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PROBABLE CAUSE ON A LEASH

TAYLOR PHIPPS*

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I. INTRODUCTION

In 1970, the U.S. government started using dogs to identify illegal substances as part of President Nixon's war on drugs.¹ Each year drug detection dogs account for \$2 to \$3 billion worth of drug seizures, including heroin, amphet-

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¹ See MARK DERR, A DOG'S HISTORY OF AMERICA: HOW OUR BEST FRIEND EXPLORED, CONQUERED, AND SETTLED A CONTINENT 345 (2004).

amines, cocaine, hashish, marijuana, and ecstasy.² These drug detection dog programs are also responsible for the forfeiture of many additional millions of dollars worth of personal property associated with criminal activity.³ For example, one German shepherd named Dandy has led authorities to over \$1 billion dollars worth of illegal substances over a six-year period in Southern California.⁴ Another detection dog named Trep has detected \$63 million worth of illicit drugs over a two-year period in Miami.⁵ Law enforcement has substantially increased its utilization of drug-sniffing dogs in recent years. Moreover, on a number of occasions the Supreme Court has supported the use of dogs to detect contraband without requiring probable cause.⁶

This article develops in four parts. Part II of this article explores the historical evolution of Supreme Court case law and the Court's recent decision in *Florida v. Harris*.⁷ This article attempts to explain the Court's standard in *Harris* by looking to prior case law and discusses why courts should interpret the holding in a way that allows defendants to challenge the legitimacy and accuracy of training and certification programs. If applied incorrectly, *Harris* would violate the Fourth Amendment by allowing searches supported by less than probable cause. Part III reviews both the fallibility of drug detection dogs and the problems arising from the lack of an established standard for training and certification programs. For the first time, this article addresses the most comprehensive, accurate and current data on the reliability of dog sniffs. Additionally, this article discusses the problems resulting from relying too heavily on dog handler statistics and the pervasiveness of handler cues.

Part IV looks at the impact unreliable dogs can have in other areas of criminal and civil asset forfeiture. There has been no scholarly discussion to date

² *Id.*

³ EXECUTIVE OFFICE FOR UNITED STATES ATTORNEYS, U.S. DEP'T OF JUSTICE, UNITED STATES ATTORNEYS' ANNUAL STATISTICAL REPORT 30–31 (2010), http://www.justice.gov/usao/reading_room/reports/asr2010/10statrpt.pdf (reporting that \$1,786,567,692 has been deposited into the Department of Justice Assets Forfeiture Fund from criminal and civil cases litigated by United States Attorneys) [hereinafter STATISTICAL REPORT].

⁴ SAMUEL G. CHAPMAN, POLICE DOGS IN NORTH AMERICA 71 (1990).

⁵ *Id.*

⁶ See *Illinois v. Caballes*, 543 U.S. 405, 408–10 (2005) (holding that a dog sniff around the exterior of a vehicle during a lawful traffic stop “is not a search subject to the Fourth Amendment”); see also *City of Indianapolis v. Edmond*, 531 U.S. 32, 40 (2000) (“The fact that officers walk a narcotics-detection dog around the exterior of each car at the Indianapolis checkpoints does not transform the seizure into a search.”); *United States v. Place*, 462 U.S. 696, 707 (1983) (finding that a canine sniff of luggage in a public place is a limited intrusion and is not a search within the Fourth Amendment that requires probable cause); *Florida v. Royer*, 460 U.S. 491, 505–06 (1983) (endorsing the use of trained dogs as a more expeditious and less intrusive procedure “to detect the presence of controlled substances in luggage”).

⁷ 133 S. Ct. 1050 (2013).

regarding the consequences that can follow as a result of unfettered handlers who can establish probable cause by less than reliable means. Part V challenges the reliability of handlers and drug detection dogs and offers ways to combat these inadequacies. This article is the first to argue that a minimum uniform standard of certification should be implemented to ensure that Fourth Amendment rights are protected. Finally, this article aims to close the gap between various training and certification programs at the state and federal level. This article is both timely and relevant in light of two recent Supreme Court decisions focusing directly on the impact of drug detection dogs.

II. EVOLUTION OF DOG SNIFFS: PAST TO PRESENT

The Fourth Amendment protects “[t]he right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures”⁸ The Fourth Amendment also provides that “no warrants shall issue, but upon probable cause”⁹ Nonetheless, over the years the U.S. Supreme Court has developed exceptions to the warrant requirement by allowing warrantless searches to take place if probable cause is established by reliable means.¹⁰ In response, law enforcement has utilized detection dogs to sidestep the safeguards of the Fourth Amendment and conduct warrantless searches.¹¹

A. *The Beginnings of Dog Sniffs*

The Supreme Court first alluded to the worth of canine sniffs in *United States v. Chadwick*,¹² where a trained detection dog alerted to the presence of marijuana in a locked footlocker.¹³ While the Court found that it was unreasonable for the officers to conduct a search of the footlocker without a warrant, both the majority and the dissent mentioned that the dog’s positive alert would have furnished probable cause to issue a warrant.¹⁴

In *Florida v. Royer*,¹⁵ the Supreme Court addressed the pervasive and expe-

⁸ U.S. CONST. amend. IV.

⁹ *Id.*

¹⁰ See *California v. Acevedo*, 500 U.S. 565, 569–70 (1991) (finding that a warrantless search of a vehicle can take place if there is probable cause that contraband or evidence is inside); see also *United States v. Ross*, 456 U.S. 798, 807–08 (1982); *Chambers v. Maroney*, 399 U.S. 42, 48 (1970); *Carroll v. United States*, 267 U.S. 132, 158–59 (1925).

¹¹ See *infra* Part III.

¹² 433 U.S. 1 (1977), *abrogated by* *California v. Acevedo*, 500 U.S. 565 (1991).

¹³ See *Chadwick*, 433 U.S. at 4.

¹⁴ See *id.* at 15; *id.* at 22 (Blackmun, J., dissenting) (“Probable cause for the arrest was present from the time respondents Machado and Leary were seated on the footlocker inside Boston’s South Station and the agents’ dog signaled the presence of marihuana.”).

¹⁵ 460 U.S. 491 (1983).

dient use of trained dogs to detect illegal substances in luggage.¹⁶ Soon thereafter the Court had another opportunity to tackle dog sniffs:¹⁷ in *United States v. Place*, federal drug authorities subjected a passenger's luggage to a "sniff test" by a dog trained to detect narcotics.¹⁸ One of the issues in the case was whether a dog sniff constituted a Fourth Amendment search.¹⁹ Citing no authority, Justice O'Connor went on to find that "the canine sniff is sui generis,"²⁰ and because of its unique nature and limited intrusiveness concluded that this type of investigative procedure "did not constitute a 'search' within the meaning of the Fourth Amendment."²¹ Recently, the U.S. Court of Appeals for the Sixth Circuit has adopted a still broader approach, holding that even when a drug detection dog jumps into the interior of the car to perform a sniff test, no search has occurred under the Fourth Amendment.²²

In 2000, the Court expanded *Place* in *Indianapolis v. Edmond*.²³ Confronted with the issue of whether police could subject the exterior of a vehicle to a sniff test at a drug interdiction checkpoint, the majority held the roadblock violated the Fourth Amendment.²⁴ However, the Court found that walking a detection dog around the perimeter of the vehicle at the checkpoint did not constitute a search because the sniff did not require entry into the car and only disclosed the

¹⁶ See *id.* at 505–06 (recommending the use of detection dogs and finding that a positive alert would have resulted in an arrest based on probable cause).

¹⁷ See *United States v. Place*, 462 U.S. 696, 696 (1983).

¹⁸ See *id.* at 696.

¹⁹ See *id.* at 707; but cf. *id.* at 719 (Brennan, J., concurring) ("The Court also suggests today, in a discussion unnecessary to the judgment, that exposure of respondent's luggage to a narcotics detection dog 'did not constitute a search within the meaning of the Fourth Amendment The Court of Appeals did not reach or discuss the issue. It was not briefed or argued in this Court. In short, I agree with Justice BLACKMUN that the Court should not address the issue.'").

²⁰ *Sui generis* is Latin for "of its own kind" and means to be unique or peculiar. BLACK'S LAW DICTIONARY 1572 (9th ed. 2009).

²¹ *Place*, 462 U.S. at 707 (majority opinion) (finding that a dog sniff is less intrusive than the traditional rummaging associated with a physical search and the sniff disclosed only limited information, the presence or absence of contraband).

²² *United States v. Sharp*, 689 F.3d 616, 617 (6th Cir. 2012), *cert. denied*, 133 S. Ct. 777 (2012):

It is well-settled that a dog's sniff around the exterior of a car is not a search under the Fourth Amendment. Defendant appeals the district court's denial of his motion to suppress because a narcotics dog jumped into his car and sniffed inside the car before "alerting" to the presence of narcotics. The canine's jump and subsequent sniff inside the vehicle was not a search in violation of the Fourth Amendment because the jump was instinctive and not the product of police encouragement.

(emphasis added); see also *United States v. Pierce*, 622 F.3d 209, 214 (3d Cir. 2010) (holding that a dog that instinctively enters the interior of the car through a door that was left open by the defendant does not violate the Fourth Amendment).

²³ 531 U.S. 32 (2000).

²⁴ See *id.* at 48.

presence or absence of contraband.²⁵ So, while a canine sniff was not a search under the Fourth Amendment, to perform a lawful canine sniff on a motorist required individualized suspicion.²⁶

The Supreme Court further explained *Place* when it decided *Illinois v. Caballes*.²⁷ In this case, law enforcement used a trained narcotics dog to sniff the exterior of a vehicle while it was lawfully stopped for a citation.²⁸ The dog alerted to the vehicle and a subsequent search discovered marijuana in the trunk even though the handler conducting the dog sniff had no suspicion of drug activity.²⁹ Justice Stevens went on to find that reasonable suspicion is not required to perform a canine sniff on a vehicle that is lawfully stopped.³⁰ Moreover, the Court found that “governmental conduct that only reveals the possession of contraband ‘compromises no legitimate privacy interest,’ and is therefore, ‘not a search subject to the Fourth Amendment.’”³¹ Although respondent argued that errors on the dog’s behalf undercut the assumption that dogs alert only to contraband, the Court nonetheless found that the dog sniff was sufficiently reliable to establish probable cause to perform a full search of the vehicle.³²

While this strain of Supreme Court case law has resolved some of the concerns associated with dog sniffs, the Supreme Court has not identified a standard dogs must meet to be considered reliable and establish probable cause.

B. Harris: *The New Standard for Assessing a Dog’s Reliability*

The Supreme Court addressed the requisite standard of reliability in *Florida v. Harris*.³³ In *Harris*, Officer Wheatley pulled over respondent Harris because his truck had an expired license plate.³⁴ Officer Wheatley noticed an open beer can in the cup holder and asked for consent to search the truck.³⁵ After Harris refused consent, Officer Wheatley deployed his drug detection dog, Aldo, to

²⁵ See *id.* at 40 (citing *Place*, 462 U.S. at 707).

²⁶ See *id.* at 47–48.

²⁷ 543 U.S. 405 (2005).

²⁸ See *id.* at 406.

²⁹ See *id.* at 406–07.

³⁰ See *id.* at 408.

³¹ *Id.* (quoting *United States v. Jacobsen*, 466 U.S. 109, 123 (1984)).

³² See *id.* at 409. Under the automobile exception to the Fourth Amendment, the police can search a vehicle without a warrant if they have probable cause to believe that there is contraband inside. The rationale for this principle is a vehicle’s capacity to be moved and its reduced expectation of privacy. See *California v. Acevedo*, 500 U.S. 565, 569–70 (1991); see also *Chambers v. Maroney*, 399 U.S. 42, 48 (1970); *Carroll*, 267 U.S. 132, 158–59 (1925).

³³ 133 S. Ct. 1050 (2013).

³⁴ See *id.* at 1053.

³⁵ See *id.*

perform a sniff test of the exterior of the truck.³⁶ Aldo alerted at the driver-side door handle, leading Wheetley to conclude that he had probable cause for a search.³⁷ While the search did not reveal any substances that Aldo was trained to detect, the police did discover pseudoephedrine pills and other ingredients for producing methamphetamine.³⁸ Harris was arrested for illegal possession of these substances.³⁹ About two months later, while Harris was out on bail, Officer Wheetley pulled Harris over again, this time for a broken taillight.⁴⁰ Once again, Aldo's sniff test alerted at the driver-side door handle, but this time a subsequent search discovered nothing illegal.⁴¹

Harris brought a motion to suppress challenging the reliability of Aldo's ability to establish probable cause.⁴² Writing for a unanimous majority, Justice Kagan held:

If a bona fide organization has certified a dog after testing his reliability in a controlled setting, a court can presume (subject to any conflicting evidence offered) that the dog's alert provides probable cause to search. The same is true, even in the absence of formal certification, if the dog has recently and successfully completed a training program that evaluated his proficiency in locating drugs.⁴³

The Court noted that one could rebut this presumption by challenging the dog's reliability.⁴⁴ If successful in this challenge, then the evidence could be suppressed pursuant to the exclusionary rule.⁴⁵ The Court also acknowledged that a dog's field performance "may sometimes be relevant," but that such records are ultimately susceptible to misinterpretation.⁴⁶ Thus, a defendant must have the opportunity to contest the relative reliability of a dog's performance in training and certification programs as an indicator of continued accuracy.

³⁶ See *id.* at 1053–54.

³⁷ See *id.* at 1054 ("Aldo alerted at the driver's-side door handle—signaling, through a distinctive set of behaviors, that he smelled drugs there.").

³⁸ See *id.* ("His search did not turn up any of the drugs Aldo was trained to detect. But it did reveal 200 loose pseudoephedrine pills, 8,000 matches, a bottle of hydrochloric acid, two containers of antifreeze, and a coffee filter full of iodine crystals—all ingredients for making methamphetamine.").

³⁹ See *id.*

⁴⁰ See *id.*

⁴¹ See *id.*

⁴² See *id.*

⁴³ *Id.* at 1057.

⁴⁴ See *id.*

⁴⁵ See *id.* at 1058.

⁴⁶ *Id.* at 1057 ("[T]he defendant can ask the handler, if the handler is on the stand, about field performance, and then the court can give that answer whatever weight is appropriate." (quoting Transcript of Oral Argument at 23–24, *Florida v. Harris*, 133 S. Ct. 1050 (2013) (No. 11-817))).

cy.⁴⁷ Without any standard to determine when a program is too lax in its evaluations of a dog's detection accuracy, courts will continue to find every certification or training program legitimate and allow such programs to churn out detection dogs that are less than reliable. Therefore, it is imperative that courts define a "bona fide organization" as an accredited certification program that adequately trains dogs, while discrediting other less rigorous organizations as "shams."⁴⁸

C. *Clarifying Harris: What is the Requisite Level to Establish Probable Cause?*

In the realm of dog sniffs, probable cause exists where the "facts and circumstances within [the officer's] knowledge" lead him to believe that illegal substances are present.⁴⁹ This standard exists to protect individuals from "unreasonable interferences with privacy and from unfounded charges of crime."⁵⁰ One of the initial shortcomings of dog sniffs is that their accuracy rates are generally quantifiable. Conversely, courts have refused to quantify the standard of probable cause leading to uncertainty as to whether a dog's performance passes this threshold requirement.⁵¹ Exacerbating this problem is the variance in how judges determine what constitutes probable cause. One study asked 166 federal judges to put a numerical probability on probable cause.⁵² At least two judges believed that probable cause requires only a 10 percent probability.⁵³ On the other hand, one judge believed that probable cause requires a probability of 90 percent.⁵⁴ The majority of judges came down somewhere between 30 per-

⁴⁷ See *id.* ("The defendant, for example, may contest the adequacy of a certification or training program, perhaps asserting that its standards are too lax or its methods faulty. So too, the defendant may examine how the dog (or handler) performed in the assessments made in those settings.").

⁴⁸ *Id.*; see also *United States v. Ludwig*, 641 F.3d 1243, 1251 (10th Cir. 2011), *cert. denied*, 132 S. Ct. 306 (2011) ("Of course, if a credentialing organization proved to be a sham, its certification would no longer serve as proof of reliability. But the judicial task, we hold, is so limited: to assessing the reliability of the credentialing organization, not individual dogs.").

⁴⁹ See *Brinegar v. United States*, 338 U.S. 160, 175–76 (1949) (quoting *Carroll*, 267 U.S. at 162).

⁵⁰ *Id.* at 176.

⁵¹ See *Maryland v. Pringle*, 540 U.S. 366, 371 (2003) ("The probable-cause standard is incapable of precise definition or quantification into percentages because it deals with probabilities and depends on the totality of the circumstances.").

⁵² See C.M.A. McCauliff, *Burdens of Proof: Degrees of Belief, Quanta of Evidence, or Constitutional Guarantees?*, 35 VAND. L. REV. 1293, 1327 *tbl.* 3 (1982).

⁵³ *Id.*

⁵⁴ *Id.*

cent and 60 percent, with an average of 44.52 percent.⁵⁵

Prior to Harris, various state and federal courts had disagreed about the required level of reliability dogs had to demonstrate to establish probable cause.⁵⁶ One district court in Kansas believed that any dog that had completed training and certification and had an accuracy rate in excess of 50 percent was sufficient to establish probable cause.⁵⁷ Florida state courts previously held that because there is no uniform standard for training and certification programs, such programs are "not sufficient to establish the dog's reliability for purposes of determining probable cause" and that other evidence, such as field performance records, are authoritative.⁵⁸

On the other hand, the U.S. Court of Appeals for the Tenth Circuit adopted the view that the requisite level of reliability is satisfied if "the dog is trained and annually certified to perform a physical skill."⁵⁹ Conversely, the U.S. Court of Appeals for the Sixth Circuit held that it is not necessary to produce training and performance records.⁶⁰ Rather, testimony of the dog's handler is sufficient to establish a dog's reliability.⁶¹ Additionally, some circuit courts treated a dog's alert as a conclusive indication that probable cause was established.⁶²

III. THE REALITY OF A DOG'S RELIABILITY

In cases involving dog sniffing for narcotics it is particularly evident that the courts often accept the mythic dog with an almost superstitious faith. The myth so completely has dominated the judicial psyche in those cases that the courts either assume the reliability of the sniff or address the question cursorily; the

⁵⁵ *Id.* at 1332 (finding that 148 of the 166 federal judges quantified probable cause at somewhere between 30-60 percent).

⁵⁶ See *infra* notes 57-62 and accompanying text.

⁵⁷ See *United States v. Cantrall*, 762 F. Supp. 875, 882 (D. Kan. 1991) ("The court believes that any percentage over 50 percent, along with the fact that the dog is trained and certified in narcotics detection, should be sufficient to establish Wenka's abilities to correctly detect narcotics.").

⁵⁸ See *Harris v. State*, 71 So. 3d 756, 775 (Fla. 2011), *cert. granted*, 132 S. Ct. 1796 (2012), *rev'd*, 133 S. Ct. 1050 (2013).

⁵⁹ *United States v. Kennedy*, 131 F.3d 1371, 1378 (10th Cir. 1997) (quoting *United States v. Wood*, 915 F. Supp. 1126, 1136 n. 2 (D. Kan. 1996), *rev'd on other grounds*, *United States v. Wood*, 106 F.3d 942 (10th Cir. 1997)); see also *United States v. McCranie*, 703 F.2d 1213, 1218 (10th Cir. 1983).

⁶⁰ See *United States v. Boxley*, 373 F.3d 759, 761 (6th Cir. 2004).

⁶¹ See *id.*

⁶² See *Ludwig*, 641 F.3d at 1250-51 ("[A] positive alert by a certified drug dog is generally enough, by itself, to give officers probable cause to search a vehicle."); *United States v. Outlaw*, 319 F.3d 701, 704 (5th Cir. 2003); *United States v. Robinson*, 707 F.2d 811, 815 (4th Cir. 1983).

dog is the clear and consistent winner.⁶³

In *Illinois v. Caballes*,⁶⁴ Justice Souter's dissent acknowledged that "[t]he infallible dog . . . is a creature of legal fiction."⁶⁵ Nonetheless, numerous courts have considered the dog reliable even with questionable error rates.⁶⁶ The U.S. Court of Appeals for the Seventh Circuit suggested that a drug detection dog alerting correctly 62 percent of the time was enough to establish probable cause.⁶⁷ The U.S. Court of Appeals for the Fourth Circuit found that where a drug detection dog had an accuracy rate of 60 percent there was enough to establish probable cause.⁶⁸ The U.S. Court of Appeals for the Eighth Circuit found that a drug detection dog with an accuracy rate of at least 54 percent was enough to establish probable cause.⁶⁹ The U.S. Court of Appeals for the Tenth Circuit found that where a drug detection dog alerted correctly at least 50 percent of the time there was enough to establish probable cause.⁷⁰

These questionable accuracy rates, however, are merely the tip of the iceberg, and in reality the reliability of detection dogs is influenced by a number of factors. While high error rates may suffice to establish probable cause in the jurisdictions referenced above,⁷¹ the percentages tell little of how the accuracy rate was calculated. Moreover, enforcement agencies that report detection dog accuracy rates may use qualifiers to artificially bolster the mythic belief that the dog is infallible. The reliability of drug detection dogs must be closely scrutinized for a number of reasons. Most importantly, drug-sniffing dogs can estab-

⁶³ Andrew E. Taslitz, *Does the Cold Nose Know? The Unscientific Myth of the Dog Scent Lineup*, 42 HASTINGS L.J. 15, 28 (1990).

⁶⁴ 543 U.S. 405 (2005).

⁶⁵ *Id.* at 411 (Souter, J., dissenting) ("[The dogs'] supposed infallibility is belied by judicial opinions describing well-trained animals sniffing and alerting with less than perfect accuracy, whether owing to errors by their handlers, the limitations of the dogs themselves, or even the pervasive contamination of currency by cocaine." (alteration in original)).

⁶⁶ See *infra* notes 67–70 and accompanying text.

⁶⁷ See *United States v. Limares*, 269 F.3d 794, 798 (7th Cir. 2001) (finding that 62 percent accuracy was enough to establish a preponderance of the evidence and determining that a preponderance was a greater threshold than probable cause).

⁶⁸ See *United States v. Koon Chung Wu*, 217 F. App'x 240, 246 (4th Cir. 2007) ("Because 'the probable cause-standard does not require that the officer's belief be more likely true than false,' an accuracy rate of 60 percent is more than reliable enough for Cody's alert to have established probable cause." (internal citation omitted) (quoting *United States v. Humphries*, 372 F.3d 653, 660 (4th Cir. 2004))).

⁶⁹ See *United States v. Donnelly*, 475 F.3d 946, 955 (8th Cir. 2007).

⁷⁰ See *United States v. Villa*, 348 F. App'x 376, 379 (10th Cir. 2009) ("[Deputy Mathes] did not find drugs about fifty percent of the times his dog alerted, he clarified that in ninety-nine percent of those instances where no drugs were found the subject of the search confirmed that drugs had been kept in the place searched on prior occasions." (alteration in original)); see also *United States v. Kennedy*, 131 F.3d 1371, 1378 (10th Cir. 1997) (finding that a dog with 71 percent accuracy was enough to establish probable cause).

⁷¹ See *supra* notes 67–70 and accompanying text.

lish probable cause to conduct a search, but cannot testify or be cross-examined to defend or account for their actions.

A. *Common Misconceptions*

1. The Science Behind a Dog's Olfactory Senses

One of the central tenets underlying dog sniffs is that “governmental conduct that only reveals the possession of contraband ‘compromises no legitimate privacy interest.’”⁷² As previously mentioned, the basis for this view is that a search by a trained detection dog reveals only the presence of illegal substances, which the public has no right to possess in the first place, and does not expose other non-contraband items that remain hidden from public view.⁷³

This premise is severely undercut, however, when one examines the science behind a dog's olfactory senses. In most training and certification programs, dogs are trained to alert to a non-contraband contaminant laced with the drug,⁷⁴ which has a vapor pressure that is easier to detect.⁷⁵ For example, dogs that are trained to detect cocaine alert not to cocaine itself, but to a chemical byproduct in cocaine known as methyl benzoate.⁷⁶ Furthermore, these chemical contaminants can also be found in legal products and often lead to searches that expose non-contraband items.⁷⁷ These limitations in drug detection training serve to

⁷² See *Illinois v. Caballes*, 543 U.S. 405, 408 (2005) (finding that such “governmental conduct” is not a search under the Fourth Amendment (quoting *United States v. Jacobsen*, 466 U.S. 109, 123 (1984))).

⁷³ *United States v. Place*, 462 U.S. 696, 707 (1983) (“[T]he [dog] sniff discloses only the presence or absence of narcotics, a contraband item.”).

⁷⁴ See NAT'L INST. OF JUSTICE, U.S. DEP'T OF JUSTICE, GUIDE FOR THE SELECTION OF DRUG DETECTORS FOR LAW ENFORCEMENT APPLICATIONS, 21 (2000), <https://www.ncjrs.gov/pdffiles1/nij/183260.pdf> [hereinafter DRUG DETECTORS]. For example, ultra pure forms of heroin and cocaine are almost non-detectable.

⁷⁵ Vapor pressure is “the quantity of drug vapor (usually expressed in concentration) of a particular drug compound that exists above the compound in air at equilibrium under a specified set of conditions.” *Id.* at 50.

⁷⁶ See *United States v. Funds in Amount of Thirty Thousand Six Hundred Seventy Dollars*, 403 F.3d 448, 458 (7th Cir. 2005) (citing *Kenneth G. Furton et al., Field and Laboratory Comparison of the Sensitivity and Reliability of Cocaine Detection on Currency Using Chemical Sensors, Humans, K-9s and SPME/GC/MS/MS Analysis*, in INVESTIGATION AND FORENSIC SCIENCE TECHNOLOGIES, 3576 Proc. SPIE 41, 42 (Kathleen Higgins ed., 1999)).

⁷⁷ See *Jacobson v. \$55,900 in U.S. Currency*, 728 N.W.2d 510, 534 (Minn. 2007) (Hanson, J., concurring) (“The cases that appear to adopt the methyl benzoate theory of dog sniff drug detection do not discuss the fact that methyl benzoate is a common chemical used in multiple consumer products—solvents, insecticides, perfumes, etc.”); see also Lewis R. Katz & Aaron P. Golembiewski, *Curbing the Dog: Extending the Protection of the Fourth Amendment to Police Drug Dogs*, 85 NEB. L. REV. 735, 754–57 (2007) (finding that the odor that dogs alert to in heroin is commonly found in vinegar, pickles and glue and that the

undermine the ability of dogs to accurately alert to the presence of contraband and invalidate the premise that dogs only alert to illegal substances.

Horton v. Goose Creek demonstrates that drug detection dogs are also vulnerable to alerting to lawful items.⁷⁸ In that case, students at a school were subjected to random dog sniffs.⁷⁹ The detection dogs alerted to two students and upon a full search of their belongings the only item that was discovered was a bottle of perfume that likely contained methyl benzoate, a byproduct of cocaine and a substance that triggered the dog to alert.⁸⁰

2. Bayesian Analysis and Random Searches

Analyzing a dog's accuracy rates through the lens of Bayes' Theorem further enlightens the true reliability of drug-sniffing dogs. Courts operate under the misconception that a 95 percent accuracy rate means that a subsequent search will uncover contraband 95 percent of the time.⁸¹ Bayes' theorem is a statistical formula⁸² used for calculating conditional probabilities that effectively debunks this myth.⁸³

When it comes to canine sniffs there are four possible outcomes: a true positive, a false positive, a true negative, and a false negative. A true positive is where a dog alerts to a substance he is trained to detect and that substance is present. A false positive is where a dog alerts to a substance he is trained to detect and that substance is not present. A true negative is where a dog does not alert and no substances he is trained to detect are present. A false negative is where a dog does not alert and substances he is trained to detect are present.

Applying Bayesian analysis in the context of dog sniffs reveals how misleading various accuracy rates can be to judges and juries.⁸⁴ Imagine the following hypothetical: Training, certification, and field performance records indicate that

odor that dogs alert to in marijuana and hashish is commonly found in "hemp products, and fir and juniper trees").

⁷⁸ See *Horton v. Goose Creek Indep. Sch. Dist.*, 690 F.2d 470 (5th Cir. 1982).

⁷⁹ See *id.* at 474.

⁸⁰ *Id.*

⁸¹ See generally Richard E. Myers II, *Detector Dogs and Probable Cause*, 14 GEO. MASON L. REV. 1, 13 (2006).

⁸² Bayes' Theorem: $P(\text{true positive accuracy rate}) \cdot P(\text{population has illegal substances}) / P(\text{true positive accuracy rate}) \cdot P(\text{population has illegal substances}) + P(\text{false positive rate}) \cdot P(\text{population does not have illegal substances}) = \text{Probability drugs are discovered when dog alerts}$. See Stephen E. Fienberg & Mark J. Schervish, *The Relevance of Bayesian Inference for the Presentation of Statistical Evidence and for Legal Decisionmaking*, 66 B.U. L. REV. 771, 774 (1986).

⁸³ See *id.*; see generally Eliezer Yudkowsky, *An Intuitive Explanation of Bayesian Reasoning: Bayes' Theorem for the Curious and Bewildered; an Excruciatingly Gentle Introduction*, ELIEZER S. YUDKOWSKY, <http://yudkowsky.net/rational/bayes> (last visited March 4, 2013).

⁸⁴ See Myers, *supra* note 81.

a particular drug detection dog (Fido) has a true positive rate of 95 percent, meaning that Fido alerts 95 percent of the time when drugs are present. Fido also has a false positive rate of 6 percent, meaning that Fido alerts 6 percent of the time when drugs are not present. Now assume that 2 percent of a sample population has illegal substances in their possession.⁸⁵ If random dog sniffs occur on 100,000 vehicles, the probability that substances the dog is trained to detect are discovered upon an alert is 24 percent.⁸⁶

The reason for this is more comprehensible when looking at the raw numbers. 2 percent of 100,000 people have illegal substances, or 2000 people. Out of these 2000 people who were exposed to sniffs, the dog correctly alerted 95 percent of the time, or 1900 times. So, in 1900 searches the dog alerted and drugs were found. On the other hand, 98 percent of 100,000 people do not have illegal substances, or 98,000 people. Out of these 98,000 people who were exposed to sniffs, the dog erroneously alerted 6 percent of the time, or 5880 times. So, in 5880 searches the dog alerted and no drugs were found. Thus, 7780 searches took place and illegal substances were discovered in 1900 of them, for a probability of 24 percent.

The results produced under Bayesian analysis is somewhat mitigated if the population in question has a higher rate of possessing contraband.⁸⁷ The hypothetical above demonstrated the dangers of performing dog sniffs at random. However, most dog handlers use some amount of discretion before deploying their canine.⁸⁸ For example, if a handler deployed their canine to sniff a vehicle after the officer saw a marijuana leaf sticker on the windshield, the probability that this person has illegal substances may jump from 2 percent to 10 percent. In turn, this increases the probability that drugs are found after a positive alert from 24 percent to 64 percent,⁸⁹ still well below Fido's mythic accuracy rate of 95 percent.

Consequently, the probability that drugs are found pursuant to a dog alert are significantly lower than what accuracy rates would lead the public to believe. Despite the factual reality, courts continue to make decisions under the delusion of inflated canine alert rates.⁹⁰

⁸⁵ See generally DEP'T OF COMMERCE, STATISTICAL ABSTRACT (2012), http://www.census.gov/compendia/statab/cats/law_enforcement_courts_prisons/arrests.html (showing that 2 percent of a population that possesses illegal substances is an entirely realistic possibility).

⁸⁶ $(.95)*(.02) / (.95)*(.02) + (.06)*(.98) = .244$

⁸⁷ See Myers, *supra* note 81, at 15.

⁸⁸ Most frequently, police utilize a dog sniff only after a vehicle has been lawfully stopped because of a traffic violation. See *United States v. Vazquez*, 555 F.3d 923, 925 (10th Cir. 2009); *United States v. Olivera-Mendez*, 484 F.3d 505, 509 (8th Cir. 2007); *United States v. Alexander*, 448 F.3d 1014, 1015 (8th Cir. 2006).

⁸⁹ $(.95)*(.10) / (.95)*(.10) + (.06)*(.90) = .637$

⁹⁰ See *supra* notes 67–70 and accompanying text.

3. Barking Up the Wrong Tree

*Merret v. Moore*⁹¹ illustrates Bayes' Theorem and evidences the dangers of allowing dogs with less than stellar accuracy rates to perform random searches. In that case, the U.S. Court of Appeals for the Eleventh Circuit held that it was constitutional to use dogs to sniff the exterior of cars at a roadblock checkpoint, as long as the motorists were lawfully stopped in a public place and the dog sniff did not cause undue delay.⁹² At the roadblock in *Merret*, approximately 1450 vehicles were subjected to dog sniffs.⁹³ Out of these vehicles, the dogs gave positive alerts to twenty-eight of the vehicles.⁹⁴ Upon performing a full search of these twenty-eight vehicles, the police only arrested one person for possessing drugs that the dogs had been trained to detect.⁹⁵ Although the court rationalized these searches by emphasizing that there is no reasonable privacy interest in possessing contraband,⁹⁶ over 96 percent of the cars were exposed to public opprobrium and embarrassment by means of a full-scale search of their vehicle when no drugs were present.⁹⁷ Overall, the operation was a disaster.⁹⁸

Merret confirms the risks that law enforcement takes when they allow inaccurate dogs to perform searches on random populaces of motorists.⁹⁹ Additionally, these findings have spurred research by both government agencies and scholars to determine how accurate the dog's nose is when performing in the real world. The next section discusses the research gathered and further substantiates the flaws of detector dogs.

B. Field Studies: Dogs' Reliability in the Real World

There are numerous field studies demonstrating the shortcomings of dogs as reliable indicators of probable cause. As previously mentioned in Caballes, Justice Souter's dissent called the infallible dog a "creature of legal fiction" and cited various cases that demonstrated their dubious reliability.¹⁰⁰ However, recent studies further undercut the reliability of dogs in the real world and bolster Justice Souter's theory of the fallible dog.¹⁰¹ Over the past decade, efforts have

⁹¹ 58 F.3d 1547 (11th Cir. 1995).

⁹² See *id.* at 1553.

⁹³ *Id.* at 1549.

⁹⁴ *Id.*

⁹⁵ *Id.*

⁹⁶ See *id.* at 1553; see also *Caballes*, 543 U.S. at 408 (citing *Jacobsen*, 466 U.S. at 123) (finding that "government conduct that only reveals the possession of contraband 'compromises no legitimate privacy interest'" protected by the Fourth Amendment).

⁹⁷ See *Merret*, 58 F.3d at 1549.

⁹⁸ See *id.* ("People whose vehicles were actually searched experienced longer delays. In addition, one car overheated; one minor accident occurred; the dogs scratched several cars; and one person was bitten by a dog.").

⁹⁹ See *id.*

¹⁰⁰ See *supra* notes 67–70 and accompanying text.

¹⁰¹ See *infra* Parts III.B.1–3.

been made to determine not only the true accuracy rates of dogs in the field, but also to expound on the potential consequences of unreliable dogs.

1. New South Wales Ombudsman Study (2006)¹⁰²

In the *Harris* oral argument, Justice Sotomayor mentioned she was “deeply troubled” by an Australian study that found a dog’s alert was correct only 12 percent of the time.¹⁰³ The New South Wales Ombudsman, a neutral and independent agency in Australia that is accountable to the public through Parliament, conducted the 2006 study referenced by Justice Sotomayor in *Harris*.¹⁰⁴

This particular study looked at dogs’ performance in the field and their ability to accurately detect certain types of illegal substances.¹⁰⁵ The study measured the false positive rates of seventeen detection dogs and their corresponding field performance over a two-year period.¹⁰⁶ Most dog sniffs in the study occurred on young adults in public places in various Australian cities.¹⁰⁷ According to Australian law, a positive alert on a person’s body or belongings is enough to establish reasonable suspicion to perform a full search of that person.¹⁰⁸ All the dogs in the study had completed certification programs and training exercises with their handler in a number of real-world settings, populated with humans, and administered in realistic scenarios.¹⁰⁹ Additionally, each

¹⁰² See *Who we are*, OMBUDSMAN NEW SOUTH WALES, <http://www.ombo.nsw.gov.au/what-we-do/about-us/who-we-are> (last visited Mar. 27, 2013) (“Loosely translated, the term Ombudsman means ‘the citizen’s defender’ or ‘representative of the people.’”).

¹⁰³ Transcript of Oral Argument at 13, *Florida v. Harris*, 133 S. Ct. 1050 (2013) (No. 11-817).

¹⁰⁴ See *Who we are*, *supra* note 102 (“Our central goal is to keep government agencies and some non-government organisations accountable by promoting good administrative conduct, fair decision-making, high standards of service delivery and the protection of the rights of people in NSW.”).

¹⁰⁵ See NSW Ombudsman, *Review of the Police Powers (Drug Detection Dogs) Act 2001* 27 (2006), available at http://www.ombo.nsw.gov.au/_data/assets/pdf_file/0020/4457/Review-of-the-Police-Powers-Drug-Detection-Dogs-Part-1_October-2006.pdf [hereinafter *NSW Study*].

¹⁰⁶ *Id.*

¹⁰⁷ See *id.* at 29 fig. 4 (showing that that places where drug detection sweeps took place were mainly public transport areas, road/street/mall, dance parties, commercial/retail, or park/recreational); *id.* at 35 (“The median age of persons searched was 26 years. . . . The predominance of young adults among those searched may reflect their greater propensity to frequent the public spaces patrolled by the dogs and/or their greater likelihood to consume or carry prohibited drugs.”).

¹⁰⁸ See *id.* at 47 (“By law, however, the detaining of persons for searching cannot legally be a random exercise and must be based on a reasonable suspicion”); see also Drug Misuse and Trafficking Act 1985, s. 37(4) (NSW) (Austl.) (codifying the requirement that police must reasonably suspect a person is in possession or control of a prohibited drug before the officer can lawfully stop, search and detain that person).

¹⁰⁹ See *NSW Study*, *supra* note 105, at 45 (describing how dogs were initially trained six

dog was trained to detect cannabis and its derivatives, heroin, cocaine, amphetamines, and ecstasy.¹¹⁰

This Australian agency performed the most comprehensive study to date, monitoring dogs that alerted to the presence of drugs 10,211 times.¹¹¹ Only on 2664 occasions, in about 26 percent of the searches conducted, did the police actually find the drugs the dogs were trained to detect.¹¹² The corollary of this low success rate was that out of the 10,211 searches, 7547 full-scale searches resulted in no findings of illegal drugs, and therefore a false positive rate of 74 percent.¹¹³

Despite the fact that all the dogs were the same breed¹¹⁴ and trained under the same circumstances, the success rate of each individual dog indicates significant variation among the dogs' ability to detect illegal substances.¹¹⁵ Eleven of the seventeen dogs had a success rate lower than the average rate of 26 percent.¹¹⁶ Apparently, the dog Justice Sotomayor references in *Harris* as having a success rating of 12 percent was not even the most inaccurate dog – another dog's accuracy rate was a mere 7 percent over the two-year period.¹¹⁷ The most accurate dog had a 56 percent success rate of identifying illegal drugs.¹¹⁸ However, a possible explanation for these two extremes could be that those particular dogs had a relatively low number of alerts in the field com-

weeks using various methodologies and continued to train each week, and were accredited every three months by the certification agency). "Each handler generally works with a single drug detection dog. With the guidance of the drug detection dog trainer, the handler conducts the initial training of his or her own dog." See *NSW Study*, *supra* note 105, at 21.

¹¹⁰ See *NSW Study*, *supra* note 105, at 45.

¹¹¹ See *NSW Study*, *supra* note 105, at 27.

¹¹² See *NSW Study*, *supra* note 105, at 29 fig. 5.

¹¹³ See *NSW Study*, *supra* note 105, at 30 (finding that in searches that did not discover illegal substances, a subsequent interview of the person revealed that he or she had contact with cannabis or was present while cannabis was being smoked at some time in the past, these admissions accounted for close to 60 percent of the group where no drugs were found); but see *NSW Study*, *supra* note 105, at 49 ("NSW Police is not aware of any scientific evidence to suggest that dogs would [alert to] a person who has been in the presence of other people smoking cannabis.").

¹¹⁴ See *NSW Study*, *supra* note 105, at 21 (mentioning that all the dogs used in the study were Labradors).

¹¹⁵ See *NSW Study*, *supra* note 105, at 57 tbl. 9.

¹¹⁶ See *NSW Study*, *supra* note 105, at 57 tbl. 9.

¹¹⁷ See *NSW Study*, *supra* note 105, at 57 tbl. 9 (finding that the least successful dog in the study alerted to the presence of drugs on 57 occasions and subsequent searches discovered drugs the dog was trained to detect only 7 percent of the time).

¹¹⁸ See *NSW Study*, *supra* note 105, at 57 tbl. 9 (finding that the most successful dog in the study alerted to the presence of drugs on 180 occasions and subsequent searches discovered drugs the dog was trained to detect 56 percent of the time).

pared to the other dogs.¹¹⁹ During the two-year period, the two dogs that signaled most frequently had accuracy rates of 27 percent and 12 percent.¹²⁰

Based on the comprehensive sets of data from the study, the New South Wales government concluded that a dog's positive alert to illegal substances does not constitute reasonable suspicion to conduct a search of the person and his belongings.¹²¹ Moreover, the study went on to find that the use of drug-sniffing dogs is not an efficient use of limited police resources.¹²² Finally, the study encouraged law enforcement agencies that utilize drug-sniffing dogs to keep records on the performance of their handlers and dogs in the field.¹²³

The Ombudsman's study exemplified not only the limited capabilities of dogs in the real world, but the varied and inadequate accuracy rates of dogs under substantially similar circumstances. These varied and inadequate rates severely undercut the assumption in *Harris* that after completing training and certification all dogs are equally competent and reliable in the field. To combat such shortcomings, it is essential that dogs complete legitimate training and certification programs and keep accurate and correct field performance records that indicate when a dog's reliability is beginning to falter.

2. Chicago Studies and Racial Profiling (2011)

In addition to inflated accuracy rates that challenge a finding of probable cause and abrogate a person's privacy interests, incompetent drug detection dogs can also be pretexts to commit racial profiling.¹²⁴ The Chicago Tribune analyzed three years of data from the Illinois Department of Transportation to determine how effectively local police departments were utilizing drug-sniffing dogs, and their propensity for racial profiling.¹²⁵ The findings showed that a positive alert by a dog led to the discovery of drugs or paraphernalia in a roadside stop only 44 percent of the time.¹²⁶ When filtering these results by race, the accuracy rate fell to 27 percent for Hispanic drivers.¹²⁷

¹¹⁹ See *NSW Study*, *supra* note 105, at 57 tbl. 9 (showing that the most accurate dog and the least accurate dog accounted for only 237 alerts out of the 10,211 total).

¹²⁰ See *NSW Study*, *supra* note 105, at 57 tbl. 9 (showing that the two dogs that accounted for the most number of alerts during the two-year period accounted for 3604 alerts out of the 10,211 total).

¹²¹ See *NSW Study*, *supra* note 105, at 201.

¹²² See *NSW Study*, *supra* note 105, at 281.

¹²³ See *NSW Study*, *supra* note 105, at 202.

¹²⁴ See Dan Hinkel & Joe Mahr, *Tribune analysis: Drug-sniffing dogs in traffic stops often wrong*, CHI. TRIB., Jan. 6, 2011, at C1, available at http://articles.chicagotribune.com/2011-01-06/news/ct-met-canine-officers-20110105_1_drug-at_sniffing-dogs-alex-rothacker-drug-dog.

¹²⁵ See *id.* (explaining that the study investigated records of vehicle stops in Chicago from 2007-2009).

¹²⁶ *Id.*

¹²⁷ *Id.*

The Illinois State Police department conducted 252 sniffs on stopped vehicles over the course of eleven months.¹²⁸ The dogs positively alerted to substances they were trained to detect in 136 instances.¹²⁹ Out of these 136 alerts, only thirty-five resulted in the discovery of drugs that led to an arrest, leading to an accuracy rate of 25.7 percent.¹³⁰

In McHenry County, the sheriff's department's drug-sniffing dogs alerted on 103 occasions and found drugs or paraphernalia only 32 percent of the time.¹³¹ Even more disturbing is that among the eight searches conducted on Hispanic drivers, the police found drugs only once.¹³² A similar trend was also apparent in the city of Naperville, Illinois.¹³³ In Naperville, drugs or paraphernalia were discovered 47 percent of the time following a dog's positive alert.¹³⁴ However, only one out of the twelve searches conducted on Hispanic drivers led to the discovery of drugs or paraphernalia for a false positive rate of 92 percent.¹³⁵

Most alarming is that when it comes to dog sniffs and probable cause, the dogs are not the only problem.¹³⁶ Alex Rothacker, a trainer who certifies handlers and dogs in the Chicago area places the blame primarily on the handlers.¹³⁷ He mentions that while residual odors account for a number of false positives, dogs typically react to cues by the handler when the handler believes the person has illegal substances.¹³⁸ Virginia Martinez, an attorney for the Mexican American Legal Defense and Educational Fund, as well as other civil rights advocates, are concerned that the police are using dogs to target the Hispanic community.¹³⁹ Essentially, in this manner, the dogs are serving as a search warrant on a leash to allow law enforcement to conduct searches when they see fit and for reasons that do not establish probable cause, such as race.¹⁴⁰ Accordingly, it is alleged that the dogs' inflated accuracy ratings could be serv-

¹²⁸ Radley Balko, *Illinois State Police Drug Dog Unit Analysis Shows Error Rate Between 28 and 74 Percent*, HUFFINGTON POST, Mar. 31, 2012, available at http://www.huffingtonpost.com/2012/03/31/drug-dog-illinois-state-police_n_1376091.html.

¹²⁹ *Id.*

¹³⁰ *Id.*

¹³¹ Hinkel, *supra* note 124.

¹³² Hinkel, *supra* note 124.

¹³³ See Hinkel, *supra* note 124.

¹³⁴ Hinkel, *supra* note 124.

¹³⁵ Hinkel, *supra* note 124.

¹³⁶ See Hinkel, *supra* note 124 (describing drug-sniffing dogs as a tool that allows police to search innocent drivers, leading to a consequence known as "driving while Mexican").

¹³⁷ See Hinkel, *supra* note 124 (finding that many trainers use "suspect methods" and do not stay current on their training regimens).

¹³⁸ See Hinkel, *supra* note 124.

¹³⁹ See Hinkel, *supra* note 124 ("Civil rights advocates and Latino activists say the findings support complaints that police unfairly target Hispanic drivers for invasive and embarrassing roadside vehicle searches.").

¹⁴⁰ See Hinkel, *supra* note 124.

ing as a pretext for handlers to conduct searches based on race in a number of Chicago cities.¹⁴¹

3. UC Davis Study: Handler Cuing (2011)

As evidenced by the Chicago study, a dog's reliability can be significantly influenced by the handler's objectives. Handlers can often, unintentionally or intentionally, cue the dog to alert if the handler believes the area contains contraband. The aim of one study was to examine whether a handler's beliefs might affect a dog's positive alerts in a controlled environment.¹⁴² Eighteen drug and/or explosive detection teams each completed two sets of four searches.¹⁴³ The handlers were instructed that each of the areas might have a scent that the dogs were trained to detect marked by a piece of red paper.¹⁴⁴ In actuality, there were no scents that the dogs were trained to detect in any of the four areas, meaning that a dog performing with 100% accuracy should have given no positive alerts.¹⁴⁵ The results of the tests were astounding. Out of the 144 searches, 123 had at least one positive alert.¹⁴⁶ And most importantly, the dogs were twice as likely to alert to an area marked by red paper than a different area that was unmarked.¹⁴⁷ While a number of handlers admitted to intentionally prompting their dogs to alert at the areas marked by red paper, the majority of handlers subconsciously communicated their desires to their canine counterparts.¹⁴⁸ The Clever Hans effect, the theory that animals have the ability to react to subtle cues provided by humans, may help shed light on this phenomena.¹⁴⁹

The research concluded that detection dogs not only alert to the scent of

¹⁴¹ See Balko, *supra* note 128; Hinkel, *supra* note 124.

¹⁴² See Lisa Lit, Julie B. Schweitzer, & Anita M. Oberbauer, *Handler Beliefs Affect Scent Detection Dog Outcomes*, 14 ANIMAL COGNITION 387, 387 (2011).

¹⁴³ *Id.* at 388 (noting that teams consisted of a dog and a handler who were certified by a law enforcement agency for either drug detection, explosives detection or both drug and explosives detection).

¹⁴⁴ See *id.* at 389–90 (noting that area one was completely unmodified, area two had a cabinet marked by red paper, area three was unmarked and had Slim-Jim sausages and a tennis ball in the cabinet, and area four had a cabinet marked by red paper with Slim-Jim sausages and a tennis ball inside).

¹⁴⁵ See *id.* at 388.

¹⁴⁶ *Id.* at 390 (discovering that one or more false alerts occurred in 85 percent of the searches for a total of 225 incorrect alerts).

¹⁴⁷ See *id.* at 393 (finding that the dogs were more likely to alert to the red piece of paper than any other area).

¹⁴⁸ See *id.* at 392 (“[T]he experimenter was informed that three handlers admitted to overtly cueing their dogs to alert at the marked locations.”).

¹⁴⁹ See *id.* at 387 (finding that a horse that was originally believed to have been able to perform arithmetic and other mental tasks by tapping his hoofs, was actually responding to unintentional cues from its trainer).

substances they are trained to detect, but also to their handler's cues, whether they be inadvertent or intentional.¹⁵⁰ This study aptly demonstrates the influence that handlers can have over their canine counterparts and exhibits how handler cues can pave the way for discriminative searches based on race, gender, or age. Unfortunately, handler cuing is not the only method that handlers implement to artificially reach the results they want in the field.

C. Handler Error

As previously mentioned, a false positive occurs when a dog alerts to a substance he is trained to detect and that substance is not present.¹⁵¹ However, there is no uniform standard to calculate a false positive rate in practice.¹⁵² As such, handlers tend to inflate the accuracy and reliability of their dog by using qualifiers to compute the false positive rate.¹⁵³ Despite these distortions, handlers continue to use suspect methods to measure the performance of their drug detection dogs, ultimately leading to the decreased reliability of a dog's ability to establish probable cause. As such, handlers tend to inflate the accuracy and reliability of their dog by using qualifiers to compute the false positive rate.¹⁵⁴ Despite these distortions, handlers continue to use suspect methods to measure the performance of their drug detection dogs, ultimately leading to the decreased reliability of a dog's ability to establish probable cause.

1. Calculating an Accurate. . . Accuracy Rate

The most reliable means to determine a dog's accuracy rate in the field is to track every instance in which a particular dog signals an alert; the amount of true positives compared to false positives would constitute the accuracy rate for that dog.¹⁵⁵ This common-sense computation is the most reliable indicator of a dog's accuracy in the field and is used by many law enforcement agencies around the country.¹⁵⁶

Law enforcement agencies, however, will also use qualifiers to skew or alter a dog's accuracy in their favor, leading the public to falsely believe that a dog's precision in the field is dependable.¹⁵⁷ For instance, a handler may not record a

¹⁵⁰ See *id.* at 392.

¹⁵¹ See Myers, *supra* note 81, at 12.

¹⁵² See Myers, *supra* note 81, at 12.

¹⁵³ See Myers, *supra* note 81, at 12.

¹⁵⁴ See Myers, *supra* note 81, at 12.

¹⁵⁵ See Robert C. Bird, *An Examination of the Training and Reliability of the Narcotics Detection Dog*, 85 KY. L.J. 405, 423–24 (1997) (discussing the essential knowledge a handler needs to properly deploy a drug-sniffing dog).

¹⁵⁶ *Id.* at 410–12; see also MILITARY POLICE, DEP'T OF THE ARMY PAMPHLET 190-12, MILITARY WORKING DOG PROGRAM (1993), available at http://armypubs.army.mil/epubs/pdf/p190_12.pdf.

¹⁵⁷ See Bird, *supra* note 155, at 424–25 (discussing the prevalence of handler error).

false positive if the interaction does not eventually lead to an arrest.¹⁵⁸ The shortcomings of this approach are apparent. If a dog falsely alerts to contraband it is trained to detect, and a subsequent search discovers nothing and no arrest is made, then the false positive goes unreported. Or conversely, officers may record a true positive if the dog sniff ultimately leads to an arrest.¹⁵⁹ Thus, an officer will increase the dog's accuracy on paper, whether or not the arrest was based on the discovery of drugs the dog was trained to detect. Despite these flaws, handlers will nonetheless use an accuracy rate calculation that exploits these faulty methods so that they can continue to establish probable cause, and the public will not lose its trust in the dog's accuracy rates.¹⁶⁰

Furthermore, it is nearly impossible to calculate an accurate false negative rate, or a rate that occurs when the dog does not alert when drugs are present.¹⁶¹ This is because the only way an officer can determine whether contraband was present when the dog did not alert would be a later discovery of the contraband in an unrelated search.¹⁶²

As previously discussed, the Supreme Court recently decided a case that exemplifies many of these shortcomings. In *Florida v. Harris*, the handler of a trained narcotics dog named Aldo acknowledged that "he maintained records only of alerts resulting in arrests."¹⁶³ Furthermore, the handler testified that he does not track instances when no drugs are found and only records Aldo's field performance when he is correct.¹⁶⁴ On two different occasions, Aldo alerted to the presence of drugs and both times a subsequent search of the vehicle discovered no drugs Aldo was trained to detect.¹⁶⁵ Aldo's handler claimed that both times Aldo was responding to a residual odor on the door handle of the vehicle.¹⁶⁶

2. Attributing Blame to Residual Odors

Compounding the problem is the common misconception that the dog's nose is infallible. Thus, a handler may not record a false positive if the handler be-

¹⁵⁸ See, e.g., *Harris*, 133 S. Ct. at 1054.

¹⁵⁹ See *id.*

¹⁶⁰ See *id.*

¹⁶¹ See Bird, *supra* note 155, at 427.

¹⁶² See Bird, *supra* note 155, at 427.

¹⁶³ See *Harris*, 133 S. Ct. at 1054.

¹⁶⁴ *Harris*, 71 So. 3d at 761 ("Officer Wheatley maintains records of Aldo's field performance only when Officer Wheatley makes an arrest. Officer Wheatley testified that he does not keep records of Aldo's alerts in the field when no contraband is found; he documents only Aldo's successes.").

¹⁶⁵ See *Harris*, 133 S. Ct. at 1054. The search did not discover any drugs Aldo was trained to detect, but did reveal pseudoephedrine pills. The respondent Harris was arrested and charged with illegal possession of pseudoephedrine, a substance Aldo was not trained to detect. *Id.*

¹⁶⁶ *Id.*

lieves that residual odors are present.¹⁶⁷ According to this belief, handlers' records frequently reflect near perfect accuracy. These handlers act under the assumption that if their dog alerts to a substance that the dog is trained to detect and a subsequent search does not reveal that substance, then the dog must have alerted to a residual odor or the presence of that substance in uncollectible or trace amounts.¹⁶⁸ Consequently, a handler would record this alert as a true positive even though no contraband was seized and no arrest was made.¹⁶⁹

The sensitivity of a dog's nose is its greatest asset, but also its greatest weakness. Although detecting residual odors from weeks prior may seem like a valuable trait in a dog, it actually demonstrates that the dog is less reliable at discerning whether drugs are actually present.¹⁷⁰ If a canine alerts to a residual odor that was present at some time in the past, then citizen's privacy interests are infringed when there is no current illegal activity. Other factors further exacerbate the problem, such as a dog's temperament, cognitive ability, illness, and age.¹⁷¹ The worst-case scenario occurs when officers keep no records at all of a dog's performance in the field and simply hide behind a dog's certification or training. In some cases, the dog completed this certification or training years ago at a subsidized organization.

D. Variation in Training and Certification Programs

Training and certification programs vary drastically across the United States.¹⁷² Thus, the completion of a program at an unacceptable organization does not conclusively establish that a dog is reliable in the real world.¹⁷³

Take, for example, a typical regimen at the state level that certifies police dogs for law enforcement agencies.¹⁷⁴ The Hillsborough County Sheriff's Office in Florida requires dogs to complete an initial thirty-day training course

¹⁶⁷ See *United States v. Warren*, 997 F. Supp. 1188, 1192 (E.D. Wis. 1998) (observing that if the dog alerts and no drugs are found then the dog must have alerted to a residual odor).

¹⁶⁸ See, e.g., *id.* at 1199 ("If no drugs are found, Deputy Hanson does not record a false positive alert, but notes that the dog must have smelled the residual odor of drugs which must have been present at some time in the past. Thus, Flea is credited with 100 percent accuracy by Deputy Hanson.").

¹⁶⁹ See *id.*

¹⁷⁰ But see, e.g., *State v. Cabral*, 859 A.2d 285, 300 (2004) ("[A] trained drug dog has the ability to detect the presence of drugs . . . as long as 72 hours prior to the alert . . . [which] serves to strengthen the argument that the dog has a superior sense of smell on which to rely to support a finding of probable cause.").

¹⁷¹ Ken Lammers, *Canine Sniffs: The Search That Isn't*, 1 NYU J.L. & LIBERTY 845, 852 (2005).

¹⁷² See *infra* notes 175–90 and accompanying text.

¹⁷³ See *Ludwig*, 641 F.3d at 1251 ("Of course, if a credentialing organization proved to be a sham, its certification would no longer serve as proof of reliability.").

¹⁷⁴ See *Jardines v. State*, 73 So. 3d 34, 60 (Fla. 2011), *cert. granted in part*, 132 S. Ct.

and an annual one-week recertification.¹⁷⁵ The dogs only need a 70 percent proficiency level to pass and are not trained to disregard residual odors.¹⁷⁶

A number of private organizations also have their own standards for certifying a potential detection dog for the field.¹⁷⁷ For example, the United States Police Canine Association's training program requires a search of only five vehicles.¹⁷⁸ Additionally, if the dog receives a minimum score of 70 percent proficiency it is certified for the field.¹⁷⁹ Moreover, if the dog fails, he can eventually re-take the exam.¹⁸⁰ The National Police Canine Association requires dogs to merely detect three substances out of four, or a 75 percent accuracy rate to pass.¹⁸¹ Finally, the North American Police Working Dog Association's rules for certification require an accuracy rate of at least 91.66 percent for a dog to be declared fit for the field.¹⁸²

The duration of a training or certification program can also impact the quality of a dog's alerts in the field.¹⁸³ Some training programs are as short as three weeks, while more extensive training programs can last as long as three months.¹⁸⁴ For example, one program in Tennessee requires dogs to complete an initial two-month training to become certified.¹⁸⁵ Less rigorous training programs in Florida, however, certify dogs for the field after an initial 120-hour program.¹⁸⁶

The U.S. Customs and Border Protection Agency is one of the more rigorous

995 (2012), *aff'd*, 133 S. Ct. 1409 (2013) (comparing the training that was completed by a dog in a previous Florida case to the rigorous standards of the U.S. Customs Service).

¹⁷⁵ *Id.*

¹⁷⁶ *Id.*

¹⁷⁷ See *infra* notes 179–87.

¹⁷⁸ *Certification Rules and Regulations*, U.S. POLICE CANINE ASS'N 17 (2012), <http://www.uspcak9.com/certification/USPCARulebook2012.pdf>.

¹⁷⁹ *Id.*

¹⁸⁰ See *id.* (“Teams failing to successfully certify will not immediately be given a second chance. Multiple Tests of the same team will not be conducted. The team has to undergo a period of retraining, documenting successful performance, before any attempt at re-certification.”).

¹⁸¹ *Standards for Training & Certification Manual*, NAT'L POLICE CANINE ASS'N, 6 (2011), <http://www.npca.net/Files/Standards/Standards.pdf> (“K-9 Team must locate at least three (3) out of the four (4) finds to certify. This results in a success of seventy-five (75) percent minimum score for certification.”).

¹⁸² *Bylaws and Certification Rules*, N. AM. POLICE WORKING DOG ASS'N 22 (2011), <http://www.napwda.com/uploads/bylaws-cert-rules-june-19-2011.pdf>.

¹⁸³ See Bird, *supra* note 155, at 423.

¹⁸⁴ See *id.*

¹⁸⁵ See *Boxley*, 373 F.3d at 761.

¹⁸⁶ See *Harris*, 133 S. Ct. at 1058 (“Aldo had successfully completed a 120-hour program in narcotics detection, and separately obtained a certification from an independent company.”).

certification programs in the United States.¹⁸⁷ According to this regimen, dogs must complete a 12-week course.¹⁸⁸ Most importantly, to be certified as a working dog, the potential detection dog must complete the certification exam at 100 percent proficiency.¹⁸⁹

The aforementioned disparities among various training and certification programs divulge little as to the reliability of drug detection dogs. Accordingly, an endorsement that a dog is trained or certified at a substandard institution does not effectively reveal whether the dog is successful at discovering contraband in the field.

IV. POLICING FOR PROFIT: CRIMINAL AND CIVIL ASSET FORFEITURE

The danger of allowing unreliable drug-sniffing dogs to establish probable cause extends beyond unconstitutional searches.¹⁹⁰ Dog sniffs have led to a number of other consequences in other areas of the law.¹⁹¹ Depending on the laws of a particular state, civil asset forfeiture gives law enforcement the green light to seize cash and other property when there is probable cause that the property is associated with criminal activity.¹⁹² Civil asset forfeiture is much more prevalent than criminal asset forfeiture because unlike the latter, it does not require that the owner of the property be convicted of a crime.¹⁹³ In the fiscal year for 2010, criminal and civil asset forfeiture accounted for nearly 1.8 billion in funds for the Treasury.¹⁹⁴

Simply put, asset forfeiture forces citizens to turn over property if there is probable cause that those assets helped facilitate illegal activities, such as drug trafficking.¹⁹⁵ Therefore, once a dog signals to his or her handler that illegal substances are present, that alert alone allows officers to seize assets, even if

¹⁸⁷ See, e.g., *CBP Canine Disciplines*, U.S. CUSTOMS & BORDER PROT. (Nov, 15 2010), http://www.cbp.gov/x/cgov/border_security/canine/disciplines_2.xml (describing Customs training for drug detection dogs).

¹⁸⁸ See *Jardines*, 73 So. 3d at 60 (looking at the requirements to be a certified dog for the U.S. Customs Service); Bird, *supra* note 155, at 414.

¹⁸⁹ See *Jardines*, 73 So. 3d at 60; Bird, *supra* note 155, at 414.

¹⁹⁰ See ERIN NORMAN & ANTHONY SANDERS, *FORFEITING ACCOUNTABILITY: GEORGIA LAW ENFORCEMENT'S HIDDEN CIVIL FORFEITURE FUNDS 1* (2011), available at <http://www.ij.org/forfeiting-accountability-2>.

¹⁹¹ See MARIAN R. WILLIAMS, PH.D., ET AL., *POLICING FOR PROFIT: THE ABUSE OF CIVIL ASSET FORFEITURE 15* (2010), available at http://www.ij.org/images/pdf_folder/other_pubs/assetforfeituretoemail.pdf [hereinafter *POLICING FOR PROFIT*].

¹⁹² See NORMAN & SANDERS, *supra* note 190, at 3 (looking at Georgia's asset forfeiture laws).

¹⁹³ See NORMAN & SANDERS, *supra* note 190, at 3.

¹⁹⁴ See STATISTICAL REPORT, *supra* note 3, at 31 (reporting that \$1,786,567,692 has been deposited into the Department of Justice Assets Forfeiture Fund from criminal and civil cases litigated by United States Attorneys).

¹⁹⁵ See WILLIAMS, ET AL., *supra* note 191, at 15.

the alleged illegal substance is not subsequently found.¹⁹⁶ Once the property is taken, it can take years for the citizen to get their property back through the legal system.¹⁹⁷

A Georgia case in 2008 aptly illustrates the problems associated with asset forfeiture and unreliable drug detection dogs.¹⁹⁸ Officers stopped Chris Hunt for speeding on I-75.¹⁹⁹ The officers performed a search of the vehicle and did not find anything illegal, but the officers did find \$5,581 in cash.²⁰⁰ The sheriffs then deployed a detection dog that alerted to drug residue on the cash.²⁰¹ Thus, the dog's alert established probable cause to confiscate all the money even though Mr. Hunt was never charged with a crime.²⁰² Two years later, Mr. Hunt received half of the \$5,581 back as part of a negotiated settlement.²⁰³ National Public Radio investigated the incident and discovered more civil asset forfeiture cases from Georgia with similar fact patterns: motorists without previous drug arrests who were forced to forfeit their cash and property when detection dogs simply alerted to residual odors.²⁰⁴

Law enforcement agencies that have a financial incentive to seize assets can exploit man's best friend to produce a sizeable amount of income for their department.²⁰⁵ The police can use false alerts to confiscate vehicles, cash, and property, even when a subsequent search discovers nothing illegal.²⁰⁶ The dog's alert is treated as conclusive evidence that drugs are present, when in some cases, no drugs are found.²⁰⁷ Therefore, the improper incentives to use dogs for the seizure of property that are available to law enforcement merit stricter requirements for training and certification programs.

¹⁹⁶ See WILLIAMS, ET AL., *supra* note 191, at 15.

¹⁹⁷ See WILLIAMS, ET AL., *supra* note 191, at 23.

¹⁹⁸ See WILLIAMS, ET AL., *supra* note 191, at 36.

¹⁹⁹ See WILLIAMS, ET AL., *supra* note 191, at 36.

²⁰⁰ See WILLIAMS, ET AL., *supra* note 191, at 36.

²⁰¹ See WILLIAMS, ET AL., *supra* note 191, at 36.

²⁰² See WILLIAMS, ET AL., *supra* note 191, at 36 ("Unlike criminal asset forfeiture, with civil forfeiture, a property owner need not be found guilty of a crime—or even charged—to permanently lose her cash, car, home or other property.").

²⁰³ See WILLIAMS, ET AL., *supra* note 191, at 36.

²⁰⁴ See John Burnett, *Cash Seizures by Police Prompt Court Fights*, NPR (June 16, 2008), <http://www.npr.org/templates/story/story.php?storyId=91555835>.

²⁰⁵ See WILLIAMS, ET AL., *supra* note 191, at 37 ("Criminologists, economists and legal scholars who have studied forfeiture behavior have found evidence indicating that police departments are taking advantage of lenient forfeiture statutes to 'pad their budgets.'").

²⁰⁶ See WILLIAMS, ET AL., *supra* note 191, at 13 ("Eighty percent of persons whose property was seized by the federal government for forfeiture were never even charged with a crime.").

²⁰⁷ See WILLIAMS, ET AL., *supra* note 191, at 6.

V. TRAINING AND CERTIFICATION REFORM

Harris simply requires that training or certification be completed at a bona fide organization and makes no mention of what a bona fide organization would encompass.²⁰⁸ Therefore, despite the decision in *Harris* and the outcry over the reliability of dogs in the real world, outcomes will continue to be as flawed as they were pre-*Harris*, and will remain so as long as lower courts continue to rely on rubber stamp assessments of dogs from subpar training and certification programs. Consequently, the certification and training processes for detection dogs need to be in line with the more rigorous federal standards to enable courts to rely on a dog's alert with certainty, no matter where it was completed.

A. U.S. Customs Service Training Model

Law enforcement agencies that employ drug detection dogs should require training or certification at a program that edifies both the handler and the dog.²⁰⁹ One of the most important aspects of a successful program is an emphasis on both the handler and the dog as a team.²¹⁰ Courts can clarify *Harris* by defining a "bona fide organization" using the following program as a model.²¹¹

Consider the steps that need to be taken to become a U.S. Customs working dog.²¹² First, dogs are trained and certified by completing a rigorous twelve-week course that has a 50 percent failure rate for entering canines.²¹³ The training course teaches dogs to alert to the scent of a number of illegal substances in a variety of situations.²¹⁴ Moreover, the dogs are trained to avoid potential distractions in the field such as food, legal drugs, and prescriptions.²¹⁵ Most importantly, unlike a lot of other programs across the nation, Customs dogs are trained to disregard residual scents and odors, which significantly increases the reliability and dependability of an alert.²¹⁶ Another rigorous feature of the Customs program is that the certifying exam requires a perfect score from the handler and the dog.²¹⁷ If the team erroneously alerts, the dog and handler must

²⁰⁸ See *Harris*, 133 S. Ct. at 1057.

²⁰⁹ See *infra* notes 213–22 and accompany text.

²¹⁰ See *infra* notes 213–22 and accompany text.

²¹¹ See *Harris*, 133 S. Ct. at 1057.

²¹² See *Jardines*, 73 So. 3d at 60; Bird, *supra* note 155, at 414; see also, e.g., CBP CANINE DISCIPLINES, U.S. CUSTOMS & BORDER PROT. (Nov. 15, 2010), available at http://www.cbp.gov/xp/cgov/border_security/canine/disciplines_2.xml (describing Customs training for drug detection dogs).

²¹³ Bird, *supra* note 155, at 414.

²¹⁴ Bird, *supra* note 155, at 414.

²¹⁵ Bird, *supra* note 155, at 414 ("Agents present distractions during training, and reward the dogs when those diversions are ignored.").

²¹⁶ Bird, *supra* note 155, at 414.

²¹⁷ Bird, *supra* note 155, at 414.

undergo corrective training and have a chance to re-take the exam once more.²¹⁸ If the team fails again, then the dog is permanently discharged.²¹⁹

After training is complete, the U.S. Customs Service requires handlers to keep records of the dog's field performance to monitor accuracy in the real world.²²⁰ After one to two months, these records are discarded to ensure that the dog's performance is as current as possible and to avoid relying on past records that may not be indicative of the dog's current skill.²²¹

The comprehensive nature of the Customs Model addresses many of the deficiencies in current training and certification programs used by states. If a training or certification program does not meet a minimum standard similar to that of the Customs model, courts should define the organization as a "sham."²²² According to *Harris*, this would allow the defendant to rebut the presumption that the dog completed training or certification at a bona fide organization and instill confidence in an eroding line of jurisprudence.²²³ Thus, law enforcement agencies would have to point to other evidence, such as field performance records, to verify that the dog is a reliable indicator of probable cause.²²⁴

B. *Uniformity and Accreditation*

In light of the Supreme Court's recent decision in *Harris*, a uniform system of certification and training should be adopted nationwide to enable courts to establish dogs as reliable indicators of probable cause.²²⁵ The decision in *Harris* will do little to alleviate doubts surrounding drug detection dogs and will lead to futile attacks on subpar certification programs.²²⁶ Moreover, these subpar institutions will continue to act as an authorization for handlers to exploit a dog's olfactory senses in the field.

The present lack in uniformity among training and certification programs makes it nearly impossible for a defendant to challenge a dog sniff.²²⁷ Consequently, states should come in line with the more rigorous federal standards and standardize the certification process for drug detection dogs, and implement

²¹⁸ See Bird, *supra* note 155, at 414 (explaining that the final exam and annual re-certifications must be completed perfectly to pass, "with no false alerts and no missed drugs").

²¹⁹ See Bird, *supra* note 155, at 414-15.

²²⁰ See Bird, *supra* note 155, at 415.

²²¹ See Bird, *supra* note 155, at 415 ("Custom Service agents retain a history of a dog's searches, but only for thirty to sixty days. These records are then discarded because a dog's ability can change over a short period of time, thus old records become less probative of skill.").

²²² See *supra* note 48 and accompanying text.

²²³ See *Harris*, 133 S. Ct. at 1057.

²²⁴ See *id.*

²²⁵ See *id.*

²²⁶ See *id.*

²²⁷ See *supra* notes 174-90 and accompanying text.

minimum training guidelines that utilize objective and rigorous criteria to provide courts with a reliable context for evaluating dog performance.²²⁸ The employment of minimum standards for training programs would also allow dog training to become a legitimate and accredited endeavor. These changes would allow courts to trust a given dog, no matter where training was completed.

VI. CONCLUSION

Currently, deficiencies in certification and training programs lead to unacceptable amounts of false positives and undermine the assumption that dogs are infallible indicators of probable cause. Numerous studies have been written on the issue and all point to the same conclusion: dogs are not reliable indicators of probable cause. To remedy the current shortcomings of drug detection dogs, courts should define a bona fide organization using strict standards. By doing so, courts can require dogs to complete instructive and rigorous certification from an accredited program. This change would raise a meaningful presumption that dogs and their handlers are reliable indicators of probable cause.

²²⁸ See *supra* notes 213–22 and accompanying text.

