Hello and welcome to the Colorado 4x4 Rescue and Recovery team!

We're always excited to get new members and we want to make the transition from signing up as a new member to going on your first recovery as easy as possible. Help for becoming addicted to going on recoveries will (probably not) be covered in a future document...!

In all seriousness, we're really looking forward to seeing you volunteer for your first recovery!

Contents

About this document

This is a “living” document and as will change over time. If you notice something incorrect or missing, please let us know so the members that come after have the most up-to-date and relevant information!

This packet contains a few lists, recommendations, answers to frequent questions, guidelines, as well as what to expect on a recovery. The purpose of this packet is to lower the unknown factor when going on your first recovery and is by no means a comprehensive list of everything you’ll ever need to know. Only experience can give you that!

Why we do what we do

We are an all-volunteer organization committed to recovering people and their vehicles from the backcountry when things go wrong – we take someone’s worst day and hopefully make it a little better. The organization fills in a gap between traditional Search and Rescue and commercial towing companies. Search and Rescue organizations perform emergency/medical/high risk extractions on foot or by ATV. Commercial tow companies generally avoid forest service, 4WD, and other back country roads they aren’t equipped to traverse. We sometimes work in difficult weather, at night, and at high altitude in potentially dangerous and challenging conditions. We will not compete with but may support both traditional SAR teams and tow companies, but typically only at the request of a law enforcement agency.

Mindset

One of the most crucial things to remember on a recovery is while they can be a lot of fun, we are there for a purpose. When heading into a recovery and back out always take things slow and easy with your rig. Pick easy lines you know your driving skill and your rig can accomplish easily. While on-site the same applies, we perform the safest recovery possible given the circumstances even if there is a faster way of doing something. Recoveries can be incredibly dangerous, and we work hard to ensure we all come back safely. Always remember that we are going into a recovery to help someone out and we can’t do that if we have a broken rig or an injury that adds to the problem instead of being a part of the solution!

A typical recovery

- The RP (reporting party) contacts us via:
    - 911
    - Direct call/text/voicemail
    - Facebook post
    - Referral
- Dispatch collects information and determines needs
- Callout for volunteers via text message and Microsoft Teams (Teams) to our members
- The Teams post includes basic circumstances, personnel, and vehicle requirements.
- Dispatch selects a team based on availability, equipment, and expertise. The team is not necessarily selected based on the order in which members responded
- Dispatch then starts a team chat on Messenger (soon to be in Teams) with recovery details – location, Subject contact info, Reporting parting contact information if different than Subject, pictures/images, mission concerns and considerations, etc.
- Dispatch may select a team lead based on the demands of the recovery or ask for volunteers
- Dispatch, monitors, and team members work together to:
    - determine a meetup location and time where all members will meet and stage their recovery – typically a gas station or other vehicle-friendly location not too far from whichever trail the stuck vehicle is on. Fuel up as close to the recovery as possible – never depart from staging with less than half a tank of fuel.
    - determine which communications methods will be used: typically, Messenger chat (soon to be Teams), ham radio/itinerant frequencies, and cellular, or satellite devices (InReach, SpotX, etc.).
    - determine where to meet the Subject – picking up en route, at staging, at the scene, etc. (Subject to the current policy and procedures eg. COVID-19)
- At staging:
    - ⊄ Identify other members at staging (shirts, vests, decals on vehicles, etc.), make introductions. As a general rule we're a friendly bunch!
    - ⊄ Fill out liability forms for the Subject and any passengers if they were not completed via the online process – Monitor should be able to convey if this was completed (when necessary, observe any specific policy and procedures eg. COVID-19)
    - ⊄ Establish trail leader, navigator, communications, tail gunner, and safety officer
    - ⊄ Assure everyone has fuel, food, water, all-weather clothing
    - ⊄ Discuss any concerns – especially any team medical consideration, privately if needed.
- Caravan to recovery site
- Perform stuck assessment and recover the vehicle
- Communicate progress to the monitor at each pre-defined stage, or **at least every 60 minutes.**
- Check the recovery site for gear, tools, debris, etc. and caravan back to pavement.
- Air up tires and inspect all vehicles
- Notify the monitor when you've made it home

Callout notifications

Callouts currently happen through a dual-notification system: one is a text message to the entire membership informing them of a recovery and what county it's located in; the second is a post in Teams under "Team – Missions" and channel "Call Outs" with some additional recovery details and callout requirements. Members volunteer by responding on the conversation (see below) and the recovery team is selected from that list. **Note** – these teams typically fill quickly, sometimes as fast as 10 minutes!

Text Notification

Currently the text message system is undergoing a restructuring and the process for members to subscribe to text notifications is manual. As a new member you will want to opt-in for the paging system. The tech team can complete this for you until the system is more automated. If you have questions about the process or are having technical difficulties please reach out to support (it@co4x4rnr.org). Existing and/or new members may also reach out to the IT Committee by posting in the Tech Support Channel of the Colorado 4x4 Rescue and Recovery Team in Microsoft Teams. The IT Committee may also be reached by email: it@co4x4rnr.org with the subject "SMS Notification Subscription". Please include your mobile number as the system will error if we try to text to a landline or non-mobile device.

The process to update the callout database currently happens by hand, so it can be up to a week before you'll start getting notifications. In the meantime, you can turn on all notifications for Team and individual channels, though be aware it can get chatty at times with non-callout postings.

Some members also set up the text message as a favorite contact (the number is ***currently*** (720) 571-8320) and assigning it a different ringtone as well as the ability to override "silent" or "quiet" modes. This is by no means a requirement, but it is an option!

It is the members responsibility to keep their profile up to date, including a current mobile number for text notification. This is done in the members portal you were introduced to as part of onboarding.

Teams Posting

Boulder County - 2023.02.23 Lickskillet Road Crosstrek

Recovery Name: 2023.02.23 Lickskillet Road Crosstrek

Time of Request: 923

Situation: SV stuck about 1000' from the main intersection on Gold Hill. SV was driving downhill when it started sliding. Subject decided to attempt to turn around to head uphill back to Gold Hill. Subject got SV turned around but did not have traction to climb the hill. Subject then tried backing downhill but slid into deep snow on the downhill side of the road. SV has two wheels on the road and two wheels off the road. SV is currently facing up towards Gold hill. SV tire psi at full pressure. Subject lives in Boulder but is currently safe and at a nearby house close to SV. Subject states he could potential dig out the SV but is very concerned about sliding further downhill into more trouble. The road is icy and narrow and recovery will likely require two sets of chains.

When: ASAP

Where: 40.06609, -105.41021 BoulderCounty

MINIMUM Individual Vehicle and Equipment Requirements
- vehicle in good operating condition capable of traversing the terrain described
- front and rear recovery points
- 33" tires with matching full-size spare; Locker recommended
- recovery gear in good condition
- field communications (ham preferred)
- first aid kit
- 72-hour bag, food, water
- all-weather boots and clothing
- minimum 1-set of tire chains

MINIMUM Team Equipment Requirements
- 3+ Vehicles
- 1 ham radio operator with APRS
- 2 winched vehicles in good operating order
- 2 sets of traction boards
- 1 kinetic rope
- 2 shovels
- 2 fire extinguishers
- 2 set of cluster hooks

IF AVAILABLE, ONLY post the following:
- your training level (L1, L2, L3, L4)
- ham call sign
- year, make, model of your rig
- any requirements you DO NOT meet
- number of passenger seats available
- where you are responding from
- the time you are able to deploy

Only comment if you are available at the time requested. The post will be updated as information becomes available.

When responding to a post, always remember to ***read the entire post*** as the requirements, requested gear, and requested personnel do change from recovery to recovery.

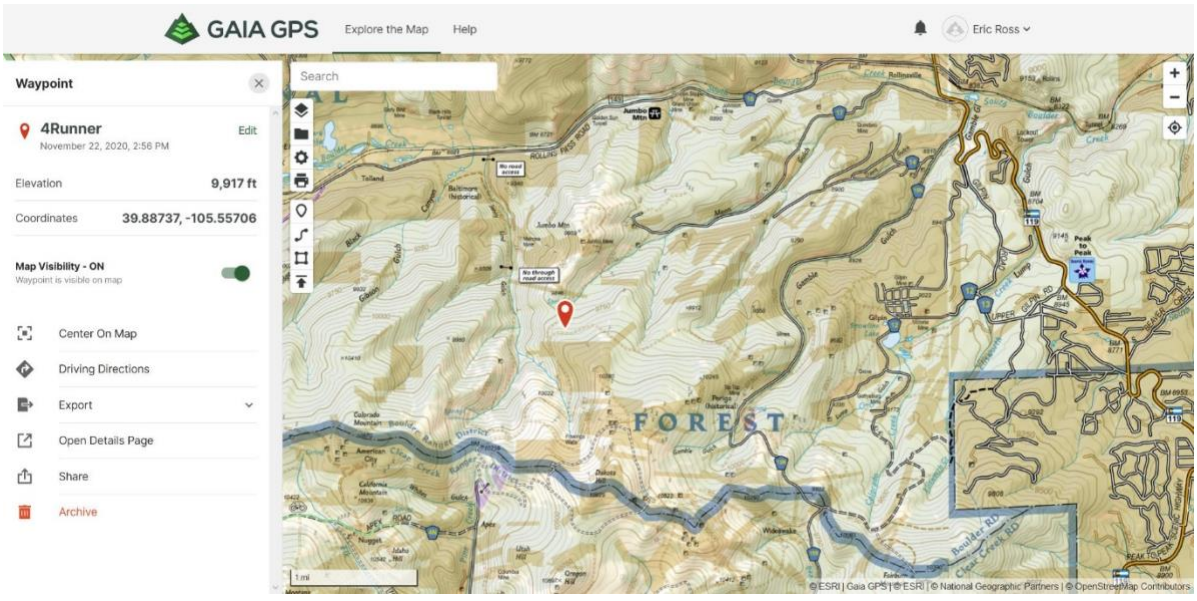
When you respond, remember to give your availability, which requirements you <u>don't</u> meet, any specialized skills or gear you can bring, your ham radio callsign if you have one as well as whether you have APRS capability. See example response below:

- L1
- {Call Sign}: APRS as well as DMR, SatCom
- 2018 Jeep Wrangler JKU Recon on 38's
- All requirements met (except no Hi-Lift)
- 3 passenger seats available
- Available to deploy anytime today or after 12 noon tomorrow
- Responding from Castle Rock
- ETA to TH 75min

If it's your first-time volunteering for a recovery, put that in as well! If your rig isn't up to the specifications and you'd still like to go, post that you're happy to ride along. We can always use more people power on a recovery!

Dispatch/Dispatchers may reach out to individuals if the recovery has special needs, for example the recovery may require some heavy anchor vehicles due to the size of the Subject's vehicle.

In most cases, we will post the coordinates of the Subject vehicle to help responders plan the route and download trail maps etc. This information is **confidential**. Pictures and recovery specifics, including dates and times of the mission shall NOT be shared with non-members or cross posted to any other social media outlets. This is intended to protect the Subject's property and privacy as well limit trail traffic and help ensure team safety on the mission.



Structure of a Recovery Team

Remember that we all work together as a team. Input is welcomed and encouraged, no matter who or what role it's coming from! If something comes up, we work together to determine a solution. No one is on their own.

Dispatch

- Initial communication with the Subject, gathering important mission details
- Writes Teams post and coordinates callout for volunteers and assembles team composition
- Builds Facebook (soon to be Teams) chat and adds volunteers and required members
- Coordinates with other agencies (County Sheriffs are common points of contact)
- May continue to monitor the recovery depending on the availability of a monitor.

Monitors

- Serves as a single point of contact for the team and the team communications designee
- Monitors the real-time position (if available) of the team to meetup, team on trail, and back home
- Acts as a safety net for the team
- Continually updates the Facebook (soon to be Teams) post with team status at critical milestones
- Interacts with Dispatch in the event a backup team or other resources become necessary

Team/Mission Lead

- Responsible for the team and their safety in the field from staging to return to pavement
- Responsible for **all roles unless delegated to another team member.**
- Responsible for delegating roles and tasks other team members – this is usually collaborative and based on needs, skills, experience, gear, and comfort level
- Delegates the following responsibilities – the Mission Lead may assume some but not all of these responsibilities:
    a. Communications officer for the team
    b. RP contact and management in the field
    c. Navigator to/from the recovery site
    d. Safety Officer (everyone is responsible for safety, but if possible one person should stand back and watch over everyone and the scene)
    e. Tail gunner
    f. Documentation
        - Usually filled by the team lead
        - Pictures before/after of Subject's vehicle and recovery site
        - Liability waivers, recovery checklist, and recovery report
- Mentor ride-alongs and ensure they are included and understand the situation and recovery process.
- Mission Leads may also be utilized for complex events/incidents where there may be multiple teams on scene. A mission lead in this circumstance may be referred to as "Incident Commander" or "IC" in the ICS framework.

Communications Officer/Field Communications

- Maintains primary communications and check-ins with monitors during the recovery.
- Normally in the middle of the caravan somewhere.

Safety Officer

- Primary job is to maintain safety of all persons above all else
- Recovery Lead
- This may differ from the Team Lead in that a Recovery Lead may direct the efforts related to the rigging, winching and other aspects of the actual recovery. This role may be utilized on larger missions
- Controls the recovery from a safe place that has visibility of as much of the operation as possible
- Communicates with winch operators about what to do when
- Responsible for the safety of everyone on site

Other Team Responsibilities

- Determined by and operate at the direction of the team lead or safety officer
- Examples: traffic control, rigging, chatting with the Subject, communications, etc.
- Responsible for the safety of everyone on site

Structure of the Vehicle Caravan

Trail Lead (may be different than Team Lead)

- Lead vehicle in the caravan
- Focuses on getting the caravan of vehicles into and out of the recovery site safely

Navigator

- Typically, the 2nd vehicle in the caravan or the trail lead
- Focuses on navigation of the caravan
- Communicates directly with trail lead calling out turns before the lead vehicle reaches the turn

Tail Gunner

- Verifies that no one is left behind
- Performs a final walkthrough of the site to verify nothing is left behind
- Communicates with trail lead if the caravan is separated

If the Subject vehicle is being driven out, we position them in the middle of the caravan with member vehicles capable of helping them in the event they run into difficulty, need assistance, or need spotting.

“DRIVE IN YOUR REARVIEW MIRROR”, EVERYONE IS RESPONSIBLE FOR THE VEHICLE IMMEDIATELY BEHIND THEM – NEVER LOSE SIGHT OF THEM AND COMMUNICATE IF THE CARAVAN IS MOVING TOO FAST.

What to expect on your first recovery?

Time Commitment

A typical recovery may take 5-8 hours or more depending on conditions and complexity, so make sure you're comfortable committing this much time before you volunteer. Recoveries that look relatively simple on paper can easily become complex, protracted, and time/labor intensive. Some recoveries, however, are resolved more quickly – sometimes before we get to staging or on scene because the Subject self-recovers or good samaritans help them out. A few recoveries have become prolonged incidents – taking 18 hours with drive time from home to the recovery site and back again. Anything with multiple vehicles, weather, snow, mud, a roll over, or a long commute to the site can extend the time commitment. For recoveries where we know these are factors, we typically stage a secondary team so we can relieve people after 5-6 hours of operational time or deploy a backup team to provide additional resources as necessary.

Keep in mind – If you're on a recovery and feeling frustrated or things aren't going the way you want, stop for a minute, take a break, get some food and water, and reassess. Remember why you're there, you're making someone's worst day a bit better. You and the team aren't alone out there – communicate with your monitor, ask for more people or equipment or food & water – we are all eager to help in difficult situations!

Parking your vehicle

On some occasions you may be asked to leave your vehicle at the trailhead or meetup - this is not a slight against you, your vehicle, your driving or your recovery skills. Some trails will simply not accommodate a large number of vehicles and we go in with the absolute minimum but bring additional people to help with the recovery. You may be asked to stage along the trail to provide relay communications because we have no direct cellular, ham radio, or other capability. We may stage vehicles along a difficult or treacherous trail, so we know we have an escape plan if our vehicles get mired. We may also need someone to stay back so they can guide another team, Search and Rescue, Sheriff's Office (SO), or other resources to the recovery site.

Riding along with someone else and what to bring

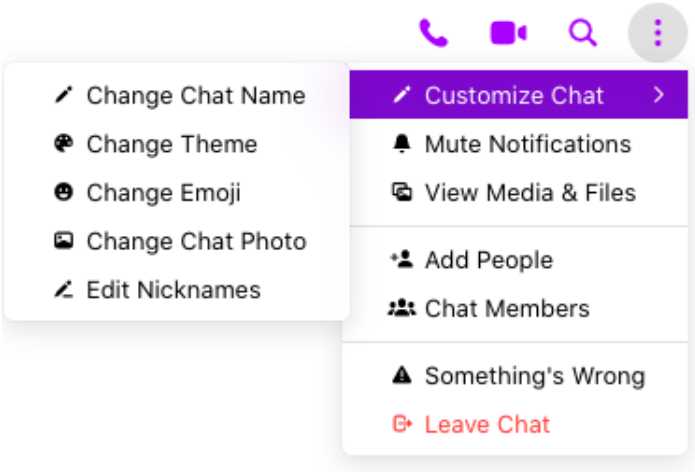
(Please refer to the current policy and procedures document if conditions exist that may impact this)

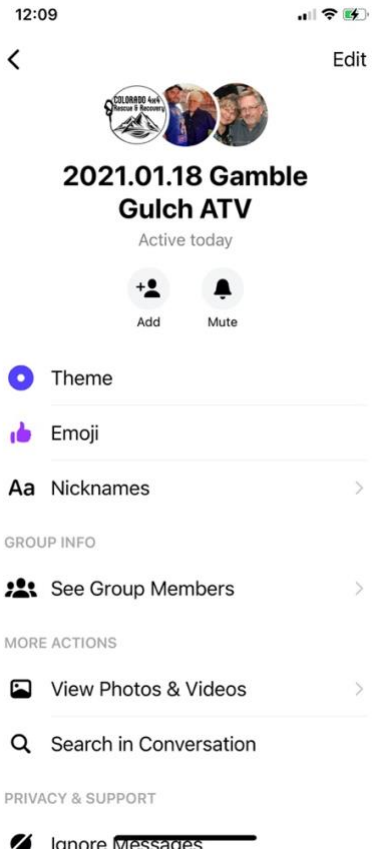
You don't need to have a vehicle built for difficult 4WD trails to be part of our team. Riding along with someone else is an easy way to be involved, see how we operate, and be a valuable resource – we often need extra hands, safety officers, traffic control, communications, etc. – the more the merrier! You will make new friends, help with a recovery, and at the end of the day you don't have to worry about airing up!

When riding along, bring any extra recovery gear the team may need and everything that you need to take care of yourself – food, water, all-weather clothing, communications, etc. – something equivalent to a 72-hour survival pack. Also, don't forget to lock your vehicle and bring your keys if you're leaving it behind!

Facebook Messenger Chats (Teams), Filling out forms & SAR Badge pictures

When you are selected for a mission, you will be added to a Facebook Messenger Chat (soon to be Teams). Each recovery has a unique chat that begins with the date of the mission followed by the name that dispatcher created for this mission, e.g., “2021.1.2 Miners Gulch Xterra”. When you are added to these chats each participant needs to update their nickname in the chat to reflect their role on the mission. When you are first added to the chat the display name is the same as your Facebook profile, example name. John C. Smith. John is responding as a volunteer for this mission. His nickname would be updated to “John S – Responding – KE0WUL – 303.123.4567”. The format is “Name – Role – CallSign – Phone#”. As a new member you will initially be joining as a ride along. Your role would be listed as RideAlong instead of Responding. Changing your nickname varies by platform. On a computer it’s the 3 dots in the upper left then “customize chat” and “edit nickname”. On a mobile device, going into the chat, then click on the name of the chat at the top and then you will have the option to select “Nicknames”; tap your name to edit.





This is extremely important as those that are planning and putting the mission together need to know which resources are heading into the field. The monitor also tracks these resources and makes sure everyone is accounted for both enroute to the meetup and again as each resource checks back in when they reach their final destination.

Forms! Yaaay! We can’t have fun without paperwork. We have two specific forms we use on recoveries. One for members and one for Subjects. The member form is filled out once a year every year is known as the Member Waiver or the Yearly Waiver. It’s an e-form and can be filled out online at

this address. https://co4x4rnr.signrequest.com/#/sign-template/fc0b81d344229bf0a5a65548440ac79d9ec1977bf7d9cc630aeb1ff4a0df8348/?p=1&no_phone=1&fbclid=IwAR1cP-E7XB49XrhZ4jNB3vcn3a3hQWolCSW0fwAyhO_bQ_6YlG_YGN47cV0
The second form is for the subjects, any passengers (subjects or yours), or anyone who intends to be on scene during the recovery. This form was mentioned previously and is sent to the subject ideally prior to the mission. (It is preferred that forms and other documents be filled out when subjects or members are not under the stresses of the situation.) Dispatch will email this form to the subject and they can fill it out online similar to the member waiver. That is if the subject is in a place where they have cellular service. Sometimes Subjects are at the vehicle with no service and had to hike to find service to reach us. In these cases, we are not going to ask them to hike again just to transmit a form. We should all carry paper copies of the public waiver with us in our rigs. This will ensure all paperwork can be filled out on scene. We should not hook up to any vehicle or attempt any recovery until this waiver is completed. Nor should we transport parties until the waiver is completed either. This is relevant when a subject and/or passengers meet us at the Meet Up location.

Kids

Kids are great! ...except when they become another thing to manage at the recovery scene. On recoveries we strive to minimize ever-present dangers and that requires a high level of concentration and focus. Removing as many distractions as possible helps keep all of us safe. The current ride along policy allows for a non-member to ride along with an active member one time. This could be a family member or friend. If you have children, they may ride along under this current policy, but they must be able to supervise themselves, and are subject to the same on-scene safety requirements as the rest of the team. They may need to remain in the vehicle or a safe distance from the scene as directed by the Team Lead or Safety Officer.

Dogs (cats, ferrets, goats…)

Dogs are great! ...except when they become another thing to manage at the recovery scene. Please leave them at home. If you must bring your dog or other companion, they must be secured in your vehicle or outside the recovery scene at all times. They don't know where it's safe to be and we don't need additional tripping hazards or distractions during a recovery.

Safety

Safety of the team, the Subject, and any bystanders is **the #1 priority** on any recovery. At the end of the day, we all go home healthy and happy – if it comes down to the choice between property or the health, welfare, and safety of anyone, we will always choose health, welfare, and safety. We can always come back another day with additional or different resources.

Keep in mind that we are methodical – we are not on the clock and if you have professional recovery experience (from the towing industry, for example) expect things to move significantly slower. We thoroughly document with photos, talk through potential scenarios with all of the team members and the Subject. We take time to calculate forces present, examine recovery points, check the environment, etc. We conduct on-site safety briefings with the team, Subject, and any bystanders present so everyone is aware of the hazards, danger zones, and the safe places to be while the recovery is happening.

We move slowly so that we minimize risks to people and property. Everything we are doing is dangerous and we take steps to minimize those dangers as much as possible. The perfect scenario is everyone walking away uninjured, no damaged vehicles, and the environment restored to its previous condition.

Firearms – Open/Conceal Carry

The question sometimes comes up about firearms and personal safety. Our goal is to maintain a calm, helpful, friendly demeanor while on scene and a visible weapon may be unsettling to other team members, a Subject, or the public. While a concealed firearm may be perceived as less threatening, the nature and physicality that often goes along with our work may cause the firearm to become visible or dislodged. If you feel the need to have a firearm present, we ask members to keep the firearm locked away out of site, safely in your vehicle. If you have a permit for concealed carry, that is your lawful right, and you may exercise it responsibly, but you must do so only when the firearm is FULLY AND SAFELY CONCEALED.

We DO NOT allow members to open carry while on a mission.

Should a conflict arise, the team must make every effort to de-escalate. If threats are made to anyone's personal safety, the team should immediately leave the area and contact law enforcement directly or through the mission monitor/dispatch and follow law enforcement's directions.

On Scene Communication

We have previously discussed communication between the team, dispatch and the monitors but during rescue and recovery operations on scene communication is critical. The main methods of on scene communication include ham radio, hand signals, and satellite communications. Additionally, we may use a vehicle's car horn to alert everyone on scene that winching operations have commenced, are ending, or in the event of a safety issue that issue and "All-Stop". A safety whistle may also be utilized in a similar way to alert everyone on scene. Additionally, it is critical that everyone keep their eyes and ears open for anything that does not look, or sound right and use one of the methods indicated to alert the Team or Recovery Lead.

Take time to learn basic command and hand signals – we use standardized language and hand signals for spotting and winch operations to eliminate confusion and enhance safety. We use words like STOP and GO. We do not use Whoa or Slow or NO because it sounds a lot like GO and none of those words mean GO. Stick with STOP and GO.

Radio Comms

More often than not we utilize ham radio when on scene. Ham radio frequencies are typically licensed frequencies and therefore require an FCC license to use. We recommend that each member have a ham capable device. Prices range from inexpensive handheld to pricier mobile units. Early in your training each member should consider obtaining their ham license as well. That process is beyond scope of this document, but there are several resources available to facilitate self-study and testing.

The organization has a series of proprietary “itinerant” frequencies that we can use to communicate between members without the need for a ham license, but the use of those frequencies requires a radio that can legally transmit on those frequencies (e.g., MARS modified), and you must have the organizations permission to use them. The org is providing handheld radios for on scene communications. To communicate with the Monitors, you must have a ham license. In an emergency anyone is allowed to transmit on amateur radio – Life, Limb, loss of sight or consciousness, etc.

Hand signals

It’s very often that someone’s voice, even shouting, can’t be heard over distance, winches, engines, etc., and we almost always use simple hand signs to communicate. Hand signals should be large hand and arm motions that are clearly visible from a distance and are made clear by wearing light-colored, contrasting, luminescent, or reflective gloves. Here are a few examples:

1) Direction of steering
Hold your arms out with thumbs up and tilt your hands in the direction you advise the driver to steer.

2) Power in the winch rope
Hold your forefinger in the air above your shoulder height and draw small circles in the air to indicate to wind the winch.

3) Power out the winch rope
Hold your forefinger pointing down and draw circles in the air at about waist height to indicate feeding more wire from the winch.

4) Pulse wind the winch rope
Tells the driver to wind the winch in short, quick bursts. Open and close the two fingertips until you want the winch to stop.

5) Stop the winch
Clinch fist, palm to driver, held high enough for driver to see and other arm straight out at shoulder height is the sign to stop the winch.

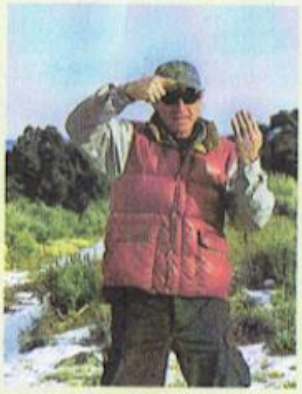
6) Braking
Cross your palms together to tell the driver to apply the foot brake.

7) Drive assist
Tells driver to give the tires more drive force to assist the winching process.

Stop immediately! Fists can be shaken for emphasis.

Come ahead at a slow pace. Can be used one-handed in conjunction with other hand signals, such as come ahead, steer right.

Steer left and come ahead. Driver to hold this steering input until directed to make a change.



Steer right and come ahead. Driver to hold this steering input until directed to make a change.

Slow down!

Go back.

A little bit. The little bit signal can be added to any other, such as come ahead a little bit.

If using hand signs, make sure the person you're communicating with knows what your hand signals mean and can see your hands!
If you're the one waiting for hand signals and can't see their hand signals clearly, say something!

Speak up if you see something that doesn't look right

As we have noted many times safety is paramount. All members are responsible for scene safety, have a voice, and are expected to use it if they see something. The team lead isn't a "commander" whose orders must be followed – if you see something that doesn't look right, speak up immediately and help come up with a resolution. We take safety very seriously and will gladly recheck gear, explain reasons behind decisions, and come to a mutually agreeable resolution. Sometimes that means we don't have the gear, skills, or weather required, and pack everything up and head for home (with a ride for the Subject of course!).

ASK QUESTIONS!!!

The best way to learn is by asking questions and working through scenarios – we do this virtually and it is a good practice to start thinking about how a recovery will be accomplished while en route – hey, we have radios and can talk about it! If you don't ask or voice a concern, it's easy for others to assume you do/don't know or understand something. Always communication with your fellow team members – it an essential safety component and the more ideas we share, even if it seems obvious, the more likely we will be successful.

What to bring

“72-hour pack”

The number of “perfect” 72-hour pack lists online is endless. It boils down to is having the essentials for life: food, water, shelter, survival, and rescue (self or otherwise). This is likely to be different for every single person, their own comfort level, their knowledge of the wilderness, and their own personal needs. At high elevation, which is where we regularly operate, everyone needs to protect themselves from the sun, dehydration, and weather. A few good resources for what may go in your pack can be found here:

https://www.rei.com/learn/expert-advice/ten-essentials.html
https://www.ready.gov/build-a-kit
http://www.thesurvivalpodcast.com/tag/72-hour-kit
Don’t forget to pack any medicines you may need for that 72+ hours!

Vehicle requirements

First, check the requirements of the callout posting. The vehicle requirements change based on the trail, weather, trail conditions, expected recovery difficulty, etc. These should be considered a very good guideline for what will be needed. Note that we never post requesting a specific vehicle manufacturer (Jeep/Toyota/etc.) as we are not a manufacturer specific 4x4 group. If your vehicle meets the requirements, we don’t care if it’s a Jeep, Toyota, Ford, or Gremlin!

Think of your vehicle as if you were going for an off-road trip with your family without any support – we should all be able to self-recover and survive in the back country on our own – you cannot help others unless you can help yourself first. With that in mind, your vehicle should be in good working condition – tires with sufficient tread at proper tire pressure, fluids topped off (perhaps bring extra with you), any spare parts for your vehicle for known weaknesses (links, axles, u-joints, etc.). It is rare to have a member vehicle break down on a recovery and we want to keep it that way – be prepared.

Your vehicle MUST have front and rear recovery points and a full-size spare tire – we lead by example!

Recovery gear

Note: if you haven't taken the Basic Recovery Class, **wait to buy gear until after that class** so you know what to look for!

- Minimum (anchor vehicle)
  - ⊄ (1) pair of gloves, preferably leather and/or high visibility without a wrist strap or velcro
  - ⊄ (1) tow strap rated for a working load of 2x the weight of your vehicle
  - ○ (2) overhead-lifting rated screw-pin bow shackles (aka screw-pin anchor shackle)
  - ○ Fire extinguisher

- Recommended (active recovery vehicle) - All the above plus:
  - ⊄ Winch, minimum load rating 1.5x GVW + winch controller
    - ■ Synthetic line Dyneema
    - ■ 10k winch 3/8" ~17k ~50' usable
    - ■ 12k winch 7/16" ~23k ~50' usable
    - ■ 2x Velcro line guards
  - ⊄ (1) winch line extension same as main line ~5' shorter
  - ⊄ (2) pulley blocks 2.5x winch capacity minimum
  - ⊄ (1) tree strap 8'-15' 30k+
  - ⊄ (4) 3/4" bow shackles, overhead rated 6 tons (WLL 6T)
  - ⊄ (1) 1" bow shackle overhead rated 8 tons (WLL 8T)
  - ⊄ (1) Receiver shackle
  - ⊄ (1) Kinetic rope, 3-5x the weight of the (pulling) vehicle
  - ⊄ (1) Pair of traction boards (aka, maxtrax, action trax, etc)
  - ⊄ Shovel/Spade short D handle
  - ⊄ (2) 4x4 lumber 12-18"
  - ○ Portable or on-board air compressor & airing down device.

- Advanced (has all the "toys"!) - All the above plus:
  - ○ 100' winch line extension for double line pull or redirect (go up one size for double line pull)
  - ○ Synthetic winch line splice kit (tape, fids, scissors)
  - ○ (2) tree straps, 15', rated 30k+
  - ○ (2) soft shackles rates 30k+
  - ○ (2) x-locks
  - ○ (2) 6' chains minimum G70 transit
  - ○ (1) 15' chains minimum G70 transit
  - ○ (2) transit cluster hooks
  - ○ Hi Lift jack (60")
    - ▪ Jack mate
    - ▪ Lift mate
    - ▪ Larger base
    - ▪ Dry lube
    - ▪ Repair kit (pins + springs)
  - ○ Pull Pal

- Large, rated ratchet strap (3”)
- Tire chains

Reporting Forms

Every member needs to bring a copy of the Member Recovery Waiver for each person in your vehicle – even if they are not a member, they must fill out this form. It’s never a bad idea to bring more and some members print out many forms and just keep them in their vehicle to replenish when they get low.

If you are the Team Lead, you need to bring the Public Recovery Waiver, the Recovery Checklist 2020 version, as well as both pages of the Mission Report. Again, having extra forms is never a bad thing!

The necessary forms are located on the Teams site under Colorado 4x4 Rescue and Recovery Team and then General Channel and then Files:

Search for “Waiver”, download and print out the ones you need.

- CO4x4RnRVehicleRecoveryWaiver_Members.pdf
- E-form – Online Link
- CO4x4RNRVehicleRecoveryWaiver_Public.pdf
- E-form – Online Link

Download if you are a team lead

- CO4x4RnRRecoveryChecklist2020.pdf

Download if you are a team lead – The Mission Report can also be filled out in Mission Excel sheet

- CO4x4RnRMissionReport.pdf

When things don’t go as expected

Calling off a recovery

Not every recovery is successful the first trip out – we have had to leave several vehicles in deep snow until the following spring thaw. Everyone goes home safely – even if we have to leave the vehicle we came to get, it’s a successful mission. If this happens on the recovery you are on, think of it as a scouting mission, gathering information for the next team to go out. Document as much as you safely can – take pictures, video, notes – and recommend what gear, number of vehicles, and personnel will be necessary. The next team will be well-prepared, and usually has team members from the scouting mission to retain their local knowledge and expertise.

Intoxication

Unfortunately, we have run into situations where the Subject or bystanders are intoxicated, and in some cases uncooperative and belligerent. If this happens, IT IS NOT YOUR JOB TO RESOLVE IT. Safety is paramount. The team should deescalate the situation and only proceed if it is safe – if not

WALK AWAY. If the situation warrants it, call 911, get medical or law enforcement help, and follow their instructions. Most likely we will call off the recovery and we'll go back another day.

Medical issues

Thankfully these have been rare so far. Dehydration, fatigue, and acute mountain sickness (AMS), also known as high altitude sickness have been the most common issues we run into. All of these benefit from hydration, but this starts 24 hours beforehand – you can't hydrate on scene, only maintain hydration. AMS is a life-threatening condition and can only be helped by immediately dropping elevation – below 8,000 feet – as quickly and safely as possible. If you witness any injury or symptoms of potential medical issues, tell the safety officer or team lead immediately and the team will coordinate appropriate care.

Bottom line, know your body and limits – how much sleep have you had, how active have you been, how much have you had to eat and drink in the past 24 hours? We aim for 5-6 hour operational periods, but if you know it will be longer, be honest with yourself, dispatch, and your team about when you need to stop and rest or call it a day. If something doesn't feel right, tell yourself and the team lead or safety officer – remember, we all go home healthy and happy!

If you have a medical condition that may impact field operations it is your responsibility to make the Team Lead and Safety Officer aware of it and have a plan/medication to respond to it if necessary – allergies, diabetic, etc.

Equipment breakdown

Stuff happens. This is mitigated by proper maintenance of your vehicle and recovery gear. Regularly inspect your gear before you depart on a recovery, during, AND immediately after a recovery. Spotting damage early can prevent catastrophic breakage, injury, or death.

If you see something that doesn't look right, call it out and the team will decide how to proceed.

Glossary/Terms to Know

Not using “woah!” or “go!” and why

Heard at distance, over a radio, over winches and revving engines these two terms sound very similar and have exactly opposite meanings. In a lot of cases hearing the wrong one could be catastrophic.

“Stop!”/horn honk/whistle blow

All-stop, brakes on, hands off winch controllers, nobody moves or does anything until the reason for the all-stop is given

“Connected!” or “On Hook!”

Vehicles are now connected. Used as a warning that if one vehicle moves the other one will too.

“Winch in”

Command given to a winch operator to use their winch to pull in continuously until a stop is given

“Winch out”

Command given to a winch operator to use their winch to release line continuously until a stop is given

“Bump in”

Command given to a winch operator to use their winch to pull in by hitting their winch controller button once. This gives anywhere between a few inches and one-foot pull. Generally used to tension lines or pull in a very slow and controlled manner.

“Bump out”

Command given to a winch operator to use their winch to release line by hitting their winch controller button once. This gives anywhere between a few inches and one-foot pull. Generally used to release tension or let out in a very slow and controlled manner.

RP

The “reporting party”, i.e., the person that called us. This term is used when the person that called us is not the person that needs help. (See Subject)

Subject(s)

The person or persons who need assistance. This may or may not also be the “reporting party” (RP). Common usage is Subject Vehicle or SV

SAR/SaR/S&R

Search and Rescue

SO

Sheriff's Offfice

LEO
Law Enforcement Officer

Recovery

Normally interchangeable with Rescue. Primarily refers to the extraction of a vehicle. Note, using this term with SO or SAR may be confusing as in that world it refers to the recovery of a body.

Rescue

Normally interchangeable with Recovery. Primarily refers to the extraction of a person.

Mission

Normally interchangeable with Recovery and/or Rescue. Primarily refers to any time a team is in the field.

Ham Radio

Licensed amateur radio. Multiple mile point to point communication. Provides communication with the team, monitors or dispatch either directly or through a repeater. Note: "ham" is not an acronym and should not be captialized.

DMR

Digital Mobile Radio. Operates on ham frequencies but operates on a time slicing mechanism. Provides another form of communication with monitors and dispatch through a repeater. Requires a license to transmit.

Repeater

A "signal booster" used by ham radio operators. Allows the team to talk from most places in the state back to dispatch along the front range.

APRS

Real-time public GPS tracking of a ham operator (and more!). Stands for automated packet reporting system.

Itinerant Frequencies

Frequencies that Colorado 4x4 Rescue and Recovery as a group has a license to transmit on. These are the first 5 frequencies in your org-provided radio.

FRS/GMRS radio

Unlicensed (FRS) walkie-talkie or “blister pack” radios. FRS/GMRS operates on 22 channels. Approximate useful range ½ to 2 miles at best. Useful for inter-team communications or on-site communications between team outside of vehicles.

CB

Unlicensed “Trucker” radio or Citizens Band radio. Approximate useful range ½ to 2 miles at best (sometimes no further than a few feet with a poorly tuned antenna). Useful for inter-vehicle communications or communications with the RP’s vehicle. More common among the 4x4 community than ham radio due to the lack of need for a license.

Spotter

Person directing the driver of a vehicle. They have primary control over a vehicle while spotting. Should be focused on the vehicle they are spotting and giving clear directions.

“Turn driver”

Turn the wheel counter-clockwise or the top of the steering wheel goes toward the driver-side of the vehicle. Be careful when backing up, the terms don’t change and neither does the direction of steering wheel, but the direction of the vehicle does. This can be disorienting for the spotter and/or driver. Keep in mind that right-hand drive vehicles will be the reverse of this! Simple and clear hand signals eliminate this confusion.

“Turn passenger”

Turn the wheel clockwise or the top of the steering wheel goes toward the passenger side of the vehicle. Be careful when backing up, the terms don’t change and neither does the direction of steering wheel, but the direction of the vehicle does. This can be disorienting for the spotter and/or driver. Keep in mind that right-hand drive vehicles will be the reverse of this! Simple and clear hand signals eliminate this confusion.

72-hour pack/bug out bag/get home bag/callout bag/jump bag

A backpack containing everything need for one person to survive, sometimes uncomfortably, for a minimum of 72 hours. Contains the basis for life in terms of food, water, shelter, etc.

Members only page

https://www.facebook.com/groups/1731269490500283

Public page

https://www.facebook.com/CO4x4RnR/

Website

http://www.co4x4rnr.org/

Lessons learned from a simple recovery…

Caribou Creek Recovery, July 2, 2018

This isn't an exciting recovery story. The RP was helpful and pleasant to have along for the ride. It was quick and easy to get to the stuck vehicle, and it only took 30 minutes to assess, hook up, and extract.

However, it is a lesson in trail evaluation, decision-making (this is a theme...), and how a few seconds is all it takes to ruin your entire day.

The RP was in a brand new 4WD and was new to 4-wheeling (this is also a theme) and decided to run up a trail he'd been to before, but previously in a 2WD sedan that he parked before the river crossing and had walked. This time he had 4WD and the trail looked passable.

The RP crossed the creek and the trail was dry except for a few muddy ruts that didn't look deep - they were, and the hole sucked him in, high-centered the front skid plate and wedged the rear tow point into hard clay. Despite the high-tech off-road traction control tools built into the rig, he was on factory suspension and tires.

With no tools on hand the RP did the best he could to extricate himself, but it was 8:30 pm when he got stuck. He tried to dig out the rear hitch with a rock, but the hard clay wouldn't budge. He tried to fill the ruts with small deadfall logs, but there was no way to get them under his tires or his tires onto them.

Our recovery technique was simple - we cleared the rear hitch and bumper with shovels and used that as our primary winch connection. We placed traction boards under three of the tires we could access so the tires could immediately climb. We set up a double-line pull to provide a straight-line pull back along the vehicle's entry tracks and protected the pulley block and winch line at the back of the stuck vehicle with a moving blanket. One minute of straight pulling with the stuck vehicle in neutral and it was clear.

There was remarkably little mud on the undercarriage - just the front skid and control arms, bottom of the rear axle, and a little in the tow bar. The RP being stuck was literally a matter of inches.

Lesson learned: scout ANY water crossing, no matter how innocuous it may appear, especially in the spring. Trail research is also essential - this trail is notorious for being sticky and muddy in the spring as most of it is in a shallow riparian watershed.

Lessons learned from a difficult recovery…

Georgia Pass Recovery, June 3, 2018

The RP was a recent transplant to Colorado and was unfamiliar with the mountains, snow, elevation, north slope shading, or drift effect. He recently bought a stock Jeep Sahara – temp tags still on the back – and decided to take his girlfriend for a 4WD trip. He picked Georgia Pass off a map and assumed he would be able to drive from north to south. He did not know about any trail condition or pass reports/websites to refer to before making this trip. The south side of the pass was dry – no snow all the way to the top. He assumed this would be the same on the north side, despite seeing snow drifts blocking the trail within 100 feet of the top. He went through three snow drifts on the steep downhill incline before finally getting off-camber and into deep snow. Several of these drifts were not on the trail, and it appears he was following someone else's previous tracks over open tundra to avoid deep snow on the trail. His passenger recommended they stop at the first snow drift, but after they went through that first drift they were committed – they could not have driven back out at that point, so they kept going. This compounded their predicament and our recovery significantly.

When we arrived on scene, we were expecting to find the vehicle in a snow drift 200 yards from the top of the pass. The true measure was only 150 yards, but the slope was significant, and we had no idea the vehicle was also stuck behind three previous snow drifts. The top of Georgia Pass is 11,598 feet and the recovery team had driven from Denver to the top of the pass in 2.5 hours with a net elevation gain of 6,300 feet – not nearly enough time to acclimate. We all made the hike down to the vehicle to evaluate and plan, and then hiked back up to stage vehicles.

Our plan was to send the heaviest vehicle locked front and rear with 35s down first to do the heavy lifting. We were aware that we would also be recovering any vehicles we sent down the hill – the snow and mud conditions would not allow for simply driving back up the hill. We decided to send the second heaviest vehicle with additional recovery gear halfway down so we wouldn't have to hike gear as far, and it would be prepared to be an anchor and recovery vehicle. We kept the third lightest rig staged at the top.

As the first rig breached the first snow drift all was going well traveling downhill – we had weight and gravity on our side. However, before heading down to the next drift the driver radioed that he was concerned he was experiencing altitude sickness. Based on his symptoms we paused for 15 minutes to see if there was any change, but the driver was still feeling ill. The only cure for altitude sickness is to get to lower elevation as quickly as possible. We only had one driver per vehicle, so we turned him around and our second vehicle recovered him through the first drift and sent him to lower elevation, checking by radio every 10-15 minutes. He made it home safely and recovered quickly.

We then reassessed and spoke with dispatch about options. We would need at least two additional rigs and additional bodies to help us schlepp gear up and down the hill – at 11,000+ feet it would be taxing, and we estimated we would need to make the equivalent of 7 recoveries to get the stuck vehicle and rescue vehicle(s) to dry ground. We were also concerned about weather – it was overcast, and the forecast indicated low rain potential after 1p and it was now getting on 12p. Radar showed developing weather north and east, but moving away, and a second team of 4 rigs was formed and sent our way – ETA 2.5 hours.

The two of remaining took a break, fueled and watered. We were approached by a Jeep driver who has just extricated himself from another drift on another trail near the top of the pass. After chatting he offered to stay and help – he was a lifesaver and worked hand-in hand with us over the next five hours hauling gear, spotting, relaying, etc. He is now a member.

Recovery

We decided to make some headway, and knowing we had another rescue crew on the way, sent down our second vehicle to start recovery operations. Getting down the slope to the first winching location was no problem – weight + gravity = downhill progress. We set up our first winch as a redirect to pull the vehicle out of the hole it was in and simultaneously spin it around so we could get it facing uphill. We had to use a combination of 75' winch line, 30' kinetic rope, 30' strap, and 50' winch line extension to make the 185' reach. After trying to single-line pull without an anchor we only succeeded in pulling the winch vehicle downhill 5 feet – it was too steep and muddy to maintain any traction. We re-rigged and anchored the winch vehicle to a tree with a 30-foot strap and pulled the vehicle out of the hole and reoriented it 90 degrees. We re-rigged again to pull it a little further to some dry ground so it could turn the remaining 90 degrees under its own power.

We then moved our redirect rigging upslope to a second set of trees so we could pull both uphill and laterally across a snow field. That got the vehicle halfway across the snow field, but then had to re-rig a direct line to get it the rest of the way, along with re-rigging an anchor point for the winch vehicle to account for change in angle. The winch was getting hot and it was very difficult to avoid side-loading the drum on every pull – the angles and slippery slope wreaked havoc with positioning. For the last 3 pulls to get the vehicle out we used a double line to the winch vehicle and bridled the front of the stuck vehicle to gain some mechanical advantage with fewer wraps on the drum and additional pulling power. The winch got bogged and hot enough it stopped working until we let it cool off.

Once we got the vehicle on the first dry stable patch, we turned the recovery vehicle around and started back uphill. We made it 50 feet before having to self-recover through the first of three snow drifts. We were able to get enough momentum to bash through the second, then turned around to pull the stuck vehicle through those same two drifts, having to re-rig a few times to account for angle and redirect. The winch got hot enough again that it stopped functioning until it cooled down. Once the vehicle was again on stable ground, we turned the recovery vehicle around and headed back uphill.

The last drift at the top was the deepest, both in length and depth. 4HI and a supercharger almost made it, but it also meant that when it stopped it was buried – axles and high-centered on hard-packed wet snow. It took digging, several winch redirects and changing from single-to double line pull, and again cooling the winch before finally popping out on top of the snow. It was during this last pull that the relief team arrived on scene – spirits raised, and they helped with the last of the nasty drift.

The first recovery vehicle cruised back to the top of the pass for a well-deserved break while the relief team completed the recovery, pulling the subject vehicle laterally across a small snow field and onto the trail to avoid the nasty drift we had just dealt with – smart thinking from fresh-minded and rested people bringing new perspectives and solutions. The driver of the first recovery vehicle was starting to feel high altitude symptoms and after a quick debrief, headed down the mountain. Everyone else followed and we had a group airing up and debrief session in Jefferson. As we did this a major storm washed over the pass from the north – we only missed it by 20-30 minutes.

Lessons learned:

Determine our resource need and add plus one. We went up with three people in three vehicles and lost 1/3 of our team in the first hour of the recovery 2.5 hours from help.

High altitude awareness is essential. If you are not acclimated to high altitude you need to know that (if you're asking yourself if you are, you aren't). I've lived in Colorado most of my 49 years, ten years living and working at 8,300 feet, the remainder in Denver/Boulder, or about 5,500 feet. I've also spent a lot of time in the high-country hiking, biking, and 4-wheeling consistently for the past 25+ years. Most people plan to perform well above 8,000 feet for 4-6 hours while climbing a fourteener, pacing themselves, drinking water consistently, resting frequently, and expecting to be at high elevation (12,000+ feet) for less than 1-2 hours. We were at 11,000 feet from 11:30a to 5p and working hard for a solid 3-4 hours of that time. We took breaks for food and water, but it was hard. We need to add high elevation/altitude acclimation to our list of necessary recovery tools and limit our operational periods at that elevation to a few hours before a relief team takes over.

Mechanical advantage/disadvantage is a thing. I'm pretty sure I burned out the clutch on my Warn 9000 winch. This was due to excessive and repeated side-loading, as well as a few long hard pulls and several short harder pulls against weight (5,800lbs) + resistance (deep snow) + gravity (steep slope). This could have been avoided by repositioning each time to get the right angle, and re-rigging mid-pull to alleviate the side load. I made the poor decision to push it. I knew we were going to have to do a lot of rigging and pulling and wanted to minimize the amount of time we were slogging through the snow to re-rig. More recovery people and vehicles would have alleviated this problem, but at the time we only had two of each (three with our impromptu addition, which really helped).

Communications were a challenge. We had perfect cell reception at the top of the pass, but we did not have good data service, so no Messenger access for updates. We also had excellent ham communication on a Colorado Connection repeater so we could talk to Denver. However, 100 feet down the north side of the pass cell phone coverage disappeared and when we switched dispatchers, we only had one-way ham communication. This meant if we wanted to get out, we had to go back to the top of the pass and make a phone call. We could have used APRS text if necessary. Regardless, with only two of us working the recovery, we didn't have the time or inclination to make the trip up the hill to provide updates.

Save the Trail. The RP followed tracks that were off trail. We had to follow those same tracks to recover him. While we were there at least a dozen UTVs, ATVs and side-by-sides came over the mountain. Despite our warnings, a few of them chose to continue down the north side of the pass. Going down they were able to float the snow fields and drifts, but to get back up they had to wind through the trees on native tundra off trail, ripping it up to gain traction. It really pissed me off, but we didn't have the bandwidth or sufficient presence (i.e. more people) to say something. We did our best at the very end to lay some deadfall across the section off trail that was being used to bypass snow, but there wasn't much to work with, and we were exhausted with threatening weather looming.