

SEARCH STRATEGY

Ref: Wilderness Search Strategy for Dog Handlers, Marcia Koenig, 1987

Introduction

The term "strategy" has several connotations in search theory, depending upon the level of operations being described. Strategy can refer to:

- (1) how a particular dog handler chooses to work his assigned sector (should be referred to as "tactics");
- (2) the determination of areas that should be searched, e.g., ranking POAs with a Matson; or determining what type of assignments should be made, e.g., linear assignments (drainages, pipelines, etc), or area assignments;
- (3) how to approach the search from a management standpoint, e.g.,
 - (i) "casual" (my term):
 - a low urgency search in which the circumstances defining the scenario are questionable (the subject may not be lost), but in which the responsible agent has an obligation to pursue the lost person scenario (teams are asked to cover a moderate sized search area looking for clues that would support the lost person scenario)
 - high urgency:
 - for example, a lost child in severe weather; search managers may ask for a high POD search, and compensate for the slow area coverage by requesting more resources than would normally be deployed
 - (ii) other issues:
 - management may want to emphasize containment, hasty tasks, and quick response units to back up alerts or sightings of a mobile or evasive subject
 - management may choose to emphasize investigative efforts while maintaining a low level search effort for situations that seemed to have been staged

What we want to emphasize here is the handler's choice of techniques to search an area. In order to decide on a sector search strategy (tactics) the handler must consider: victim characteristics, the scenario description (why the person is lost), terrain, navigational aids, and directions from the search boss.

Victim characteristics include: age; physical condition & limitations; mental state - dementia, depression, aggression, etc. Victim characteristics may also be a contributing factor to the reason for becoming lost: suicidal; hunter; berry or mushroom picker; hiker; casual sightseer.

Terrain features that must be considered are things such as hazards (quarries, mine shafts, swamps, streams with steep banks), unpassable features, cliffs, large rivers. Navigational aids include drainages and ridges within the sector; streams, creeks, rivers; hiking trails and paths; power line, pipeline and telephone line cuts; railroad tracks; major landmarks & other prominent features (water or radio towers, security lights - for night searches), and potential shelters.

Other items that must also be considered are, of course, time of day and weather.

Techniques

While Marcia Koenig's paper gives an excellent description of the various search techniques, and when to use them, I'm going to review the 3 principal techniques as we define them.

The three principal techniques that we use are

- hasty techniques (hasties)
- gridding
- contouring

Hasty techniques primarily involve the searching of the navigational aids as defined above. The task, as assigned by search management may be a hasty task, in & of itself, e.g., “work this drainage from route 615 down to the river”, or “search the Appalachian Trail from point A to point B”. Hasty techniques are also used within a sector assigned for area search -- most subjects are found along or near a navigational aid. Searching the navigational aids within a sector enable the handler to gain a familiarity with the territory he must cover, esp. when they provide easy travel such as trails or logging roads. On the other hand, logging roads and trails that are not on the map can cause considerable disorientation and confusion in the field (I’ve never been lost!). See Figure 3 from Marcia’s paper.

Hasty techniques are also the techniques of choice for night work. This is because they generally keep the handler near identifiable terrain features, thus decreasing the odds of getting lost, er, temporarily disoriented. See Figure 11 from Marcia’s paper.

Contouring and gridding are both methods to use to increase the POD coverage of the interior of a sector when the situation requires a more thorough search than can be accomplished through hasty techniques. In addition, contouring and gridding techniques can be used to perform a hasty, or low POD, search of a sector when there is a dearth of navigational aids.

Gridding generally refers to the technique of making regular spaced passes, along a fixed compass bearing, across the area to be searched. Grid searching techniques are not complicated. In fact, they can be boring to perform as it is slow and systematic. Gridding is necessary when high PODs are requested, such as evidence or buried body search. By adjusting the spacing of the grids in relation to air movement, gridding is also useful for large area search for non-buried subjects, or, as mentioned above, for performing a low POD hasty type search. An advantage of gridding is the discovery of unmapped features (eg. Wells, trails, logging roads). See Figures 1 & 6 from Marcia’s paper.

Gridding is not efficient when it forces the handler to continuously go up- and downhill in steep terrain, or to cross fences, streams, etc.

Contour searching is generally used when the terrain is too convoluted, or steep, to efficiently conduct a grid search. In contour searching the handler usually follows a somewhat level path around and through the various terrain features within a sector. In the cases of large hillsides, the contours essentially become grids spaced at intervals up, or down, the hillside. In areas of exceptionally steep terrain, the handler may take advantage of upslope or down slope winds to search major terrain features without having to actually traverse them. See Figures 6 & 10a in Marcia’s paper.

Contouring in steep terrain is rough on the ankles, but then steep terrain is rough on something, no matter how you tackle it.

Contouring and gridding have an advantage in that they both define orderly, systematic approaches to searching a sector. Hasty search, esp. of features that are not indicated on maps, make prediction of a reasonably accurate POD almost impossible. Trails, logging roads, etc., that meander through a sector and are not included on a map also make accurate debriefing difficult.

When To Use

Without considering victim characteristics and scenario specific information, most search management strategies call for emphasizing hasty tasks in the first day or two of a search and then

returning to sectors for more thorough search if the subject is not located by the hasty searches. As mentioned above, hasty tasks are also the general choice for night work.

Given the search management teams that DOGS-East works with in this region, the above procedure is not frequently followed. Many times, a sector may be eliminated from consideration after search by only one dog team. Many times the search managers ask for a 60 - 70% POD from the start; and very seldom is information from a previous debriefing including in the task briefing assignment for a team going into the field.

So what to do? Ask what kind of POD they would like you to furnish.....find out if the incident staff has even considered the question. They probably haven't. Find out if the sector has been searched previously. If a team has already done a hasty search of the area, your job should be to fill in the voids -- you don't want to just repeat the previous handlers coverage. Debrief accurately. If you only did hasties, make certain that the debriefer understands that. If you have information that you feel should be passed on, try to pass it on to the other dog handlers at the search yourself.

Even though these techniques are fairly simple in concept and relatively easy to define, the when's and how's to apply them are practiced differently by just about every dog handler. Personally, given nominal conditions & unless I know for a fact that Plans, and the IC are expecting only hasty tasks, I try to cover an area to at least the 50% POD level. (That's not always possible, due to weather, terrain, etc. We've reported POD's as low as 1 or 2%.)

Practical Implications (How to do it)

Hasty Tasks

While hasty tasks are fairly simple in concept, there are a few techniques that can be used to help track your progress while doing hasties. When a navigational aid such as a hiking trail or logging road leads a team to one of the sector boundaries, for example a fence line, stream, etc., the location of the intersection of the navigational aid and the boundary may not be obvious. To better determine where they are in their sector, the team may want to take the time to walk the intersecting boundary to an identifiable point, such as a sector corner. That way, during debriefing, the team can say, "We followed the trail to our northern sector boundary. The trail intersected our northern boundary about 500 meters from route 715." Doing that also gives the team a better basis for estimating the POD of the area. As an alternative, the team may wish to note on their map their estimate of the location, flag and number (sequentially) all such intersections, and then determine the exact locations later by doing a perimeter search. In many instances, a team may choose to do a perimeter as the first part of their search strategy (reasons for doing this will be discussed later). If they have reason to suspect that a number of logging roads, trails, etc., may intersect their boundary, they may wish to flag and number those intersections as they encounter them along the perimeter (as well as mark the locations on their maps). That way, when they encounter one of the intersections after meandering through the interior of their sector, they will have a better estimate of their position.

Similar techniques should be used to identify intersecting roads and trails. On one search in 1993, teams were sent into an area in which a logging road led to an intersection of 5 or more branches, and some of those branches led to similar intersections. In such cases, marking the path taken on your map may not be sufficient. Teams should probably flag the trail that they search, noting day, time and direction of travel, & direction of wind on the tape. Doing so, makes debriefing and assigning follow-up tasks to other teams much simpler.

Grid Searching

In most cases the easiest way to do grid searching is to set a compass bearing parallel to one of your boundaries and then work back & forth between the adjoining boundaries (Figure 1, Marcia's paper). In cases with irregular shaped sectors, for example a triangular shaped sector, it might be best to set a compass bearing perpendicular to one side and intersect the opposite boundary at whatever angle

occurs. When walking grids, the easiest way to work the reverse direction is to box the opposite end of your compass needle and not worry about rotating the bezel 180° to get the reverse bearing. Also, when pacing off grid spacing intervals, just hold the compass needle at approximately 90° to the bearing that you were walking.

Contouring

When walking a contour, people seem to have a tendency to work their way either uphill or downhill, similar to the tendencies to bear either left or right when walking a compass bearing. Contours can be worked like compass bearings, i.e., pick an object in the distance that is on the level you wish to walk and walk to it; or they can be worked by just attempting to walk a level path along the convoluted terrain of a hillside. Like gridding, with practice, it becomes easier. On real searches, I'm hesitant to recommend any technique that requires keeping the handler's attention focused on a particular object. The handler should be looking for clues and watching his dog and will probably have a higher POD watching the dog & looking for clues than he would if he concentrated on walking a perfectly level contour.

Pacing

A useful tool for your toolbox is knowing how to use paces when searching. Pacing can be used in all search techniques, especially if you have ambiguous boundaries. Use pacing to determine distances (how far do you need to go to the first drainage) and in gridding (spacing out your grids or moving around objects).

Paces are measured on a "man's stride". A pace is measured each time the foot you step out with hits the ground when you are walking normally. I will use the left foot in this example, but you could easily start with your right foot. So, if you step out with your left foot, then, the next time your left foot hits the ground you say "one". To measure your stride: in an area where you will leave footprints, walk around as you would on a search. Then measure from the first left footprint to the second left footprint (if your counting is using the left). Measure several paces to determine what your usual pace measurement is. If you are short, you may get only 4 feet in a pace; if you are tall, you may get 6 feet in a pace. CAUTION: walk normally, do not step too big or too small, you are trying to get a general average to use while searching. REMEMBER, a pace is when the same foot hits the ground!!!

We do not search often on flat, even ground, so your pace is a general guideline to aid you. When you go uphill, your pace usually becomes shorter; when you go downhill, your pace usually becomes longer.