

## **Negative Searching**

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I subscribe to a number of dog training e-mail lists, and I train in different disciplines such as patrol work, detector work and search and rescue (SAR). Although working in many categories tends to make me a “jack of all trades and master of none,” interacting with experienced trainers and handlers in diverse areas exposes me to ideas and training methods that I would not learn if I were limited to working in one program.

The search and rescue field is a rich source of training material for scent work. The average patrol dog team is also a jack of all trades, working in apprehension, agility, obedience, tracking and evidence search and really not pushing the envelope in any of these fields in training because the team has to maintain minimum training levels in all areas. In contrast, devotees of search and rescue tracking stick to tracking and learn the true limits of the dogs’ abilities. One of the Maine Warden Service handlers recently did a 20-hour-old contaminated track of a lost nursing home resident with a newly certified, young female Lab, a dog he trained and certified after handling a bloodhound cross for a number of years. The young Lab was successful even though they had never done a track that old in training. They show me that scent is there to be found for days after the track is laid. Unfortunately, most police K-9 teams don’t train on tracks that old, so patrol dogs learn to follow the freshest tracks out there, or to pick the track with fear scent. Unlike police K-9s, SAR groups specializing in tracking with scent discrimination regularly train and certify on tracks that are 18, 24 and 48 hours old.

Having seen my own dogs and dog teams that I have helped to train complete tracks 12 or more hours old, I know that this type of work can be done, and you don’t need a bloodhound, although it might help, because most bloodhound handlers don’t try to clutter the hound’s mind up with stuff like obedience and apprehension work.

## **Learning From SAR Trainers**

One concept that I found very interesting was an article by Jonni Joyce (once a law enforcement handler but now specializing in training SAR teams) on “Negative Searching.” Jonni explains that negative searching means devoting training time to searching areas where none of the target scent (scent the dog is trained to indicate on) exists.

Negative searching helps the dog to understand that not every search will result in a find, and extends the dog's "nose time," or the amount of time the dog will search effectively without burning out or giving false alerts out of frustration when they don't encounter the target scent when they think they should.

The training article was written to target air scent SAR handlers and detector dog handlers, but recently I reflected on how negative searching would apply to tracking dogs and the process of teaching scent discrimination. Most detector dog handlers, by the time they are doing intermediate or advanced searches, build some negative searching time in by searching an area without a hide (substance they are training for) before they go to the area of the hide. However, many always end the session with a reward at the hide and put the dog up. The point of Jonni's article was that handlers should search negative areas before and after they find a hide and, over time, extend the amount of negative searching to extend the amount of time the dog will work effectively without a find. Handlers should also spend time taking the dog out to search areas with no hides or target scent whatsoever and then reward the dog with play for searching and put the dog back so that the dog doesn't expect a find every time it is taken out of the vehicle.

Humans try to be efficient when training, and it is easier for humans to repeat the same exercises over and over rather than mixing things up. Often this leads to a training routine where, especially when multiple teams are being worked in the same session, teams come into the search area, search for a given period of time, make the find, the dogs are rewarded and the teams go back to their vehicle, all having searched about the same amount of space and time, unless the trainer tailors the search area to the level of the dog. Since dogs are keenly aware of time duration and distance covered, too much of the same searching interval may cause the dog to give false alerts when he thinks he should be finding something. If one exercise is set up for all levels of teams, the advanced teams should take advantage of down time by searching other negative areas before and after they go into the exercise area. This keeps the searching time interval more random and extends the dog's effective working time.

## **Reward for Work or Reward Only for "Finds"?**

Handlers shouldn't get hung up on the idea that the dog is only rewarded for finds. Many police K-9 officers would go hungry if they were paid only for the shift their dog found something significant.

In real life, most dog teams do a great deal of searching without finding anything. Yet the handler still gets paid a salary for this negative searching. If a handler is doing a negative search with a dog and the dog works well, the session should end with a reward for the work done. This reward may not be the "special" reward the handler reserves for a real find, but the dog should be rewarded in some way for the searching he does, whether or not he finds anything.

Negative searching for detector dog handlers also helps to resolve issues with false alerts. If the handler knows there is no target odor in the area, the handler can actively reward the dog when it resists giving a false indication, even if the handler is "setting the dog" up by pausing in his pattern, focusing too much attention on one place, etc. If the dog gives a false alert, then the handler can correct the dog verbally or otherwise as needed and try the exercise again. The important thing is that the dog learns to tell the handler, "there is no target odor here," and the handler learns to recognize what the dog is saying.

Since much of actual detector work on the job ends up being negative searching, dog teams need to do it in training. They cannot rely on doing negative searching in the real world where the handler does not know if the target odor is present or not.

Negative searches are usually easy to set up. All a handler needs is an area that the handler is relatively sure contains no target odor. For a narcotics detector dog handler, this will be a little harder than for an explosives or cadaver dog handler, or so we hope.

Hides don't have to set up unless the dog needs a positive find to clearly understand that finding the target odor is desired rather than a distracting odor. Handlers and trainers should also set up negative areas with distracting scents. For example, dogs that are dual trained in patrol and in narcotics are usually trained to find evidence with fresh human scent. When doing narcotics, the dogs should have areas with no narcotics but hidden articles with fresh human scent, food items, "blanks" or the clean containers the narcotics hides are put in, or other distracting odors that the dogs need to be proofed on so they do not give false alerts. The earlier this is done in the dog's training, the better the dog should understand that only the target odor earns a big reward.

## **Negative Searching and Tracking**

Although Jonni's article addressed primarily detector dogs and not tracking dogs, my current training of a new tracking team has made me think about negative searching in relation to tracking. Also fresh in my mind is a recent SAR incident where an untrained and

uncertified bloodhound team took officers on a five mile path that was "continued" another mile by another newly trained patrol K-9 team using the same scent article, when it turned out the lost subject was only .4 of a mile from the starting point in the opposite direction (the 20 hour old track successfully done by the Warden Service dog team). That incident made me think of how useful it is when a tracking dog is able to tell his handler that "there is no track here" or "there is no track here that matches the scent article you gave me." I am sure every experienced police K-9 handler can tell you of incidents where responding officers told the handler they knew "the guy went that way" when he didn't, and incidents where the complaint was unfounded or fabricated by the complainant. I faced this truth as a new dog handler at the scene of an "attempted burglary" complete with a cut window screen when I couldn't get my usually reliable tracking dog to track away from the complainant's residence. I continued to work the area in frustration until the investigating state trooper called me off by radio. He then told me the complainant had admitted the complaint was fabricated. I asked him how he knew, and he told me that he had watched a State Police K-9 handler drag his dog all over the area the week before at the same residence for the same type of complaint. It was embarrassing when he recognized that there was no track to be found before we, the dog handling experts, did. Later on this lesson proved useful when a teenager who had accidentally shot a pistol into the ceiling when his parents weren't home fabricated a "home invasion" story with fleeing felons to cover the damage. After I had checked all around the residence (and local TV cameras filmed my dog urinating on bushes in the yard of the residence), I told the investigating officers that there was no track. They talked to the teenager again and got the true story.

Most patrol dog handlers can also tell you about the time their dog in training took them on a long walk that was well off the track they should have been on. Such "false tracks" or searching activity can be caused by a number of factors. One may be a high energy dog that just won't quit and drags his handler all over (or the dog that is never out of the car or kennel except on tracks so he pretends to track so he can get some outside time), a dog that has been corrected and "forced" to track or pushed to track and continues to fake tracking to escape a correction or try to please their handler, or the eager tracking dog that, through poor initial training track set ups, has learned that searching around the area by air scent eventually allows him to discover the tracklayer and be rewarded. This latter problem can be avoided by having most of the initial training tracks laid down or cross the wind instead of upwind, by having a toy instead of a person at the end, by emphasizing ground scent focus with articles and ground

based rewards (toys or food) and by not letting the dog wander long distances off the track while in training.

The long walks on a "false track" may also be caused by a dog who is tracking someone, but the dog has picked a scent to track that was not the scent the handler wanted him to pick. This picking of "wrong" scents may be the dog picking a track older than what the officer is willing to recognize as being a track.

Once the dog is doing tracks with motivation and understands and enjoys the game, "negative" searches should be introduced to let the dog know that there won't always be a track to take and that they shouldn't be searching for long distances and dragging their handler around when there is no track. I have this problem with my high energy dog that is also trained in air scent SAR. When he loses a track, he will usually pull twice as hard to drag me around to try to reach areas where he thinks the track might be. Sometimes this allows him to re-acquire the track, but if the track has ended, like at a vehicle pick up, it makes it hard for me to know where the actual end is because the dog spends some time looking around after he has lost the track before he will finally quit and signal that he can't find it.

Negative tracks also help the handler to read when the dog is tracking and when it is not. The handler can see what the dog's normal "searching for a track" behavior is and compare it to "on track" behavior.

Negative tracks where the dog is put up before any track is found obviously have to be mixed in with exercises where the dog searches for a while at the handler's direction in negative areas and then finds a target track to take. Handlers starting tracking dogs without a scent article have to be careful that the negative area they have picked is truly negative. An untracked field of snow, sand, or long grass is probably best because then the handler can see whether or not someone has passed through the area within the last day or so. If the handler accidentally tries to do a "negative" search in an area with, say, a 10 hour old track in it, the dog takes the track and the handler tells him not to, the handler is telling the dog not to take tracks that are 10 hours old. I think this is how many patrol dogs inadvertently are trained not to take older tracks because they are set up on fresher tracks, and if they take an older contaminating track, they are corrected and told to take the fresher track, so they tend to reject older tracks later on.

I think that many of the problems we experience in training patrol dogs in tracking are caused by not paying attention to scent discrimination and contamination. If, as I have seen, dogs can easily detect tracks up to 48 hours or more old, and scent drifts with the wind up to 100 feet or more off the track (as we know), then your

average suburban or urban area near a path traveled by people on foot, bicycle and possibly even cars has literally many "tracks" in the area. If you spend a 24 hour period in one area, you would be surprised by the number of joggers, walkers, kids, bikes, bottle pickers (at least in Maine), etc. that show up in the area. As trainers, we might go into this area and have a tracklayer run a track and then set the dog at the start without a scent article to track. The dog goes to the start, smells maybe a half dozen different people there, but only one is really fresh, and that is the one we make him track, so the dog quickly begins to select only the freshest tracks while tracking.

Contrast this with the way good bloodhound or search and rescue tracking dog trainers work. In beginning tracking training, they always start with a scent article containing the tracklayer's target scent. They don't worry so much about track age, but worry a great deal about having the dog "take" or recognize the proper scent and the proper track, clearly recognizing that there are all sorts of contaminating scents out there and that dogs can track older tracks. They are extremely careful with scent articles so there is little or no chance the scent article will be contaminated or the dog will take the wrong scent, so the training exercise is always clear to the dog. They design short drills to teach the dog to pick up the target scent and disregard non-target scents. They do lots of negative searching, not only in areas completely free of scent (at the start), but in areas with lots of contamination with no target scent (matching the scent article given to the dog). Many handlers teach their dogs a particular signal to give when there is no matching scent in the area, like jumping on the handler.

## **Bloodhound "Bashing"**

I feel that it is the type of training that successful bloodhound handlers do that makes their dogs good trackers more than the breed. I have seen untrained bloodhounds that are poor trackers as untrained dogs of other breeds, and I have seen breeds other than bloodhounds complete tracks that are 12 or more hours old. I guess I am a little prejudiced because I have seen many poorly trained or untrained bloodhound teams called to searches in my career. I can't see a big advantage to the breed besides the fact that they are bred to have so many folds on their face that they literally can't see except when they point their heads at the sky, so they don't get visually distracted and the only thing they can do is track because of their physical limitations.

The point of this admittedly unfair "bloodhound bashing" is to try to dispel the myth that only bloodhounds can track old tracks. Dogs of

any breed with the proper temperament that are trained the way top bloodhounds are can probably do as well as the best bloodhound. I have the greatest respect for anyone who can train a dog, bloodhound or not, to scent discriminate and track 24 and will or more hour old tracks in contaminated areas. Most police K-9 handlers don't even attempt it and will say it is impossible, shooting themselves in the foot before they start.

Teaching scent discrimination is possible with police K-9s, although most programs don't do it effectively, but instead rely on having the dog start from a scent pad and hope the dog picks up the right scent. This type of work usually results in teaching the dog to take the freshest scents. If patrol K-9 programs emphasized scent discrimination and scent articles from the very start, worked negative and positive searches for tracks, first in totally uncontaminated areas and then in contaminated areas, K-9s and handlers would have a better grasp of what they are doing instead of just casting the dog in the area and hoping to pick up the right track. I know that most handlers end up doing on this while on patrol, but they should be acutely aware of what they are doing, and that the dog is probably picking up the freshest scent or picking up a track based on emotional excitement or "fear scent."

Wouldn't it be better to have the dog learn in training to target a particular scent the handler presents during the track start "ritual?" Like showing the dog the doorknob the suspect touched? Scenting the dog on the seat or brake pedal of the stolen car? Using a sterile gauze that was laid on the seat of the stolen car, if it had to be towed before the team arrived? The only way to achieve this type of scent discriminating reliability is to be acutely aware of where the target and non-target scents are during training.

Once handlers and trainers work up a system of scent discrimination, opportunities for training and deployment expand. Handlers can use the "missing man" system where those that have contaminated the scene are presented to the dog before starting the track so the dog knows that he is looking for the person who is not there. Handlers can search areas using a scent article and learn if a target scent is in the area or not. For the handler that is willing to expand their knowledge and thinking and work hard on tracking, it seems like the only limitation to what they can do is the working lifespan of the dog they are training.