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1. Goals

To guide our work on the Wolverine Tracking Project, Cascadia Wild has developed four goals. These goals help focus our efforts and also serve as a basis to evaluate the effectiveness of what we do.

Goals, strategies, and objectives: Goals tell the big picture. They help motivate us, but don't give much detail about what exactly we will do. For that, we look to the strategies. Strategies refine the goals and begin to flesh out how we plan on achieving them. Strategies are still fairly vague and, however, are further refined by the objectives. We have developed five objectives that tell what we hope to accomplish on each tracking trip. Don't be intimidated by all this formality, though. How you as a trip leader can accomplish these tasks is what the rest of this booklet is about.

Project Goals (the big picture)

- Increase ecological knowledge of the Mt Hood National Forest
- Increase participant's understanding of the natural world
- Increase local citizen's involvement in the Mt Hood National Forest in a way that will lead to the best possible management of our public lands.
- Increase participant's feelings of belonging to their local area and their appreciation of how we are connected to nature.

Strategies (ways we are going to achieve each goal):

- Regularly monitor for the presence of certain rare target species. Share findings with the Forest Service and other interested parties.
- Mentor participants in the art and science of animal tracking, the natural history of the area, and conservation issues that affect the national forest.
- Provide an opportunity for individuals to give back to their community through volunteering to assist with surveys.
- Mentor participants in other nature awareness routines during survey trips.

Objectives for each tracking trip (what we want to do on each trip):

- Collect scientific data on the presence of mammal species.
- Teach the science and art of animal tracking and other natural history information that will help participants become better trackers.
- Help participants understand how they are helping out with an important stewardship project.
- Teach something about our personal interaction with nature, for example, becoming more aware of the world around us, understanding how we can survive without equipment, etc.
- Play one piece in transforming how participants relate to the natural world.

Little by little, we are changing how people view the natural world. By changing people's view of nature, we are also changing their relationship with it, laying the groundwork for them to be invested in caring for this place for future generations.

2. Overview

As a trip leader, you are responsible for keeping everyone safe, carrying out the surveys correctly, and teaching participants. This is a lot of responsibility. This booklet is designed to help you on your way by spelling out many of the details these tasks involve. Some parts of this booklet are quite specific, such as what gear to check out the morning of a trip. Other parts of this booklet are more general, such as the suggestions on how to teach effectively. It is arranged according to the order that things will need to be done when you are leading a trip. The three main responsibilities of safety, surveying, and teaching are woven throughout. Please read it through, and take with you on your trip those sections you think you will need. It is meant to be a resource to help you.

3. Before the trip

A. Honor your commitment

If you signed up to lead a trip, participants are counting on you. Remember what dates you have volunteered for! If you are unable to make it, you will need to find another trip leader to replace you.

B. Choose a site

About a week before the trip, start thinking about where you will go and start checking the weather forecast. Check the forecast for two things: where to find good tracking conditions and whether there might be any weather-related safety issues. For good tracking conditions, you will ideally want to be at an elevation where there is snow on the ground, where any precipitation that falls the day before the trip will fall as snow and not rain, and where temperatures will remain below freezing during the day. Do not go into any areas where the avalanche danger is forecast as very high. Choose your site based on weather, where previous trips have gone, and the list of places we would like surveyed. More information about choosing a site is given under the chapter on Surveying.

Here are some sources for weather and avalanche information.

National Weather Service, Western Region – local weather forecasts for any elevation
<http://www.wr.noaa.gov>

Northwest Weather and Avalanche Center – weather and avalanche forecasts, safety info
<http://www.nwac.us/forecast/avalanche/current/zone/13/>

Oregon Department of Transportation - weather forecast, road cameras (to see where there is snow currently on the ground), road conditions
<http://www.tripcheck.com>

Northwest Snow and Ski Report - Timberline Lodge cameras, weather forecasts
<http://www.skitiger.com/cams/timberline.htm>

Mt. Hood National Forest – road closures, news and events, current conditions
<http://www.fs.fed.us/r6/mthood/>

C. Contact your group

About 5 days before the trip, check to see who has signed up to go on your trip, send a reminder email to the participants, and arrange who will be driving. Keep in mind that some participants sign up or decide not to go at the last minute, so be sure to check the participant list again closer to the day of the trip, in case anything has changed.

Here is an example of what to say in the email you send out to participants.

Dear Wolverine Tracking Project Participant,

Thank you for signing up for this weekend's tracking trip on [trip date]! [Other trip leader's name] and I look forward to a great day on the mountain with you and [number of participants -1] other folks.

We are meeting up at [time]am at [location name], located at [location address]. We will be traveling to [trip destination], which [description of cool site/trail]. We are so excited about getting there that we may leave without you if you are late.

At this point, I am anticipating that [driver's name] and [driver's name] will be driving their vehicles to the mountain, and everyone else will be a passenger. If this has changed for you, please let me know as soon as possible.

Things to bring with you:

- ◆ Water
- ◆ Lunch
- ◆ Coffee or tea in a thermos if you want some
- ◆ Warm & waterproof layers
- ◆ Snowshoes [(let folks know if any pairs are still left to borrow)]
- ◆ Tracking accessories (whatever you have/like)
- ◆ Your ten essentials (see list in your training packet)
- ◆ Enthusiasm!

If your plans have changed and you are no longer able to come, please let me know ASAP so we can open up your spot to someone else.

If you have any questions, please give me a call at [phone number]. See you soon!
[Your name]

D. Make safety preparations

Keeping everyone safe is most important thing you can do as a trip leader. "Expect the best but prepare for the worst" is always a good motto to follow. Before you go out, take the time to think about how you would respond if something went wrong and make sure you have the information and materials you would need to deal with it. Some of the safety information in the following paragraphs may be a review for many of you, but it is still important to go over it from time to time to keep it fresh in your memory.

Have a safety contact person

Make sure you tell someone you know well where you are going and what time you are expected back. If you don't return, we are counting on this person to contact us at Cascadia Wild so we can start searching for you.

Weather-related safety

Bad weather and avalanches are always a potential hazard during the winter, so be sure to check the weather forecast and avalanche forecast before your trip. Check it about five days before the trip to see if anything is forecast, and be sure to check it again the day before to get the current forecast. Websites where you can check the weather forecast and avalanche forecast are given on page 3. Weather conditions to look for are things that will make driving or snowshoeing dangerous, such as storms with freezing rain or strong wind or lots of snow, and avalanche danger. If a large storm is forecast, start thinking about whether or not to cancel the trip, and pay close attention to any changes in the forecast. Don't hesitate to cancel if things look dangerous! Also check the avalanche forecast for the predicted level of avalanche danger. Stay out of areas that are rated as very high. In areas rated as high, do not go into avalanche prone landforms, such as moderate slopes where there are no trees.

Safety gear

The Mountaineers has developed a list of 10 essentials that should always be carried on a trip.

Updated Ten Essential "Systems"

1. Navigation (map, compass, GPS)
2. Sun protection
3. Insulation (extra clothing)
4. Illumination (headlamp and extra batteries)
5. First-aid kit
6. Fire (matches and firestarter)
7. Repair kit and tools (ex. knife, string)
8. Nutrition (extra food)
9. Hydration (extra water)
10. Emergency shelter

Classic Ten Essentials

1. Map
2. Compass
3. Sunglasses and sunscreen
4. Extra clothing
5. Headlamp/flashlight
6. First-aid kit
7. Firestarter
8. Matches
9. Knife
10. Extra food

THINK: Are you prepared to spend the night out in the woods in an emergency?

Dressing for the snow

Cotton clothes are not appropriate for the winter outdoors in this area. Cotton, when wet, does not insulate. Instead, it actually speeds up the rate at which you lose body heat. ALWAYS WEAR wool or synthetic clothes!!

Think layers. Several thinner layers are better than one thick layer, because you can remove or put on layers as needed to regulate your temperature. The best dressing includes: long underwear tops and bottoms (non-cotton, of course), warm pants and shirt (non-cotton of course), warm sweater, shell jacket and pants that are waterproof and breathable. A large percentage of your heat is lost through your head. Always bring a warm hat.

MAKE SURE ALL PARTICIPANTS UNDERSTAND THIS AND ARE APPROPRIATELY DRESSED.

Calling for assistance in an emergency

How to call for assistance in an emergency

1. Phone

If you are within cell phone range, call 911.

2. Forest Service radio

The Forest Service is letting us borrow a 2-way radio in order that we will have a way to call out in case of an emergency. If you don't have cell phone service, use the Forest Service radio.

How to use the Forest Service radios:

Turn the radio on and adjust the "squelch" knob to the point just below where you hear a continuous buzzing noise.

Radio waves cannot go through mountains very well, so you will need "hit a repeater" that will relay your message out. There are many different repeaters in different locations throughout the forest, and each channel on the radio goes to a different repeater. Look at the map laminated to the radio to determine which channel you should be on and set the channel knob correctly. To test whether you are actually able to hit the repeater, push down and quickly release the talk button, and if you are hitting one, you will hear a brief sound of static.

Depending on your location, you are not always able to. If you can't, go uphill and try again, try a different channel, get out from under the trees, or try to call another group and see if they are able to.

When you talk, it is customary to first say who you are calling and second say who you are. Identify yourself as a Forest Service volunteer. Also, be sure to say that it is an emergency, since this will catch the attention of people who may only be listening with half an ear. There probably won't be any Forest Service employees working on the weekends in the winter, but there are many other people who also monitor these channels, such as local emergency response people and amateur radio buffs, so there will probably be someone to answer your call. Who you ask for isn't that important. For example, you can say something like: "Anybody who is listening, I'm a Forest Service volunteer, and I have a medical emergency".

3. The old fashioned way

If no electronic communication is available, use whatever resources are available within the limits of safety. You may send two members of your group for help (nobody should go alone), tell a passing hiker to relay a message, use smoke signals, etc.

Review how to respond to an emergency

Before an emergency happens, it is good to think about how you would respond. Here is a quick summary, but a good first aid course is recommended.

Emergency Response Plan

Practice Preventive Care

Be alert to your group's well being. Pay attention to their general appearance, food and water intake, and temperature regulation. Don't be afraid to ask how everyone is feeling. Pay attention to sudden behavior changes that can indicate potential problems. Be sure to also take care of yourself!

Do not let one person separate from the rest of the group.

Emphasize that the group stay together. If it becomes necessary to send for help, use the buddy system.

Keep everyone else safe

In case of medical emergency, make sure that everyone observes their basic needs and stays warm. It may be necessary to move to a warmer, sheltered location, or build a fire. Carry a well-stocked first aid kit with heat packs and a reflecting blanket. Have extra food and water available.

In case of emergency, always check the **A.B.C.s** first!

- **Airway** – Is it open? If not, do a head tilt, chin lift or modified jaw thrust.
- **Breathing** – Check rate and quality. Normal breathing rate is 12-20 breaths/minute for an adult and 15-30 for a child. If breathing is absent, use rescue breathing.
- **Circulation**: Check pulse. Normal pulse rate is 60-100 beats/minute for an adult. Pay attention to the quality: it should be strong and regular. A weak, fast, and irregular pulse can be an indication of shock. If pulse is absent, begin CPR.

Trauma

Immediately determine if the mechanism of injury could have caused spinal injury. If so, keep the head and spine immobilized. Keep in mind that with serious trauma, serious internal injuries may be present, but unseen. Any major trauma will require immediate evacuation, likely by helicopter.

Altered Mental Status

Beware of altered mental status, when the patient is no longer alert and oriented to people, place, and happenings. Altered mental status is often the first symptom of hypothermia. Worsening mental status is a serious situation. A patient that responds only to verbal stimuli, painful stimuli, or is unconscious, is considered in serious condition and should be evacuated quickly.

Hypothermia

Hypothermia is an important concern in the winter. Symptoms include shivering, numb extremities, quick shallow breathing, nausea, loss of coordination, slurred speech, confusion, and aggressiveness. If you suspect hypothermia, act on it immediately, as the person may be in denial.

When to perform field treatment

Treatments that can usually be handled in the field include those for minor wounds such as cuts, scrapes, stings, bites, and low-grade exhaustion from dehydration or exhaustion. Treatments that may require evacuation include those for moderate wounds, sprains/strains, and medical emergencies (such as diabetic shock). Whether or not to treat in the field should be determined by

assessing the severity of the injury, the appearance of the patient, response time by emergency personnel, weather conditions, the progression or worsening of symptoms, etc. Remember that exposed skin can freeze quickly in temperatures below freezing. Make sure to watch out for frostbite and hypothermia when exposing skin to treat an injury.

In cases of emergency

1. **Stay calm** – this is the most important thing to remember, because fear clouds thinking and causes folks to act irrationally. Most medical situations are minor, but can cause a good deal of fright, pain, and stress. Keep everyone calm. Be confident. Keep everyone warm.
2. Elect a communications person, and **call for assistance** if needed.
3. Determine the most competent medical person, and **begin patient assessment and care**. Only trained medical personnel should give care, but bystanders may assist as directed. The rest of the group should help with making sure everyone stays warm, calm, and supportive.
4. **Document the incident**. Do a SOAP note (found in the tracking kit): Subjective (patient's report), Objective, Assessment, Plan. Keep a record of changes in a patient's appearance over time.
5. Evacuate if needed. If there is a substantial delay waiting for help to arrive, get the patient(s) comfortable. Set up a temporary camp. Keep the patient warm: build a small fire and find shelter as needed. Make sure the patient stays dry.

4. At the office the day of the trip

When you get to the office in the morning, you will need to check out the gear you need, make sure the participants have their paperwork filled out, and write down where you plan to go so that we will know where to look for you in case something bad happens. When you get back to the office, do the reverse – check in your gear, file the paperwork, and let us know that you have returned.

A. Gear

In the morning, pick up the necessary tracking and safety gear. Non-disposable items need to be checked out so that we can keep track of them. In the evening, check gear back in and restock any items that were taken out from any of the kits. Make sure all the gear is back where it belongs and ready to go for the next trip– the next trip leader is counting on you! If participants accidentally left with some gear, you are responsible for contacting them to get it back.

Tracking gear:

1. The tracking kit (the black stuff sack) contains most of what you will need to do the surveys. It has survey sheets, GPS, tape measures, field guides, snowpark permits, maps of the Mt Hood area, clipboards, pencils, and extra batteries. Contents of the kit are listed in the kit itself so that you can double check that everything is there.
2. In addition to the tracking kit, you will also need a map of the location you have chosen. Maps are in the white binders. Take enough copies for each member of your group to have one.
3. Plaster is available for casting tracks. Each group is highly encouraged to take some, as well as a container to mix it in, so that you can document any rare tracks.
4. There are many other items that you may find useful, such as extra plastic bags, stuff sacks, and so on.

Safety gear:

1. You must bring a first aid kit.

2. You must bring the Forest Service radio. These are two-way radios that will enable you to call for help in case of an emergency. They are on loan from the Forest Service for the winter, and are very expensive – be careful with it!
3. All participants should carry the 10 essentials. If a participant or trip leader does not have all the items, they can check out a Personal Safety Kit, which contains the items people usually don't have - a compass, headlamp, whistle, pocket knife, matches, fire starter, and emergency space blanket. The entire kit must be checked out, do not take out partial kits.
4. Each car should carry a red car safety kit. Car safety kits contain fix-a-flat, air compressor, shovel, and other safety equipment related to driving.
5. If you are going into avalanche country, each participant will also need to carry avalanche safety equipment. This includes an avalanche beacon, probe, shovel, and emergency bivvy sack.

B. Paperwork

All paperwork is located in the gray file box.

Morning:

1. Check the list in the file box to see if everyone in your group has filled out the necessary forms. Each participant, including trip leaders, needs to fill out a waiver form, emergency medical form, and Forest Service volunteer form.
2. Bring a copy of the emergency medical form of everyone in your group with you. The forms need to be readily accessible to you in case you should need them during an emergency. Please keep them in a plastic ziplock bag to protect them from the weather.

Evening:

1. Gather all the tracking data sheets out of the tracking kit, staple them together, and place them in the file box. Restock the tracking kit with new data sheets.
2. Put the emergency medical forms back and arrange them alphabetically so that they are easy for the next trip leader to find.
3. Put the completed evaluation forms in the filebox and restock the tracking kit with blank ones.

C. Let us know where you are going

We need to have a record of where you are planning on going, just in case something goes wrong and we need to look for you. In the morning, record your location on the same sheet you use to check out gear. Include any alternate locations that you may be considering. Be sure to also have a safety person who will know if you have not returned.

D. Morning and Evening Checklists

All the information above has been assembled in two handy checklists, one for the morning and one for the evening. These will be posted by the gear, for easy reference. Please refer to them so that you don't forget anything!

MORNING CHECKLIST

Gear Starred items need to be checked out on checkout sheet.

- Tracking kit**** Black stuff sack. Double check that the kit is complete, looking especially for blank tracking forms, snowpark permits, and extra batteries. A complete list of contents is on the cover of each box.
- Map** Select a map of your trip location from the 3-ring binders. Bring enough copies for everyone in your group.
- First aid kit****
- Forest Service radio****
- Personal safety kits**** Ziplock baggies in bin. Each group member should carry this safety equipment (compass, headlamp, whistle, pocket knife, matches, fire starter, and emergency space blanket). If they don't have any of these items, they should check out a bag. **Don't check out pieces, check out the entire bag.**
- Car kit**** Red bag. Bring 1 for each car.
- Plaster** You are highly encouraged to take some in case you need to document a track.

Paperwork

- Participant forms filled out** Each participant needs to fill out a waiver form, emergency medical form, and Forest Service volunteer form. Check the list in the front of the gray filebox to see if any of your participants still need to fill out a form. Blank forms are in the filebox. Place completed forms in the appropriate folder in the filebox and cross the participants name off the list.
- Bring Emergency Medical Forms** Bring a copy of the emergency medical forms for everyone in your group.

Tell where you are going

- Record your destination** Record your trip location on the check out sheet, so we know where to look for you in case of an emergency. Include any alternate locations

Door locked and lights out

EVENING CHECKLIST

Gear

Check in gear Check in all the gear that you checked out. Make sure it is in good shape and put back where it belongs. *If participants accidentally left with some gear, you are responsible for getting it back.*

- Tracking kit
- First aid kit
- Forest Service radio
- Personal safety kits
- Car kits

Restock tracking kits Restock any other items that were taken out, including from first aid kits. Remove used tracking data sheets and replace them with new ones from the gray filebox.

Paperwork

- Data sheets** Make sure the cover sheet is filled out completely. Staple the data sheets together and place them in the gray filebox.
- Emergency Medical Forms** Return participant's Emergency Medical Forms. File alphabetically so the next person can find the ones they are looking for.
- Trip Evaluation Forms** Put the old forms in the filebox and blank ones in the tracking kit.

Let someone know you are back

- Call your safety person** to let them know you have returned.

Door locked and lights out

5. Starting and ending the field trip

A. Opening circle

After you get out of the cars but before you start down the trail, is an important time for setting the mood of the trip. You will need to give people a chance to introduce themselves, give participants an idea of what to expect during the day, explain what we expect them to do to help with the survey, review safety expectations, and transition from being in city-mode to being in the woods. Your opening circle should include all these elements. Though it may sound like a lot to cover, each topic can be addressed fairly quickly if you choose. The following paragraphs contain some ideas for how to address these topics, but feel free to use your own style and ideas.

Introductions

Let everyone introduce themselves. Make everyone everyone feel welcome and comfortable.

Tell people what the day is about

Like writing the topic sentence in an essay, state the theme for the day - why you are all there and what you expect to accomplish. For example “Thanks for coming and helping us collect data on what animals are using the forest. I hope that you all are able to improve your tracking skills as a result of this trip.” The first page in this booklet spells out the goals and objectives of the trips, and will be helpful for this.

Logistics and physical concerns

Malsow's Hierarchy of needs states that people can only attend to their “higher selves” when their more basic needs - for food, shelter, sanitation, and safety - are met. Participants may be nervous about such things as getting cold, whether they are in good enough shape to keep up with the group, whether there will be enough snack breaks, and so on. Letting participants know what to expect can go a long way towards alleviating these fears. Here is a list of things it would be good to mention.

- What time you plan on getting back to the cars
- What they should bring with them – lunch, etc.
- The pace you expect to travel
- What to do if they need to go to the bathroom (ex- “If you need to go, tell a trip leader and we will stop and wait for you”)
- That it is OK to ask questions

Safety

- Show everyone where you are on the map, where you expect to go, and the “control lines” - where you will head towards if you get lost.
- Make sure everyone knows that they must stay together as a group, must wear a whistle, and must have safety gear.
- Go over the common safety hazards and how to avoid them, such as hypothermia, falling in tree wells, limbs falling in the wind, etc. The Job Hazard Analysis Form in the tracking kit lists these.
- Some other ideas for helping keep the group safe are to have each person select a buddy, or to designate a rear person to make sure nobody falls behind.

How to carry out the survey

One reason participants are joining us is to help collect data. The data collection has very specific protocols that need to be explained to participants. You don't have to go into depth – just enough so that they know what we expect them to do. Things to cover include:

- Explain when during the day you will need to record information

- Assign tasks to participants
- Review the different data sheets that get filled out
- Make sure you have the equipment you need, including extra batteries for GPS and radio.

Transition to being out in the woods

Slow down, breathe deep, get back into your bodies, expand your awareness, and appreciate life. Here are some simple activities you might consider:

- Have everyone share something about themselves, such as their favorite animal.
- Have everyone tell something they are thankful for, or what they are enjoying about being in the forest
- Play a guessing game about one aspect of nature, such as having everyone point to where they think north is
- Do something to notice how your body is doing, such as breathe deeply for 5 breaths or visualize rooting your feet into the ground
- Do something playful, like have everyone pretend to throw a ball back and forth

B. Closing circle

There are two important things that need to be done after you get back to the cars but before you drive away. These are getting gear back and wrapping up the day. We also want to encourage participants to share pictures they took and write up their stories to share with others.

Get gear back from participants

It is surprisingly easy to forget this, so make a special note to remember!! It will be easier to get everything back before you leave the mountain, before everyone has scattered.

Wrap up, summarize, or evaluate the day

There are many ways of wrapping up the day. It can take the form of reviewing what you learned or saw, sharing stories of your experiences from the day, showing appreciation for the day, thinking about how the day connects to the rest of our lives, a group bonding activity, or any take home message that you want to leave people with. Here are some ideas for a closing circle, but there are many, many more. Be creative!

- Review the tracks you saw, or what you learned
- Everyone shares their favorite part of the day, or the most interesting thing they learned
- Apples, thorns, and seeds: have everyone share the best thing from the day, the worst thing, and the thing they would like to follow up on and learn more about
- You may also want to do something to reflect on how the day connects to the rest of our lives, such as shares a poem or short story to inspire participants or to integrate the experience into their lives
- You may also want to do a group bonding activity, such as everyone patting each other's back

Encourage participants to share pictures

Thank everyone for coming!

6. Surveying

A. Understanding what data we collect

1. Location

There are two basic parts to the data – where we go and what we see. We need to record the route we take, regardless of whether we see any tracks, because knowing where an animal ISN'T is just as important as knowing where it is. Before you leave the vehicles, the GPS needs to be set up to record the route traveled. At the end of the day, this route needs to be saved.

2. Animal species

The animals that we expect to see have been divided into 4 priority levels, depending on their abundance and conservation significance. Different amounts of data need to be collected at each priority level.

Level 1: Common prey species – deer, elk, Douglas squirrel, snowshoe hare, mice, voles, grouse
Our surveys are not designed to tell much about the distribution of these animals because they usually have a much smaller home range size than the species the surveys are designed for. We also assume that you will see many tracks from these animals and that you will be able to easily recognize them. Tracks from level 1 species are tallied, but no more information is gathered.

Level 2: Common carnivores and not so common prey species- everything not mentioned elsewhere
We are more interested in carnivores than prey species because if carnivore populations are healthy, we can assume that prey populations are also healthy. Focusing on carnivores eliminates having to take a detailed look at everything and makes the survey more manageable. Not-so-common prey species are also included in this category in order to help build our own search image of what these look like. When collecting data on level 2 animals, we want to know what characteristics you used to identify it and where you saw the trail.

Level 3: Special interest species - marten, montane red fox, porcupine
These animals are of special concern. Marten are considered an indicator species of healthy old growth forests, meaning that where their populations are healthy, it is taken as an indication that they overall forest they live in, usually an old-growth forest, is healthy as well. The Forest Service is required to monitor marten populations and is interested in any tracks we see. Red fox are rare on the forest. The Cascades Carnivore Project is doing research on mountain red fox and is interested in their locations. When you see tracks from one of the species in this group, pay careful attention to documenting it. We will collect the same information as for level 2, however, your data sheet may be scrutinized to see if your identification seems accurate, so make sure everything is filled out completely and accurately.

Level 4: Target species – wolverine, fisher, wolf
These are the species that nobody knows for sure whether they are present around Mt Hood. They were here previously, then extirpated from this area, but now may be making a comeback. If you see their tracks, you will have to document it extremely well, as your data will be under a lot of scrutiny. Take pictures, make casts, and above all notify the Forest Service because they will be really interested in confirming what you saw.

3. Habitat

In addition to knowing what animals are out there, we also want to know something about the habitat where they were found. The variables asked for on the data sheets are ones that are commonly recorded

in many types of research projects. This data is useful for the survey, and it is also included as a way to get people thinking about the environment where the tracks were found.

Forest zone

Certain plant species are used as indicators different environmental conditions. The Mt Hood National Forest has been divided into a series of forest zones that can be used to compare the different moisture and temperature regimes that exist as one moves up or down in elevation or from east to west. Forest zones are based on the presence of certain indicator trees, and are determined using the key provided. Forest zone is asked on the cover sheet, since it generally will not change during the day. **If you don't understand the key, leave it blank.** Doing this every trip is as much a teaching opportunity for participants. We can also use the determination from previous visits to fill this in back at the office.

Habitat variables on track log

On the track log, there are further questions about habitat, including landform, aspect, vegetation type, tree size, percent canopy cover, human use, and nearest water. These are variables that may change during the course of the survey. These variables are broken down into discrete categories so that you can quickly pick the answer that looks closest, without having to take measurements. There are always transition zones between two categories, however, as well as areas that just don't fit any category. If you have any difficulties, just choose the category that fits the best and explain any difficulties in comments section.

4. Snow tracking quality

Snow tracking surveys are only effective when the snow quality is good enough to show tracks. A rating system has been developed to record, as objectively as possible, the ability of the snow to register tracks. If snow quality is poor, any tracking data is considered very unreliable. Snow quality is recorded on a scale of 0 to 4.

Snow Tracking Quality Ratings

4: Best; every print registers, and detail within prints is very clear. Species identification is essentially absolute based on track details.

3: Good; every print register, but details are weak, perhaps obscured by snow falling into print. Print details usually visible in microtopographic sites, e.g., tree wells and shadows. Identification is based on track details, but gait patterns offer needed support.

2: Acceptable; some prints fail to register, and footprints details, if present, are visible only in microtopographic sites. Identification based primarily on gait patterns.

1: Poor, many prints do not register. Track details lacking. Identification is essentially by gait patterns, and may be possible only in microtopographic sites.

0: Unacceptable; target species does not leave enough prints to identify gait patterns left in trails.

Microtopography: Topographic features on a very small scale such as will affect individual tracks. These can include such things as being under a canopy of an individual tree, a slight rise in the ground, the north side of a large stump, etc.

The information that is in the last table is also repeated in another manner below.

Snow tracking quality summary					
<u>Rating</u>	<u>Prints</u>	<u>Detail</u>	<u>Detail Location</u>	<u>Gait Pattern</u>	<u>ID</u>
4	Every print registers	Clear within print	All locations	Distinctive	By tracks, essentially absolute
3	Every print registers	Weak, snow obscured	Details in microtopographic sites	Gain importance	By prints and gaits
2	Some do not register	No details in open	Only in microhabitats	important	By gaits, clues from details
1	Many do not register	No details	No details	Sole clue	By gaits
0	Most prints to not register	No detail	No detail	Not complete	Not possible

Snow quality rating system is taken from: W.J. Zielinski and T.E. Kucera, American Marten, Fisher, Lynx, and Wolverine: Survey Methods for Their Detection, USDA Forest Service General Technical Report PSW-GTR-157, 1995.

5. Pictures and plaster casts

No one who is not on the trip will be able to see the tracks that are using to determine whether an animal is present, so it is important to provide some concrete documentation that we can show to researchers. Pictures should be taken for all carnivores and uncommon species. Pictures and plaster casts should be taken for all level 4 species. The track log also serves as documentation, but is not as strong of evidence as clear pictures and casts.

B. Data sheets

There are 5 different data sheets that we use when surveying. Each sheet collects a different type of data. Here is a brief description of what each does, and why we have so many.

The **cover sheet** gives general information about the survey – date, where you went, how many of you there were, what the weather conditions were, forest type, snow quality, and so on. Some of this information is needed for our record keeping. Other parts are used to help understand the rest of the data you collected, for instance if there was freezing rain all day long, we will understand why you didn't see any tracks and went home early.

The **tally log** keeps a tally of every animal trail you cross. This is the primary sheet you will use during the day. Although “tally every trail you cross” might sound straight forward, in practice it is often difficult to tell when one trail ends and another begins. Do the best you can. With the common prey species such

as snowshoe hare, we are more concerned with getting the right order of magnitude than in getting an exact number. To help simplify things, if there are multiple trails within 15 feet of each other, they can be counted as one trail.

The **GPS log** keeps track of what was found where. Every time you take a GPS waypoint, record it in the track log. The log sheet allows you to make comments about what was seen at each waypoint. This sheet also keeps track of how many pictures were taken at each trail.

The **track log** helps lead you through identifying the track correctly and documents why you thought it was the species you did. Documentation is an important concern in snow tracking, since no one can go back and verify what you saw. The track log is designed to document why you identified the track as you did, so that someone who does not know your skill level and who did not see the track can look at what you wrote and tell whether or not your sighting should be trusted. It is very important that it be filled out correctly. The track log is also designed to help you teach, by walking you through the steps you need to go through to identify the track. The track log also contains habitat information as well.

There is also a **comments** sheet. If you are at all unsure whether you are recording something accurately, write notes on the comment sheet. Also use this sheet to record anything unusual or noteworthy about the day. This can be any difficulties encountered, a description of an unusual route followed, any animal trails followed, any unusual things seen, any highlights of the day, or any comments that you think would help someone reading the data understand what went on that day. For instance, comments such as "perfect snow for tracking" or "that coyote was just two fuzzy tracks, then they disappeared under snow plops" can really help the reader interpret your results. Writing on the comment sheet is not required, rather, it is there for when you need it.

This is the science part of what we do. Here is your chance to use your left brain, pay attention to detail, and use your powers of deduction to figure out what tracks you saw. Filling out survey forms is the one part of the trip where it is important that you carry out all of the details correctly! All instructions sheets are part of the tracking kit. Make sure you refer to them during the trip!

The primary instruction sheet follows. The rest of the data sheets and instruction sheets are in the appendix.

Survey Protocol

Before you leave the vehicles

- Fill out as much of the COVER SHEET as you can.
- Set the GPS to record the route you will travel.

When you find tracks or sign

Level 1 species

- Record each trail you cross in the TALLY LOG. Trails within 15 ft of each other can be treated as one.

Level 2 species

- Record each trail you cross in the TALLY LOG.
- For the first trail of each species, and any subsequent trails that you suspect might be a different individual: *(to keep from having to fill out too many track logs, we are assuming it is the same individual unless we can tell otherwise)*
 - Fill out a TRACK LOG
 - Take pictures. Take photos of both the track and the trail, be sure to include scale measurement. Take pictures under several different lighting conditions.

- Take a GPS waypoint.
- Fill out the GPS LOG sheet with the waypoint number, species, and number of pictures taken.

Level 3 species

- Same as level 2, except if you see a second trail, treat it as a separate individual, and make doubly sure everything is filled out completely & accurately.
- For red fox, trail the animal and search for genetic samples.

Level 4 species

- Do everything described for level 3 species.
- Trail it out. Be sure to record the start and end of the trail on the GPS.
- Include as much detail as possible in the TRACK LOG. Take many different measurements, such as size with and without claws, size of proximal pad, etc. Take multiple measurements and show your calculations in averaging them. Give detailed information on why you think it is this animal.
- Take photos of both the tracks and the trail pattern, with a measurement reference, from various locations. Make plaster casts of the tracks from various places.
- Search for genetic samples while following the trail.
- CALL the Forest Service biologist to let him know!

At the end of the survey

- Save the 'track' on the GPS.
- Finish filling in the COVER SHEET.
- If anything unusual happened during the day, write it on the COMMENTS SHEET.
- Get gear back from everyone.

NOTE: If the GPS does not pick up satellites or turns off for some reason, be sure to write in locations on a map.

C. Dividing up the tasks

To help make things easier, there are four roles for participants. Each role has an instruction sheet for the person to follow, so they can easily know exactly what needs to be done. These tasks have been split up according to what each person has to carry. The roles are:

Data Collection Lead person: tells the group what needs to be filled out when, and checks in with others to make sure the data sheets are filled out

Tally Log person: keeps a tally on the tally log of all animal trails seen

GPS person: uses the GPS to take waypoints

GPS Log person: records waypoints on the GPS Log sheet

D. Choosing a tracking site

When selecting a site, safety should be your main consideration. Make sure the weather conditions will allow you to drive safely to the trailhead and that weather and avalanche conditions will not present a hazard for the trip. Next, think about snow quality; check the weather forecast and select a site that will have good snow conditions. Next, check to see where other trip leaders have gone and select a site that hasn't been visited yet or has been visited only a few times.

Our goal is to survey as much of the forest as possible. Access during the winter, however, is an important constraint. Surveys need to start from a plowed area such as a snowpark, and can extend only as far as can easily be traveled on foot during a day. If access was not so difficult, sites would ideally be chosen based more on what areas provided suitable habitat for our target species; however, because different target species have different preferences and also because many target species have very large

home ranges and could potentially be found anywhere, surveys are not overly compromised by choosing sites based primarily on access constraints. Below is a list of sites that we have identified as having good winter access. For each site, it includes the parking area and a description of possible routes to snowshoe from there.

Sites should be surveyed up to three times in one season. According to standard published protocol for snow tracking surveys, three visits represents an adequate survey intensity for determining the presence or absence of a species, provided snow quality is acceptable during each visit (Zielinski and Kucera 1995). Obviously all sites will not be visited this often. In some years, some sites might not be visited at all, depending on snow conditions. However, when several years are combined, we want to make sure we do adequate survey as much of the forest as we can.

All sites should be within the Mt Hood National Forest. You can choose one of the recommended sites below that we have visited in the past, or visit a different location of your choosing.

<u>SNOWPARK</u>	<u>ROUTE</u>	<u>COMMENTS</u>	<u>ELV</u>
North side:			
Lawrence Lake	trails/unplowed roads heading North, South, and West	can only drive there when snow is not too deep, and probably will need 4wheel drive	3200'
Cooper Spur snopark	Tilly Jane trail Cloud Cap Road	Tilly Jane trail is great for an overnight, if you are in shape; cabin is at 5700'. Usually see marten near cabin.	3900
East side:			
Little John snopark	Forest Service Rd 44 Flat area by river, across hwy	Rd 44 not highly recommended - also used by snowmobiles and is hard to travel of-trail. Across river also not highly recommended - is close to highway and small.	3400'
Pocket Cr snopark	Ski trails	Relatively little use	3800
Tea Cup Lake snopark	Ski trails	Trails are groomed, but it is flat and easy to go off-trail; lots of trails	4300'
Clark Cr snow park	Clark Creek ski trail	Relatively little use. Often see marten in this area.	4400'
Nordic Center	NOT RECOMMENDED	Can access same area from Clark Creek Snopark with less traffic jams.	
Bennett Pass snow park	3 ski trails take off from here		4500
South side:			
White River snopark	North or south	OK - has very heavy use, but flat and easy to go off trail	4200
Barlow Pass snopark	Ghost Ridge Devils Half Acre Meadow	great view from Ghost Ridge	4300

	Barlow Butte ski trail to west – 3531 rd		
Salmon River Meadows - park either at gas station or at small turnout nearby	wander through meadow	no trail but flat and easy walking	3300
Frog Lake snowpark	Twin Lakes trail	Not recommended - heavy use, and ground steep and hard to get off trail	4000
Skyline Snowpark	Clear Lake area	Not recommended - heavy snowmobile use	3900
Trillium Lake	Trillium Lake area	Snowmobile area and gets pretty heavy use. But flat and very easy to get around in, so decent place for kids.	3600
Government Camp	Cross town trail Glade ski trail off trail	trails gets really heavy use, so not usually surveyed	4000
Timberline Lodge	either east or west along Timberline Trail	Very heavy use. Marten tracks usually seen here. Is the highest elevation site, so is surveyed when nothing else has good snow.	5700'
Mirror Lake	Mirror Lake trail	Not recommended - have to walk a ways along hwy to get to trail, very heavy use	3500
West side:			
Salmon Huckleberry wilderness		hike until you reach snow	1800
Zig Zag	ZigZag Mountain trail Hunchback Mountain trail	Not surveyed before. Start at low elevation and climb steeply. Not marked for ski traffic.	1600
Sandy River campground area	Road 1825 is blocked with a gate at the Sandy River when the first snow fall.s Can follow gated roads or explore off-trail.	If have 4 wheel drive or little snow, can get FS key and drive down road to Lost Cr or Ramona Falls trails, but need to get permission first. Area near the Sandy is flat and easy walking and is a large are to explore.	2100
Estacada:			
Indian Henry Campground	4620 Rd Clackamas River trail	For when the snow comes really low in elevation	1200
Rd 4630 (Timber Lake)	4630 Rd and its spurs	Road is not drivable. Very little use. Very easy to explore off trail.	1500
Rd 58?? - Shellrock Creek Rd	Drive aw far as the snow will allow, then start surveying	Very little use. May need higher clearance vehicle to get over patches of snow.	2200 to 4000

Rd 63 - Collawash Creek Rd	Drive as far as the snow will allow, then start surveying	Very little use. May need higher clearance vehicle to get over patches of snow.	Starts at 1500
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E. Tips on using a GPS

When you first turn on the GPS, it will search for the satellites it needs to connect to. This takes some time. One of the screens on the GPS will show a picture of a series of bars, just like a cell phone, that lets you know if it has found enough satellites. Once it has connected to the satellites, it also takes a while for it to recalibrate its present location. Leave the GPS on for at least a couple minutes before trying to take any waypoints.

Cold can drain batteries very fast. Often the batteries will recover some charge after they warm up again. Putting the GPS in a warm spot, like under your coat, can make seemingly dead batteries work again.

Always carry extra batteries!

F. Fox scat collection

The Cascades Carnivore Project has asked for help collecting fox scat for a study they are doing on mountain red fox. Mountain populations of red fox, those over about 3500' elevation, are distinct from lowland populations, those under about 2000' elevation. Lowland populations are thought to be descended from individuals introduced from the eastern United States, while the mountain populations are native. It is assumed that the two populations do not mix, but not much is known for sure. Little is also known about how much interbreeding there is between foxes from different mountain systems, or many other basic questions about their biology. By using scat, genetic samples can be obtained from different animals to try and answer these and other questions. If you see a fox trail, follow it to try and find a scat sample.

To identify scat as fox, first identify whether it is canine. If it looks like canine and is a small enough diameter to fit into the test tube, then you can assume it is fox. Canine scat has tapered ends and can often be somewhat twisted or segmented. Mustelid scat also has tapered ends, but is very twisted and often folded back on itself. Feline scat from is segmented but blunt on both ends.

When collecting the scat, collect about 2-3 ml (less than a square inch) from the ends and the edges, since those areas contain epithelial cells that have rubbed off the stomach lining, which provide the genetic sample. Record the date, location (lat/long from the GPS), whether the scat is wet or dry, and your initials. When you get back to the office, completely cover the scat with alcohol.

7. Teaching (DRAFT)

No matter how much you know about tracking, there will always be tracks you don't recognize and more to learn. Nobody expects you to have all the answers. This does not mean that you can't be a great trip

leader. Your goal as a trip leader is to awaken people's curiosity and show them how to learn. Your goal is NOT simply to give them facts to memorize and impress them with your own knowledge. Here are a few tips for being an effective teacher.

Maslow's hierarchy of needs states that after our basic survival needs are met, our next intermediate needs are for love, belonging and esteem. It is only after these needs are also met that people are open to new knowledge and understanding. If people don't feel welcome and comfortable, they won't learn. Get to know people's name, chat with them about their work, etc. Do community building activities such as going around the circle and have everyone share something personal. These activities aren't a waste of time – they can actually facilitate learning about tracking. Be sure to respect the knowledge everyone brings. Everyone brings something to the table.

As a trip leader, you are a facilitator as much as teacher, guiding participants to the answers. When looking at a difficult track, discuss what characteristics you see, maybe look it up in a field guide, and talk about what to look for. Even if you don't recognize the track, you can still do a great job of teaching the process of how to identify it and solve the mystery right along with the participants. And remember - most communication is nonverbal. Participants pay as much attention to who you are as much as to what you teach.

Start with the knowledge the participants already has, and build on it. For example, don't start talking about what species could have made the track if they can't even distinguish the track from the ground. People learn when it is connected to something they know, something within their usual frame of reference.

People also learn best when it is related to an emotion, such as curiosity. A good teacher is one who can get students curious about the answer before giving it to them. One example of a way to give participants that feeling of discovery is to have everyone take a turn being in the front of the group so they can be the one discovering a new set a tracks.

Different people have different learning styles and rely on different senses more than other. Some people need to see it, some need to hear it told to them, while others need to practice it themselves in order to learn. Tell them, draw a picture of it, tell a story about it, logically compare it, act it out, etc. And everyone learns faster if they receive the same data through different several different means.

Learning takes lots of repetition. In general, people remember things after learning and forgetting them about five different times. Go over again and again the basics of tracking. Consistently reinforce what was taught at the trainings.

Communication is a two-way activity. You may think you explained something brilliantly, but the person you were talking to may have spaced off during one crucial word and heard something entirely different. Follow up any instruction by having them tell you what they heard. Then follow that up by having them demonstrate what they learned. Don't be afraid of repeating yourself. Remember back to writing essays in high school English class - tell them what you are going to tell them, tell them, then tell them what you told them.

What happens on a trip depends a lot on snow conditions and what animals happen to have passed that way, both of which are out of our control. Our philosophy is to be flexible. Each trip is different and unpredictable. However, it helps to have some activity ideas picked out ahead of time, so that you can

pull the appropriate ones out when the time is right. Be prepared for days when you don't see any tracks; there are plenty of other activities.

Remember - even if all your teaching seems to get all muffed up, keep in mind the other important goal – to have fun and get people out in nature. You can't go wrong, no matter what happens!

List of activity/teaching ideas

Here are some suggestions of activities you can do when teaching. Feel free to be creative and come up with your own and what works best for you!

Tracking when you see tracks:

- List 4 animals it could possibly be, then come up with reasons why it is not the other three
- Have everyone draw what they see – either in the snow or on paper that they can take home with them
- Trail the animal, or find the next 100 tracks in a row
- Imagine what the animal might be doing, using clues from the gait, location, knowledge of the animal, and your imagination
- Try to age the track (using past weather)
- Act out the gait
- Draw the tracks on the map, showing how they fit into the landscape and any other tracks you have seen

Tracking when you don't see tracks

- Talk about what animals you would expect to find there
- Draw tracks in the snow and discuss what they should look like
- Quiz participants about tracking stuff they should know, like how many toes a bobcat has
- Pick an animal and talk about how it copes with winter (hibernates, eats stored food, etc), what it eats, where you might expect to find it, and other aspects of its natural history that you might know or wonder about
- Act out the gaits of different animals
- Tell a story of your most interesting tracking experience and have others tell theirs
- If snow conditions are very poor, it may be a good challenge to trail one member of the group
- Talk about snow quality and its impact on tracking. Recall when the last snow fell and what the temperature has been in the last couple days.

Other activities that will add to the experience

- Pop questions:
 - Which way is north? Which direction are the cars?
 - What time do you think it is?
 - Close your eyes. What color is the coat of the person next to you?
- Things to get people to pay attention:
 - Ask people 10 things they noticed in the last 100 yards
 - Pick a tree or other landmark and try to identify it on your way back
 - Stand still and identify 6 different sounds

- Things to create body awareness/stillness
 - Sit still for 5-10 minutes
 - Stand still and listen for quietest sounds
 - Everyone close their eyes. Pass around an object and see if they can guess what it is.
 - Do a guided mediation focusing on your different senses (close eyes, have people pay attention to what they hear, then to what they smell, then to what they feel, then open eyes and pay attention to what they see, then all senses at once)
 - Do a guided meditation involving our bodies, such as feeling your body part by part, or visualizing being rooted to the earth
- Learn about other aspects of the natural world
 - Try to identify trees (there is a guide book in the tracking kit)
 - Taste the different conifer needles for flavor, or other plants that you know are edible
 - Bird watch
- Navigation (be sure to have a GPS as a backup when going off trail!)
 - Try to pinpoint where you are on the map
 - Go off trail for 5-15 minutes, noting landmarks that you can use to find your way back
 - Variation: Have one person follow their inclination to wander where they will, while the rest of the group pays attention to landmarks.
 - Map and compass: Use your map and compass to navigate to a given point on a map
- Fire
 - Build a fire using the fire starter in the safety kit
 - Build a fire using only materials you have collected
 - Challenge yourself by stipulating that you can only use one match, or have to build it in 5 minutes
- Conservation issues
 - Talk about what our target species are and why we are interested in them (refer to the sheets in the tracking kit)

8. Safety in the field (DRAFT)

The tree main responsibilities of trip leaders are surveying, teaching, and keeping the group safe. Of these three, safety is by far the most important!

Keep the group together

Always keep the group together! Don't split up, and stay within ear shot. One good idea is to designate a rear person, who will make sure nobody straggles behind.

Keep an eye on how everyone is doing

Periodically check everyone's physical well being (cold? tired? drinking enough?). This can be a simple as scanning the group for problems, but also don't be afraid to ask.

Common safety hazards

Injuries due to falling or getting poked are probably the biggest threat.

- Watch out for tree wells (holes where the snow has melted out around the base of a large tree), trees that are buried in the snow, brush and tree limbs that can snag and poke you, your buddy's ski poles, ice patches, and other dangerous conditions.
- In windy conditions, also watch out for dead limbs or snags (dead trees) that might fall.
- Be careful around streams – snow may be overhanging the water
- Poor visibility – be especially careful when snow or fog limit your visibility. Pay careful attention to where you are, so that you don't get lost.

Hypothermia

Hypothermia is probably the second most important consideration.

- If there is a problem, don't be afraid to end the trip early and get out. Hypothermia can kill.
- People can often maintain their body temperature while moving, but as soon as they stop, the body temperature starts to drop. It is better to have several short lunch breaks rather than one long one. If anyone starts to get cold, start moving again.
- If someone is feeling cold, things that may help include: jumping jacks or running in circles, drinking water (dehydration is a contributing factor), changing into dry clothes, putting an emergency heat pack in their armpits or groin (these are in the first aid kit – they are inexpensive, don't be afraid to use them).
- Symptoms: shivering, numb extremities, quick shallow breathing, nausea, loss of coordination, slurred speech, confusion, aggressiveness.
- A person may not know they are getting hypothermic, or not want to admit it. If you even suspect there is a problem, act on it.

9. Trip evaluation

After each trip, ask participants to fill out an evaluation form. The information gathered is valuable feedback that can then be used to improve the program. It is also important to collect this information to report back to granters on the impact of the project.