

DOI: https://doi.org/10.48009/4_iis_2023__104

Electronic detection K9s: the newest weapon in the fight against human trafficking and child predators

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Abstract

Throughout the country, states and communities need help. Law enforcement agencies are constantly facing the horrible challenges of sex trafficking for both children and adults. There is a simple solution that has been shown to help make a difference, Electronic Detection K9s (ESD K9s). Many organizations are currently helping the effort to provide ESD K9s to Law Enforcement Agencies, Cybercrime Units & Internet Crimes Against Children (ICAC) Units. These ESD K9s assist in searches connected to child sexual abuse and trafficking. ESD K9s are professionally trained to locate very important yet often overlooked evidence including cellphones, computers, micro-SD Cards, USBs Flash drives, and other electronic devices that may contain sensitive photos, financial information, contacts, etc. One such device could hold thousands of images or videos of children that need help and can be used as evidence in court to prosecute offenders (Defenders for Children).

Keywords: electronic storage detection K9s (ESD K9s), sex trafficking, child predators, digital forensics

Background

In the early 2000's, it was easy to search and find online predators because the Internet had not taken over the world at that time. You could go into a chat room guys would bombard you until the conversations came around to sex. It was all driven by them and was like fish in a barrel. However, today, we don't have the time or the power to be that proactive.

Technology has changed since then as phones and the proliferation of the internet to virtually every breathing person in the United States as well as the world. Predators have evolved, too as the best child predators are extremely difficult to catch. They're on the dark web, but we're not focused on them. Rather we are focused on people actively seeking sexual contact with underage children.

The dark web uses the same internet you're familiar with, but text, videos, and images exist on "darknets", or overlay networks that use the internet but require specific software, configurations, or authorization to access such as the Tor browser. If you remember using Napster in the early 2000s, services like those power the dark web today.

An older man in his 30s or 40s who really likes early teen girls, can go online pretending to be 16 or 17. They then form a relationship, meet, and the child is in over their heads. Sometimes it may not even come to sexual contact. It's content, like videos and photos. If guys can get content such as videos and photos online, especially something unique —like material involving children under 10 — stuff that almost no one in the world has — that's gold. They can trade those videos with other people for the stuff they do like.

Most cases are about men seeking material of young girls, with some seeking young boys. In the rare case that women are involved, it is usually in conjunction with an adult male (Susie's Place, 2022).

Introduction

Dogs have an amazing sense of smell. They are used in law enforcement, fire investigations, and natural disasters to detect drugs, explosives, and human remains. Now, these sensitive noses are being used to combat child sex crimes. Electronic Storage Detection K9s (ESD K9s) are being used to locate and identify storage media devices containing criminal evidence and has recently gained prominence and importance especially in criminal investigations focusing on child pornography and child sexual exploration. It is common practice for persons involved in or participating in child pornography and sexual exploration to keep their conversations, pictures, videos, and other contact information on external storage devices such as hard drives, jump drives, thumb drives, Micro SD cards, and more to make it difficult for law enforcement to discover these items when hidden away in unknown locations (Makor K-9).

K9s are incredibly important to law enforcement agencies. Their strong sense of smell allows them to find evidence that officers might otherwise miss. While many departments have K9s on staff, that are trained to track scent and find drugs, ESD K9s have only recently come on the scene a few years ago. On October 4, 2013, Selma became the first ESD K9 trained to detect certain chemicals in electronics that criminals may toss or hide. Connecticut State Police K9 Unit is the first in the world to train dogs in the detection of computer equipment. A chemist at the state forensic lab, Dr. Jack Hubbal, isolated a chemical compound that surrounds memory boards in all phones and computers, and another compound that was discovered on DVDs, CDs, and floppy disks. K9 trainers used the two compounds to train computer K9 teams to search for electronic devices, the state police said (Police 1).

ESD K9s stormed on the scene in July 2015 when investigators from the FBI, the Indianapolis police, the Indiana State Police, and the US Postal Inspection Service searched the former Subway spokesman, Jared Fogle's house for two hours, carrying away computers and electronics, looking for evidence of Fogle's alleged child pornography distribution. The Indianapolis Metropolitan Police Department then told canine trainer Todd Jordan and his detection dog Bear it was their turn.

The black Labrador Retriever was trained to detect electronics—everything from thumb drives to cell phones. He can even sniff out tiny microSD cards that are less than a millimeter thick but can hold 100s of gigabytes of data. Bear searched the entire residence. He targeted several areas in Fogle's office, and uncovered a hidden flash drive that the humans hadn't detected.

When Fogle was arrested on charges of child pornography a month later, Assistant US Attorney Steven Debrotta said that this piece of evidence was vital to the investigation. It was only the fifth time Bear had been out on a search with Todd Jordan, CEO of Jordan Detection K9. Later that summer, Bear assisted in the search of the Indianapolis home and gym of US Olympics gymnastics coach Marvin Sharp. Bear led investigators to a gun safe, with several SD cards hidden inside. Sharp was arrested in August 2015 on one count of felony child molestation.

However, there are only a handful of dogs available to law enforcement in the US. Their services have yielded proven results in past child abuse cases like the bust of Subway spokesperson, Jared Fogle, so the confidence in adding these trained animals to the Law Enforcement Agencies has grown and will give them a stronger tool to catch more predators, rescue more children, and deter potential abusers (Defenders for Children).

In fact, some of these statistics that prove that law enforcement agencies need for ESD K9s include:

- 1 in 10 children will be sexually abused before age 18. 20% under the age of 8 years old
- Child sexual abuse makes children more vulnerable to sexual exploitation.
- More than 90% of children who are commercially sexually exploited have been sexually abused in the past.
- Studies consistently report that 50% - 90% of child sex trafficking victims has been involved in the child welfare system.
- Technology has made it easier to harm children. The spread of child sexual abuse material exploded with the rise of the internet, while sex trafficking increased with exposure to a greater market online.
- 70% of child sex offenders have between one and 9 victims, while 20% have 10 to 40 victims (Defenders for Children).

Since the Jared Fogle case, Todd Jordan of Electronic Detection K9 has placed over 100 ESD dogs scattered across America, as well as several internationally, and pioneering a low-tech way to solve high-tech crimes involving sex trafficking, child exploitation and terrorism (Rayome, 2016). This real-world study involves one of these ESD K9s and how they have come about helping to save lives.

Methodology

Dogs that undergo electronic storage detection training can sniff out the chemical compounds found in electronics. Everything from small SDs cards to your cellphones has these chemical compounds. These dogs are trained to detect even the smallest of electronics such as microSD cards. The dogs can detect electronics of all shapes and sizes because all electronics have a circuit board. All electronics use a compound called triphenylphosphine oxide (TPPO), which covers the circuit boards in electronics to prevent overheating.

Another common compound is hydroxy cyclohexyl phenyl ketone (HPK), which can be found in CDs, DVDs, Blu-Rays, and floppy disks. Electronic sniffing dogs are trained to detect these chemical compounds, then alert their handlers to these compounds. However, with the age of technology, most of what we uncover use the compound TPPO (Pumphrey, 2022).

TPPO is a substance sprayed on the memory chip that keeps it from overheating. It's the industry standard and that's the odor that ESD K9s are trained on. ESD K9s and their handlers can locate these devices whether they are tossed on roadsides, thrown into the water, or even placed in a vehicle as a tracking-device by a stalker. Predators who exploit children try to hide these electronic devices but ESD K9s can find the evidence and gives law enforcement enough power to convict accused criminals (Miller, 2023).

So how exactly do these dogs manage to smell something that humans cannot smell? Humans have about 6 million olfactory receptors in our noses. Dogs have up to 300 million. So, they obviously have a much better sense of smell (Pagano, 2018). Like drug or arson detection dogs, ESD K9s are trained to recognize this TPPO chemical odor and sit when the odor is present to alert their handler. Then, when instructed to show, they can point to the location of the device. When the dog correctly identifies an odor and shows the handler, he or she gets food. The dogs were first trained to identify large amounts of the compound, eventually using less and less. The devices with the odor are placed in different boxes, and then expanded into different rooms and eventually outside and underwater.

ESD K9s are mostly Labrador Retrievers, but some are Golden Retrievers or a 50/50 of the two breeds. The dogs are obtained by the trainers when they are around 1 year old and trained for 4-5 months. At a year and half old, the dogs are ready to begin training with their handler. This training is 2 weeks of intense training for both the K9 and handler but is also a time for the two to bond (Rayome, 2016).

However, ESD K9s skills reach far beyond the detecting electronic devices. They are also trained therapy dogs, helping victims in high stress moments and as well as the handler. They are family friendly dogs and are as much part of the handler's family as any other pet. The difference being that the dogs go to work every day but get to act like a dog when off duty. In the fight against sex trafficking, we are confronted with crisis every single day, and to have a dog you can pet and excited to see you and leave all that stuff behind how anyone cannot love that (Miller, 2023).

Electronic Devices ESDs are Trained to Find

Below are some of the tiny devices ESD K9s can find. These tiny devices can be hidden in places where law enforcement can easily miss during a search. They have been found in piles of garbage, attics, walls and more. Just one device can hold more than 288,000 images of children being abused. It is important to find everything we can to help save the children and bring more evidence to prosecute the criminals (Defenders for Children).

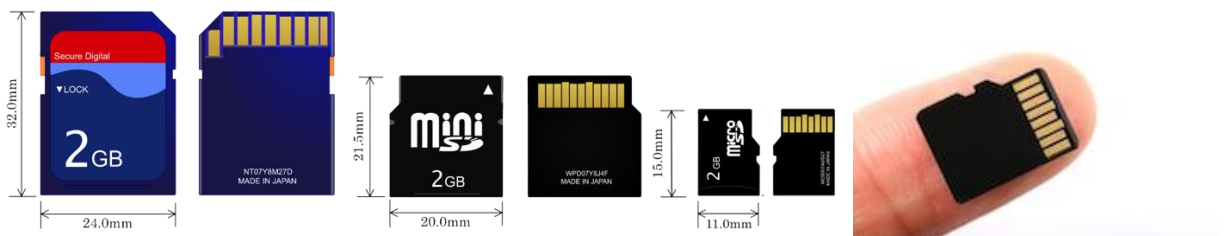


Figure 1: SD Cards

Most crimes against children or child exploitation work, the ESD K9s are looking for devices that have illegal content on them. So that can also include range desktop or laptop computers to smartphones and removable devices like USB drives or flash drives.

In addition, ESD K9s can seek out hidden cameras throughout a house in cases where it is suspected that a suspect is watching and recording in bedrooms and bathrooms. The dogs can search each floor of a house and each room in the house, including the bathrooms. Many times, hidden cameras are discovered inside an electrical outlet or in a vent.

Limitations

ESD K9s do not have any limitations on where they can find electronic storage devices. They are capable to find devices outside (even buried), under water, inside walls, in ceilings, and even sealed inside containers. The ESD K9s have found devices that have been off for a couple years as well. The point here is that if an electronic device stores, sends or receives data, it can be found by the ESD K9s.

Training

The cost to train and maintain an ESD K9 is thousands of dollars, and most law enforcement agencies don't have the budget for such training and corresponding certification and recertification each year. However, many ESD K9s come at no cost to the law enforcement agencies or high-tech crime units through donations from Non-Profit organizations such as Operation Underground Railroad (O.U.R.), which was formed to protect children from sex trafficking and sexual exploitation. O.U.R.'s domestic mission is to provide ESD K9s to law enforcement agencies at no cost through donations. O.U.R. collaborates with Jordan Detective K9 to train Labrador retrievers as ESD K9s.

There are only a handful of ESD K9s at work with law enforcement in the United States. Technology scent detection dogs are the most highly trained dogs anywhere in law enforcement. Their conditioning includes a rigorous four to five months of scent training and several more months of cumulative training with a handler. Few dogs meet the standards required for service.

Even more challenging is that ESD K9s don't have a food bowl. They only eat when trained and must be done at least three times a day. That means if they're not conducting a search warrant or get home late after a long day, a handler must hide technology in random rooms of his house to train and feed (Susie's Place, 2022). What that means is that when the dogs are on a search warrant, they only get fed if they have smelled TPPO and indicated on a device. That way, they continue to stay motivated to find it. Every training must involve blank rooms because often when out on a search warrant, there will be more blank rooms than ones with devices and sometimes no devices at all. Therefore, it is necessary to assure the dog is only fed when a device is found and sometimes the handler will have to do training after a search warrant just to feed the dog.

ESD K9s and handlers are always training, finding things indoors, outdoors (snow, rain and under water) as well as vehicles. You might think an electronics-sniffing dog would be constantly distracted because of the overabundance of electronic devices these days, but that is not the case because ESD K9s only work when their handlers tell them to.

ESD K9s are Dual Purpose

ESD K9s serve as a dual-purpose dog and not only serve on the scene but also in the office. The dogs are used in interviews to comfort victims who are often small children. So, when you bring a dog in there and they start petting on the dog and loving on the dog, it just opens so many doors. Protecting kids and comforting kids, it's all part of the job for ESD K9s (Moore, 2023).

After a search, ESD K9s play a vital role in de-escalating kids, calming them down since they are mainly Labrador Retrievers who are natural, loving dogs. Then, the next day, the team returns to scouring the internet for sexual predators and investigating child pornography.

Discussion

ESD K9s are the newest weapon in the fight against child predators and traffickers, but before we get into the many successes, let's start with the origin of the ESD K9s. While police K9s have been used for decades in operations such as drug interdiction, bomb detection and missing person and fugitive searches, electronic detection is the newest frontier for the disciplined and loyal canines.

The origins of the sub-specialty only date back about a half-decade when Dr. Jack Hubball, a chemist with the Connecticut State Police, in 2012, ascertained that all electronic storage devices share the chemical TPPO that prevents them from overheating (Czech, 2018). Armed with that chemical key, Connecticut State Police began training Thoreau and Selma, dogs who were too active to complete their training at Guiding Eyes for the Blind in New York.

The officers started with large amounts of the chemical and gradually reduced its quantity, placing devices containing the odor in different boxes and eventually in different rooms. After five weeks of odor detection training and six weeks of training with his new handler, Thoreau, a yellow Lab, was given to the Rhode Island State Police. On his first official search, he discovered a thumb drive containing child pornography in a tin box inside a cabinet.

Selma, a black Lab, worked with the Connecticut State Police Computer Crimes Unit, where she uncovered devices in recycling bins, vents, and radiators while working on child pornography, homicide, parolee compliance, and computer hacking cases. With those successes, an entirely new type of law-enforcement career for dogs was established (Puotinen, 2020).

Most Famous ESD K9

Bear, the dog who helped make the case against Jared Fogle, started life as a pet dog in a family who loved him – but the black Labrador retriever’s family just couldn’t handle him – bridled with excess energy, the rambunctious pooch, they couldn’t prevent him from jumping on counter tops and eating everything he could reach. But Bear was the perfect fit for the task Todd Jordan had in mind – train a high-energy, yet obedient dog to detect the nearly-imperceptible scent found on hard drives, thumb drives and tiny SD cards (Czech, 2018).

When he was 2 years old (the age at which many out-of-control dogs are surrendered to shelters), his owners offered him to Todd Jordan, an Indiana firefighter who trained dogs for arson investigations. Inspired by the electronic-storage device detection dogs Thoreau and Selma, Todd Jordan focused on developing Bear’s ability to detect tiny digital storage devices – the kind that might be hidden in wall cracks, clothing, ceiling tiles, radios, closets, books, boxes, furniture, dirty laundry, or garbage. Most search and rescue (SAR) dogs are rewarded with toys that satisfy their prey drive, but food was Bear’s favorite reward, and he was highly motivated (Puotinen, 2020).

ESD K9's Change Human Trafficking Investigations Forever

In 2017, members of O.U.R. caught word of the work Todd Jordan was doing at Jordan Detection K9 and eagerly donated their first dog to the cause. By the end of 2021, O.U.R. is on track to have donated over 40 dogs to Jordan Detection K9 to train, handle and deploy. Both O.U.R. and Todd are committed to equipping law enforcement with the vital resources they need to conduct and successfully prosecute human trafficking cases across the states, and providing an ESD K9 is a major step in the right direction.

Empowering law enforcement with ESD K9s has shifted the trajectory of how law enforcement conducts human trafficking investigations and gives an advantage to finding evidence that could be missed by a human investigator alone. Jordan Detection K9 was expanding at such a rapid pace that Todd needed more space and resources to continue the program, so O.U.R. recently donated a barn to be used as the new

training facility. The new facility is located on the Hope Center Indy campus, a center dedicated to helping women of sex trafficking and sexual exploitation heal (Operation Underground Railroad, 2022) .

Results

What started with one dog has grown into a nationwide task force of K9s, all helping law enforcement fight against human trafficking and child exploitation. When law enforcement saw what Bear was capable of, the K9 and Todd were invited on search warrants to aid in investigations. However, it wasn't until the massive criminal investigation of Jared Fogle that Bear and Todd's work truly got noticed for its significance. Bear located a thumb drive that was a key piece of evidence in a large-scale investigation breaking news across the nation.

After that, Todd knew that the potential for these dogs was huge, and soon after, Jordan Detection K9 began. At the time, Bear was one of three ESD K9s in the United States, the other two being Thoreau and Selma with the Connecticut State Police. Since then, Todd has trained 109 ESD detection K9s to be equipped to help in these criminal investigations.



Figure2: ESD K9 Stark

Stark is the 108th ESD K9 trained by Todd Jordan (Figure 2). Stark began work with his handler on May 1, 2023, after 5 months of training with Todd Jordan. The two weeks of training was very intensive with anywhere from 8-15 rooms a day and number of hidden devices of up to 60. The rooms were not typical rooms and mirrored what type of rooms would be like on a search warrant. There were even days of outside searches, water searches and even vehicles. The hardest part about the training was learning the technique:

- Correct commands
- Handling the leash properly
- False positives
- Footwork
- Properly searching a room

At the end of each day of the two-week training course (which usually ended by 3:00 pm), then bonding time began as the handler and K9 spent quality time together bonding. Stark and his handler became officially certified as an electronic detection team at the end of the two weeks and the journey began. In his first two weeks on the job following the training, Stark conducted his first two search warrants. Although, he did not indicate anything on those searches, he did exactly what he was supposed to do, search rooms, and indicate on any devices.

Often, searches will result in many blank rooms and for Stark, that was the case. Stark did not offer any false indications just so they he could get fed. Instead, he searched rooms looking for hidden devices and did his job. Therefore, when this is the case, Stark needs to do training after the search warrant so he can eat. The toughest part about being a handler is that the dog can only eat when it is training. Even if the K9 is out late on a search warrant, the handler must be disciplined train the dog or the K9 will lose his motivation to work.

The emotional support that Stark provides is a great side-benefit because this is really difficult work because you are looking at children being abused on a regular basis. It can be challenging to endure that work because as an investigator that cares so much about rescuing exploited children and having Stark at the office every day provides the emotional relief on these tough cases. Stark started as a service dog, and now he's doing K9 work. In many ways, he's a service dog for our unit who gets to see and interact with him every day and a great, fun-loving dog (Haasken, 2012).

Stark and handler basically work on predatory crimes, child pornography, child predators, sex trafficking, downloading images, that kind of stuff. In cases of that nature, police or investigators might not be able to find important pieces of evidence such as tiny SD cards or well-hidden cell phones and that's where K9 Stark comes in.

Usually, handler goes into search warrants and helps with initial sweep get the items that we see out in the open and then Stark will do a final sweep, get the items that are hidden in places like closets and underneath the beds, etc. If there is nothing found then Stark does not get fed. Therefore, Stark is trained daily through food drive, meaning he needs to locate devices before she eats. A handler typically hides several devices two or more times a day so the dog can eat (Haasken, 2012).

Stark has the TPPO chemical imprinted in his sense of smell. When he finds that chemical, he thinks he's finding his food. Stark searches based on the handler's hand, so the handler points in an area for him to search and he will sniff that area and if he smells the chemical, he will sit. The handler can continue to walk around the room but Stark is not going to move because he smelled the chemical and wants fed so the handler will ask Stark to show me and Stark will put his nose on the device, use his paws or move his head back and forth and he will then be rewarded with a handful of food for a job well done (Haasken, 2012).

Dual-Purpose - Therapy Dog

Stark is also cross trained as a therapy or comfort dog to support child victims and their families in the field or who visit Susie's place to receive counseling service. Susie's place is where forensic interviews of children involved in reported instances of maltreatment are conducted and helps protecting children from abuse, neglect, and sexual assault. Stark is as much a family dog as he is a working dog. He loves affection from people of all types including children. He can help comfort the victims he has helped save by being by their side for comfort as they are interviewed.

Digital Forensics

Most handler and K9s teams are detectives on a law enforcement agency. However, Stark is partnered with a digital forensic investigator on a high-tech crime unit that services local law enforcement agencies and their digital forensics requirements.

In response to police agencies and prosecuting attorney offices throughout the country struggling to handle the influx of digital evidence in criminal investigations, Indiana Lawmakers passed an act to the Indiana Code to establish high tech crimes units to assist prosecuting attorneys in investigating, collecting evidence, and prosecuting high tech crimes. Partnered with the increasing number of cyber tips and Internet crimes occurring in Indiana, these high-tech crime unit (HTCU) “labs” assist 91 counties in collecting and processing a growing volume of cyber evidence to help keep children safe from sexual predators. Three of those 10 HTCU “labs” have added an ESD K9 “lab”.

The first HTCU ESD K9 was placed into service in March 2022, the second one in August 2022 and the most recent (Stark) in May 2023. They assist the HTCUs in sniffing out electronic storage devices such as SD cards, thumb drives, external hard drives, tablets, and cell phones in both indoor and outdoor environments, including water. Stark and his handler received training through the Jordan Detection K9 program. Stark and the other two HTCU ESD K9s are graduates of this program and hope to have as much success as other Jordan Detection K9s in several high-profile cases including Subway pitchman Jared Fogle, USA Olympic Gymnastics Coach Marvin Sharp, a counter-terrorism case in Indiana, a serial-killer homicide case in Michigan, and an "Insider Threat" case in Carmel, Indiana.

The other HTCUs, are used in conjunction with their K9s to assist in processing the digital evidence the K9s find. These HTCUs are equipped to provide field and on-site work setting where law enforcement agencies they serve can preview can put away perpetrators who are harboring child pornography communication and data (McClung, 2020).

Conclusion

In conclusion, our children have been born into an unprecedented digital age where electronic devices have become a constant. Our children’s reliance on digital devices makes them especially vulnerable to cyber threats and exploitation. Law enforcement agencies around the country work tirelessly to protect our children and bring dangerous sexual perpetrators to justice. The additions of “labs” such as ESD K9 Stark and high-tech crime units will only further their effectiveness (McClung, 2020).

ESD K9s will allow the law enforcement agencies to expand their investigative capabilities to address the growing number of cases involving digital media and access to this cutting-edge opportunity greatly enhances our abilities to protect the most vulnerable among us – our children. As far as the dogs are concerned, finding evidence that helps police and the law enforcement agencies is a series of fun games and all in a day’s work.

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