



Wolverine Tracking Project Wildlife Camera Surveys

The Wolverine Tracking Project is a volunteer-based wildlife survey project on the Mt Hood National Forest. The information gathered is being used by the US Forest Service, Oregon Dept of Fish and Wildlife, and the Cascade Carnivore Project, to document and study many different species. We are especially interested in finding evidence of wolverine and wolves returning to our forest.

Overview

- We are looking for 3 different types of evidence: pictures, genetic samples, and tracks. Your primary responsibility is to check the cameras and associated hair snaggers, but please also look for tracks or scat while you are out!
- Cameras will be put up in October or November and taken down in March or April.
- Cameras need to be checked every 3 weeks. It is the responsibility of the people in the group to divide up the checks between themselves, however they see fit.
- Before you head out to the field, someone from your group will need to pick up gear from the Cascadia Wild office. After you return, the gear and any samples collected will need to be returned.
- Do not go out alone. There must be at least two people on every visit, for safety reasons. If no one else from your group can go, invite a friend.
- Visiting a camera will be a full day trip. Start early enough that you will have plenty of daylight to finish.
- Winter presents lots of challenges. Deep snow may make snowshoeing very difficult, roads may be icy, cameras may need to be dug out, etc. Be prepared for contingencies.
- Safety first!! Remember, the most important thing is that you get back safely. Bring the gear, clothing, supplies and common sense you need to remain safe while you are in the field.
- Have a safety person who knows where you are going and when you are expected to return and who will call emergency services if you do not return on time!!
- Each group should select a point person who will make sure the group is keeping on schedule and will be my point of contact if I want to find out what the group is doing.

Before you head out

- Someone from the group will need to go to the Cascadia Wild office to pick up gear. We are located at 5431 NE 20th Ave, inside Salt and Light Lutheran Church/Leavan Community Center. You can do this the morning you head out, or earlier in the week. Please make sure the kit is stocked with everything you need!
- Equipment you will need to bring
 - Warm clothes
 - Backpack
 - Food
 - Water
 - Headlamp
- We have 9 pairs of snowshoes to lend out. Sign up to reserve a pair (details coming)...
- Hair snagger brushes should be cleaned and sterilized before you get to the field. To clean a brush, remove all the hair and debris you can see, then run a lighter up and down it to burn off anything you can't see and scrape it with your fingernail to remove any residue. Stand bristles upright again if they need it. After cleaning, sterilize it by running it under a flame for 5-10 seconds.

Checking a camera station

Quick checklist

- Navigate to camera. When off-trail, use GPS to get azimuth, use compass to navigate.
- Trigger camera with you in view.
- Turn camera off.
- Look thoroughly for genetic samples around the site, and collect.
- Replace memory card and batteries, reposition camera if needed.
- Replenish meat bait.
- Place fox urine on tree directly below bait.
- Replace hair snagging brushes.
- Refill canister with gusto scent lure.
- Make sure camera is locked securely.
- Fill out the field log sheet.
- Turn camera on. For Reconyx cameras: arm camera.
- Trigger camera with yourself in view.
- Wish the animals happy eating, so they will come visit.

Checking a camera station

Navigating to the camera

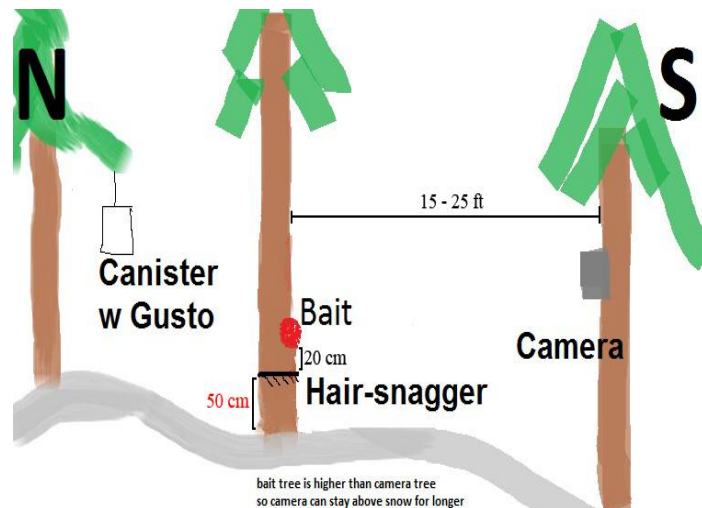
- Turn the GPS on when you get out of the car, wait for it to get satellites, and take a waypoint at the parking lot for safety.
- You will have a map of the camera location, which also gives a lat/long of its location. If the camera location is not already loaded into the GPS, enter it in.
- Use roads and trails to get as close as possible. When you have to go off-trail, use the GPS to get an bearing and distance to the camera, then use a compass to navigate. The compass on the GPS is not always accurate. Periodically check the GPS to make sure you are still on the correct bearing.

When you get to the camera

- Trigger camera with yourself in view (if you have managed to not do so already).
- Note whether camera is still operating (Reconyx cameras: press OK; Bushnell cameras: push switch to bottom then push half way up, wait, and note if screen comes on.
- Look around for tracks, scat, hair, and if there is snow, for urine in the snow. The most likely place is around the camera bait. Check the bait tree thoroughly for hair snagged on the bark or hair snaggers. Collect samples according to protocol given below. It is very important it be collected properly!

Choosing a camera site (in case you need to move it)

- You will need two trees 15-20 feet apart to set the camera and the bait in.
- There should be no interfering brush between the camera tree and the bait tree that would obscure the view of an animal that comes to the bait. Small limbs or brush can be cut out of the way with a saw.
- Trees should preferably be in a north-south orientation, with the camera facing north to reduce sun glare.
- Location should be consistently shady, as much as possible, since contrasting heavy light and shadow makes it difficult to get good pictures. A protected area under trees also helps reduce sun glare and protects the camera from blowing snow and ice.
- The camera tree should preferably be slightly downhill of the bait tree. That way less sticks have to be placed behind the camera to angle it down in order to get the proper view of the bait.
- The camera tree should be sturdy enough that it won't sway too much in a storm, but not too large that the cable lock won't fit around it. The bait tree can be any size.



Camera setup, picture courtesy of Cascade Carnivore Project

Checking a camera station

Camera

- With camera off, replace the memory card and batteries. **Never remove batteries or cards when camera is ON.**
- Check the camera settings and correct them if necessary (see below).
- Reposition the camera if it has been snowing or if the camera has been bumped.
 - The camera should be at least at chest high, to reduce the chance that it is disturbed and so it is not snowed under during the winter. Ideally the camera should be slightly higher than the bait so that it is aimed at a slight downward angle. Angle it down by placing a stick behind the top of it.
 - We want to be able to get a picture of the entire animal when it goes after the bait. In the camera field of view, the bottom of the bait tree should be about a third of the way up from the bottom, and the bait itself should be close to the top.



- To see if the camera is angled properly:
 - First go to the bait tree and face the camera with your head level of the bait. Check that the camera is level and centered on your head. Re-position if necessary.
 - Next, turn the camera on and take a picture. Trigger the camera by waving your arm or walking in front of it. See instructions below for turning camera on.
 - Turn the camera off (don't remove card with camera on!), remove card, and use the cardviewer to see what it took a picture of.
 - Re-position as necessary, and repeat as many times as needed.
- When everything is ready:
 - Lock camera around the tree. On the python locks, make sure the key insert is on the lower surface where it will not fill with rain.
 - Check that lens and flash windows are clean.
 - Turn camera on: For large Reconyx cameras: push the "on" switch up, wait until the screen says "Arm Camera", and press the ok button. For Bushnell cameras: push switch all the way up.
 - Make sure the cover and the inside of the camera is dry. Close and latch cover.
 - Trigger the camera with yourself in view for scale.
- Do not touch the camera with gloves that have handled bait and scent lure.

Checking a camera station

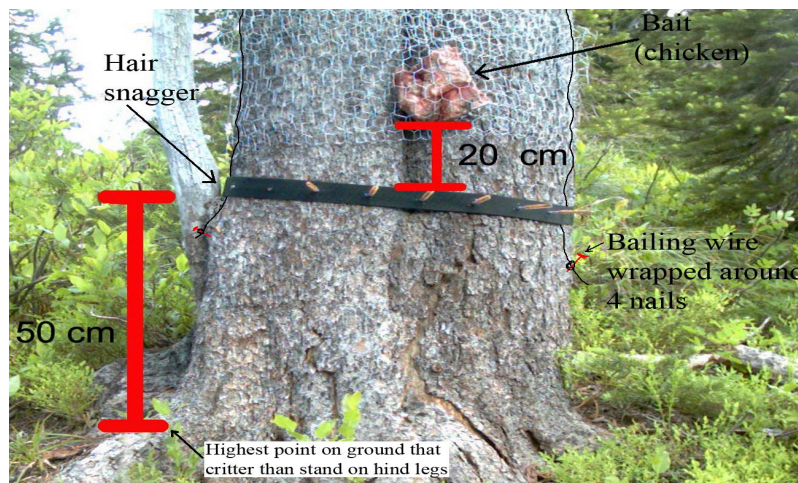
Hair snaggers

- If there is hair on the hair snaggers, treat it as if it were from a target species unless you can tell otherwise. Remove each brush with hair - **without touching the hair** - and place each in a separate envelope. Place all the envelopes in a dry plastic bag. Label the envelopes with:
 - Date, camera name, Location of brush (start from the left as you are looking towards the tree, and label them as 1L, 2L, etc), Your initials
- The web belt should be at about knee level above the ground. Re-adjust if necessary.
- After the meat bait is replaced, replace any brushes you removed with clean, sterilized ones. Be very careful not to touch the bristles. If bristles were touched, re-sterilize by holding a flame under them for a few seconds.

Meat bait

Remove old meat bait and add fresh bait:

- Put on gloves to keep as much of your scent as possible off the bait.
- Unwind the bailing wire from the nails, and work the bailing wire out from where it is threaded through the chicken wire. Unwrap old meat bait and discard at the base of the tree.
- If the chicken wire does not have any holes, it can be re-used. Otherwise, use a new piece. Fold the chicken wire around the meat bait, with cut ends to the sides, and re-thread the bailing wire through both cut ends.
- Re-wrap the bailing wire around all 4 nails, repositioning them if necessary so that the bait is a hammers-length above the web belt.



Bait tree set up, picture courtesy of Cascade Carnivore Project

Fox urine

- Add a small squirt (about ½ teaspoon) of fox urine to the tree right below the meat bait.

Gusto scent lure

- Add about ½ teaspoon Gusto to the canister. You don't need to remove what is already there, just add more to the top. There should be some lichen, moss, or old rag in the bottom to hold the liquid.
- Hang it as high as possible in a tree about 10-30 feet from bait tree.
- Describe the location of the scent container on the field log sheet if you moved it, so others can find it.

Checking a camera station

Camera settings for large Reconyx cameras

- Scroll to CHANGE SETUP. Press OK.
- Advanced. Press OK.
- Trigger. Press OK.
- Motion Sensor. On. Press OK.
- Sensitivity. Very High. Press OK.
- Pics per Trigger. 5. Press OK.
- Picture Interval. Rapidfire. Press OK.
- Quiet Period. No Delay. Press OK.
- Finished. Press OK.
- CHANGE SETUP. Press OK.
- Advanced. Press OK.
- Scroll to time lapse. Press OK.
- AM Period ON. Press OK.
- Start AM Period. 10:00AM. Press OK.
- End AM Period. 11:00AM. Press OK.
- PM Period OFF. Press OK.
- Picture Interval. 1 Hour. Press OK.
- Finished. Press OK.
- Change Setup. Press OK.
- Advanced. Press OK.
- Scroll to Images. Press OK.
- Night Mode. Press OK.
- Max Range. Press OK.
- Finished. Press OK.
- Change Setup. Press OK.
- Advanced. Press OK.
- Scroll to Images. Press OK.
- Scroll to Resolution. Press OK.
- 3.1 MP. Press OK.
- Finished. Press OK.
- Change Setup. Press OK.
- Advanced. Press OK.
- Scroll to Date/time. Press OK.
- Use the scroll buttons to increase or decrease the number, press OK to move to the next one.

Use the GPS to get the correct time and date (press Trip Computer).

Checking a camera station

Camera settings for small Bushnell cameras

1. Move switch to the half way position
2. Press the menu key

In the middle of the screen, you should see the menu item you are changing. The setting for that menu item will be highlighted right below.

3. Changing the settings:

The first menu item is “Mode.” The setting should be “camera.” If it is not, press the OK button to be able to select another option. Press the up or down arrow keys to scroll to the correct selection. When you have the correct selection highlighted, press the OK button. Press the right arrow key to scroll to the next menu item.

The next menu item is “image size”. Select “8M”

Next, “image format”. Select “full screen”

Next, “capture number”. Select “2 Photo”

Next, “LED control”. Select “medim”

Note: This controls the strength of the flash. If for some reason the bait is closer than 15 ft from the camera, choose low. If the bait is further than 30 ft away, choose high.

Next, scroll past “camera name”, “video size”, and “video length”, we are not using these.

Next, “interval”. Select “3S”

Next, “sensor level”. Select “auto”

Next, “NV Shutter”. Select “high”

Next, “camera mode”. Select “24 Hrs”

Scroll past “format” (this erases any pictures on the card)

Next, “time stamp”. Select “on”

Next, “set clock”. Make sure the time and date are correct. Press OK to see what it is set to. Use the up/down arrows to change the numbers and the left/right arrows to move to the next field. When finished, press OK.

Next, “field scan” (this will set it to take one picture per day without being triggered). It should be set to “on”. Press OK to see the further settings.

You will see “A”. Press the OK button. The start time should be set to 9:00 and the end time to 9:15.

Correct as necessary and press OK to exit that screen.

Use the down arrow to select “B”. Press the OK button. The start time should be set to 0:00 and the end time also to 0:00. Correct as necessary and press OK to exit that screen.

Use the down arrow to select “interval”. Press the OK button, and set it to “60min”, and press OK to get out of that screen.

Press the right arrow to get back to the main “field scan” menu, and press the right arrow again to get to the next menu item.

Next, “coordinate input”. Choose “off”

Scroll past “video sound” and “default set”

Use the GPS to get the correct time and date (press Trip Computer).

Collecting genetic samples other than from hair snaggers

Overview

- Only collect samples you think it might be from a target species.
- Take a GPS waypoint
- Label envelope with
 - Sample type (scat, hair, urine)
 - Sample number. If you have more than one sample of the same type, number them sample #1, sample #2, etc.
 - Lat/long: to view the lat/log on the GPS: Waypoint Manager → waypoint you just made → Change Location
 - Date
 - Your initials,
 - Species guess
- For scat samples: take a picture of the sample, with the labeled envelope and a scale reference (preferably a ruler) in the picture.
- Collect sample, according to instructions.
- Record data on field log sheet.

Collecting the sample

Caution must be taken not to contaminate the sample - do not touch, and make sure there is no pet hair on your clothing that could potentially fall in. Collect as many samples as possible, as not every one will provide adequate DNA for genetic analyses.

Scat samples

- Be sure to get a picture first.
- Use twigs or surgical gloves to **collect 2-3 ml from the ends or sides of the scat** and put in a vial.
- Gently press or shake the scat to bottom of vial. If it gets forced to bottom, ethanol can't flow all around scat to preserve it.
- Put vial in the labeled envelope.
- Scat samples need to be kept cool, so keep away from your body heat or sunlight.

Hair samples

- Use sterilized tweezers to put the hair in a labeled envelope. To sterilize tweezers, hold them under the flame of a lighter for a couple seconds.
- The DNA that is needed comes from the hair follicle, so be sure to include the follicle end.
- If the sample is embedded in something like frozen snow, don't pull it out with force, as that may strip off the follicle. Instead, use gloves to scoop up the snow and hair together, with as little snow as possible, and put it all into the envelope. Let melt and dry ASAP when you return.

Urine or blood samples in snow

- Scoop up the most concentrated section of yellow or red from snow with the vial.
- Place vial in labeled envelope.
- Keep as cold as possible.

If you see tracks

Look for tracks of target species while going to camera – wolverine, wolves, montane red fox

If you find tracks that you think are of target species, document it. Be sure to follow the trail long enough to determine what you saw is consistent. Remember tracks can look different under different conditions (even between in the open and under a tree).

- **Pictures:** Take pictures of the clearest tracks you can find. Also take a picture of the trail pattern. Be sure to include a tape measure for scale in both pictures. **Good pictures are crucial.**
- **Track Log Sheet:** Fill out the Track Log Sheet.
 - When taking measurements, measure at least 3 times and take the average.
 - For hops/bounds/gallops/lopes, also measure the group and intergroup.
- If there is a reason you have identified the track as you did that isn't clear from the picture or the measurements, describe why.
- Measurements and description of trail pattern is just as important as of the individual tracks.

If you have time, follow trail and look for genetic samples

If you wish to do a more complete tracking survey, please do so. Instructions for carrying out Cascadia Wild's tracking surveys are in the box labeled Extra Parts for Tracking Kits, and data sheets are in the file box.

Back in the office: Return equipment, memory card, genetic samples

- **Return equipment:** It is very important everything is returned and the kit is re-stocked for the next group!!
- **Wildlife camera pictures:** Put memory card in envelope or folded piece of paper with the camera name on it and leave it on the desk. .
- **Field log sheet:** Make sure the field log sheet is filled out. Place it in the gray file box.
- **Genetic samples:** It is very important that the genetic samples get stored properly the same day you collect them (see instructions below).
- **Email:** Please send me an email saying that the trip was successful. That way I know the camera got checked on schedule. Email is: info@cascadiawild.org
- **Other pictures:** If you have any pictures of scat, tracks, camera set up, or anything else, email them to me in a timely manner.

Back in the office: Storing genetic samples

Genetic samples need to be processed the same evening as collected, so the DNA does not degrade.

Scat samples

- Pour ethanol over scat until it is covered. Make sure that ethanol flows all around the scat.
- **Do NOT TOUCH the ethanol container to the scat vial**, this can contaminate the entire bottle of ethanol.
- Store upright, in a dark, cool spot. There will be a container near the camera gear for you to put them in.

Hair samples

- Place envelope in container with desiccant.

Urine or blood samples

- Put vial in freezer

That's all! Hope you had a great trip!