

# Challenge: SAR's Secret Weapon



## Content

Dogs are the secret weapon of search teams of all types; search and rescue and customs teams who use sniffer dogs for example. They are active in a wide range of environments from mountains to the sites of building collapses.

## Activities

### Scouts and Guides

- Meet search dogs at a show, activity day or during a group visit.
- Understand how dogs find people and objects.
- Learn about search dogs' training.
- If possible, take part in a demonstration.

### Senior Section, Explorers and Network

- Meet search dogs at a show, activity day or during a group visit and understand their work.
- If possible, take part in a demonstration or team training session as a dog's body!
- Discuss why dogs are used for searching. Recognise the advantages and limits of using them.
- Understand different dog search techniques.
- Brainstorm about other emergency services, government agencies or organisations that use dogs in their work. How much variety you can find and how do you think their training varies?

## Background

This challenge will mainly be completed at an event or visit by dogs so as a leader you will need to know little in advance but here is some interesting background.

The following information has been compiled from Steve White's 6 DVD set: "Tracking with Steve White" and the book "Search and Rescue Dogs - Training Methods" by the American Rescue Dog Association.

## **Alerting**

Alerting is when a dog let's its handler know that it has smelt what it is looking for. Each dog has its own style; sitting down, barking, jumping etc.

## **What dogs smell**

A dog's sense of smell is vastly superior to that of humans. Dogs are utilized to find all manner of specific things from lost or escaping humans to diseases in bee colonies. For this information we will concentrate on the humans.

Humans constantly shed cornflake shaped dead skin cells known as rafts. About 40,000 are shed per minute (about 150 per foot if the person is travelling at 3 mph). Each one contains bacteria and oils that represent the unique scent of the person that the dog is following. The skin starts to break down as soon as the raft dies.

In vegetated areas there is decay of crushed vegetation from humans passing. Each time a person steps on any vegetation (grass, leaves, etc.) that vegetation is crushed and starts to decay.

As the rafts and vegetation decay, the bacteria at work give off odour which is affected by the same variables as the falling rafts. The rate of decay varies with the weather. Moisture and warmth aids in decay while a dry and/or cold environment may slow it down. If a person is running or sweating, the rafts are more hydrated, thus more pungent as the bacteria have more moisture.

In the first 15 minutes after a person crosses an area the scent of crushed vegetation over powers the scent of the decaying rafts. If the missing person is the only one to go through an area, the dog can still track that scent. But if other people or animals cross or follow the same path as the missing person, it can make the dog's job harder. A track that is between 30 minutes and 3.5 hours old has the strongest human scent (while the bacteria on the rafts are at peak performance). After about 3.5 hours, the bacteria on the skin rafts has eaten what it can and the rafts have decayed to a point that their scent is weaker than the increasing scent from the decay of crushed vegetation. However, given that dogs have recently been used to locate graves made during the Civil War, there is clearly scent that remains for a LONG time from the decay of human cells.

## **How scent can travel**

The skin rafts and the odours from decay are carried by air currents and dispersed in a cone shaped pattern with the person at the narrowest point. You may see a dog "zigzag" back and forth as they search, locating the edges of this cone. The rafts and odours from decay are affected by MANY factors like terrain, weather and air currents. This may affect where and how the dog follows the scent trail.

## **The Effects of Terrain**

Open fields This terrain typically allows the scent to follow the wind. A steady light wind or lack of a breeze can make it easier to follow than a strong or gusty wind that quickly and widely disperses the scent. Shifting winds can be a real problem in open fields.

Light brush This includes areas that have open or wooded areas with some brush or wood piles. This has little effect on the scent and can be treated much like an open field.

Heavy brush Thick woods or un-mowed fields. A hot day with little or no wind would make this area difficult to search because the scent remains with the human and barely disperses. If it's a fresh track, it will be easier than an older one in which a person is trapped or hiding for a long period of time where the dog is relying on that person's scent to get blown out of the hiding place.

Woods These can vary from an open pine forest to a swamp with large trees and very dense brush. Open woods are easy to search. Dense woods will test your and your dog's patience and skills, especially on a hot day or in the dark. In open woods, the wind currents are similar to an open field. In dense woods, air flow is more like the dense brush.

Drainages and ravines Since hot air rises and cool air falls, this terrain can really cause scent to do some odd things. During the day a search should be conducted along the top of the ravine or gully. An evening search should be done in the bottom of the gully. Searching where the scent is likely to travel can potentially eliminate the need to traverse the possibly steep sides of a ravine. These low areas can also funnel scent so that it flows like a stream.

### **Special conditions affecting scent**

Looping This might occur on a day with little wind. The scent from a hidden person travels upward, then gets picked up by an upper level wind till it's dropped a few hundred feet (or further) from the missing person. The dog may alert but then lose the scent because there is no scent at the low level between the person and the dog. This can also happen near buildings or other vertical obstructions. Inside a building, it can occur due to A/C air flow and the dog may alert on a blank wall.

Chimney effect This term describes the rising of air due to warmer air rising and cooler air falling. When combined with upper level air currents or anything that obstructs or redirects the air current it can cause "false alerts" in areas some distance from the actual target. Similar to looping.

Eddying Typically occurs along cliff lines, tree lines or similar obstructions that might disperse the scent in multiple directions.

Pooling Low areas collect scent just like they can collect water. A scent pool may cause a dog to alert because of a strong scent, but because of shifting winds above the pool the dog is not able to follow the scent to its source. Often occurs in the cooler evening hours or during the night as the cool air falls and collects in low areas, taking the scent with it.

Being aware of how scent can travel allows us to set-up better training exercises for our dogs. Using a topographic map and evaluating the surroundings for the above conditions we can better help the dogs find the target. The above conditions generally do not deter or defeat a well-trained team and should not be used as excuses for poor training or terrain reading.

## Some Useful Links

### UK

- <http://www.nsarda.org.uk/>
- <http://www.nsardacantech.org.uk/>
- <http://www.sardawales.org.uk/>
- <http://www.sardaengland.org.uk/>
- <http://www.met.police.uk/dogsupport/>
- <https://www.strathclyde.police.uk/>
- [http://www.rafweb.org/Police\\_Dogs.htm](http://www.rafweb.org/Police_Dogs.htm)

### Canada

- <http://www.sardaa.ca/>

### USA

- <http://www.sardogsus.org/>
- <http://search-dogs.carda.org/home>
- <http://www.daytondailynews.com/news/dayton-news/search-dogs-part-of-irene-rescue-team-1241927.html>