

MANTRACKING:

A VITAL PART

OF

SEARCH AND RESCUE OPERATIONS

FINDING THE

LOST PERSON

Guidance for the preparation of this outline was provided from the following reference:
Roland Robbins, Mantracking: Introduction to the Step-By-Step Method, National Association For Search
and Rescue May 1977

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Lost Person Search – A challenge for the trained volunteer

Fugitive Search – A challenge for trained law enforcement officers

**Tracking is much more than following a sign
made by the subject: a human; an animal; or
a machine.**

Tracking in the broad sense involves:

- a) Interview of witnesses;**
- b) Use of tracking teams;**
- c) Identification of the track of interest
(foot print);**
- d) Protecting signs of the track**
- e) Following the track; and,**
- f) Detection of the subject.**

Important things to remember about Mantracking

1) Very Important – Look for something that is out-of-place, out-of-character, something that nature did not put there.

Bent blade of grass

Broken twigs

Pebbles or twigs mashed in the soil

Scuff marks

Leaning vegetation

Footprint of the lost person

**2) Most important - Efficient and skilled
Mantracking can save a life**

3) History – Skilled trackers

Wilderness guides, Hunters, Cavalry

**Scouts, Cowboys, Sheriffs and Marshals of
the Old West**

What is Search and Rescue Operations?

Search Operations involve:

Search Launch

Search Dogs

Trackers and the Hasty Party

“Wild Goose Mission”

Confinement

Open Line Search

Closed Line Search

Aircraft (with infrared)

Satellite Beacon (Loran and GPS)

End Product – Detection of the live lost person or body recovery

Rescue Operations involve:

Removal and transporting of the lost person to a place of support.

Requires skilled teams with proper equipment: Mountain, Desert, Water

TRACKING NEEDS -----

Cooperation – The search area is defined by the CONFINEMENT PLAN. Search area is to remain as clear as possible to preserve signs.

Help – Tracking Teams consist of the Point Sign Cutter and two Flankers. The Flankers are a pace behind of and to each side of the Point Sign Cutter

Tools –

Proper clothing, food and water

Sign Cutting Stick

Flash light

Map and Compass

Crepe paper roll (bright color)

Note pad with water-proof paper

Sign Cutting Record forms on water-proof paper

All-weather pen (not pencil)

Footwear Sole Index

Polaroid sunglasses

Radio for communications

Detailed drawing of the lost person's-

FOOT PRINT

When to Track – Lighting Conditions

Worst time: Noon – Light comes straight down and back upward. It is hard to see the contour of sign.

Good time: Early in the day or late in the day when the light is more of an angle to reveal the contour of sign.

Good time: Night with illuminated tracking stick. This is good in open terrain but is limited to roads and trails in forested terrain.

Optimum Position for Tracking in Daytime

The Point Sign Cutter uses a position that is on the opposite side of the sign from the sunlight direction.

FUNDAMENTALS

– for the tracking team to follow

1) Advantage - “POINT LAST SEEN”

2) Begin with the best description that can be obtained of the lost person’s foot-print.

3) Do not move past the print in view until you see the next print.

4) Preserve the tracking evidence by marking with flag paper, marks in the soil, or a ring of small stones.

5) Use the sign cutting stick to locate the next print.

SIGN CUTTING

Sticks and pebbles depressed into soil

Broken sticks

Displaced soil

Disturbed (bent) plants

Scuffed moss and scuffed root bark

Displaced pebbles

Scuffed soil

Scratches on rocks

Disturbed insect or animal inhabitation

Bruised vegetation

Embedded sand on underside of green leaf

Flattened animal droppings

Disturbed frost or dew

Wet tracks on stream rocks

Materials left by lost person, i.e. cigarette butts, wrappers, other personal articles

INTERPRETING TRACK ----

What is the direction of movement?

Was the person running or walking?

Are the prints evenly made?

Is the track regular and determined?

Does the track follow a weaving pattern?

Do additional prints join the set belonging to the subject?

When were such additional prints made relative to those of the subject?

What is the weight and height of the person making the prints?

HOW OLD IS THE TRACK?

Effects of Weather and Time

Sunlight and Heat

Vegetation – Edges of damaged areas will dry and lose color with time depending on exposure to sunlight, temperature, and humidity.

Clay Soil – Walls of print will dry and crack. Print will take a grainy appearance with drying.

Snow – Print loses definition with warm air and rain. Print holds its form in cold conditions. Frozen hard pack can be like concrete and exhibit no track where the subject has passed.

Wet Prints – Heat can obliterate much of the print increasing the difficulty in recognition.

Wind

Vegetation – High wind can obliterate the track, especially if made in dew and still air. High wind can distort track made in still air.

Clay Soil – Wind can fill print with sand or soil particles.

Wind

Snow - Snowdrift can cover the track quickly.

Wet Prints. – High wind and low humidity can obliterate print on rock quickly. With no wind print can stay on rocks for hours.

Rain

Vegetation – Gentle and sustained rain can make an older track appear to be younger. Hard rain can obliterate the track.

Clay Soil - Heavy rain can obliterate much of the print reducing its usefulness.

Snow – Warm, heavy rain can quickly obliterate much of the print reducing its usefulness.

Wet Prints – Color of print may be close to that of surroundings and be difficult to find. Light mist usually has little effect on the print.

Streams and Puddles

Vegetation – Small vegetation near streams tend to be delicate and easily distorted or damaged. Mud and debris splashed onto nearby leafy vegetation leaves sign.

Clay Soil – Water from subject’s foot can help make a better print.

Snow – Wet foot collects snow particles and leaves holes for prints.

Wet Prints – Prints on stream rocks leave good prints for a limited amount of time.

Additional Tracks – Animal and Human

Additional Tracks usually obliterate the track of the subject.

PERIMETER SIGN CUTTING

Rate of Movement – Subject can make sign faster than the tracker can follow them.

The Perimeter – a large encirclement of any shape is chosen for additional teams to cut sign and track.

Tracking Rate Enhancement – New sign can rapidly redefine the direction of travel in terrain that is easier for sign cutting.

Track Traps – Imprintable terrain features.

Encirclement – Hay rakes may be used to “freshen” dirt roads or road shoulders as track traps.

Patch Work – Isolated areas of soil on trails or likely places that would show sign are raked smooth to manifest tracks that could be left by the subject.

Closure – The chosen perimeter must be closed to provide confinement of the subject’s movement. The perimeter cut should be chosen to have the likelihood of crossing the subject’s suspected line of travel at ninety degrees.

Search zone elimination – Perimeter cuts can rule out areas that it may not be necessary for searching.

Natural Barriers – Aids for Defining the Perimeter

Cliffs

Rivers and Lakes

Dry River Beds

Very Thick Brush

Plowed Fields

Crops Fields

Light Direction

Light Source --- SIGN ---- Perimeter Tracker

Disadvantage - “NO POINT LAST SEEN”

Perimeter Cutting requires teams of the most experienced trackers. The clearly identified sign of the subject is the challenge: An artificial “Point Last Seen”.

Series of Perimeter Cuts

These may be made after the direction of travel is determined.

TRACKING TEAMS

Positively Identified Tracks – All tracks identified from the originally identified track and additional ones identified using perimeter cuts, must be tracked by the three member trackers using a sign cutter and two flankers.

Alternating Teams – Tracking is hard work requiring intense concentration. Tracking teams should be relieved, rested, and rotated – RRR.

Tracking Team Footwear – The trackers involved should have footwear that produces a distinct and individualized print that allows the tracker's print to be discernable from that of the subject.

Signature alterations (cuts) can be used to provide a “sole signature” for the tracker. These prints can be recorded on paper using an ink roller or pad in much the same manner as “fingerprinting”.

FOOTWEAR SOLE INDEX AND TABLE OF SIZES

Footwear Sole Index

A collection of example photographs of the various types of soles of footwear should be included in the tracker's field search manual with the Sign Cutting Record forms.

Table of Sizes

A table indicating the height of person (child, adolescent, adult, male, female) should be included in the tracker's field search manual with the Footwear Sole Index and the Sign Cutting Record forms.

PRINT DESCRIPTION RECORD

Drawing - A detailed drawing of the subject's print must be made using measurements. The length of the print, the widest part at the ball of the foot, the width at the heel and the length of the heel, if discernable, are included.

Stride - The length of the subject's stride (Heel to Heel) must be included.

Patterns - Detailed description of any patterns in the print must also be included.

Location – The map location of where the observations were made for the print description must be included.

Radio Transmission – Information transmitted by radio must be made minimizing the time of transmission. Radio batteries drain power more quickly when transmitting than listening.

PRINT DESCRIPTION RECORD

Drawing and Dimensions:

Remarks:

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Tracker:

Right Flanker:

Left Flanker:

SIGN CUTTING RECORD

Identification Number:

Date:

Time:

Location:

Track Direction:

Age of Track:

Print Description:

Length:

Print Width:

Heel Width:

Heel Length:

Stride (heel to heel):

Ground Conditions:

Remarks:

Tracker:

Right Flanker:

Left Flanker:

INTERVIEWING THE WITNESS

A) Vital Information

Express understanding to the witness

Interview witnesses individually and separately

Ask the “Newspaper Reporter Questions”

Listen closely and record objective information

Body Language

Eye contact

Rambling

Evasive

Inconsistency

Persistence

Initiate Tracking Operations

B) Supplemental Information

Relay Information to Tracking Teams

Brief the Tracking Teams with Supplemental Information

WITNESS REPORT

Name of Subject:

Age:

Sex:

Height:

Weight:

Clothing:

Type of Footwear:

Outdoor Experience:

Activity when Last Seen:

Physical Attributes/Conditions:

Medications:

Emotional Attributes:

Equipment:

Food:

Interviewee Contact Information:

Interviewer:

Additional pages may be added as needed. Total Number of Pages: _____ of _____

TRAINING EXERCISES

One Hour per Week

Rotate the Training Duty

Three Person Tracking Teams

Enlist Children to make the Track

Track of Fifty Steps

**Adjust the Degree of Difficulty to the Level of
Experience**

Vary the Terrain, Lighting, and Weather

Night Tracking

SIGN CUTTING EXERCISES

Radial Track Patterns

“Spokes of a Wheel” – Six to Ten Tracks of Fifty Steps

Tracking Teams Move in Opposite Circular Paths

Practice !

Practice !

Practice !

APPENDIXES

TABLE OF SIZES

FOOTWEAR SOLE INDEX

PRINT DESCRIPTION RECORD

SIGN CUTTING RECORD

WITNESS REPORT

TABLE OF SIZES – NEW TENNIS SHOES

	Shoe Size	Length, inches	Sole Width, inches	Heel Width, inches
Youth's	8	6 7/8	2 3/4	2
	9	7 1/8	2 3/4	2
	10	7 1/2	2 7/8	2 1/8
	11	7 3/4	2 7/8	2 1/8
	12	8 1/8	3	2 1/8
	13	8 1/2	3 1/8	2 1/4
Boy's	1	8 7/8	3 1/8	2 1/4
	2	9 1/4	3 1/4	2 3/8
	3	9 5/8	3 3/8	2 3/8
	4	9 7/8	3 1/2	2 1/2
	5	10 1/8	3 1/2	2 1/2
	6	10 3/8	3 1/2	2 1/2
Men's	7	10 3/4	3 5/8	2 5/8
	8	11 1/2	3 3/4	2 3/4
	9	11 3/4	3 7/8	2 7/8
	10	11	3 7/8	2 7/8
	11	12	3 7/8	2 7/8
	12	12 3/8	4	3
Girl's	1	8 1/2	3 3/8	2 1/2
	2	8 3/4	3 3/8	2 1/2
	3	9 1/4	3 3/8	2 3/4
	4	9 1/2	3 1/2	3
	5	9 5/8	3 5/8	3
	6	10 1/4	3 7/8	3 1/2
Women's	7	9 3/4	3 1/2	2 1/2
	8	10	3 1/2	2 1/2
	9	10 3/8	3 1/2	2 5/8
	10	10 1/2	3 5/8	2 5/8
	11	11	3 3/4	2 3/4

Part of this table was taken from the reference cited.

FOOTWEAR SOLE (LEFT) INDEX

Digital Photos OR Inked Imprint is to be added.

This table was taken from the reference cited.

FOOTWEAR SOLE (RIGHT) INDEX

Digital Photos OR Inked Imprint is to be added.

This table was taken from the reference cited.

PRINT FIELD DESCRIPTION RECORD

Drawing and Dimensions:

Remarks:

Tracker:

Right Flanker:

Left Flanker:

WITNESS REPORT

Name of Subject:	
Age:	Sex:
Height:	Weight:
Clothing:	
Type of Footwear:	
Outdoor Experience:	
Activity when Last Seen:	
Physical Attributes/Conditions:	
Medications:	
Emotional Attributes:	
Equipment:	
Food:	
Interviewee Contact Information:	
Interviewer:	
Additional pages may be added as needed. Total Number of Pages: _____ of _____	

**“TRACK RECORD”
(Drawing or Photograph)**

NAME: _____ **SEARCH DATE:** _____

Location of Track ; _____