

Best Strategies for Maintaining Your Trails

SAHC Trustee & Land Management Committee Member David Smith shares tips on trail maintenance.

Some of you may be fortunate enough to have hiking trails on your property. No matter how long or short your trails may be, the following article may help ensure this amenity does not become a nuisance. Trails are a great way to view the floral and faunal diversity on your property, they provide a corridor for wildlife, and in general they increase the human experience in the outdoors. However, left unmanaged, they can become a corridor for invasive exotic plants, contribute to erosion and water quality problems, and allow unwanted access into biologically diverse areas. Some routine maintenance will help to ensure you are being proper stewards of your natural resources. *(The intent of this article is to focus on the maintenance of an existing trail; however, if you are interested in constructing a new trail on your property, please consult with the Southern Appalachian Highlands Conservancy before any work is performed. You will need to ensure this work is permissible within the guidelines of your conservation easement and that you will avoid any critical habitats.)*

Water Management

Water is the single largest factor that causes problems on any trail network. Therefore, you will need to look at the most appropriate ways to allow water to slowly drain off the trails. If you do not have any water control measures on your trails you should consider installing some before you see a problem has occurred. Addressing water problems on a trail tread (the area actually used for walking) may be as simple as raking back leaves or as complex as the construction of a new bridge. In either case you will ultimately need to determine the most appropriate manner of water mitigation to implement.



STEPPING STONES

Most structures will be installed directly on or in the trail tread itself. These can include, in order of preference;

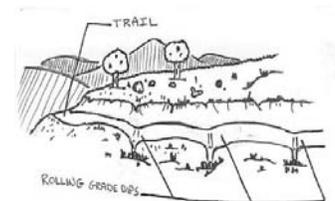
1. Out Sloping

Out sloping is simply grading your trail to have a slight pitch down slope (not down trail). Out sloping of a trail should ideally be performed at the time of construction. However, even with proper construction you may need to reshape the trail tread surface to slope down slope.

This may be performed after construction by raking the outer edge of the trail so that it is pitched slightly lower than the trail tread itself. The removed soil should be compacted and used as fill either on the down slope bank or in an area where erosion has occurred.

2. Grade Dips

Grade dips are gentle changes in elevation of the trail that occur over a distance of several feet, and take advantage of naturally occurring changes in topography. They allow water to turn off the trail in a slow manner and require little to no maintenance, but must be designed at the time of construction or relocation.



ROLLING GRADE DIPS

3. Drain Dips

Drain dips serve the same purpose but may be implemented on an existing trail. Soil should be raked from the trail tread and “bermed” up to create a gentle rise in elevation. This berm should be compacted and angled somewhere between 20 and 30 degrees to that of the tread.

4. Water Bars

Water bars are most commonly constructed from logs or stone, and may be used where a steeper grade does not allow grade or drain dips. Water bars are effective ways of keeping water off the trail but do require periodic cleaning (leaf and silt removal) and are unfriendly on multiuse trails. Also, erosion can become a problem at the outfall of the water bar so building an additional structure to dissipate the water’s energy may be required below the trail.



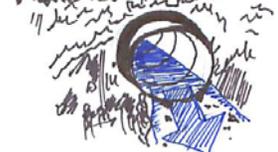
CULVERT

5. Culverts

Culverts are a very effective way to keep water completely off the trail tread with little disruption to the users’ outdoor experience. However, they may require frequent maintenance and can be costly in labor hours and in dollars. You may be familiar with the traditional metal or plastic culverts commonly used in construction but culverts may also be made of rock or wood.

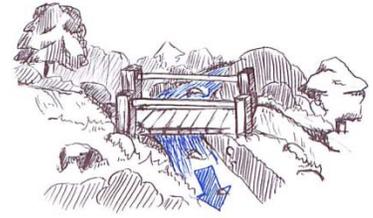
6. Stepping Stones and Log Steps

Stepping stones and log steps may be appropriate for use on steeply graded or heavily trenched trails, or for crossing a stream or perennially wet areas but are friendly to foot traffic only. If stones are used, the heavier the better and about one-third of the thickness of the rock should be below ground.



7. Bridges

Properly constructed bridges are great amenities to have on any hiking trail. They give the user a sense of destination; improve water quality by keeping travelers out of the water and off of eroding banks. However, bridges can be expensive to build and will require significant maintenance to ensure they are safe. Due to space and mental limitations, I will not go into great detail on bridge construction; but please know there are many types of bridges that may be appropriate for your property, from a simple single log bridge to a prefabricated steel and concrete structure.



Biomass Management

Okay, biomass management is just a fancy way of saying “cutting plants” but bear with me; I’m trying to write an article for the best grass-roots conservation organization in the United States. Anyway, so you’ve got all the water off of your trails and your bridges are constructed but you’re not done yet, put that Mint Julep down. Depending on your elevation and vegetation makeup, trails will probably need some type of biomass management at least twice a year. This can involve string trimming fast growing grasses or briars, pruning back low hanging branches of trees, or felling large trees. In general, from the center of the trail tread, you will want to keep an unobstructed trail corridor of six feet in width and eight feet in height. However, one should always use good judgment when it relates to the cutting of any plant material. Certainly, a 100 year old Hemlock tree within the six feet trail corridor should be allowed to remain; likewise, proper plant identification of herbaceous material will help ensure you are not removing something that is rare or unusual.

Biomass management can range from the simple to the complex.

1. String trimming

String trimming may be performed at any time of year, but generally I would recommend trimming once during mid-summer to cut back the maximum amount of growth with the fewest trips, and once in the late fall after all desirable flowers have set seed. Based on your property, of course, this may need to be amended.

2. Cutting back saplings

The removal of saplings may be done with a pair of loppers or with a pair of bypass hand pruners. Saplings should be cut to the ground and may be treated with an appropriate herbicide, if you so desire (and your easement allows).

3. Pruning

Pruning will be addressed in more detail in future issues of “Signatures” but for this issue’s purposes we will stick with the basics. Pruning, by and large, refers to the cutting back or removal the lateral branches of a tree. This work is most often done with loppers or a folding saw. The first cut should remove the weight of the limb, leaving several inches of the branch on the tree. After, the weight is removed, finish by cutting off the remaining portion of the branch, almost flush with the trunk, so as not to leave a “coat rack.”

4. Felling

Tree felling refers to cutting a tree down with an ax, saw, or other device. In general, tree felling is best left to professionals in the field, but if you are an experienced sawyer you may want to do this work yourself. As a general rule of thumb you do not want to remove trees larger than six inches in diameter unless absolutely necessary. Also, during this process you will need to make an assessment of hazard trees that may fall and do damage to personal health or property.

5 Invasive Exotic Plants

Another part of biomass management is the control of invasive exotic plants. These plants are ones that have been introduced to our area from another region and can cause significant habitat loss for native species. Again, we will address this issue in more detail in future publications of “Signatures,” but you may want to go ahead and consider some control measures. While you are performing trail maintenance and have tools in hand, this is a good time to begin controlling undesirable plant species. Control measures may include cutting, pulling, or spraying the weeds as well as not transporting seeds on your boots or tools.

This brief article has hopefully given you some ideas that you may implement on your property, but by no means is it intended as an inclusive guide to trail maintenance. As with most things in life, a little experience and some trial and error will improve your success. If you would like more information regarding the issues discussed above as well as in overall trail construction some references you may find useful are: “Lightly on the Land- The SCA Trail Building and Maintenance Manual” published by Mountaineers Books; and “Natural Surface Trails by Design” published by Natureshape. Websites I’ve found useful include the National Park Service at <http://www.nps.gov/>; and the United States Forest Service at <http://www.fs.fed.us/>

Happy Hiking, David Smith
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