



FACT SHEET

Delaware County Community Emergency Response Team Supplemental Training Series

INTRODUCTION TO WILDERNESS SEARCH & RESCUE

Section XII— Search Incident Background

Attitude and Philosophy

- People involved in SAR must be:
 - Focused
 - Dedicated
 - Skilled
 - Confident
 - Thick-skinned

The “Crucials” of Search Management

- Search is an emergency.
- Maximize the probability of success in the minimum time with the available resources.
- Search is a classic mystery.
- Search for clues as well as the subject – NOT THE SUBJECT ALONE!
- Concentrate on aspects that are important to search success and under your control.
- Know if the subject leaves the search area.
- Use high coverage grid search as a last resort.

Key Terms

- Last Known Point (LKP) – the last location where evidence or clues indicates the subject was at the particular location. As clues are found and verified, the LKP changes.
- Point Last Seen (PLS) – is the location where someone actually last saw the subject.
- Initial Planning Point (IPP) – is the first LKP and will never change or move. It is used in planning the search and utilizing lost person behavior.

Theoretical Search

Say the subject can walk 3 km/hr. Thus if a subject walk’s a perfect straight line from the their LKP. It would be the radius (r) of the search area. To find out how large our search area, is use the following formula: $AREA = \pi r^2$

$$Area = 3.14 \times 3^2$$

$$Area = 3.14 \times 9$$

$$Area = 28.26 \text{ square Km in 1 hour}$$

$$Area = 113 \text{ square Km in 2 hours!}$$

When allocating resources you should consider the following:

- Respond Quickly
- Confine movements of subject
- Identify and detain witnesses
- Protect clues
- Diversify your initial response action
- Back up your operations-redundancy can equal success
- Use advanced teams to identify landmarks
- Start and continue an intensive investigation to gather clues

The most effective initial response tactics are:

- Perimeter and LKP sign-cutting
- Hasty searches
- Confinement
- Attraction

Search Philosophy

- Probability of Area (POA) – The probability that a clue being in a given search area.
- Probability of Detection (POD) – The % of clues that a search team would be EXPECTED to find, given the quality of the resource.
- Probability of Success (POS) – The probability of finding the subject or clue in a given search area (POA) given a particular resource (POD).

The Map

Search Planning and Management requires the use of a planning map. The map most commonly utilized is a Topographical (Topo) Map.

Establishing the PLS

Through investigation, a physical location of the point the missing person was seen by a witness needs to be established. This location needs to be clearly marked on the Planning Map.



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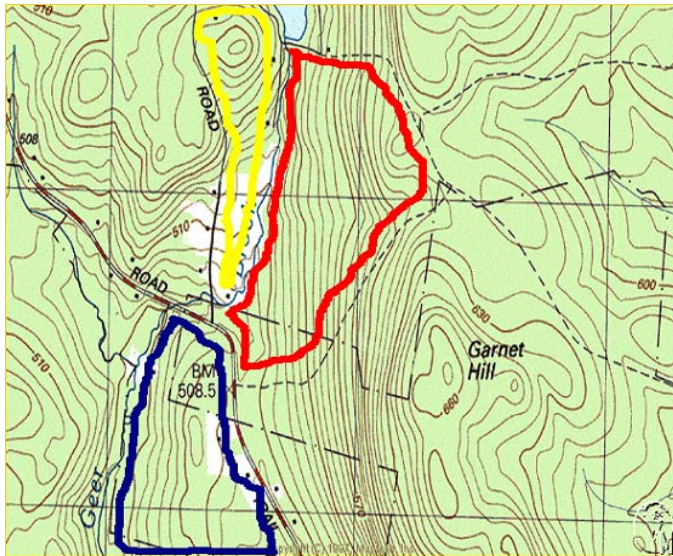
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Map Segmentation

- Once the PLS or LKP is marked on the map it is necessary for the map to be segmented.
- Map segmentation requires one person to mark segment boundaries.
- The boundaries should encompass areas of a size that can be searched in a four to six hour period.
- Boundaries that are visible to searchers in the field are preferred.



Visual Boundaries

Roadways, Trails, Fence lines, Power lines, Streams, Ponds, Railroad tracks, Drainage's, Ridge lines, Cliffs and ledges.

Water Segments

Bodies of water, such as ponds lakes and rivers should be created as separate segments from land segments. Water segments can be split later in the search if necessary, however attention to land segments are priority.

Water Segment Priority

- Water segments may receive priority attention if the PLS is within the water segment.
- The reason that land searching is priority in most cases is the fact that we search for the living before we search for the dead.

Establishing the Search Area

- The next step is to establish how large the search area is. This is conducted through the use of relevant data in accordance with planning data.
- Planning data is knowledge that we reference in regards to known circumstances that indicate possible subject behavior.

Sources of Planning Data

- Investigation or Details of the missing person
 - Name, age, sex, clothing and other physical details.
 - State of mind
 - Medical Conditions
 - Details of events and relevant details leading up to the disappearance of the subject.
- Historical Data
 - Has the subject been here before?
 - Has the subject done this before?
 - Is there a history of persons becoming lost in this area?
 - Where have the subject or others been located in the past?
- Statistical Data
 - Utilization of studies performed that provide an "as the crow flies" measure of distance from the PLS that similar categories of lost subjects are located.
 - Studies by William Syrotuck and Dr. Ken Hill are two of the most widely known and used set of statistical data.
 - How many searches have been conducted in the given area and where were victims located.



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Sources of Planning Data (Cont.)

- Theoretical Data
 - Provides information for planning purposes as to the maximum distance a subject could have travel in relationship to the time the person was last seen at the PLS.
 - Consideration of terrain, vegetation, age, abilities, equipment and other variables are taken into consideration.
 - Planners commonly use 2 M.P.H. as a rule of thumb.
- Lost Person Questionnaire
 - Record of specific information gathered about the lost subject.
 - In depth details of characteristics and concerns that may or may not contribute to the mission.
- Terrain Analysis
 - Areas that provide limited or no access are usually segmented by themselves and receive a lower probability.
 - Areas of high hazard or attraction are often found to be considered higher probability.
 - Path of least resistance considerations.

Mattson Consensus

The Mattson approach is that members of the Mission Management/Planning, individually and independently rate the various segments and Rest of the World (ROW) with a percentage value of probability. The sum of all segments and ROW must be 100. Each segment and ROW must have a positive value.

Mattson Example

Name	Seg.1	Seg.2	Seg.3	Seg.4	ROW	Total
Joe	20	15	30	20	15	100
Sally	35	10	30	20	5	100
Pete	20	20	40	15	5	100
Bob	10	20	35	15	20	100
Total	85	65	135	70	45	400

The Results

- Segment 3 is the highest rated probability making it the most likely for initial deployment of resources.
- Segments 1 and 4 are represented as the next likely segments in which the subject would be expected to be found.

Resource De-Briefing

- As assigned resources complete assignments, a debrief should be conducted by the Plans Section to determine coverage. The debrief covers a variety of issues including weather, light, terrain, vegetation, searcher spacing and other factors that affected coverage.
- From the debrief a percentage representing coverage is derived. This is known as the Probability of Detection (POD).