

RESPONSIBILITY

The adopter maintains a specific trail portion, either working by themselves or by recruiting helpers. The adopter becomes well acquainted with the segment, can deal efficiently with problem areas, and can judge how much and how often work is needed to keep the segment maintained. The segment can become so familiar that problems are overlooked or it becomes boring for the adopter. One way to overcome this problem is to rotate adopters between segments every few years. The annual trail evaluation by the adopter or boss serves as an assessment of the work to be done. Maintenance results should appear neat and hardly noticeable to a hiker.

FREQUENCY OF MAINTENANCE

Most trail segments need maintenance about three times per year.

Prior to Memorial Day - This may be the maintenance period that involves the most work. The objective is to get the trail ready for the spring hikers. In addition to general trail cleanup, some of the more important tasks are to:

Remove tree limbs and fallen trees from the trail, and prune encroaching limbs as needed.

Repaint or replace the blazes if they are faded or missing. (Be sure that they are not obscured by vegetation—consider growth that occurs before the next maintenance).

Make sure that all signs and trail emblems are in place and well maintained.

Inspect for water in the trail and take corrective action.

Keep a list of larger jobs or those that require different tools that will require attention at some other time.

Pick up litter.

Mid-Summer - Early July is a good time to take care of annual growth so that the trail is kept clear and relatively easy to hike. The hiker should not be assaulted by weeds and briars. Some of the key jobs for mid-summer are to:

Mow or cut all weeds, brambles, briars, and high grass encroaching on the trail. On sections of the trail that pass through fields or other places receiving direct sunlight, mowing may have to be done on a more frequent basis—perhaps monthly throughout the summer. Brambles and briars may need to be grubbed out by the roots to prevent rapid regrowth.

Prune all brush and overhanging limbs that have grown into the trail clearing—all blazes and signs must be visible.

Complete the larger jobs that could not be accomplished the previous spring.

Be alert for noxious or exotic plant species—remove, kill, or inventory them for future vegetative management projects.

Pick up litter.

Fall - Fall maintenance is geared toward preparing the trail for the winter months. This is a time to:

Finish any uncompleted jobs and recheck blazes and signs—replace and repair as necessary.

Contact landowners to thank them for their support.

Pick up litter.

CLEARING RULES

The total clearing width is the 24-inch tread plus 12 inches on each side for a total of 48 inches (the commonly accepted 4-foot clearing window). The tread should be free of loose stones, rock points, stumps, and roots. Attention should be given to dips and outsloping so that water does not collect on the trail.

Clearing width is the area kept free of brush, limbs, briars, tall grass, weeds, and other obstructions which would slap against the hiker or their pack, or soak them following a rain or heavy dew. In heavily wooded areas, the clearing width is normally maintained simply by pruning limbs. Here, the area between the edge of the tread and the edge of the clearing is normally leaf litter or short herbaceous plants. While four feet is the average standard width, some variation is allowed and encouraged—it is visually appealing and often more sensitive to adjoining natural resources. In wooded areas there are occasions when it is desirable to narrow the clearing width in order to route the trail between two large, visually interesting trees. Generally, the trail winds between existing medium to large size trees, and is created by cutting only smaller trees and saplings. Narrowing the clearing width below the desired standard is done only for reasons of aesthetics—not merely to reduce trail construction/maintenance efforts. When the trail is crossing fields or prairies, it is suggested that as a minimum, the entire desired clearing width should be mowed. It may be desirable to widen the mowing to create a variety of gentle clearing undulations. Some of these may highlight a particularly bright clump of wild flowers or a well-developed flowering shrub such as a hawthorn or dogwood.

In selected wooded areas (especially near roads) a common practice is to reduce the clearing width for a short distance (25 to 100 feet) to discourage unauthorized use by ATVs, horses, etc. (When this is done accessibility may be compromised).

The trail should be cleared to a height of 8 feet. At this height, branches that could snag on a tall hiker's extended pack or attachments. Branches that could restrict the trail when weighted with rain or snow are also removed. Whatever the reason for a higher clearing height, an overhead canopy of branches should remain to slow the growth of grasses and shrubs that thrive in sunlight.

Tips

Tools should be carried in the safest way. The tool should be gripped by the handle about 6 inches behind the head (or at the balance point) and carried to the side, on the down-slope side of the body rather than over the shoulder or as a walking stick. This prevents injuries due to falling on the tool, since it can be easily tossed away when carried correctly. Tools with sharp blades should be carried with the blade facing the ground and equipped with a sheath to prevent accidental cuts and to retain their sharp edge. The sheath should remain on the tool while it is carried to the worksite and removed only when used.

All side branches extending into the trail clearing should be cut flush with the parent branch or stem, leaving no stubs. This is safer, lasts longer, and also allows for the wound to heal naturally.

Small trees and shrubs within the tread should be grubbed out to prevent tripping. Holes should be filled and compacted.

Trees and brush outside the tread (but inside the trail clearing) should be cut as close to the ground as possible, leaving no sharp pointed stumps or stems. Consideration may be given (especially on exotic species) to treating these cut stumps with herbicide —after obtaining proper approval.

Use power mowers in open grassy areas or power brush saws in brushy areas should be considered.

Fallen branches and trees should be removed except for a few large trees/logs near access points (see maintenance tips). On larger logs, remove a section only the width of the tread to further restrict unwanted use.

For light pruning work that is within reach, hand pruning shears (like those used by a gardener) are quicker and easier than long handled loppers.

A stout but flexible forked sapling (about an inch in diameter at the base) that has been cut about 4 ½ to 5 feet in length (with about a 10. fork at the end) is a very useful tool for flinging small limbs out and away from the trail. When following someone who is using a power brush saw, it is also an excellent tool for flinging the cut brush out of the trail. Used like a pitch fork, it scatters the brush so that it is not visibly concentrated, and is much more efficient than bending to pick up and discard each piece by hand.

A couple of large down logs should be left near trail entry points to discourage wheeled use. Farther down the trail, a section the width of the trail tread can be cut out of large fallen logs for the same purpose.

All main stems or trunks should be cut as close to the ground as possible—or grubbed out. It is very important to avoid leaving short stubs (trippers) as they are a safety hazard. Cut hardwood stems resprout easily, therefore, grubbing is the preferred method as it is a one time treatment.

Larger logs should be carried to the downhill side of the trail and placed perpendicular to the face of the hill to prevent them from rolling and creating a safety hazard.

If a branch needs to be pruned, it should be cut next to the trunk. If not cut next to the trunk, these safety hazards tend to develop suckers or side branches which will have to be cut again and look unnatural. Large limbs should be undercut first to prevent peeling the bark from the main stem when the branch falls.

Conifer branches and weak trees, such as alder, are easily weighted with heavy snow or rain and may require extra clearing.

TOOLS

Lopper

Uses: Cutting selected limbs or saplings during construction and maintenance phases. Larger models can cut limbs approaching 2. in size.

Tips: High quality loppers with replaceable parts should be used. Saplings should be clipped flush to the ground and limbs flush to the tree. Loppers must not be thrown on the ground as this may clog the head and dull the blades. At the end of the day, the blade should be cleaned and wiped with light oil.

Safety: Leather gloves and a hardhat should be worn. Eye protection is also recommended.

Hand Pruner

Uses: Cutting small branches encroaching on the trail. Also useful for cutting protruding roots that are tripping hazards. Mostly used for trail maintenance.

Tips: Handier and lighter to carry than a lopper when only minor pruning is needed—it should be carried in hand while hiking to clip small branches as encountered.

Pruning Saw

Uses: Cutting limbs encroaching on the trail. Can also be used for cutting small trees or shrubs at the base and removing small to medium sized windfalls. Pruning saws come in a wide variety of sizes and tooth patterns. They range from small folding models with 6. to 8. blades to those with blades up to approximately 26. in length. Blades are curved and cut only on the back-stroke—a handy feature when removing hard to reach limbs.

Tips: Pruning saws should be resharpened often. A light coat of oil should be applied to the blade after each use.

Safety: Except for folding models, pruning saws should be kept in a sheath when not in use. A hand holding a limb or sapling should not be crossed beneath the hand pulling the saw—this can lead to a nasty cut when the saw comes through the limb sooner than expected. Leather gloves and a hardhat should be worn

Bow Saw

Uses: Cutting limbs, small trees, and small to medium sized windfalls — essentially the same as pruning saws except that bow saws can cut larger material. Bow saws have blades ranging from about 21. to 36. in length. The smaller saws are generally triangular in shape and work well for pruning. Their shape limits the length and depth of the stroke to material less than 4. to 5. in diameter. The larger saws are bow-shaped and can cut material up to 8. in diameter, but are more prone to twisting and binding in the cut.

Tips: Bow saws cannot be resharpened due to the hardness of the blade. When the blade becomes dull, rusty, or bent, it should be replaced. It should be wiped with light oil before storing. Smaller saws are more useful—use another tool for cutting large material.

Safety: Same as pruning saws.

Pole Pruner and Pole Saw

Uses: Cutting overhanging limbs that cannot be reached with bowsaws, loppers, and other short-reaching tools. Pruners and saws are often combined on the same handle to allow for more flexibility.

Tips: When cutting larger limbs with the pole saw, it is best to use a two-step process. In the first step, a 4- to 6-in. stub is left by making an undercut and then a cut from the top of the limb. This prevents stripping the bark from the trunk of the tree. In the second step, the stub is removed flush with the trunk.

Safety: Fingers should be kept out of the pruning head. The rope may snag unexpectedly and cause the blade to close causing a serious cut. When using the saw, eye protection will prevent saw dust from getting into the user's eyes. Required PPE includes eye protection, hardhat, and leather gloves.

Axe

Uses: Clearing blowdowns, limbing trees, felling trees, and hewing flat surfaces. Axes demand a great deal of practice to use safely and effectively and are used less today than they were in earlier times. They have largely been replaced by various saws and other cutting tools, but nevertheless, the axe is versatile, simple to maintain, and in skilled hands can be as fast and effective as other tools. There are two basic kinds of axes—the single-bit and the double-bit. Double-bit axes are generally preferred as they have better balance and allow one blade to be kept razor sharp for cutting while the other blade can be used for chopping roots and cutting in dirty wood. Single-bit axes are sometimes considered to be safer than double-bit axes primarily because there is less chance to fall on an exposed blade.

Tips: Effective axe work requires a great deal of practice, but the skills required are not as demanding as those required for crosscut saws. Skills can be acquired through working with experienced individuals or by participating in a good workshop such as a Wilderness Skills Workshop conducted by the Student Conservation Association. On downed logs, a notch that is twice as long as the diameter of the log should be made. The blows should progress through the log and alternate from one side of the notch to the other. When removing a limb from a downed tree, the direction of the blow should be made from the root-end of the tree rather than down into the crotch.

Safety: Before cutting, all limbs and brush that might interfere with swinging should be removed. Springy branches or broken limbs that might deflect the blade should be avoided. The user's feet should be separated at shoulder width and firmly planted. When limbing or hewing a downed tree, the user should stand on the side opposite the one being cut to keep the tree between the blade and the user's shins. When not in use, or when carrying the axe, the blade should

be covered with a sheath. PPE includes a hardhat, leather gloves, heavy leather boots, and eye protection. Inexperienced users should also consider wearing shin guards and toe guards or hard toe boots.

Posthole Digger

Uses: Digging holes for footings, posts, etc.

Tips: When installing wooden posts, a piece of scrap lumber should be nailed to the lower part of the post. It is easier to nail it parallel to the post—this method is just as effective as a perpendicular arrangement and allows for a smaller post hole.

Safety: Soil should be lifted from the hole with leg muscles—not back muscles. If the wooden handles are too flexible or the collar becomes bent, fingers can get pinched when the handles are closed. Leather gloves are recommended.

Chainsaw

Uses: Cutting medium to large size blowdowns, clearing heavy sapling growth during trail construction, cutting trees into pieces for wood construction projects.

Tips: Saws with 16" blades are generally adequate for most trail work. Models should be obtained with chain brakes, vibration damped handles, and high quality mufflers. The user should carry a tool kit in a pack (file, srench, plastic wedge).

Safety: Chainsaws are one of the most dangerous pieces of power equipment. They should be used only by experienced workers (preferably those who have undergone training and are certified for chainsaw use). Requires leather gloves, ear muffs, eye protection, hardhat, and kevlar (or similar) saw chaps.

Brushsaw

Uses: Constructing and maintaining trail through areas of heavy brush, grass, briars, and sapling sized trees. They allow one person to rapidly clear large areas. In some situations a DR Mower® can accomplish the same tasks easier and quicker—especially in grass and smaller brush.

Tips: Brushsaws come in a variety of sizes. Trail work requires a more powerful unit than one that is used for lawn trimming. Trail work requires a saw type or a universal grass-brush blade—not a string cutter.

The brushsaw is supported by a shoulder harness, but can still become very tiring. Users should work in teams to make the job easier and switch positions regularly. When not cutting, the other person can remove brush from the trail.

A stout, flexible forked sapling (about 1. in diameter at the base) that has been cut about 4 ½' to 5' in length (with about a 10. fork at the end) is a very useful tool for flinging small limbs out and away from the trail. When following someone who is using a power brush saw, it is also an excellent tool for flinging the cut brush out of the trail. Its natural springiness allows it to be used like a pitchfork. This

scatters the brush so that it is not visibly concentrated, and is more efficient than bending to pick up and discard each piece by hand.

Safety: The brushsaw's open blade is on the end of a wand, and can snag and swing violently to the side, making it more prone to injure other workers rather than the operator. Other workers should stay clear. Requires ear protection, eye protection, gloves, and leather boots. Hardhats are recommended.

Lawnmower

Uses: An ordinary side-discharge mower can be effectively used for clearing and maintaining trail—except in extremely rocky terrain. For grass, ferns, and weeds (up to knee high) many feel that a lawnmower is more effective than a brush saw. It is more readily available and less expensive than a DR Field Mower®, but not as durable or powerful.

Tips: A mower with a 22. to 24. cut and adjustable wheels seems to work well. Wheels should be set as high as possible. A mower with a universal blade for easy replacement is desirable.

Safety: Rotary mowers can throw objects, injure others, and can cause severe injury to the operator's extremities if a hand or foot gets under the mower deck. The operator should insure that other workers keep a considerable distance from the mower so that thrown objects do not cause injury. Extra caution should be used when operating on slopes, or if the vegetation is wet, to avoid slips and possible operator injury (see owners manual). Sturdy leather shoes (not jogging shoes) should be worn. Ear protection should be worn if using the mower for extended periods.

DR Field Mower®

Uses: This sturdy mower is an excellent choice for cutting heavy grass, weeds, briars, and even saplings up to 1" diameter. A DR Field Mower® is simply a walk-behind brush-hog that is useful during trail construction and trail maintenance.

Safety: The mower can throw objects and injure others. Other workers should be kept at a safe distance away from the mower. PPE includes ear protection and leather gloves.

SIGNAGE RULES

Signs are a highly visible representation of the quality of the trail. Their maintenance or lack of maintenance leaves the visitor with a positive or negative impression about the trail.

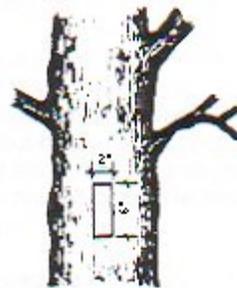
Reassurance Markers/ Blazes

It is not cost effective or desirable to use the official trail logo as the sole marker along the trail. Other types of markers which are less costly, less visually obtrusive, and less prone to vandalism should be used between points where the official trail logo has been placed. Reassurance markers are the paint or nail-on "blazes" that mark the trail.

Blazes are placed on trees or posts, slightly above eye level so that hikers can see them easily when traveling in either direction. Blazes should be within "line of sight" -- when standing at a blaze marker, the hiker should be able to see the next one. Blazes should be placed on trees that "strike the eye". One well placed blaze is better than several that are poorly placed.

Blazes should be continuous -- even along road segments and other unmistakable parts of the trail. Blazes should be placed immediately beyond any trail junction or road crossing -- even if there is a directional sign. A second blaze (for safety) should be placed within another 50 to 100 feet. Otherwise, it is not desirable to have more than one blaze visible in either direction at any one time. Striking a balance so as not to "over-blaze" or "under-blaze" is the key.

Painted blazes are often more vandal resistant than nail-on blazes but may require more frequent maintenance. Edges and corners should be crisp and sharp. If paint is used, dripping paint, blotches and over-sized blazes should be avoided. On rough barked trees, the tree will first need to be smoothed using a paint scraper, wire brush, or draw knife. Once the bark is smoothed, there are a number of successful paint-blazing techniques. Some trail maintainers paint free hand-- using a 2" brush. Others use a sized stencil and apply the paint with a brush, sponge, dauber, etc. A high quality, glossy, exterior acrylic paint such as Sherman Williams Metalatex or Nelson Boundary Paints should be used for long durability. Spray paint is discouraged as it is more expensive and does not last as long. Neatness counts.



Clean, neat ways to carry and apply paint should be practiced. The following suggestions should be considered:

A 1" wide brush spreads wider during painting. Some prefer using a 2. brush and little pressure so that the blaze doesn't get too wide. To illustrate the proper blaze size, a dollar bill is very close to 2. x 6.. Flat grey or brown spray paint should be carried for use in obliterating old trail blazes.

Old gloves, a wire brush, and a 2 ½. paint scraper are handy tools. Paint can be kept in an old, snap-top detergent bottle. Applying small amounts of paint to the brush can ensure a neater job

A paint brush and a small can (to hold paint) are easily carried inside a gallon paint bucket. For comfort, a piece of hose can be slipped over the paint bucket handle or it can be replaced with a wooden handle.

Cans lined with plastic bags make for easy cleanup.

Extra plastic bags kept in the vehicle are handy. Brushes can be wrapped in plastic so they won't dry out until cleaned at home. Another method is to bring along mineral spirits or water (depending on type of paint used) to cover the length of the brush bristles. This can be stored in a sturdy, sealable container. Extra care should be taken to avoid leakage.

Vegetation should be pruned from in front of the blazes to ensure visibility in all seasons. If affixing nail-on blazes to tree, only aluminum nails should be used. On private lands, landowners should be contacted for preference.

In non-forested areas, blazes should be placed on wooden or Carsonite posts 4 to 5 feet above the ground. Round posts are acceptable for blazes only. Treated 4" x 4" posts or Carsonite posts are required if emblems or other signs/ decals are to be attached. When using Carsonite posts, the optional anchor at the bottom should always be installed. This makes them even harder for vandals to remove from the ground while adding little expense.

Directional Change Indicators

Where major turns, trail junctions and road jogs are encountered, the way to indicate them will be through the use of arrows. At all turns, but particularly at trail junctions when turning along a road, a single reassurance marker should be visible from the direction indicator. If Carsonite posts are used, the standard arrow decal is acceptable (3" x 3", cream on brown). If a directional arrow is nailed to a tree or wooden post, the sign should be 4" x 4". The color of the arrow is the same color as the blazes being used along the trail, on a brown background.

They should be used sparingly so that they do not become meaningless

or visually obtrusive. They are unnecessary at gradual turns and well-defined trail locations such as switchbacks. Signing for hikers coming from either direction should be done.

Confirmation/ Identification Signs

On certified sections of the trail, the 3 1/2" trail logo should be placed at all road crossings (even drivable woods roads), intersections with other trails, and periodically along the trail. Generally they should be about 1/2 mile apart, but frequency should increase in areas where there are numerous roads and intersections. These markers are made of plastic or aluminum for nailing to trees or posts. They are also available in Carsonite decal format. In Carsonite format, they should be used in strip decal at access points and road crossings.

The larger 9" emblem is typically used at trailheads, major roads, and other locations where more visibility is desired.