



Georgia pictured with Hawkeye – Wise Choice Hawker Hurricane NW1, HCT, the first Bouvier in the world to earn a competitive nosework title. (2008-). Above, Hawkeye sniffs the gun turrets at Ft. Casey on Whidbey Island, built during the Spanish-American War.

An interview with

Georgia Edwards

DISCUSSING
K9 Nosework

Interview by Linda Haskell

Georgia, I've read the articles on your website (caninenosework.com); in fact, at the end of your interview I've included the piece about your Bouvier, Gandolf, detecting cancer. I'd love for you to explain to our members what is unique about the sport of K9nosework?

K9NW is remarkable among dog sports for its inclusivity. Both handlers and dogs of any age and (dis)ability can be successful. In both classes and trialing, each dog is worked alone, out of sight of any other dog, so that reactive, shy, or fearful dogs can all play the game. Unlike any other dog sport, K9NW also allows handicapped dogs to compete and title. In my classes, there have been blind dogs, deaf dogs, blind and deaf dogs, tripod dogs, and paraplegic dogs in carts – all happily searching; I jokingly say I have an American Dogs with Disabilities Act-compliant class. And what a wonderful gift K9NW is to the older dog who, for whatever reason, can no longer participate in his usual life's activities. My old girl Fairoaks Tova de Sambre VBX, TAN, BH, HCT, HIT, ThD started K9NW at the age of 14 and continued to enjoy the sport until just a few days before her death at age 15; nothing made her happier than to put on her nosework collar and hear me say "Go find it!" For competition, handlers need to be able to negotiate the trial site, but certainly don't need the speed, flexibility or strength that is needed for agility, carting, herding, or protection sports.

Also unique is that the dog gets to be a dog and do what they like to do best – explore the world with their nose - not what we want them to do. We're not teaching the dog to understand a verbal command and perform a behavior we want that is often nothing the dog would do in the natural world. Rather we are refining his natural talents to successfully find the target odor by the way we set up the scent problems for the dog to solve. Initially, the dog hunts for food treats hidden in boxes as their nose directs them and the handler is just "along for the ride." As the team progresses, odor is added in (essential oil of birch, anise, or clove on a Q-tip) and the handler learns to



recognize the change of behavior seen when the dog is "in odor" and tailors his movements and behavior to assist the dog in finding the source of the target odor efficiently. We usually start with food treats, rather than toys, because the hunting-for-food drive is an essential survival tool - lost in the woods for a week, your dog would much rather find a steak than a tennis ball.

I was fascinated to read in one of your articles that a dog actually starts nosework as a puppy when they find the nipple, the milk bar, by scent. Does this natural ability fade as a dog matures, or is it something they learn not to practice by their owners?

Dams, like all female mammals, have oil glands surrounding the nipples that secrete an odor that attracts the newborn puppy – he is learning K9NW from birth. Dogs primarily experience the world through their nose, and the more we encourage their scenting abilities, just like any other skill, the better they are at it – just as an artist who is a good observer of his surroundings sees and appreciates much more in his world.

You mentioned on your website that nosework can help dogs to build confidence. In fact it seems a change might become apparent in as little as six classes. Is this something you see often?

Absolutely - and the change can be apparent in as little as one or two classes. Dogs love this game because they have the good noses, not us, and can play by their rules, not ours. And because it's fun and engaging for them, the dogs will explore and expand their own boundaries to pursue the target odor. Dogs who are hesitant to put their head in a box to seek odor will do so if the reward is of high-enough value – dogs fearful of gunshots will ignore them when searching; dogs who hate the rain/cold/wind will venture out to play the nosework game. Even reactive dogs will ignore another dog that might pass by if they are headed out to do a nosework search in their working gear. Of course, it is incumbent upon the handler to be sure that through his actions he forms a contract with the dog that says "If I send you out to hunt, you will always be safe, you will always

be paid promptly, and you will always be paid well." Such a contract gives the dog the security he needs to search anywhere he is asked and builds confidence in the choices he makes to play the game, and that confidence in his own decision-making will eventually lessen or overcome concerns and fears the dog perceives in his environment during day-to-day activities. Well-played, K9NW also gives the dog confidence that he can communicate with his handler and the handler will listen to him. Trust your dog!

With a sense of smell that is 2000 times greater than a human, this activity seems a perfect match for a dog. Are some breeds built better than others for this? For example: scent hounds and such?

Don't be silly Linda, we all know that the Bouvier is the smartest and most competent of any breed at any job, and with his big nose and full beard to capture odor he will excel at the sport! Seriously, one can generalize to say that the greater the volume of the nose, the more scent receptors the dog has and therefore the more olfactory information gathered per sniff. Facial fur, facial skin folds, and/or long droopy ears also help capture scent and assist the dog. Obviously those dogs will find the sport easier than do brachycephalic pugs or bulldogs. However, within a breed there can be a wide variation in abilities, in part dependent on whether or not scenting has been encouraged in the dog's other activities, such as tracking. Other factors can hamper the dog's sense of smell as well: dental infections, medications, untreated hypothyroidism to name a few.

In addition to the scent receptors in the nose, dogs have a second group of scent receptors in the roof of the mouth, the vomeronasal organ (VMO). Interestingly, work with other mammals has demonstrated that the information gathered by the scent receptors in the VMO is transmitted to a different part of the brain than the information gathered by the nasal scent receptors. It is thought that the VMO primarily receives scent information from the pheromones in the urine, stool, saliva, and skin rafts which provides information about the size, sex, and breeding status of the



Hawkeye exploring the world with a sense of smell that is 2000 greater than a human.

animal that left them. You may notice that when you're out for a walk and your dog is checking his "pee-mail," he will taste as well as smell the marking odor to get that additional information. When I bring my intact male's Jolly Ball to class as a distraction, the female dogs sniff it and go on, but most all the male dogs, both intact and neutered, sniff it and back off – they know it belongs to a big, intact, healthy, breeding male who must be hiding in a corner and is ready to jump out and beat them up for touching his ball. (And for oenophiles, supposedly the proper way to evaluate your wine is to sniff both with your nose and an open mouth in the hope that scent information from your vestigial human VMO may add to the pleasure of the wine on your palate).

Dogs also appear to smell with more "pixels" than we humans do. I may come home and smell spaghetti sauce that my husband has made for dinner; my dog smells not spaghetti sauce, but all its individual components separately: beef, tomatoes, garlic, rosemary, and even who has touched the pot and what dishwashing soap was used. In humans, and probably dogs, memory of scent is the longest-lasting of all the senses. Evidence dogs can work with materials that are 10 years old, cadaver dogs can identify human remains in burial sites that are hundreds of years old – the nose knows!

On your website you provide an outline for the four levels of instruction you offer. You describe the progression of using three scents: birch, anise and clove. Please tell us why the use of these particular scents, and why they're presented to the dog in that order.

Selection of odors should meet certain criteria. The odors chosen must be safe for the dog if ingested, unlikely to be allergenic, stable over time and change in temperature, relatively inexpensive and easily available but not ubiquitous in the environment, and significantly different one from another. I think only the dog can tell us if the order of birch / anise / clove is optimal. Some professional drug and explosives trainers feel the



A wonderful and fun activity for blind dogs, deaf dogs, blind and deaf dogs, tripod dogs, and paraplegic dogs in carts.

strongest odor should be presented first, others feel the weakest odor should be presented first for optimal – that's a philosophical and experiential discussion. But we have no idea if the odor we humans feel is strongest or weakest is what the dog perceives. I don't think we really have an answer to that question, though some dogs certainly seem to have a preference for one odor over another if given the choice.

You've suggested nosework can be used for dogs in need of a job to keep them busy and happy. For enthusiasts who wish to go further, what avenues are open to them?

K9NW can be just a fun thing to do with your dog when he needs both brain and body exercise but time or weather constraints preclude your usual activities, to relieve the boredom of a long car drive, or just to take a few minutes break in your daily routine to pay undivided attention to your best buddy.

But for those of you who feel that if your dog can do the work, he should have the title, competitive K9Nosework® trials are held throughout the US and will soon expand to Canada and beyond. To title, dogs must successfully locate the target odor(s) in all four of the trial elements during the same trial. These elements parallel the work that professional scent detection dogs do: interiors, exteriors, containers, and vehicles. As the level of competition difficulty increases, the location of the hides, number of hides and odors used, and size of the search area all become more complicated. Trials are usually held in schools, armories, and other large venues; locations of the target odors are selected by the certifying official for each trial and are unique to the setting so that no two trials are alike.

Currently the National Association of Canine Scent Work (www.NACSW.net) is the only titling/sanctioning/organizing body for the sport and when one has achieved their highest (NW-3) title, then there is the opportunity to achieve the Elite title – similar to a "Grand Championship." Much as happened in the agility world some 30+ years ago; the sport has become so popular that



Odors, odors, everywhere.

other dog sport organizations – the UKC's United States Nose Work Association, AKC, and CKC - are jumping on the bandwagon with variations of the rules and trial standards and will soon be holding their own trials.

Would this be the sort of training a dog would need to go on to jobs such as finding missing persons, cadavers, diseases like cancer, seizures, molds, insects (like termites), explosives, drugs, fruits and vegetables at customs?

This is a complimentary training which will improve the dog's focus for any scent-detection task, such as tracking. However, dogs that are used professionally are not cross-trained with k9 nosework scents because for the dog's identification of drugs, explosives, or other evidence materials in the courtroom to be valid, the handler needs to attest that his dog will only identify the substance(s) in question.

And finally, can you offer any words of encouragement for an owner who might think this might be too daunting a sport for them to try?

Nosework is probably the easiest sport to try - it requires minimal equipment that usually comes to us for free and can be easily carried around to different training sites (cardboard boxes), no obedience training on the part of the dog and no dog-training experience on the part of the handler. It can be practiced anywhere, in minimal space, so it is a good activity to mentally and physically engage your dog in bad weather when you can't get out for other sports or even a good walk. It is a sport in which the dog can participate and enjoy throughout his life and is accommodating to the disabilities of an aging dog (and handler). What it does require is being able to observe and understand what the dog's body language is telling you – and the better you listen to the body language, the more the dog is willing to tell you in all parts of your life together with him. ■

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With nosework, what's unique is that the dog gets to be a dog and do what they like to do best - explore the world with their nose



Georgia out for a stroll with Tova, left, (Gandolf's daughter) VBX, Sch B, HCT, HIC, CGC, TDI, TAN-II, and Ace (right) CGC.

Below: no special equipment is necessary for nosework.



Medical Experience with Canine Scent Work

AS APPEARS ON GEORGIA EDWARDS' WEBSITE: WWW.CANINENOSEWORK.COM

As a prequel to my interest in the sport of competitive nosework, I first became fascinated by the olfactory abilities of my Bouvier when:

As Clinical Director of the Breast Care Center (Cottage Health System), I was asked by several patients to bring my TDI dogs in to the office while they were receiving chemotherapy. The dogs stayed in my private office and did not venture out into the rest of the Care Center unless specifically requested by a patient, but the office door was usually open and the dogs had "olfactory access" to the reception area and the main hallway which accessed four exam rooms, two treatment rooms, and three mammography suites as well as a restroom and two dressing areas.

In 1995, just after the dogs began coming to the office, a new patient, MM, came for evaluation. One of the dogs, Gandolf (Ch Madrone Ledge Othello of Fogbank, VBCh TDI, CGC, HCT, NA, TAN), became very alert and focused, went into the staff reception area, and regarded her intently over the counter, nostrils flaring, sniffing loudly. When she was brought back to an exam room, the dog followed her down the hall and pawed gently at the door when it was shut. At the request of MM, the dog was allowed into the exam room and he immediately went to sit by her and leaned against her legs, looking at her face and sniffing loudly – behavior that the dog had not exhibited before and which was not encouraged by the patient. MM unfortunately was found to have a large breast cancer filling the left breast which had spread to lymph nodes under the arm and in the neck. Over the 2-week course of her evaluation, the dog's behavior was the same each of the several times she came in the office. Gandolf responded to no other patient in this manner (usual patient load was 50 women/day) and his response was so striking that several of the staff and my radiologist partner commented upon it.

MM underwent a mastectomy and lymph node removal; the fresh tissue was sent to the lab in a closed stainless steel bucket. The pathologist was agreeable to evaluating Gandolf's response to the tissue and when the bucket was placed on the floor and opened, the dog was disinterested and showed no appreciable change in his behavior.

Following surgery and one course of chemotherapy in the hospital, MM came to the office for follow-up treatment and Gandolf ignored her. He continued to remain unengaged with her on multiple subsequent visits until about 10 months later, when once again he exhibited the same intense vigilance – staring at her face, sniffing heavily, and leaning against her body. At that time, she reported symptoms that suggested spread of the cancer to other organs, and testing confirmed metastatic disease. Once again, she underwent chemotherapy; after four monthly cycles of treatment, the dog once again ignored her. For another year, MM did well and the dog ignored her presence, not even coming out of my office when invited to do so. At each office visit MM would tell me "Where's Gandolf? I don't want a CAT scan, I want a DOG scan." However, once again Gandolf alerted on her and once again, she had progressive disease.

Bone marrow transplant was performed; again Gandolf became unengaged. But after only three months, he again "alerted" and MM again did have progressive and rapidly fatal disease. In the few weeks before her death, when she became bedbound, MM asked that Gandolf accompany me on house calls to see her – he would sniff heavily, looking at her face, and lean on the bed or put his paws on the bed and his head on her chest. He was present when she died – took a few sniffs, moved away from the bed, and left the room.

So where did this lead us? Following the observation that removal of

the bulk of MM's disease by mastectomy resulted in a non-response from the dog, we began a two-part study. The first was to observe his behavior with new patients. Since the Breast Care Center was primarily a screening facility, we saw a relatively small number of patients with either metastatic disease or locally far-advanced disease at the time of their first visit to our facility. However, over the next five years, Gandolf correctly identified, in the same manner, all eight patients who presented with metastatic disease. In addition, he identified three of four patients who presented with locally far-advanced disease; the patient who he did not identify was a woman who had a breast lymphoma, not a true breast cancer.

The second part of the study was conducted with the assistance of several surgeons, radiologists, and our pathologist. Gandolf was presented with fresh needle and surgical biopsy samples of cancerous and non-cancerous breast tissue from over 100 patients and never responded to any of them. Since these were fresh specimens as yet unevaluated by the pathologist, neither he nor I nor three other staff knew the patient's diagnosis and so were blinded observers without bias. We also gave Gandolf samples of urine and whole blood to sniff on all of the 11 patients he alerted on – again, no response, though in this circumstance, the observers all had knowledge of the patient's diagnosis.

Early in my work with Gandolf, there was a brief paper presented at the American Society of Clinical Oncology annual meeting (1996) that described a group of ketones that could be identified in the breath of women with metastatic breast cancer. These ketones were specific for breast and not other types of metastatic cancer and represented break-down products from the tumor which were metabolized and excreted through the lungs.

More recently, the Georgia Tech Research Institute has been working on defining and measuring compounds in exhaled breath of breast cancer patients that could be used as a simple screening method and follow-up for known cancer patients to evaluate for recurrent disease. In a small study of mid-to-late stage breast cancer (II-IV), their testing method had an accuracy rate of 78% – I surmise that it was this low because of the inclusion of more mid (stage II)- than late –stage (III-IV) cancer patients.

Please note that Gandolf's behavior was not a trained response, but a naturally-offered and observed response, valid and highly predictive. It was also a response that was not reinforced by reward. In 2002, he identified a fourth locally-far-advanced cancer, this time in a social setting: in my sister-in-law when she came to our home for Christmas dinner. She was treated with surgery, chemotherapy, and radiation, after which the dog no longer alerted on her – nor did he for the remaining two years of his life. At this writing, my sister-in-law is disease-free.

You might wonder about the other two dogs that were in the office. One showed no interest at all in any of the patients. The other, Gandolf's daughter Tova, alerted in the same manner that he did, but to a different patient population: the developmentally/mentally/psychiatrically handicapped women from a near-by locked-down residential care facility with which the Breast Care Center had a contract to do all of their screening mammograms and breast care. No evaluation was done of just what she was "alerting" on – medications? poor hygiene? the odor of some institutionally-used cleaning product? Who knows?

From this early experience with the remarkable nose that knows, I became interested in the newly-developed competitive sport of canine Nosework, the subject of another article to come. ■