

Supporting Calvert County's nature parks and natural spaces



CALVERT STEWARDS

VOLUNTEER PROGRAM

A partnership between Calvert Nature Society and Calvert County Natural Resources Division

TRAIL MONITOR HANDBOOK

Calvert Stewards

The Calvert Stewards volunteer program provides an opportunity for public service in education, research, and stewardship which support the overall missions of the Calvert County Division of Natural Resources and the Calvert Nature Society. This benefits the participants, the parks and the community as Calvert Stewards use and develop their skills to form an environmentally aware community and become the environmental stewards of Calvert County.

We also encourage youth and families to volunteer for projects to create a pipeline of engaged citizens that will continue their involvement in the parks into adulthood.

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TRAIL MONITORS

Trails provide pathways in our communities for hikers to access the natural environment and points of interest. Trails provide protection for the environment, keeping the impact of hikers on durable surfaces and out of sensitive areas. Quality trails are comfortable and safe surfaces to walk on. A corridor that is clear and easy to see along with reassurance markers and signs ensures hikers are oriented.

Trail Monitors are part of a comprehensive system of trail management, maintenance and construction. This Handbook is a guide to the fundamentals needed to meet the Monitor's responsibilities. A resource list is included for those who want to learn more about design, maintenance and construction.

SAFETY

Your safety while working on trails is the highest priority. Many of the safety elements are the same as considered for hiking trips.

- ☐ Check the Weather and be sure to take appropriate clothing.
- ☐ Inform a family member or friend of your plans.
- ☐ Be aware of risks and appropriate mitigation measures for poison ivy and ticks.
- ☐ Personal Protective Equipment should be with you on every trip and used to mitigate risks of trail work. PPE includes boots, long pants, and gloves.
- ☐ Identification and Safety Vests should be worn to alert others of your presence and Volunteer Trail Monitor Status
- ☐ Personal First Aid Kits and Training are essential for every trip.

Tools must be respected, well maintained and the proper for the job. Using the proper tool for the job will increase your efficiency in trail work and will also reduce your chances of being injuring yourself or others. Carry tools in or strapped tools to your pack. When carrying tools in your hands carry them at your sides with the sharp edge down or away from you. If you slip or fall throw the tool away from you and others to prevent falling on the tool. Place tools on the ground and visible to others.

The Circle of Danger is a safety principle that keeps others outside a circle whose radius is the length of the tool held at an arm's length. This is most important for tools that are swung (mattock, axe)

RESPONSIBILITIES OF TRAIL MONITORS

While working on the trail, you represent the Calvert County Natural Resources Division and Calvert Nature Society. You are a valuable resource able to explain to hikers the history of the area, its partners and programs. By answering their questions about what you are doing you can give a brief explanation of trail maintenance and the contributions made by volunteers, and possibly recruit more Monitors. Do your best to address everyone's questions, including those asked by children.

If you encounter inappropriate behavior or incompatible use, first assess the situation to be sure it is safe to engage these people. You can talk to them about the trail and user ethics as a trail monitor would to educate them by explaining the consequences of their actions. In unsafe situations, avoid contact and report the incident to the Program Manager or other authorities.

TASKS

Train

- ☐ Attend a Basic Skills Workshop every three years.
- ☐ Use the Monitor Manual and other material to build knowledge.

Monitors are expected to attend a **Basic Skills Workshop** every three years. The workshop may be a scheduled training day or be completed during regular maintenance trips. Skills training sessions must be supervised by an approved trainer.

Monitor

- ☐ Walk your section of trail at least once a month
- ☐ Note trail damage and issues
- ☐ Keep an inventory of your trail for future reference and to track progress

Trail Monitors are on the trails frequently and able to find, report and address trail issues early before serious problems develop. Keep an eye out for trail obstructions, erosion, flooding patterns, insufficient trail markers, significant changes on/around trail, condition of structures (bridges, signs, kiosk, etc), vandalism, incompatible uses, dumping and litter problems.

The following elements can be helpful to identify problems, assess severity and assess overall trail health:

- Herbaceous cover helps prevent erosion by anchoring soil in place and preventing erosion.
- Healthy trees and plants bordering the trail are an indicator of a trail in good condition.
- Soils on trails are affected by three forces: compaction, displacement and erosion. Exposed soils are most at risk from hiker impact. Changes in the soil can lead to excessive muddiness, root exposure, uneven tread, and loss of tread stability.
- Width of the **treadway** should be 18-24" and the **corridor** 4'. Users widening the trail are an indicator of other problems.

"Braided Trails" - users moving off trail to avoid an obstacle or unstable tread.

- Exposed roots result from loss or compaction of soil. Roots become a hazard to hikers and when exposed to trampling can kill the trees or plants bordering the trail.
- Standing water will affect the soil and user behavior. These areas should be noted for repair. If possible, check for this type of issue after particularly heavy storms or wet seasons.

Helpful Hints from Trail Monitors

- Along with gloves and snips, bring a hiking stick; or an old tobacco stick. It comes in very handy to fling small limbs off the trail.
- Try to go to the trails the day after a storm passes through to see if anything major needs worked (downed trees, washouts etc.)
- Trim for others not yourself; your 4-year-old daughter (or granddaughter) and 90-year-old grandfather (or father). Think about obstacles they would trip on, get hooked by etc. Prickers, poison ivy, etc. should be trimmed back to minimize contact to passersby. Flowering plants are important to pollinators and should be left till later, unless they are totally crossing the trail.
- For mixed use trails, think about how a rider would handle something. That branch you just passed under; would a horseback rider be able to safely go under that (for horse-friendly trails)? On a bike trail, would the bicycle rider need to dismount to get over that log you just easily stepped over?
- Scat: it's out there and nobody likes stepping in it. When you see scat, use a stick to get it off the trail. (The hiking stick mentioned above is very useful) Most likely it will be dog poop that folks do not pick up after (regardless of the signs and common courtesy). Horse manure also should be swept aside.
- Most importantly, take time to enjoy your time on the trail. Stop to listen to the Wood Thrush sing. Look up to watch the American Kestrel hover over a field. Break to admire the wildflowers. Pause to let the dragonfly land on your hand so you can admire the sunlight on its wings.

Maintain

- ☐ Perform basic maintenance on the trail:

The Monitor's responsibility is to performing basic maintenance on a regular basis on a section of trail. Some environments are fragile and proper maintenance can help avoid serious damage to the environment. Regular maintenance trips make it easy to keep up with the work and prevent little problems from becoming big projects.

Work should be performed in a manner that is sustainable, protects the natural resources and providing a quality experience for hikers. **Any trail work that requires more than hand clippers or loppers should be reported to the Program Manager.**

Basic maintenance has three priorities: **corridor definition, drainage, and trail marking**. Basic maintenance **does NOT** include trail reroutes or construction of structures such as bridges, boardwalks, bridges and rockwork. If you want to participate in advance trail construction projects contact the Program Manager. Advanced trail construction projects can be suggested by submitting a 'Project Proposal Form.'

Corridor Definition

A well maintained trail is said to "unfold before you." A general rule is to clear the trail so that a large person can walk the trail after a rain storm without getting soaked. Good trimming facilitates unimpeded passage and helps guide the hiker with a visible trail and clear view of trail signs and blazes

Trail standards specify a treadway of 18 to 24 inches wide,, with a clearing width of four feet and a height of eight feet. A four foot wide corridor may seem extreme but will guarantee an adequate path for at least a year. Plants and their branches will quickly fill a smaller opening and make passage on the trail more difficult.

Hikers have a tendency to walk on the downhill side of the trail; the result is a steady downhill creep of the treadway,

which is intensified when trimming is done mostly on the lower side of the trail. Keep aware of the terrain and trim branches (usually the uphill side) to guide hikers to stay on the treadway.

Pruning - Cut branches flush with the trunk or limb (no tip clipping) for a natural appearance and to eliminate hazards to hikers. Avoid over pruning, remove no more than one third of a tree's branches and never remove the top. This is not only unsightly but also encourages lateral growth which increases your future work. Cut plants flush with the ground when removing an entire tree or plant

Debris - Pick up all branches, trees, and debris and scatter them off the trail and out of sight. Brush left in the trail can cause erosion and be a hazard to hikers. Large branches should be dragged off the trail butt-end first.

Blowdowns lying across the trail - Smaller blowdowns can be cut in pieces and dragged away from the trail. When a tree falls parallel to the trail with branches projecting into the trail the projecting side branches can be cut flush with the trunk without needing to move the trunk itself.

Removing blowdowns is hazardous. Take safety precautions when removing blowdowns from across the trail. Study the situation carefully before beginning, noting the direction in which trees or branches will move and fall. Watch for springpoles that can spring back and inflict serious injury. Unless a log is lying flat the wood will have varying areas of tension and compression. When in doubt, wait and contact the Program Manager. **Chainsaws and other power tools CANNOT be used by volunteers.**

“Braided trails” - Develop when hikers cut switchbacks or avoid wet areas in the trail by hiking off the trail. In dealing with these problems, try to determine why they are happening (blazing, obstacles, poor corridor definition) and correct the cause. After correcting these problems, naturalize the braided trail with leaves and brush to allow new growth to establish.

Drainage

Drainage - Natural and constructed features that move water off and away from the trail prevent erosion and protect the trail.

Evaluate the drainage. Is it functioning and allowing water to drain off the trail?

Side ditches are used where water cannot be directed off the trail. The ditch carries water alongside a trail to a waterbar which will direct the water away from the trail. Silt and debris must be removed from ditches to keep the tread dry. If you see water pooling on a mostly flat section of trail, look to see if there is a slight downhill edge or a natural low point at the side of the trail where water could flow away.

- ☐ **Clear debris.** Rake leaves and debris out of the water bar, out of the ditch and about five feet up the trail. Place these leaves and twigs where they won't interfere with any flowing water; downhill of the outfall if possible. Do not pile the leaves; disperse leaves and twigs, fanning the material out to allow water to flow freely.

Consult the Program Manager before performing any further drainage repairs. This work may require advanced training.

Trail Marking

Trails are marked with blazes and signs to help hikers, especially those not familiar with the area, know they are on the trail. Blazes influence where hikers step and help keep them on the treadway and protect the surrounding land. Hikers gain a sense of security from seeing the occasional blaze, cairn or sign.

Report to the Program Manager if the trails need additional or different trail markers. Trail Monitors should not mark trails without prior approval.

REASSURANCE MARKERS (Blazes) are one element of trail marking. Trail marking should provide reassurance that hikers are on the trail. Always think of the safety and informational needs of the hiker. It is okay if a hiker needs to search for a moment for the next blaze, especially if the alternative is a poorly placed or redundant blaze. Consider other elements that help hikers identify the trail including:

- The condition of the treadway
- Quality of corridor maintenance
- Trail structures such as waterbars and drainage
- Signage and Cairns
- Generally, blazes in one direction should be 150 feet apart with the blazes in the opposite directions midway between
- At trailheads, intersections and at confusing changes of direction a blaze should be placed close enough to be readily visible, about 30 feet, along the trail to show the trail direction.
- Blazes should be located on trees that “catch the hiker’s eye” and draw them to the trail
- Only one blaze should be visible to a hiker at any time.

SIGNS and KIOSKS are a part of trail marking. Monitor the condition of signs. Use a “magic eraser” or soft sponge to clean debris. Do not use any chemicals, including soap, on the signs.

- ☐ Report the need for sign replacements or new signs in your work report.

REPORTING

- ☐ Submit your observations and concerns to the Program Manager
- ☐ Record your hours on <https://calvertstewards.galaxydigital.com/>

Reporting is probably the least enjoyable part of the work but is important for gaining support for the trail and to document trail improvement needs and future work.

TOOLS FOR TRAIL WORK

The basic maintenance work of Monitors does not require a lot of tools or expensive tools. Most work can be accomplished with hand pruners, loppers, or pruning saw. The Natural Resources Division has a cache of tools that may be borrowed for short periods of time.

SAFETY RESOURCES

Ticks & Lyme Disease

[HTTPS://WWW.CDC.GOV/TICKS/](https://www.cdc.gov/ticks/)

Poison Ivy

[HTTPS://WWW.CDC.GOV/NIOSH/TOPICS/PLANTS](https://www.cdc.gov/niosh/topics/plants)

[HTTPS://WWW.POISON-IVY.ORG](https://www.poison-ivy.org)

[HTTP://POISONIVY.AESIR.COM](http://poisonivy.aesir.com)

Essentials For Hiking

- ☐ Map
- ☐ Compass (optionally supplemented with a GPS receiver)
- ☐ Sunglasses and sunscreen
- ☐ Extra clothing, weather gear
- ☐ Headlamp (or flashlight)
- ☐ First-aid supplies

First Aid Kit Components

- ☐ 1 package moleskin, molefoam or Secondskin
- ☐ Aspirin or ibuprofen
- ☐ 1 triangle bandage and safety pins
- ☐ Assorted Band-Aids
- ☐ 1 Ace bandage
- ☐ 3, 4-inch-by-4-inch gauze dressings
- ☐ 1 roll of tape or Kling bandage
- ☐ Gloves
- ☐ Pocket mask
- ☐ Antihistamine capsules
- ☐ Iodine antiseptic or iodine antiseptic wipes
- ☐ Shears or scissors
- ☐ Tweezers or “tick spoon”

EMERGENCY PROCEDURES

All Trail Monitors will be provided a separate document of Emergency Procedures. Contact your Program Manager if you need a copy.

1. Immediately inform the Program Manager, Park Manager and the Division Chief with a phone call and/or text. They can assist you on completing the required forms.
2. Determine the situation. Ensure the safety of victims, witnesses, and property.
3. Complete **Incident Statement** form.
4. Complete **Incident Report**
5. Take pictures. *All property or vehicle damage should have photos and sketches of damage.*
6. For Injuries:
 - a. For Employees, Volunteers and Interns Follow **Worker's Compensation Procedure**
 - b. For visitors, contractors or other non-employees Follow **General Liability Procedure**
7. For Vehicle Accidents Follow the **Vehicle Damage Procedure**
 - a. For County vehicles accidents on or off county property must be documented
 - b. For Private vehicles only accidents that occur on county property should be documented.
8. For Property or Equipment (non-vehicle) Damage Follow the **Property Loss Procedure**.
9. Have all witnesses complete **Witness Accident Questionnaire** form.
10. Have Supervisor complete the **Supervisor Investigation**
11. Forward "all" pertinent information immediately by email to the Division Chief and parksandrecreation@calvertcountymd.gov , subject line: "Accident/Incident Report- Facility Name" and cc: Risk Management Office Ellen.Simpson@calvertcountymd.gov

Note: Please ensure that information reported is factual, concise, and relevant as documents may become that of a legal action. Do not offer opinions or conjecture to the documents.

MONITOR WORK REPORT

This report is to provide guidance on what to report to the Program Manager after your visit. You do not need to complete a physical report if you email your report.

Report Date: _____ Date of Work: _____

Park : _____ Trail: _____

Section of trail: _____

Attribute hours to:

- ☐ Monitor
- ☐ Each individual member of the group
- ☐ Group as a whole, under the Team of: _____

Name and Address	Travel Hours	Field Hours (includes hiking time)
1. Leader:		
2.		
3.		
4.		
5.		

1. Summarize Work Completed
2. Are there any problems (i.e. evidence of motorized vehicle use,) where we can offer you advice or assistance?
3. What problems did you identify with the trail tread, e.g., running water, mud, bad ledges, gullies, wide tread, boot-leg trails? What is the extent of the problem, and what work do you think is needed to correct the problem?
4. What existing work is in need of repair, improvement or replacement, e.g., rotting or loose bog bridges, log steps or wood waterbars; loose or missing rock steps, step stones or rock waterbars; heavily filled or overgrown drainage?
5. Did you repair, improve or reset any existing work such as those listed above? If so, what, and how may?
6. Please include all details so that we might record them accurately.
7. General Comments, e.g., overall condition, use, signs, trail easy to follow, parking conditions:

Project Proposal Form

This form has been created for the convenience of Trail Monitors and to provide a standard process for the proposal, review, and completion of trail improvements. Ensure that you include all of the information requested below in your application. If you have any questions, contact your Program Manager

Report Date: _____ Date of Work: _____

Park : _____ Trail: _____

Section of trail: _____

Landmarks: _____

Describe the Project: *Existing Conditions, Include photographs if possible*

Proposed Work: *(Description of type of work, length of project)*

Desired Results:

Estimated Cost: *Resources required, Materials, Number of Volunteers, Tools and Equipment*

Trail Monitor Info:

(name) _____

(phone # / email address) _____

RESOURCES

ONLINE REFERENCES

MA Dept. of Conservation and Recreation: [Trails Guidelines and Best Practices Manual](http://www.mass.gov/eea/docs/dcr/stewardship/greenway/docs/dcrguidelines.pdf)

<http://www.mass.gov/eea/docs/dcr/stewardship/greenway/docs/dcrguidelines.pdf>

Federal Highway Administration, Recreational Trails Program: [Trail Construction and Maintenance Notebook – 2007 ed.](http://www.fhwa.dot.gov/environment/recreational_trails/publications/fs_publications/07232806)

http://www.fhwa.dot.gov/environment/recreational_trails/publications/fs_publications/07232806

Pacific Crest Trail Association: Trail Skills College – comprehensive skills guides

<http://www.pcta.org/volunteer/trail-skills-college/trail-skills-college-course-curriculum/>

PRINT REFERENCES

Birchard Jr., William and Proudman, Robert D. *Appalachian Trail Design, Construction, and*

Maintenance. 2nd ed. The Appalachian Trail Conference Harpers Ferry, WV, 235 pp, 2000.

Birchard Jr., William and Proudman, Robert D. *Appalachian Trail Fieldbook. Maintenance and Rehabilitation Guidelines for Volunteers. 2nd ed.* The Appalachian Trail Conference, Harpers Ferry, WV, 96 pp., 2003.

Birkby, Robert C. *Lightly on the Land. The SCA Trail-Building and Maintenance Manual. Student*

Conservation Association. The Mountaineers, Seattle, WA, 272 pp., 1996

Staff of the AMC's Trails Department. *Complete Guide to Trail Building and Maintenance. 4th ed.,* Appalachian Mountain Club, Boston, MA, 262 pp., 2008.

RELATED READING

Waterman, Laura and Waterman, Guy. *Forest and Crag. A History of Hiking, Trail Blazing, and Adventure in the Northeast Mountains.* Appalachian Mountain Club, Boston, MA, 888 pp.,

1989. *A monumental description of hiking in the Northeast backed by extensive research.* Waterman, Laura and Waterman, Guy. *Backwood Ethics. Environmental Issues for Hikers and Campers. 2nd ed.,* The Countryman Press, Woodstock, VT, 280pp., 1993.

Wilkerson, James A. (ed.) *Medicine for Mountaineering & Other Wilderness Activities. 4th ed.,* The Mountaineers, Seattle, WA, 416pp., 1992.

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Wilkerson, James A. (ed.) *Medicine for Mountaineering & Other Wilderness Activities. 4th ed.,* The Mountaineers, Seattle, WA, 416pp., 1992. *Other first aid manuals are available.*