

GUIDANCE FOR SAFE FIELD WORK AT NIWOT RIDGE

UNIVERSITY OF COLORADO MOUNTAIN RESEARCH STATION

Director: Scott Taylor

Station Manager: Kris Hess

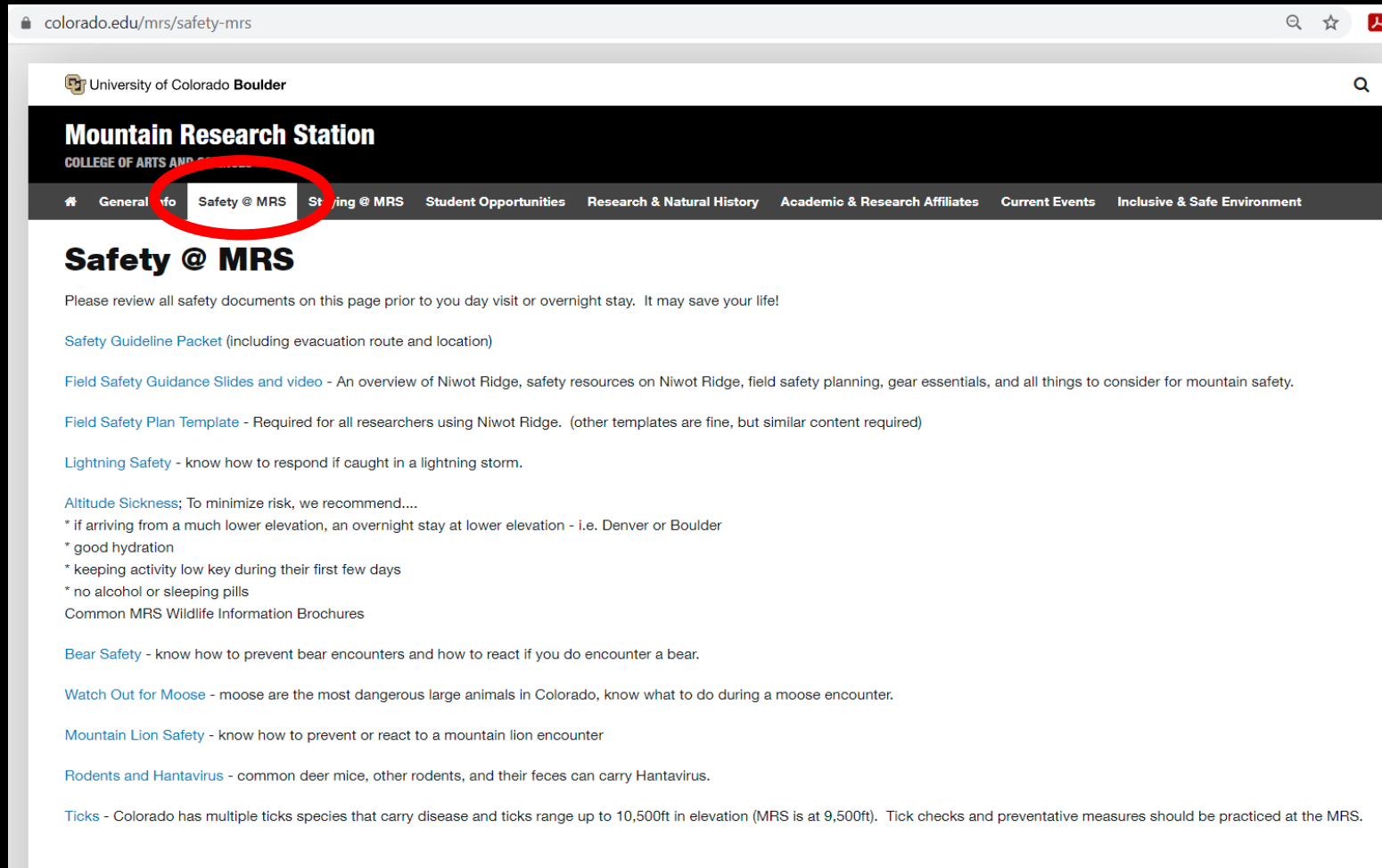
MRS Lead Field Tech/LTER: Jennifer Morse

Updated 5/9/2022

<https://www.colorado.edu/mrs/safety-mrs>



ALL MRS SAFETY INFO CAN BE FOUND HERE



colorado.edu/mrs/safety-mrs

University of Colorado Boulder

Mountain Research Station

COLLEGE OF ARTS AND SCIENCES

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Safety @ MRS

Please review all safety documents on this page prior to your day visit or overnight stay. It may save your life!

[Safety Guideline Packet](#) (including evacuation route and location)

[Field Safety Guidance Slides and video](#) - An overview of Niwot Ridge, safety resources on Niwot Ridge, field safety planning, gear essentials, and all things to consider for mountain safety.

[Field Safety Plan Template](#) - Required for all researchers using Niwot Ridge. (other templates are fine, but similar content required)

[Lightning Safety](#) - know how to respond if caught in a lightning storm.

[Altitude Sickness](#); To minimize risk, we recommend...

- * if arriving from a much lower elevation, an overnight stay at lower elevation - i.e. Denver or Boulder
- * good hydration
- * keeping activity low key during their first few days
- * no alcohol or sleeping pills

[Common MRS Wildlife Information Brochures](#)

[Bear Safety](#) - know how to prevent bear encounters and how to react if you do encounter a bear.

[Watch Out for Moose](#) - moose are the most dangerous large animals in Colorado, know what to do during a moose encounter.

[Mountain Lion Safety](#) - know how to prevent or react to a mountain lion encounter

[Rodents and Hantavirus](#) - common deer mice, other rodents, and their feces can carry Hantavirus.

[Ticks](#) - Colorado has multiple ticks species that carry disease and ticks range up to 10,500ft in elevation (MRS is at 9,500ft). Tick checks and preventative measures should be practiced at the MRS.

<https://www.colorado.edu/mrs/safety-mrs>

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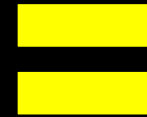
SAFE FIELD WORK STARTS WITH.....



Inclusive
Mindset



Open
communication



Teams and individuals
that communicate
openly about risks &
concerns regardless of
your background,
identity, or experience
level create a Safer
Learning/Working
Environment



HELPING ONE ANOTHER AND RESOURCES

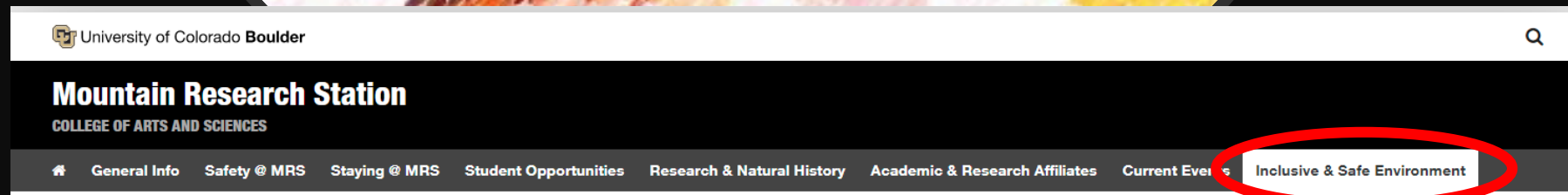


There is no space for
discrimination,
harassment, sexual
harassment



5 D's for Bystander Intervention

1. Direct – say something
2. Distract – cause a distraction
3. Delegate – ask for help
4. Delay – check in with survivor after incident
5. Document – make record of the incident if someone is already getting help



CU MRS Discrimination/Harassment/Sexual Misconduct : Policy, Resources, & Reporting

<https://www.colorado.edu/mrs/inclusive-safe-environment>

What might an inclusive & safe environment look like in the field....



- **Leaders brief at the beginning of day with key safety considerations, essential gear check, and work plan.** Encourage feedback/discussion. Debrief at end of day; what worked, what didn't.
- Open and honest communication among all group members is emphasized.
- Check in with one another frequently. *(remember that physical and mental levels change day to day or throughout the day).*
- Silence is not always agreement. Encourage feedback & discussion.
- Every group member has veto power. Voiced concerns are taken as truth.
- Don't prioritize a plan over good judgement. *(For example, don't push to get that last sample that is a 2 mile hike up the mountain as afternoon clouds are pushing in).*

Have a plan!

- Working above the MRS comes with a unique set of risks and challenges!
- Planning is key to mitigating these risks, and for responding in the best way possible if an emergency occurs.
- The safety plan template from MRS- and this presentation- will lead you through the steps of planning and preparation needed to conduct field work safely on Niwot Ridge.
- Team leaders and all team members should have a copy and know their plan. **MRS Director & Station Manager must have a copy of your field safety plan.**



Links to a Field Safety Plan template found here:

<https://www.colorado.edu/mrs/safety-mrs>

MRS Niwot Ridge or Green Lakes Valley

Field Safety Plan



Field Site Location:	e.g. Niwot Ridge/City of Boulder Watershed		
Activity Description:	Type, length, and purpose of activity (e.g. hiking 8 miles round trip for species comp surveys)		
Plan Created for:	Name of Research Group / Trip Leader	Date created:	Mo-Day-Yr
Date(s) of Travel:	Start date, duration, expected return e.g. Tuesdays June through August 5am to 3pm		

A field safety plan serves as a tool to document your hazard assessment, communication plan, emergency procedures, and training. This plan should identify hazards, as well as precautions and actions taken to address and mitigate those hazards. Instructions:

1. Complete this field safety plan: insert specifics for your site and operations, delete irrelevant sections.
2. Complete appropriate training for your site and operations (e.g. first aid, heat illness, task-specific training).
3. Hold a daily (morning or could be evening prior) meeting with your group to review your field safety plan, travel logistics, pack list (including first aid kit), personal safety and covid19 concerns, and any remaining training needs.

Site Information		
Location	Lat/Long if appropriate/available	Additional description
Site Information	Elevation, terrain, environment.	
Travel to Site	How will participants get to the field site? Note any dangerous roads, conditions, additional vehicles such as boats, ATV, or extra precautions due to covid restrictions (i.e. masks, number of people per vehicle).	
Site Access	Are there any particular restrictions or challenges to accessing site? Note any alternate routes or suggested parking areas; gate access codes, etc. Make special note if isolated or remote.	
Environmental Hazards	Describe any hazards participants may encounter. Note intended mitigation measures; discuss prior to trip. (e.g. High altitude, rugged terrain, wild animals)	
Security	High risk for harassment or violence? Note intended mitigation measures; discuss prior to trip.	
No Go Criteria	What are the conditions under which approach to - or activities at - the site should be stopped or canceled? e.g. heavy rains, electrical storms, snow, temperatures, change in Covid19 restrictions	
Expected Weather	Note extreme conditions that could impact the trip or require additional planning, (e.g. high heat, wind, rain, snow, approaching storm).	
Covid19 Precautions and Concerns,	Social distancing measures, masks, extra masks, hand sanitizer. Potential for limited facility access and how to mitigate.	
Other		
Other		
Emergency Services and Contact Information		

MRS Niwot Ridge or Green Lakes Valley

Field Safety Plan

Local Contact	Name, address & phone #.	University Contact Someone not in the field with you, provide them a copy of this plan.	Name, number, email; may be a Professor/PI, department contact, supervisor back on campus, etc. Frequency of check ins (See Note 1) with local or university contact, daily, at end of work day, etc.
Emergency Medical Services (EMS)	Procedures for contacting emergency medical services. e.g. use cell phone to call 911, if cell not working, use PLB to contact emergency services		
Nearest Emergency Department (ED)	Evacuation plan and transportation options to the nearest Emergency Department; include estimated transport time, contact information and driving directions from the site to the nearest provider of emergency medical care. A map with directions to the nearest hospital is included at the end of this document.		
Cell Phone Coverage	Primary Number: Coverage: spotty Nearest location with coverage: Niwot Saddle (depending on provider)	Satellite phone/device	Device carried? <input type="checkbox"/> yes <input type="checkbox"/> no Type/number: e.g. inReach, PLB
Nearby Facilities	Remote Shelters at MRS are access by request or emergency only as Covid19 restrictions continue at the University for summer of 2021. Emergency phones are located at Tundra Lab, C1, MRS (phone at MRS is on the east end of the access ramp hallway in front of the Marr Lab) Tundra Lab access by request or emergency only. Supplement safety equipment at Tundra Lab includes: AED, Supplemental Oxygen, Epi-Pen, first aid kits		
Participant Information			
Field Team/Participants	Is anyone working alone? <input type="checkbox"/> Yes <input type="checkbox"/> No. If yes, develop a communications plan with strict check-in procedures; if cell coverage is unreliable, carry a satellite communication device or personal locator beacon. Primary Field Team Leader: Name, phone number Secondary Field Team Leader: Name, phone number <input type="checkbox"/> Field Team/Participant list is attached as training documentation <input type="checkbox"/> Other attachment:		
Physical Demands	List any physical demands required for this trip and training/certification provided. e.g. diving, hiking, climbing, high altitudes, heights, etc. (consult with EH&S regarding appropriate training & documentation).		
Mental Demands	List any unique mental demands required for this trip, e.g. long travel days, high stress environments, different cultural norms, etc.		
First Aid Training & Supplies	OSHA requires at least one trained person (with current certification) for work at remote sites. WFA recommended over Basic First Aid for sites above c1. List team members trained in first aid and the type of training received. Location and description of group medical/first aid kit: Who is carrying it, where is it stored. Brief description of contents.		
Other			

<https://www.colorado.edu/mrs/safety-mrs>

**Maybe this is safe,
but be sure you are
always asking....**

- Am I really putting safety first?
- Is my goal clouding my judgement about safety?
- Have conditions changed that will effect the plan I've made?
- Have I talked with my group about re-assessing our plans and time line?



Recommended Minimum Gear

1. Navigation (*map and compass, GPS*)
2. Sun protection (*hat/sunglasses/sunscreen*)
3. Rain/wind jacket (*extra clothing*)
4. Illumination (*headlamp/flashlight with spare batteries*)
5. First-aid supplies
6. Fire (*waterproof matches/lighter/candles*)
7. Repair kit and tools (*knife, Leatherman*)
8. Nutrition (*extra food*)
9. Hydration (*extra water*)-take 2x what you think you will drink
10. Emergency Shelter* (*emergency blanket or bivy and extra down clothing in winter or shoulder seasons*)
11. Communication device(s)

Specifics of what you carry will depend on;

- Time of year (summer, shoulder season, winter)
- What you are doing
- Distance from MRS or a Vehicle
- How long you plan to be out
- Wait times for help from first responders if you can't self evacuate in an emergency



SOL Emergency bivy (\$20)



Communication

- **Cell Phone:**

- Best method if you can get a call out, AT&T and Verizon often work above tree line, they do NOT work in the trees.
- If you do not have service in an emergency, you can still try 911 (if any carrier can pick up a 911 call it should get through).



- **Emergency land line phones are at Marr Lab, C1, and Tundra Lab.**



- **PLB's or Satellite phone: Cell phone coverage is spotty on Niwot so always carry a reliable backup device!**

- PLB's (personal locator beacon): such as Garmin In-reach, Spot, ACR ResQlink etc.
- The Climate Program has 3 ACR ResQlink PLB's that you may borrow if needed. Please email Jen Morse at Jennifer.f.morse@Colorado.edu to reserve.



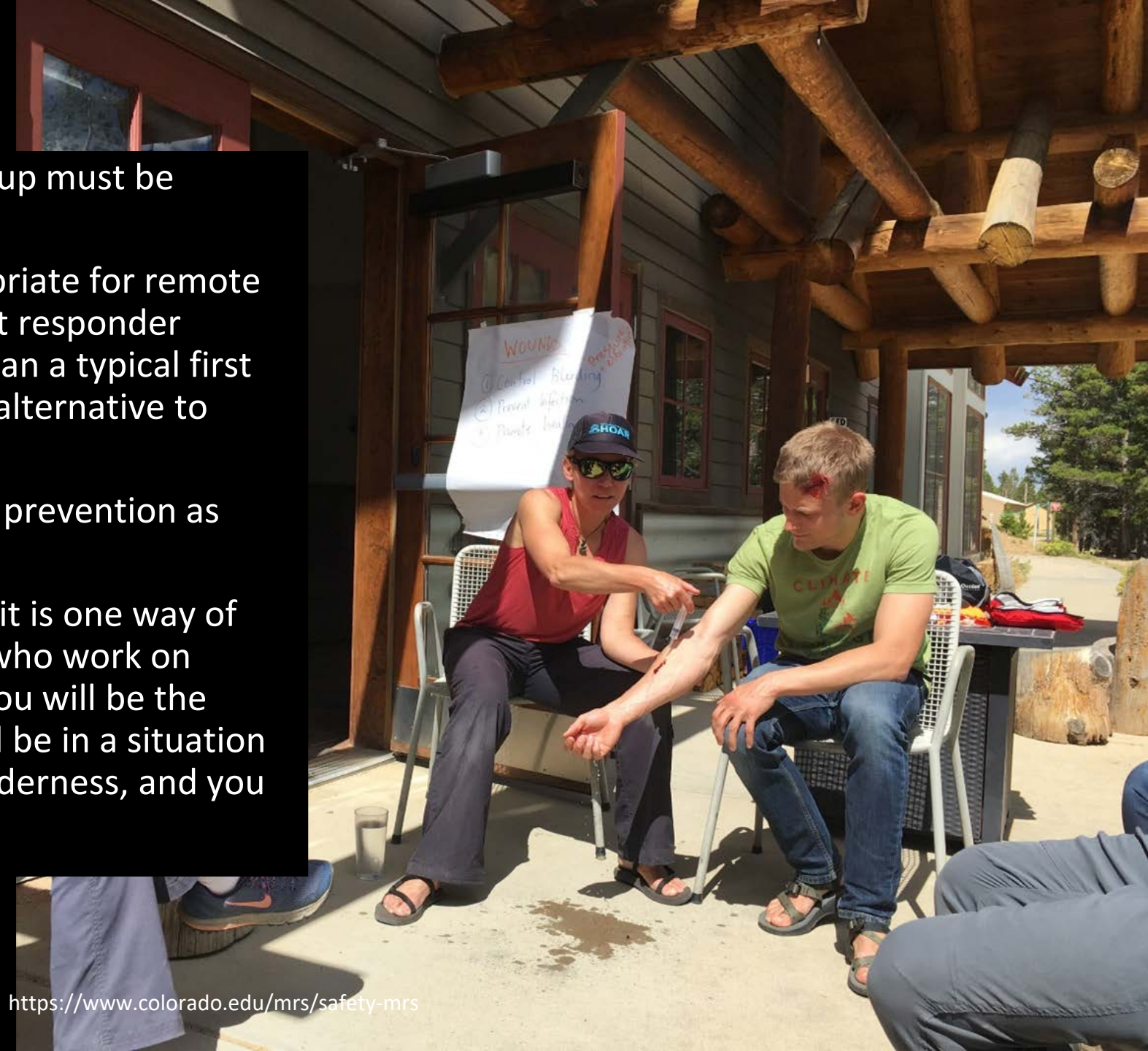
- **Wi-Fi:** Around Marr Lab and Tundra Lab (*UCB Guest*).

***All of these methods are not fail proof, please have a “check in” plan as well!**

Training

- At a minimum one person in your group must be trained in Basic 1st Aid and CPR.
- Wilderness First Aid training is appropriate for remote field work because it covers more first responder information and relevant scenarios than a typical first aid class. There really is no adequate alternative to this training.
- Wilderness First Aid is as much about prevention as response.
- Providing training to those who need it is one way of fostering a culture of care among all who work on Niwot Ridge. You never know when you will be the one who needs help, or when you will be in a situation where someone needs care in the wilderness, and you know how to provide it.

2022 – WFA class at MRS June 17-18, e-mail Jennifer.f.morse@Colorado.edu to sign up.



Safe Return Check-in Plan

★ Required if working solo, good idea with a group of two. ★

OVERVIEW

1. Have a dependable safety check-in person you can count on who is not in the field.
2. Every day you should leave this info with your safety check-in: *(times are only for example)*
 - Worry (and call to check on me) if you don't hear from me by 4:00pm
 - Call SAR at 6:00pm if you can't reach me and MRS can't find me.



DETAILS FOR YOUR SAFE RETURN CHECK-IN

The MRS cares about your safe return, however you must have your own safe return check-in person who is fully aware of your plans and is responsible to follow up on your safe return each day.

- A. Establish a “**WORRY TIME**” that your contact should expect to hear from you. This time should provide you a substantial buffer to account for unexpected weather, a slow day, etc. Consider the time it will take you to get to reliable communication when you return. If your contact does not hear from you before the “worry time” then they should be closely monitoring for your return and should attempt to contact you by text or phone.
- B. Establish a “**CALL SEARCH AND RESCUE(SAR) TIME**” when your contact will commit to making the following calls.
 - a. First attempt to contact the missing person via text and phone.
 - b. Second, call the MRS to inquire if they know if the missing person has returned. MRS mainline/Station Manager – 303-492-8842, MRS secondary – 303-492-8841, MRS Director – 303-735-0474
 - c. Third, if you cannot reach the missing person and MRS cannot confirm their location or cannot be reached then call the Boulder County Sheriff (303-441-4444) OR 911 to report the missing person.

Hazards of working at Altitude



In order to make accurate risk assessments in the field, you need knowledge about specific hazards.

The next few slides cover some of the more common hazards to plan for on Niwot Ridge.

- Lightning
- Altitude Sickness
- Heat Exhaustion / Hypothermia
- Animal Encounters

*This list is not all inclusive and assumes you have at least Basic 1st Aid and CPR training. you and our field team are responsible for getting the training you need specific to the field hazards you expect to encounter.

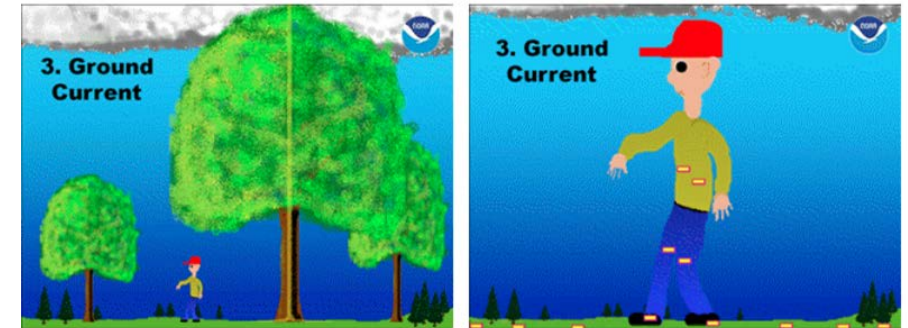
LIGHTNING <https://www.cdc.gov/disasters/lightning/index.html>

What's wrong here...

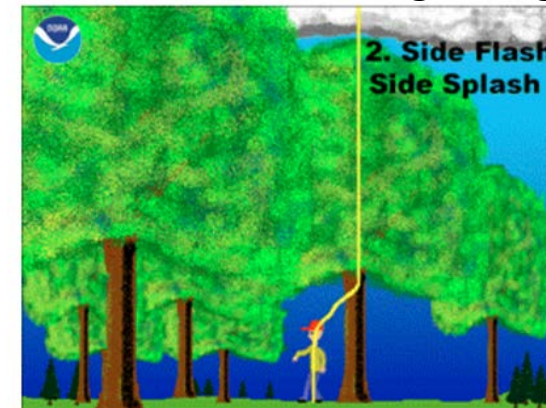
- Planning?
- Location?
- Grouping?



Ground current: 40-50% of lightning death/injury

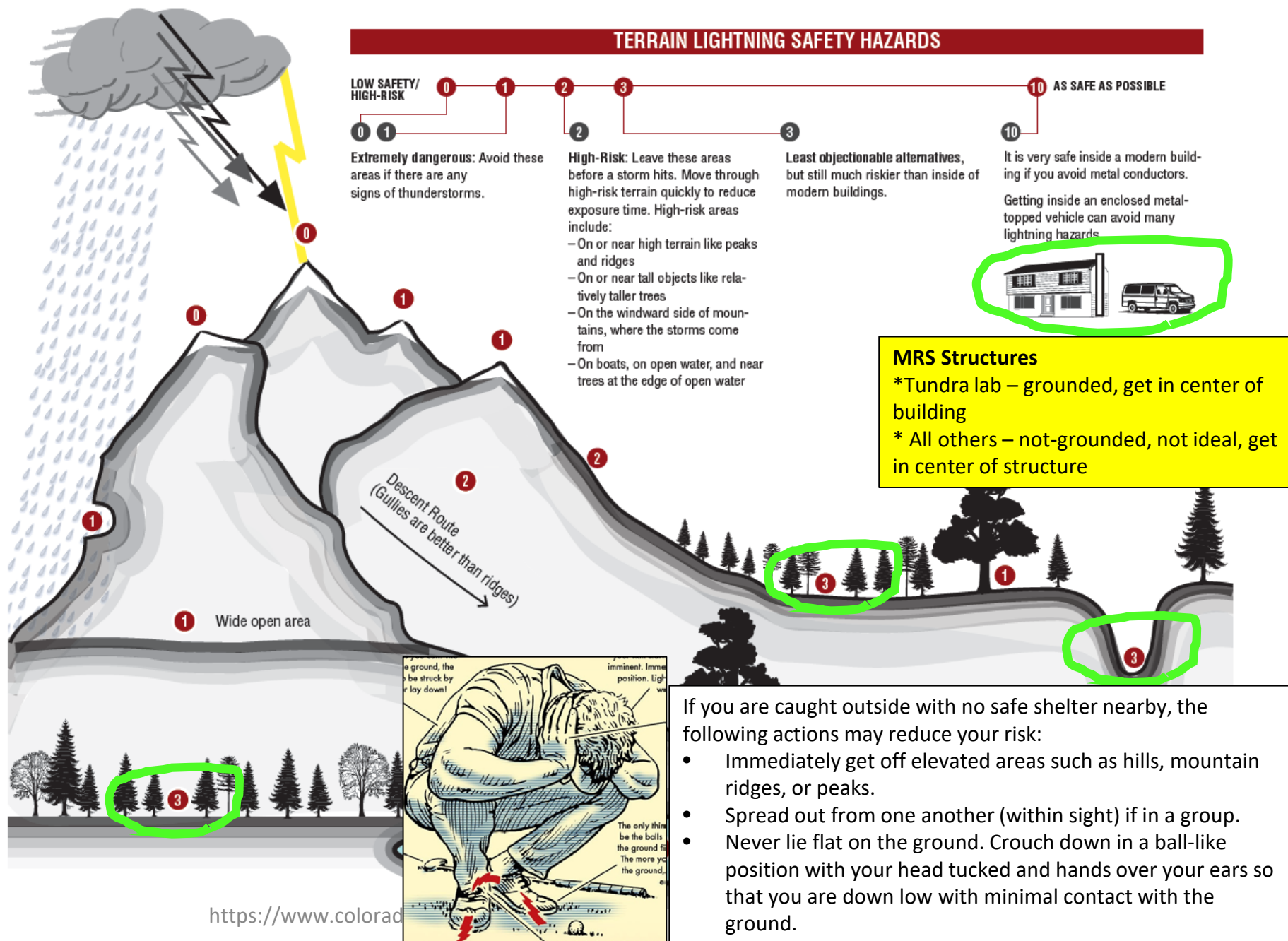


Side Flash: 30% of lightning death/injury



If you can't get to a modern building or vehicle then get to a "GREEN" zone.

- **Be conservative.** Check the forecast, monitor the weather, and plan ample time to be finished with your field work before storms build.
- Lightning can strike 10 miles from where rainfall is occurring.
- **If you hear thunder you are in danger and need to seek shelter.**
- Stay sheltered until 30 min after the last audible thunder.
- **Speak up and help your team make the right decision.**
- **It IS safe to provide first aid/CPR to a lightning strike victim. There is no residual current.**



ALTITUDE SICKNESS



SYMPTOMS: altitude sickness include dizziness, nausea, fatigue with minimal exertion, headache, shortness of breath, and a general feeling of being ill.

WHAT TO DO: Rest, drink water and eat. **Don't ascend unless you feel better.** If symptoms don't improve with rest or become worse, the person must descend (with escort) to a lower altitude.

Remember: Avoid caffeine, alcohol, or tobacco before and during activity.

Remember: It does NOT matter how “fit” you are, anyone above 8000ft may experience altitude sickness.

More severe forms of altitude sickness are High Altitude Cerebral Edema (HACE) or High Altitude Pulmonary Edema (HAPE).

- **HACE**, in which fluid develops around the brain, is characterized by severe headache, poor coordination and loss of consciousness.
- **HAPE**, fluid in the lungs, is usually indicated by severe breathlessness.
- **Both HACE and HAPE are life threatening and require immediate descent to lower altitude.**

The MRS parking lot is at 9500ft,
tundra lab is at 11,600 ft.

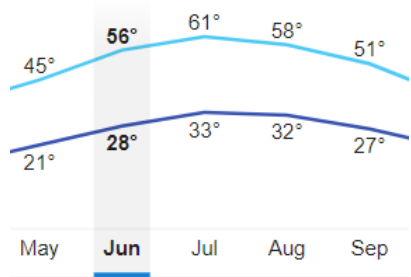
HEAT EXHAUSTION/STROKE & HYPOTHERMIA

Prevent Heat Exhaustion/Stroke:

- Wide brim hats and skin covering are best.
- Wear 50 SPF sunscreen! Sun at altitude is intense.
- Take twice the water you think you will drink & be sure to replace electrolytes lost during sweating.

Hypothermia:

- Hypothermia is the lowering of core temperature, and can happen at temperatures as high as 45 degrees Fahrenheit.
- Even in the summer, bring layers including a rain jacket, puffy jacket, and winter hat. Try to avoid cotton, instead layer with wool or synthetics.





Average summer temps on Niwot Ridge

Health Effects of Heat

symptoms may include:

Heat Exhaustion	Heat Stroke
<ul style="list-style-type: none">excessive sweatingfaint or dizzyweak, tiredmay have cool, pale, clammy skinnausea or vomitingmuscle cramps	<ul style="list-style-type: none">confusion, disorientationmay lose consciousnessred, hot, dry skinnausea or vomitingbody temp above 103°stopped sweatingthrobbing headache

if experiencing these symptoms...



1. Get water, shade, and rest.
2. Stop all strenuous work in heat.
3. Monitor symptoms.

1. Call 9-1-1.
2. Take immediate action to cool down until help arrives.

Image from UC Berkeley EH&S

Watch out for Moose!

Moose are not normally aggressive towards people but do sometimes show aggression or charge when stressed, if they become food-conditioned or when people venture too close. Make sure everyone in your family knows about moose safety!



“ **Respect a Moose’s Personal Space:** Stay back! Moose can become very dangerous if they feel cornered or threatened. Be extra careful around a cow moose with a calf. Don’t try to walk past a moose or make it move. Be safe and take a different route, or wait.

“ **If a Moose Charges or Chases You:** Run – as long as you have a head start. Hide behind something solid like a tree.

“ **If a Moose Knocks You Down:** Curl into a ball, protect your head, and lie still until the moose retreats.

“ **Please don’t feed moose!** Feeding moose can make them dangerous and ornery, plus it’s against the law. Tell an adult if you see someone feeding a moose.

Moose are often considered the most dangerous animal in Colorado.



Is that moose upset?
When a moose is angry, its ears go back and the hair on its neck goes up, like this moose on the left. A really angry moose might lick its lips. Back away from an angry or stressed moose. Run or get behind a tree if a moose comes after you!

Be Bear Aware

Note: The CU Mountain Research Station has **ONLY BLACK BEARS**, no grizzly bears



When visiting this area:

- Make noise while hiking.
- Hike in groups.
- Leash dogs.

If you see a bear:

- Make enough noise so the bear is aware of your presence.
- Never approach a bear.

If the bear does not leave:

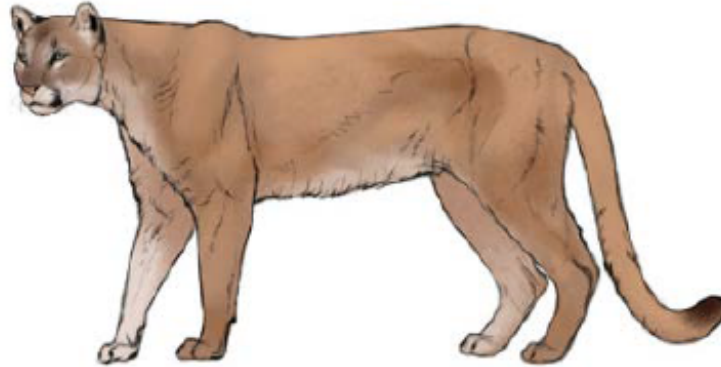
- Back away slowly.
- Never run or climb a tree.

If the bear approaches, be offensive:

- Make more noise, wave your arms, and throw objects at the bear.
- Black bears rarely attack humans. If you are attacked, do not play dead. Fight back with anything available.

MOUNTAIN LION SAFETY

If you do see a mountain lion, no matter how thrilled you are to be one of the very few who gets such an opportunity, stay well back, and take the encounter seriously.



The most common time to see a mountain lion is at dawn or dusk.



Seem as large as possible.

Make yourself appear larger by picking up children, leashing pets in, and standing close to other people. Open your jacket. Raise your arms. Wave your raised arms slowly.



Make noise.

Yell, shout, bang your walking stick or water bottle. Make any loud sound that cannot be confused by the lion as the sound of prey. Speak slowly and loudly to disrupt and discourage the lion's hunting instincts.



Act defiant, not afraid.

Maintain eye contact. Never run past or away from a mountain lion. Don't bend over or crouch down. Aggressively wave your arms, throw stones or branches, do not turn away.



Slowly create distance.

Assess the situation. Consider whether you may be between the lion and its kittens, prey or cache. Back away slowly to give the mountain lion a path to retreat, never turning your back. Give the lion the time and ability to get away.



Protect yourself.

If attacked, fight back. Protect your neck and throat. People have used rocks, jackets, garden tools, tree branches, walking sticks, fanny packs and even bare hands to turn away mountain lions.

Ticks



- Ticks thrive at different times of the year in different regions/elevations
- Ticks are found up to 10,500 ft. (MRS is at 9500ft)
- Ticks come in many sizes
- Ticks carry many diseases.
- More info:

<https://www.colorado.edu/mrs/staying-mrs/safety-mrs>



Conduct Tick Checks

Ticks take several hours to settle and begin feeding. This gives you ample time to detect and remove them. The Rocky Mountain wood tick typically takes 12 to 24 hours to start feeding. Therefore, a thorough "tick check" can be an effective alternative to repellents. After walking through areas where ticks might be present, carefully look for and remove any ticks you may have picked up.

Use Tick Repellents

There are several repellents that are effective for ticks. Most commonly available is DEET but three other active ingredients are also recommended: picaridan, IR3535, and oil of lemon eucalyptus. These are applied either directly to the skin or to clothing. Repellents are most effective if applied to pants and other areas of the lower body likely to come into contact with ticks.

When applying repellents directly to the skin certain precautions should be considered:

1. On children, do not use high concentration formulations (e.g., DEET concentrations greater than 30 percent).
2. Apply the repellent to clothing, rather than to skin; this can be particularly effective for ticks that usually will climb on clothing.
3. Avoid applying repellents to hands or other areas that may come into contact with the mouth.
4. Do not apply repellents to wounds or irritated skin.
5. After use, wash or bathe treated areas, particularly on children.

Permethrin is an alternative treatment that is applied to the exterior of clothing. Clothing treated with permethrin can kill or repel ticks for days or even weeks, and often remains effective through a few washings. Permethrin should not be applied directly to the skin.

How to Remove a Tick

Once a tick has become firmly attached to the skin, removal can be difficult and should be done with care. The mouthparts are barbed, so they may remain after removal and allow infection. Fortunately, the Rocky Mountain wood tick, the most common species found in Colorado, is relatively easy to remove because it has relatively short mouthparts. The recommended procedure for removal of ticks is:

1. Grasp the tick with fine tipped tweezers, as close to the skin as possible. If tweezers are not available and you must use your fingers, cover them with tissue or thin plastic to avoid the possible transmission of any disease organisms, such as tularemia, that the tick may harbor.
2. Pull the tick slowly and steadily, straight away from the skin. Try not to crush the tick as you remove it.
3. After the tick is removed, treat the feeding site with a disinfectant. Wash your hands when done. Never crush a tick with your fingers. Dispose of a live tick by putting it in alcohol, placing it in a sealed bag/container, wrapping it tightly in tape, or flushing it down the toilet.

Many other methods have been popularized to remove ticks, such as covering them with petroleum jelly or touching them with a hot match. These methods are not always effective at removing the tick and are also slow to work. The goal of tick removal is to have it done quickly, rather than to wait for the tick to detach on its own.

If you develop a rash or fever within several weeks of removing a tick, see your doctor. Be sure to tell the doctor about your recent tick bite, when the bite occurred, and where you most likely acquired the tick.

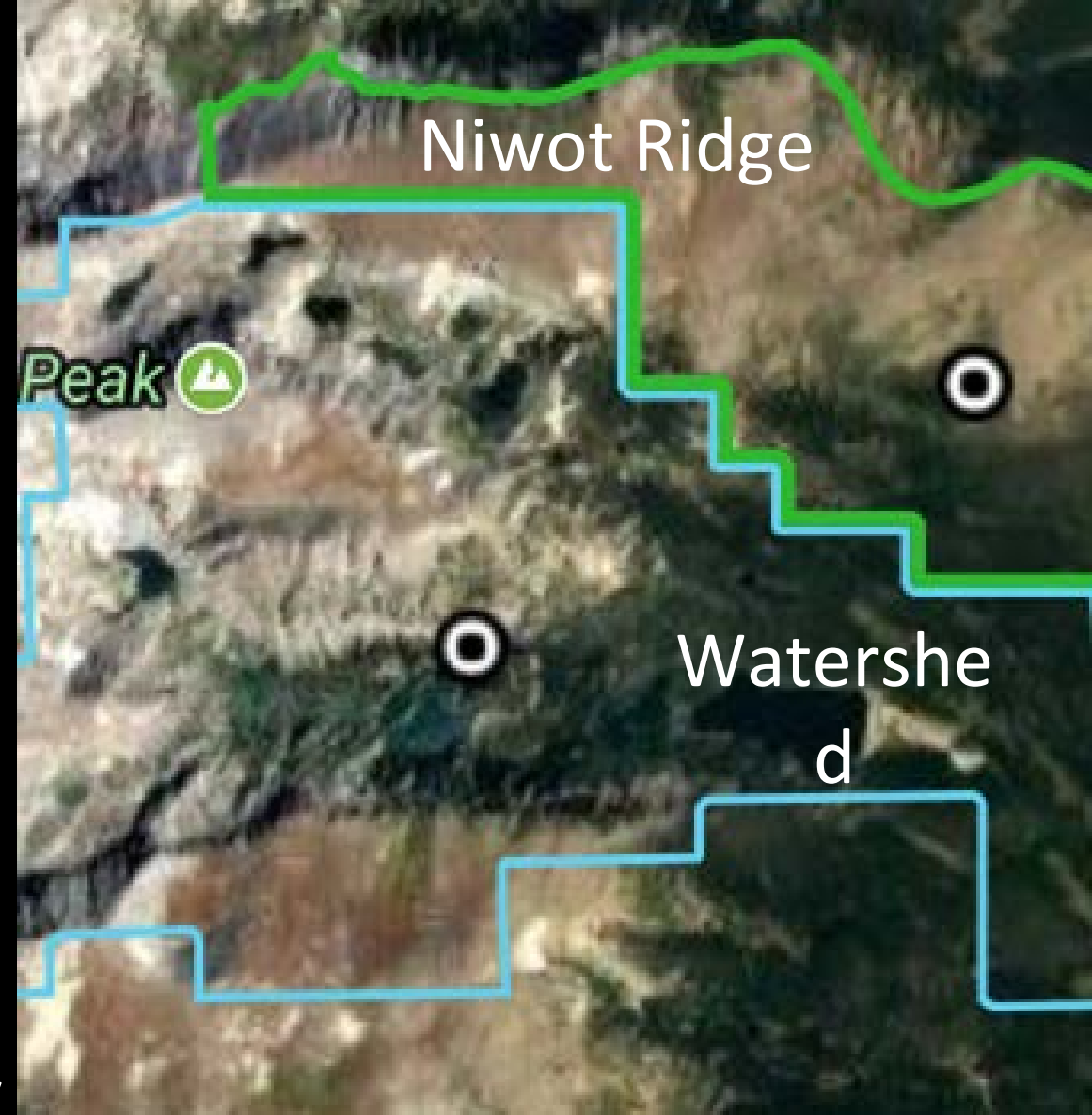
FIRE SAFETY

- Be aware of current fire danger level (Marr Lab sign)
- Most summers are under FIRE BAN
- Do not park over dry grass
- Be aware of new MRS siren located near dining hall. This siren has tones and voice messages for fire evacuations or active harmer situations.
- Be aware that if you are on Niwot Ridge, in some situations it may be safer to evacuate north (on foot) to Brainard Lake area instead of coming back down to the MRS.



Research within the City of Boulder Watershed

- If you do not have a Watershed research permit you are not allowed in the City of Boulder Watershed.
- Violators will be issued a trespass summons under City Code 11-1-11; the maximum fine is \$1000.00.
- Trespassing damages our relationship with the City of Boulder Watershed and this violation may restrict future access.
- The Watershed boundary is marked with a fence in some areas and in other areas is marked with signs. It is your responsibility to know if you have crossed over the boundary somewhere. Please pay attention to your location when on the Ridge.



City of Boulder Watershed Permit Holders



Reminders from Eric Johnson, Watershed Manager

- You must carry a photo ID with you at all times in the Watershed.
- You may not bring anyone into the Watershed who is not on your permit.
- You may not conduct research in the Watershed on Weekends or Holidays.
- You may only travel to the area of your permitted research.
- Drive Slow! Use 4WD at all times to maintain roads.

For Summer 2022: Due to heavy construction traffic for Albion Dam this summer, we are asked to limit and consolidate travel via the Watershed Road as much as possible, and access sites via hiking from Niwot Ridge whenever possible. Extra coordination and care will be needed this summer, as well as slow driving with the expectation of delays. Please email jennifer.f.morse@colorado.edu with any questions.

Prior to entering the watershed to work, please send an email to Jen Morse at Jennifer.f.morse@colorado.edu by 9am Monday morning of the week you are planning to conduct your research with the following information (Jen will compile and send this information on to Eric, and this helps him monitor the Watershed and goes a long way towards maintaining our relationship with the City of Boulder):

- day(s) of week,
- who will be going,
- where and what research will be conducted (you may only travel to the sites that were listed on your watershed permit request),
- what travel route you will use in and out of the watershed.

Covid 19 Precautions

2022 Requirements:

- MRS will follow the CU Covid regulations as they evolve. Please be flexible and expect regulations to be dynamic. CU regulations can be found at <https://www.colorado.edu/covid-19>
- *Vaccination:* University of Colorado students, staff, and faculty are required to be vaccinated or file an exemption. There are NO requirements for visitors. Detailed information can be found at: <https://www.colorado.edu/covid-19-updates/covid-19-vaccination>

What else to bring:

- Hand Sanitizer
- Face Mask or Covering
- Your first aid kit should include additional supplies to prevent exposure to Covid19 to an injured patient as well as yourself, including; face masks, eye protection, disposable gloves.



MRS 2022 FIELD SEASON LOGISTICS

- You are responsible for following your field safety plan and COVID-19 mitigation measures, including travel logistics to/from site and on-site.
- Field “restrooms”. In the field, plan accordingly
 - If required, dig 6” cat hole to bury waste.
 - Consider “Wag Bags” (human waste bags), can go in dumpster at Marr Lab.
- Gate keys: Instructions on occasional day use key access will be provided as needed. For frequent users, a gate key will be issued in your name. Not all requests will be granted. Contact Station Manager Kris Hess (kris.hess@Colorado.edu) to request and check out a key in your name.
 - DO NOT USE OR SHARE THE COMBINATION LOCK CODE ON NIWOT RIDGE, THIS LOCK BELONGS TO “NEON”.
- Shelters are locked to prevent unauthorized access. Please use as needed if your research has been approved. The combination to all shelters is ‘2020’. The tundra lab is grounded and is the best location for safety from lightning during a storm. If you want to store equipment at any site, please get approval from Kris Hess or Jennifer Morse.

Contact Information and additional resources

818 County Road 116, Nederland CO 80466

MRS Director Office (Scott Taylor): 303-735-0474

MRS Station Manager Office (Kris Hess): 303-492-8842

MRS LTER Office (Jen Morse): 303-492-8841

Emergency: dial 911

Boulder County Sherriff Dispatch: 303-441-4444

CUPD: 303-492-6666

This presentation (slides and video) can be found at:

<https://www.colorado.edu/mrs/safety-mrs>

<https://www.colorado.edu/mrs/safety-mrs>



Additional Resources

Check out the newly renovated **Dining Hall!**
Open dates will be posted at the Marr Lab,
breakfast 6:45-7:45am, dinner 6-7pm



Niwot Ridge Emergency Equipment Locations

Marr Lab: MRS base station, 1st aid kit, AED, land phone (VOIP) (24/7) front breezeway east end

C1: back country 1st aid kit, land phone (VOIP)

KiwiVan: back country 1st aid kit, sleeping bags x 2, plastic tarps x 2

Tvan: back country 1st aid kit, sleeping bags x 2, plastic tarps x 2

Tundra Lab: AED, supplemental oxygen, EpiPen (summer only), back country 1st aid kit, sleeping bags x 2, plastic tarps x 2, land phone (VOIP)

D1: back country 1st aid kit, sleeping bags x 2, plastic tarps x 2

GL4: back country 1st aid kit (inside Stevenson Screen at Met station)

Please use these supplies for emergencies only. You are still responsible for carrying your own 1st aid supplies and appropriate gear.

If you do take anything out of any of our 1st aid kits (even if it is just a band-aid or Ibuprofen) please let Jen Morse or Kris Hess know so the item can be replaced for the next person in need.

Training Resources:

Wilderness First Aid For class offerings in Colorado see:

https://www.nols.edu/en/coursefinder/courses/wilderness-first-aid-WFA/?session_states=Colorado#sessions

Basic First Aid and CPR Basic 1st Aid/CPR/AED certification can be taken through Red Cross. Classes are offered in on-line, on-line + classroom, or classroom formats. A list of their classes can be found at:

<https://www.redcross.org/take-a-class/search?cgid=first-aid&zip=denver%2C+co&latitude=39.7392358&longitude=-104.990251&zipcode=&searchtype=class>

1st Aid during Covid 19

- **Red Cross Guidelines for providing First Aid Care during Covid19**
- If possible, have the injured person place a face mask over their nose and mouth, if they have not done so already, and limit contact by staying back at least 6 feet, if possible, until that person has done so. • Try to limit the number of individuals in contact with the injured person. Those who provide direct care for someone should wear respiratory protection (mask), eye protection, disposable gloves and a disposable isolation gown, as supplies are available. • Following care, first aid providers should wash hands as they would normally do and discard personal protective equipment (PPE) following usual procedures.
- While wearing PPE, clean and disinfect items which have touched the patient. After cleaning, dispose of PPE and perform hand hygiene.

List of Minimum Items for a 1st Aid Kit

- Ace bandage to support sprains or construct splints
- Duct tape/athletic tape, strong string, or rope to secure splints
- Iodine ointment for cleaning wounds
- Band-Aids
- Sterile gauze dressing for large wounds
- Adhesive tape to attach dressing
- Antibiotic cream, like Neosporin
- Pain killer/anti-inflammatory (i.e. Ibuprofen) • Antihistamine (i.e. Benadryl)
- Signal mirror or whistle in case you get hurt or lost
- Candy or Sugar packets for quick energy
- Clean syringe to flush small wounds

Additional Resources for Field Safety or Training

- General field safety guidance and a safe field work plan template is available on the MRS website here:

<https://www.colorado.edu/mrs/research-natural-history/research-application-form>

- CU Boulder's Environmental Health and Safety can help give advice on specific safety questions, as well as help develop guidelines or find training opportunities and instructors.

<https://ehs.colorado.edu/>

- University of California has developed a great field work manual relevant to many field work applications:

<https://www.ucop.edu/safety-and-loss-prevention/environmental/program-resources/field-research-safety/index.html>

- WMI-NOLS is a top provider of Wilderness Education, a list of their courses can be found here:

<https://www.nols.edu/en/wilderness-medicine/why-nols/>