

**LOVE
YOUR
TRAILS**



AAT Team Leader Manual

VVMTA.ORG
(970)279-1055

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Thank you for participating as an AAT Team Leader with the Vail Valley Mountain Trail Alliance. We greatly appreciate your volunteerism and commitment to stewardship. The following is a manual-to be updated and adapted periodically-that will help to answer questions you may have as well as provide you with more information about basic maintenance, expectations, and other miscellaneous items that may be helpful.

You will also find links to the VVMTA website as well as other site links including, but not limited to, the US Forest Service, American Trails, Bureau of Land Management, and other helpful resources to provide you with quality information.

If there are any additional materials or resources that you may need, please feel free to reach out to Natalie at natalie@vvmta.org.

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VVMTA: History, Mission, and Vision

Who are we? What do we represent?

History:

In 2011, Jamie Malin, Peter Geyer, and John McDade formed the Vail Valley Mountain Bike Association as an action-forward organization to improve the quality of trails throughout the Vail Valley. With the collaboration of veteran trail-builders Lee Rimel and Jeff Thompsom, the VVMBA was borne from a love of riding and recognition of the potential our valley could have for providing a quality experience for recreationists.

Recreation on soft-surface trails throughout Eagle County spans from mountain biking to trail running and hiking, to horseback riding. 2019 was a pivotal year for VVMBA as the organization saw a need to adapt and change its mission, vision, and ultimately, its name. The Vail Valley Mountain Trails Alliance re-brand encapsulated all of the ways we recreate on trails throughout Eagle County and provides an inclusive space for each trail user.

Since 2019, our organization has grown in its efforts to connect community members to the outdoors through education, diversifying its programming to support marginalized communities in the Valley, and the creation of a seasonal conservation crew that oversees maintenance projects.

Soul Dirt, the Trail Conservation Crew, Trail Ambassadors, Youth Trail Stewards, and the Adopt A Trail programs have each played an integral role in sharing our work, commitment to stewardship, and gratitude to our community and beyond.

As we grow, progress, and improve, we are grateful for the ongoing support from our volunteers, participants, and stewards that show up to make our trails better.

Thank you for loving your trails.

Mission:

To connect our community to the outdoors through sustainable recreation.

Vision:

The VVMTA's vision is a sustainable multi-use soft surface trail network connecting all communities in Eagle County to the outdoors. We envision a community of stewards striving to conserve our public lands through sustainable recreation opportunities. Through trail access and experiences, the community will improve its mental and physical health, quality of life, and economic vitality.

Action:

The VVMTA advocates for soft surface trails, manages trail stewardship programs, maintains and builds trails, coordinates and trains volunteers, educates outdoor recreational users, and creates opportunities to access the outdoors. We provide our expertise, resources, and experience to support local land managers in various soft surface trail initiatives.

Fundraising:

Your donation supports our mission, vision, and allows us to execute programs, events, and operations including:

- **Adopt A Trail:** volunteer-based program to help maintain our local trails. Annually includes over 650 volunteers and 2,000+ hours of trail maintenance.
- **Trail Ambassadors:** staff and volunteers educate trail users on safety, enjoyment, and preservation of our trails including information about: seasonal trail closures, LNT principles, and the “Respect the Vail Valley” campaign.
- **Trail Conservation Crew:** seasonal full-time crew (6-8 seasonal professional staff) that focuses on trail maintenance, trail building, mitigating recreational impacts on trails, and more.
- **Soul Dirt:** provides free VVMTA-led activities including group hikes, mountain bike rides, and backpacking trips across Eagle County.
- **Eagle County Youth Corp:** In partnership with Walking Mountains, this program allows high school students hands-on experiences with trail projects, career exploration, and work with local partners.
- Volunteer Opportunities
- Improved sustainability and user experience of existing trails
- New trail construction
- Local and regional trail system planning and funding
- Trail team lead and volunteer training
- Educational and community events
- Organizational management and operations
- Public lands access and advocacy
- Outdoor Equity and Access

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Adopt A Trail Team Leader

Adopt A Trail volunteers are the heart and soul of VVMTA, and their boots-on-the-ground contributions ensure our trails are well-maintained. The Team Leader is an essential role within Adopt A Trail. Without your unwavering effort and support, we would not have the structure that exists today to ensure that each team actively participates in this program.

Despite all of your other responsibilities, you continue to find the time to give back to the trails and create the opportunity for others to do the same.

Sharing your love of trails, we hope you will:

- Choose a trail to adopt and attend a mandatory AAT team leader training session in early May (Approx. 2 hours, in person)
- Recruit your team, encourage volunteer commitment and schedule your trail work days a minimum of 2 weeks prior to event
- Collaborate with the VVMTA team for event support
- Complete Trail Maintenance Log within 24 hours of your trail work day
- Get out there and have some fun!

Thank you for your commitment to maintaining our trails!

**Become an
Adopt A
Trail Team
Leader
Today!**

**VVMTA.ORG
(970)279-1055**



Partnership Agreement

Adopt A Trail Participation Guidelines:

Thank you to our Adopt A Trail teams. Our goal is to foster a community of volunteer stewards who support and sustain the efforts and contributions to this program, and ensure the viability, maintenance, and health of our trails in Eagle County. The following are a list of AAT Expectations from teams and what you can expect from VVMTA:

Adopt A Trail Team Expectations:

- Choose a trail that your group adopts for the year and supports participant interests and hobbies (i.e. adopting a trail that most closely aligns with preferred way of recreation-biking, running, hiking, and location to your business)
- Attend a mandatory AAT team leader training session in early May (Approx. 2 hours, in person)
- Consider attending an optional trail maintenance technical skills training
- Minimum of at least two (2) trail maintenance events or six (6) hours of trail maintenance events
 - I.e. one trail work event from 9:00am-3:00pm or two events that are each three hours between May 13th, 2025 - September 30, 2025 (Dates subject to change)
 - At least one (1) trail work event with AAT crew leader
- Schedule trail maintenance days with Trail Stewardship Coordinator at least two weeks in advance
- Recruit co-workers, families, and peers to participate in your team's trail maintenance days Register for your trail maintenance day(s) on our website prior to date of event
- Submit trail logs after each trail maintenance day with detailed information of work completed
- Submit at least three (3) photos from each trail work event
- Collect and submit at least one (1) fun quote and one (1) learning(s) from each trail work event
- Take photos, laugh, socialize, be safe, and have fun!
- Participate in end of year survey to provide feedback

VVMTA To Provide:

- Trail Stewardship Coordinator to identify trail projects, train and lead your team on the trail
- Tools, materials, equipment and supplies for trail maintenance projects

- Training opportunity to elevate your skills and become a certified trail crew leader
- Team recognition signage at the trailhead of your adopted trail
- Team recognition on our website
- Team recognition on our social media channels
- 'Team of the Month' Award to be given to a team who has made a significant contribution to the program that month and will be featured in our monthly newsletter and social media posts
- 'Volunteer of the Month' Award
- Volunteer Rewards Program
- Trailhead snacks and drinks
- End of Year Thank You Party with food, beverage, raffle prizes, and more

Term of Agreement:

Effective upon execution of agreement and expires one year from the date of execution.

The undersigned parties agree to fulfill the obligation and expectations of this document in its entirety:

Signatures:

Volunteer: _____ Date: _____

Team Name: _____

Est S...

VVMTA: _____ Date: 5/1/25

Step 1: Scheduling

Adopt A Trail Calendar

The summer season for Adopt A Trail teams runs from about May 13th through September 30th, 2025. With the limited time available and busy schedules, we know that getting dates on the calendar can be challenging. To make our communication more efficient, we have implemented a scheduling platform that allows team leaders to have more flexibility and autonomy in how they schedule their trail events.

The link provided above gives you access to the summer schedule and will notify VVMTA staff when a date is selected.

The screenshot shows the VVMTA logo at the top. Below it, there is a message: "Choose an open time to book your AAT trail event! Any questions please contact Natalie at natalie@vvmta.org" and "See you on the trail!". The main heading is "Select Calendar". Underneath, there are two sections: "APPOINTMENT" with a dropdown menu showing "Adopt A Trail Team" and "3 hours"; and "WITH" with a dropdown menu showing "VVMTA Adopt A Trail" and a "SELECT" button. Below the "WITH" dropdown, there is a link: "Please click here to sign up for an Adopt a Trail Maintenance Day with VVMTA support!" and a note: "This is a regular workday with a VVMTA staff member to bring tools, help identify trail projects, and work alongside you!"

Expectation: Schedule at least 2 weeks in advance.

Independent or otherwise, all team leaders must schedule 2 weeks prior to their anticipated event. This ensures proper scouting of projects and teams having the correct number of tools needed for that day.

It also supports a manageable and balanced schedule for VVMTA employees working with our volunteers. We love our trails and want to spend the same quality time on them during the summer!

Team leaders will be able to access the AAT scheduling platform at any time and you are welcome to use it as soon as possible to get your work days on the calendar.

Need more information? Check out our [AAT Scheduling Video Tutorial](#).

Step 2: VolunteerHub

Through [VolunteerHub](#), you will be required to create an account in order to sign up for events. This system prevents duplicate registrations from an individual, and for our team leaders to know the amount of participants they have for an event. Leaders will be granted limited administrative access for this purpose

After you have scheduled your trail work day, we will create an event for you on VolunteerHub. The following is a step-by-step process of what you need to do in order to sign up for an event and share it with your team.

- Create an account
- Receive your team's Landing Page
- Share this link with your team
- Team Leaders will be able to see who has registered
- See your hours (and get rewards!)
- Access your account and view all events at vymta.org/events

If you are volunteering independently or have a participant that was not able to create an account and need to add their hours, you have the opportunity to do so after an event is finished. Those hours will need to be approved by an administrator before they can be added to your total volunteer time.

Independent volunteers or team leaders are still required to register for their event.

Please connect with us if you have any questions about VolunteerHub and your account.

Step 3: Recruitment

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VAIL VALLEY MOUNTAIN TRAILS ALLIANCE

Join Our
Adopt A
Trail Team
Today!

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We Adopted A Trail!

Now We Are Building A Crew

Trail work, good company, and perks. Are you in?

We've adopted a trail with the Vail Valley Mountain Trails Alliance, and now are putting together a crew to help take care of it. A few times this season, we'll head out to clear brush, fix up tread, and show a little love to the places that give us so much in return.

No experience needed – just a few hours of your time, a love for the outdoors, and a willingness to pitch in. We'll handle the rest.

Tools, Trail Time, and Awesome Rewards

Because it feels good to give back! And the perks are pretty great too:

- Gear pro deals + local discounts
- Entry into an Epic Pass giveaway (every 6 hours = one entry!)
- A Rab sun hoody at 15+ hours
- Lot's of laughs, hard work and a whole new appreciation for our trails

Let's get out there and make a difference. Together!



VAIL VALLEY MOUNTAIN TRAILS ALLIANCE

How do I recruit volunteers?

A question that many leaders have asked is how to encourage more volunteers to sign up throughout the summer season. Volunteer retention is historically lower towards the end of the summer. To help get the message across, you may use the following templates as a foundation to spread the word about where and when your team is headed to the trail and the many rewards they will receive for participating in an event.

Please use YOUR voice and change/improve this template in any way you see fit.

SCHEDULING YOUR DAY

Hey Team!

Let's get our Adopt A Trail trail work on **ENTER TRAIL NAME** with the VVMTA on the calendar. There are a number of projects that need to be done on the trail and we need as many of you to join as possible.

Here are some dates and times that are available:

ENTER DAY/TIME(S) FROM AAT CALENDAR

Please let me know your availability by the end of the week so we can get it scheduled.

The VVMTA has some exciting and awesome rewards to offer us this year too. Once you hit 6 hours of volunteering on the season you receive access to [Volunteer Rewards](#) including ExpertVoice and Outdoorly Pro Deals, local business discounts, and you are entered to **win a full Epic Pass** for the 2025/26 season!

They are also awarding a **Team of the Month** this year which is a \$200 gift card to a local restaurant/establishment. Let's win one and go out for lunch or happy hour!

Let's have some fun out there and get some quality trail work done.

Thanks!

[REGISTRATION LINK](#)

Hi Team,

Our Adopt A Trail trail work on **ENTER TRAIL NAME** is confirmed for **ENTER DAY/TIME**.

Please register for the event on **VVMTA's website here**.

Registration Instructions

1. Click the "SIGN UP" button on the event.
2. Create an Account: The user must create an account with the following information:
 1. Name, mailing address, phone number, DOB, emergency contact, dietary restrictions, and answer a few questions about trail use.
3. Waiver: Read through the waivers and click "I understand and accept this waiver".
4. You are registered for the event!
5. Note: You will only need to fill out the user information / sign waivers one time. We ask for waivers for the first event sign up and then it's much easier (only one click!) to register for other events.

Registering helps the VVMTA plan the project, bring the number of tools necessary, and also ensure your volunteer hours are reported.

Why should I sign up?

The VVMTA has some exciting and awesome rewards to offer us this year. Once you hit 6 hours of volunteering on the season you receive access to [Volunteer Rewards](#) including ExpertVoice and Outdoorly Pro Deals, local business discounts, and you are entered to **win a full Epic Pass** for the 2025/26 season!

They are also awarding a **Volunteer of the Month** (\$100 gift card to a local restaurant / establishment) and **Team of the Month** (\$200 gift card to a local restaurant / establishment). Let's win one and go out for lunch or happy hour!

Let's plan on meeting at the **ENTER TRAIL NAME** trailhead at **ENTER TIME**. **The VVMTA will meet us there and lead the project on the trail.**

Let's have a fun day out there, thanks for joining and giving back to the trail.

Day of Event

24 hours before your event, we will reach out to team leaders to finalize any remaining details:

- Where we are meeting
- Picking up the tools
- How does the weather look?
- Talk about the project
- Any other event details (i.e. food/beverages)

Teams that will have a VVMTA or Forest Service representative with them are not required to pick up tools at the Minturn or Eagle AAT sheds.

Independent teams or leaders have access to either shed-please use what is most convenient-and will check their tools in/out on the whiteboards hanging on the doors. Proper tool management and safety can be found in the section: **The Safety Talk and Tool Talk.**

What to Bring on a Trail Day

The first principle of Leave No Trace is “Plan Ahead and Prepare.” The weather in Colorado is variable and unpredictable. Inclement weather is inevitable in the mountains and making sure you have what you need to stay dry and comfortable is going to make your work day SO much better! Trail work days are not Bear Gryll survival school-STAY COMFORTABLE!

Be sure to bring the following:

- Water: Enough water to stay hydrated (and then some) for the duration of your shift.
- Closed-toed shoes: Working with heavy objects and sharp tools requires appropriate footwear at all times.
- Sunscreen/Hat
- Sunglasses: This is also proper P.P.E. → Personal Protective Equipment). Sunglasses or safety glasses help to protect your eyes from branches, flecks of dirt, etc.
- Snacks: You know your body. Bring whatever you need to stay fueled. We might be hiking long distances and it takes a toll on us.

Long pants: Recommended but we know on those blazing hot days it can be uncomfortable.

Maintenance Logs



Submit your trail maintenance log below!

Any questions or feedback please contact natalie@vvmta.org

Name *

Email *

Date: *

Start Time: *

End Time: *

Team Name: *

Trail Name: *

Total Number in Crew: *

Independent or with VVMTA Trail Crew Leader: *

What was your team's trail project and goal? *

Did your team complete the project? *

Did you identify a project for your next trail work day? If so, what is tha

The [AAT Maintenance Log](#) not only provides us with the amount of work that was accomplished during that event, but also gives us more information as to *what* was accomplished. **After your work day, please complete a maintenance log and fill in the required information within 24 hours.**

Teams that have VVMTA and/or Forest Service representatives present with them will not be asked to fill out the log but would like a team leader to provide a recommendation for a “Volunteer of the Month” (see **Rewards** for more information and details).

Last year, we included: “**What was your team’s project and goal?**”, “**Did you complete the project?**”, and “**Did you identify a project for your next event?**”

These questions allow for more intentional projects and help to set up teams for the next event. Team leaders are not required to scout their own projects but any input is welcome, especially for teams going out independently. We are happy to hear thoughts and suggestions you may have.

VVMTA Volunteer Rewards

Without our volunteers, we would not be able to complete the work that is needed to maintain the vast network of trails through the Vail Valley. Thank you for getting out there and supporting VVMTA. Our gratitude is palpable and we want to give back to our volunteers as a token of our appreciation. Through volunteer work, you are eligible for a variety of VVMTA Rewards.

Volunteer programs include: Adopt A Trail, Trail Ambassadors, Wednesday Night Trail Crew, Ladies Trail Crew, Minturn and Eagle Bike Park Ambassadors. Additional volunteer opportunities do arise throughout the year and you may earn hours through these as well.

Win an Epic Pass!

Thanks to our partners at Epic Promise, we will be giving away an Epic Pass at our End of Season Party. For every **6 hours** of volunteer time accrued, you will receive one raffle ticket. Each **additional 6 hours** of volunteer time will give you more chances to win!

- 6 Hours = 1 Raffle Ticket
- 12 Hours = 2 Raffle Tickets
- 18 Hours = 3 Raffle Tickets and so on...
- More hours = more opportunities to get an Epic Pass

≥ 6 Hours of Volunteering

Volunteers who have 6 or more hours are eligible for the following rewards:

- ExpertVoice and Outdoorly Pro Deals
- Local Business Discounts
- 15% Off VVMTA Swag

≥ 15 Hours of Volunteering

Volunteers who have accrued 15 hours or more are eligible for the following:

- VVMTA-branded Hooded Sun Shirt

Volunteer of the Month

Through our various volunteer programs, we will be asking team leaders to nominate a “Volunteer of the Month.” This person should be selected based on their candor and spirit, and embodiment of stewardship on the trails. **Any of the listed volunteer programs may nominate someone.** We will be making a final selection at the end of each month throughout the season. The VOTM will be rewarded:

- \$100 Gift Card to local business
- Featured in the Volunteer Newsletter
- Bragging rights for their awesomeness 😊

This will be an included section in the “Trail Maintenance Log.”

Volunteer Team of the Month

We know - EVERY VOLUNTEER TEAM IS INCREDIBLE! But sometimes, there is a team that stands out the most in their efforts. While we do present awards at the end of the season to selected teams, we want to recognize the hard work throughout the summer. The Volunteer Team of the Month will be selected by VVMTA and be awarded a \$200 Gift Card to local business

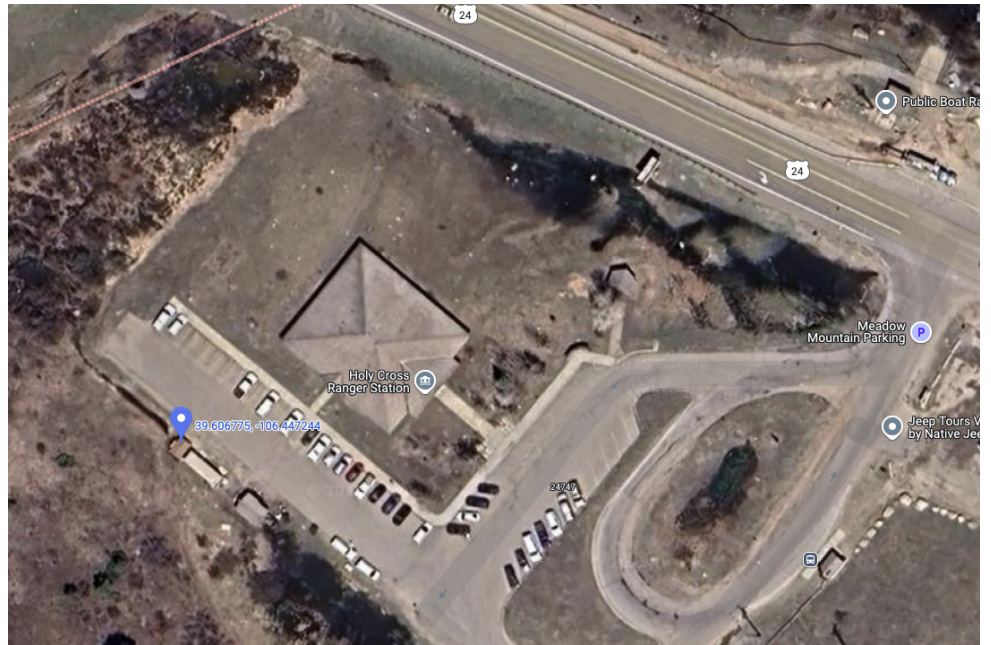
Maybe this team cleaned their tools. Maybe they helped a lost Texan on the trail. We will be looking out for exceptional team participation all season long!

The Tool Sheds

We have two AAT toolsheds in Minturn and in Eagle. If you sign up for a regular VVMTA AAT event, VVMTA staff will bring tools to and from the event. **If you are an independent team, you are responsible for the tools!**

Directions to Minturn AAT Toolshed This toolshed is located behind the USFS Minturn Ranger Station, where all of the USFS trucks are parked.

CODE: 2024



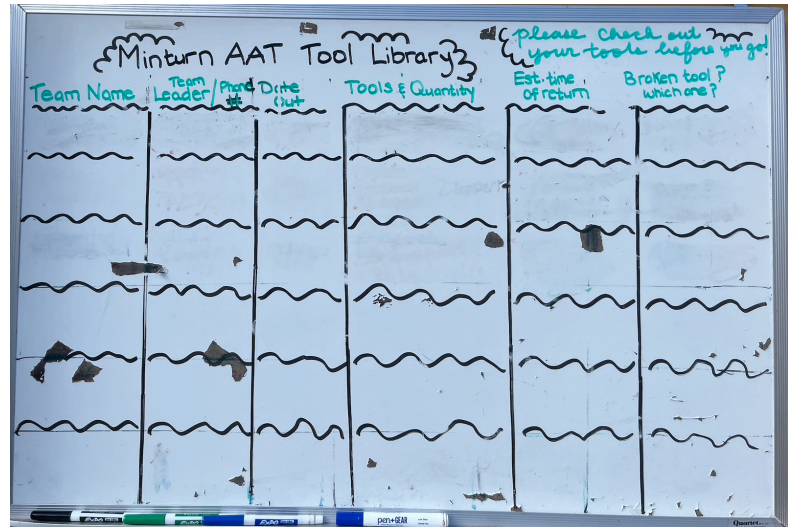
Directions to Eagle AAT Toolshed This toolshed is located at the USFS Eagle Compound. Take a left once you cross the gate to find the toolshed.

CODE: 2024



Tool Shed Instructions

1. Check in and check out on the whiteboard. Include the following information:
 - a. Team Name
 - b. Team Leader & Phone Number
 - c. Date Out
 - d. Tools & Quantity
 - e. Estimated Time of Return
 - f. Any broken tools?



2. Return tools in time for the next AAT event. Natalie will notify team leaders if there is a team using the toolshed on the same day.
3. Communicate with Natalie if a tool is broken (or missing)
4. Clean / wipe off tools at the end of each event.
5. Use tools for their intended purpose.



Safety Protocols

The safety of our volunteers is our number one priority but we recognize the potential of risk in wilderness and outdoor spaces, wildlife encounters, lightning and weather, and your surroundings should each be taken into consideration before you head out.

In case of an emergency, call this list until you contact someone:

- **Natalie Neuwirth (715)498-4428: Trail Stewardship Coordinator**
- Shawna Wood - 847-899-4775 (cell): VVMTA Program Manager
- Eagle-Holy Cross Ranger District - 970-328-6388 (Eagle)/970-827-5715 (Minturn)
- Eagle County Sheriff - 970-479-2200
- If you are unable to contact any of the above, call 911 and report a missing party.

Our VVMTA representatives are Wilderness First Aid or Wilderness First Responder certified and are able to support you through any circumstantial incidents.

If you do find yourself in an emergency where you need to call 911 or a backcountry ranger, please take the following steps to communicate with dispatchers:

- Stay calm. When speaking with dispatchers, it is most helpful to be clear and give pertinent information.
- Assess the scene. In wilderness medicine, we discuss the *mechanism of injury* or the MOI. It helps us know HOW the person became injured. If you saw that they fell on a rock, provide these details to a dispatcher and/or ranger. The more information you can provide, the better prepared they may be.
- Provide the location of the victim with a GPS point if possible as well as landscape descriptions.
- Record the condition of the patient but do not provide a diagnosis (*patient assessment system*) i.e. *Are they conscious? Are they bleeding? Can they sit/stand?*
- Weather
- Number of people in the group to make sure that everyone else is accounted for (this is also great to do before and after each event).
- Time of day.

Again, we do have individuals who are trained and qualified to assist in emergency situations. If you are working independently, have an emergency plan before you go to the trailhead.

The Safety Talk and Tool Talk

Safety on the trail is something that we will do before each event. We will also be discussing each of the tools and their purpose.

Tools

As noted above, VVMTA will provide tools for each event. If you and your team are planning on being independent of a VVMTA or Forest Service representative, you are required to check in/check out your tools before and after each event.

Before you return your tools to either the Minturn or Eagle Adopt A Trail sheds, please do your best to clean off any mud that may have accumulated. We know that this can be a challenge but please do your best to respect the tools. They are sharpened and cleaned throughout the summer.

Thorough cleaning and maintenance of tools is the responsibility of VVMTA but we also ask that all teams be responsible for bringing all tools back to their respective locations if you are in the field independently.

These tools are also shared by volunteers across multiple programs. Hundreds of hands will pick up one of the pick mattocks during the season. Tools do break and require occasional maintenance but we can mitigate their wear and tear by being respectful and mindful of the purpose for each tool. If there is a *better tool for the job*, use that one instead.

If any tools are broken or in need of repair, please contact Natalie.

Tools-Safety Talk!

- PPE-Personal protective equipment
 - Eye protection, hard hats, ear plugs
- You are not Paul Bunyon! We do not want to be swinging tools around (hurt yourself or hurt others)
- Be trail aware
- Sharp tools should be carried on the downhill side (outside)
- Communication is important → if you notice something that could be hazardous, say something (falling trees, rocks, bears, etc.)
- ROCKS CAN HURT-When we are making crush, pieces of rocks can fly in different directions. If you are not the one who is doing this, stay clear from the area. Make sure that you are wearing your eye protection! When we need to move large rocks into place, try to gauge where it might roll BEFORE placing it. And remember, gravity and rocks go hand in hand-rocks will roll and carry momentum as they tumble down a hill. Do not launch rocks from places where there might be people below you!

Trail Maintenance: Basic Overview

There are a lot of nuances to trail work but at the end of the day, we are digging in the dirt and having fun. With that being said, the material below has been adapted from our Youth Trail Stewards programming and provides terminology, links, and a general overview of information that you need to know in order to maintain and improve trails. Drains and rock work do require additional attention to detail and should be done in accordance with the specs provided by the U.S. Forest Service or Bureau of Land Management. The [FS-Trail Building and Maintenance Guide](#) is a comprehensive guide to all things trail maintenance and building. This guide includes photos and illustrations to provide more assistance. Remember: Quality over quantity. We don't need to build 50 drains to have a successful trail work day.

Trail Basics 101

How do we build a trail? Are we just going out and digging dirt in a straight line?

Building new trails takes time, energy, and a little bit of red tape. Before we start building new trails, environmental assessments (environmental assessments) are provided to ensure that minimal impact will be done to the surrounding area if a new trail is built. Taken into account is the area that it is built, the runoff that may occur with consideration of impact to wetland species, erosion, and impact on other wildlife, among other things. Before we put tools in the dirt, and after all of the necessary processes are completed, we THEN have to flag the general area to minimize impact.

What do you notice when you hike or bike on a trail?

- Overhead clearance
- Some trails do not have a lot of growth on either side (width of the trail)
- Not all trails are “smooth” (rocks, roots)
- Some trails are sloped or off-camber

What does it mean to build a sustainable trail?

- Minimal impact on the surrounding ecosystem, does not harm or impact wildlife, requires minimal trail maintenance (i.e. the trail will not need constant reconstruction over time), has the ability to handle different forms of recreation
 - Define soft-surface trails: non-paved, utilizing natural resources to build
 - *Why or how could a soft-surface trail be a more sustainable option to a paved trail?*
- When we are building a new trail, there are multiple factors that we are considering. The goal is to build the trail as sustainable as possible as well as considering the intended

use. Many of the trails in Eagle County are multi-use in that they are not bike specific but are required to support hikers and horses

- Consider the impact that horses have on the trails. How might we have to build a trail to support this type of impact
- Path of least resistance-If there's a puddle, people will go around it → goal is to keep people ON the trail
- *What are some of the materials that we use to build a sustainable trail?*
 - We are trying our best to limit the amount of man-made materials and only work with the resources that are accessible and available in that area
 - Rocks, mineral soil, logs
- Utilization of rocks can greatly improve the quality and sustainability of a trail. *Why?*
 - Durable → wood will degrade over time
 - Stable → when building river crossings, a well-place rock won't move if it is properly placed and large enough to withstand heavy traffic
 - Can prevent people from cutting switchbacks → Again, the goal is to keep people ON the trail instead of cutting through sections. This will be pertinent when we discuss retaining walls.
 - Are there any other ways that using rocks could be helpful in building a sustainable trail?

How wide and tall do we need to make a trail?

- Northern Rockies-10 feet high and 8 feet wide (accommodating to packstock), 6 feet wide x 8 feet high for hiking trails
- This can change depending on the intended use especially with trails that support mountain bikers → overhead clearance and wider corridor improves the visibility and can impact safety and speed

When building a new trail, should it be completely flat?

- The surface that we are walking on is the tread
- The tread should be outsloped at least 5% to allow for water to naturally flow off from the surface

What are a few general maintenance practices?

- Clearing/brushing-removal of overgrown vegetation, removal of obstacles that could pose a danger
- Drains → redirecting water
 - Water will follow the path of least resistance
 - Building different types of drains will help to decrease the amount of erosion that water can cause
 - Directing water off the tread can pose challenges → switchbacks
 - We don't want to redirect the water simply to have it go back onto the trail

- Grade reversals → “dips” where it changes from downhill to a slight uphill, one of the most effective ways to divert water, least amount of maintenance
 - Knicks → built into existing trails where water is puddling, must be lower than the existing trail for maximum effectivity
- Deberming → berms-small mounds of material that build up over time on the outside of the tread, effectively trapping in water
- Creating an effective and visible edge → soft edges are prone to erosion, bikers who are choosing a line to the outside versus the middle will wear down the effective edge as will horses/pack animals

What do each of the following tools do?

- Examples: rogue hoes, pick mattock, McLeod, Pulaski, folding saw, loppers, rockbar, rock/leaf rakes, shovels (flat and round point)
- Each tool is purpose driven → i.e. a flat-head or square shovel is not the best tool for digging, instead used for shoveling loose material, a Pulaski has a smaller ax but that isn’t used for chopping down trees
- Utilizing the tools properly and appropriately

We will be discussing the tools at more length during our training. You can also follow the link above from American Trails.

Resources:

[National Strategy for a Sustainable Trail System](#)

[USGS-Building a Sustainable Trail](#)

[Sustainable Trail Corridors](#)

[FS-Trail Building and Maintenance Guide](#)

[USDA-Trail Construction and Maintenance Notebook \(2007 Edition\)](#)

Let’s talk about rocks!

USFS Basic Trail Maintenance-Skip to 10:00 mark for rock removal

- *To remove rock or not to remove? When is it best to remove rocks from the trail or keep them in place? What features can we make when using rocks? What are some of the tools needed to move/smash rock?*

To remove rock or not to remove?

- While we can’t remove EVERY pebble or rock from the trail, some circumstances will require rocks to be removed.
- 1) Small rocks, soil, and debris-slough (“sluff”) can make a trail narrower when built up along the backslope and should be pulled/dispersed from the tread

- Preventing trail “creep” → trails disappearing off the outside edge
- Deberming the trail → helps with maintaining the trail because water now is able to flow off the side instead of being trapped on the tread
- 2) Rocks that may have been used as a step that are no longer stable → think of it like a loose tooth. If the rock is wiggling, it might need to be reinstalled/reset
 - *Why might a loose step be an obstacle for a hiker/biker/horseback rider?*
 - Especially with horses and bikes, there is additional stress and weight placed upon the rock that might become a hazard
- 3) Use your best judgment! We are not Dwayne “The Rock” Johnson and don’t need to put all of our energy into attempting to move a rock to see if it is stable or not
 - Rocks or gravelly trails can add to the “character” or “retain the integrity of” the trail
 - Depending on the level of difficulty-some trails have classes or numerical values assigned to them to rank how difficult they are-some trails do not need to have perfectly manicured tread. When dealing with soft-surface trails, this is also next to impossible. If a trail has a lower difficulty rating, removing rocks can mitigate hazards, esp. when the trail is heavily trafficked by users.

What features can we make with rocks?

[USFS Standard Trail Plans and Specifications](#)

- Retaining walls-hold the tread in place
 - *When would this be used?*
 - Areas with steep backslope that are more prone to erosion and where there might be minimal critical edge
 - Switchbacks on trails to mitigate people stepping off the trail and cutting corners
- Water crossings
 - Fords-water crossings that create partial dams downstream of the stepping stones
 - Ideally, the rocks that are used when building these crossings should have a flat surface for stepping
 - *Do we just roll a few big rocks into the stream and leave them there?*
 - No! Like any properly done rock work, these should be properly set to withstand a variety of conditions. *What happens in the spring after a heavy snow year?* → Water will flow more rapidly and has the ability to move large obstacles. USFS recommends rocks >130 pounds. *Consider how the rock is set in the stream or river.*
 - Culverts-drainage that diverts water by flowing underneath the tread
 - Can be built with rock or commonly seen built with a man-made pipe
- Steps and Stairs

- Check steps-the INTENTIONAL rock in the trail. Large, flat rocks places across the trail to divert water and mitigate erosion
 - *Iron Edge is a great example of where check steps were necessary in helping to maintain the trail. Iron Edge had areas where diverting water off the tread was difficult. This created sections that were ravines and eroded*
 - We sometimes put gargoyles on either side of the check steps to keep people on the trail
- Crib steps-can be made with rocks or logs, 3 sided, overlapping steps that are filled with crushed rock and/or soil
 - Can also be used with logs/wood
- *What other ways have you seen rock work used on a trail?*

What are the tools we need for rock work?

- Rock bars-worst tool to carry, one of the best for moving large rocks that need more than a push. The rock bar can help us to move rocks with more efficiency than attempting to roll it with our hands. When moving large rocks from holes, we might use a fulcrum to help. This can be made by placing a smaller rock beneath the rock bar to create more leverage.
- Pick-mattock-the pick side of the mattock is helpful for prying rocks and the adze is used for grubbing and pulling debris away. This can also be used as a fulcrum when removing rocks because of its shape.
- Double-jack or sledge hammer-when placing stairs, check steps, stepping stones, etc., we need to fill the space with smaller stones and rocks known as crush. Crush rock can help with drainage and stability of the feature. But what happens when we don't have a bunch of little rocks for crush? We make it ourselves! This is where the sledge hammer comes in. Both this tool and its smaller version-the single-jack-are beneficial when we need to make crush.
- *What other tools might be helpful with rock work or that we would bring into the field with us?*
 - Rock rake-clearing small debris from the tread (McLeod would also serve this purpose)

Trail Specific Features: *Blazes! Cairns! Signs!*

How do you know where to go?

- **Cairn:** If there is ever a moment where the trail looks like it is going off into the abyss and without any direction, maybe you have seen piles of rocks strategically placed. This is an example of a cairn. Sometimes, these have been placed by trail workers to help direct people to minimize impact and use natural materials. Cairns can also help people stay on the most durable surfaces.

- **Blazes:** The U.S. has a collection of trails called the “National Scenic Trails.” According to the National Park Service, National Scenic Trails are “routes of outstanding recreation opportunity.” The Continental Divide Trail, which runs 740 miles through Colorado (3100 miles total), has painted blazes on trees that help indicate the direction of the trail, turns, start/end of trail, etc. These markings are not exclusive to the National Scenic Trails and can occasionally be found on rocks and posts.
- **Signage:** One of our primary goals is to retain the characteristics of the natural landscape but sometimes, it is important to put in signage that helps identify the trailhead or give more information about where to go. On trails that are heavily used, you may notice that many intersections and junctions give direction to other trails or even the mileage. *Where else may you have seen signs on the trail? Why might this signage be helpful? → Consider areas that are more remote and lack service.*

Additional Learning and Training Opportunities

In addition to this guide, we want to provide you with as much information and resources throughout the summer. This guide will be updated and revised. Use some of it, use all of it, use none of it-these materials are at your disposal!

Technical Skills Training - June 2nd, 2025 (5:00 - 8:00 p.m.)

- Open to **all** volunteers, this training is the hands-on learning experience and goes into more depth about tools and their purpose, how to build drains, and identifying features on the trails that may impact their sustainability. Please register in advance through VolunteerHub.

[Foundations of Sustainable Trails: A Trail from Start to Finish \(Online Learning from Indiana University\)](#)

- This is a **free course** that you may use to touch up your knowledge and familiarity with sustainable trails and maintenance

[American Trails](#)

- Free webinars, articles, and resources to use at your disposal (link is also included in the Team Leader Guide)

Leave No Trace: The 7 Principles

1) **Plan ahead and prepare:** Also “Know Before You Go,” volunteers should familiarize themselves with local regulations or concerns specific to the area that you are working in. Weather is extremely variable and can be unpredictable in Colorado, especially during the summer month when storms roll in with little to no warning. Be sure to bring enough water for the duration of your trail work day and clothing appropriate for the weather. This principle encourages the safety of you and your crew.

2) **Camp/hike on durable surfaces:** [Social trails are unofficial or illegally built trails that can form when individuals walk off the designated path.](#) Continued use of these trails can cause damage to wildlife and vegetation (i.e. exacerbate erosion or harm bio-sensitive organisms like cryptobiotic soil). While these paths may be tempting to bypass a puddle or muddy section of trail, they can also cause confusion to other trail users who may see the social trail as an official path. There is a where and why trails are built; these areas are the most sustainable and have the least amount of environmental impact. Please encourage others to stay on the trail and close social trails when appropriate.

3) **Dispose of waste properly** (pack out what you pack in): *It’s one orange peel-how bad could that be?* If we all had that mentality, there would be a lot of organic waste around the trail. Our climate in the West is typically much drier and the rate of decomposition is slower as a result. Orange peels can take up to 6 months to decompose or longer in areas with less humidity. According to the Deschute Land Trust in Bend, Oregon, they state that banana peels have a rate of biodegradability of 2 years! [Deschute Land Trust](#)

[Human waste requires additional attention.](#) A multitude of viruses and bacteria can be found in human waste including *Giardia lamblia*, a parasite found in contaminated water. If nature decides to call, dig a “cat hole” 200 feet from the trail or a water source. It should be at least 6-8 inches deep x 4-6 inches in diameter. Please note that this is for areas that are damper or higher humidity. Decreased organic material in desert areas impact rates of decomposition, similar to if you left your orange or banana peel on the ground, and toilet paper should not be buried (it’s a bad day for anyone if you dig up a wad of Charmin). Pack out your TP!

4) **Leave what you find:** Maybe you have heard the old saying *Take only photos, leave only footprints.* Arrowheads, wildflowers, and other artifacts might be tempting but the impact can be significant. Removing arrowheads, pottery shards, or disturbing historic sites is illegal under the Archaeological Resources Protection Act.

Wildflowers help our pollinators who often have limited species and ranges that they rely on for survival. As beautiful as some of the wildflowers may be, they need to remain wild and play a crucial role in alpine ecosystems. [Please use this field guide as a reference if you are interested.](#) The CPW also has a reference guide to [rare plant conservation](#) in Colorado if you are unsure or unfamiliar with some of the local fauna and flora.

5) Minimize campfire impact: Although it is unlikely that we will be roasting marshmallows at our Adopt A Trail events, it is good practice to be aware of when and where to have fires. Be sure to check warnings in your area. If Smokey the Bear says the fire danger is high, don't make a fire! Use dedicated fire rings at campsites, remote or established, and put out your fire properly when finished.

6) Respect wildlife: Closed trails are prevalent throughout our county. Closures exist to mitigate impact on wildlife, particularly elk and mule deer. As elk migrate to higher elevations during the summertime, deer, bears, mountain lions, coyotes, moose, and many other species remain in our vicinity. Be sure to give animals enough space.

Mountain Lions: Mountain lion sightings and attacks are rare but they are present in the area. If you see a mountain lion, get big-do not crouch, speak to it calmly but firmly, don't turn your back, and back away slowly! Do not run. Be as intimidating as possible. If it starts to move towards you, throw sticks or rocks at it without turning around to gather them.

Black Bears: We have a population of black bears (Note: black bears can appear brown in color but [we do not have Grizzly/Brown bears in the state](#)) and like mountain lions, attacks are quite rare. It is important to remain diligent though. If you see a black bear, talk to them and remain calm to show that you are not prey. As silly as this may sound, black bears are intuitive and curious, and have been known to recognize the distinction between prey and humans. Slowly wave your arms and remain big. Do not run or attempt to climb a tree (black bears are arboreal!). Give the bear an escape route. Mama bears with their cubs can be particularly territorial and defensive. If you see a cub, there is often a mama around! Remember the nature adage with bears: If it's brown, lie down; if it's black, fight back!

Moose: Unlike bears and mountain lions, moose are not animals that you want to stand your ground with. These MASSIVE animals can run at speeds of up to 35 miles per hour. That is faster than sprinter Usain Bolt's 100 meter record. We are not Usain Bolt and cannot outrun moose. Moose have the tendency to do "bluff charges" in which they will stop short of you when charging to ward off threats. If you do encounter moose, back away slowly and try to put something in between you and it e.g. a large tree (not a sapling).

Ticks: What makes the ticks in Colorado unique is that they are not known to carry Lyme disease and there have been [no known cases of Lyme disease originating from tick bites in the state](#). The pathogen that causes Lyme disease does not occur in the state. There are other viral and bacterial diseases that ticks can carry and infect humans. Colorado tick fever is the most common and although Rocky Mountain spotted fever sounds as though it would be quite prevalent, it is rare and occurs more frequently in Arkansas, North Carolina, Oklahoma, Tennessee, and Missouri. If you are walking through any type of vegetation, conduct a tick check post-hike. The scalp, behind the ears and neck, and around the ankles are good places to start.



Other animals to be considerate of: Coyotes, deer, and many different species of birds all cohabitate throughout the valley. Regardless of the animal, they are all wild and we ask that you be mindful of the spaces you're sharing. We are in their habitat! One of the challenges we face with certain species is habituation. Please continue to give animals space and act appropriately when encountering them. The photo below shows the "Rule of Thumb" if encountering wildlife.

7) **Be considerate of others:** Nature is a shared space and how we decide to recreate looks different for everyone. For some, it is solitude and quiet, for others it is social and active. Our trails host many visitors each who have varied familiarity with regulations and etiquette. We can set the example of practicing good trail etiquette when encountering hikers, bikers, and equestrian enthusiasts. Allow people to pass and step off the trail to give them space. An uphill hiker/rider/horse has the right of way!

Horses can easily be spooked and it is best to NOT hide behind anything.



This sign was created by the Trails Foundation of Northern Utah. The same yields are in place throughout public lands in the United States.

For more information on LNT, follow the link to the [Leave No Trace](#) website

for a detailed overview of information on what each of the principles represent.

Lightning and Weather in the Backcountry

- [NOAA Weather Forecast \(Eagle County Regional\)](#)
- [Lighting Safety \(from NPS\)](#)

BACKCOUNTRY LIGHTNING RISK MANAGEMENT

No place outdoors is safe from lightning. Lightning is an objective hazard. Your behavior can reduce the risk of that hazard harming you.

TERRAIN LIGHTNING SAFETY HAZARDS

LOW SAFETY/ HIGH-RISK 0 1 2 3 10 AS SAFE AS POSSIBLE

0 **Extremely dangerous:** Avoid these areas if there are any signs of thunderstorms.

1 **High-Risk:** Leave these areas before a storm hits. Move through high-risk terrain quickly to reduce exposure time. High-risk areas include:

- On or near high terrain like peaks and ridges
- On or near tall objects like relatively taller trees
- On the windward side of mountains, where the storms come from
- On boats, on open water, and near trees at the edge of open water

2 **Least objectionable alternatives,** but still much riskier than inside of modern buildings.

3 **10** It is very safe inside a modern building if you avoid metal conductors. Getting inside an enclosed metal-topped vehicle can avoid many lightning hazards.

1 Wide open area

2 Descent Route (Gullies are better than ridges)

10 AS SAFE AS POSSIBLE

John Cookin v6Mar2012

Understanding Wilderness

The legal definition of *Wilderness* stemmed from concern of the growing population of the United States post-World War 2. The “baby boom” during the 1950s and 60s as well as the increase in transportation systems emphasized a need for environmental protection and conservation. As America’s highway system grew, the concern for air and water quality led to the first format of the Clean Air Act (enacted in 1963). Public land designation had been introduced prior to the 60s with the creation of the National Parks System in 1916, National Forests, and primitive areas.

Under President John F. Kennedy, he and his administration advocated for the passing of the Wilderness Act. After Kennedy’s assassination in 1963, Lyndon B. Johnson would resume advocacy for an environmental act that would serve as the basis for the protection and conservation of American lands. [The 88th Congress of the United States passed *The Wilderness Act* on September 3rd, 1964.](#)

Please note that the Wilderness Act of 1964 and previous legislation for environmental protection do not represent indigenous populations in the United States who had previously inhabited these spaces. Marginalized groups in the outdoors have not, historically, been represented by members of their communities nor have congressional acts recognized native peoples influence and connection to Federally protected lands. There is improvement in said recognition but please be mindful of the language used below.

An Act: To establish a National Wilderness Preservation System for the permanent good of the whole people, and for other purposes.

Definition of Wilderness: A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of underdeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

[How are wilderness different from other areas?](#)

There are over 800 wilderness areas throughout 44 states and Puerto Rico, covering almost 112 million acres. In Colorado alone, there are over 3.7 million acres of wilderness. The Forest Service, Bureau of Land Management, Fish and Wildlife Service, and National Park Service all oversee and maintain these protected areas. The [Holy Cross and Eagles Nest Wilderness](#) both overlap Eagle County.

In designated wilderness areas, the **use of motorized equipment is prohibited**. This also includes “mechanical transport.” Bikes are considered a form of mechanical transport thus prohibited in wilderness areas. These jurisdictions are included in the Wilderness Act.

While there is some debate about the use of chainsaws in wilderness areas, **administrative use of chainsaws has been permitted only when there are navigational hazards**. Cross-cut saws are typically used by sawyers when applicable.

Please do not bring chainsaws-regardless if there is a spark arrestor or is electric-to wilderness areas. With our resources in multiple land agencies throughout the county, areas that require additional attention will be communicated to the FS, BLM, FWS, or NPS.

Has outstanding opportunities for solitude...

As written in the Wilderness Act, *solitude* is listed under the comprehensive definition of wilderness. Our reasons for recreation may vary but respecting the tranquility of these spaces connects with LNT Principle 7-Be considerate of others. We ask that you are mindful of this shared space and respecting others’ access to wilderness.