9. Determining Probability of Area

Whether running a search by gut instinct or using formal SAR theory, it is always critical to have a good idea of the subject's location. In fact, no matter how good the SAR field resources are, they will not make a find if sent to the wrong location. The uncertainty involved in search planning is called "probability." In ground searches the goal is to assign probability of area (POA).

This chapter brings together all the aspects of determining where to look—from simple human analyses (hopefully refined by investigation, training and experience) to computer models that also take human intuition into consideration. The goal is to put a team in the right location as soon as possible. This chapter covers the need to assign POA to search areas and how that information is used. Assignment of POA can differ depending upon the phase of the search, from quick general probability methods during the initial phase to more formal methods that occur later on. Many of the more formal methods utilize computer modeling (this is a mature technology for maritime search, but still in its infancy for ground search).

Why Assign Probability of Area

When the staging area starts to fill up with teams hungry to get out into the field, it is best to have a plan. Assigning POA involves consulting with others and reduces the oversights that occur when planning alone. Working with others helps avoid missing the obvious and scenario lock as well as creating different perspectives and problem solutions. Once POA is determined and written on a map, it can guide Plans in writing tasks. When tasks are written, a POA map can guide Operations in the priority tasks that are deployed. Upon reaching the formal stages of search planning, POA is absolutely required to conduct optimal effort allocation. Simply put, POA helps answer the question: "Where do we look next?"

Reflex Tasking

During the initial phases of a ground search it may not be appropriate to spend four hours on investigation, take the time to segment the map, gather

together the staff for a meeting, pass out voting ballots for a consensus process, tabulate the results, and then mark the POA values on the map. All that time and effort typically only shows that everyone agrees that the highest probability area is the trail the lost subject planned to take, along with a second trail that is often confused with the first. Deciding high probability areas needs a faster method. This can be achieved through "*reflex tasking*" and the "*quick consensus*" process.

A discussion of reflex tasking follows. It is important to remember that it is simply one tool a skilled SAR planner may choose to use. It is similar to "hasty," "give me" or "obvious" field assignments. Several SAR courses offer alternative methods which appear to work equally well when used by a trained SAR planner.

Reflex tasking is a process that uses what works in the vast majority of cases. It is specific to subject category, and forms the basis of the initial reflex task tables found in Chapter 8. It identifies both high probability and high probability density search areas. The technique has been used and taught for years. The fact that 50% of searches are over within three hours shows that initial planning efforts typically succeed. The search planner is usually able to quickly determine the highest probability areas that can often be searched with a skilled two- or three-person team. After a while, determining these areas becomes second nature—or a reflex—to the experienced search planner. The actual process can be broken into a number of steps for teaching purposes.

The first and most important step of reflex tasking is good investigation. Initial efforts need to obtain planning and searching data. It is critical to determine both the subject category and the initial planning point. Without an initial planning point you cannot have a search, and without a subject category it is difficult to use reflex tasking. For subjects involved in an activity, a destination and route are important, but not always known to the search planner. That is all the information needed to start initial planning. If available, historical data for the specific area is also available. In most cases, detailed information is not required for searching data. Only planning data has a real impact on determining POA, but search teams will require some information concerning the subject: name, sex, age, hair and eye color, clothing, and equipment. For more information on searching data several SAR textbooks can be consulted.[1,2,3]

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Reflex Tasking—Required Information

Planning Data
- Initial Planning Point (IPP)
- Subject category
- Age, if child
- Mental condition
- Destination and route, if applicable
- Weather
- Historical area data (may be listed in the preplan)

Searching Data
- Subject name
- Basic description
- Clothing and items carried

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Bike Wheel Model

The remaining steps can be accomplished by using the *bike wheel model.* The bike wheel model is a simple method for thinking about the various types of tasks that are <u>almost always</u> appropriate at the initial stages of a search. Once again, it is simply a tool to help organize the primary types of tasks that are usually appropriate at the onset of a search. The planning stages or search tactics can be likened to parts of a bicycle wheel.

The initial planning point (IPP) serves as the "**axle of the wheel**" and needs to be plotted and labeled on the planning map. Initial tasks that need to be completed at the IPP include (depending upon the situation):

- preserving the IPP

- an immediate locale search

- an immediate structure search (if appropriate)

- investigation of any vehicles that may serve as the IPP

- tasking signcutters/trackers to find any possible footprints and determine direction of travel

- tasking tracking/trailing dogs to help obtain initial direction of travel and possibly locate the subject.