

CASCADE WILDLIFE MONITORING PROJECT

Winter 2011-2012

A volunteer-designed collaborative project of
Wilderness Awareness School and Conservation Northwest

SNOW TRACKING SURVEY PROTOCOL

Originally prepared: December 4, 2008

Purpose:

This document is intended to provide practical instructions for teams of snow tracking volunteers and their team-leaders.

Introduction:

A major expansion project is planned for the Interstate-90 highway, known as the “I-90 Snoqualmie Pass East Project”, for a significant stretch of the highway between the Snoqualmie Pass and Easton. The project has progressed well into the planning stages with construction intended to begin within the next 5 years.

The project includes widening of the road and safety improvements, as well as a series of wildlife crossing structures. These structures are planned for sites known to be used heavily by wildlife in the area especially in animals’ attempts to cross the highway. Planned structures include underpasses (such as long bridges), culverts, and overpasses. Some planned overpasses are hundreds of feet long, covered with soil and vegetation, and effectively form a ‘tunnel’ for the highway.

During the planning process, good relationships have been maintained between government agencies and conservation groups. This wildlife monitoring project is a joint project of Conservation Northwest and the Wilderness Awareness School and is intended to provide more information about wildlife species presence and behavior at 4 sites of interest to Conservation Northwest, three of which coincide with planned wildlife crossings (Gold Creek, Price/Noble Creek, and Easton Hill). The other site, Hyak/Silver Fir, is the site of a proposed expansion to the ski resort. This survey is also intended to lay the groundwork for ongoing wildlife monitoring in the I-90 corridor and potentially more widely in the Cascades.

One previous snow tracking study was conducted by Peter Singleton and others as part of the planning process for the I-90 Snoqualmie East Project. Singleton’s study combined snow tracking data with roadkill records and habitat parameters to provide information to help decide the locations of the planned wildlife crossings. Our current monitoring project seeks to a large extent to replicate the procedure used by the Singleton study so that our data may be comparable, and usable by decision-makers.

Project Goals:

This project is oriented towards the following goals:

- To gather information, using snow tracking methods, about the presence and identity of wildlife along the I-90 corridor in the vicinity of wildlife crossing sites proposed for the I-90 Snoqualmie Pass East highway project, and in addition, for one location in the vicinity of proposed expansion of a lift-access ski resort.
- To trail species of interest, recommended by several consulted biologists, with the intent of gaining insight into their behavior with respect to I-90: to determine, for example, whether given individuals approached the highway, paralleled it for some distance, attempted to cross it, or otherwise provide evidence of its impact on nearby animal behavior.
- To set up and conduct a study that can produce reliable data that can be collected consistently in subsequent years and analyzed through time as the proposed developments are built. To collect data that will be useful in assessing wildlife activity before and after the construction of proposed highway crossings in the I-90 corridor.
- To provide educational opportunities and training in snow tracking methods and road ecology to entry level volunteers and an opportunity for citizens concerned about the future of wildlife in our region to be involved in this conservation research. To initiate the training of volunteers to create a resource of volunteer skill for future surveys in the area.

Personnel/Training:

This survey is designed and operated by volunteer naturalists and trackers, in consultation with professional wildlife biologists in government agencies or other organizations concerned with the I-90 Snoqualmie Pass East Project. Biologists we have consulted include Sonny Paz (Mount Baker-Snoqualmie National Forest, North Bend office), Paul Wagner (Washington State Department of Transportation), Gary Koehler (Washington Department of Fish and Wildlife), Anthony Clevenger (Montana State University, Western Transportation Institute), Patty Garvey-Darda (Okanogan/Wenatchee National Forest, Cle Elum office), and Karen DeVornich (University of Washington, Nature Mapping Project). The fieldwork will be carried out in small teams of 3-5 volunteers and a team leader. All participants will receive basic training in the fieldwork procedures and tracking identification, the team leaders having a more detailed training.

Team leader responsibilities:

- Conducting surveys at three sites with a team between January 1st and March 31st 2007.
- Preparing for each visit ahead of time (see below, Preparation before Departing).
- Understanding and following the field work procedure.
- Ensuring accuracy of data collection.

- Entering the team's data (from data forms) into the computer database as soon as possible.
- Ensuring data forms, samples and equipment are turned in.
- Emailing a description of your visit with any heads-up about the site to all team-leaders.
- Supervising team safety in the field.
- Setting a tone for safety, productive scientific work, and fun.
- Helping team members learn more about tracking and wildlife.

Team member responsibilities

- Understanding the purpose of the survey and working for that purpose.
- Passing information to team leaders and doing any data recording cleared by the team leader.
- Ensuring your own and others' safety.
- Contributing to an atmosphere of learning and fun.

FIELD PROCEDURES

NOTE: **Site assignments and dates for tracking days** will be organized at the team leader training. Each team-leader will be assigned three sites to visit.

Fieldwork Locations

This project will survey five locations along the I-90 corridor chosen by Conservation Northwest. These sites coincide with several proposed wildlife crossings or other proposed development. Each site involves two half-mile transects, one on either side of the highway, (except for Hyak/Silver Fir, which is not along the highway.) Below is a brief description of the sites with directions to them. (*All UTM coordinates are zone 10, NAD 83 datum*)

HYAK / SILVER FIR

Sidehill Start: 620155 5250950
Sidehill End: 620440 5250080

Hyack Creek Start: 620410 5250575
Hyack Creek End: 619440 5250070

This site is accessed from the Silver Fir ski lift parking lot at Hyak. **This is the only site not involving transects that parallel I-90, ie. this is the only non-highway transect. Road-oriented items on data sheets are therefore not relevant for this site.** The Hyak site is of conservation interest because there is a proposal to expand the ski resort. The transects start a few meters from the parking area. One transect follows the trajectory of an existing trail; the other goes perpendicular to the trail, following a creek uphill.

Directions: Going East on I-90, cross the Snoqualmie Pass and take the Hyak / Gold Creek exit. Turn right after the ramp, to the South of I-90, and follow the road as it bends to the right. After a short distance there are signs to Silver Fir ski lift on the left; turn left and park in the far left (South-West) corner of the parking lot. Walking straight South from the South-edge of the parking lot will take you uphill to a logging road/ski corridor which runs parallel to the edge of the parking lot. Follow this trail to the left (approx. East), **keeping left at any forks**, till you reach a stream in a steep V-shaped channel. The intersection of the stream and the trail is the starting point for both transects at the Hyak site. The first transect, named “Hyak—sidehill”, follows the trail to the East of the stream, continuing straight if the road bends, and ends at the overhead power lines. The second transect, named “Hyak—Creek” parallels the creek uphill and also ends at the power lines. For this transect, walk along the East side of the creek.

NB: If the stream is too difficult to cross, walk up hill a short distance to find the footbridge. Having crossed, walk back downhill to the transect starting point.

GOLD CREEK

South Transect Start: 622490 5249740
South Transect End: 621675 5249020

<i>North Transect Start:</i>	621790	5249600
<i>North Transect End:</i>	622380	5250020

The Gold Creek site is between approximately Mileposts 55.2 and 55.8 of I-90. It is accessed from a ‘frontage’ road the same I-90 exit as the Hyak site. The Gold Creek North transect

Directions: Going East on I-90, cross the Snoqualmie Pass and take the Hyak / Gold Creek exit. **For Gold Creek North,** Turn left after the ramp (onto Lake Mardee Road) to go under the highway. Once you are North of the highway, turn right on Gold Creek Road, Nf-4832. Follow the road East, and you will cross Gold Creek. Soon afterward, on the left, is a road (Nf-144) on the left, with a sign that says “Gold Creek Snow Park” and/or “Gold Creek”. This road marks the Eastern-most extent of the transect. The transect runs West from this point (and 150 meters from I-90) to the Western bridge in the Gold Creek valley. The transect is to the North of the small road (Nf-144) and some distance away from it, so that the transect is 150 meters from I-90. The transect crosses Gold Creek.

For Gold Creek South transect, take the same exit of I-90 and turn right after the ramp, onto Lake Mardee Road/906. Park in the parking lot of the Department of Transportation Maintenance Office. (Introduce yourself to the supervisor there, Al or Gary, to ask them where it’s OK for you to park).

To get to the Maintenance Office requires taking your first left off Lake Mardee Road/906, onto Nf-2219 and following this, staying left at any forks. (Road becomes Milwaukee Ln). The Maintenance Office is pretty much at the end of this road. Look for the large buildings and parking lot to the right of the road. The transect runs East from the East-most buildings (which mark the start of the transect), into the Keechelus Lake valley, parallel to I-90 and about 150 meters away from it—for half a mile. A useful landmark for the far (Eastern) end of the transect is the bare rock face of a cutting on the opposite (North) side of I-90. The transect ends at the bare rock face before the lights signifying chain on/off for drivers on I-90, and 150 m from I-90. The transect crosses Gold Creek.

PRICE CREEK / NOBLE CREEK transects

There are **two pairs of transects** in this area, located just beyond the Eastern end of Keechelus Lake, at around Milepost 61. We have called the transects Price/Noble Creek West, and Price/Noble Creek East, and each of these is divided into North and South transects for each side of I-90.

PRICE CREEK / NOBLE CREEK WEST

<i>South Transect Start:</i>	626560	5241980
<i>South Transect End:</i>	625620	5242620

<i>North Transect Start:</i>	626860	5242300
<i>North Transect End:</i>	625640	5242958

Directions: For **Price/Noble Creek West, South transect**, exit I-90 Eastbound at the first rest area exit immediately after the dam for Keechelus Lake. Take the logging/ski road that leads roughly South away from the *truck* parking area. This road will shortly come to a T. This T forms the starting point for both Price/Noble Creek West, South transect *and* Price/Noble Creek East, South transect. Price/Noble Creek West, South transect, runs West from the T along the road until the road bears left, at which point the transect continues on a straight trajectory into the woods, paralleling I-90. The transect ends at the Keechelus Lake Dam. The transect crosses several small creeks, which will probably be frozen on snow tracking days.

For **Price/Noble Creek West, North transect**, go East on I-90 and take Exit 70 (Easton Lake) and re-enter the I-90 highway Westbound. Then take the Price/Noble Creek rest area exit, where there is a Snow Park. This should be between Mileposts 62 and 61, and is on the North side of the highway. Walk up the snowmobile trail a short distance to the flagged start of the transect. **Following this transect:** Note, this transect runs slightly differently then last year, following a route which runs closer to the highway and ending just beyond the “Rock Knob”.

PRICE CREEK/NOBLE CREEK EAST

South Transect Start: 626560 5241980
South Transect End: 627101 5241550

North Transect Start: 626925 5242090
North Transect End: 627510 5241210

Directions: For **Price/Noble Creek East, South transect**, follow the directions above (for Price/Noble Creek West, South transect) to find the T-junction mentioned. At this T, turn left and head straight East parallel to I-90 for half a mile to complete the transect.

For **Price/Noble Creek East, North transect**, start at the same Snow Park as for the Price/Noble Creek West, North transect, (exit from I-90 Westbound around Mileposts 61 and 62) and walk a half-mile transect East, parallel to the highway.

EASTON HILL

*South Transect Start:*634869 5235716
South Transect End: 633270 5236500

*North Transect Start:*633915 5236475
North Transect End: 633083 5236680

Located around Milepost 67.8, where the highway splits into two leaving a large vegetated island in between.

Easton Hill South Directions: To Parking:

- From I-90 Eastbound take exit 70 (Easton Lake).

- At stop take a left and go over the highway and past the Westbound on ramp.
- Left onto Sparks Road toward Lake Kachess
- Follow this road until just before it ends where people park to unload snowmobiles
- Take a left and go under 1-90 to the large parking area south of the Highway
- Park here (A snowpark pass may be required).

From Parking to start of transect:

- Walk back under the Eastbound lanes of 1-90. About 20 meters further on you will find a snow covered road running to the West (left). I placed a piece of orange flagging tape around a large Douglas fir by the road. Under the tree you will find a Forest Service road sign with **4814** on it.
- From this point, the transect starts .65 Km down this road and runs for 1.6km (1 mile) to just about the end of where the East and West Bound lanes of the Highway are divided.
- Follow the snow covered road for the .65 Km. I flagged any junctions that I thought might be confusing.
- The start of the survey should be well marked with flagging tape labeled "CWMP Easton South Transect Start".

Following the Transect:

- From here the transect follows this road for most of the mile.
- The road ends at some point (you will find yourself on the north side of the hill seen on the topographic maps. Continue heading west paralleling the highway until you come to a wetland.
- Work your way LEFT around the wetland (at some point you should pick up more orange flagging tape we left) and continue to head west towards the end of the transect.
- The end of the transect is about 2.24 km from where you left the plowed road). It is on the south side of forest that ends at a plowed turn-around used by snowplows and within sight of where East and westbound 1-90 remerge. The end is also flagged but once you hit the obvious turnaround you have reached the end.

IMPORTANT NOTE: As this transect is between the two directions filling out the direction of travel data point is different then at other sights. Your options are (towards, away, parallel). If it is going North (towards the Westbound lanes) this should be labeled TOWARDS. If it is going South (towards the Eastbound Lanes) this should be labeled AWAY....

Easton Hill North Directions

Directions to the start of the Transect: North of the interstate, park at or near the dead-end sign, where there's also a sign indicating that the road beyond the dead-end sign is privately maintained. There is no official parking spot here so no snow-park required. (If you don't mind walking a little further you could drive under the highway and there's a turnaround parking spot down there, where you'd park for Easton Hill South, too.)

Walk down the road past the dead-end sign, parallel to the highway. You'll pass a few houses. KEEP LEFT AT ALL FORKS till your road intersects with the power lines. The transect starts on this road and should be well flagged on the South side of the road grade. (There is a bunch of orange tape on the left hand side which has nothing to do with us. Some of it also coincides with the transect start point, though!).

Following the Transect: The transect starts by following the POWERLINE ROAD (West) until a old logging road cuts off to the left (well flagged hopefully). The remainder of the transect follows this road grade and should be well flagged to the end. (NOTE: the second part of this transect was changed last year from the first season of the project. This year it remains the same as last year.)

Equipment

Required equipment will be listed at the trainings. Equipment list includes:

Required:

- ✓ Pocket PC with battery fully charged and Cyber tracker loaded
- ✓ Clipboard.
- ✓ Data sheets (plenty). There are three types: Transect data sheets (back up in case of PDA failure), Target species sheets, and Trailing sheets.
- ✓ Snow Tracking Quality designation key.
- ✓ Synopsis of Survey Protocol, and/or a copy of this document, Snow Tracking Survey Protocol.
- ✓ Waterproof bag/folder for completed sheets
- ✓ Pens and pencils
- ✓ Tape measure. Two rulers for photography. Ensure all include metric units.
- ✓ Your own notepad (eg. for site descriptions for future team leaders)
- ✓ Digital camera with sufficient battery and memory
- ✓ Notecards for labeling photographs
- ✓ Sample bags (Ziplocs)
- ✓ Maps of location
- ✓ Surveyors' Tape for flagging
- ✓ Compass
- ✓ Cell phone for emergencies
- ✓ Sufficient warm clothing, snowshoes, warm boots, food and water, headlamp, sunglasses, etc.

Recommended:

- ✓ Working GPS unit with spare batteries
- ✓ Umbrella (useful for recording data when it's snowing)
- ✓ Tracking Field Guides

Field Team Preparation

Team-leaders should ensure several days in advance that they are well prepared for a planned survey expedition. Advance preparations include at least the following:

- Inform DOT and/or highway patrol of your intentions and the dates of your survey. Consult them about expected snow conditions and verify access to highway exits at your survey site. The telephone number of the DOT Maintenance Office for Snoqualmie Pass area is 425-434-5608.
- Check on the likely availability of parking spots and obtain a permit if necessary.
- Keep track of the weather and snowfall at your site in the days before your visit day. Some resources for this include: The DOT website (including webcams) and NOAA websites. Certain conditions may make a field expedition too dangerous or unadvisable; if this is the case it needs to be rescheduled with your team.
- Find out and record the most recent snow fall. <http://www.wsdot.wa.gov/> has good information about conditions at the Pass including webcams. <http://www.noaa.gov/> is another good resource. You can also call the Snoqualmie Pass Maintenance Office at 425-434-5608.
- Check you have all equipment ready and working.
- Check in with your team to ensure they are ready and so is their equipment.
- Decide on final return-time, bearing in mind the weather forecast, possibility of snowy conditions on the road, and early darkness—as well as the schedules of your team-members.
- Ensure at least one member of the team has a reliable watch.

Field Procedures: Highway Transects

Team Leader:

- 1) On arriving at your site with your team, first ensure that vehicles are parked safely.
- 2) Gather your team together and review your day plan with them to ensure everyone is on the same page. Check everyone has all necessary equipment (see list above). Bring a cell phone for emergencies. Also ensure that volunteers all have sufficient warm clothing, water/tea, food, and other outdoor or safety equipment (eg. snowshoes, flashlight, lighter, etc.) for the day. Ensure that everyone is familiar with emergency procedures (Call 911).
- 3) Find the transect starting point. To do this, use the site descriptions in this document, and/or brightly colored survey tape left by previous teams. Highway transects are at a distance of about 150 meters from the road at the point you left the highway.
- 4) Conduct snow-tracking transect from the starting point (approximately .5 miles). Transects should maintain a straight line (constant distance of 150m) as far as permitted by the landscape. Transects should be well flagged. Replace flagging as needed IF you are SURE that you are on the transect line.

- 5) Upon reaching the furthest point of the transect (determined by a landmark and/or with a GPS unit indicating the transect end (see site descriptions above), the team will have recorded all relevant tracks seen along the transect.
- 6) On the return leg, your team takes the opportunity to **trail** Level 1 or 2 species in the order of our priority list (see Appendix). *If there were no level 1 or 2 species trail at least one Level 3 species.* Trailing data should be recorded using the “Trailing Sequence” on the PDA unit (it can also be recorded manually on a TRAILING DATA SHEET). The priority is to follow trails towards the highway. It is important to complete transects on both sides of the highway in a single day, however, and so teams should take this into account when deciding how long to spend trailing.

Procedure for Tracks: How to Document.

- 1) Stop your companions and bring tracks to their attention. Stop walking to prevent destroying tracks.
- 2) Record data carefully by completing all steps in the cybertracker sequence on your PDA.
- 3) For Level 1 species, or ambiguous tracks that may be a Level 1 animal, document tracks with measurements, sketches, and photographs. Use the “Target Species data sheet” for this information.
- 4) Determine whether the animal is a trailing priority species (See list, Levels 1 and 2). If so, clearly mark trailable tracks for trailing on your return leg.
- 5) Mark the tracks as ‘done’ so a later team will know they have been recorded by your team. Draw an obvious circle around one or more tracks and leave a large footprint next to them with your boot or snow shoes.
- 6) Continue walking transect.

Procedure for Trailing: How to Document.

Trailing is to be done on the return leg of the transect except in the case of level 1 species which should be carried out immediately. *Attempt to trail at least one animal towards the road after each transect.*

Level 1 species should be trailed wherever possible. In the case of the top 5 species (wolverine, fisher, lynx, wolf, and marten), these can be trailed even before a transect is completed, as they are critical rare species.

Level 2 species should be trailed in the absence of Level 1 species, after completing the outward leg of your transect and where time is available.

Level 3 species are not to be trailed until other work on the transect is complete and only if there are no level 1 or 2 species to trail.

- 1) On the outward leg of your transect mark trails you will want to follow for easy identification on your return leg, and note the trail in your field notes on a list of trailing possibilities.

- 2) When your team reaches the furthest point of the transect, the team-leader should review trailing possibilities from the outward leg and decide which are of highest priority. If no Level 1 species are detected, your team should be sure to complete the rest of the transects before trailing any Level 2 or 3 species.
- 3) On the return leg, follow chosen trails towards the highway. Record all discernable behaviors, especially with reference to the highway. For example, how close does the animal approach the highway? Does it attempt to cross it? Does it walk along it for some distance? Does it make a lay close to the highway? Does it remain in cover or in full view? See data sheet and attached notes for how to record these observations.
- 4) Record the path of the animal by documenting frequent GPS UTM coordinates (obtained from your PDA) with associated commentary in notes, where appropriate—especially for Level 1 species. This may be of particular value if the tracks suggest an attempted highway crossing, as GPS records for tracks found on opposite sides may help determine whether the tracks probably belong to the same individual, which crossed successfully.
- 5) Trail Level 1 species as far as possible to gather as much information about the animal as you can. For Level 2 and 3 species, the energy expended trailing should depend on your team-leader’s judgement, safety considerations, and whether both transects have been completed.
- 6) If you have found a Level 1 species, call David Moskowitz (425 891 4745).

Procedure for Sign other than Tracks

Follow the procedures outlined above for dealing with track evidence. In addition, take samples of hair and scat if the animal is or may be a Level 1 species. These samples should be placed in sealed bags and immediately labeled with Site Name, Date, Team-leader’s Name and Observation Number.

Procedure for Ambiguous or Unclear Tracks or Sign

- 1) When ambiguous or unidentifiable tracks are found, the first step is to search the area for better tracks of the same animal. If there is a trail you can follow, this is one way you may discover clearer tracks for that individual. In general, look for where the creature has entered more sheltered areas away from direct sunlight, wind, further snowfall, or whatever has likely obscured the tracks. If the animal can be positively identified, record species on data sheets as usual.
- 2) If clearer identifiable tracks cannot be found, then ambiguous or unidentifiable tracks should be treated with care, especially if they might indicate a Level 1 Species.
- 3) If the tracks are possibly Level 1, document them in detail. Follow the usual procedure for documenting tracks, and ensure good sketches, photos and measurements are taken.
- 4) Unclear tracks that are clearly NOT a Level 1 species should simply be recorded as “unidentified species”. In the attached notes, list possible species if appropriate.
- 5) If you have found a Level 1 species, call Dave Moskowitz (425 891 4745).

Photographic Documentation Procedure:

Key points for photo-documentation of single tracks:

- Take photo looking directly down on track to reduce distortion.
- Include two scales, preferably rulers, one running lengthwise, the second widthwise.
- Take at least one picture of the track that includes a card in the picture with Site Name, Date and Observation Number and Team leader's name.
- Take multiple photographs to ensure you get a quality shot.

Key points for photographing gait patterns and trails:

- Include a scale of some sort. Often this may be leaving the scale you used for an individual track on the ground by that track (thus also giving a reference for where the individual track sits in the pattern).
- Try to take picture looking straight down on trail to reduce distortion. If this is impossible due to size of trail, include scales both near and far to account for distortion.

Sketches and Measurements

Fill out the Target species data sheet to record this information for Level 1 species. Attempt to make all drawings either life size or to scale (note what scale is).

After your visit

- 1) **Handing in you data:** Team-leaders are responsible for recording data sheets and syncing PDA's at our rendezvous location (**Starbucks in North Bend** *IN* the shopping center with the Safeway off of Bendigo Way, not the shop at the gas station across the road). Data sheets should be left in the binder/tray after data has been entered. It is requested that team-leaders enter their day's data within 24 hours or by the end of the weekend, to ensure no data is lost.
- 2) **Email brief report of visit to all team leaders.** Since it is likely that other groups will visit your sites following your visit, please pass on information about the site. The next team will greatly benefit from a brief report, including site conditions, what you learned about animals in the area, topography, dangers, and any outstanding questions. Please email all team-leaders a description of your visit with any heads-up about the site when you've entered the data at Dave's house.

APPENDIX 1

SPECIES PRIORITY LIST

*Tracking priority for this study
in descending order*

Level 1

Wolverine
Fisher
Lynx
Wolf
Marten
Grizzly Bear
Cougar
Mountain Goat

Level 2

Elk
Mule Deer
Mountain Red Fox

Level 3

Black bear
Bobcat
Coyote
Raccoon
Snowshoe Hare and smaller animals—do not record

KEY

Level 1 species should be trailed wherever possible. In the case of the top 5 species (wolverine, fisher, lynx, wolf, and marten), these can be trailed even before a transect is completed, as they are critical rare species.

Level 2 species should be trailed in the absence of Level 1 species, after completing the outward leg of your transect and where time is available.

Level 3 species should only be trailed if there are now level 1 or 2 species present on transect.

Appendix 2

CASCADE WILDLIFE MONITORING PROJECT TRACK MEASUREMENT GUIDELINES

Length and Width: Use track minimum outline

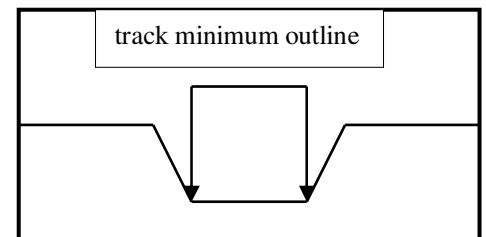
Group length: measured from the back of the track furthest back in a set of 4 tracks to the front of the track furthest forward. NOT USED FOR walking or trotting gaits (groups of 2)

Stride: measured from a place on one foot (such as the “center of the front left”) to the same place on the same foot the next time it appears in the trail.

Straddle: distance from the outside of the leftmost track in a trail to the outside of the rightmost (using minimum outline)

Center Straddle: distance from the center of the leftmost track in a trail to the center of the rightmost.

Trough: width of the entire disturbance created by an animals trail (greater then the minimum outline of the tracks which may be indecipherable in some instances)



QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

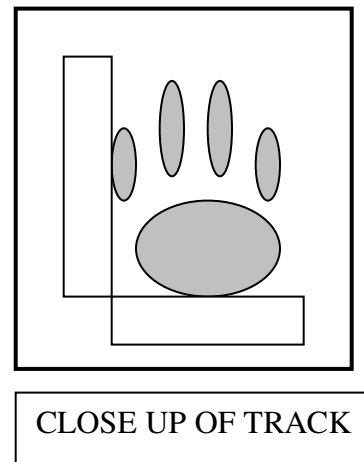
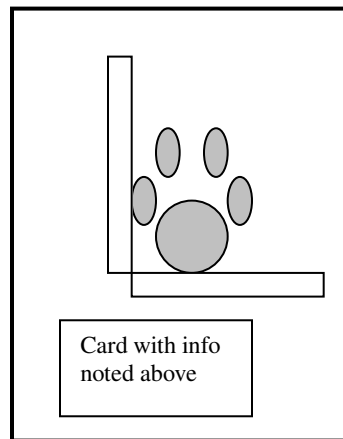
QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Appendix 3

PHOTOGRAPHIC DOCUMENTATION GUIDELINES

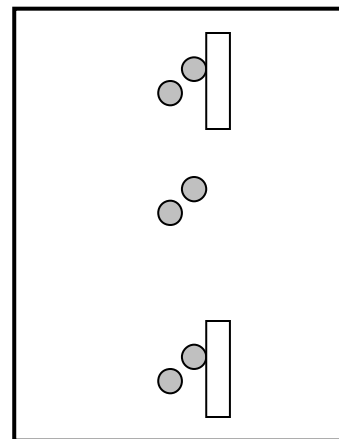
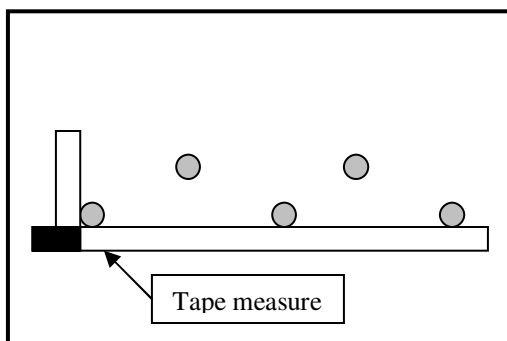
PHOTOGRAPHS OF INDIVIDUAL TRACKS:

1. Take photo looking directly down on track to reduce distortion.
2. For close up photographs, fill the entire frame with the track and measuring devices
3. Include two scales, preferably rulers, one running lengthwise, the second widthwise.
4. Take at least one picture of the track that includes a card in the picture with:
 - Site Name
 - Date
 - Observation Number
 - Team leader's name.
5. Take multiple photographs to ensure you get a quality shot.



PHOTOGRAPHS OF GAITS/TRAIL PATTERNS

1. Include a scale of some sort. Often this may be leaving the scale you used for an individual track on the ground by that track (thus also giving a reference for where the individual track sits in the pattern).
2. Try to take picture looking straight down on trail to reduce distortion. If this is impossible due to size of trail, include scales both near and far to account for distortion.



PHOTOGRAPHING THE SETTING

Also consider taking photographs of people looking at the tracks or sign, or pictures which show the tracks in the context of the location they are found to accompany the detail photographs.