



**Dog Scouts of America**  
**General Scent and Environmental Affects**

**Scent Discrimination**  
**Advanced Scent Discrimination**  
**Expert Sniffer – Interiors**  
**Expert Sniffer – Exteriors**

**OVERVIEW:** Most dogs love to search and to use their noses. These badges are designed to encourage dog and handler to continue on the scent journey and prove to increase the human/canine bond and teamwork with an increased understanding of the skills and information needed to perform the task of finding multiple specific scents that are hidden from view. Dogs already know how to use their noses, but humans can teach the dog to find specific scents and indicate them. 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 as well as info found on the internet.

**WHAT DOGS SMELL:** A dog's sense of smell is vastly superior to that of humans. Dogs are used to find all manner of specific things. Each item has its own odor that can be created by bacteria, chemical odors, or natural scents like pheromones. Some of the items dogs have been trained to detect include: lost/escaping/live/dead humans, items dropped by those people, drugs, accelerants used in arson, explosives, gas leaks, diseases in bee colonies, fruit and other food that can't be transported into a country, contraband of all sorts from bootleg DVD's to cell phones hidden in prisons, human diseases like cancer and diabetes, endangered or banned animals, missing pets, even termites and bed bugs. Dogs have even been used to find civil war grave sites! And they can tell the difference between water from the cold tap and water from the hot tap, even after the water is brought to the same temperature. So don't underestimate your dog's abilities!

**PROPAGATION OF SCENT:** The word, "propagation," is a very purposeful description of what odor does. Odor spreads, moves, grows, saturates, migrates. The environment, from geological formation, to temperature, to wind, to barometric pressure, ALL, play a role in scent propagation. The properties of the scent source itself plays a role in its own propagation process. A very good reference for understanding the propagation of odor is, Scent and the Scenting Dog, by William Syrotuck. This book is often used as a primer for SAR handlers, across the country. The first consideration in any area we search is the predominant wind direction. What is the direction that the wind blows from most of the year? In north Texas, for example, the wind primarily blows from the south/southwest. This is important because sources that are out for a long time often leave breadcrumbs that will allow a dog to work to source moving with the wind, even on a day when the current wind comes from a different direction than the predominant wind. This can certainly be of benefit when weighing wind direction vs terrain challenges for determining how to approach a cache. Current wind direction will often be your best bet, but if 10-inch-tall Corgi, has trouble approaching source in 20-inch-tall grass working into the wind, then considerations must be analyzed. Your Mastiff, however, may find that grass height is never an issue. Temperature affects odor by causing it to rise or drop, but when temperature interacts with geological formations, it can literally make those formations become odor "super highways," making odor move faster or slower, or even change directions. Think of this scenario: the scented cache is in the middle of a one-acre field in north Texas. The predominant wind comes from the south, but this is a cloudy spring day, bringing winds from the east. Cloudy skies make for more stable air. The sunnier it is, the more the air moves because heat from the sun energizes molecules in the air, creating turbulence. Easterly winds in north Texas, often means rain is coming. The air is heavy with moisture. When the wind pushes the scent against a warm tree, the scent rises as if it were smoke rising from a chimney (the "chimney effect"). Water is cooler and that moisture cools the soil around it, creating a scent trap and holding scent close to the earth. Where scent falls to the earth, in the field's damp grass, pooling occurs. As the



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wind carries that scent, it eddies about stretching out tendrils of odor. In this scenario, the dog gets hung up a little in the eddying scent, scent trap, and pool, but because of your great handling, she works her way perpendicular to the wind until she reaches the scent cone, then zigzags her way in to the find. You've both done a great job on the search.

**FACTORS THAT CAN AFFECT SCENT:**

**Wind:** Release smoke, ribbon, or leaves at ground level to see the challenges your dog will face in how the scent will move. Wind in gullies, hills, depressions causes scent to spin around.

**Temperature:** Cool, moist air is easier for dogs to smell. In warm weather don't age the scent as long. There are times when it is too cold for scent work. Cool air moves up hills & down the hills in the evening as warm air cools off.

**Humidity:** Rain can wash scent lower to the ground, forcing a dog's nose closer to the ground while light rain freshens an old scent. On foggy days the scent can hang in the air and distribute over a wider area, causing the dog to wander more.

**Vegetation:** Newly cut grass can be overpowering to a dog. If you can smell it don't train on it. Train outside around all types of vegetation, i.e., Dirt, grass, rocks & stones, standing water, leaves, etc.

**Age of Scent:** Can be affected by multiple environmental attributes. Age a minimum of 10 minutes. Example, a one-hour old scent on a hot, dry day can seem as old as a three-hour old scent on a cool day.

**Age of Dog:** Older dogs don't generally smell as well as they did when younger. This means older dogs may need more time and patience. Having a dog that is healthy, active, lively, and willing to work is important, and age alone should not be considered a disability when it comes to scent work.

**Time of Day:** Scent conditions change throughout the day.

**How scent can travel:** The odors from the item are carried by air currents and may disperse in a cone shaped pattern downwind with the item at the narrowest point on the upwind side. You may see a dog "zig zag" back and forth as they search, locating the edges of this cone. The odors are affected by MANY factors like terrain, temperature, moisture, and air currents, even inside a building. This may affect where and how the dog follows the scent coming from the item/hiding place.

Outdoor 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 a negligible 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 target and barely disperses.

**Woods-** 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 you and your dog's patience and skills, especially on a hot day. In open woods, the wind currents are similar to an open field. In dense woods, air flow is more like dense brush.

**Drainages and ravines and other low spots:** 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



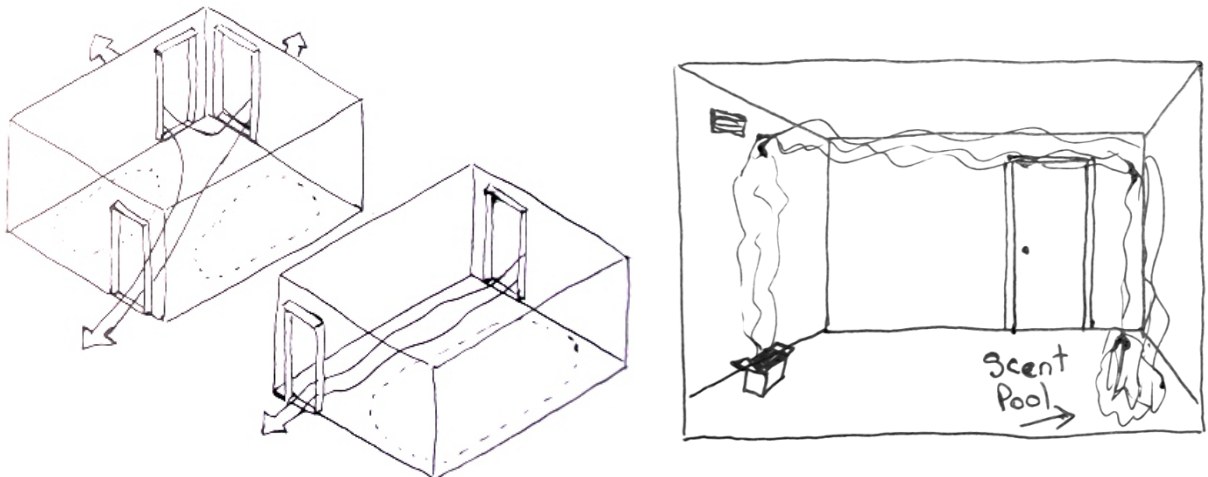
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possibly steep sides of a ravine. These low areas can also funnel scent so that it flows like a stream.

Indoor Terrain -

**Buildings and A/C air flow:** Just because you are inside a building does not mean there is no air current. Changes in temperature between the floor and ceiling (or from room to room) as well as the heating and air conditioning air flow within a building can affect scent. Areas near windows and doors that might let in outside air and the placement of stairways, windows (that might be hot from sun), and doorways can also affect the air/scent flow.

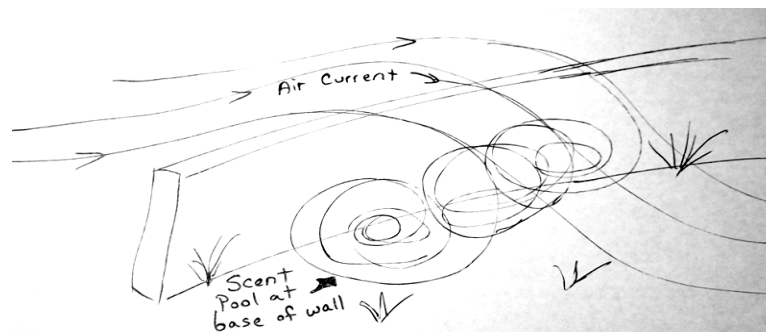


Special conditions affecting scent -

**Looping:** This might occur on a day with little wind or inside buildings. The scent from a hidden target travels upward, then gets picked up by an upper-level air flow till it's dropped many feet from the actual target. The dog may alert, but then lose the scent because there is no scent between the target and the dog. This can also happen outside near buildings or other vertical obstructions.

**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. Stairways tend to act like chimneys and may funnel scent.

**Eddying:** Outside, this typically occurs along cliff lines, tree lines or similar obstructions that might disperse the scent in multiple directions or cause it to gather. Indoors it can be caused by any number of obstructions to the air flow.





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**Pooling:** Low areas can collect scent just like they 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. It can also happen below balconies where cooler air might carry the scent down off the balcony to the floor below.

Being aware of how scent can travel will allow you to set up better training exercises for your dog. Using a topographic map and/or evaluating the surroundings for the above conditions can allow you to better help your dog 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.

**HOW TO READ YOUR DOG:** The more you work with your dog on scent exercises, the better you will be at “reading” the signals (body language) your dog gives when he is on the scent and when he has lost it. Steve White has 8 scent work indicators. You should know what it means when your dog does these things while following a scent trail:

- **Pulling-** pay attention to intensity, duration, frequency and direction. Note changes and when/where they occur.
- **Nose height-** in relation to the ground, the dog’s body and to previous carriage
- **Tail carriage-** in relation to top line, previous carriage, wagging, frequency, amplitude (width of the wag), curl, etc.
- **Breathing-** sniffing (can overheat the dog), panting (dog gets less scent), turbinate pop (odd sounds), respiration rate, deep or shallow breathing, changes in breathing
- **Cadence-** forward speed, steady stride count, zig zagging, changes of pace
- **Circles-** diameter, relation to wind, recovery time, comparison, assessment
- **Crabbing-** (when hind feet try to pass the head or dog walks sideways) usually indicates internal conflict (body says go! Head says wait!)
- **Inch-worming-** middle of dog’s back rises and falls as the nose stops briefly and the hind end doesn’t stop in time. The nose is hesitating on the scent.
- **Nose anchor-** Casting side to side, suddenness, body follows in line or not, subtle or drastic swing, relation to wide direction.

**DIRECTED SEARCH PATTERN:** This refers to the way an area is searched. It is usually some sort of pattern used to be sure no areas are missed. The handler is directing the dog in where to search by pointing out various places he wants the dog to check. In a square room, the dog and handler may start in one corner and work their way completely around the room, checking both high and low before they work on anything in the center. Typically, this is used until the dog finds the scent trail coming from the hidden item. Once some scent is found, the dog will follow it to its source by working from the faintest scent to the strongest scent. It might also help the dog find the location of the article that they can’t see. If that’s the case, the dog should offer the indication behavior even though the handler may be asking the dog to continue the search. Directed searching is almost mandatory for dogs that are so excited to find the target that they are almost frantic and do a hectic and scattered search. If the scent is pooling



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tight to the target, the item may be missed if every area is not carefully checked. Police also use it when there may be multiple things hidden in one area.

**SAFETY:** A dog's good physical condition is a prerequisite for successful scenting. Proper hydration and nourishment are crucial for a dog's overall health. Several diseases can negatively affect your dog's scenting including tonsillitis and tooth infections as well as fungal and tickborne diseases. Keep you and your dog hydrated. Regularly watering your dog is a useful habit, especially on drier days. Pay attention to the moisture of your dog's nasal passages. The water in your dog's nose helps transmit the scent to the olfactory nerves. Avoid extreme weather conditions.

\*\*\*\* Chooses the right scents for you and your dog. Just like people dogs have aversions to some scents. Notice your dog's reaction to each scent. Remember their noses are stronger than ours and they only need a minute amount of scent for a second or two to get the "scent." If they pull away don't bring them back, they've probably "got it." If you and your dog complete all the scent discrimination badges your dog will have learned to find a minimum of four scents plus your own.

**TROUBLE SHOOTING:** If your dog has trouble with this, verify that there is not some weird air current happening by trying a new location. Be sure you are using directed searching so you don't miss a spot. If the dog still doesn't indicate or offers random indications, you'll need to go back and work on previous steps. Also be sure that when you know where the item is that you aren't doing anything that might cue the dog to the location. Let the dog find it while you stay still and quiet to be sure the dog isn't just cuing off you. Then practice with you doing directed searching with your focus on continuing to direct the search even after the dog finds the target. Having the dog choose the indication behavior when you are telling the dog to keep searching is a form of "intelligent disobedience." This can be hard for some dogs to do, so be sure to practice it when you know where the item is and heavily reward when the dog disregards your "look here" signal and offers the indication behavior instead.

**FOCUS ON TARGET:** It may help your dog stay focused on the target scent after the find if the reward is delivered at or on the scent location. You can also withhold the click until the dog is offering the indication behavior AND looking at the target. And adding in your find of the item will help too. It will help you locate the target object (when you don't know where it is) if the dog maintains eye contact with its location until released. If you miss a quick bump and the dog sits back from the hiding place and looks at you, where do you look for the item? If instead the dog is boring a hole in the location with his eyes, it helps narrow your search :-). Check out this video for an example of intense "focus" (because the reward happens AT the target scent): <http://www.youtube.com/watch?v=hfYaoWfV7HI> (Part 1 of this video shows the use of a training aid that is remote controlled and pops the reward up for the dog. But the same focus can be achieved if that's what you reward from early on.)

**SCRATCHING:** You get what you reward, so if you don't want the dog to scratch the hiding place, simply don't reward any scratching or move the dog away from the hiding spot and then let him approach again or hold the dog just out of reach of any "scratchable" surface. Depending on the target item, scratching/digging may injure or frighten a live target, cause crime scene damage, structure collapse or could cause an explosive to detonate. Drug dogs are the ones most often taught an active alert.