AMC TRAIL
ADOPTER'S HANDBOOK

Appalachian Mountain Club

Adopt-A-Trail
Program

AMC
PREFACE

Welcome to the AMC Adopt-A-Trail Program and thank you for volunteering for this important and rewarding service. This Handbook is designed as a guide to the program for AMC adopters. It provides you with the essential information about how to maintain your trail and the resources available to you. The Handbook states the policies and procedures of the program, describes your responsibilities, and informs you on how to obtain training, lodging, meals, and tools. Basic information is provided on trail maintenance, including standards employed by the AMC.

Fifteenth Edition, December 2015

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New Hampshire State Parks
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Phone: 603-788-3155

New Hampshire State Police
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Maine Bureau of Parks & Lands
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THE AMC ADOPT-A-TRAIL PROGRAM

The Appalachian Mountain Club (AMC), the United States Forest Service (USFS), the State of New Hampshire, Maine Bureau of Parks & Lands, the Appalachian Trail Conservancy (ATC), and other trail clubs and organizations cooperatively maintain thousands of miles of trail in New Hampshire and Maine. The Adopt-A-Trail Program provides the opportunity for volunteers to perform basic maintenance on these trails. The AMC began the Adopt-A-Trail Program in 1980 with 15 adopters. The program has steadily grown and presently there are over 220 adopters across the program. There are no formal requirements for the program other than a general familiarity with New England trails and climate, and a willingness to take on the responsibility. Basic skills’ training is required for new adopters and adopters must be recertified every three years. Advanced training in trail maintenance is encouraged and provided regularly through workshops and skills sessions as described later in this Handbook.

RESPONSIBILITIES

Adopters have the responsibility of performing the basic maintenance regularly on a trail or section of trail and reporting that work. Trails are extremely fragile and proper maintenance is necessary to avoid serious damage to the mountain environment and to make hiking enjoyable and safe for hikers. Taking on the stewardship of a trail is a privilege, and it is important that the adopter take the responsibilities of maintaining the trail seriously. Upon joining the program, the adopter signs an Adopter Agreement (see appendix) agreeing to perform the basic maintenance according to certain standards and requirements. The basic maintenance tasks of adopters include cleaning existing drainage, trail clearing, and marking the trail with paint blazes and cairns where appropriate. As a general guideline, it is estimated that a one to two mile section of trail will require 24 hours (or three days) of work to perform these tasks. These three work trips should be distributed throughout the spring, summer, and fall so that maintenance issues can be addressed as soon as they arise. The trail adopter serves as an early warning system when serious problems develop. They can alert the Region Leader and trails staff so corrective action can be taken before a problem grows to major proportions. With training and experience, adopters can perform more complicated tasks, such as installation of waterbars and step stones. This should be done only after all basic maintenance tasks are completed and the work is discussed with your Region Leader or an AMC staff member. Major construction projects are performed by AMC and USFS trail crews.

Basic Maintenance Tasks of Adopters

In order of priority, the maintenance tasks of adopters are:

Drainage - clean waterbars and drainage ditches of dirt and debris each spring and fall.
Trail clearing - clear blowdowns, limbs, and brush annually to form a trail corridor four feet in width and eight feet in height.
Trail definition - prevent development of widened trails and multiple treadways bypassing wet areas and switchbacks.
Trail marking - mark trails with paint blazes and, above tree line, with cairns.
All work should be performed in a manner to protect the environment, natural resources, and the recreational experience of hikers. It is important to maintain good relationships with the AMC, USFS, New Hampshire and Maine State agencies, ATC, National Park Service, other Forest Service cooperators, and especially private landowners over whose lands the trails pass. Adopters are expected to act in the spirit of partnership and as AMC ambassadors to the hiking public.

Adopters are responsible for their own safety while working on trails. It is assumed that adopters are familiar enough with the variability and potential severity of New England weather to carry sufficient water, food, and clothing. It is advisable to let family or friends know your itinerary. It is also recommended that adopters not work alone when performing potentially hazardous tasks such as blowdown removal or heavy rockwork. Adopters are also welcome to involve families, friends, and other groups in trail work. For the sake of safety, productivity, and effectiveness of the leader, groups should be limited to the adopter and five persons. The adopter is responsible for the work performed and provides instructions on tool use and safety and confirms that the group has adequate water, food, and clothing.

Adopters work on their own schedule and at their own pace during the spring, summer, and fall months. Most adopters are able to perform the basic maintenance tasks over several weekends. A heavily overgrown trail may take two to three years to clear out properly. Adopters can request the assistance of a volunteer crew through their Region Leader. Adopters work closely with Region Leaders and file reports of the work they have performed and trail needs and problems.

SAMPLE ADOPTER WORK SCHEDULE

Adopters have a great deal of freedom and flexibility in how and when they maintain their trails. However, a sample work schedule is provided here to give you an idea of the best time of year to complete different types of maintenance. Of course, every trail is different and you may not be free at certain times, so this schedule should be considered a general guide that is flexible and can be modified. The White Mountains have the added constraint that the working season is relatively short.

**May/June** - An initial trip should be made in the late spring before the heavy hiking season begins. Your focus should be on correcting immediate problems such as plugged drainage, overgrown sections and blowdowns that remain after June 15 when the trail crew finishes patrolling. The best time to clean out drainage is in the spring and early summer. This removes leaves from the previous fall and clears the drainage for summer rains and thunderstorms. This is also a good time to check drainage problems because the water table is high and the soils are saturated. It is especially helpful to check drainage during, or immediately after rainfall as you will learn what drainage features work and what ones do not work.

**June/July** - This is probably the best time to perform your annual clipping of branches that have grown into the trail during the previous year. It is also a good time to check whether any of your blazes are blocked by branches and leaf cover. Clean any blocked drainage.

**July/August** - Brush and weeds grow rapidly in the summer so you should check for new brush that has grown into the trail. This is also a good time for blazing because you are more likely to have periods of dry days. Because the water table is lower, it is easier this time of year to clear
obstructed streams and put in new drainage and ditches. August, which is warm and has less average rainfall, is a good time to do work, such as building cairns and scree walls, in alpine areas. Clean any blocked drainage.

**September/October** - Any of the basic maintenance tasks can be performed but this is a good time to look for any reroutes or bootleg trails that may have developed over the summer and to brush them in. It is also important to clean thoroughly all drainage in the fall after the leaves have dropped. This ensures good drainage in the late fall and early winter when the ground is frozen and seeps appear in many places, as well as in the late winter and early spring during snow melts and early rains.

**Winter** - Most adopters enjoy their free time during this period. Sometimes, though, the snows come late or leave early, extending your maintenance season. It can be useful to travel your trail on skis or snowshoes in the winter. You will gain an entirely different perspective of your trail when there is five feet of snow on the ground and the tree branches are weighted down with snow. This is especially important for ski touring trails that must be brushed more extensively.

**REPORTING TRAIL WORK**

Completing a work report form and promptly sending it to your Region Leader is very important for several reasons. The AMC collects the information on all reports in order to determine the extent of volunteer services devoted to trail maintenance. This information is needed to compile accurate year-end reports. The number of volunteer hours is reported to the Forest Service and other partners. Work reports also help the AMC to keep track of the status of trails. They alert trails staff to problems where a trail crew should be deployed. Finally, these forms help us keep track of your contribution of volunteer hours so that we can recognize your efforts through AMC Stewardship Society awards.

A work report should be filed each time you perform work on your trail. **Send your report directly to your Region Leader.** Your Region Leader will forward the reports to the trails office throughout the season. In addition, you should inform your Region Leader of any particular problems such as serious erosion, damage to the trail, or missing signs. Do not be disappointed if your problem does not receive immediate attention. The AMC has a large backlog of serious problems to address with a limited staff and they must prioritize from a resource protection standpoint. Be sure to put the names and addresses of any coworkers on the work report. It is important to file the reports in a timely manner so that your Region Leader is aware of current trail conditions. Adopters are expected to send in at least three reports a year: at least one report by July 15 and two by October 15. You may submit a work report after October 15, however, it will be counted toward the following year totals. If reports are not received regularly and the trail is reported to be neglected, you will be contacted by your Region Leader. Adopters not filing reports will be dropped from the program unless they have made arrangements with their Region Leader. A work report form is found in the appendix. You may copy and use this form. You can also request an electronic form from your Region Leader.
FACILITY USE POLICY

Volunteers contribute thousands of hours each year to the Adopt-A-Trail program to help care for the trails of New England. The AMC, the Forest Service, and those who use the trails for recreation greatly appreciate this work. The AMC Trails Department recognizes the sacrifice and commitment our volunteers make and we are pleased to offer any assistance we can to aid in your volunteer efforts, including making our facilities available as a base for trail work. The following policies were created to help facilitate adopter access to their trail sections.

Facilities managed directly by the Trails Department have the same policies as years past; this includes the Camp Dodge Volunteer Base Camp, and any AMC Shelters, Tent sites, or Campsites. However, facilities not managed directly by the Trails Department require the Trails Department to use funds from our budget to cover Trail Adopter stays; these include the Huts, Shapleigh Studio, and Pinkham Notch Visitor Center. Since the Trails Department does not have the funding to cover the cost of every adopter staying at a facility three times per season, it is expected that adopters only use this privilege as much as is truly needed, and limit stays whenever possible. There are also group size limitations to this policy, which will be detailed below.

With the exception of Camp Dodge, which is opened to all Trail Adopters regardless of where their trail is, all of the other facilities – whether they are managed by the Trails Department or not – are only available to Adopters whose section of trail is assigned lodging at that specific facility. If your section of trail is not assigned a certain facility, you must pay for lodging yourself. To find out which facilities are assigned to your section of trail, please contact the North Country Trails Volunteer Programs Supervisor.

Over 200 volunteers utilize the facility stays each year. Please consider the rest of your volunteer community when deciding if you need to stay at a facility outside of the Trails Department management, keeping in mind that our budget is very limited.

Cancellations. Adopters and work party members who make last minute cancellations or are no-shows are obliged to pay lodging fees for space that was reserved at Huts, Pinkham Notch Visitor Center, and Shapleigh Studio. Fees will be determined according to the normal guest cancellation policy. Cancellations 30 days in advance receive full refund. Guests making cancellations 14-30 days in advance receive a 70% refund. Guests making cancellations 14 or fewer days in advance receive no refund.

The facilities at which adopters may stay are listed below. Check with your Region Leader regarding what lodging facilities have been assigned to your trail or section. Adopters may receive one full day of meals (where available) and lodging for one full day of trail work (staying either the night before or the night after), and only while working on the trail. Lodging benefits cannot be accrued. See below for any limitations.

Camp Dodge. Camp Dodge is the center for AMC volunteer trail activities in the White Mountains. All adopters are welcome to stay at Camp Dodge free of charge while working on their trail. It is located on the east side of NH Route 16 four miles north of Pinkham Notch Visitor Center and six miles south of Gorham. In the summer, there is a large yellow and brown sign by the entrance. Use caution when entering and leaving, as the entrance is located near a curve in the road.
Camp Dodge is open from Mother’s Day Weekend through Columbus Day Weekend. Contact the North Country Volunteer Coordinator for a specific opening date. Adopters should call the coordinator at Camp Dodge directly at 603-466-3301 for reservations. Call at least three days in advance for lodging and seven days in advance for meals (when available). Be ready with the following information when you call: name, phone number, date of stay, trail section, group size, number and type of meals needed, and any dietary restrictions.

There is a dining hall, restroom and showers, bunkhouses, tool shed, field for pitching tents, tents for AMC staff, recreational facilities, and a beautiful view of the Presidential Range. Adopters can stay in the bunkhouses if space is available or you may wish to tent in the field. Besides a tent, you should bring a sleeping bag, pillow, and a towel. Meals are served daily, with breakfast served promptly at 7 AM and supper at 6 PM. You can prepare a trail lunch after breakfast.

**Shelters, tent sites, campsites.** On a work trip, adopters in a group of up to six people can stay free, if space is available, at AMC shelters, campsites, or tent sites. These sites are available year round on a first come, first served basis. Adopters with work parties should contact the Groups Outreach Coordinator as far in advance as possible so that caretakers at the sites will be aware of your plans. Email [amccampgroups@outdoors.org](mailto:amccampgroups@outdoors.org). Work party benefits are limited to groups of up to six people, even if the adopter maintains more than one trail section. This policy helps avoid large costs and encourages small group size for safety and impact reasons.

**Huts.** Adopters may stay free at huts assigned to their trail section. Check with your region leader for confirmation of which facilities are available. When calling to make a reservation, check that the hut is open for service. Adopters may receive a 30% discount on over-the-counter items purchased during work trips. The discount extends only to adopters who have signed the Adopter Agreement. This benefit is not extended to work party members who are not adopters or to friends of adopters. The items purchased should be used for assisting the adopter in his or her trail work.

**Full Service.** Adopters may stay at huts in groups of two people maximum during each stay. There is no limit to the number of bed nights available. The maximum trip length is a two-night stay, however.

**Self Service.** Stays during hut self-service periods are encouraged over Full Service stays. There is no limit on the number of trips per year. The maximum trip length is a two-night stay, however. Additionally, the maximum group size is six people, including the adopter.

**Pinkham Notch Visitor Center.** Please try to plan your trips during the time Camp Dodge is open. If you need a place to stay when Camp Dodge is closed, call the North Country Volunteer Supervisor about staying at the Visitor Center. Pinkham Notch Visitor Center is not available for stay while Camp Dodge is open. There is a maximum of two people allowed during each stay, including the adopter.
Cardigan Lodge. Adopters will be provided with free camping in the campground next to the lodge. There will be no lodging available in the Lodge itself.

Shapleigh Studio. Bunks are available at the Shapleigh Studio. There is a maximum of two people allowed during each stay, including the adopter.

Highland Center. The Highland Center is not available for stays.

Lafayette Place Campground. Located in the Franconia Notch State Park, this site is available for stays. There are tent platforms for backpacking tents. There is no parking at the site (please park in the trailhead parking area) and there are no picnic tables or fire rings available at this site. To reserve a space at the campground, please contact your Region Leader first – availability is on a first-come, first-served basis.

Camping. Adopters may camp in the backcountry during their work trips. While camping, all regulations of the local land management agency must be followed. Note that there is no backcountry camping on State Park lands. Please follow the regulations outlined in the most recent USFS publication, Backcountry Rules and Regulations. As a rule, always camp at least 200 feet from water sources and trails and one-quarter mile from trailheads or facilities. Do not camp above tree line. The Trails Department encourages adopters to follow Leave No Trace principles and practices.

TRAINING

Fortunately, there are many training opportunities available to you as an adopter. This Trail Adopter's Handbook contains basic information on trail maintenance and standards and should be your starting point. For more detailed information, you should refer to the book, The Complete Guide to Trail Building and Maintenance. This book covers all the skills needed and equipment required to plan, build, and maintain trails. It is available free to new adopters and it will be distributed during Skills Sessions.

Skill Sessions are available at no charge for adopters and others who will be sharing trail work responsibilities. Multiple Trail Skill Sessions are held in the summer. New adopters are required to attend one of these before working on their trail. The Skill Sessions focus on basic trail maintenance techniques such as brushing, blazing, cleaning drainage, and blowdown removal. Current adopters must attend a Maintenance Skills Session every three years or be recertified by their Region Leader by walking their trail with him or her. Higher level Trails Skills Sessions are held on occasion; again, please check with your Region Leader on their availability. These are one and two-day workshops that involve more advanced trail work techniques and hands-on experience. Examples of topics for the Trail Skills Sessions include drainage and trail hardening, log and rock steps, alpine trail work and rehabilitation, first aid in the backcountry, crosscut saw use and maintenance, comprehensive trail maintenance, axes and bowsaws, trail log and trail assessment, and new trail design and construction. Most workshops are run from Camp Dodge. It is highly recommended that you attend one of these sessions, especially if it pertains to the needs of your trail. Besides the opportunity to learn from AMC trails staff member, these sessions are often offered by, as well as attended by personnel from the Forest Service, NH State agencies, and other clubs and
organizations such as the Adirondack Mountain Club, Green Mountain Club, and The Nature Conservancy. It is always helpful to share knowledge and experiences with other maintainers.

If you need assistance or advice on your particular trail, you should contact your Region Leader. The Region Leader is familiar with your trail and can walk the trail with you or alert you to particular problems over the telephone or by e-mail. Your Region Leader's address, phone number and e-mail address will be given to you when the Adopter Agreement is completed. You will learn a great deal about techniques for your trail through experience. In dealing with many problems, an experimental-incremental approach is effective. Try first a conservative approach to things such as blazing, scree walls, and blocking bootleg trails. If you find on your next visit something was not effective, you can take more aggressive action, e.g., better trail definition or higher scree walls, until the problem is corrected.

OTHER POLICIES AND USEFUL INFORMATION

Adopters will periodically receive various kinds of information. You will receive information from the trails staff about training, special trails events, and much other useful information. In addition, your Region Leader will be in touch with you from time to time. *The Dirt*, the newsletter of the AMC Volunteer Trails Program, will periodically provide news and information about the program.

AMC trail volunteer cards are available upon completion of a Skill Session. Every adopter is authorized and encouraged to carry these cards, to affix their signature on the cards, and to give these cards to any interested persons. These business type cards list AMC trail programs and tell the interested person how to obtain further information.

THE MOUNTAIN ENVIRONMENT

Maintenance tasks are dependent to a large degree on the location and elevation of the trail. Some trails are located in one zone of vegetation while others pass through several zones. The vegetation located in the different zones affects the type of trail clearing needed. In addition, different zones present different drainage problems. In higher alpine areas, there are few trees to hold soil and retain water, allowing for excessive runoff. Conversely, in swampy lowlands, water pools and creates muddy trails.

It is usually wise to check the weather forecast before proceeding on a work trip. Weather forecasts are posted daily at 8 AM at Pinkham Notch, Camp Dodge, the huts, shelters and tent sites with caretakers, and Shapleigh Studio. Adopters should be aware that sudden and extreme variations in weather occur in all seasons in the White Mountains and should take precautions in the event of adverse weather.
INTERACTING WITH THE PUBLIC AND WITH AGENCIES

While you are working on your trail, you will have frequent contacts with hikers. Most of your encounters will be of the pleasant variety. Take some time from your work to chat with them. As a representative of the Appalachian Mountain Club, you represent a valuable educational resource. Hikers will ask questions about what you are doing and you can give them a brief explanation of trail maintenance. Many will thank you for your efforts. Some hikers will think that you are a forest ranger and are not aware that much of the trail maintenance is performed by adopters. Explain the Adopt-A-Trail program and the work of the trail crew to them. Some may express an interest in trail work and should be given a trails volunteer card that provides contact information.

Keep in mind that the public is often quick to respond when trail conditions are poor. Some hikers have planned for months and come from great distances to hike your trail. If the trail is overgrown, difficult to follow because blazes have faded, or badly eroded because drainage are not cleaned, disappointed hikers will report these conditions to the Forest Service or AMC. It is very important to avoid criticism from our government partners. This reflects poorly on the AMC and jeopardizes our relationship with the Forest Service. Criticism is easily avoided by visiting your trail regularly and performing the basic maintenance. A well-maintained trail is also recognized and appreciated by the public and often reported.

Feel free to drop in at the trails office to introduce yourself and talk to staff. The staff are always glad to meet adopters. They also may have some useful information about your trail.

REGION LEADERS

The trails in the Adopter program have been divided into several regions, each of which has been assigned a volunteer Region Leader who will oversee the trails and the work performed by adopters. Region Leaders serve as a contact for adopters regarding trail needs and problems and provide support for adopters. Adopters send work reports directly to Region Leaders. Region Leaders also inspect the trail and the adopter's work. Region Leaders fill out a report which is sent to the adopter and the trails office. Adopters should not be overly sensitive to any criticisms and suggestions. Most Region Leaders are or were adopters and understand the problems faced by adopters.

BASIC TRAIL MAINTENANCE

The procedures for trail maintenance described here should be followed by adopters in order to achieve uniform standards of maintenance for all trails in New England. Two exceptions are trails in Wilderness areas and in alpine areas. Before undertaking trail maintenance, it is very useful to take an inventory of your trail noting the number and location of signs, waterbars, rock steps, cairns, etc. This will serve as a baseline for future reference. Keeping a logbook or notebook of your work reports will help you monitor your progress. In addition, you can follow the progress of regrowth and regeneration of vegetation because of efforts such as blocking bootleg trails, building scree walls, and putting in adequate drainage. Basic maintenance, besides providing convenience for hikers, makes a major contribution to protecting the mountain environment. Further information on
trail maintenance can be found in the book *The Complete Guide to Trail Building and Maintenance* or by attending a skills session.

**Drainage.** The maintenance of drainage is the most important task of trail adopters. Failure to maintain drainage results in a severely eroded or flooded trail. Erosion can also result in serious damaging of existing trail construction such as rock steps and cribbing. These problems and their serious consequences for the environment can be greatly reduced by proper maintenance of trail drainage. This includes clearing of log and rock waterbars, drainage dips or soil waterbars, outflow ditches, side ditches, and the clearing of debris from some streams that cross the trail.

One of the most effective tools for cleaning drainage is the hazel hoe or adze hoe. A fire rake or garden rake is also useful. A shovel is helpful when large amounts of dirt must be removed. An army style foxhole shovel or entrenching tool is lightweight and easy to carry. A pick mattock or a cutter mattock is often used because it can be used for clearing dirt, cutting roots, and prying rocks. The pick mattock has the disadvantages that it is heavy and the blade is narrow, but it is a widely used tool for clearing drainage due to its versatility. Some adopters have found that ordinary garden hoes, which are easy to obtain and light in weight, are satisfactory for cleaning drainage. The handles can be cut off at about four feet, making them easier to carry and use.

When clearing drainage, pull all soil and rock in wood and rock waterbars and soil waterbars (drainage dips or water dips) up over the waterbar and deposit it in the trail on the downhill side. The mound of dirt backfills the waterbar and rebuilds the dip. Leaves, roots, and organic debris should be discarded. Do not shovel or hoe the soil out the end of the drainage and off the trail. Waterbars that do not have sufficient backfill on the downhill side are likely to become undermined and dips that have worn down too much may allow water to flow over them down the trail. Back slope the uphill side of the ditch four feet up from the bar in the trail. If the uphill side is too steep, traffic and water will collapse it and the soil will clog the waterbar or dip. Cut out loose roots and remove rocks as these will collect debris. Clean waterbars down to approximately two inches from the bottom of the waterbar. If the depth is too great, water will undermine the waterbar.
The outflow ditch at the end of the waterbar should be straight, wide (at least 18 inches), deep, and root-free with side slopes graded. If the outflow is not adequate, it will clog and cause the waterbar to fill up with dirt and debris. It should drop off sufficiently so that water is carried off and does not back up. However, the drainage ditch should not drop precipitously off the downhill side of the trail. If it does, the ditch will erode back up toward the trail and eventually into it. Brush out the area along and at the end of the ditch to facilitate cleaning. Outflow ditches often require considerable digging and removal of roots, vegetation, and rock. Ditches should be long enough to ensure that water is taken well off the trail and does not reenter the trail further down. Curved ditches slow the water down and allow silt deposits to form and clog drainage. If the ditches are too shallow, water may overflow. Steep sides may collapse and clog the ditch. A good, wide ditch will require less maintenance over time and ensure adequate drainage.

Streams with shallow channels crossing the trail or near the trail should also be checked and cleared of debris, if necessary. Logs, brush, rocks, and leaves may clog the channel and divert the water so that it runs down the trail.

Side ditches are useful in areas of wet, saturated soils. They are particularly helpful in directing water alongside a trail in places where a waterbar cannot be placed across the trail. Ditches can be dug along one or both sides of the trail to provide drainage for ground seepage and to create a high, dry trail tread. Drainage ditches should be carried down the trail to the next waterbar, which will direct the water away from the trail. Ditches silt in and become vegetated and, like waterbars, need to be checked each year. The same principles apply to ditches as to waterbars and water dips. Avoid leaving large, unsightly mounds of dredge mud and debris along the side of the ditch. Organic mud and leaves should be discarded as they hold water and make the trail muddier.
Trail Clearing. Clearing brush growing alongside a trail is an important adopter task. Without regular brushing, even a heavily used trail can become overgrown in a few years. A properly cleared trail is one upon which a large hiker with a full pack can walk erect without touching trees, limbs, or brush. The line of sight is open and unobstructed and the footing is clear. The correct height and width (trail corridor) for a cleared trail depends on the terrain and vegetation. A four foot width is sufficient for most wooded trails. Trails used as ski trails should be brushed wider. A narrower width is preferable for trails above treeline or in federally designated Wilderness areas. In Wilderness areas, the corridor should only be wide enough to pass through; roughly shoulder width. Additionally, please remember that power tools and mechanized equipment are prohibited in Wilderness areas to preserve their primitive nature. The trail should be cleared to a height of eight feet or as high as one can reach. The most commonly used tools in trail clearing are hand clippers, pruning shears or loppers, and bowsaws.

Special attention should be paid to the lateral branches of softwoods alongside the trail. When wet or covered with snow, these extend down into the trail, reducing both its width and height. Hikers brushing against these branches quickly become wet. Adopters, if possible, should walk their trails in rain or just after a rainstorm to gain a good appreciation of how much brushing is needed. Limbs on trees should be cut flush with the trunk. Stubs are unsightly and create bothersome and sometimes dangerous snags for packs and clothing. Branches growing toward the trail should be cut back to the limb growing away from the trail. If trees are pruned in this manner, rather than being indiscriminately cut, sucker growth into the trail will be reduced. Sucker growth occurs when a root system, which has developed to provide water and nutrients for a tree of a certain size, supports enhanced growth in the remainder of a tree when a large part of the tree is removed. Some branches on the opposite side of the tree should be removed to avoid creating a tunnel-like appearance of the trail. A canopy left over the trail at a height of eight feet or more will suppress underlying growth.

Low shrubs and young trees that tend to encroach upon the sides of the trail should be cut flush with the ground for aesthetic and safety reasons. Avoid leaving pointed stumps, which are potentially dangerous if stepped on or fallen upon. Annual growth such as ferns can be left unless it is particularly thick and aggravating. Avoid clearing branches in an effort to widen the trail if it exposes fragile plants and mosses to trampling. Remove all dead trip roots from the trail. Do not cut live roots in the ground or brush on the downhill side of a side hill because these help hold the soil. Cut only free or hanging roots that may catch boots. Do not cut trees and undergrowth heavily on the
inside of a corner or hikers may shortcut the turn. Don't cut edges heavily in boggy areas or hikers will widen the trail.

**Trail Clearing**

After brushing, it is very important to remove all branches and debris from the trail. Brush left in the trail can obscure roots, rocks, and holes in the trail. It can also result in hikers slipping on steep sections. In rain, brush will move down the trail clogging waterbars and drainage. Pick up all branches, trees, and debris and scatter them off the trail with the cut end facing away from the trail. Piles should be avoided because they are unsightly and can create a fire hazard. Downed trees should be dragged butt first until the top is completely off the trail. This helps conceal the tree. Large limbs and small trees can be thrown clear of the trail, provided they do not hang in the branches of shrubs and trees next to the trail or stick up butt first. If it is windy, check the wind direction before throwing brush as it can blow back on the trail or onto you and hikers. Be sure not to throw brush into drainage ditches or their outflows. This will clog ditches and seriously affect proper drainage.

The trail crew will patrol all AMC trails in the spring and remove all blowdowns before June 15. In addition, trail crews will clean the waterbars on one third of AMC trails in the White Mountain National Forest every year. Some trees will fall during the course of the season and can be removed by adopters. Blowdowns across the trail and trees leaning over the trail (“leaners”) should be removed. A large blowdown lying across the trail should be cut on each side of the trail and the
center section removed. Smaller blowdowns can be cut in pieces and dragged away from the trail. Leaners have to be cut down and dropped into the trail before cutting up for removal. Sometimes a large tree falls parallel to the trail with branches projecting into the trail (linear blowdown). If the tree is not in the trail, the projecting side branches can be cut off. Be sure to cut these flush with the trunk. Most blowdowns, including relatively large ones, can be cut with a bowsaw or an axe. Larger trees may require a chainsaw which can only be used with proper certification and safety gear provided by the adopter themselves (do not use chainsaws in Wilderness areas). If you have a tree that is too large for you to handle, inform your Region Leader so that arrangements can be made for a crew to remove it.

Take safety precautions when removing blowdowns and it is best to work with someone. Study the situation carefully before beginning, noting especially the direction in which trees or branches will move and fall. Determine whether there are any spring poles underneath the blowdown. When weight is removed from spring poles, by cutting the overlying log, they can suddenly spring back and inflict serious injury. Identify an alternate unobstructed escape route in case the tree does not fall in the direction you planned. Be careful of limbs or tops snapping off above you, especially when the tree is falling. This occurs more frequently with old, dead trees known as "widow makers." A hardhat is required when felling any kind of tree. Avoid cutting widow makers or anything else unless you are confident you can do so safely.

**Pruning in the krummholz zone.** Special care should be taken when clearing trails near or above treeline where the climate is severe and growth rates are very slow. Trees two to three feet tall can be over 100 years old. The trees forming krummholz grow in interdependent communities in which roots and branches are intertwined in protection against wind and cold. Removal of one tree in a patch of krummholz can jeopardize the other trees in the patch. The trail maintainer’s favorite lopper is inappropriate for the level of detail you will want to have when pruning krummholz. Use a hand-held bypass pruner for this task.

Prune limbs, rather than completely cutting trees and ground vegetation. Be careful cutting branches near the ground. They can snake their way for long distances and you can wind up killing a large branch. Try to find the whole branch before cutting so you know exactly what you are removing. Remember that krummholz grows in areas protected from the relentless winds, therefore be careful about how wide you open up the trail corridor when pruning branches. The rule of thumb is that the branches should not touch a hiker, so a two-foot corridor is ample. You will find this is different when you hike back down the trail, some branches that did not hit you on the way up, will stick out far enough to touch you on the way down. So prune in both directions. The accepted four-foot corridor below treeline is not required.

You should make the pruning cut just outside the branch bark collar. This is the ring of callous material at the base of the branch that will heal the wound. Flush cutting removes this ring, so be careful and take your time; it takes patience to maneuver your hand-held pruners into the right position to make the cut. If the branch is over a half inch in diameter, use your saw to make the cut. If you take off about two years growth you will not have to trim the same tree every year. When pruning the lateral branches, select one that is growing away from the trail. This will become the new leader or dominant branch, and selecting it to grow away from the trail will save work next year.
By being observant of old cuts, you can see how trees heal themselves. Look at trees where branches have been removed and you will see the callous cells growing over and compartmentalizing the wound. After the next growing season, go back and look at the tree to see how your cut is healing. If the branch collar is growing symmetrically all around the wound, the cut was in the right place and at the right angle. Avoid leaving points or stubs when you prune. Besides being dangerous to a falling hiker, the stub creates an opening for disease-carrying organisms to enter the tree. A tree with a bunch of stubs does not have a natural appearance.

### Trail Specifications

<table>
<thead>
<tr>
<th>Trails</th>
<th>Basic</th>
<th>Wilderness</th>
<th>Alpine</th>
<th>Ski</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brushing Width</strong></td>
<td>4’ wide x 8’ tall</td>
<td>3’ wide x 6’ tall</td>
<td>2’ wide</td>
<td>8’ wide x 12’ tall</td>
</tr>
<tr>
<td><strong>Treadway Width</strong></td>
<td>24” wide</td>
<td>18” wide</td>
<td>24” wide</td>
<td>NA</td>
</tr>
</tbody>
</table>

### Blazing

A properly blazed trail is important in making hiking a safe and pleasurable experience. In addition, by helping keep hikers on the trail, blazing reduces impact on the environment. Blazing is the last priority for Trail Adopters, after drainage cleaning and corridor brushing. Blazing is intended to reassure hikers that they are on a trail, it is not intended to “hold their hand” while in the woods; so a properly maintained trail corridor will do a lot more good for hikers than an overly blazed trail.

#### When to Blaze your Trail

- Only blaze *after* informing your Region Leader (either by email or phone call) that you intend to blaze your trail (this is so the Region Leader can actively keep track of blazing in each region)
- Only blaze *after* brushing the corridor to proper standards (by doing this, it is easier to see where exactly a blaze is or is not needed)
- Blaze during the summer when foliage is at peak density and when it is warm and dry
- Do *not* blaze during or immediately after a rain event, or if rain is predicted within 24 hours as paint may not properly set when wet

#### Should you Blaze your Trail

- Do *not* blaze on Alpine zone trails or on Wilderness trails
  - Use rock cairns on Alpine trails
- Do *not* blaze on rocks without explicit AMC Trails Department or Region Leader permission
- Only blaze regular hiking trails and ski trails (see below for details on blazing ski trails)
Standards & Practices of Blazing

- When deciding on blaze spacing intervals, consider the following:
  - In general, there should be no more than one blaze within sight at a time
  - At water crossings without a structure, blaze as close to the water as possible
  - At turns in a trail, or areas with large drainages that can be mistaken as the trail corridor, additional blazing may be appropriate

- When choosing a tree to blaze on, consider the following factors:
  - Live trees are always preferred to dead trees
  - Avoid trees with shedding bark like birches
  - Use trees with contrasting colored bark so paint is visible
  - Ensure tree has wide enough diameter to meet blaze size standards

- When placing a blaze on a tree, consider the following:
  - Blazes should be placed approximately 6’ off of the ground on the tree
  - When possible, avoid blazing on opposite side of a single tree (if tree falls over, 2 blazes will then be lost)

- Tips when you are on the trail blazing:
  - Strongly recommended that 2 or more people blaze together (helps with sighting the blaze location, and makes the trip go faster)
  - Recommended to blaze entirely in one direction, then turn back and blaze in opposite direction
  - Do not automatically repaint old blazes*; this is because the old blazes could be:
    - wrong color or size
    - too many in number and some old ones should be left to fade away
    - poorly located on the trail, or not on a tree
    - the trail may now be in a wilderness zone
  *Seek Region Leader advice if uncertain on refreshing old blazes

- Tips for painting blazes:
  - Scrape the trees bark lightly first (do not debark the tree, but your painting surface should be smooth)
  - Carry a template as a guide
  - It is not recommended to use a stencil as they often lead to paint runs or drips
- Paint a 2-inch wide by 6-inch tall rectangular blaze; no other shaped blazes are permitted
- After painting blaze, use a rag to touch up any drips or runs so that only a rectangle remains

- Contents of a Paint Kit (these are items provided by the AMC, though you are free to add additional equipment as needed)
  - Paint kits will be made available at all Adopter Tool Caches during the summer months (if additional paint is needed, please inform your Region Leader)
  - Paint brush
  - Bark scraper and/or sandpaper
  - Approximately 1 pint of paint in sealed container (please only get paint from AMC tool cache – do not use your own paint)
  - Recommended additional items (that may or may not be provided in each kit*)
    - Rag
    - Ziplock bags
    - Paint thinner
    - Small container to pour paint into when actually painting
    - Template
  *If you need any of the recommended items, the AMC can provide them upon request – please inform your Region Leader

- Color of blaze
  - Do not automatically assume that your trail is blazed in the correct color as the trail may have been newly designated as wilderness, rerouted to connect with the Appalachian Trail, or a previous adopter may have made a mistake
  - Please use only paint provided by the AMC as there are specific styles and colors that meet the standards required of blazing
  - White – any trail that is the Appalachian Trail not in wilderness or alpine areas
  - Blue – any trail that connects with the AT not in wilderness or alpine areas
  - Yellow – any trail that is not, nor connects with, the AT and not in wilderness or alpine areas

**Ski Trail Specific Instructions**

Ski trails are blazed differently than hiking trails. If you adopt a ski trail, please follow these instructions below:

- Ski trail blazes are plastic diamonds provided by the AMC Trails Department only; they are *not* painted blazes
- Place blazes in the winter, after sufficient snow fall has accumulated; this way you will be higher off of the ground and have a better idea of where exactly to place the blaze
- Hammer in the blaze using two nails; do *not* hammer the nail all the way in as that will not allow for room for the nails as the tree grows
- All other standards and practices regarding hiking trail blazing apply to ski trail blazing
**Trail definition.** Bootleg trails or reroutes, multiple trails, and overly wide trails are some of the most serious problems affecting trails. Bootleg trails often develop when hikers cut switchbacks. In wet areas, hikers may hike to the side of the trail widening it. They also develop when the trail is poorly brushed and blazed or when blowdowns are not removed. When hikers are unsure of the direction, they may take different routes. Obstructions, such as a tree growing in the trail, or rocks in the treadway can cause two or more parallel trails to develop. These situations are not only unsightly, but increase the impact of hiking on the environment.

In dealing with these problems, first try to determine why they are happening. Blazes may be faint or misplaced. A blowdown or brush projecting into the trail can force people to take a different direction. After correcting these problems, block off the reroute with brush. Large gnarled logs and dead softwoods with spiny branches are particularly effective. Hikers will usually take the path of least resistance. Allow new growth to come into the reroute and minimize brushing the entrance to it so the shortcut is less visible. Where a trail diverges in two, for example around a tree in the trail, brush in the less usable of the two routes. Above treeline, small dead trees, if you can find them, can be used to block reroutes. These should be weighted down with rocks to keep them from blowing away. In alpine areas, if you make the intended trail easy to walk on by removing pebbles and other rubble, hikers will be more likely to stay on it. The material removed can be used to cover the bootleg path.

Hikers will sometimes avoid using rock or log steps, no matter how clear and well placed they are. If vegetation along the steps is killed due to overuse, the soil will erode, undermining the steps. In these cases, scree consisting of large rocks should be placed alongside the steps to contain hiker travel on the steps. Hikers may step over the walls in which case they should be built higher. Make sure that all scree is large enough and secure enough not to be knocked loose if kicked or stepped on. In addition, brush and rotted or gnarled logs can be placed alongside the steps making it unattractive to step off the trail.

An effort should be made to minimize scree walls in alpine areas. However, a trail two feet in width with scree walls is preferable to one 25 feet across without them. Gather loose rocks and rubble from piles of scree or bare rock piles only. Do not dig rocks up out of the trail or in vegetated areas adjacent to the trail. Walk on stones when venturing off the trail to look for suitable rocks. Many tiny alpine plants depend on rocks for shelter, therefore, do not pull up rocks that have growth around them. Make a six-inch high wall on each side of the treadway. After defining the tread with the scree walls, place rocks outside the scree walls to make those areas appear unattractive for hiking. Scree walls can concentrate water flow on the trail, so that it may be necessary to install soil waterbars after building scree walls. Well-placed cairns are also helpful in defining the trail in alpine zones. Studies indicate revegetation will occur, although slowly, in impacted areas in the alpine zone if hikers can be kept off them.

You may encounter bootleg campsites along the trail. Some trails pass through Forest Protection Areas (FPAs), or are located in Wilderness areas. Off-trail camping is not permitted within 200 feet of these trails, within one quarter mile of facilities and roads, and must be below treeline. These regulations are designed to disperse off-trail camping over a large area rather than having it concentrated along the trail or around facilities. Sites well off the trail are less likely to be seen and used again and thus should recover quickly. You should make an effort to obliterate bootleg campsites. Break up and disperse fire-rings and ashes, making sure they are cold first. Pick
up any litter. Brush in the site with large logs and dead trees hauled in from the woods. These, though, are often subsequently cleared away or used for firewood. Small trees can be transplanted into the site, although unfortunately these may not survive or may be cut. "Planting" rocks in the site is an effective approach, although it is time consuming. Find large rocks and boulders and partially bury them in holes. Then place rock rubble and brush over the site. With time, the site may revegetate.

**Trails in wet areas.** Almost all low sections of trails will pass through areas of wet terrain. Higher up, many trails pass through mountain bogs. These areas are often muddy, slippery, or have puddles of water on the trail treadway. Hikers who want to avoid getting their boots muddy may walk to the side of the trail treadway. This results in destruction of vegetation along the treadway and progressive widening of the trail. There are a number of techniques that can be applied to trails in wet areas that will help stabilize the damaged soils and allow trailside plant life to recover. The most commonly used techniques are step stones, rock treadway, and bog bridges. After receiving appropriate training, and if time allows after basic maintenance has been completed, most adopters can build step stones and rock treadway. Some may wish to undertake bog bridge construction working in conjunction with a trail crew or after taking a skills session on building bog bridges.

Before employing one of these techniques, investigate the drainage of the area. In many cases, installing proper drainage will correct the problem. Water accumulates on the trail because the treadway is lower than the surrounding terrain. Look for a low end, which can be ditched so the water flows off the trail. If you detect any slight flow to the water, drain the area with waterbars. Another technique is to dig drainage ditches along both sides of the tread. Throw any soil onto the tread, even if it is wet and muddy. Eventually, it will dry out and build up the tread.

Step stones are rocks set into the mud at short intervals to provide a stable treadway. Large rocks (greater than 12 inches across) with a flat surface that is placed upwards are preferable. Set the step stones so that they are stable, which means they can be jumped on and do not move. They should not protrude too high above the ground nor be so low they become covered with mud and water. If there is sufficient rock in the vicinity, you can build a rock treadway. Many rocks are set side by side in a flagstone manner. The rocks can be set in a wooden frame called a turnpike, but if you can find large square rocks, such a frame is not needed.
**Step Stones**

Bog bridges are used in extensive boggy areas or where rock is scarce. To learn more about bog bridges, you should consult one of the trail building manuals or attend a skills session. Broken bog bridges are a safety hazard and should be removed. Bridges with broken stringers or with spikes showing should be placed out of sight off the trail with the spikes pointing down into the ground. Even better, remove the spikes and carry them out so they can be reused. Inform your Region Leader when you remove a bog bridge. If a bog bridge has deteriorated, determine whether drainage and step stones can be used in place of a bridge. If so, these should be installed making it unnecessary to replace the bog bridge.

**Cairns.** Cairns are rock structures used to mark trails in treeless areas. They are an important safety feature above treeline where the trail may not be visible in fog or storms. They are effective year round because of their visibility, even under snow and ice conditions of winter. Finally, they protect the environment in alpine areas by keeping hikers on the trail.

On trails that are straight, cairns should be spaced about 100-200 feet apart. The distance should be less, about 50 feet, in areas subject to heavy fog. Trails that are curved or have bends present a special problem. If there is a bend in the trail between cairns, hikers will take a straight line between cairns, cutting off the bend. Thus, cairns should be placed at turns or bends in the trail to keep hikers on the trail. Cairns should be placed in conspicuous locations such as a knoll or ledge. Cairns placed in optimal locations against the skyline are visible for a mile or more. Cairns should be about five feet high. They should be squat for stability, almost as wide at the base as they are high.
Cairn building is time consuming and, like much rockwork, as much an art as a science. Taking the time to make a well-built cairn will save time in the end by reducing the necessity of repairing or rebuilding the cairn. Large, flat rocks should be used in cairn construction. Locating and carrying suitable rocks can take as long as building the cairn. When collecting rocks, avoid disturbing and stepping on alpine growth. Use as large stones as possible for the base. Each layer should slope slightly to the center of the cairn, so that gravity will stabilize the cairn. Fill the center of the cairn with rubble - bigger stones are better as small ones will condense together allowing the cairn to collapse in on itself. Build successive layers, making sure that each joint is bridged by a stone. Each stone should also have at least three points of contact with underlying stones for...
stability. Wedging small stones into cracks for support is not a good practice. Shifting produced by wind and frost action will eventually cause these small pieces to move and the cairn to collapse. In winter, wind blowing against snow is sufficient to topple an unstable cairn. A test of a cairn's stability is to stand on it. After the cairn is built, you can try putting small stones in gaps for aesthetic reasons. Search for a white rock to place on top of the cairn for visibility.

TOOLS AND WHERE TO GET THEM

Tool cache information. The AMC has a large quantity of tools available for use on your work trips. These are located in the tool caches and may be borrowed by adopters. Tools should be signed out and returned promptly after each trip because they are used by other adopters and trail crews. When tools are not returned, another adopter is denied the opportunity to use them and the AMC must expend scarce funds to replace them. The locations of the tool caches are listed below. The combination for all tool cache locks is 1876. You do not have to make reservations for tools. If your group needs all of a particular tool(s) in a cache, please get the tools at Camp Dodge.

Location of Caches marked by Star:

Franconia Notch Tool Cache. Rt. 93, turn into Lafayette Place Campground, pass the parking areas, see the maintenance building on the right; it's outside, in front of the building.
**Crawford Depot Tool Cache.** Rt. 302 in Crawford Notch, see the Highland Center and the Depot; the Clivus building is right next to the Depot, cache in back and outside of the Clivus.

![Map of Crawford Depot Tool Cache](image1)

**AMC Cold River Camp Tool Cache.** Rt. 113 in Chatham, turn at the sign into the Camp, very first building on your left, on the end and outside.

![Map of AMC Cold River Camp Tool Cache](image2)
**Grafton Notch, Puzzle Mtn Trailhead.** On the west side of Rt. 26 in the trailhead parking lot for the Grafton Loop Trail, headed up to Puzzle Mountain. The cache is to the left of the Grafton Loop trail as you first get on the trail itself.

![Map of Grafton Notch, Puzzle Mtn Trailhead](image)

**Maine Woods, Hedgehog Gate.** This cache is located to the east (left side) of the gate building on the path to the outhouse.

**Maine Woods, 3rd Mountain Trailhead.** This cache is located at the trailhead for 3<sup>rd</sup> Mountain, which is southwest of Gorman-Chairback lodge on Chairback Mountain Rd.

**Speck Pond Tent Site, No. Mahoosucs.** Talk to shelter caretaker. They can be found either underneath the caretaker's tent platform or underneath Speck Pond Shelter.

**Cardigan Lodge.** The tool cache is in the tool box located behind the shed, which stands east across the field from the main lodge. Ask inside for additional information.

![Map of Cardigan Lodge](image)
**Camp Dodge Volunteer Center.** Available from Mother’s Day Weekend in May, through Columbus Day Weekend in October: Rt. 16, four miles north of the Pinkham Notch Visitor Center (between Gorham & Jackson), turn at the sign onto a dirt road, when road splits, go straight (not right); tool shed is next to the parking area. The tool shed is usually unlocked. See the Camp Dodge Coordinator if it is locked. Call Camp Dodge (603 466-3301) as it gets closer to the date for the exact May opening date.

**Pinkham Notch Visitor Center.** This tool cache box is available year round – and there is no need to call the Trails Volunteer Supervisor ahead of time to arrange pick up. The cache box is located next to the Woodchuck building. If you need further assistance locating the cache, please ask at the Pinkham Notch Visitor Center for the location of the Woodchuck building.

Most adopters buy at least some of the most frequently used tools. Hardware stores are good sources for basic tools. For more specialized tools, there is a list of suppliers of tools, equipment, and supplies for trail maintenance in *The Complete Guide to Trail Building and Maintenance*. Check at the trails office for catalogs from forestry suppliers. By owning your own tools, you will appreciate their comfort, condition, and availability. Experience has shown that when buying tools, it pays to purchase high quality tools that will do the job and last, even if they are more expensive. Consider putting a bright color on a portion of your tool to make it easier to find on the trail or in the brush if you misplace it.

If you are working alone, it will be difficult to carry enough tools to do everything on one work trip. Thus, on each work trip, plan to do a specific task. When blazing, take only the paint kit and perhaps clippers. When brushing, take clippers and a bow saw. For drainage work, the hazel hoe will handle most chores. A rock bar and pick mattock can be taken for rockwork. If you have people to help you, it is possible to bring a greater variety of tools. If your trail is some distance
from the road or above treeline, there are lightweight tools such as folding saws and shovels, garden hoes, and lightweight mattocks that allow you to bring more tools to the work site.

**Tools.** The essential tools for basic maintenance are a pair of clippers, a bow saw, a tool for cleaning drainage (hazel hoes are ideal), and a blazing kit. A brief description of the commonly used tools and their uses is provided below. Keep in mind that improper use of a tool can result in serious injury. Many of the skills sessions provide instruction on the safe and proper use of tools.

**Clippers, pruning shears, or lopping shears.** These are one of the primary tools of adopters. They come in a variety of types and the ones used depend on the work to be done and the preferences of the adopter. The handles may be made of wood, steel, or aluminum. The cutting heads are either the sliding blade-and-hook type or the anvil type. Some have simple pivot actions while others have compound or gear-driven actions that provide increased cutting power. Most clippers provide a one to two inch diameter cut. Pole clippers have a six to eight foot handle. These are useful for cutting high limbs along ski touring trails. Small hand clippers or pruners are useful for light pruning and can be carried in a pocket. They are especially useful for pruning krummholz above timberline.

**Bow saws and pruning saws.** These are also among the most frequently used tools and again come in a variety of shapes and sizes. Most have chrome-plated steel or aluminum frames and blades ranging from 21 to 36 inches. Some are collapsible or folding and can easily be carried in a pack. The smaller saws are useful for cutting saplings and limbs that are too large for the clippers. The larger saws are used for cutting blowdowns. By making an undercut in addition to the top cut, a sharp bow saw can quickly cut leaners 12 inches in diameter. Pole saws are available for cutting high limbs. Non-folding saws can be lashed to the back of a pack. Adopters use different types of sheaths, such as a segment of garden hose, cardboard, cloth, or aluminum, to cover the blade.

**Pick mattock.** The pick mattock is one of the most important tools used for basic maintenance in the White Mountains because of the large numbers of rocks encountered. It is a heavy, sturdy tool that can be used to dig through rocky soil and roots. A pick mattock, which has a head with an adze, is favored by most maintainers because it can be used for cleaning waterbars and drainage and for prying out rocks when they are encountered.

**Hazel hoes and grub hoes.** These tools are used for cleaning waterbars, cleaning drainage ditches, and side hill grubbing. A hazel hoe has a six to eight inch wide adze blade and a curved handle. Grub hoes have a narrower blade and are essentially mattocks without a pick or cutter blade. Garden hoes with the handle shortened represent a lightweight alternative.

**Shovels.** Shovels, which come in different forms, are useful for removing loose soil from drainage and installing new soil waterbars and side ditches. Shovels should not be used for prying out rocks as they may break. A pick mattock or crowbar should be used to remove the rock. Some maintainers slightly sharpen the shovel blade to facilitate cutting through small roots. Small folding shovels or foxhole shovels are light and can be carried in a pack.

**Rock bar.** Rock bars or pry bars are used for moving boulders or large rocks. Twelve to 18 pound crowbars are available. With a suitable log or rock for a fulcrum, the crowbar used as a lever can move very heavy rocks and boulders. Take care that in moving large rocks, they do not fall on
your feet or wedge a leg. Do not allow a rock to roll downhill out of control, as it can gain tremendous speed and momentum greatly endangering people and vegetation below.

**Axe.** The axe is used in trail work for cutting logs for trail reconstruction. It is also used for removing blowdowns. A three and a half pound, single bit axe head is most commonly used in trail work. Old or nicked axes, referred to as root axes, are used for cutting out roots. Axes are safer and more efficient when kept sharp. Axes should always be sheathed when not in use.

**Swizzle stick.** The swizzle stick or weeder consists of a straight or serrated blade attached by one or both ends to a long handle. This tool is used for clearing brush and low growth along trails. Because swizzles are swung like a golf club, it is important that the user maintain a safe distance from other people. It is recommended that the nuts that are supplied with the swizzle be replaced with aircraft style nylon insert lock nuts before going out into the field. You should also carry replacement nuts and bolts and the tools needed to install them. Never lay an uncovered swizzle on the ground; lean it against a tree.

A variety of other tools are used for specialized purposes in trail work. These include bark spud or peeler, chainsaw, crosscut saw, digging bar, fire rake, the McLeod, which is a combination rake and hoe, pick, and Pulaski, or cutter mattock which has a single bit axe blade and a grub hoe blade. Other tools used in trail clearing are the safety or brush axe, brush hook, machete, and hatchet. These are used in cutting brush, saplings, and limbs but have the disadvantage that it is difficult to cut flush with the ground or tree. These are probably best used when clearing heavily overgrown areas or putting in a new trail, but are discouraged for routine maintenance.
SAFETY WHILE WORKING

The use of tools in trail maintenance carries some risks and hazards. Listed below are some of the risks and recommended safety gear that adopters should consider including in their rucksack. Safety equipment can be obtained from the forestry suppliers. Basic safety equipment for all trail work includes sturdy boots, work gloves, and appropriate dress for the weather. Maintain tools in good working condition; know your abilities and limits; and take breaks before you are too tired. Besides protecting yourself, it is important to be aware of anyone near you when you are using tools. It is also recommended to carry a first aid kit when working and to complete wilderness first aid training every two years.

Risks associated with trail maintenance and recommended safety equipment

<table>
<thead>
<tr>
<th>Task</th>
<th>Risks</th>
<th>Safety Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brushing</td>
<td>Bees, eye pokes, rotten trees, loose footing, blisters, sharp branches, sharp tools</td>
<td>Eye protection, gloves</td>
</tr>
<tr>
<td>Axe use</td>
<td>Sharp tools, dull tools*, loose footing, blisters, tree cutting risks</td>
<td>Gloves, hardhat, shin guards, boots</td>
</tr>
<tr>
<td>Chainsaw use**</td>
<td>Kickback, severe ragged cuts, tree-cutting risks, deafness***</td>
<td>Kevlar chaps, eye and hearing protection, boots, gloves</td>
</tr>
<tr>
<td>Log work****</td>
<td>Sharp tools, slippery logs, rolling logs, back strain, loose footing</td>
<td>Gloves, shin guards</td>
</tr>
<tr>
<td>Rock work</td>
<td>Crushed fingers and toes, back strain, loose footing, striking head with pry bar, abrasions, rocks rolling downhill</td>
<td>Gloves, shin guards, hardhat</td>
</tr>
<tr>
<td>Tree cutting</td>
<td>Falling branches and timber (&quot;widow makers&quot;), spring poles, bees, chainsaw or axe use risks</td>
<td>Gloves, boots, hardhat, ropes or winches, wedges, axe or chainsaw gear</td>
</tr>
<tr>
<td>Alpine work</td>
<td>Back and arm strain, dehydration, lightning, overexposure to sun, rain, or wind</td>
<td>Sunscreen, sunglasses, sun hat, adequate clothing and water, leave area during storms</td>
</tr>
</tbody>
</table>

*Dull axes may glance off your target and inflict serious cuts.
**Chainsaw users must be properly trained and take a chainsaw safety certification course. These courses are available through the National Park Service, AMC, Forest Service, and State agencies. Chainsaw users should not work alone. Adopters must use their own chainsaws and safety gear.
***Sustained use of chainsaws without hearing protection causes deafness.
****Logs are surprisingly heavy, and working with them can be as risky as working with rocks.
FIRST AID

It is likely that at some point you will encounter ill or injured hikers. In addition, adopters, because of the nature of their work and use of tools, are subject to injury. Thus, adopters should have some knowledge of first aid and carry a first aid kit. The AMC offers several courses and workshops on wilderness first aid. You can purchase one of the many commercially available first aid kits or assemble your own kit more cheaply by buying items individually at a pharmacy. It is important to know what is in your first aid kit and how to use the item.

First Aid Kit Contents

The following items are the standard for all Trails Department staff and represent the required minimum contents carried in all AMC first aid kits at all times. Kits must be in the instructor’s possession at all times when leading a program. Many programs may choose to carry a larger quantity of the items listed above, as well other optional items such as hydrocortisone, maxi pads, bulb syringe, hand sanitizer, liquid soap, lip cream, and sunscreen.

<table>
<thead>
<tr>
<th>Category</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ABSORBING</strong></td>
<td>□ 4 triangular bandages</td>
</tr>
<tr>
<td></td>
<td>□ 3 rolls 2x4.5 yd. cling gauze</td>
</tr>
<tr>
<td></td>
<td>□ 6 4x4 gauze pads</td>
</tr>
<tr>
<td></td>
<td>□ 6 2x2 gauze pads</td>
</tr>
<tr>
<td></td>
<td>□ 2 ace bandages</td>
</tr>
<tr>
<td></td>
<td>□ 2 maxi pads</td>
</tr>
<tr>
<td></td>
<td>□ 2 combine gauze</td>
</tr>
<tr>
<td></td>
<td>□ 6 safety pins</td>
</tr>
<tr>
<td></td>
<td>□ 8 tampons</td>
</tr>
<tr>
<td><strong>STICKY</strong></td>
<td>□ 1 roll ½ inch tape and DUCT Tape</td>
</tr>
<tr>
<td></td>
<td>□ 1 roll 1 inch tape</td>
</tr>
<tr>
<td></td>
<td>□ 1 roll 2 inch tape</td>
</tr>
<tr>
<td></td>
<td>□ 1 tube Neosporin</td>
</tr>
<tr>
<td></td>
<td>□ 20 Band-Aids</td>
</tr>
<tr>
<td></td>
<td>□ 5 large Band-Aids</td>
</tr>
<tr>
<td></td>
<td>□ 8 butterfly bandages</td>
</tr>
<tr>
<td></td>
<td>□ 2 pkg moleskin</td>
</tr>
<tr>
<td></td>
<td>□ 1 pkg second skin</td>
</tr>
<tr>
<td><strong>CLEANSING</strong></td>
<td>□ 6 alcohol pads</td>
</tr>
<tr>
<td></td>
<td>□ 6 iodine pads</td>
</tr>
<tr>
<td></td>
<td>□ 1 baby tooth brush or iodine scrubby</td>
</tr>
<tr>
<td><strong>DRINKING</strong></td>
<td>□ 1 bottle Potable Aqua</td>
</tr>
<tr>
<td></td>
<td>□ 1 pack Aqua Mira</td>
</tr>
<tr>
<td><strong>RELIEF</strong></td>
<td>□ 6 Pepto-Bismol tabs</td>
</tr>
<tr>
<td></td>
<td>□ 8 Benadryl caps</td>
</tr>
<tr>
<td></td>
<td>□ 10 Ibuprofen (Advil)</td>
</tr>
<tr>
<td></td>
<td>□ 10 Acetaminophen (Tylenol)</td>
</tr>
<tr>
<td></td>
<td>□ 1 insta glucose (or Cake Frosting)</td>
</tr>
<tr>
<td><strong>WASTE</strong></td>
<td>□ 2 gallon Ziplocs</td>
</tr>
<tr>
<td></td>
<td>□ 4 quart Ziplocs</td>
</tr>
<tr>
<td></td>
<td>□ blue bags</td>
</tr>
<tr>
<td><strong>MISC.</strong></td>
<td>□ 8 pairs of gloves</td>
</tr>
<tr>
<td></td>
<td>□ 1 Sam Splint</td>
</tr>
<tr>
<td></td>
<td>□ Tweezers</td>
</tr>
<tr>
<td></td>
<td>□ Trauma Shears</td>
</tr>
<tr>
<td></td>
<td>□ 1 Pocket Mask</td>
</tr>
<tr>
<td></td>
<td>□ Lighter</td>
</tr>
<tr>
<td></td>
<td>□ First Aid Handbook</td>
</tr>
<tr>
<td></td>
<td>□ Notepad</td>
</tr>
<tr>
<td></td>
<td>□ Pen, Pencil, Marker</td>
</tr>
</tbody>
</table>
FURTHER READING

The books listed below provide additional information on topics related to hiking trails including maintenance, history, and etiquette. Most of these books and many others are available from the Appalachian Mountain Club and can be purchased at the Pinkham Notch Visitor Center. In addition, there are many useful fact sheets on topics such as trails, wildlife, shelters, weather, water, and many others prepared by the Forest Service and AMC and available at Pinkham Notch or the Forest Service District offices.


ADOPTER WORK REPORT
AMC VOLUNTEER TRAILS PROGRAM

Work Party Leader: ____________________________________  □ Adopter or Co-Adopter  □ Region Leader
Region Name:__________________________________________
Trail Name:__________________________________________  Trail on AT: □ Yes  □ No
Section Name:__________________________________________

Attribute Helper Hours To: □ Each Individual*  □ Adopter  □ Adopter/Co-Adopter Split
*Unless the individual is a registered volunteer in the Adopt-A-Trail program, we cannot count their hours separately from the adopters’ hours. They need to fill out a full volunteer agreement for the AMC.

<table>
<thead>
<tr>
<th>Work Party Information</th>
<th>Travel Hours (from your home to trailhead)</th>
<th>Hiking Only Hours (in to work site and hiking out, after work’s completion)</th>
<th>Work Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Adopter Name:</td>
<td>Examples: Use 1, 1.25, 1.5 or 1.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Co-Adopter Name:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Helper Full Name:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Helper Full Name:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Helper Full Name:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL HOURS: 0 0 0

Basic Maintenance Work Completed (Please specify exact numbers; do not say “all”)

<table>
<thead>
<tr>
<th>Drainage Cleaned</th>
<th>#</th>
<th>Trail Definition</th>
<th>feet/miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood Waterbar and its outflow ditch (WWB)</td>
<td>Brushing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rock Waterbar and its outflow ditch (RWB)</td>
<td>Blazing</td>
<td>Please confirm with Region Leader before blacing</td>
<td>miles</td>
</tr>
<tr>
<td>Dip (across tread) and its outflow ditch (DIP)</td>
<td>Scree Wall (SW)</td>
<td>feet</td>
<td></td>
</tr>
<tr>
<td>Side Ditch (off tread) (SD)</td>
<td>Cairn (CRN)</td>
<td>#</td>
<td></td>
</tr>
<tr>
<td>Stream Channeling (SCH)</td>
<td>Closed non-designated user trails</td>
<td>#</td>
<td></td>
</tr>
<tr>
<td>Rock Crossover (RXR)</td>
<td>Blowdowns removed (BD)</td>
<td>#</td>
<td></td>
</tr>
</tbody>
</table>

Basic Maintenance Work To Be Completed

<table>
<thead>
<tr>
<th>Drainage Cleaned</th>
<th>#</th>
<th>Trail Definition</th>
<th>feet/miles</th>
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<tr>
<td>Wood Waterbar and its outflow ditch (WWB)</td>
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<td></td>
</tr>
<tr>
<td>Dip (across tread) and its outflow ditch (DIP)</td>
<td>Scree Wall (SW)</td>
<td>feet</td>
<td></td>
</tr>
<tr>
<td>Side Ditch (off tread) (SD)</td>
<td>Cairn (CRN)</td>
<td>#</td>
<td></td>
</tr>
<tr>
<td>Stream Channeling (SCH)</td>
<td>Closure of non-designated user trails</td>
<td>feet</td>
<td></td>
</tr>
<tr>
<td>Rock Crossover (RXR)</td>
<td>Blowdowns removed (BD)</td>
<td>#</td>
<td></td>
</tr>
</tbody>
</table>

Other Notes: Please list any suggestions, questions, assistance requests, and any new issues or challenging trail problems like damaged trails signs and large blowdowns.

__________________________________________________________________________

Please send completed work reports to your Region Leader. Thank You.
ADOPT-A-TRAIL
VOLUNTEER PROGRAM AGREEMENT

I, ________________________________ (Adopter, Co-Adopter) agree to adopt the following:

________________________________________ (Section) __________________________ (Land)
________________________________________ (Trail) ________________________________ (Region)

Alpine section (Y/N) __________ Appalachian Trail (Y/N) __________ Wilderness area (Y/N) __________ Blaze Color/Info __________

I accept the following duties of a trail adopter as my commitment to assist the AMC in achieving its goal of maintaining all trails to a high and consistent standard. I understand it is my obligation to meet the expectations and requirements of the Adopt-A-Trail program, as follows:

1. Training:
   - Review the Adopter Handbook for accepted standards of trail work
   - Adopters and Co-Adopters must complete a required trail maintenance Skill Session prior to working on their adopted trail (Skill Session dates and locations available at http://www.outdoors.org/conservation/trails/volunteer/index.cfm)
   - All volunteers must recertify at a Skill Session every three years
   - Trail sections in an alpine area require attendance at an Alpine Skill Session

2. Maintenance:
   - Perform all trail maintenance work in compliance with AMC standards outlined in Adopter Handbook
   - Complete maintenance in order of priority:
     i. Clean drainage
     ii. Brush corridor and remove blowdowns whenever possible
     iii. Blaze the trail
   - For additional assistance and direction, consult with your Region Leader

3. Work Trips & Reporting:
   - Perform a minimum of three (3) work trips annually
   - Submit an Adopter Work Report to your Region Leader immediately upon completion of a work trip (see your Welcome Letter for your Region Leader contact information)
   - Report deadlines: July 15, September 15, and October 15 (any work reports submitted after October 15 will be counted toward the following year totals)
   - You are permitted to bring friends and family along on the trail to work with you. A trained Adopter or Co-Adopter must accompany any others on all work trips, providing training and work supervision. As the Adopter, you are taking responsibility for property training and observing the participants in your group

4. Safety & Environmental Ethics:
   - Follow safety procedures as outlined in Adopter Handbook
   - Follow Leave No Trail principles (www.lnt.org) and adhere to all Wilderness and Alpine area standards as outlined in Adopter Handbook

Failure to comply with any or all of these requirements may result in removal from the AMC Adopt-A-Trail program.

Thank you for joining the program and the AMC wishes you Happy Trails!

Adopter Information:

_________________________ Email __________________________
_________________________ Phone (Day) __________________
State/Province __________ Zip Code __________
_________________________ Phone (Evening) __________
_________________________ Phone (Cell) __________

_________________________ Adopter Signature __________________________ Date __________________
_________________________ North Country Trails Volunteer Programs Supervisor __________________ Date __________________

8/2015 BT
AMC Trails Program Mission Statement

“The AMC Trails Program is committed to the protection and care of the trails and backcountry campsites of our region and the experiences they provide. Through the high quality work of dedicated volunteers and staff, the trails program promotes stewardship, public service, and ethical recreation.”