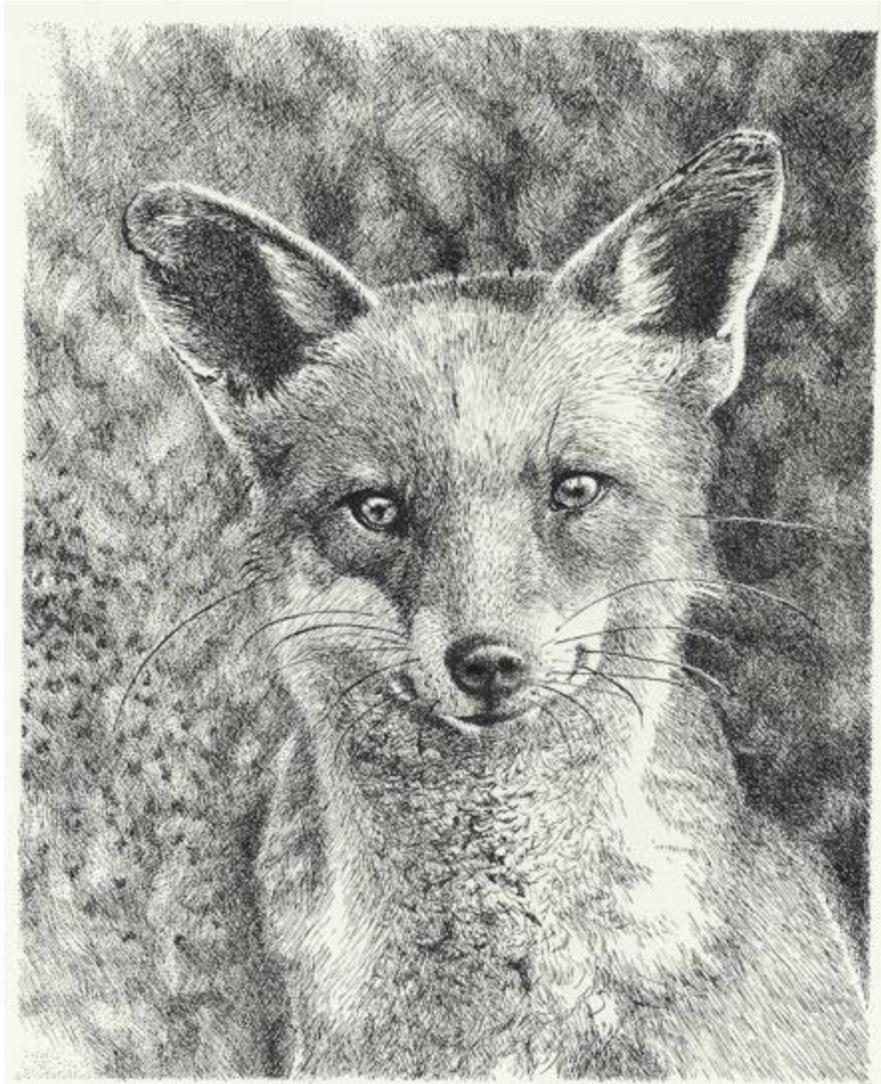


FRIENDS OF THE MIDDLESEX FELLS RESERVATION



# Middlesex Fells Trail Adopter Handbook

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Version 3, June 2015

## Welcome

Welcome to the Friends of the Middlesex Fells Trail Adopter Program. Thank you for volunteering your time to maintain the trails of the Middlesex Fells Reservation. This handbook is a guide to the program for all Fells trail adopters. It provides you with essential information about how to maintain your trail safely and effectively. The Handbook states the policies and procedures of the program, describes your responsibilities, and informs you how to obtain tools, additional training and/or permits as may be required. Basic information is provided on trail maintenance, including standards employed by the Massachusetts Department of Conservation and Recreation (DCR).

## Acknowledgements

This handbook borrows content liberally from the Appalachian Mountain Club's Trail Adopter handbook and the Friends of the Blue Hills' Adopt-A-Trail handbook. Links to both of these excellent guides may be found in the **References** section of this handbook.

## Contact Information

**Emergencies:** In the event of any emergency call **911** without hesitation

**Friends of the Middlesex Fells** (please note: Friends of the Fells is staffed by part-time and volunteer resources – we *will* respond to you but it may not be immediate):

- Rich Sanford – Board Chairman and Trail Adopter Program Lead
  - Phone: 617.335.7310
  - Email: [rich@friendsofthefells.org](mailto:rich@friendsofthefells.org)
- Friends of the Fells
  - Phone: 781.662.2340
  - Email: [friends@fells.org](mailto:friends@fells.org)
  - Website: <http://www.fells.org/>

### Department of Conservation & Recreation (DCR):

- DCR ParkWatch: 866.759.2824 (**866-PK-WATCH**)
- DCR General Information: 617.698.1802
- DCR 24-hour Emergency: 617.722.1188
- DCR Fells Visitor Center at Botume House: 617.727.1199 x406
- Website: <http://www.mass.gov/eea/agencies/dcr/>

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## Background

The Middlesex Fells Reservation is an urban forest park spanning over 3,000 acres (including 2,575 acres of the official state park, as well as the Winchester and MWRA reservoirs landlocked within the park) in the towns of Winchester, Stoneham, Melrose, Malden and Medford. The Fells attracts walkers, hikers, runners, bikers, nature-watchers, families, artists and a myriad of others to explore its 79-mile trail system which includes 25 miles of blazed hiking trails.

The Friends of the Middlesex Fells Reservation is an organization dedicated to the protection and harmonious use of the Fells; promoting awareness, policies and programs to honor and preserve the ecological, historical and recreational resources of this urban forest reservation. The Friends of the Fells sponsors a variety of educational, recreational and volunteer programs in and about the reservation.

The Fells Trail Adopter Program serves two important needs. First it provides an opportunity for interested citizens to “get their hands dirty” and form a deeper connection with their chosen trail segments. Second it provides the necessary labor pool to remedy the effects of heavy use ... to keep trails clean, clear, easily navigated and enjoyable for all.

This program, launched in 2014, builds on the tradition of the earlier Friends of the Fells Trail Adopter program which was very productive in the previous decade, working in close collaboration with DCR.

## Trail Adopter Program Summary

The Fells Trail Adopter Program provides the opportunity for volunteers to take responsibility for regular maintenance on a trail or trail segment within the Middlesex Fells Reservation. The adopter performs an essential role in maintaining trails in these times when state resources are limited.

Adopters may be individuals, families, groups or organizations such as clubs, camps, Scouts and others. There are no formal requirements for the program other than a willingness to take on the responsibility. Basic training is provided for new adopters to ensure that they are capable and confident to perform their work safely and in a manner consistent with DCR policies and guidelines.

## Trail Adopter Responsibilities

Each trail adopter will complete the **Middlesex Fells Trail Adopter Application** to request a trail for adoption. The adopter may request a specific trail. However if the selected trail is already subscribed, the adopter may be asked to choose an alternate trail.

Each trail adopter must read this handbook and indicate acceptance of all terms outlined within it by checking the box on the application form. Additional training, typically a trail visit with an experienced trail adopter, may be requested. Each trail adopter will sign a liability waiver form prior to any work on their trail. An updated liability waiver form must be submitted each year by each trail adopter.

Once a trail is assigned, it is expected that the adopter will visit the trail at least two to three times per year (including in the spring to clear any damage from the winter, and in autumn after the leaves drop).

If we do not receive any updated forms, work/issue reports or email updates from you for six months, we will consider your trail to be available for reassignment.

## Trail Adopter Basic Maintenance Tasks

Each adopter should perform the basic tasks listed below according to their abilities and interests. As a general guideline, it is estimated that a two-mile section of trail will require approximately 10 hours of work over the course of three visits per year to perform these tasks. These visits should be distributed throughout the spring, summer, and fall so that maintenance issues can be addressed expeditiously.

The basic maintenance tasks of adopters include:

**Trash removal** – Bag and carry out litter found on or near the trail.

**Trail brushing** – Clear overhanging limbs, downed limbs and small trees, and brush to maintain a trail corridor wide and tall enough for all users to pass safely.

**Signage clearing** – Clear limbs and vines to ensure visibility of signs or blazes.

**Drainage clearing** – Clean waterbars, culverts and drainage ditches of obstructions such as dirt, rocks, branches and leafy debris.

Adopters work to maintain existing structures and signage. Adopters may not construct new structures or erect new signage or blazes on their own without proper training and permits from DCR.

Trail adopters should report the following types of issues whenever they are encountered:

**Downed trees or Hazard trees:** Report trees blown down across the trail when they are too large for you to clear on your own. Also report trees found leaning over the trail, typically against other trees, which may present a hazard to users as they risk breaking free and falling while users pass underneath.

**Erosion and treadway damage:** Report areas where the trail is uneven or the footing is unstable, including where water is eroding the trail.

**Missing or confusing signage:** Report locations where you suspect that blazes or signs are missing or ambiguous, encounter a confusing trail intersection, or encounter lost users on your trail.

**Unofficial Trails** – Report any unofficial user-created trails that you find branching off from your trail. Note if there is any ambiguity as to which is the official trail.

**Invasive plants** – Report invasive plants that you identify growing alongside your trail. There are many species found in the Fells. To begin familiarizing yourself with invasive plant species common in the Fells, refer to “The Trail Adopter’s Guide to Invasive Plants: The Fells Reservation” (<http://www.friendsofthefells.org/wp-content/uploads/2015/06/Guide-to-Invasive-Plants.pdf>). To truly get to know these plants it is best to walk your trail with a knowledgeable person who can

identify these plants at various stages in their lifecycle and in various seasons. Contact the Friends of the Fells to be connected with an experienced botanist who can work with you to identify the species prevalent along your trail.

**Fire** – Report any fire rings or other evidence of campfires in addition to any active or smoldering brush fires. Camp fires are prohibited throughout the Fells.

With the proper training, supervision and permit, trail adopters can perform more advanced tasks to remediate some of the issues noted above. This should be done only after all basic maintenance tasks are completed. Refer to the **Trail Adopter Special Projects** section of this handbook.

## Trail Adopter Reporting

It is the responsibility of Trail adopters to report on any ‘work’ visits to their trail, including any work performed and any issues identified. This reporting allows both DCR and Friends of the Fells to keep track of volunteer hours (and give you credit for these!), to be aware of which trails require work to remediate issues, and to help determine which trails have not been visited by volunteers.

When reporting any issue for follow-up by DCR, please describe it in detail and pinpoint its location. Providing GPS coordinates (if you have the technology) is best. If GPS coordinates are not available, provide a clear set of directions to the spot with references to landmarks. Counting the paces from the spot back to the nearest trailhead or identifiable intersection is informative. When possible, include photos to demonstrate the issue or question you are reporting.

Trail adopter work/issue reports may be submitted through a variety of means. Reference the **Middlesex Fells Trail Adopter Work and Issue Report Form** for details, including a link to the online form. All trail adopter work/issue reports will be shared with both DCR staff and Friends of the Fells.

Trail adopters may from time to time witness or find evidence of illegal activities. In these cases the **DCR ParkWatch** system should be used to report the activities. Trail adopters are advised never to confront people committing illegal activities.

### DCR ParkWatch

Park Watch was established in 2011 to “encourage crime prevention practices by park staff, law enforcement, and park visitors to ensure a safe and crime-free park environment.” The program is meant to track and discourage common illegal activities such as illegal dumping, vandalism, alcohol consumption, fires, off-trail use, off-leash dogs, bicycles on pedestrian-only trails, motorized vehicles on trails, paintballing, hunting or trapping, etc.

If you witness any of these activities (or evidence of the activities), the ParkWatch line is available 24/7 to receive your call: **1-866-PK-WATCH** (866-759-2824).

Is it “worth” calling in to the line? In the words of one DCR ranger, “It never hurts to call things in.” Whether you see an illegal activity in progress, or a site that was disturbed (by dumping, fire, etc) many months ago, please make the call. Benefits of calls to ParkWatch include:

- A call log showing significant activity will help to make the case for additional rangers and support staff to be assigned to the Fells.
- The call log helps guide the attention of DCR managers and rangers to the areas that require maintenance or monitoring.
- If an issue is not promptly addressed, repeated reports may raise its priority.
- Repeated calls regarding one area may indicate that efforts made to maintain that area are being actively undone, which is valuable information.

If you carry a cell phone, please pause right now (set down this handbook) and program the number into your phone so that it will be there when you need it:

1-866-PK-WATCH (1-866-759-2824)

ParkWatch is *not* an emergency line. Any emergencies or dangerous situations should be reported immediately to **911**.

## Trail Adopter Equipment and Tools

Adopters utilize a variety of tools to accomplish their work activities. A few simple and inexpensive items should be obtained by every adopter (if not already present in your household) and carried on each visit to your trail:

- **Trash bags** – It is a good idea to carry multiple empty bags into the park with you. It is best to use tear-resistant bags, or double-bag trash, as the trash frequently includes broken bottles or other sharp objects.
- **Gloves** – Inexpensive nitrile gloves can protect your hands from the effects of poison ivy or other irritating plant oils as you pick up trash or cut back vines, and keep your hands clean from the trash itself.
- **Work gloves** – A sturdier ‘work glove’ is appropriate if working around thorny bushes or vines that would easily tear a latex/nitrile glove.
- **Hand pruners** – An effective hand pruner can be obtained for \$10-20 and is a lightweight addition to your pack. These are useful for clearing back small branches and vines that protrude into the trail corridor, or for cutting back vines that have overgrown signs or blazes along your trail.
- **Folding saw** – If you are comfortable using a saw to clear larger brush or branches, a folding saw is the preferred tool of most trail adopters. These may be obtained for \$20-40, are easily and safely carried when folded, and are effective on branches up to several inches in diameter.

A couple of larger tools, though more awkward to carry, may be useful in the work of a trail adopter. These may be borrowed from DCR or Friends of the Fells if you wish not to invest in your own:

- **Loppers** – Loppers come in a variety of types appropriate to different types of work or personal preferences. The handles may be wood, steel, aluminum or carbon fiber. The cutting head types are the anvil or the sliding blade-and-hook type. Some have simple pivot actions while

others have compound or gear-driven actions that provide increased mechanical advantage. A sturdy lopper can quickly and easily cut limbs up to an inch or so in diameter. These may be obtained for \$15-45, with professional-grade tools running much higher in cost.

- **Trash pickers/grabbers** – A long-handled tool with a grip at one end controlled by a trigger at the other can be very effective for removing hard to reach trash from thorny bushes or wetlands, avoiding damage to both the adopter and the habitat.
- **Bow rake, folding shovel and/or hoe** – trail adopters are expected not to be digging; however these tools are good candidates for clearing organic debris from drainage structures.

If you own a GPS device please bring it along on your trail visits so that the exact location of any issues can be reported accurately. It is also worthwhile to carry a small camera (or cell phone with camera) to document issues or questions you encounter along your trail.

## Trail Adopter Safety

Adopters are responsible for their own safety, and the safety of those around them, while working on trails. Adopters are welcome to invite families, friends, and other groups in trail work. The adopter is responsible for the work performed and provides instructions on tool use and safety.

It is assumed that adopters have some experience with hiking and will come prepared for the elements and for the challenges and hazards of hiking. Adopters should plan for the effects of prolonged exposure to sun and wind – quite a bit of the Fells Reservation is exposed rock not shaded by trees – and come prepared with adequate water and food for the workday. Dressing for the elements, including sun-protective clothing or sunscreen, is very important. Adopters should never work when there is a high risk of lightning and should immediately leave the Reservation if threatened by an oncoming thunderstorm.

Despite the easy access from roads to much of the Fells Reservation, it is easy to get lost. A trail adopter should always carry a map of the Reservation and a GPS device or cell phone with GPS application. The adopter is strongly advised to carry a cell phone so that a call for help (always dial **911** in the event of emergency) can be made if needed. It is also advisable to let a family member or friend know your itinerary if hiking or working alone.

Trail adopters should be aware of hazards common in this region:

- **Poison ivy** – The oil from this plant is extremely irritating to most people, producing an itchy rash that is easily spread by scratching and typically lasts for a week or two. The response to poison ivy varies widely between individuals, with some being hardly affected while others may have severe allergic reactions. Learn to identify and avoid poison ivy and take care, for example, not to rub your eyes or forehead with hands or gloves that may have contacted poison ivy.
  - **Jewelweed** commonly grows in the same places as poison ivy and can be an effective antidote, so it is worth becoming familiar with. The orange flowers make jewelweed easy to spot, once you learn to identify it. If exposed to poison ivy, the prompt

application of oil from the stem of a jewelweed plant may be enough to prevent a reaction entirely, and at the very least will offer significant symptom relief:

[http://www.naturalnews.com/036190\\_poison\\_ivy\\_remedies\\_jewelweed.html](http://www.naturalnews.com/036190_poison_ivy_remedies_jewelweed.html)

- **Ticks** – Ticks are small arachnids often found in tall grass and bushes from spring through fall. Ticks are notorious for spreading diseases such as Lyme disease. Long pants and shirts help to avoid tick exposure. Tuck your pants into your boots or socks, use insect repellent, and wear light-colored clothing to make it easier to see ticks. Learn proper procedures for identifying and removing ticks. A complete inspection of the body should be conducted to look for evidence of the ticks. Medical advice should be sought if a tick is not easily removed or if you have any questions regarding a potential tick bite. Early intervention is key to avoiding the more severe effects of Lyme Disease.

Adopters are expected to carry a simple first-aid kit to handle basic injuries such as cuts and sprains. You may purchase one of the commercially available first aid kits, or assemble your own kit of individually-purchased items. In either case it is important to know what is in your first aid kit and how to use each item. Common first-aid kit contents include:

- A variety of bandages, gauze pads, gauze wrap, ace bandages, safety pins
- A variety of Band-Aids and medical tape
- Alcohol and/or iodine pads for cleansing
- Neosporin or equivalent antibiotic
- Ibuprofen, Tylenol and/or aspirin for pain/swelling relief
- Sterile gloves, tweezers, scissors

The use of tools in trail maintenance carries some risks and hazards. Maintain tools in good working condition and do not attempt to work with defective tools. Do not attempt to work with tools if you are fatigued.

Large tools should be carried to the work site at waist level with the sharp end facing toward the ground. When traveling on the trail as a group, maintain a minimum distance of ten feet between each person. Tools should never be carried on the shoulder, as injury may occur if you trip or fall. If you start to fall, gently toss the tool away from your body. If approaching someone working, announce your presence and wait for them to stop before you approach closer.

Trail brushing or clearing brings several potential hazards for the trail adopter – eye pokes, falling trees or branches, loose footing, blisters, sharp branches, sharp tools, or branches or roots that spring loose when an impeding object is cleared. The adopter is recommended to wear sturdy boots, work gloves and eye protection.

Adopters should be aware of their own limitations and of proper procedures when attempting to lift or move heavy objects. It is good practice to stretch prior to starting any hike or work. Adopters with known joint issues may consider wearing a brace to better support the weakened joint.

## Trail Adopter Special Projects

With the proper training, supervision and permit, trail adopters may perform more advanced tasks to remediate other issues on their trails. All work should be performed in a manner to protect the environment, natural resources, and the recreational experience. It is important to maintain a good cooperative relationship with the DCR and Friends of the Fells.

Common ‘special projects’ performed by trail adopters may include, but are not limited to:

- Removal of invasive plants
- Brushing-in (closing) accidental or illegal user-created trails, or of DCR-decommissioned trails
- Repair, replacement or addition of signs and/or blazes

These projects all require a specific permit from the DCR, as they are not covered by the blanket permit for basic trail adopter maintenance activities. Trail adopters request authorization for projects by sending an email to Tom Walsh of DCR ([Thomas.m.walsh@state.ma.us](mailto:Thomas.m.walsh@state.ma.us)) cc’ing [trails@fells.org](mailto:trails@fells.org) describing specifically the proposed work and location. It is worth mentioning any prior experience or training you have accumulated. After responding to any questions or concerns from DCR you should receive an email granting approval for the work. This email is your permit; it is prudent to bring a printed copy (or cell phone photo) of it to the work site. You should allow at least a couple of weeks for response between your initial email and your proposed project date.

In all cases, this work may be performed alone or by leading a volunteer group. You may choose to bring a group with which you are already affiliated, or to have an interested volunteer group assigned to your project by Friends of the Fells or DCR. Leading a group of volunteers as an “Event Captain” comes with additional responsibilities – see the **Event Captains** section.

If you are interested in pursuing special projects on your trail, the best first step is to participate in a similar project with Friends of the Fells or DCR staff who can provide you the necessary training and supervision. Alternatively, you may request a DCR or Friends of the Fells representative to join you on your first project and provide on-the-job training and supervision. You may need to provide both advance notice and scheduling flexibility in order to receive such support. As you gain experience with particular types of projects, it will become easier for you to obtain permission for additional projects.

### Event Captains

Many trail adopters will choose to lead groups of volunteers in completing projects on or near their trails. These may be the adopter’s immediate family, an affiliated group such as a Scout pack or church, or a group from the general public at an event like Park Serve Day. In any of these cases, the adopter fills the role of an ‘Event Captain’ responsible for ensuring that the full group is prepared, safe and successful.

If you are interested in leading events for volunteer groups or the general public, please email [volunteer@fells.org](mailto:volunteer@fells.org) . We are always looking for motivated individuals who are familiar with the trails and have event planning or group management experience.

A group of up to 10 volunteers can make short work of many trail tasks. Larger groups can be difficult to manage and to provide with a productive work experience. Do not attempt to lead a larger group until you have some experience with groups and have a project that can accommodate such a large group.

When planning to meet a group for a service event, make certain that:

- The group knows exactly where and when to meet
- Everyone has your contact information
- You are easily identified as the leader (this can be as simple as holding your tools in one hand and a clipboard in the other as you wait)
- The cancellation policy is clear as to any weather or circumstance that might cancel the event (minimum: cancel in case of lightning).
- The group is reminded to dress appropriately for the work and for elements, to use insect repellent and sunscreen as needed, and to bring adequate water and food.

When the group arrives, make sure to have every participant sign a liability waiver form. For larger groups a simpler form can be provided with many signature lines; email [volunteer@fells.org](mailto:volunteer@fells.org) to request it. Note that DCR policy requires any participating minors to have a liability release signed by a parent or legal guardian. This often requires the form to be circulated to the group in advance of the event, as minors may arrive at the event in a carpool with only a few of the parents in attendance (if any).

Before setting off on the trail, provide a brief training session to your group. In this session you should:

- Review the scope of the day's activities – the distance and specific trail(s) that will be hiked, and the nature of work to be performed.
- Review common safety concerns including poison ivy, and the safe use of any tools.
- Mention the location of the nearest public restroom or port-a-potty (if any), or the absence of any.
- If trash removal is part of the task, review the guidelines for handling broken glass. Note that the volunteers should ignore glass fragments smaller than an inch square, which invite cuts and frustration while scarcely improving the cleanliness of the site.

While approaching the work site and beginning work, make certain that every individual in the group is clear on his or her task, and on the applicable standards or guidelines. Make certain that they are working safely and using tools appropriately. Watch the group for signs of fatigue or distraction.

The work of a trail adopter is never complete. Although it is always nice to finish a project, it is more important that the group have a good experience and be eager to return another day. If you reach a point where the group is tired or losing interest in the task, look for an opportunity to wrap up the work for the day and consider returning on another occasion to continue it.

When work is completed, make sure to congratulate the group on a job well done and thank every person for their efforts.

## Trail Adopter Policies and Guidelines

Each year the Friends of the Fells obtains a permit from DCR to conduct our trail work activities in the Middlesex Fells Reservation. This permit covers only the Trail Adopter Basic Maintenance Tasks outlined in this handbook. Any other work proposed by a trail adopter must be permitted separately – refer to the **Trail Adopter Special Projects** section of this handbook.

Good communication between the Friends of the Fells and DCR is essential to maintain a good working relationship. DCR provides guidance and approval to allow work to be performed. All trail adopters should become familiar with the **DCR Trails Guidelines and Best Practices Manual** and the **DCR Volunteers in Parks Program Guide**. The URL for each of these documents is provided in the **References** section of this handbook.

In accordance with the Volunteers in Parks guide, the use of any power tools (including chain saws) is explicitly excluded from the basic maintenance tasks for trail adopters. Any project requiring the use of power tools qualifies as a special project and requires a separate permit from DCR.

## Trash Removal and Cleanup Guidelines

The protocol for trash removal is exceedingly simple. Place the trash into a bag and remove it from the site. For small amounts of trash, please take it home to discard with your own household trash. There is no official policy with respect to recycling, but you are of course welcome to sort the recyclable items and return them to an appropriate recycling center in your community.

For larger amounts of trash, or if it is difficult for you to bring the trash home, you may leave it at any of the numbered gates around the perimeter of the Fells (note that the closest gate may not be the one near where you parked – consult your map). Please note any trash left at a gate on your work report and/or report it separately to [trails@fells.org](mailto:trails@fells.org) within 24 hours of your cleanup. Please remember to record the number of bags (equivalent of 13-gallon ‘tall kitchen’ bags) that you collected on your work report.

Many of the rocky areas in the Fells, unfortunately, contain lots of broken glass. Removing small pieces of broken glass by hand is time-consuming and slightly hazardous. The Friends of the Fells discourages volunteers from attempting to remove fragments of broken glass smaller than one square inch.

Trail adopters should not pick up trash along roads or in active parking lots. Working on an active roadway is dangerous and these areas are routinely cleaned by state workers, so volunteer work on them is not required.

Occasionally a volunteer will encounter a used needle – a “sharp.” These must be handled with extreme caution due to the risk of spreading infections or communicable diseases. Trail adopters are advised not to handle needles found by their trails. Report the location as specifically as possible via the ParkWatch system and in your work report so that a qualified individual may remove it. If the needle is found directly in the trail, move it off the trail using extreme caution not to touch the sharp end (sliding the needle off of the trail with your sturdy, closed-toed boot may be the safest option)

Volunteers seeking to ‘clean up’ a trail and return it to a more natural state will inevitably be frustrated by graffiti on rock surfaces. Trail adopters are not authorized to remove graffiti; instead please report the location of any graffiti on your work report and via ParkWatch.

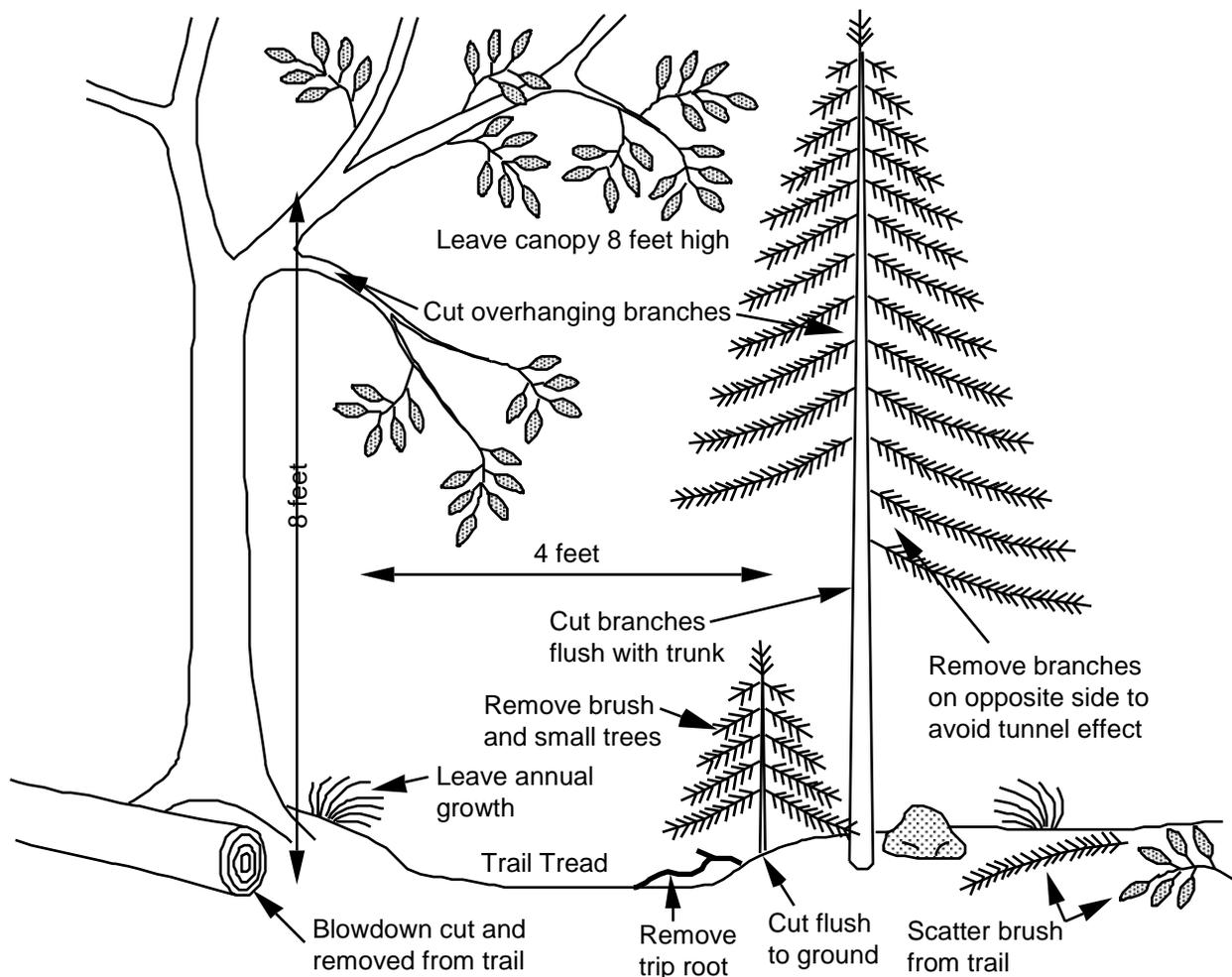
### **Trail Brushing Guidelines**

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. As vegetation falls or grows into the trail corridor, it must periodically be trimmed or removed to maintain a trail corridor clear of obstacles. This activity includes cutting, trimming and removal of vegetation within up to 18” of the existing trailbed width (typically 24” for hiking trails, up to 10’ on fire roads), and up to a vertical height of 6’ to 9’.

Tree branches that grow into the trail corridor should be pruned back to the nearest larger branch or trunk. 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. 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 may snag users’ packs or clothing. Low shrubs and young trees that 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 dangerous if stepped on or fallen upon. Annual growth such as ferns should be left unless particularly thick and aggravating.

Avoid clearing branches to widen the trail if doing so would expose fragile plants and mosses to trampling. Remove all dead trip roots from the trail. Do not cut live roots in the ground nor on the downhill side of a side hill, because these roots 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, as it will encourage trail users to shortcut the corner. Don't cut edges heavily in boggy areas, or users will widen the trail.



[Image Source: AMC Trail Adopter Handbook]

After brushing, it is very important to remove all branches and debris from the trail. 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. 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. Be sure not to throw brush into drainage ditches or their outflow; this would clog ditches and affect proper drainage. Always discard debris to the downhill side of the trail to avoid creating areas where water can pool above the trail and threaten to erode the trail as it streams down.

Blowdowns across the trail and trees leaning over the trail ("leaners") should be removed. A 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 blow-down). If the trunk is not in the trail, the projecting side branches can be cut off. Be sure to cut these flush with the trunk. Smaller blow-downs may be cut with a bow saw or folding saw. Larger trees not easily removed by a volunteer with hand tools should be reported to DCR using the **Middlesex Fells Trail Adopter Work and Issue Report Form**.

Some trails in the Fells may pass very near to rare plant species or priority habitats. Friends of the Fells would be happy to connect any trail adopter with a trained botanist who can help to identify rare plants near your trail and suggest strategies for protecting these specimens as you maintain your trail.

### Drainage Clearing Guidelines

The maintenance of drainage is the most important task of trail adopters. Failure to maintain drainage may result in a severely eroded or flooded trail. Erosion can also result in serious damage to existing trail construction. These problems and their serious consequences for the environment can be greatly reduced by proper maintenance of trail drainage. This includes clearing of debris from several types of drainage structures defined as follows:

- Culverts – Large tubes or pipes run under the width of the trail. A basin on the inflow side collects water. An outflow ditch fans out from the other end of the pipe to allow the water to disperse.
- Waterbars – Structures built into a trail at an angle (around 45°) to divert water off the trail. Waterbars typically are constructed of wood or stone. A trough in front of the waterbar collects the water and channels it off the trail. The outflow ditch should extend past the edge of the trail so water does not flow back onto the trail.
- Grade Reversals & Dips – Structures built into a trail. Dips are a simple “bump” in the trail, situated at an angle (around 50°) with a trench in front of the dip to direct water off the trail. A grade reversal is a more gradual dip and may extend for six to ten feet down the trail. Grade reversals often include large rocks dug into the trail and then covered with dirt.
- Drainage Ditches – Structures running parallel to the trail used to transport larger amounts of water. The ditch may collect and transport water to a culvert to flow under the trail. Alternatively, the ditch may carry the water along the trail and then direct it off the trail on the same side as the ditch.

One of the most effective tools for cleaning drainage is the hazel hoe or adze hoe; however it is probably more than you need. A folding shovel (\$15-30) can be very handy for these tasks. Otherwise, an ordinary bow rake and/or garden hoe, which you may already have, are usually satisfactory for cleaning drainage.

When clearing waterbars and drainage dips, pull any accumulated silt and rock 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 off of the

trail and away from the outflow of the waterbar. Do not simply scrape the debris to the end of the drainage; it may clog the outflow ditch. Instead, lift the debris to an appropriate location off the trail. Remove loose roots and rocks from drainage structures, as these will collect debris.

The outflow ditch at the end of the waterbar should be straight and wide (at least 18 inches) and should slope 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 outflow ditch to facilitate cleaning. Ditches should be cleared far enough to ensure that water is taken well off the trail and does not reenter the trail further down.

Drainage ditches silt in and become vegetated and, like waterbars, need to be maintained each year. The same principles apply to ditches as to waterbars and water dips. Avoid leaving large, unsightly mounds of dredge silt and debris along the side of the ditch. Organic mud and leaves should be discarded as they hold water and make the trail muddier.

Streams with shallow channels crossing the trail should be cleared of debris. Logs, brush, rocks, and leaves that clog the channel and divert the water should be removed from the stream and discarded off the trail, to the downhill side, and away from any other drainage features.

A heavy, prolonged rainstorm reveals how water is flowing on a trail and suggests where the water may be diverted off the trail. Visit your trail during or immediately after a heavy rain. Notice where water enters and exits the trail. If you see an erosion risk you will be able to look back uphill for a drainage structure (on or beside the trail) that is in need of maintenance. Clear this structure of debris and it may be fully functional again. If you identify a significant erosion risk on your trail, and no existing drainage structure that would mitigate it, please note this on your work report so that DCR can consider building a new drainage feature.

### **Signage Guidelines (for observation/reporting only)**

Please note that volunteers are not permitted to install or modify signs or blazes without a separate permit and direct training and supervision from DCR. As a trail adopter, your focus is on ensuring that the existing signs are visible (not overgrown). Any recommendations to repair, improve or replace signage or blazes should be noted on your work report so that DCR may follow up.

A properly blazed trail is important in making the trails safe and fun for users. In addition, by helping keep users on the trail, blazing reduces impact on the environment. Walk your trail in each direction to confirm the effectiveness of blazes while travelling in either direction.

Blazes typically should be visible from one blaze to the next (about 30-50 feet). This is especially important in the fall when leaves obscure the trail. In softwoods where there is an obvious tread and trail corridor, blazes may be more widely spaced (100-150 feet). No more than one or two blazes should be visible at a time. Trail marking is for the benefit of someone who is not

familiar with the trail or terrain, but excessive blazing can be unsightly and give the trail a less-than-natural appearance.

Any encounter with users who have lost the trail (or are uncertain that they are still on it) is a clue that the blazes were obscured or inadequate. Be certain to report such issues on your work report.

While you are not permitted to add or repair signage, you should absolutely work to keep the existing signage visible so that it can be effective. Look for blazes or signs that may be obscured by vines, overhanging branches, or even tall brush growing up in front of them. In these cases, brush back around the blaze or sign in question to make it visible from at least 30-50 feet down the trail.

### **Trail Definition Guidelines**

Bootleg trails (unofficial, user-created trails) and overly-wide trails are some of the most serious problems affecting trails. Bootleg trails often develop when users cut switchbacks. In wet areas, people may go to the side of the trail, widening it. They also develop when the trail is poorly brushed or blazed, or when blowdowns are not removed. 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 by users on the environment.

In dealing with these problems, first try to determine why they are happening. Blazes may be faint or poorly placed. A blowdown or brush projecting into the trail can force people to go off-trail. If you are not able to correct these problems within the guidelines above, then note them on your work report.

As a next step, you may block off the bootleg trail with brush (“brushing in” the official trail). People will usually take the path of least resistance. Brushing over the entrance to the shortcut makes it less visible or inviting, and allows new growth to reclaim the bootleg trail. If you make the intended trail easy to walk on by removing debris, users will be more likely to stay on it. The material removed can be used to cover the bootleg path. If the bootleg trail has become well defined and well-travelled through years of use, a more significant remediation effort may be required. Note these cases on your work report and consider a ‘special project’ to address the issue.

### **Less is More**

Adopters must avoid the temptation to “make work” when a section of trail is found to be in good condition. A visit to a trail where no work is required must be considered a successful visit. An “all is well” report provides valuable information to the Friends of the Fells and the DCR. Similar programs in other parks have been cancelled after repeated visits by well-meaning trail adopters resulted in a continuous widening of trails, doing more harm than good to the user experience. Keep this cautionary tale in mind as you work on your trail and do only as much as necessary to maintain a safe trail and a positive user experience.

## Be a Trail Ambassador

Adopters should consider themselves trail ambassadors and we hope you will engage other users to discuss your work on the trails. Many users will inquire about your work and may even thank you. Please direct them to our website to obtain more information or to register for a work event.

We suggest that all trail adopters carry a map while visiting the Reservation and offer assistance to other trail users.

## References

References for all Fells trail adopters:

- “Volunteers in Parks Program Guide,” DCR, 2014.
  - <http://www.mass.gov/eea/docs/dcr/volunteer/volunteer-guide-2014.pdf>
- “DCR Trails Guidelines and Best Practices Manual”, DCR, Updated March 2012.
  - <http://www.mass.gov/eea/docs/dcr/stewardship/greenway/docs/dcrguidelines.pdf>
- “AMC Trail Adopter’s Handbook,” 10<sup>th</sup> Edition, Appalachian Mountain Club, 2013.
  - <http://www.outdoors.org/pdf/upload/vol-adopter-handbook-2.pdf>

References for special projects and more advanced topics in trail construction and maintenance:

- *AMC’s Complete Guide to Trail Building & Maintenance*, 4<sup>th</sup> Edition, Staff of AMC’s Trails Department, AMC Books, 2008.
- *Appalachian Trail Fieldbook – A Self-help guide for trail maintainers*, Appalachian Trail Conference, 1982
- Friends of the Blue Hills Adopt-A-Trail program:
  - <http://friendsofthebluehills.org/adopt-a-trail/>
- “The Trail Adopter’s Guide to Invasive Plants: The Middlesex Fells,” Bell, Kayla, 2014:
  - <http://www.friendsofthefells.org/wp-content/uploads/2015/06/Guide-to-Invasive-Plants.pdf>
- *A Guide to Invasive Plants in Massachusetts*, 2<sup>nd</sup> Edition, Somers et. al., 2008
- *Outsmart Invasive Species*, (iPhone app), University of Massachusetts, DCR, et al.
- “Methods for Disposing of Non-Native Invasive Plants,” University of New Hampshire, January 2010

## Middlesex Fells Trail Adopter Application

This form may be submitted in any of the following ways:

- Complete the form online: <http://www.fells.org/trailadopter/>
- Email a completed form (or answer these questions in an email) to [trails@fells.org](mailto:trails@fells.org).
- Print, and mail a completed form to:

**Rich Sanford c/o Friends of the Fells / 235 W. Foster St. / Melrose, MA 02176**

I have read, and accept, the Fells Trail Adopter Handbook

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

E-mail: \_\_\_\_\_

Phone: \_\_\_\_\_

List and describe any previous trail work experience (indicate any specific experience with Friends of the Fells and/or DCR):

List any relevant training you've attended (date and event title):

List up to three trails or trail segments you would be interested in adopting (top choice first):

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**Emergency Contact:** \_\_\_\_\_ **Relationship:** \_\_\_\_\_

**Phone:** \_\_\_\_\_ **Alt. Phone:** \_\_\_\_\_

## Middlesex Fells Trail Adopter Liability Waiver Form

This form may be submitted in any of the following ways:

- Complete the form online: <http://www.friendsofthefells.org/trailadopter/trailadopterwaiver/>
- Email a photo of a signed form to [trails@fells.org](mailto:trails@fells.org).
- Print, and mail a completed form to:

**Rich Sanford c/o Friends of the Fells / 235 W. Foster St. / Melrose, MA 02176**

I, as a member of or a participant in activities sponsored by the Friends of the Middlesex Fells, understand the work that I have volunteered to do and I hereby state that I am qualified and physically capable of accomplishing the work and activities for which I have volunteered, and that I will perform them as directed by a property authorized supervisor. I agree to comply with all DCR rules and regulations.

I hereby release the Commonwealth of Massachusetts and the Department of Conservation and Recreation (DCR) and the Friends of the Middlesex Fells (FOF), their employees and agents, from all claims, loss, damage, expenses and/or injuries, whether to person or to property, which may result from my actions while participating in volunteer projects approved or sponsored by DCR and/or FOF.

I further agree to indemnify, defend and hold harmless the Commonwealth of Massachusetts, DCR and FOF, their employees and agents, from liability for any damage or injuries resulting from my actions while participating in volunteer programs and any project approved or sponsored by DCR and/or FOF.

I acknowledge that, by participating in such volunteer programs and projects, I have not received an appointment to state service and I will not receive a salary or payment from the Commonwealth. As such, I understand that I am not entitled to Workers Compensation for any injury suffered while involved in volunteer work or projects for the Department and, further, that I will provide my own health insurance.

I recognize that M.G.L. c. 21 s17G provides that, pursuant to the provisions, requirements and limitations of M.G.L. c. 258 and the guidelines adopted by DCR, I shall not be liable for injury or loss of property or personal injury or death caused by my negligent or wrongful act or omission while acting within the scope of my volunteer activities. However, I acknowledge that I will not be indemnified under M.G.L. c. 258 s.9 for intentional torts or for the violation of a person's civil rights.

Print Name: \_\_\_\_\_ Date: \_\_\_\_\_

Parent/Legal Guardian if under 18: \_\_\_\_\_

Signature: \_\_\_\_\_

## Middlesex Fells Trail Adopter Work and Issue Report Form

This form may be submitted in any of the following ways:

- Complete the form online:  
<http://www.friendsofthefells.org/trailadopter/trailadopterworkreport/>
- Email a completed form (or answer these questions in an email) to [trails@fells.org](mailto:trails@fells.org).
- Print, and mail a completed form to:  
**Rich Sanford c/o Friends of the Fells / 235 W. Foster St. / Melrose, MA 02176**

Work date: \_\_\_\_\_ Report date: \_\_\_\_\_

Trail/Section: \_\_\_\_\_

Work Party Information	Travel Hours (from your home to trailhead)	Hiking Only Hours (to work site and out after work's completion)	Work Hours
1. Adopter Name:			
2. Helper Full Name:			
3. Helper Full Name:			
4. Helper Full Name:			
5. Helper Full Name:			
<b>PLEASE TOTAL HOURS – THANKS!</b>			

Work Performed	Qty	Units
Trail area surveyed		Miles of trail hiked
Trash removed		Bags of trash (13 gallon “tall kitchen”)
Brushing		Tenths of miles
Signage clearing		(# of signs/blazes cleared)
Drainage clearing – waterbar/dip and outflow		(# of features cleared)

**Describe any special project(s) completed:**

Issues Reported	Description of issue(s) and of specific location
Treefall blocking trail or presenting hazard	
Invasive plants	
Dumping and/or pParty site (significant trash)	
Signage needs repair or replacement	
Erosion or other degradation of trail	
Bootleg/unofficial user trails	
Graffiti	

**Please provide any other comments (general concerns, wildlife sightings, need for re-route, possible encroachment):**