

CASART



Introduction to Human Tracking for Search and Rescue Volunteers

Session Goals

Attendees will:

- ◆ Understand what constitutes a "Sign" and the importance of being "Track Aware"
- ◆ Become familiar with tracking terminology and techniques
- ◆ Experience human tracking first hand to learn to see physical "sign" that others would look at and not see
- ◆ Understand the patience and concentration necessary to identify a potential human track in the field to be a more effective line searcher and SAR volunteer

Session Content

- ◆ One day, 6 hour course, 2.5 hours in the classroom, lunch and 3.5 hours in the field
- ◆ A Question and Answer session will follow lecture
- ◆ Field work - We'll break up into groups of three to begin tracking. Groups will begin at a marked line of sign with an obvious footprint and draw and measure the print. Next we'll set up our tracking sticks to measure the stride interval of the subject and then begin tracking.

Part 1 — What Constitutes a "Sign" and the Importance of Being "Track Aware"

As Search and Rescue volunteers, our goal is to help recover a lost individual. But it's important to understand that we are not just looking for a person. We should be looking for any physical indication that the lost individual has left behind. We should be looking for "Sign."

So, what is a sign?

Sign is all evidence, not limited to footfalls, of a person's passage or presence.

Easy to see signs might include:

- Discarded clothing
- A lost hat
- A water bottle
- Candy wrappers

Harder to notice signs can include:

- Broken twigs
- Bruised vegetation
- Compressed leaves

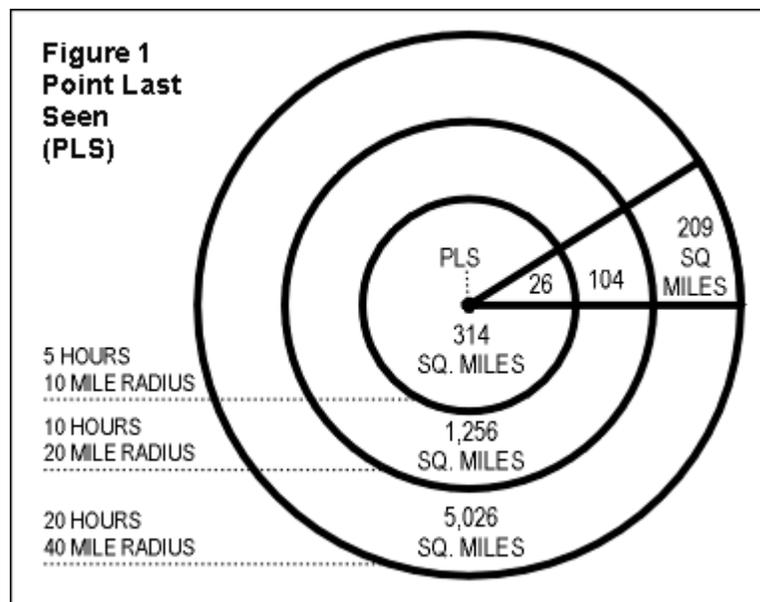
Can you see the signs in the picture to the right?
It's there, but it's hard to see with an untrained eye.



Good Trackers understand the patience and concentration it takes to notice a sign
Being "track aware" on a SAR mission could someday save a life.

Part II — Subject's Point Last Seen (PLS) and Track Identification

By the time we are called to a search, the Rangers or initial responders will have established the place that the subject was last seen or known to be. The "Point Last Seen" is often abbreviated PLS. Identifying a place last seen and a direction traveled by the subject is very important in that it helps to concentrate the search area as shown in Figure 1.



Descripton and Details

The initial responders will develop a description of the lost subject(s). With luck, the description will include a description of the type of shoe the subject was wearing.

A description of the shoe type and size is helpful to understand what type of track to look for in the field.

If a good footprint is found a detailed drawing of the print would include the following measurments (See Figure 2):

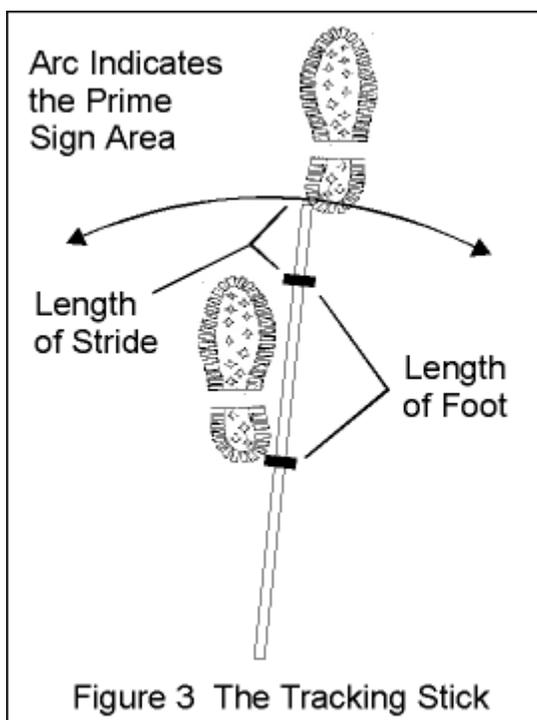
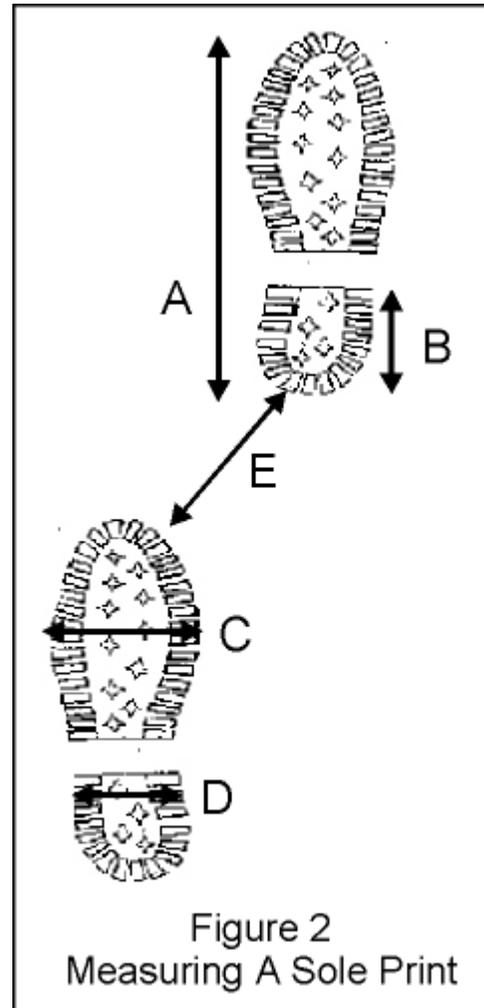
- A) Overall length
- B) Length of heel
- C) Width of the ball of the foot
- D) Width of the heel

The reasons to make a detailed drawing of the footprint include:

- Possible use as evidence
- Helping you to remember it so you can communicate information about it to others.

Once a set of tracks is found in the field the tracker can measure the stride interval (E, Figure 2), which is the distance between the tip of the toe of the first print and the back of the heel in the following one.

The stride interval can be marked on a "tracking stick" and then measured repeatedly to help find the most likely location of next footprint. This area is called the "Prime Sign Area."



Use of the tracking stick is shown here in Figure 3. (Left)

Part III — Teamwork, What to Look For and Training Yourself to See a Line of Sign

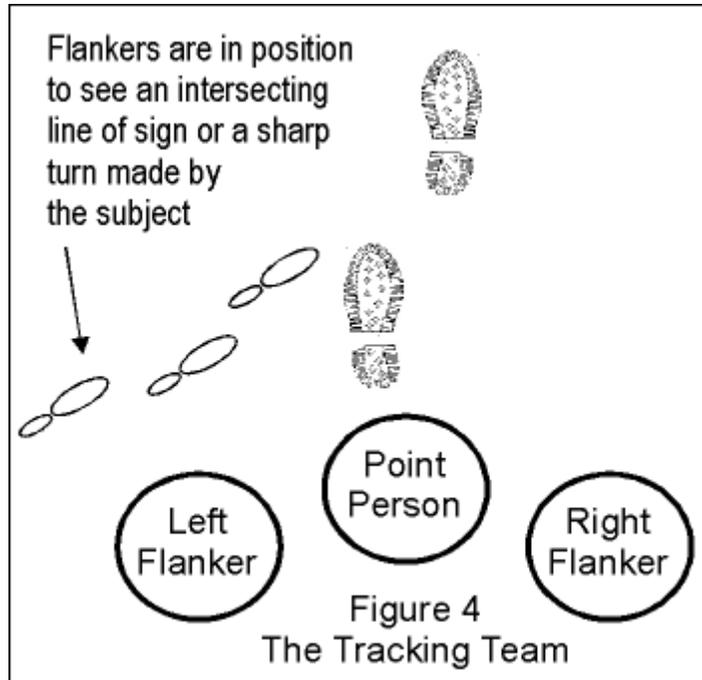
The preferred tracking team is a three person team consisting of a point person in the center and two flankers walking or crawling slightly behind. (See Figure 4) The flankers remain slightly behind the point person in order not to contaminate any unfound tracks that lie ahead. If the subject changed directions having the flankers slightly behind decreases the chances of contamination.

The point person swings their tracking stick to the next likely location of a track and the team works to identify a footprint.

Each time the team agrees that they have a print then one of the flankers tears a piece of flagging tape and marks the heel of the print by pressing the tape into the ground. The team then moves forward in search of the next print, taking care not to damage the last marked track.

The team should periodically rotate the person on point to provide a change of pace and a change of position.

Trackers will be working close together in uncomfortable positions, terrain and conditions.



Good honest, communication, and a positive attitude can be critical to working well as a team.

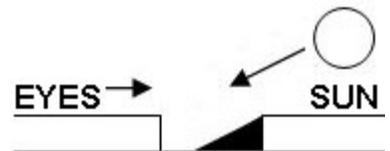
What to Look For

You'll find that a footprint in the woods rarely looks anything like the idea of a footprint that you have in your mind right now. It took some work fluffing up the soil in this picture (Right) to make a full, easily seen footprint.



Observe the shadows in the footprint photograph above and then look at the direction of the sun diagram (right). Looking towards the light source will help you to see a small ridge that might otherwise be difficult to see looking more from the side of the light source.

This concept is most important when tracking at night with a handheld flashlight. Oblique lighting is the process whereby a flashlight is held horizontally and parallel to the ground while shining the beam at the suspected track. The light angle is moved to accentuate the sign detail by creating artificial shadows.



A glossary of tracking terms having to do with sign and indicators of a foot strike:

- Aged Vegetation - looking for a known amount of decay on damaged vegetation
- Broken Stems, branches and twigs
- Bruised Vegetation - if a plant has merely been bumped it may show a bruise even though it didn't break

(Bruised and aging ferns with broken stems provide enough sign to easily identify a footstrike - right)



- Compressed Areas - caused by the weight of a foot, will be mostly focused at the heel and ball of the foot
- Continuity of Sign - The evidence of footfalls is in unbroken sequence and spacing
- Disturbance - any disturbance that could indicate a footfall. Disturbed leaf litter, animal droppings or soil
- Dislodged Sticks or Stones - any object dislodged from where it had been for a long time will leave a sign
- Embedded Object - a stick or pebble embedded into the ground or underlying vegetation by compression
- Grass Trail - vegetation that is turned, flipped or twisted towards the direction of travel
- Kick or Toe Kick - a depression with debris scattered by a footfall and then movement of the foot pushing off towards the next step
- Light Angle - looking from one side a slight depression will show a shadow but not from the other. Another reason to work in groups of three
- Line of Sign - same as Continuity of Sign above
- Oblique Lighting - a process whereby a flashlight is held horizontally and parallel, low to the ground while shining the beam at the suspected track. The light angle is moved to accentuate the sign detail by creating artificial shadows. Used in low light or dark conditions.
- Prime Sign Area - the area where the next footfall should appear, found using a properly set up tracking stick
- Scuff mark - dragged debris or scraped surface from a dragging toe or a slip or turn while stepping
- Shine - vegetation that has been stepped on will often appear to shine by surfaces being turned in a uniform direction
- Signature track - unmistakable footprint evidence
- Stride interval - the distance between the tip of the toe of the one footprint and the back of the heel in the following one
- Toe Dig - indented mark made by the toe in a normal walking motion
- Tracker Burnout or Blindness - what can occur after tracking too long

Good Teamwork Equals Better Tracking

While tracking you might find many of the indications listed in the Tracking Terms Glossary in one footprint. Or, you might find only the slightest hint of one of them. Teamwork will be critical for two reasons.

- 1) In difficult terrain only one team member may have the right angle to see a sign, so it is important that everyone contribute to the best of their ability
- 2) There are decisions to be made, for example: Is it a track or not? Do we go on, or do we go back to the last track we were sure of? Should we take a break?

By focusing everyone from three different angles on the "Prime Sign Area" determined with a tracking stick, the team will eventually find some indication of a footfall. Then you work it as a team to find as many items as you need as a team to convince yourselves that you have a track. If you don't find anything else after a focused team examination you must decide as a team to go back to the last track and start the process again.

It is helpful now and then to stand up and look back at the marked "line of sign." That is the line created by flagging each heel print that indicates the path the subject has traveled. The line of sign tends to go in a relatively straight line because that's how people walk.

Natural barriers, like a fallen branch or a large puddle can create a quick change of direction.

The goal of the tracking team is to move along, marking the line of sign as fast as possible while remaining sure that you are on the right track.

(Right - a footprint in the sand)

Finding an obvious footprint in the sand or mud after tracking through difficult terrain will be a welcome sign that you are on the right track.

Of course, the ultimate goal is to recover the lost individual.



Your knowledge of tracking and an awareness of what constitutes sign can make you a more effective search and rescue volunteer in the field.

Footprint Card

***LOCATION** _____ **TIME:** _____

_____ **DATE:** _____

***SUBJECT HEADING:**

***BASIC TYPE:**

***PATTERN:**

DIMENSIONS - OVERALL:

***L** _____ **W** _____

HEEL:

***L** _____ **W** _____

STRIDE (TOE TO HEEL): _____

GROUND SURFACE:

REMARKS:

*** REPORT TO BASE**

