



# Colorado Pika Project

## Pika Patrol App Trip Leader Manual

This manual contains resources for planning and leading trips to observe pikas using the Pika Patrol App. This manual is intended for trip leaders who already have the basic training, skills and experience to safely lead outdoor hiking trips. The manual provides additional tips and resources that may be useful in planning and leading trips to observe pikas using the Pika Patrol App. You are responsible for making sure that you have the necessary skills to lead outdoor hiking trips and ensure the safety of your participants. Additional resources can be found online at [pikapartners.org/trip-resources](http://pikapartners.org/trip-resources).

<b>Preparing for Your Trip.....</b>	<b>1</b>
1.1 - Field Equipment.....	1
1.2 - Safety Procedures.....	1
1.3 - Backcountry Navigation Resources.....	2
1.4 - How to Prepare for Your Trip.....	3
1.5 - Tips For Identifying Pikas and Pika Sign.....	3
<b>Appendix - Resources for the Field.....</b>	<b>5</b>
Appendix 1: Photo Guide.....	5
Appendix 2: Gaia GPS App Field Guide.....	6

# Preparing for Your Trip

## 1.1 - Field Equipment

When visiting your field site, you should strongly consider packing the following items. You are responsible for making sure that you have everything you need to navigate to your site, collect data, and stay safe in the backcountry.

- **Phone with Pika Patrol app** (for opportunistic observation)
- **GPS phone app\*** (with an external phone battery) **OR GPS unit\*** (with extra batteries) for navigation
- **Map(s) and compass** (for backup navigation)
- **Appropriate clothing** (be prepared for conditions to abruptly turn wet, windy, or cold)
- **Hiking shoes** (ideally with good ankle support)
- **Water and food** (bring extra in case the hike takes longer than anticipated or you get lost)
- **Flashlight / headlamp** (with extra batteries)
- **Phone / personal locator beacon** (for emergencies)
- **Sunscreen & sunglasses**
- **First aid kit**
- **Matches & fire starter** (optional)
- **Emergency shelter** (optional, e.g. a space blanket)
- **Sturdy gloves** (optional, to protect your hands)
- **Walking stick / trekking pole** (optional)
- **This manual**
- **Camera** (or a phone capable of taking photos)

## 1.2 - Safety Procedures

Hiking in Colorado's backcountry, especially on high-elevation talus, can be dangerous. As a trip leader you're responsible for understanding this danger and managing your safety and the safety of your participants while in the field. Always prioritize safety. Below you will find tips to help you manage safety.

1. **Adequately prepare for your trip** by **1)** planning a safe route, **2)** developing a safety plan, and **3)** telling someone you know ahead of time where your group is going and when you will return, and **4)** collecting emergency contact information for each trip participant.
2. **Bring the appropriate equipment** (see above).
  - We also recommend this webpage to help you think about what personal gear you and your participants need to be safe and comfortable in the backcountry:  
<https://www.rei.com/learn/expert-advice/ten-essentials.html>
3. **Check the weather before you go out** and do not visit sites if thunderstorms or inclement weather are predicted.
4. **Make sure you are completely confident in your ability to navigate and stay safe in the backcountry.**
  - Potential risks of alpine hiking in Colorado include (but aren't limited to) getting lost or injured, heat sickness, altitude sickness, dehydration, lightning, wild animals, sudden changes in weather, and wildfire.
5. **In case of an emergency, immediately call 911.** Since you may be out of cell phone range at your site, we recommend bringing a Personal Locator Beacon (PLB), like an InReach. A PLB enables you to send a 911 signal when you are out of cell phone range, helping search and rescue workers to find you in an emergency.
6. **Take care when walking on talus to 1)** place your feet carefully and keep your weight centered on two rocks at the same time with each step (since a single rock can shift easily), **2)** consider wearing gloves to protect your hands, and **3)** ensure that other members of your group aren't in the path of any rocks that may be dislodged by your movement.
7. **Plan ahead to ensure that you finish your site visit before afternoon thunderstorms begin.** A good rule of thumb is to be back at your vehicle(s) by noon. If a storm approaches while you're in the field, **descend immediately** to avoid being caught in the open.
8. If you do get caught in a storm, **follow this lightning protocol:**
  - Get to a lower elevation / less exposed area as **quickly & safely** as possible.

- Look for an area of uniformly high objects without water nearby.
  - In a forest, shelter in a low area with many small trees (ideally surrounded by taller trees).
  - If caught in an open area, seek shelter in a valley or low spot that won't accumulate water.
  - Do not stand under or near an isolated tree or small group of trees.
  - **Do not** be the tallest object in your immediate area (as you would on a ridge or in a meadow).
  - If your skin is tingling, your hair is standing on end, wrappers are crumpling, metal objects (like zippers) are ringing, or if lightning/thunder are occurring nearby, **drop to the ground and assume lightning position**: crouch on the balls of your feet with your heels touching each other, don't have anything else (like your hands) touching the ground.
  - **Stay near your partner, but try to be 30 feet apart while in lightning position.**
9. **Avoid altitude sickness.** If you or one of your participants feel unwell (headache, nausea, fatigue) assume you have altitude sickness and descend immediately. Know the symptoms, watch for the symptoms in yourself and trip participants, and make sure participants know that they should tell a trip leader if they feel unwell. See this website to learn about altitude sickness: [http://www.altitude.org/altitude\\_sickness.php](http://www.altitude.org/altitude_sickness.php).
10. **Make sure that there are no wildfires near where you'll be hiking** with this website <https://inciweb.nwcg.gov/>
- [See this website for tips on what to do if you encounter a wildfire in the backcountry.](#)
11. **Give a thorough safety talk to participants before you begin hiking, covering all of the relevant risks and safety procedures for your trip.** Make sure participants understand the risks and safety procedures, and feel comfortable informing trip leaders if they feel unwell or unsafe at any point during the trip.
12. **In addition to these safety procedures, review and follow your organization's liability, safety, and emergency procedures.**
13. **If, at any point, you or any of your participants think that continuing to hike or record pika observations will put you or any of your participants in an unsafe situation** (e.g. you are unsure how to navigate to the site, the talus is too steep, etc.), **please prioritize your safety and the safety of your participants!**
14. **You may wish to purchase a Colorado Outdoor Recreation Search & Rescue (CORSAR) card**, which helps to reimburse volunteer search & rescue teams for the costs incurred during search & rescues. A card costs \$3 for 1 year or \$12 for 5 years. One can be purchased here: [dola.colorado.gov/sar/cardPurchase.jsf](http://dola.colorado.gov/sar/cardPurchase.jsf).

### 1.3 - Backcountry Navigation Resources

It is important to have good backcountry navigation skills and bring **two of the following forms of navigation**: 1) Map / Compass, 2) GPS phone app (with an external phone battery), or 3) GPS unit (with backup batteries). As a trip leader **it is your responsibility to be prepared and able to safely navigate to the area where you are planning to go, and back to your vehicles.**

#### Gaia GPS phone app

Gaia GPS is a powerful backcountry navigation app for Apple and Android phones. If you would like to use Gaia for navigation, **detailed info on how to use Gaia in the field can be found in Appendix 2.**

While the Gaia app can be used without phone service, **map layers for your area MUST be downloaded before going into the field. It is essential that you feel 100% confident navigating and marking coordinates with Gaia before using it in the field.**

#### Tips for using the Gaia App

- Using this app may quickly deplete your phone battery, so we recommend bringing an external phone battery in the field, as well as a backup navigation method (e.g. map and compass).
- It is important to mark the location of your vehicle and the spot where you leave the trail (if necessary) to get to the talus. This will help you to safely retrace your steps after visiting the monitoring site (See Appendix 2).

## GPS Units

GPS units are another option for navigation. If you use a GPS unit for navigation, **you should feel 100% confident navigating and marking waypoints with your GPS unit before going into the field.**

## Additional Navigation Training & Resources

- eTrex REI Intro to Navigation: <https://www.rei.com/learn/series/intro-to-navigation>

## 1.4 - How to Prepare for Your Trip

Before going into the field, it is critical that you are prepared to safely and efficiently navigate to and from your site. Please follow the guidelines below to ensure that trip leaders are adequately prepared:

1. **Plan your route** — Using all available resources (e.g. the site descriptions, satellite images, topo maps, Gaia GPS routes & waypoints, Google Earth, etc) plan a safe and efficient driving and hiking route to your site.
  - It is **your responsibility** as a trip leader to know 100% how to **safely and confidently navigate to and from the location where you plan to record pika observations.**
  - Be sure to check road conditions; the distance, elevation gradient, and terrain of the hike; how much of the route is off-trail vs. on-trail; any road, trail, wildfire, or other closures / alerts; and any permit requirements.
2. **Download basemaps, routes, and waypoints for your site in your Gaia app/GPS unit.**
  - They must be downloaded at home, since you are unlikely to have phone service at the trailhead / site.
3. **Make a plan** — Though you have already planned your route, you still need to...
  - Plan out the timing of your day (keeping hiking times and afternoon thunderstorms in mind).
    - Do your best to record pika observations in the morning, as this is when pikas are most active (before it gets hot)!
  - Tell someone ahead of time where your group is going and when you will return.
4. **Assemble all necessary safety and field equipment** (see previous section)
5. **Ensure that you and any other trip leaders have reviewed all of the safety procedures** (see previous section)! Particularly...
  - Create a safety plan (i.e. departure time, plan for turning around, who you will tell where you're going).
  - Check the weather forecast for your site, route, and drive.
  - Ensure you are completely confident in your ability to navigate and keep yourself and all trip participants safe in the backcountry.
6. **If individuals joining the trip have domestic rabbits, they should follow the precautions described in these guidelines** (<https://bit.ly/3rBlmHv>) to prevent the spread of Rabbit Hemorrhagic Disease Virus to pikas (including disinfecting boots prior to visiting talus).
7. **Contact [staff@pikapartners.org](mailto:staff@pikapartners.org) if you have any outstanding questions.**

## 1.5 - Tips For Identifying Pikas and Pika Sign

1. **Pika Sighting** — Pikas are about the size of a russet potato, with short, gray / brown fur, round ears, and no visible tail. The lack of a visible tail is the best feature to identify them.
2. **Pika Call** — Pikas sound like squeaky toys (*eep!*).
  - Marmot calls, by contrast, are higher pitched chirps or whistles.
3. **Fresh Haypile** — Fresh **green** vegetation (flowers, grass, leaves, etc.) tucked in a neat pile within or near a crevice in the talus is likely a fresh haypile gathered by a pika for the winter.
  - If there is **any green vegetation** in the pile, call it fresh (even if most is old and brown).
  - Oftentimes you will also find pika scat in a haypile.



- If you find vegetation that has been ripped/gnawed or is strewn untidily, it is likely from a marmot, not a pika.
  - If you're not sure whether a haypile is fresh, old, or was even made by a pika, take a photo and explain your questions / thought process in the 'Notes' field.
4. **Old Haypile** — Old haypiles have **no green vegetation at all**; the vegetation is dry & brittle.
5. **Fresh Scat** — Pika fecal pellets are about the size and shape of a peppercorn.
- **Scat should only be recorded as fresh if it appears greenish, moist, and you find it stacked / "glued" atop a fresh haypile or a rock (not in the dirt!).**
  - **When in doubt, break a pellet open. If it is greenish inside, it's fresh enough.**
  - **Rain can make pellets appear moist, so color is a better indicator of freshness.**
  - For the purposes of this protocol, "scat" is limited to fecal pellets, but pikas also produce urine, "whitewash," and cecal feces. Cecal feces are long, skinny, blackish, and rare, as pikas usually re-ingest them immediately. Cecal pellets can be recorded as fresh scat.
6. **Old Scat (OS)** — Still shaped like a peppercorn, but dry and likely not in a little stack on a rock.
- Both the outside and the inside (when broken open) are dark brown, black, or gray.
  - As pellets age, they become more uniformly powdery without distinguishable plant bits.

If you have any questions, please reach out to us at [staff@pikapartners.org](mailto:staff@pikapartners.org).

# Appendix - Resources for the Field

## Appendix 1: Photo Guide

### Fresh Pika Haypile



### Old Pika Haypile



*A fresh haypile (left) is an indicator of pika presence. They are tidy and green, in contrast to an old, brown haypile (right). Sometimes pikas will put fresh vegetation on an old haypile, in which case the pile should be considered fresh.*

### Fresh Pika Scat

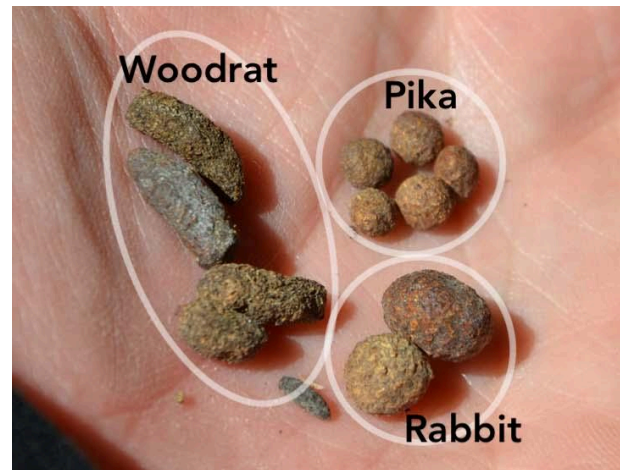


### Old Pika Scat



*Fresh pika scat (left two photos) tends to be 1) in a little stack atop of a rock or appears glued to the top of a rock and 2) greenish inside when broken open. If the scat is scattered in the dirt or not in a little stack, it's probably old.*

### Marmot, Woodrat, and Rabbit Scat





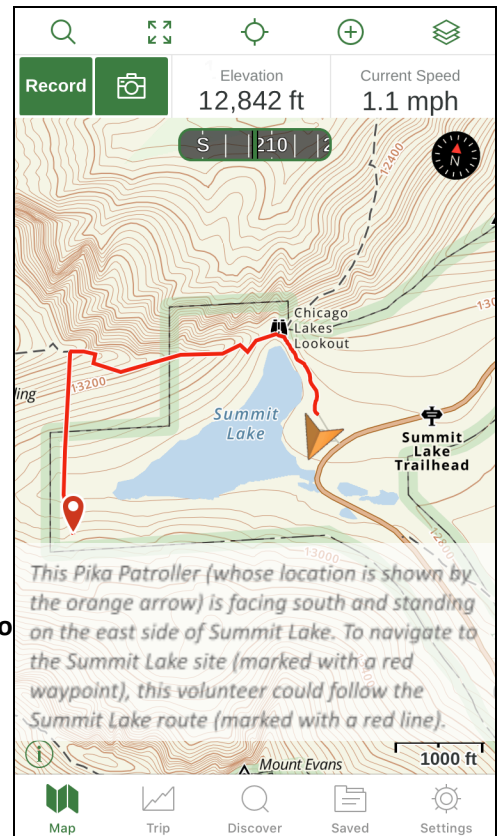
## Appendix 2: Gaia GPS App Field Guide

Here you will find instructions for using the Gaia GPS app (📍) **in the field**. If you are using Gaia to navigate it is **essential that you download all basemaps, routes, and waypoints while you still have wifi and that you bring an external phone battery!**

### Navigating with Gaia

If you know how to use it, Gaia GPS can be a powerful tool for navigating in the backcountry. Here are some helpful tips for navigating with Gaia:

- There are two relevant “tabs” (at the bottom of the screen) that you’ll need for navigating to a site. When a tab is selected, it is green.
  - The ‘Map’ tab (🗺️), can show a map, your current location, and any downloaded waypoints / routes.
  - The ‘Saved’ tab (📁), which catalogs all the waypoints, routes, and maps saved on your phone.
- Tapping the ‘target’ icon (🎯) **will focus the map on your location**.
  - Your location on the map is marked by the orange arrow (➡️), which points in the direction your phone is facing.
  - Tapping the ‘target’ twice **will turn it into this icon (📍) and make the direction you’re moving / the way the arrow points always be at the map’s top**, which can make navigation easier.
- Tap the ‘Map Sources’ icon (📶) in the top right corner of the screen **to select a different basemap** (like a NatGeo Trails Illustrated map).
  - **Basemaps should be downloaded while you have wifi!**
- **To navigate to a pika site with Gaia:**
  1. Go to the ‘Map’ tab and make sure that you can see 1) the orange arrow (showing your location), 2) the trail to your site.
  2. As you hike, the orange arrow will continue to show your location. If you point your phone in the direction you are traveling, the arrow should point the same way on the map. With that in mind, you can use the orange arrow to follow the trail.
    - If the map shows that you’re off the trail, use a compass / the way the orange arrow is pointing to find which direction the trail is in. Then safely hike that way until you’re back on route.



### View the coordinates of your current location

1. On the ‘Map’ tab, tap the bar just above the map (where it says Elevation in the screenshot).
2. Three columns of options will appear (e.g. Pace, Coordinates, Moving Time, etc.) and you can select different options by dragging a column up or down.
3. To display the coordinates of your current location, select ‘Coordinates’ in one of the columns.
1. To hide the list of options, tap the same place you tapped in Step 1.

### Access your downloaded maps, routes and waypoints in the field



**NOTE:** You must download Gaia resources **BEFORE** going into the field (i.e. while you still have wifi/service).

1. You can save maps, routes and waypoints using GAIA GPS online.
2. To access them in the field tap on the ‘Saved’ tab (📁) at the bottom of your screen.
3. On the ‘Saved’ tab, tap the icon (≡) in the upper left corner of the screen to go to the ‘Filters’ menu.
  - **On Android**, tap ‘ALL’ near the top of the screen instead.
4. On the ‘Filters’ / ‘ALL’ menu, select ‘Maps.’
5. Find your map (it should cover your monitoring site and the hiking route to get there) and tap on it.
6. Tap on the map again and then select ‘Show on Main Map’ (or ‘Show on Map’ for Android).
7. Now on the ‘Map’ tab, your route, waypoint, and basemap should be displayed on the main map.

- **If they don't all appear**, repeat the above steps, but select 'Waypoints' or 'Routes' (not 'Maps') in Step 3.



## Add a waypoint

Before leaving the parking lot/trailhead, we recommend marking a waypoint there so that you can easily navigate back to your car.

1. Tap on the 'Map' tab () at the bottom left of your screen.
2. Click on the '+' icon () at the top of your screen and then select 'Add Waypoint.'
- **If you'd like to mark a waypoint at your current location**, select "Add Waypoint (My Location)" instead.
3. At the top of the screen, type in the Latitude and Longitude of the waypoint and then select 'Save.'
- Gaia automatically enters in your current coordinates, so if you want to mark a location that isn't where you are, you will need to delete these and type in the coordinates you want.
- If the waypoint doesn't need to be exact and the basemap is still visible, you can drag the red marker with a green circle around it to the correct location on the basemap (instead of typing in coordinates).
4. Once a waypoint is created, you can view its coordinates by tapping on it on the map, and then selecting it from the menu that appears at the bottom of the screen.

## Record a track

While you are recording a track, Gaia will keep track of where you move. This can be useful if you want to record the route that you take to and/or from your site. **It will drain your phone battery quickly though!**

1. Tap on the 'Map' tab () at the bottom left of your screen.
2. Click on the '+' icon () at the top of your screen and then select 'Record a Track.'
- Gaia will now be recording a track of wherever you move. When Gaia is recording a track there is a timer near the top left corner of your screen, which shows how long it has been recording for.
  - On an iPhone this timer is green. On an Android it is gray.
3. Go ahead and hike and Gaia will record the route that you take.
4. When you're done, tap the green / gray timer near the top left corner of the 'Trip' tab and select 'Finish Track'.
5. Name the track and then select 'Save.'
- On an iPhone the track is named by tapping on the date / time under 'Edit or Choose Title'
- On an Android the track is named by tapping the pencil icon in the top right corner.