

AKC Working Dog Detection Conference

April 15, 2017

Dr. Carmen Battaglia

Background

The shortage of dogs needed to protect the security of our airports and our borders is now reaching a critical level. In today's environment with the real threat of danger, one of the greatest needs is to have a continuous supply of detector dogs.

The cause for today's shortage is in part historical and dates back 50-years to 1968, when the US government established the first of its four breeding programs. It is interesting to note that all four government breeding programs have been discontinued. In each case, they were intended to produce purpose-bred dogs for a national purpose. The most recent of the four breeding programs began at the Transportation Security Administration (TSA), Lackland Air Force Base, San Antonio, Texas in 2002. It was terminated in 2012. History suggests that the government has not learned how to maintain a breeding program of this kind over time.

After the tragic events of 9/11, many government agencies began to use canines to assist in Homeland Security and law enforcement. These dogs were used for two primary purposes, their ability to protect their handler and the general public, and

their ability to detect. For the past 30 years, the vast majority of these dogs have been purchased from European vendors who have a long history of breeding, training and trialing dogs in police/military style competitions and certifications. Efforts of this kind have not developed in the United States, only because dogs were readily available abroad. Now, because of the violence and continued threats of terrorism throughout the world, the European countries have sucked up the supply of these dogs for their own use. The irony in this situation is that, as a nation, we have not typically out-sourced the production of resources for our national security. It is even more difficult to accept the fact, that as a nation, we cannot meet our own needs for working dogs when we have so many breeders and dogs within our borders.

Today's Problem

By 2016, over 80% of working/detector dogs in the United States were being imported from eastern Europe even though there are an estimated 73 million dogs in the United States of which about 10 million are purebred. These numbers are misleading when you consider that the number of viable working candidates available becomes exponentially smaller when a "filter" is used for age, breed/function, size, health standards, and the behavioral characteristics needed of working dogs. Experts believe, and I agree, that the only way to maintain a ready source of dogs with the desired characteristics and special traits for detection is to breed them for the needed traits. The easiest way to accomplish this is to select from breeds known to have success doing those jobs and then to further refine those traits through research and selective breeding.

The primary difference between the domestic supply of dogs and those procured in Europe is that the European bred and trained working lines have a proven history

that show pedigrees from dogs selected for working traits. These traits are defined by the influence of competitive dog sports and dog training requirements that are used at regional and national events. Good examples are the French Ring Sport and the Schutzhund (VPG, IPO). Each serves as an example of how a culture can influence, shape and drive the breeding of working dogs. When TSA began its program tests were used to measure success. The actual heritability scores were found to be quite low, but the titles for performance used by the competitive sports served as relevance to a heritable basis. Experience showed that one of the primary difficulties in using sport dogs as breeding stock is a lack of emphasis on detection abilities as part of the selection process, which can be remedied by creating a widespread system to evaluate and breed for detection abilities. Some of the best advances in working canines have come from the efforts of governmental organizations, academic institutions and private citizens.

What can be said about the past efforts of the government is that more can be accomplished when partners get involved. For example, after the tragedy of 911, the Department of Homeland Defense established the TSA Canine Breeding and Development Center (2001) through a cooperative effort with the Australian Customs Service. The TSA breeding program was originally overseen by the FAA Technical Center, United States Army Veterinary Corps, the United States Air Force and civilian contractors. The core strength of the TSA program came about via the International Working Dog Breeding Association and the networking with like-minded programs world-wide. Outcross breeding stock was introduced from more than 20 dog owners across the United States. Additional assistance was provided by local dog experts and private contractors. Other kinds of program support were provided by local veterinarians for reproductive services. The puppies produced were socialized by private citizens who followed protocols that provided real world experiences for their first ten months of age. A volunteer youth group was also used to assist during the summer months. Many were high school students who helped hone their scientific knowledge through observation and statistical analysis. These students have “yielded significant data on hip measurement systems and correlations of birth weight to twelve month hip scores”. Universities and other investigators also supported the TSA program through research that focused on the genetics and behavior of working canines. The TSA breeding program (2002 – 2012) serves as a good example of how a cooperative

effort between the various sectors of the canine community could come together to help solve the critical need for working detection dogs.

The problem today is the growing shortage of detector dogs which can only be corrected via a domestic breeding program. In early 2016, two US senate committees held hearings about the security of our airports and borders and the need for need for these dogs. Dr. Cindy Otto of the University of Pennsylvania Working Dog Center and I discussed this problem and her testimony to the Senate. She suggested that AKC become involved. I agreed, and brought the problem to the AKC Board who agreed that an initiative should be developed. With board approval, a small group of AKC board members and staff (Arnold, Ashby, Battaglia, Dok, Dunn, Ljungren, Leigh,) visited the University of Pennsylvania Working Dog Center and the TSA, military and contracting offices at Lackland Air Force Base, Texas. I also met with several breed clubs, individual breeders and kennel owners to learn about their interest in a national effort to produce these dogs. Some were only interested in the puppy raising program and I call them the “patriotic puppy” project.

The plan was to bring together representatives from government, research universities, private sector organizations and others who will be known as the stakeholders. They would meet throughout the year to discuss the problems and proposed solutions for a national breeding program. The initiative for that effort

began when the AKC sponsored a conference on February 28 and March 1, 2017, in Durham, North Carolina. Its purpose was to invite the best experts from government and the private sector whose interests, professions and diverse backgrounds could contribute to the many and varied aspects of canine breeding, behavior and genetics and develop a plan for the delivery of more dogs that are suitable for use in the defense and protection of the United States

Twelve invited speakers presented papers whose topics ranged from the selection of breeding animals, puppy behavior, training, genetics, semen collection/storage, uses of DNA, breeding models, research techniques, management and other related issues. The key message that participants took away from this meeting was the clear need for a private-public national breeding program and the opportunity to further enhance canine science. Here are the highlights of that conference:

Dr. Carmen Battaglia, the AKC Director, opened the conference by welcoming attendees and presenters. He reviewed the need and purpose of the conference and why AKC was involved. His remarks included some historical background and the unintended consequences of relying on European countries to breed and train detection dogs needed by the United States.

Carl Ashby, AKC Vice Chair, followed with a review of AKC's core values, mission and purpose. He touched on Standards of Care and Conditions and the collaborations with the AVMA, canine health research affiliates, breed clubs and outside associations and their importance to the natural connection they have to the goals and purposes of the conference.

Sgt. Wendell Nope of the Utah Department of Public Safety provided an overview of the dangers present in our cities and the need for well-trained detection dogs. He reported that in his survey of ten states, 80 - 90% of the dogs used by police departments were imports.

Lt. Colonel Mathew Enroth, Chief of Veterinary Diagnostics at Lackland Air Force Base, discussed the screening and evaluation of dogs being considered by the United States before they are purchased and the primary reasons for failure which included hips, elbows, lumbar and temperament.

Scott Thomas, program specialist at the TSA breeding program, Lackland Air Force Base. Thomas titled his presentation “Lessons Learned” which included information about selection in a breeding program and success in the field. He discussed TSA evaluation criteria for “green “candidates and the needed traits such as: confidence, response to distractions, responsiveness, initiative, hearing sensitivity and body sensitivity.

Dr. Eldin Leighton, president of the International Working Dog Breeding Association, presented a 13-page proposal co-authored by Dr. Otto, Dr. Hare and Scott Thomas. Their paper proposed a long-range view and guidelines for an independent effort that would bring together the private and public sectors in a working collaboration for purpose-bred, well-trained dogs to accomplish a variety of missions needed for the safety and security of the United States.

Dr. Cindy Otto, Executive Director from the U. Penn Working Dog Center used an informative video that depicted the on-going work at the U. Penn Working Dog Center and how it achieves its success with puppies and their progress toward detecting cancer and epilepsy. Research at the Center focuses on the uniqueness of the canine olfactory system and on tests designed to evaluate detecting unique substances.

Dr. Otto gave reasons why the United States needs a national breeding program with features that include a national semen bank, phenotype

screening and studies to evaluate both the successful dogs and those that wash out.

Dr. Liz Hare, a quantitative geneticist at the U. Penn Working Dog Center presented her statistical research and data on phenotypes, genotypes, pedigrees, heritability and estimated breeding values (EBV).

Paul Bunker, technical staff from K-2 Solutions, a government vendor from North Carolina, used an outdoor area to demonstrate the abilities of dogs trained to find and detect dangerous substances and follow a person through a crowd who is carrying suspicious substances.

Don Roberts, Program Manager for the Detection Canine and Surface Transportation Explosive Threat Detection Program for Homeland Security Advanced Research, discussed methods and his on-going research to improve the operational proficiency of canine detection teams. His presentation included a discussion on the support for the needs of the FBI and their interests in odors related to explosive detection.

A panel discussion made up of Dr. Carmen Battaglia, Dr. Cindy Otto, Dr. Paul Waggoner, Scott Thomas, and Paul Bunker addressed topics that centered on a national center for excellence, research measures, data collection, semen storage and usage, breeding protocols, costs and the pricing of puppies in the program.

Dr. Battaglia summarized the proceedings with a brief overview of the conference and challenged the audience to review the discussions, recommendations and suggestions. The challenges of the behavioral traits involved in nose work and the additive effects of genetic variation, heritability and estimated breeding values are all areas that are being studied and explored. He proposed an AKC digital library where papers and information would be posted and users allowed to search by title, subject matter and author.

The consensus of the stakeholders and the audience was that there is sufficient underlying agreement and support for an effort that involves a government - private sector collaboration that could produce more detection and patrol dogs that are needed for the protection of the United States. We all left the conference in agreement that AKC can and should help in this effort. It might be daunting to suggest but there is reason to believe that those who attended now have a better understanding and an in-depth knowledge of what needs to be done after this conference.

At the conclusion of the two-day conference, the “takeaways” were that the AKC should become more involved and provide a leadership role that would bring together interested breeders and organizations that can assist in this critical homeland security issue of secure airports and borders for America.