified as a "natural area" (further defined in Section 7B and in Appendix C). In 1985, a portion of the Natural Area in the upper Gorge Brook valley was dedicated to the memory of the late DOC woodcraft advisor Ross McKenney and became known as the Ross McKenney Forest.

Management Policy:

1. The management objective of the Natural Area is to permit only such human uses as are consistent with the preservation of the area's natural character.
2. The following activities are prohibited within the Natural Area: roads and all use of motorized vehicles (except snowmobiles on the Carriage Road and for emergencies); trapping; and cutting of timber (except for fire or pest control, disease, or trail maintenance).

I. Research

Background: For decades, Mt. Moosilauke and the surrounding region has been the site of numerous and varied research efforts and academic endeavors, undertaken by everyone from undergraduates and college professors to amateur plant biologists and government researchers. Dartmouth classes from such departments as biology, geography and earth sciences have used the Ravine Lodge and the Moosilauke property as an "outdoor classroom." Other institutions, such as the University of Maryland, have used Moosilauke as a base for outdoor-oriented academic projects for extended periods during the summer season. Many undergraduates have studied particular aspects of the mountain, including recreational use patterns, the distribution of

alpine flora, and land-use changes. The most recent and extensive project—the acid rain research project—was initiated in 1986 and involved numerous research plots and the establishment of the meteorological (or "met") station on the Blue ridge.

Management Policy:

1. The Moosilauke property should continue to serve as a field location for College coursework. Particular emphasis should be placed on educational and research efforts that encourage appreciation and study of the out-of-doors, and initiative and curiosity in the natural world.
2. In order to ensure consistency with the mission, goals, and objectives for management of the Moosilauke property (and other sections of this management plan), all proposals for research activities on any portion of the Moosilauke property (including college coursework, student projects, independent data gathering and analysis, *etc.*) shall be reviewed and approved by the Director of Outdoor Programs. Research proposals that are particularly extensive, of long duration, or involve a large physical area, or might conflict with other activities or uses of the property also should be reviewed by the research subcommittee of the Moosilauke Advisory Committee. Any approval of research proposals shall include a condition that a copy of the final report and results of the research will be forwarded to the Director of Outdoor Programs.
3. Permanent research plots may be established and maintained as a part of a formal research proposal. Research plots should not conflict with other recreational and educational uses of the property. Location of research plots must be approved by the Director of Outdoor Programs in the context of a formal research proposal.
4. Research projects must comply with all policy direction contained in this document unless an explicit exception is made by the Director of Outdoor Programs.

VIII. Policies and Current Practices - Ravine Lodge

Background: In 2005, the Moosilauke Advisory Committee and Outdoor Programs began discussing the replacement of the Ravine Lodge, because of maintenance issues and because the building was felt to be not sufficient for existing needs. In the fall of 2008, the College administration decided that, for the foreseeable future (at least five years) it does not envision reconstruction of the Ravine Lodge. The existing main building will be maintained as long as it can safely be done, and rotten logs will be replaced, as part of the College operating budget through the Facilities Operations & Maintenance department (FO&M).

However, concerns about sufficiency of facilities continue. Attached to this document is a 'program statement' outlining programmatic goals for the current facility and its eventual replacement. As a first step to addressing these concerns, this document establishes numerical limits, use policies and facility requirements that will allow use of the Ravine Lodge to conform to those goals and inform planning and design for the future. With this established, the current facilities can be assessed, and targeted improvements made – while bearing in mind the significant possibility of replacement of the Lodge in the not-too-distant future.

A. Facilities to be provided.

All indoor spaces are to comply with the life-safety code including fire/CO alarm, egress, space per person. In addition there is to be an accessible route between occupied floors of the Lodge and sufficient accessible bathrooms and lodging rooms to meet the ADA code. New construction shall meet the ADA requirements into and inside buildings.

B. Service and ambience policies:

Background: In order to maintain the Ravine Lodge as a viable facility it must continue to generate revenue and therefore must maintain appropriate service and ambience. Further, this service should increase, not decrease, the educational opportunities for Dartmouth students.

Management Policies:

1. To greatest extent possible, maintain and design food service and lodging operations so that Dartmouth students and recent alumni/ae, can operate them (in contrast to a professional food service/lodging staff) so as to provide further educational opportunity for students and alumni/ae, and connection between guests and staff. While food-service and lodging at the Ravine Lodge are “rustic”, their quality should be high. This requires:
 - a. Sufficient staff for peak times
 - b. Sufficient training for the Lodge manager and new staff, including assistance in menu planning and basic standards for all meals, receptions etc.
 - c. Ongoing emphasis on guest feedback and close reading of comments and suggestions at staff meetings.

2. Lodging rooms, in their current configuration, are to be considered bunkrooms. While the lodge staff will attempt to provide private accommodations for couples and families, guests should expect to share rooms with other parties unless they have paid at least the minimum fee for all unoccupied beds in the room. As existing bunkhouses are replaced, a combination of “private” and “bunkroom” accommodations should be included.

3. Accessibility:
 - a) For all rooms/areas/routes intended to be accessible, sufficient signage should be provided from the first point of contact to the endpoint of the route, and such routes (especially the route to the upper floor past the woodshed) shall be kept clear at all times of furniture and service equipment; if necessary, alternate temporary storage for recyclables, mop buckets etc. shall be developed.
 - b) If possible, buildings other than the main Lodge should have an accessible route to the door (signed appropriately). New-construction buildings should be internally accessible, from the front door onward.

C. Limitations on use of the Lodge complex –

Wastewater system:

Background: The existing Lodge sewer system (leach field) constructed in 1990, has a design capacity of 4900 gallons per day. It was designed to last 50 years. Because of its high elevation and difficult soils, the New Hampshire Department of Environmental Services granted a special waiver to permit this system to be built.

The current system design includes two large grease traps, two large septic tanks, and jet pumps to clarify the waste before it entered the field, so that the wastewater would be as near to clear liquid as possible before it entered the field. Further, the field itself consists of a deep bed of sandy gravel, on which lie a large array of infiltration chambers (plastic pipes with drip infiltration fins, to evenly disperse the effluent) all of which is covered with a thin layer of soil and topsoil, with grass as the final surface. The general concept of the field is to disperse the fluid over as large an area as possible. If a pipe or distribution box leading to a certain part of the field is damaged, it may mean that no effluent goes to that area, meaning the field has reduced capacity. There exists a concern that active use of the field and subsequent compaction of the soil will potentially create a condition where this type of damage might occur. While Lodge staff have prevented vehicles from going on the field and tents from being set there, there has been, over the last 19 years, extensive use of the field for games and other low-level recreation. There has been no indication of any failure or decreased capacity of the field, however, it is impossible to know what may be happening under the soil layers. The topsoil has been compacted and rebar shows at one distribution box. Small amounts of topsoil have been added from time to time, but it is unclear if this is wise since it is understood that 40% of the moisture is intended to be removed through evaporation.

Management Policies:

1) Metering, Monitoring, Conservation and Limitations on use.

a) The Lodge water supply is to be metered, and records are to be kept.

b) If the 4900 gpd limit is exceeded, OPO/Lodge staff shall work with FOM to implement conservation measures, including education of guests and specific limitations on use.

(Note, numbers for 2009 indicated usage was far below the 4900 gpd limit, except for one wedding. In particular, it appears that the long-standing policy of closing the showers during DOC Trips has kept usage down below the limit during that crucial period)

2) All tanks and the jet pump tanks are to be pumped twice per year to make sure that their function in removing solids is continued.

3) The field is to be maintained as a mowed lawn, and is not to be used for any other activity, unless further research certified by the designer and/or other licensed wastewater engineers indicates that certain uses will not endanger the field.

a. Appropriate signage shall be placed at the edge of the field describing the purpose of the field and the kinds of use currently permitted; these signs shall be maintained in good condition

b. Lodge Crew shall reinforce this message at Dinner talks and/or other appropriate times.

c. An alternate outdoor activity and gathering space should be identified as soon as possible.

4) Winter use of the field, especially with its shallow and possibly compacted topsoil layer, holds a substantial risk of freezing and therefore damage (likely undetected damage) of pipe

components that could reduce field capacity. Therefore, winter use of the leech field should only be permitted if research shows it can be done safely.

5) To reduce the demand on water and energy, bathing showers shall be provided only in the main Lodge building and in the staff building. Toilets and sinks for handwashing may be provided at future bunkhouses provided that such facilities are tied back into the Lodge leach field uphill of the uppermost grease trap. Possibilities for composting toilets at bunkhouses with onsite graywater disposal for handwashing should be investigated, to further reduce water demand.

6) If construction of a new main Lodge is to be deferred beyond 2015, serious consideration should be given to installing composting toilets and waterless urinals in the lodge building.

D. Life Safety requirements:

Background: All buildings must be used and maintained such that this use complies with the life safety building code.

The Lodge main room has an area of about 1000 square feet. The code states that empty rooms (no furniture) may have one occupant per 7 square feet of floor area. This translates to 140 occupants, standing or sitting on the floor. The code further states that for rooms with a “normal complement of furniture” the allowed occupancy is one person per 15 square feet. That math yields 66 occupants. Staff in Residential Life indicated that there is some flexibility in the code to allow an authorized person (fire marshal) to approve a more dense seating arrangement, provided that there are sufficient means of egress and that hallways/passages have at least 4 feet of clear room. It appears on this basis that the main room’s normal table setup of 14 tables of 6 (84 occupants) could meet that test, although this has not been specifically confirmed.

Policies:

1. Limit use of the main room to 84 people when furniture is used. With approval of the Director of Outdoor Programs or designee, meals may be served in shifts or by buffet, and/or additional guests may be simultaneously seated at other locations in/around the Lodge, but in no case shall exceed 175 on site, or exceed any code limit otherwise found to apply.
2. Limit use of the main room to 140 people when furniture is absent.
3. Other spaces will be used in compliance with appropriate occupancy codes.
4. Ensure that all spaces of assembly and lodging are provided with code-compliant smoke and CO detectors, interconnected as required.

E. Additional policies for Lodge operations.

A. Winter Use:

To maximize the longevity of Lodge Area buildings, overnight use shall be limited to that which 1) does not make use of the current historic Lodge main building 2) is under the direct, on-site supervision of a paid College staff person, caretaker or winter Lodge staff, and 3) does not

compromise or damage crucial Lodge area facilities, most notably the human waste disposal facility of the main Lodge.

B. Historic Preservation:

Preservation of human historic facilities and features of the Lodge area being of critical importance to long term enjoyment and understanding of the area by human users, every effort shall be made to either preserve intact or fully document, onsite and in College Archives, all current and historic facilities. Suitable history rooms/displays shall be made and properly maintained.

List of Appendices

- A. Moosilauke Land Use Policy, 3/19/90 (6 pages)
- B. Report on Existing Limitations on Land Use, H. Bernard Waugh, 6/19/91 (6 pages)
- C. Memorandum on Mount Moosilauke Tracts ("Meck-Haile Agreement"), 4/26/66 (2 pages)
- D. Mount Moosilauke: Data and Recommendations for Use, James B. Friday, 9/81 (29 pages)
- E. Appalachian Trail easement, 1995, (pages)
- F. WMNF-Dartmouth access road easement, 199?, (pages)
- G. WMNF-Dartmouth road-management agreement, 199?, (pages)
- H. Moosilauke Trail Map (1 page)
- I. Moosilauke sign inventory, 11/98 (pages)
- J. Chronology of alpine-area events, Charles Cogbill '71, 1995 (pages)
- K. Forest Management Plan (prepared for NH current-use taxation program), 198? (pages)
- K1. High Altitude Plan.
- L. Bibliography of research efforts on Moosilauke, Charles Cogbill '71, 199? (pages)
- M. List of plant species found on Moosilauke, Charles Cogbill '71, 199? (pages)
- N. Brown, J. Willcox '37. *Forest History of Mt. Moosilauke*. 1989.