# Using Distance Alerts to Further the Search Effort

*By Marcia McMahon, Coordinator, Search and Rescue Dogs of Colorado*

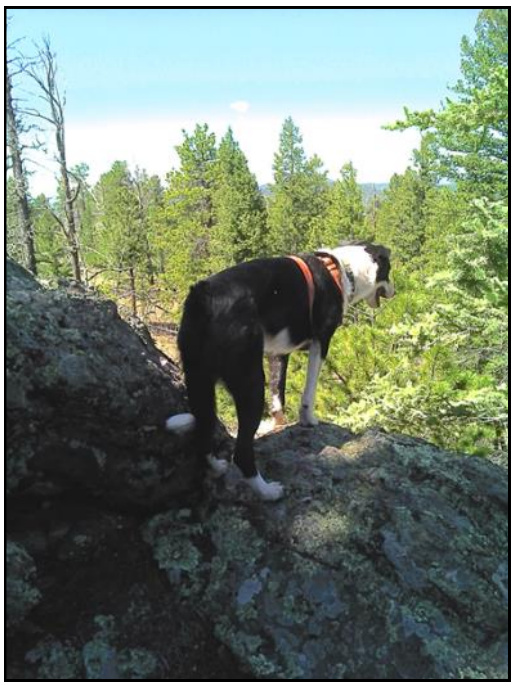


*Photo by Marcia McMahon. Border Collie, Yinnie, analyzing and alerting on scent traveling high.*

The Rocky Mountain Region is famous, of course, for its unparalleled mountains, valleys, and foothills with their corresponding variations and weather. People love to come and climb, hike, etc. and sometimes they get lost in the process for whatever reason.

Searches in this type of terrain can quickly expand into miles and miles of area should the subject not be found right away, not be noticed missing for several days, not have left any information as to their travel plans, etc. In these cases, clues become terribly valuable.

This article will explore the training and use of Scent Discriminating Airscent Dogs and Cadaver Dogs for the purpose of aiding in the search effort to provide clues to further the search. It is to be emphasized that dogs are just one of the many specialized resources that work together to achieve a successful search outcome. When used properly, dogs can and should have a strong impact on the information available for furthering the search.

The thought on searches is all too often that either the dog found the subject or he didn't; and no other information is retained from the debrief. However, dogs can very positively impact every search in one or more of the following ways:

1. Locate the subject.
2. Provide directional alerts in the direction of the subject allowing for successful placement of other dog teams, foot teams, or helicopters in the current or subsequent operational period.
3. Indicate the subject is not in the area.

*For this article, "Alert" means when the dog enters, reacts to and follows scent and the corresponding body language. "Distance Alert" would be these alerts initiated from a minimum of ½ mile or more from the subject. Well-trained dogs can begin to follow scent from well over a mile away; even farther with nighttime downslopes above timberline or from subjects who have been missing for several days. (Please see maps for examples.)

***Training:***

Traditional methods for working search dogs mandate using a grid pattern and working until the dog alerts and finds the subject or comes up with no indications. Using distance alerts, however, emphasizes a much stronger trust of the dog earned by careful training and education. Education is the key here, as the dog is learning to compile his scent information from quite far away, when properly trained, and to work the area on his own initiative if enough scent is present to draw him forward.

This portion will briefly address the progression method of establishing the foundation for proper scent cone work. It will not address the issue of scent discrimination, which the dog should already have learned. It is expected that the dog will always use a scent article or, in the case of the cadaver dog, the appropriate command. Depending on the terrain, time of year, corresponding temperatures, and time the subject has been missing, scent discriminating dogs can be effective for up to 2 weeks, even in the event that the subject is suspected to be deceased, which is almost never a known variable. These dogs can and will give accurate alerts in spite of how many searchers, hikers, etc. are in the area.

*Photo by Jess Brauch. Yellow lab, Freyja, in full blown alert.*

Basic Scent Cone Education:

When thinking about basic scent movement, envision water flowing down rivers-it will follow the path of least resistance. Scent is impacted by wind, terrain, temperature, vegetation, time of year, obstacles, etc. Heat makes scent rise upwards, sometimes causing it to loop up into the air and come down in a different location and flow onwards, bouncing and swirling unpredictably. Cool air helps the scent flow settle into more complete, careful downslope patterns. Then the wind will aggravate or enhance the entire process.

1. Start training with small areas of a specific terrain characteristic with straightforward scent flow-i.e. down drainage with subject at top, bowl feature with subject higher in bowl, etc. These problems can be worked in a matter of minutes-the scent cone from subject to dog will be continuous from the beginning and immediately workable by the dog. The goal is a find based on a hard hit scent cone.
2. Continue the size of the problem, keeping the scent cone strong and continuous, but vary the terrain style. Always do 2-3 problems of the same terrain type in a row for sequential days so the scent cone work will be similar and the dog will learn the scent patterns.
3. Remember that dogs learn from short problems when a new variable is introduced. Types of problems will include: up/down drainage, cross drainage with subject placement on different sides with different wind directions, intervening high ridges (features) with valley floors, looping culprits such as isolated aspen groves, subjects in trees, cross-ridge problems with scent gaps, etc. The list is endless; the point is to educate the dog and the handler in a progressive sequence, and let the dog educate himself so he will be able to figure out how to work increasingly longer scent cones.

*Photo by Marcia McMahon. German Shepherd, Annie, deciding which way to go with scent.*

4. As the dog learns, and it doesn't take long, the distance involved can be increased so he is learning to work through scent pools and scent gaps (often confused with scent pools or negatives), interspersing short problems with the long problems to work on sharpening the brain skills and enthusiasm, while adding in new types of scent problems and endurance. Care must be taken to avoid doing too many long problems so the dog doesn't learn to chase scent. Dogs trained on too many blind distance problems will begin to chase the scent and will have difficulties entering the subject's scent pool.
5. Always allow the dog to follow the nose pop. A trustworthy dog is a joy to watch working scent. Encourage him. Dogs need to have the freedom to learn to work scent the way it makes sense to them. If the dog can't put enough pieces together, continue the grid from the location the scent was discontinued and move on through the search area, following the dog as soon as he gets more information and wants to break the grid. As his confidence grows, and his faith in you to trust him, the farther the distance over which he'll be able to work scent.
6. Watch all body language, including scent rolling and grass biting. Learn to recognize deposited ground scent and understand what it means to your dog and how it relates to subject location/activity. Your dog is not messing around when he rolls, eats grass or analyzes the ground scent. These are clues. GPS them. Clues come in packages-note and learn the clue patterns your dog uses while working scent and when he is not in scent.
7. Include all types of weather and times of day/night in trainings. Understand when the dog is working scent and try to understand how that scent is travelling. Avoid the common mistake of calling quick negatives. These can very often be scent gaps. Think positive information and work forward from that location.
8. Most problems should be known problems. This is the only way to understand what your dog is doing, learn to use the clues, and have the confidence to follow him.

*Photo by Marcia McMahon. Border Collie, Koert, examining blown and deposited ground scent before picking up subject's trail a little further upwind.*

GPS work and direction:

*Google Training Map-The bluish line is the scent cone worked by dog. Dog was working scent the entire time and chose this route. Subject was high up in a rock formation on south side at the "Find" marker. Time of day was 11:00-14:00 on Labor Day. Hot conditions. Strong winds out of south. Notice the geography and how the scent followed the paths of least resistance. Scent was popped up high by rocks and then blown NW.*

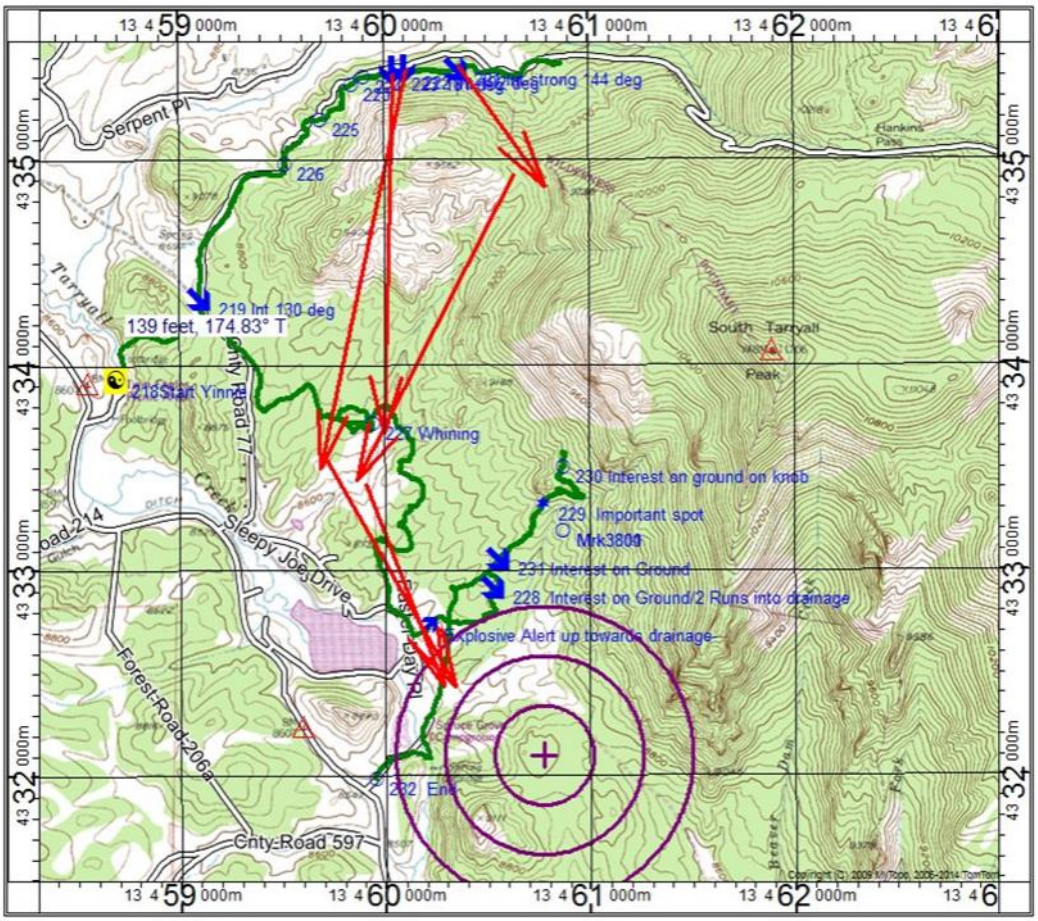
The GPS is the key to successful distance work. As your dog works, you will be marking his clues onto your GPS, as well as the track. The fastest way to do this is to carry a small notebook in your radio harness and write down the number of the waypoint with a quick note and compass bearing (if applicable). This will begin in training when your dog starts becoming good at following his cones and his problems increase in size. Things to note especially in training will be scent rolls, nose pops with bearing, grass biting, ground scent analysis, etc. As you become more of a team, you will have your own clues that you recognize that are important to putting the scent picture together to try to determine the direction and location of your subject. I.e. ground scent is particularly important to one of my dogs. He can pick his way right

over a ridge by analyzing the line of ground scent that has deposited and the strength. Excessive ground scent can often mean the subject is fairly close. Why is the scent depositing so heavily in one spot? For relatively recently deceased subjects, the ground scent deposits can be extremely strong; some might misread the dog's interest as trailing when it is actually "scent pecking"- trying to get a direction towards the subject to get into an airborne scent cone. At night, the scent puddles can be quite strong and occur frequently en route to the subject.

At home, you will download the tracks and waypoints onto your mapping program, adding a description of each waypoint and directional arrows for alerts, as well as the start and find locations. Draw lines out from these waypoints according to the bearings and see how the triangulation flows. How do the alert directionals line up with the find location? What terrain features are affecting direction and scent flow? For your training maps, all this information should be saved and printed onto topographical maps so you can study the scent flow patterns as they are affected by terrain and visualize the dog's style of working through the issues caused by terrain, wind, subject placement, etc. By studying the training maps, the handler will learn how to better work through difficult times on searches by hopefully recognizing similar terrain, etc. patterns from problems set up and studied in training so as to achieve a much more positive result on real searches.

Information that will be relayed to I.C. upon debrief for real searches:

The information above is mostly for the handler. When giving the results of your search to base, you will relay only the important information:



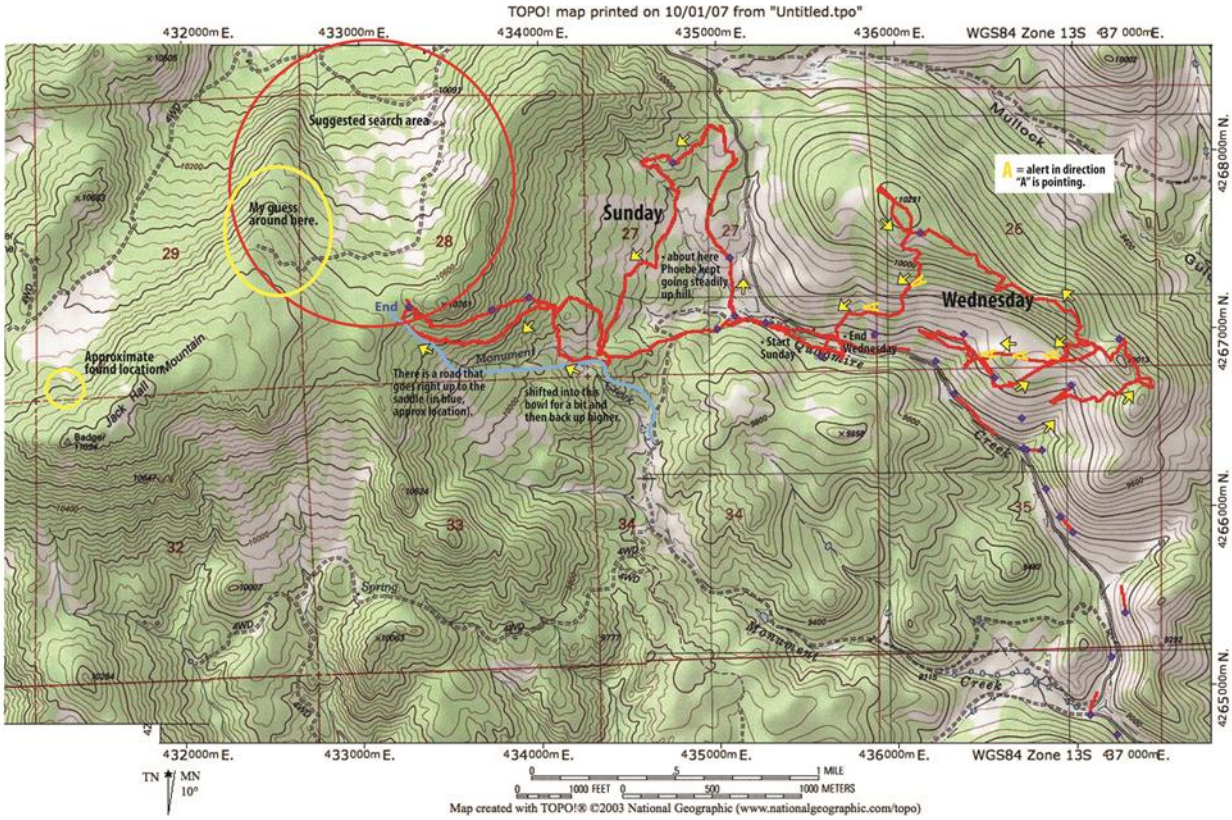

*Twin Eagles Mission Map-Excellent example of scent flow following terrain. Green line is dog's path following scent; Blue arrows are locations of original dog alerts with bearings; Attaching orange-red arrows draw out the alert in direction of bearing taken off dog's nose; sequential arrows drawn to follow probable scent flow through terrain. Especially interesting because they all intersect. Purple circles are high probability areas in which to begin to select further search areas towards SE. Subjects walked out of the area SE of the arrows. Search from 23:30-4:00 in September with light upslopes out of SE.*

1. Coordinates of dog interests and alerts with bearings.
2. High probability areas according to the above.
3. If interest is high enough while searching, ask for the area ahead to be checked out by ground teams, helicopter, etc.
4. Triangulation of all alerts (particularly if several dog teams bring information back to base) that might point to the high probability area for the subject. Mark the points with bearings and draw the lines well out across your map.
5. What factors might be affecting your information?
6. Do not give excess information. I.C. only needs the information that might directly lead the search forward. Don't over emphasize, either. Misleading the search is a very bad thing.
7. Negative areas, areas cleared, holes that you missed in your area, and POD.

**How I.C. can use this information:**

Good information from well-trained, reliable dogs teams can help further the search in a major way. In addition, having a "Dog Team Leader," or the equivalent, at base to help analyze the dog information and consolidate it all onto one map to look for the areas of dog interests and where they lead can give a good idea as to where the subject might be and assist in a find in the next operational period.

1. Record interests from all dog teams, with coordinates and bearings, onto one base map. Include the cleared areas and areas not searched.
2. Draw lines forward in the direction of the bearings looking for triangulation of interests.

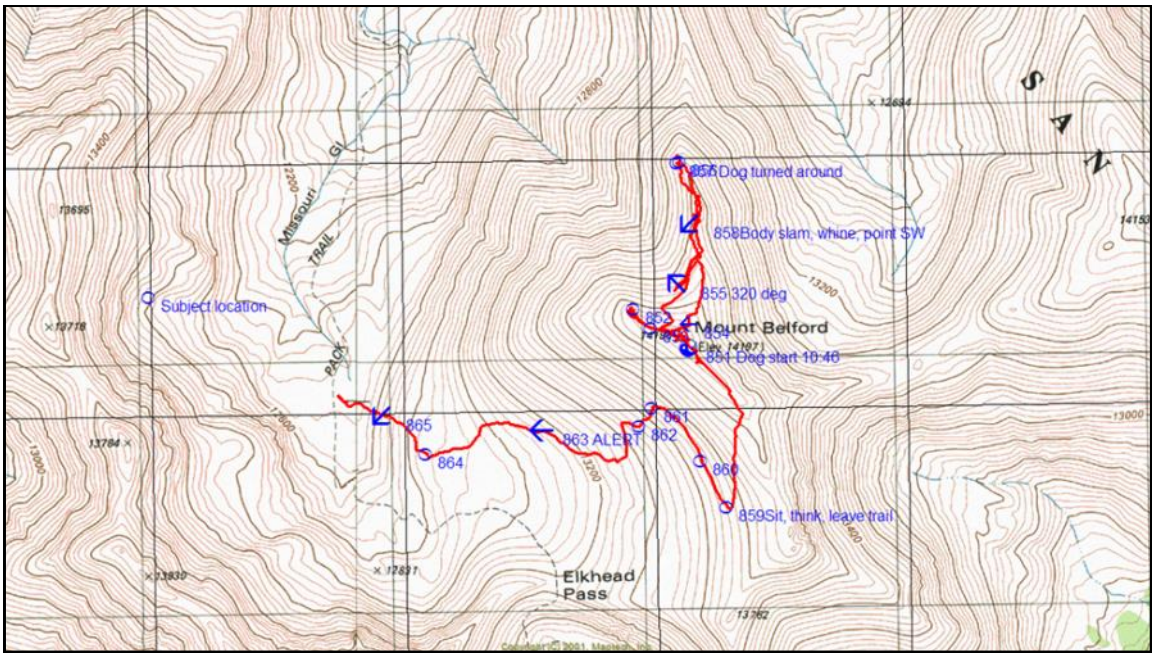



*Cotopaxi Mission Map: Mission map of dog's work and alerts. Subject found at "approx. found location" 1 month later. Winds out of the SW. Red line is the route taken by dog; yellow arrows point in the direction of the alerts. Yellow circle, "my guess is around here," was pretty accurate. Base can consider a wider circle extending in the direction of alerts for moving the search forward. Search during daytime in October. (Map by Paula Bindrich and Phoebe.)*

3. If dog alerts appeared skewed, look for terrain features, weather issues, etc. and how those might be affecting the direction of the alerts. (Again, think rivers and how the water runs around the rocks, eddies, etc. when thinking about scent movement through wind and terrain.)
4. Draw the lines well out; find out the strength of the alerts, as lighter alerts with lots of scent gaps can mean the subject might be quite a bit farther away, and circle your high probability area(s). Dogs jumping for scent in the air can mean several things, such as subject is up high somewhere or the scent is having to bounce over a very high ridge, rock formation, etc. to travel across the area.
5. Do not redirect all resources to the area; continue the search as you would normally for any other clues, but do send enough appropriate resources out to the dogs' area of interest to check it out thoroughly.
6. It must be remembered the subject might also be moving which might explain inconsistency in alerts-but direction of travel might be determined by noting the direction of the alerts.
7. In the case of a deceased subject, several issues exist:

   *Scent from recently deceased parties will manifest as fairly strong scent, along with very strong ground scent deposits that might look like trailing, especially when humidity is high, evaporative conditions exist, etc.

   1*Scent from deceased subjects who have been out for several months will manifest quite differently-this type of scent tends to "poof," as well as set up as scent pools in different locations, due to the repeated depositing of scent, from possibly different sites (depending on the condition of the subject, possible burial situations, etc.). Often the scent pool can be stronger than the source. It is critical to research the history of missing persons in the area, including animal activity, if relevant, to understand the entire picture
8. Take note of patterns in the GPS track. A long line with consistent direction followed by a sudden change in course could mean the subject is close. The change in direction might be caused by heavy scent pooling or by intervening terrain that suddenly interferes with the scent and widens the cone. A high probability area in this type of situation could be farther along the original line of scent, possibly inside of the sudden loop or just past it.




*Missouri Mission Map-Dog was dropped by helicopter onto Belford southern shoulder; dog immediately went on scent. Worked cone north, then turned around and worked south, with several sit and points towards the Missouri ridge. Scent was travelling along the 13,700' contour line as well as depositing on top of Belford. Dog examined scent (scent-pecking) on top of Belford for quite awhile before deciding to continue cone south and then down the mountain. Scent was extremely "sticky" due to heavy, late snowpack melting rapidly. Winds out of W consistently. Subjects had been in place for 10 days. Subjects located by helicopter on first flight the next morning. Search during daytime in July.*

9. Another very important consideration is the wind. When working the dogs early in the morning on a multiple day search, which way was the wind moving during the night? In the Colorado high country, the wind often moves out of the east through the night, which leaves early morning scent deposits well west of the subject. This is especially true in areas with lots of deep, wet drainages. When the west winds begin in the morning, the strong nighttime scent pools will create very strong eddies which might cause the dogs to alert towards the west even though the subject might be well east of the dog's search area. Care must be taken here if drawing a high probability area of the alerts to draw a swathe that will include the area east of the alert in order to cover the possibility of eddies. This type of eddy will often lighten and clear late in the morning. Heavy moisture always aggravates this type of situation.

10. Location of the subject also impacts the strength of the scent-If subject is up high in the wind, scent will be much stronger and easier to follow than that of a subject down in the bottom of a cold drainage, etc.

Again, dogs are just another one of all the wonderful resources available to help in the search for the missing person. However, scent discriminating Airscent and Cadaver dogs well-trained in large area distance scent work can have quite a successful impact on difficult searches involving moderate to difficult terrain in the Rocky Mountain Region.

*Search and Rescue Dogs of Colorado has been serving Colorado since 1983. We take pride in our Regional Standards, which are some of the highest standards in the country, designed to meet the unique rugged requirements of missions in the Rocky Mountain Region. Specialties include Human Remains Detection, Water Search, and Avalanche, in addition to Airscent and Trailing Dogs. All of our handlers are fielding members of their local Search and Rescue Teams. Please visit [http://www.SARDOC.org](http://www.SARDOC.org).*

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*Photo by Marcia McMahon. Monty, reacting to and following scent cone.*