

ARTICLES

BARKING UP THE WRONG TREE: REGULATING FEAR, NOT RISK

By
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Beginning in the 1980s, the curious phenomenon of breed-specific legislation (BSL) began to spread across the U.S. and abroad. The phenomenon can be traced to sensationalistic media portrayals of the pit bull at that time. This kind of sensationalism was nothing new; throughout American history, various breeds have served as scapegoats, each taking a turn as the most ‘dangerous.’ While it was not new to seek to contain fears by isolating a particular ‘problem’ breed, the legislation itself was unprecedented. Today, in light of mounting evidence that factors other than breed are more determinative of aggression in domestic dogs and that BSL does not decrease incidents of dog bites, many jurisdictions are seeking to undo these laws. For example, many states have passed legislation preempting local ordinances that discriminate based on breed. This Article calls for all jurisdictions to follow suit, in recognition of the fact that there are more rational methods available for addressing the public health hazard posed by individual aggressive dogs.

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I. INTRODUCTION

Imagine it: July 1987, U.S.–Soviet relations balance on a razor’s edge,¹ and the Iran-Contra hearings are in full swing.² But America has more important things on its mind—vicious dogs. Communities across the U.S. are being told they are under attack, not from foreign governments or terrorists, but from dogs in their community, specifically dogs known as ‘pit bulls.’³ During that month, no less than four

¹ See Associated Press, *Moscow Stalling on Shultz, Shevardnadze Talks: U.S.*, L.A. TIMES (July 10, 1987) (available at http://articles.latimes.com/1987-07-10/news/mn-1984_1_shultz-shevardnadze-meeting [<http://perma.cc/W7NA-5NXX>] (accessed Nov. 25, 2015)) (noting that negotiations between the U.S. and the Soviet Union had stalled); Associated Press, *Gorbachev OKs Joint Steps to Put End to Iran-Iraq War*, L.A. TIMES (July 21, 1987) (available at http://articles.latimes.com/1987-07-21/news/mn-5384_1_iran-iraq-war [<http://perma.cc/MR84-E797>] (accessed Nov. 25, 2015)) (noting that Gorbachev criticized the growing U.S. naval buildup in the Persian Gulf).

² *Understanding the Iran-Contra Affairs: The Hearings*, BROWN U., https://www.brown.edu/Research/Understanding_the_Iran_Contra_Affair/thehearings.php [<http://perma.cc/JPA4-PS2K>] (accessed Nov. 25, 2015) (noting that hearings began May 5, 1987 and continued for three months).

³ KAREN DELISE, THE PIT BULL PLACEBO: THE MEDIA, MYTHS AND POLITICS OF CANINE AGGRESSION 96–97 (2007) (available at http://nationalcanineresearchcouncil.com/uploaded_files/publications/230603563_Pit%20Bull%20Placebo.pdf [<http://perma.cc/>]

major national magazines ran stories sensationalizing the danger of these dogs that supposedly prowled the streets of their neighborhoods, ready to attack at a moment's notice, unexpected and unprovoked.⁴

The cover of *Sports Illustrated* on July 27, 1987 pictured an angry pit bull-type dog, teeth bared, and ready to attack.⁵ The headline read "Beware of This Dog."⁶ The article inside the magazine added detail to the cover picture with its descriptions.⁷ One humane society worker who was interviewed compared a pit bull attack to a shark attack, and a San Diego judge called pit bulls "the closest thing to a wild animal there is in a domesticated dog."⁸

That same week, *Time* gave us a vivid description of what we should fear:

Ferocious pit bulls can be seen any day with their drug-dealer owners on the corner of Ninth and Butler streets in North Philadelphia. The dogs, with names like Murder, Hitler and Scarface, wear metal-studded collars concealing crack and cocaine and the day's proceeds. They are equally visible on Chicago's West and South sides, where teenage boys have taken to brandishing their fierce pit bulls just as they would a switchblade or a gun.⁹

The media frenzy against the pit bull had begun, and the labels 'dangerous' and 'vicious' were attached to dogs based on their breed, rather than their behavior.¹⁰ It became instinctive to fear the pit bull by breed name alone, even for people who had never met one (perhaps even more so for people who had never met one). The moment ushered in an era of breed-specific legislation (BSL), passed in communities across the country (and abroad) that banned or severely restricted

87JB-FDH3] (accessed Nov. 25, 2015)). 'Pit bulls' are not a breed of dog, but rather a type of dog. While different people, organizations and lawmaking bodies define the term differently, in general, breeds that qualify as pit bulls are the American Staffordshire terrier, the American pit bull terrier, Staffordshire bull terrier, bull terrier, American bulldog, English bulldog and any mixes or look-alikes. *Id.* at xvi.

⁴ David Brand, *Time Bombs on Legs: Violence-Prone Owners are Turning Pit Bulls into Killers*, *TIME* (July 27, 1987) (available at <http://content.time.com/time/magazine/article/0,9171,965065,00.html> (accessed Nov. 25, 2015)); Michelle Green, *An Instinct for the Kill*, *PEOPLE MAG.* (July 6, 1987) (available at <http://www.people.com/people/archive/article/0,,20096665,00.html> (accessed Nov. 25, 2015)); Mike Sager, *A Boy and His Dog in Hell*, *ROLLING STONE* (July 2, 1987) reprinted in MIKE SAGER, *WOUNDED WARRIORS: THOSE FOR WHOM THE WAR NEVER ENDS* 106–07, 110–11 (2008); E.M. Swift, *Beware of This Dog*, *SPORTS ILLUSTRATED* (July 27, 1987) (available at <http://www.si.com/vault/1987/07/27/115813/the-pit-bull-friend-and-killer-is-the-pit-bull-a-fine-animal-as-its-ad-mirrors-claim-or-is-it-a-vicious-dog-unfit-for-society> [<http://perma.cc/5P8E-UM7J>] (accessed Nov. 25, 2015)).

⁵ Swift, *supra* note 4.

⁶ *Id.*

⁷ *Id.*

⁸ *Id.*

⁹ Brand, *supra* note 4.

¹⁰ See DELISE, *supra* note 3, at 80, 95–99.

ownership of certain dog breeds and dog breed types.¹¹ While pit bulls were the initial primary targets, other breeds were soon subsumed under the BSL umbrella.¹² The month of July 1987 sealed the fate of the pit bull in popular imagination and fueled thirty years of BSL.

When such laws were first passed, there was debate over their efficacy, as well as their constitutionality.¹³ While, in general, the constitutionality of BSL has been upheld, the debate over efficacy rages on in legislatures, councils, and the court of public opinion.¹⁴ Significant scientific data now support the argument that breed plays little, if any, role in determining aggression in dogs, and other factors are far more predictive.¹⁵ Further bolstering this finding are the studies that have

¹¹ *E.g.*, *id.* at 103 (noting that Denver passed breed-specific legislation in 1989). See *Breed-Specific Legislation: Dealing with Reckless Owners and Dangerous Dogs in Your Community*, THE AM. SOC'Y FOR THE PREVENTION OF CRUELTY TO ANIMALS, <https://www.aspc.org/fight-cruelty/dog-fighting/breed-specific-legislation> [<http://perma.cc/9RFA-FQWL>] (accessed Nov. 25, 2015) (defining breed-specific legislation).

¹² The National Canine Research Council found that various communities in the U.S. have included one or (usually) more of the following breeds and mixes of these breeds in BSL ordinances: "Akita, 'Alapaha Blue Blood Bulldogs,' Alaskan Malamute, 'American Bandogge,' American Bulldog, American Staffordshire Terrier, American Pit Bull Terrier, Belgian Malinois, Bullmastiff, Bull Terrier, Cane Corso, Chihuahua, Chow Chow, Dalmatian, Doberman Pinscher, Dogo Argentino, 'Fila Brasileiro,' German Shepherd Dog, Miniature Bull Terrier, Neapolitan Mastiff, 'Pit bull,' . . . Perro de Presa Canario, Rottweiler, Shar Pei, Siberian Husky, Staffordshire Bull Terrier, 'Tosa Inu,' and wolf-hybrids." *Breed-Specific Legislation (BSL) FAQ*, NATIONAL CANINE RESEARCH COUNCIL, <http://nationalcanineresearchcouncil.com/dog-legislation/breed-specific-legislation-bsl-faq/#sthash.VHk75jIy.dpuf> [<http://perma.cc/DWU4-7R6D>] (updated Aug. 11, 2014) (accessed Nov. 25, 2015). Italy, which in 2009 repealed its BSL in favor of breed-neutral policies, once had ninety-two different breeds on its list of banned and restricted dogs. *Italy Repeals Ban on Specific Breeds*, KC DOG BLOG [hereinafter *Italy Repeals Ban*], <http://btoellner.typepad.com/kcdogblog/2009/03/italy-repeals-ban-on-specific-breeds.html> [<http://perma.cc/7EB6-LWMP>] (March 17, 2009, 9:27 AM) (accessed Nov. 25, 2015); Corey Van't Haaff, *What Would You Do if Your City Banned Your Dog Breed?*, MODERN DOG MAG. (available at <http://moderndogmagazine.com/articles/what-would-you-do-if-your-city-banned-your-dog-s-breed/35623>) [<https://perma.cc/7QH5-WE9D>] (accessed Nov. 25, 2015)).

¹³ See, *e.g.*, Lynn Marmer, Comment, *The New Breed of Municipal Dog Control Laws: Are They Constitutional?*, 53 U. CIN. L. REV. 1067 (1984) (arguing BSL is an invalid exercise of police power because it unconstitutionally infringes upon the due process and equal protection rights of dog owners).

¹⁴ *Compare Stop BSL*, STOPBSL, stopbsl.org (accessed Nov. 25, 2015) (advocating against BSL and championing government actions to move away from this type of legislation) with *2015 First Quarter Report: Municipalities and Grassroots Beat Back State Preemption Bills Barring Local Pit Bull Ordinances*, DOGSBITE.ORG, <http://blog.dogsbite.org/2015/04/first-quarter-report-municipalities-grassroots-beat-back-state-preemption.html> [<http://perma.cc/ZMF3-FA9T>] (accessed Nov. 25, 2015) (asserting that communities are fighting back against attacks on BSL, which, according to the website, supports public safety).

¹⁵ Gary J. Patronek et al., *Co-occurrence of Potentially Preventable Factors in 256 Dog Bite-Related Fatalities in the United States (2000–2009)*, 243 J. AM. VETERINARY MED. ASS'N 1726, 1728 (2013) (criticizing "undue emphasis on breed" and finding factors such as isolation and abuse by owners to be among the most determinative). See also Safia Gray Hussain, Note, *Attacking the Dog-Bite Epidemic: Why Breed-Specific Legislation Won't Solve the Dangerous-Dog Dilemma*, 74 FORDHAM L. REV. 2847, 2850 (2006)

shown no reduction in dog bites or injuries as a result of BSL.¹⁶ But, despite such data and the voices of veterinarians, scientists, animal behaviorists, and others, BSL continues to be the default response when a community perceives a dog-bite problem.¹⁷

In recent years the public's perception of pit bulls has somewhat improved.¹⁸ Fast forward twenty-plus years from 1987 to December of 2008, and *Sports Illustrated* again dedicated its cover story to pit bulls,¹⁹ but this time the cover showed a polite-looking, fawn-colored pit bull with a pink nose, peering curiously and compliantly at the

("There are three recurring commonalities in dog attacks. First, most dog bites occur in the home or another familiar place, with the vast majority of biting dogs belonging to the victim's family or friend. Second, most attacks are perpetrated by unaltered males. Finally, dogs contained or otherwise restrained on the owner's property are responsible for more serious and fatal attacks than those roaming at large.").

¹⁶ E.g., Stephen Collier, *Breed-Specific Legislation and the Pit Bull Terrier: Are the Laws Justified?*, 1 J. VETERINARY BEHAV. 17, 21 (2006) (finding BSL showed no influence on the rate of dog bites in the jurisdiction); Malathi Raghavan et al., *Effectiveness of Breed-Specific Legislation in Decreasing the Incidence of Dog-Bite Injury Hospitalisations in People in the Canadian Province of Manitoba*, INJ. PREVENTION 177, 179 (Aug. 1, 2012) (available at <http://injuryprevention.bmj.com/content/early/2012/06/29/injuryprev-2012-040389.full.pdfhtml> [<http://perma.cc/969H-BTCU>] (accessed Nov. 25, 2015)) (showing no significant change in dog-bite hospitalizations from pre-BSL to post-BSL time frames in BSL jurisdictions); Belén Rosado et al., *Spanish Dangerous Animals Act: Effect on the Epidemiology of Dog Bites*, 2 J. VETERINARY BEHAV. 166, 169, 170 (2007) (concluding BSL had no effect on rate of dog bites following enactment).

¹⁷ See *First Quarter Report: Municipalities and Grassroots Prevail Against State Preemption Bills Barring Local Breed-Specific Ordinances*, DOGSBITE.ORG, <http://www.dogsbite.org/dogsbite-newsroom-2015-first-quarter-report-state-preemption-laws.php> [<http://perma.cc/5QHC-JWK6>] (April 20, 2015) (accessed Nov. 25, 2015) (noting that, as of April 2015, 860 jurisdictions retain forms of BSL despite trends in preemption at the state level); Medlin, *infra* note 86 (discussing a Cincinnati ordinance originally enacted in response to an incident of a dog biting a child); *Debate Widens on Plans to Restrict Pit Bull Dogs*, *infra* note 87 (discussing a Tijeras, New Mexico ordinance originally enacted in response to a local incident of a dog biting a child); Bill Tieleman, *Time to Ban Pit Bulls in B.C.*, 24 HOURS VANCOUVER, <http://vancouver.24hrs.ca/2015/01/05/time-to-ban-pit-bulls-in-bc> (Jan. 5, 2015, 2:49 PM) [<http://perma.cc/3H6Q-HQ6X>] (accessed Nov. 25, 2015) (editorial calling for pit bull ban in British Columbia, citing three dog attacks). Many communities enacted BSL in the past three decades in response to perceived risks to public safety, amplified by particular incidents of injuries caused by dogs. Many of these laws remain in effect, while proponents continue to call for legislation in jurisdictions not yet affected, typically after publicized incidents of attack.

¹⁸ See Emily Swanson, *There's Still a Lot of Work to be Done for Pit Bulls, Poll Finds*, HUFFINGTON POST, http://www.huffingtonpost.com/2014/07/29/pit-bulls-poll_n_5628261.html [<http://perma.cc/P2ZW-UWFK>] (July 31, 2014) (accessed Nov. 25, 2015) ("While two-thirds of Americans over age 45 said they would advise a family with kids against adopting a pit bull, only one-third of those under 45 said the same. And while more than half of people over age 45 said that pit bulls are too dangerous to live in residential neighborhoods, those younger than age 45 were much more likely to say that pit bulls are safe.").

¹⁹ Jim Gorant, *What Happened to Michael Vick's Dogs*, SPORTS ILLUSTRATED (Dec. 23, 2008) (available at <http://www.si.com/more-sports/2008/12/23/vick-dogs> [<http://perma.cc/TS7R-P659>] (accessed Nov. 25, 2015)) (acknowledging the magazine's role in fueling the pit bull frenzy in 1987).

camera.²⁰ The story inside matched the sympathetic cover photo, detailing the fate of the pit bulls owned by NFL quarterback Michael Vick, who had plead guilty to dogfighting-related charges in federal court.²¹ Of the fifty-one dogs seized from Vick, animal rescue groups saved forty-seven.²² While some, scarred by their experiences with Vick, would remain permanently in an animal sanctuary with professional handlers, the majority of the forty-seven dogs would go on to loving homes.²³ *Sports Illustrated* detailed the new lives of several dogs, and gone were the descriptions of shark-like bite strength and ‘unprovoked’ aggression.²⁴ The new ‘poster dogs’ for the pit bull were Sweet Jasmine, as sweet as her name suggested, but still too scared to meet new people; happy Zippy, who ran around the house and played endlessly with her foster mom’s two daughters; and Jonny Justice, who loved kids so much that he was enrolled in the Paws for Tales program, in which kids who get nervous reading aloud could practice in front of a canine rather than a human.²⁵ Leo, too, was mentioned; he is a certified therapy dog, spending “two to three hours a week visiting cancer patients and troubled teens.”²⁶

Despite rehabilitated images of pit bulls in the media, the emerging scientific data that show breed is a bad predictor of aggression in dogs,²⁷ and the current data that show BSL is ineffective and a poor use of government resources,²⁸ communities across the country continue to recycle the sound bites and questionable statistics from 1987²⁹ and pass BSL to solve their perceived dog-bite problems. It seems, despite all the contrary evidence, we cannot un-ring the BSL bell.³⁰ And

²⁰ *Id.*

²¹ *Id.*

²² *Id.* Rebecca Huss, Professor of Law at Valparaiso University School of Law, was appointed guardian and special master of the dogs seized from Vick, and was instrumental in securing such placements. *Id.*

²³ *Id.*

²⁴ *See id.* (describing the pit bulls profiled as vulnerable and affectionate).

²⁵ Gorant, *supra* note 19.

²⁶ *Id.*

²⁷ Collier, *supra* note 16, at 21. *See also* Jessica M.R. Cornelissen & Hans Hopster, *Dog Bites in the Netherlands: A Study of Victims, Injuries, Circumstances and Aggressors to Support Evaluation of Breed-Specific Legislation*, 186 *VETERINARY J.* 292, 297 (2010) (“[T]he view that aggressive potential is linked to dog breed is a point of serious concern as a dog’s tendency to bite or show aggressive behaviour depends on more than just genetics, and other factors such as heredity, experience, socialisation and training, health, and victim behaviour all play a role.” (citation omitted)).

²⁸ *See* Cornelissen & Hopster, *supra* note 27, at 293, 297 (discussing a study commissioned by the government in which the researchers advised against BSL and instead advocated for efforts to educate humans on dog behavior).

²⁹ To put the age of 1987 sound bites into perspective, Guns N’ Roses’ *Appetite for Destruction* was released in August of that year, and pro hockey player Sidney Crosby was not born until August 7, 1987. GUNS N’ ROSES, *Appetite for Destruction* (Geffen Records 1987); *Sidney Crosby Stats*, NHL, <http://www.nhl.com/ice/player.htm?id=8471675> [<http://perma.cc/NUK3-J2Z5>] (accessed Nov. 25, 2015).

³⁰ *See, e.g.*, Charlotte Alter, *The Problem with Pit Bulls*, *TIME* (June 20, 2014) (available at <http://time.com/2891180/kfc-and-the-pit-bull-attack-of-a-little-girl/> [<http://per>

that problem is as much a problem with human behavior as it is with canine behavior.³¹

This Article will explore the behavioral psychology and emerging neuroscience of both canines and humans to explain why the public and its government representatives continue to pass BSL, despite scientific evidence that breed is largely irrelevant to the dog bite problem, and more rational alternatives are available. The purpose of this Article is to inform lawmakers about the scientific evidence available concerning BSL, as well as to encourage them toward introspective consideration of their own decision-making processes, to determine whether such processes as applied to BSL are rational, or whether they are based on irrational fear and public pressure.

In Part II, this Article explores the general background and history of breed-based canine biases, including media reporting and legal history, culminating in the current state of BSL today. Part III surveys the current scientific literature on canine behavior and dog-bite epidemiology to determine the efficacy of BSL. Part IV then explores how the recent mapping of the canine genome and DNA testing have shown significant errors in human perception of breed identification, further undermining any remaining foundation for BSL as it currently exists. After this review of the science of dogs, Part V will consider the human cognitive psychological basis for our society's apparent obsessive fear of certain types of dogs, despite the fact that dogs are typically a relatively minor risk to most people. Additionally, Part V will illustrate how fear responses ignited and continue to fuel BSL, despite mounting evidence against its efficacy. Finally, in Part VI, this Article will consider how governments should approach the complex problem of severe, non-fatal, and fatal dog bites, based on the above observations. It will also consider specific policy alternatives to BSL that are both rational and targeted to allay societal fear and curb dog-bite problems in select communities.

II. HISTORY OF BREED BIAS AND BSL

A. *Vicious Cycle: Breed Prejudices 1850–1980*

Imagine yourself a contestant on *Jeopardy*. You choose the category of 'Dangerous Dogs' for a thousand. The host, Alex Trebek, reads the following clue: "Described in varied accounts as 'frenzied,'³² 'des-

ma.cc/79SD-WGA9] (accessed Nov. 25, 2015)) (discussing that, as recently as June 2014, *Time* magazine again repeated many of the clichés it relied on three decades before).

³¹ See *infra* Part V.

³² *Spitz Dog Bites Two Boys*, N.Y. TIMES (June 13, 1896) (available at <http://query.nytimes.com/mem/archive-free/pdf?res=9E02E4D61138E533A65750C1A9609C94679ED7CF> (accessed Nov. 25, 2015)).

perate,³³ ‘wild-eyed,’³⁴ and ‘thoroughly and irredeemably corrupt,’³⁵ an editorial in the *New York Times* called for the extermination of this canine breed.³⁶ What is your likely response? “What is pit bull?” “What is Rottweiler?” Perhaps, “What is Doberman pinscher?” No matter which of these responses you choose, you would find yourself a thousand dollars in the negative.

The clue actually described the spitz: a small, mixed-breed dog related to the Pomeranian and the Samoyed.³⁷ In the later part of the nineteenth century, the media blamed the spitz for the rabies infection in New York City and surrounding locations, claiming it was the primary source of the infection.³⁸ The *New York Times* editorial suggested that the spitz was responsible “directly or indirectly” for three-quarters of the rabies deaths in and around the city.³⁹ The spitz was thought to be more susceptible to rabies infection because, as an “Arctic animal,”⁴⁰ it was ill-suited to reside in a temperate climate.⁴¹ Another *New York Times* op-ed went so far as to claim that “it is safe to say that if there had been no Spitz dogs in New-York during the last three years, there would have been . . . not more than two cases of [rabies].”⁴²

The hysteria over the dangerousness of these dogs led to newspaper articles sensationalizing events involving spitz dogs. One such article described a stray spitz running through a crowd in Madison Square causing a state of panic.⁴³ Even though the dog neither bit nor chased a single person, he was eventually shot and killed by a policeman on the scene for the crime of being a spitz.⁴⁴

One can only guess at the original sources of these widespread beliefs. Perhaps a well-publicized instance of rabies came from a bite

³³ *Miss Seigenthaler's Spitz Dog*, N.Y. TIMES (Sept. 3, 1882) (available at <http://query.nytimes.com/mem/archive-free/pdf?res=9C05EFDC163AEF33A25750C0A96F9C94639FD7CF> (accessed Nov. 25, 2015)).

³⁴ *A Fright in Madison-Square: A Spitz Dog's Mad Career Stopped by a Policeman's Bullet*, N.Y. TIMES (May 4, 1885) [hereinafter *A Fright in Madison-Square*] (available at <http://query.nytimes.com/mem/archive-free/pdf?res=9907EED6163AEF33A25757C0A9639C94649FD7CF> (accessed Nov. 25, 2015)).

³⁵ Op-Ed., *A Whited Canine Sepulchre*, N.Y. TIMES (May 24, 1876) [hereinafter *A Whited Canine*] (available at <http://query.nytimes.com/mem/archive-free/pdf?res=9F04E0DE1F3FE73BBC4C51DFB366838D669FDE> (accessed Nov. 25, 2015)).

³⁶ *Id.*

³⁷ *Spitz Definition*, ENCYCLOPÆDIA BRITANNICA, <http://www.britannica.com/EBchecked/topic/560582/spitz#> [<http://perma.cc/WSB9-833T>] (updated Jan. 28, 2013) (accessed Nov. 25, 2015).

³⁸ *A Whited Canine*, *supra* note 35.

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *See id.* (describing the spitz as “wear[ing] throughout our hottest months the heavy fur of an Arctic animal”).

⁴² Editorial, *A Venomous Beast*, N.Y. TIMES (Nov. 17, 1876) (available at <http://query.nytimes.com/mem/archive-free/pdf?res=9D05EFD6123AE63BBC4F52DFB767838D669FDE> (accessed Nov. 25, 2015)).

⁴³ *A Fright in Madison-Square*, *supra* note 34.

⁴⁴ *Id.*

from a spitz dog? Certainly the articles hinted at an increased population of the spitz, logically leading to more bites and other incidents related to the breed type.⁴⁵ Some pseudoscience was likely offered to link the “Arctic” dog with greater susceptibility to rabies.⁴⁶ There was a general belief among the public that heat caused rabies, and “foaming at the mouth” was considered an obvious sign of rabies.⁴⁷ However, thirst can also be a source of foaming at the mouth, and thirst is more common in summer and in dogs with thicker coats.⁴⁸ The Pasteur Institute, the leading non-profit organization educating the public on the spread of disease since the late nineteenth century, attempted to educate people about the reality of rabies, but the belief of the dangerousness of the spitz continued on in the minds of the populous for decades.⁴⁹

The spitz was by no means the only type of dog vilified in the late nineteenth century as ‘dangerous.’ Bloodhounds were equally scorned.⁵⁰ Bloodhounds were accused of viciousness rather than susceptibility to rabies, but the result was the same—prejudice against the breeds and sensationalized news reports.⁵¹

The source of the bloodhound’s vicious reputation is a bit clearer. It is a story of art imitating life, and life, in turn, imitating art. While modern readers picture a long-eared, droopy-eyed dog at the mention of ‘bloodhound,’ in the nineteenth century the term bloodhound was used to refer to a number of types of scent-hounds trained to track humans.⁵² Types of bloodhounds were utilized prior to the Civil War to hunt escaped slaves.⁵³ They also became popular ‘protection’ or ‘guard

⁴⁵ *A Whited Canine*, *supra* note 35.

⁴⁶ *Id.*

⁴⁷ *Pasteur Physician on Foolish Notions*, N.Y. TIMES (July 13, 1908) [hereinafter *Pasteur Physician*] (available at <http://query.nytimes.com/mem/archive-free/pdf?res=9500E2D81639E333A25750C1A9619C946997D6CF> (accessed Nov. 25, 2015)). The idiom ‘dog days of summer’ originated from Greek, Roman, and Egyptian tradition. It is the period of time during the year, usually late July to late August, when Sirius, the ‘Dog Star,’ rises with the sun in the northern hemisphere and was believed to add to the heat of the sun. The phrase is also connected with the belief that dogs were more prone to ‘go mad’ in the hot summer months. *Dog days Definition*, ENCYCLOPÆDIA BRITANNICA, <http://www.britannica.com/EBchecked/topic/167872/dog-days> [http://perma.cc/9TML-TX3G] (accessed Nov. 25, 2015).

⁴⁸ *Pasteur Physician*, *supra* note 47.

⁴⁹ *See id.* (describing a physician’s remarks in 1908, which addressed the same misconceptions reflected in articles from the previous few decades). Dr. George G. Rambaud of the Pasteur Institute in New York City attempted to correct misinformation spread about rabies and rabid dogs. Addressing the myths that dogs are more prone to rabies in the summer and in the city he commented: “Dogs and cats never go mad for any reason than that they have been bitten by some other animal that has rabies.” *Id.*

⁵⁰ *See* DELISE, *supra* note 3, at 9, 21–22.

⁵¹ *Id.*

⁵² *Id.*

⁵³ *Id.* at 24 (quoting Frederick Douglass, *The Horrors of Slavery and England’s Duty to Free the Bondsman: An Address Delivered in Taunton, England, on Sept. 1, 1846*, SOMERSET COUNTY GAZETTE (Sept. 5, 1846) [hereinafter *Horrors of Slavery*] (available

dog' breeds in the same time period.⁵⁴ Literature such as *Uncle Tom's Cabin*,⁵⁵ and *The Hound of the Baskervilles*,⁵⁶ as well as their popular culture derivatives,⁵⁷ further painted a picture of bloodthirsty bloodhounds as man-trackers who hunt their prey relentlessly. Bloodhounds during this time period included not only English or St. Hubert's bloodhounds (our modern version of a bloodhound);⁵⁸ they also included so-called Cuban or Siberian bloodhounds, whose origins are less clear and who were perhaps no more than mixed breeds used for the purpose of tracking people.⁵⁹ Cuban bloodhounds are most com-

at <http://glc.yale.edu/horrors-slavery-and-englands-duty-free-bondsman> [<http://perma.cc/DKP7-UHEG>] (accessed Nov. 25, 2015)).

⁵⁴ *Id.* at 3.

⁵⁵ HARRIET BEECHER STOWE, *UNCLE TOM'S CABIN* (Christopher G. Diller ed., Broadview Press 2009) (1852). One of the most famous scenes of Harriet Beecher Stowe's novel, *Uncle Tom's Cabin*, revolved around the heroine, Eliza, scrambling across an icy Ohio river with her baby in tow, escaping the slave trader. *Id.* at 96. In the following chapter the slave trader hires a slave hunter to track Eliza. *Id.* at 114–15. In discussing his dogs, the slave hunter describes their ferocity. "Our dogs tore a feller half to pieces, once, down in Mobile, 'fore we could get 'em off." *Id.* at 116.

⁵⁶ SIR ARTHUR CONAN DOYLE, *THE HOUND OF THE BASKERVILLES* (Signet Classics 1967) (1902). The most vivid description of a vicious hound likely came from the pen of Sir Arthur Conan Doyle:

"A hound it was, an enormous coal-black hound, but not such a hound as mortal eyes have ever seen. Fire burst from its open mouth, its eyes glowed with a smouldering glare, its muzzle and hackles and dewlap were outlined in flickering flame. Never in the delirious dream of a disordered brain could anything more savage, more appalling, more hellish, be conceived than that dark form and savage face which broke upon us out of the wall of fog." *Id.* at 161.

⁵⁷ J. Frank Davis, *Tom Shows*, *SCRIBNER'S MAG.* (Apr., 1925) (available at <http://utc.iath.virginia.edu/onstage/revus/osar42at.html> [<http://perma.cc/UM79-KD5Y>] (accessed September 9, 2015)). Performances of *Uncle Tom's Cabin* during the later half of the nineteenth century often promised 'real' bloodhounds but they were not generally English Bloodhounds. In describing the necessity of real dogs in stage productions of *Uncle Tom's Cabin*, journalist J. Frank Davis, in his article *Tom Shows*, illustrates both use of the dogs for dramatic effect, and the rather fluid definition of 'bloodhound' in the American psyche: "It was a poor show that carried no dogs. It ought to have a donkey for Marks to ride, but that animal's absence could be overlooked. Failure to provide at least two dogs, however, was the unforgivable sin. It is a tradition in the profession that once upon a time a Tom impresario, desirous of doing something truly great, sent down into the South somewhere and bought some real bloodhounds. He had them in the street parade and the performance exactly one day. Northerners were unfamiliar with the low-lying, sad-faced, lop-eared dogs of the true breed—and nobody except Northerners ever saw 'Uncle Tom's Cabin.' The public jeered his canine exhibit off the street and off the stage. Having brains, he wasted no time trying to convince them he was right and they were wrong, but promptly got rid of the harmless-looking animals that were the real thing and went back to the kind of bloodhounds his audiences expected—big, ugly-looking mastiffs. Not all Tom dogs were mastiffs. If they were 'Siberian' bloodhounds they were Great Danes. A full-grown Great Dane is an impressive figure, and he has a deep, soul-satisfying voice. Two or three Great Danes, well trained to chase Eliza, were the salvation of many a Tom Show." *Id.*

⁵⁸ DELISE, *supra* note 3, at 25.

⁵⁹ *Id.* at 21.

monly believed to be mixes of mastiffs and pointers,⁶⁰ while Siberian bloodhounds have been connected to and are possibly synonymous with Great Danes.⁶¹ The terms ‘Cuban’ and ‘Siberian’ bloodhound have fallen out of favor, but their descendants are likely our pets.

Between 1855 and 1910, a review of newspapers from a ten-state area revealed at least thirty-eight severe and fatal attacks by bloodhounds.⁶² However, it is impossible to determine what types of ‘bloodhounds’ were involved in these incidents, or if they were even actually bloodhounds at all. While newspaper articles occasionally specified that the offending animal was a Cuban or Siberian bloodhound,⁶³ such identification did not occur in all instances.⁶⁴

How did the bloodhound reputation first arise? What made Harriet Beecher Stowe use the imagery of the bloodhound in her novel? Most likely, it came from the stories of escaped slaves and the dogs used to track runaways in the South.⁶⁵ Anecdotal evidence establishes that slaveholders did train certain large-breed dogs to track runaways, and no matter their actual breed, they were called bloodhounds.⁶⁶ Former slave and prominent abolitionist orator, Frederick Douglass, recounted one example of the training methods used on these dogs:

Slaves frequently escape from bondage, and live in the woods. Sometimes they are absent eight or nine months without being discovered. They are hunted with dogs, kept for the purpose, and regularly trained. Enmity is instilled into the blood-hounds by these means: A master causes a slave to tie up the dog and beat it unmercifully. He then sends the slave away and

⁶⁰ See DELISE, *supra* note 3, at 22 (quoting *Bloodhound Definition*, WEBSTER’S REVISED UNABRIDGED DICTIONARY (1913) (discussing an article from 1891 stating that the Cuban Bloodhound is a mastiff–pointer mix, while a 1913 dictionary defines ‘bloodhound’ as “[a] breed of large and powerful dogs, with long, smooth, and pendulous ears, and remarkable for acuteness of smell. It is employed to recover game or prey which has escaped wounded from a hunter, and for tracking criminals. Formerly it was used for pursuing runaway slaves. Other varieties of dog are often used for the same purpose and go by the same name. The Cuban bloodhound is said to be a variety of the mastiff.”).

⁶¹ STOWE, *supra* note 55, at 33.

⁶² DELISE, *supra* note 3, at 21.

⁶³ *Id.* No media article specifically named an English, St. Hubert’s, or true bloodhound, although there is mention of a \$500 bloodhound, which at least suggests it was purchased as a purebred. See DELISE, *supra* note 3, at 28–31.

⁶⁴ DELISE, *supra* note 3, at 56.

⁶⁵ *E.g.*, SOLOMON NORTHUP, TWELVE YEARS A SLAVE (Sue Eakin & Joseph Logsdon eds., La. State Univ. Press 1968) (1853). Narratives of former slaves often included mention of the dogs sent to chase them in any attempted escape, including the following from Solomon Northup: “I stood upon the fence until the dogs had reached the cotton press. In an instant more, their long, savage yells announced they were on my track. Leaping down from my position, I ran towards the swamp. Fear gave me strength, and I exerted it to the utmost. Every few moments I could hear the yelpings of the dogs. They were gaining upon me. Every howl was nearer and nearer. Each moment I expected they would spring upon my back—expected to feel their long teeth sinking into my flesh. There were so many of them, I knew they would tear me to pieces, that they would worry me, at once, to death.” *Id.* at 101–02.

⁶⁶ *Id.* at 101 (“The dogs used . . . for hunting slaves are a kind of blood-hound, but a far more savage breed than is found in the Northern States.”).

bids him climb a tree; after which he unties the dog, puts him upon the track of the man and encourages him to pursue it until he discovers the slave. Sometimes, in hunting negroes, if the owners are not present to call off the dogs, the slaves are torn in pieces⁶⁷

With such training methods, vicious attacks by these dogs seem completely logical.⁶⁸ Slaveholders likely bred for aggressiveness in their bloodhounds (no matter the breed or mixture of breeds) and encouraged aggressiveness towards humans, especially slaves.⁶⁹

Art then imitated the true-life stories of these slave-hunting dogs, and the imagery of Stowe's *Uncle Tom's Cabin*, followed by the various stage productions, produced a general belief in the viciousness of bloodhounds among the populous.⁷⁰ After the Civil War, these bloodhounds were sought by people looking for guard and protection dogs because of their reputation for viciousness.⁷¹ The breeding and training cycle continued, solidifying the public belief that this 'breed' of dog was vicious.⁷² The reputation not only followed Cuban and Siberian bloodhounds, but also our modern English bloodhounds.⁷³ Such was the prejudice against bloodhounds that aficionados of the St. Hubert's (English) bloodhound breed wrote editorials and articles defending the gentleness and good nature of the English bloodhound.⁷⁴

Throughout the nineteenth and twentieth centuries, a parade of dog breeds have vied for the title of most 'vicious' or 'dangerous.' During the mid- to late 1800s, the bloodhound, Newfoundland, and mastiff had the worst reputations.⁷⁵ In the early twentieth century, the collie and the Saint Bernard⁷⁶ were vilified.⁷⁷ By the 1920s the German shepherd dog had begun to get a bad reputation until its use as a police dog overcame the initial prejudice, but by World War II, the Doberman pinscher, often pictured with Nazi henchman, solidified its place as public enemy number one.⁷⁸ It was not until the 1980s that the pit

⁶⁷ DELISE, *supra* note 3, at 24 (quoting Douglass, *supra* note 53).

⁶⁸ DELISE, *supra* note 3, at 24.

⁶⁹ *Id.* at 22, 24.

⁷⁰ *Id.* at 28–29.

⁷¹ *See id.* at 28, 31 (noting that in the late nineteenth century, some owners sought bloodhounds precisely for their negative reputation).

⁷² *See id.* at 31 ("Poor and abusive owners" sought bloodhounds, and therefore these bloodhounds were poorly socialized dogs who may have lived up to their reputation for viciousness.).

⁷³ *Id.* at 22–26.

⁷⁴ *E.g.*, Editorial, *A Bloodhound as He Is—A Shattering of False Ideas About Him*, N.Y. TIMES (July 1, 1906) (available at <http://query.nytimes.com/mem/archive-free/pdf?res=9B07EFDD143EE733A25752C0A9619C946797D6CF> (accessed Nov. 25, 2015)).

⁷⁵ *See* DELISE, *supra* note 3, at 72.

⁷⁶ *Dog Cripples Boy for Life*, N.Y. TIMES (May 21, 1904) (available at <http://query.nytimes.com/mem/archive-free/pdf?res=9F03EFDA1E3BE631A25752C2A9639C946597D6CF> (accessed Nov. 25, 2015)).

⁷⁷ DELISE, *supra* note 3, at 48–49.

⁷⁸ *Id.* at 81.

bull, and to a somewhat lesser extent, the Rottweiler, became the new ‘most dangerous’ breeds.⁷⁹

Today, we are tempted to laugh at the nineteenth century urban legends that longhaired spitz dogs were more susceptible to rabies because of their coats, or that the long-eared, sad-eyed bloodhounds were particularly vicious. We give no heed to the thought that the Saint Bernard or Doberman is a crazed killer. But these stories are instructive of the cycle of breed bias, the same cycle that contributed to the most popular current breed bias against so called ‘pit bulls’ and ‘pit bull-type’ dogs, along with Rottweilers, and to a lesser extent, a handful of other breeds.

The cycle usually begins with an increase in the number of representatives of the breed in society, and is followed by several incidents of injury to humans attributed to the breed.⁸⁰ Fear takes hold of the community, often including the spread, via media or word-of-mouth, of rumors, urban legends, or even unfounded pseudoscience (such as the susceptibility of “Arctic animal[s]” to rabies).⁸¹ The media’s hype ironically advertises the breed, making it both more popular (especially with those persons seeking an aggressive or ‘tough’ dog) and more widely known to the general public.⁸² This popularity makes the breed more susceptible to owners who will seek to increase aggression in the breed,⁸³ and it makes the breed more prone to misidentification by the general public.⁸⁴ It is only recently, since the mid-1980s, that this cycle has led communities to pass breed-specific laws, banning or severely curtailing the ownership of certain dog breeds.⁸⁵

B. *The Pit Bull Problem: Breed Bias 1980–Today*

It is believed that the very first breed-specific ordinance in the U.S. was passed restricting ownership of pit bulls by the Cincinnati City Council in 1983, following the death of an 11-year-old boy, who

⁷⁹ *Dangerous Dogs*, DOGSBITE.ORG, <http://www.dogsbite.org/dangerous-dogs.php> [<http://perma.cc/VKS3-J84F>] (accessed Nov. 25, 2015). The pro-BSL website, dogsbite.org, names pit bulls, Rottweilers, and wolf hybrids as the most dangerous dogs and campaigns strongly for BSL measures against them.

⁸⁰ See generally DELISE, *supra* note 3, at 36, 51 (explaining this phenomenon for the Newfoundland and St. Bernard breeds).

⁸¹ See *A Whited Canine*, *supra* note 35 (“It is not charged that the Spitz wantonly or malignantly becomes mad, and it is quite possible that his proneness to *rabies* is the result of his attempt to live in a climate unsuited to him.”).

⁸² See Beth Shuster, *New Rep as Killer Drives Up Demand for Presa Canario*, L.A. TIMES (Mar. 17, 2002) (available at <http://articles.latimes.com/2002/mar/17/news/mn-33268> [<http://perma.cc/4XKB-W3EZ>] (accessed Nov. 25, 2015)) (“As the mauling trial of two San Francisco lawyers nears its conclusion, breeders of the type of vicious dogs that killed lacrosse coach Diane Whipple are caught in a paradox. Business has never been better—but for all the wrong reasons.”).

⁸³ DELISE, *supra* note 3, at 31, 35. See *id.* at 86 (“An increase in a breed’s negative image or reputation for aggression unfailingly leads to an increase in the number of substandard owners.”).

⁸⁴ See *infra* Part IV for discussion of misidentification of breeds.

⁸⁵ See *infra* notes 86–88 and accompanying text.

was killed by his parents' two dogs.⁸⁶ Tijeras, New Mexico followed with a pit bull ban in 1984, as a result of a severe non-fatal attack on a 9-year-old by four dogs who were owned by a relative of the girl.⁸⁷ In 1985, approximately thirty communities were considering some sort of ordinance restricting pit bulls.⁸⁸

July of 1987 was a rather bad month for pit bulls and dogs that looked like pit bulls. Ohio enacted legislation to statutorily categorize pit bulls as per se "vicious dogs" and to restrict ownership of them.⁸⁹ Throughout the month, numerous local and national media sources ran stories about these dogs, and the headlines alone were the stuff of nightmares: *Boy and His Dog in Hell* (*Rolling Stone*),⁹⁰ *An Instinct for the Kill* (*People*),⁹¹ *Beware of This Dog* (*Sports Illustrated*),⁹² *Time Bombs on Legs* (*Time*).⁹³ These news and magazine stories included some sensationalism and even some patently false pseudoscience that increased fear and remain the stuff of urban legend today.⁹⁴ By 1989 the large metropolitan areas of Miami-Dade County, Florida and Denver, Colorado had passed BSL.⁹⁵

The panic in the U.S. soon spread to Canada, where BSL was passed in Winnipeg, Manitoba in 1990,⁹⁶ and then overseas to the

⁸⁶ See Jamey Medlin, *Pit Bull Bans and the Human Factors Affecting Canine Behavior*, 56 DEPAUL L. REV. 1285, 1285 (2007) (pit bulls banned in 1983); Ozzie Foreman, *Banned in Cincinnati: My Dog Was Banned in Cincinnati*, DOG OWNER'S GUIDE, <http://www.canismajor.com/dog/banevg.html> [<http://perma.cc/49ZX-XQEC>] (accessed Nov. 25, 2015) (describing the incident that led to the ban).

⁸⁷ Associated Press, *Debate Widens on Plans to Restrict Pit Bull Dogs*, N.Y. TIMES (Dec. 30, 1985) [hereinafter *Debate Widens*] (available at <http://www.nytimes.com/1985/12/30/us/debate-widens-on-plans-to-restrict-pit-bull-dogs.html> (accessed Nov. 25, 2015)).

⁸⁸ *Id.*

⁸⁹ *Celeste Gets Bills to Control Vicious Dogs, Regulate Thrifts*, THE BLADE (July 1, 1987) at 5 (available at <http://news.google.com/newspapers?id=s3sUAAAAIBAJ&sjid=6wIEAAAAIBAJ&pg=7224,3993859&dq=1987+ohio%5Bpit%5Bfull+law%5Btate&hl=en> (accessed Nov. 25, 2015)).

⁹⁰ Sager, *supra* note 4.

⁹¹ Green, *supra* note 4.

⁹² Swift, *supra* note 4.

⁹³ Brand, *supra* note 4.

⁹⁴ DELISE, *supra* note 3, at 108. Some of the most outrageous myths about pit bulls are that they have a locking jaw and are impervious to pain. *Id.* at 108, 116. While pit bulls do have strong bites like other large dogs, and are tenacious, they are not super-predators. *Id.* at 108.

⁹⁵ Elinor J. Brecher, *In Miami-Dade, Pit Bulls Remain Illegal*, MIAMI HERALD (Aug. 13, 2012) (available at <http://www.miamiherald.com/2012/08/13/2951979/pit-bulls-remain-illegal-in-miami.html> [<http://perma.cc/6A6X-PUVM>] (accessed Nov. 25, 2015)); DELISE, *supra* note 3, at 102; DENVER, COLO., CODE OF ORDINANCES, PIT BULLS PROHIBITED, § 8-55 (originally enacted as Ord. No. 404-89, § 1 (July 31, 1989)); MIAMI-DADE CTY. CODE OF ORDINANCES, 5-17 *et. seq.* (originally enacted as Ord. No. 89-22 (Apr. 4, 1989)).

⁹⁶ Winnipeg Responsible Pet Ownership By-Law 92/2013 (July 17, 2013) [hereinafter *Winnipeg Responsible Pet Ownership By-Law*] (available at <http://winnipeg.ca/CLKDMIS/DocExt/ViewDoc.asp?DocumentTypeId=1&DocId=6054&DocType=O> (ac-

United Kingdom, which enacted BSL in its Dangerous Dogs Act of 1991.⁹⁷ Many other nations around the world followed suit.⁹⁸

As noted earlier, BSL did not just include a single pit bull breed. The term ‘pit bull’ or ‘pit bull-type’ usually includes several breeds, including the American pit bull terrier, the American Staffordshire terrier, the Staffordshire bull terrier, and the bull terrier.⁹⁹ In practice, it also often includes dogs with any mix of one of these breeds, or that substantially look like one of these breeds.¹⁰⁰ In addition, while BSL started with pit bull bans, it has expanded steadily to include a wide range of dog breeds, including: Rottweilers, Akitas, bullmastiffs, mastiffs, Presa Canarios, Cane Corsos, and many other breeds, depending on the location and whims of the local legislature.¹⁰¹ Generally, the one constant is the ‘pit bull,’ but almost any dog can be included in a BSL ordinance.¹⁰²

The cycle of breed bias detailed above occurred with pit bulls perhaps more than with any other dog. The intense media scrutiny in the 1980s led to increases in certain types of owners seeking out the dog for its ‘vicious’ reputation.¹⁰³ This time period saw an increased use of

cessed Nov. 25, 2015)). The Winnipeg Law was first passed in 1990 and continues to be in effect today. *Id.*

⁹⁷ Dangerous Dogs Act, 1991, 1991 c. 65, § 1, (UK) [hereinafter U.K. Dangerous Dogs Act] (available at <http://www.legislation.gov.uk/ukpga/1991/65/enacted> [<http://perma.cc/RE5M-FV3Y>] (accessed Nov. 25, 2015)).

⁹⁸ The examples of BSL worldwide are numerous. The following are just a few examples: In 1994, Victoria, Australia passed the *Domestic Animals Act 1994*, prohibiting five restricted breeds including pit bulls. *Domestic Animals Act 1994* (Vic), s 3 (AustL) [hereinafter Victoria Domestic Animals Act]. In 1999, Spain passed country-wide BSL in the form of the Spanish Dangerous Animals Act of 1999, targeting a list of eight breeds or breed types. Rosado et al., *supra* note 16, at 167. In 2000, in response to a dog-bite fatality, the government of Lower Saxony, Germany passed Niedersaechsische Gefahrtiervverordnung (GefTVO), legislation prohibiting the keeping of pit bulls and placing severe restrictions on the keeping of such large breed dogs as Rottweilers, Doberman pinschers, mastiffs and eight other named breeds. Esther Schalke, Stefanie A. Ott, Amelie M. von Gaertner, Hansjoachim Hackbarth & Angela Mittmann, *Is Breed-Specific Legislation Justified? Study of the Results of the Temperament Test of Lower Saxony*, 3 J. VETERINARY BEHAV. 97 (2008) [hereinafter Schalke et al.].

⁹⁹ See Collier, *supra* note 16, at 18 (“The term ‘pit bull’ . . . includes all the bull and terrier breeds. . .”).

¹⁰⁰ See *Breed-Specific Legislation*, ASPCA.ORG, <https://www.aspc.org/fight-cruelty/dog-fighting/breed-specific-legislation> [<http://perma.cc/285F-EN4L>] (accessed Nov. 25, 2015) (noting that regulated dogs include mixed-breeds and dogs that resemble a regulated breed).

¹⁰¹ NATIONAL CANINE RESEARCH COUNCIL, *supra* note 12.

¹⁰² See Van’t Haaff, *supra* note 12 (noting that, at one point, Italy had restricted the ownership of ninety-two different dog breeds). Italy has since repealed BSL in favor of breed-neutral measures. KC DOG BLOG, *supra* note 12.

¹⁰³ DELISE, *supra* note 3, at 96 (“Unbeknownst to the media . . . the exposure of this cruel and seedy subculture and their descriptions of the pit bull’s fierce but loyal nature would strike a chord with a segment of the human population. . . . Dogs portrayed in negative functions (fighting, guarding drug stashes, etc.) will only serve to increase their popularity with unsuitable owners . . .”). After the death of Diane Whipple at the jaws of two Presa Canarios in 2001, the breed had a sudden burst in interest and popu-

the dogs as status symbols rather than pets and an overall growth of the population of these dogs in the hands of irresponsible owners,¹⁰⁴ combined with poor controls on breeding.¹⁰⁵ These factors likely led to more bites by pit bulls, but they also led to more awareness and identification of any biting dog as being a pit bull.¹⁰⁶

C. Types of Breed-Specific Laws

1. Local Ordinances

The most common form of BSL in the U.S. is the local ordinance.¹⁰⁷ As mentioned above, Cincinnati, Ohio appears to be the modern birthplace of BSL, passing its ordinance in 1983.¹⁰⁸ The state of Ohio followed in 1987,¹⁰⁹ and by 1989 major cities across the country were passing various versions of BSL.¹¹⁰ The legislatures and city councils utilized highly publicized attacks from their own communities, or other communities, to 'prove' the danger posed by certain dog breeds, particularly pit bulls.¹¹¹

The types of ordinances passed are as numerous and varied as the communities that passed them. Some laws require registration and restrict breeding of certain breeds in the jurisdiction.¹¹² Others outright ban ownership or keeping of certain breeds,¹¹³ while others place restrictions on ownership in creative ways, such as requiring all dogs of certain breeds to be muzzled and leashed when outside, requiring certain fence heights or materials, or even requiring the tattooing of re-

larity. "They want those killer dogs," said Dan Wilson, a Presa Canario breeder in Canada. "As soon as the dog killed that woman, they wanted them." Shuster, *supra* note 82.

¹⁰⁴ DELISE, *supra* note 3, at 95-97.

¹⁰⁵ Because pit bulls are not a single 'breed' but a type of dog, breed organizations have less control over breeding and sale of these dogs than other breeds of dog.

¹⁰⁶ DELISE, *supra* note 3, at 95-96.

¹⁰⁷ See DELISE, *supra* note 3, at 103 ("[B]y the end of the twentieth century, there would be another 200+ cities, communities and counties which enacted breed bans or restrictions against [pit bulls] or any dog that may be viewed as having 'pit bull characteristics.'").

¹⁰⁸ Medlin, *supra* note 86, at 1285.

¹⁰⁹ THE BLADE, *supra* note 89.

¹¹⁰ See, e.g., DENVER, COLO., CODE OF ORDINANCES, PIT BULLS PROHIBITED, § 8-55 (originally enacted as Ord. No. 404-89, § 1 (July 31, 1989)); MIAMI-DADE CTY. CODE OF ORDINANCES, 5-17 *et. seq.* (originally enacted as Ord. No. 89-22 (Apr. 4, 1989)). Both Miami and Denver passed pit bull bans in 1989.

¹¹¹ Medlin, *supra* note 86; *Debate Widens*, *supra* note 87. See also DELISE, *supra* note 3, at 102 (describing how, in Denver, lawmakers relied on unproven claims while ignoring expert testimony to the contrary).

¹¹² For example, in Arkadelphia, Arkansas, pit bulls must be registered and cannot be transferred within the city or bred. ARKADELPHIA, ARK., ORDINANCE RESTRICTING THE KEEPING OF PIT BULL BREED DOGS WITHIN THE CITY OF ARKADELPHIA, ARKANSAS O-07-04.

¹¹³ E.g., PRINCE GEORGE'S CTY., MD., CTY. CODE § 3-185.01 (Prince George's County, Maryland prohibits the keeping of any pit bull.).

stricted breeds kept in the jurisdiction.¹¹⁴ Many localities require special insurance or permits.¹¹⁵ Often, municipal laws will combine

¹¹⁴ AKRON, OH., CODE OF ORDINANCES 92-25(E). By way of illustration, the city of Akron, Ohio has extensive and severe restrictions on the ownership of certain breeds of dog, codified as follows:

Any person owning, keeping, possessing, harboring, maintaining, or having the care, custody, or control of a Pit Bull, Canary Dog or American Bulldog or vicious dog shall:

1. Identify the dog by having the dog wear, at all times, a fluorescent green collar available upon payment of a fee, from Customer Service;
2. Post on the premises, in a conspicuous place where the dog is kept, at least one city-issued warning sign available, upon payment of a fee, from Customer Service. The sign shall be visible and capable of being read from the public highway or street;
3. Identify the dog by having the dog tattooed with a code number provided by the Customer Service Division;
4. Notify the Customer Service Division within twenty-four hours if the Pit Bull, Canary Dog or American Bulldog or vicious dog has died or has been sold or donated, and provide the Customer Service Division with the name, address, and telephone number of the new owner;
5. Keep the dog secured at all times by one of the following means:
 - a. Keep the dog inside the owner's home;
 - b. Keep the dog in a locked enclosure which has a top, and has a concrete base with the fencing securely attached or anchored to the concrete perimeter to a depth of six inches;
 - c. Keep the dog muzzled and on a chain-link leash that is not more than six feet in length which is held in the hand of a person who is of suitable age and discretion and is outside with the dog.
6. Pay a fee and annually, between January 2 and January 20, and whenever a dog is newly obtained, register the dog with the Customer Service Division; at the time of registration provide proof of liability insurance with an insurer authorized to write liability insurance in this state providing coverage in each occurrence, subject to a limit, exclusive of interest and costs, of not less than fifty thousand dollars because of damage or bodily injury to or death of a person caused by the dog and shall provide a certificate of insurance to Customer Service at the time the collar required by § 92.25(E)(1) is obtained;
7. Ensure that the dog does not go unconfined on the premises of another or be at large within the city;
8. Annually license the dog, if the dog is more than three months of age, with the County Auditor. Failure of any dog at any time to wear a valid license tag shall be prima facie evidence of lack of licensing;
9. Vaccinate the dog against rabies by a licensed veterinarian at least once every three years; a tag indicating that said dog has been vaccinated against rabies must be worn by the dog at all times. Failure of any dog at any time to wear the rabies vaccination tag issued by the licensed veterinarian who administered the vaccine shall be prima facie evidence of the dog's lack of vaccination against rabies;
10. Provide two color photos of the dog to Customer Service at the time the collar required by § 92.25(E)(1) is obtained. Provide one color photo of dog showing the tattoo number after the dog has been tattooed.

¹¹⁵ *E.g., id.* (requiring insurance, registration, and licensing); ARKADDELPHIA, ARK., ORDINANCE RESTRICTING THE KEEPING OF PIT BULL BREED DOGS WITHIN THE CITY OF ARKADDELPHIA, ARKANSAS O-07-04 (requiring insurance); MIAMI-DADE CTY. CODE OF OR-

two or more of these requirements.¹¹⁶ The state of BSL at the local level is constantly in flux as new communities pass ordinances and old ordinances are repealed due to a variety of factors, including: ineffectiveness of the laws, costs of enforcement, or strong pressure by canine advocates. It is, however, safe to say that at any one time hundreds of jurisdictions across the country employ BSL.¹¹⁷

Even when breeds are not banned outright, BSL can be a *de facto* breed ban because owners find it prohibitively difficult or expensive to obtain homeowners' insurance, find a rental property that will accept the dog, or take on the added personal liability that may arise from ownership.¹¹⁸

2. State Laws

For the most part, states have left BSL to the purview of local government—Ohio being the exception. Ohio's BSL statute, passed in 1987, defined a pit bull as a "vicious dog," regardless of any other factors.¹¹⁹ If a person owned a pit bull, it was assumed to be dangerous, and the person would be, in effect, strictly liable for any damage caused by the dog.¹²⁰ In addition to the statewide law, municipalities throughout Ohio passed breed bans on pit bulls and other types of dogs.¹²¹ In 2012, the Ohio legislature repealed the BSL provision and

DINANCES, 5-17.1, .2 (originally enacted as Ord. No. 89-22 (Apr. 4, 1989)) (requiring registration).

¹¹⁶ *E.g.*, AKRON, OH., CODE OF ORDINANCES 92-25(E) (establishing several restrictions on ownership); PRINCE GEORGE'S CTY, MD., CTY. CODE § 3-185.01 (combining pit bull ban with an exception under which restrictions apply).

¹¹⁷ *See Breed-Specific Laws State-by-State*, DOGSBITE.ORG, <http://www.dogsbite.org/legislating-dangerous-dogs-state-by-state.php> [<http://perma.cc/EX58-2HJ6>] (accessed Nov. 25, 2015) (pointing out that over 700 jurisdictions employ BSL). There are a number of pro-BSL and anti-BSL groups that keep up to date on the status of such laws, including www.dogsbite.org (pro-BSL) and www.stopbsl.org (anti-BSL), but even these groups cannot be relied upon for an accurate list at any one time.

¹¹⁸ *Position Statement on Breed-Specific Legislation*, THE AM. SOC'Y FOR THE PREVENTION OF CRUELTY TO ANIMALS, <https://www.aspca.org/about-us/aspca-policy-and-position-statements/position-statement-on-breed-specific-legislation> [<http://perma.cc/8EV4-TS PR>] (accessed Nov. 25, 2015).

¹¹⁹ OHIO REV. CODE ANN. § 955.11(4) (West, repealed 2012); THE BLADE, *supra* note 89 (statute passed in 1987). "Vicious dog' means a dog that, without provocation and subject to division (A)(4)(b) of this section, meets any of the following: (i) Has killed or caused serious injury to any person; (ii) Has caused injury, other than killing or serious injury, to any person, or has killed another dog; (iii) Belongs to a breed that is commonly known as a pit bull dog. The ownership, keeping, or harboring of such a breed of dog shall be prima-facie evidence of the ownership, keeping, or harboring of a vicious dog." OHIO REV. CODE ANN. § 955.11(4) (West, repealed 2012).

¹²⁰ *Id.*; OHIO REV. CODE ANN. § 955.22 (West 2015); OHIO REV. CODE ANN. § 955.28 (West 2015).

¹²¹ Donna J. Miller, *Pit Bulls No Longer Deemed Vicious by Ohio Law That Takes Effect Tuesday*, http://www.cleveland.com/metro/index.ssf/2012/05/pit_bulls_no_longer_deemed_vic.html [<http://perma.cc/RFH4-GNGX>] (updated May 23, 2013, 10:43 AM) (accessed Nov. 25, 2015).

returned to a breed-neutral version of the definition of “vicious dog.”¹²² Ohio municipalities still have their own BSL on the books, and that is unaffected by the statutory changes.¹²³ The 2012 measure merely places Ohio back in the camp of a majority of other states—no statewide BSL, but local governmental measures remain in effect.

While a majority of U.S. states allow municipalities to pass BSL, a growing number of states have preempted local ordinances on this issue, passing laws that prohibit local governments from regulating the keeping or ownership of dogs based on breed.¹²⁴ In effect, these laws prohibit any local BSL in these states. California was the first state to preempt BSL in 1989, although it does currently allow breed-specific spay/neuter requirements.¹²⁵ Twenty-five years later, the number of states banning BSL has swollen to eighteen, although a few of those states have grandfathered local BSL enacted before passage of the statewide statute.¹²⁶ Each of these state laws is different. While some laws focus only on breed-based ‘dangerous dog’ legislation, others focus on all breed-based laws, or even prohibit insurance regulation based on breed. For example, in March of 2014, South Dakota became one of the most recent states to preempt BSL.¹²⁷ The statute prohibits local governments from enacting “any ordinance, policy, resolution, or other enactment that is specific as to the breed or perceived breed of a dog.”¹²⁸ Pennsylvania, on the other hand, has not only preempted local

¹²² *Id.*

¹²³ *Id.* For example, Lakewood, Ohio bans all pit bulls and canary dogs. LAKEWOOD, OH., ORDINANCES § 506.03 (2008). Parma, Ohio also prohibits pit bulls and wolf hybrids within its prohibited animals ordinance. Pit bulls are one of only two domesticated animals in a list of over thirty prohibited animals, including lions, tigers, bears, sharks, hyenas, wolves, coyotes, and even elephants. PARMA, OH., CODE OF ORDINANCES § 618.09 (2006).

¹²⁴ *State Summary Report: Breed-Specific Prohibited or Restricted Ordinances*, AM. VETERINARY MED. ASS’N, <https://www.avma.org/Advocacy/StateAndLocal/Pages/sr-breed-ordinances.aspx> [http://perma.cc/9K72-PC7S] (updated July 2014) (accessed Nov. 25, 2015).

¹²⁵ CAL. FOOD & AGRIC. CODE § 31683 (West 2006); CAL. HEALTH & SAFETY CODE § 12331 (West 2006).

¹²⁶ CAL. FOOD & AGRIC. § 31683 (allowing breed-specific spay/neuter laws); COLO. REV. STAT. § 18-9-204.5(5) (2004) (allowing local governments under home rule to still have BSL, e.g., Denver); 2013 Conn. Pub. Acts No. 13-103; FLA. STAT. § 767.14 (1990) (prior BSL was grandfathered); 510 ILL. COMP. STAT. 5/24 (2003) (home rule cities may enact BSL); ME. STAT. tit. 7, § 3950 (2005); MASS. GEN. LAWS ch. 140, § 157 (2012); MINN. STAT. § 347.51 (1989); NEV. REV. STAT. § 202.500 (2013); N.J. STAT. ANN. § 4:19-36 (West 1989); N.Y. AGRIC. & MKTS. LAW § 107 (Consol. 1997); OKLA. STAT. ANN. tit. 4, § 46 (West 2006); 3 PA. CONS. STAT. § 459-507-A (2008); 4 R.I. GEN. LAWS § 4-13-43 (2013); S.D. CODIFIED LAWS § 40-34-16 (2014); TEX. HEALTH & SAFETY CODE ANN. § 822.047 (West 1991) (allowing some breed-specific requirements unrelated to ‘dangerousness’ of a dog); UTAH CODE ANN. § 18-2-101 (LexisNexis 2014); VA. CODE ANN. § 3.2-6540.1 (2013).

¹²⁷ Aamer Madhani, *U.S. Communities Increasingly Ditching Pit Bull Bans*, USA TODAY, <http://www.usatoday.com/story/news/nation/2014/11/17/pit-bulls-breed-specific-legislation-bans/19048719/> [http://perma.cc/ATN5-2VMG] (Nov. 18, 2014, 1:10 PM) (accessed Nov. 25, 2015).

¹²⁸ S.D. CODIFIED LAWS § 40-34-16 (2014).

governments from passing BSL, but has also preempted any ordinance regulating dangerous dogs, and prohibited insurance discrimination based on breed.¹²⁹

3. Federal Regulations

While there is no national BSL, in 2009, the U.S. Army and U.S. Marine Corps instituted BSL on all bases, including all privatized housing, banning pit bull-type dogs, Rottweilers, Doberman pinschers, chow chows, wolf hybrids, and other dogs prone to aggression or dominance, as well as exotic pets of all kinds.¹³⁰ In 2012, the U.S. Air Force followed suit with a similar ban.¹³¹ The reasons behind these regulations were noted as public health, safety, and welfare of the members of the military and their families,¹³² but they have caused significant heartaches for many.¹³³

¹²⁹ 3 PA. CONS. STAT. § 459-507-A (2008) (“(c) Local ordinances—Those provisions of local ordinances relating to dangerous dogs are hereby abrogated. A local ordinance otherwise dealing with dogs may not prohibit or otherwise limit a specific breed of dog. (d) Insurance coverage discrimination—No liability policy or surety bond issued pursuant to this act or any other act may prohibit coverage from any specific breed of dog.”).

¹³⁰ Memorandum from Paul P. Bollinger, Jr., Deputy Assistant Sec’y of the Army, to the Assistant Chief of Staff for Installation Mgmt. (Jan. 5, 2009) [hereinafter Army Memorandum] (available at <http://www.garrison.hawaii.army.mil/command/USARHAW/PetPolicyforPrivatizedHousing.pdf> [<http://perma.cc/88FZ-E394>] (accessed Nov. 25, 2015)); Marine Corps Order P11000.22 W/CH 1-6 from the Commandant of the Marine Corps to the Distribution List (Feb. 14, 1991) [hereinafter Marine Corps Order] (available at <http://www.marines.mil/Portals/59/Publications/MCO%20P11000.22%20W%20CH%201-6.pdf> [<http://perma.cc/U8PQ-MRFR>] (accessed Nov. 25, 2015)) (banning pit bulls, Rottweilers, and other dogs prone to aggression or dominance).

¹³¹ U.S. AIR FORCE, AIR FORCE STANDARDIZED PET POLICY [hereinafter AIR FORCE STANDARDIZED PET POLICY] (available at <http://www.housing.af.mil/shared/media/document/AFD-110908-012.pdf> [<http://perma.cc/YT7X-94W5>] (accessed on Sept. 15, 2014)) (construing U.S. AIR FORCE, AIR FORCE INSTRUCTION 32-6001 (Aug. 21, 2006) (available at http://static.e-publishing.af.mil/production/1/af_a4_7/publication/afi32-6001/afi32-6001.pdf [<http://perma.cc/6YU4-NWJY>] (accessed Nov. 25, 2015)) and U.S. AIR FORCE, AIR FORCE INSTRUCTION 32-6007 (Sept. 19, 2012) (available at http://static.e-publishing.af.mil/production/1/af_a4_7/publication/afi32-6007/afi32-6007.pdf [<http://perma.cc/9JGE-7CM7>] (accessed on Sept. 15, 2015))).

¹³² Army Memorandum, *supra* note 130.

¹³³ *E.g.*, SaraN, *BSL in the Military: One Family’s Sacrifice*, THE BLOG OF A ROTTA LOVE PLUS, <http://www.arottalove.net/blog/2011/12/bsl-in-the-military-one-family’s-sacrifice/> [<http://perma.cc/H688-5U3E>] (Dec. 16, 2011) (accessed Nov. 25, 2015). In a blog post, a current member of the military recounted the pain endured by herself, her husband, and her two children, when they had to re-home Willa, the family dog: “My husband, my children, and I have made many sacrifices for the military, and have done so with pleasure; these sacrifices have been made for the love of our country. In the timespan of mere months, my children have moved across [the] country, changed schools, and said goodbye to friends. But the loss of our friendly, playful, humorous, snuggling, PB&J snatching, constant companion is an unexpected, undeserved injustice—and is one sacrifice I will never forgive.” *Id.*

See also *Is Breed-Specific Legislation for On-Base Pet Owners Way Off-Base?*, PETS FOR PATRIOTS, <http://blog.petsforpatriots.org/is-breed-specific-legislation-for-on-base-pet-owners-way-off-base/> [<http://perma.cc/RE3W-Z2UW>] (accessed Nov. 25, 2015) (“Military families with banned dogs are feeling the impact two-fold: unable to live on-base due to

In 2013, President Obama came out against BSL in principal, stating in part:

We don't support breed-specific legislation—research shows that bans on certain types of dogs are largely ineffective and often a waste of public resources. In 2000, the Centers for Disease Control and Prevention looked at twenty years of data about dog bites and human fatalities in the United States. They found that fatal attacks represent a very small proportion of dog-bite injuries to people and that it's virtually impossible to calculate bite rates for specific breeds.¹³⁴

Despite this strong statement against BSL, the military bans remain in effect and there are no indications they will be repealed anytime soon.¹³⁵

4. Court Challenges

While there have been numerous court challenges to BSL over the last thirty years—some successful—all opponents of BSL have had an uphill battle as a result of the U.S. Supreme Court's decision in *Sentell v. New Orleans & Carrollton R.R.*, which described an owner's property interest in a dog as “qualified” and the government's police power to govern dogs as both broad and plenary.¹³⁶ Essentially, this 1897 ruling, which acknowledges both the value of dogs as human companions and the potential risks to public health associated with dogs in society,¹³⁷ has given carte blanche to state and local legislatures to pass laws and ordinances restricting property rights in dogs.¹³⁸ Examples of such laws include license requirements, leash laws, spay-and-neuter

military pet regulations, and unable to live off-base because of municipal breed bans. The issue is further complicated when service members deploy and seek to foster their pets, since BSL limits where these pets can be cared for while awaiting their owners' return.”).

¹³⁴ Jacob Davidson, *Obama Blasts Legislation Targeting Specific Dog Breeds*, TIME (Aug. 21, 2013) (available at <http://newsfeed.time.com/2013/08/21/obama-blasts-legislation-targeting-specific-dog-breeds/> [<http://perma.cc/CEB4-7DW3>] (accessed Nov. 25, 2015)).

¹³⁵ See *Military Breed-Specific Policies*, DOGSBITE.ORG, <http://www.dogsbite.org/legislating-dangerous-dogs-military-bases.php> [<http://perma.cc/LSL6-R9YB>] (accessed Nov. 25, 2015) (Army, Marine Corp, and Air Force bans remain in effect).

¹³⁶ *Sentell v. New Orleans & C.R. Co.*, 166 U.S. 698, 704, 706 (1897). “Although dogs are ordinarily harmless, they preserve some of their hereditary wolfish instincts, which occasionally break forth in the destruction of sheep and other helpless animals. Others, too small to attack these animals, are simply vicious, noisy and pestilent. As their depredations are often committed at night, it is usually impossible to identify the dog or to fix the liability upon the owner, who, moreover, is likely to be pecuniarily irresponsible. In short, the damages are usually such as are beyond the reach of judicial process, and legislation of a drastic nature is necessary to protect persons and property from destruction and annoyance.” *Id.* at 705–06.

¹³⁷ *Id.* at 701.

¹³⁸ See *City of Dickinson v. Thress*, 290 N.W. 653, 655 (N.D. 1940) (citing *Sentell*, 166 U.S. 698) (“It is well settled that the Legislature, under the police power, may regulate the keeping of dogs . . .”).

requirements, and dangerous dog laws.¹³⁹ *Sentell* has been used frequently to uphold the constitutionality of BSL.¹⁴⁰

Constitutional challenges to BSL, based on both state and federal law, have come in the form of procedural and substantive due process claims, vagueness claims, and equal protection claims.¹⁴¹ Most often, courts employ a ‘rational basis test’ to the due process and equal protection challenges after determining no suspect classes, quasi-suspect classes, or fundamental rights are at issue. The rational basis test gives broad discretion to the legislature and requires only that a law be ‘rationally related’ to a legitimate government interest in order for it to be upheld, even if it infringes upon certain property rights.¹⁴² Constitutional challenges to BSL have generally been unsuccessful.¹⁴³ There has been some limited success with vagueness challenges.¹⁴⁴

¹³⁹ See Thiele v. City of Denver, 312 P.2d 786, 788–90 (Colo. 1957) (quoting *Sentell* in upholding prohibition against dogs running at large under the police power); *City of Dickinson*, 290 N.W. at 655 (upholding license and registration requirements for dogs under the police power); *Concerned Dog Owners of Cal. v. City of L.A.*, 123 Cal. Rptr. 3d 774, 779, 781, 789 (2011) (upholding mandatory spay/neuter ordinance under the police power).

¹⁴⁰ See, e.g., *Vanater v. Vill. of S. Point*, 717 F. Supp. 1236, 1242 (S.D. Ohio 1989) (upholding prohibition against pit bulls as valid exercise of police power under rationale of *Sentell*).

¹⁴¹ See, e.g., *Colo. Dog Fanciers, Inc. v. City of Denver (Dog Fanciers)*, 820 P.2d 644, 648, 650, 652 (Colo. 1991) (denying substantive due process and equal protection claims under rational basis test); *Garcia v. Vill. of Tijeras*, 767 P.2d 355, 358, 360, 361 (N.M. Ct. App. 1988) (denying both substantive and procedural due process challenges, as well as challenges to vagueness), *cert. denied*, 765 P.2d 768 (N.M. 1988). Due process and equal protection claims are often brought under both the 14th Amendment of the U.S. Constitution and the equivalent state constitutional basis. Generally, the 14th Amendment has provided little, if any, traction, with the exception of some success in the area of vagueness under due process. However, those states that have determined BSL to be void for vagueness tend to have strong state (as opposed to federal) case law upon which to base the decision. See, e.g., *Am. Dog Owners Ass’n, Inc. v. City of Lynn*, 533 N.E.2d 642 (Mass. 1989) (applying Massachusetts case law to strike down sections of local BSL).

¹⁴² E.g., Kristen Swann, *Irrationality Unleashed: The Pitfalls of Breed-Specific Legislation*, 78 UMKC L. Rev. 839, 847–51 (2010) (describing rational basis test applied to restrictions on dog ownership, which relies on the concept of dogs as property).

¹⁴³ *Id.* at 867. In *Irrationality Unleashed: The Pitfalls of Breed-Specific Legislation*, student author Kristen Swann rightfully advocates for courts to employ “rational basis plus” or “rational basis with a bite” analysis concerning BSL. As science continues to advance and show the absence of a relationship between breed identification and aggression, the rational basis for these laws evaporates. Courts should no longer hide behind the *Sentell* opinion and where laws are based in irrational fear, rather than rational problem solving. *Id.* at 840, 867–68.

¹⁴⁴ In *City of Lynn*, the Supreme Judicial Court of Massachusetts, opining on the constitutional question of vagueness of a several BSL ordinances, succinctly set forth the issue with all BSL that includes “types” of dogs or mixed-breeds: “[T]he Lynn Pit Bull ban ordinance depends for enforcement on the subjective understanding of dog officers of the appearance of an ill-defined ‘breed,’ leaves dog owners to guess at what conduct or dog ‘look’ is prohibited, and requires ‘proof’ of a dog’s ‘type’ which, unless the dog is registered, may be impossible to furnish. Such a law gives unleashed discretion to the dog officers charged with its enforcement, and clearly relies on their subjective spec-

One of the most interesting constitutional challenges to BSL came from the Ohio courts, and because it includes differing opinions by the court of appeals and supreme court on the constitutionality of BSL, it both illustrates how the substantive due process claims could be won by BSL opponents and also how most courts have treated this issue under a rational basis test. In *Toledo v. Tellings*, an owner of three “pit bull-type” dogs was cited for two violations of the municipal ordinance that set a limit of one pit bull per household and two violations for failing to provide liability insurance under Ohio Revised Code § 955.22, which is required when harboring a vicious dog under § 955.11(4)(iii) (which defined pit bulls as *per se* “vicious”).^{145,146} The dogs were observed in the home of the owner during a lead-based paint inspection and were reported to the dog warden.¹⁴⁷ Subsequently, the owner gave one dog away, was permitted to keep one, and the third was confiscated by the warden and destroyed.¹⁴⁸ The owner filed a motion challenging the constitutionality of the statute and municipal ordinance on the basis of substantive and procedural due process, among other bases.¹⁴⁹

The trial court heard five days of testimony from at least sixteen expert witnesses (twelve for the owner, four for the state).¹⁵⁰ After hearing the testimony, the court upheld the constitutionality of the laws, finding that, although “pit bulls are not, as a breed, more dangerous than other breeds[,] . . . the state statutes and municipal ordinance were constitutional since the pit bull still presented a problem in the urban setting.”¹⁵¹ The court based this finding on the fact “that the pit bull has been used extensively for dog fighting and by ‘criminal elements of the population, such as drug dealers, dog fighters, and urban

ulation whether a dog’s physical characteristics make it what is ‘commonly understood’ to be a ‘Pit Bull.’” 533 N.E.2d at 647 (Mass. 1989). See also *Des Moines*, 469 N.W.2d at 418 (holding portion of BSL ordinance that restricts mixed and non-specific breeds unconstitutionally vague because of “an unacceptable risk of ‘arbitrary and discriminatory application.’”) *But see* *Am. Dog Owners Ass’n v. City of Yakima*, 777 P.2d 1046, 1047–48 (Wash. 1989) (finding the BSL ordinance was not vague because it listed four specific breeds of dog prohibited and provided adequate standards of identification so that the ordinance would not be arbitrarily enforced).

¹⁴⁵ *Toledo v. Tellings (Tellings I)*, No. L-04-1224, 2006 WL 513946, at ¶¶ 2, 3 (Ohio Ct. App. 2006), *rev’d*, 871 N.E.2d 1152 (Ohio 2007).

¹⁴⁶ “Vicious dog’ means a dog that, without provocation and subject to division (A)(4)(b) of this section, meets any of the following: (i) Has killed or caused serious injury to any person; (ii) Has caused injury, other than killing or serious injury, to any person, or has killed another dog; (iii) Belongs to a breed that is commonly known as a pit bull dog. The ownership, keeping, or harboring of such a breed of dog shall be prima-facie evidence of the ownership, keeping, or harboring of a vicious dog.” OHIO REV. CODE ANN. § 955.11(A)(1) (West, repealed 2012).

¹⁴⁷ *Tellings I*, 2006 WL 513946, at ¶ 2.

¹⁴⁸ *Id.*

¹⁴⁹ *Id.* at ¶¶ 43, 51.

¹⁵⁰ *Id.* at ¶¶ 2–20.

¹⁵¹ *Id.* at ¶ 33.

gang members,” and was prevalent in urban areas with crowded living conditions and large numbers of children.¹⁵²

On appeal, the Ohio Court of Appeals reversed the trial court’s decision, finding no rational basis for distinguishing pit bulls from other dogs.¹⁵³ Specifically, the court of appeals recognized that older cases upholding BSL were based on unsubstantiated myths and sensationalized hype about pit bulls that have since been corrected by scientific findings.¹⁵⁴ The appeals court determined that the Ohio statute finding pit bulls as *per se* vicious was unconstitutional because the trial court admitted there was no basis to find the breed more dangerous than any other; therefore, singling out one breed “has no real and substantial relationship to a legitimate state interest.”¹⁵⁵

However in its reversal of the court below, the Ohio Supreme Court stressed the power of the legislature to make laws related to public health, safety, and welfare.¹⁵⁶ It applied a weaker version of the rational basis test than did the court of appeals, and found there was

¹⁵² *Id.* at ¶ 32.

¹⁵³ *Tellings I*, 2006 WL 513946, at ¶ 66. The Ohio Court of Appeals, in a detailed opinion, made note of how the expert testimony in this case refuted the pseudoscience and urban legends surrounding pit bull-type dogs that had grown in the media and in legal sources including cases and law review articles. For example, the court specifically noted: “[P]it bulls do not have locking jaws. Based on actual dog dissections and measurement of their skulls, the evidence demonstrated that pit bull jaw muscles and bone structure are the same as other similarly sized dogs. No evidence was presented to demonstrate that a pit bull’s bite is any stronger than other dogs of its size and build. . . . [C]ontrary to information relied upon and perpetuated by earlier case law and law review articles, assertions that a pit bull can bite with a ‘force of 2,000 pounds per square inch’ have absolutely no basis in fact or scientific proof. The testing of dog-bite strength has never been done, and would be difficult if not impossible to perform.” *Id.* at ¶ 25 (citations omitted).

Furthermore, the court noted: “Although [one expert] testified he believed that pit bulls have some sort of ‘trigger mechanism’ which makes their behavior unpredictable and they give off no warning ‘signals,’ he acknowledged that he had done no studies, and had no scientific data, proof, or other evidence in support of his theory. The other experts dismissed this theory and agreed that all dogs give off signals which may be ignored or unrecognized by people. They also stated that, although pit bulls may have some genetic predisposition for certain behaviors, these behaviors can be easily modified or controlled with training and environmental socialization.” *Id.* at ¶ 31.

¹⁵⁴ *Id.* at ¶¶ 61–63. “As scientific information advances and becomes available, courts have a duty to reconsider issues and make decisions which are supported by the actual evidence presented, instead of relying on ‘common knowledge’ and opinion generated by newspaper sensationalism and hearsay, rather than accurate, scientific evidence.” *Id.* at ¶ 62.

¹⁵⁵ *Id.* at ¶ 66. The court also determined that statute was void on the basis of vagueness because of the lack of a real definition for the term “pit bull-type” dog, and the apparent subjectivity of prosecution. *Id.* at ¶¶ 73–76. Specifically, Toledo’s dog Warden admitted that the determination of whether a dog was a “pit bull-type” was based purely on observation of the official. *Id.* at ¶ 30. The court questioned, with so many similar looking breeds, whether anyone would really know if they were potentially subject to prosecution or not, especially if their dog was of a mixed breed. *Id.* at ¶ 73. This finding by the court is substantiated by scientific studies discussed in Part IV.

¹⁵⁶ *Toledo v. Tellings (Tellings II)*, 871 N.E.2d 1152, 1157 (Ohio 2007), *rev’g* 2006 WL 513946 (Ohio Ct. App. 2006).

sufficient evidence for the trial court to determine BSL has a real and substantial relationship to the legitimate state interest of public safety.¹⁵⁷

While *Toledo v. Tellings* is an excellent example of the kinds of constitutional arguments used in support of and against BSL, it is by far not the only case weighing in on these issues.¹⁵⁸ While most courts have upheld BSL on rational basis, it is interesting to note how often the same evidence that is relied upon by the courts in these cases has been either called into serious question or even refuted outright by science. As we will discover in Part III, much of this evidence is the same as that which was sensationalized in the media during the mid-1980s. For example, the Colorado Supreme Court in *Colorado Dog Fanciers, Inc. v. Denver*, noted that “pit bull attacks, unlike attacks by other dogs, occur more often, are more severe, and are more likely to result in fatalities.”¹⁵⁹ Furthermore, the court noted “that pit bulls tend to be stronger than other dogs, often give no warning signals before attacking, and are less willing than other dogs to retreat from an attack, even when they are in considerable pain.”¹⁶⁰

Similarly, in *Garcia v. Village of Tijeras* the New Mexico Court of Appeals pointed to evidence that pit bulls have “inherent characteristics of aggression, strength, viciousness and unpredictability not found in any other breeds of dog,” that they are subject to “berserk frenzies

¹⁵⁷ *Id.* at 1158. Specifically, in making its rational basis determination, the Ohio Supreme Court relied on evidence presented by the chief dog warden of Lucas County who testified that, “(1) when pit bulls attack, they are more likely to inflict severe damage to their victim than other breeds of dogs, (2) pit bulls have killed more Ohioans than any other breed of dog, (3) Toledo police officers fire their weapons in the line of duty at pit bulls more often than they fire weapons at people and all other breeds of dogs combined and (4) pit bulls are frequently shot during drug raids because pit bulls are encountered more frequently in drug raids than any other dog breed.” *Id.* at 1157. The accuracy of these claims made by the dog warden is unknown, but the Ohio Supreme Court found them sufficient to establish a rational basis. With regard to the vagueness challenge, the Supreme Court, quoting an earlier decision of *State v. Anderson*, held, “[T]he physical and behavioral traits of pit bulls together with the commonly available knowledge of dog breeds typically acquired by potential dog owners or otherwise possessed by veterinarians or breeders are sufficient to inform a dog owner as to whether he owns a dog commonly known as a pit bull dog.” *Id.* at 1158 (quoting *State v. Anderson*, 566 N.E.2d 1224, 1228 (Ohio 1991)).

¹⁵⁸ See *Starkey v. Chester Twp.*, 628 F. Supp. 196, 197 (E.D. Pa. 1986) (denying preliminary injunction upon determination that BSL would likely survive an equal protection challenge by meeting a traditional rational basis test); *Hearn v. City of Overland Park*, 772 P.2d 758, 764, 765, 766–68 (Kan. 1989) (opining that an ordinance banning pit bulls was related to a legitimate government purpose, was neither too vague nor unlawfully overbroad, and satisfied a rational basis test for purposes of an equal protection challenge), *cert. denied*, 493 U.S. 976 (1989); *State v. Peters*, 534 So. 2d 760, 764 (Fla. Dist. Ct. App. 1988) (holding ordinance did not violate equal protection when it was “underinclusive” and did not include mixed-breed pit bulls), *review denied*, 542 So. 2d 1334 (Fla. 1989); *Garcia*, 767 P.2d at 360–61 (denying both substantive and procedural due process challenges, as well as challenges to vagueness).

¹⁵⁹ *Dog Fanciers*, 820 P.2d at 652.

¹⁶⁰ *Id.*

[that] do not occur in other breeds of dog,” that their bite is as much as twice as strong as other dogs, and that they are “especially dangerous due to their unpredictability” because they display no warning behavior.¹⁶¹ Again, most of these claims appeared in the media in and around 1987,¹⁶² and have proven false or highly suspect.¹⁶³ Yet this case and others that trusted such spurious evidence continue to be cited, discussed, and relied upon by other courts deciding BSL cases.¹⁶⁴ As recently as 2013, the Supreme Court of West Virginia pointed to the same evidence in upholding a breed ban.¹⁶⁵

Colorado Dog Fanciers, Garcia, and other cases have held that enough evidence exists to meet the rational basis test and that neither due process nor equal protection were violated by the ordinances or statutes. Some scholarship has suggested that courts should approach BSL with a stronger rational basis test, often called “rational basis plus” or “rational basis with bite.”¹⁶⁶ The Ohio Court of Appeals, in its opinion in *Toledo v. Tellings*, did just that.¹⁶⁷ The arguments

¹⁶¹ *Garcia*, 767 P.2d at 359.

¹⁶² See *supra* notes 5–8 and accompanying text.

¹⁶³ See *Tellings I*, 2006 WL 513946, at ¶ 63 (“[P]revious cases involving ‘vicious dog’ laws, especially from the late 1980s and early 1990s, relied on what is now outdated information which perpetuated a stereotypical image of pit bulls.” (citations omitted)).

¹⁶⁴ E.g., *Am. Canine Fed’n v. City of Aurora, Colo.*, No. 06-CV-01510-WYD-BNB, 2008 WL 2229943, at *5, *8 (relying on *Dog Fanciers* and *Garcia*). The initial cases challenging BSL all included, at best, questionable testimony about pit bulls, and, at worst, patently false claims about the dogs. Unfortunately, because of the precedential value of these early cases, this same unsubstantiated ‘evidence’ has been passed down to the next set of cases and the next, leading courts to uphold BSL on the basis of pseudoscience long since debunked. For example: In *Starkey*, the district court noted importance of testimony from the township’s Health Officer who said “the Pit Bull bites to kill without signal.” 628 F. Supp. at 197. Similarly in *Hearn*, the Kansas Supreme Court noted the following evidence to support the finding that pit bulls were a “unique hazard” to public safety: “Defendant city introduced expert testimony that pit bull dogs are both more aggressive and destructive than other dogs. Pit bull dogs possess a strongly developed ‘kill instinct’ not shared by other breeds of dogs. This testimony indicated that pit bull dogs are unique in their ‘savageness and unpredictability.’” 772 P.2d at 765. Even more egregiously, the ordinance challenged and upheld in *Peters* includes an outright false statement regarding pit bull jaw strength: “[T]he Pit Bull’s massive canine jaws can crush a victim with up to two thousand (2,000) pounds of pressure per square inch—three times that of a German Shepherd or Doberman Pinscher, making the Pit Bull’s jaws the strongest of any animal, per pound . . .” 534 So. 2d at 764. Each of these pieces of ‘evidence’ has since been debunked. *Fear vs. Fact*, NATIONAL CANINE RESEARCH COUNCIL, http://www.nationalcanineresearchcouncil.com/uploaded_files/tinymce/Fear%20versus%20fact_1.pdf [<http://perma.cc/PP63-GZ5G>] (accessed Nov. 25, 2015).

¹⁶⁵ *Hardwick v. Town of Ceredo*, No. 11-1048, 2013 WL 149628, at *5 (W. Va. Jan. 14, 2013). “[E]ach Defendant’s dogs are of the breed that is typically referred to generically as pit bull dogs which are aggressive by nature, have been known as attack animals with strong massive heads and jaws, and have been found to represent a public health hazard. The majority of jurisdictions have accepted the proposition that dogs of this type have a propensity to be aggressive and attack without provocation and it is well established that such dogs have gotten a lot of notoriety of being dangerous to public health and safety.” *Id.*

¹⁶⁶ Swann, *supra* note 142, at 840, 868.

¹⁶⁷ *Tellings I*, 2006 WL 513946, at ¶¶ 51–53.

presented in this Article would support that approach, but it is not the intent of this Article to advocate specifically for such a strengthened test, because even a standard rational basis test should not allow a statute to stand when it is not rationally related to accomplishing a legitimate government interest. While the state arguably has a legitimate interest in preventing dog bites, BSL is not rationally related to this goal because breed does not predict propensity to bite.

The one constitutional area where BSL opponents have gained traction is on the vagueness issue. While many courts have agreed with the Colorado and Ohio supreme courts, which found that vets and dog owners are typically capable of determining the breed of a dog, including pit bulls and pit bull-type dogs,¹⁶⁸ not all agree. The Colorado Supreme Court specifically held that BSL “provides adequate notice to dog owners and is not unconstitutionally vague.”¹⁶⁹ Conversely, some courts have acknowledged that determining breed, especially breed of a ‘type’ of dog, or of a mixed breed, is difficult and can be deemed vague.¹⁷⁰ However, legislatures always have the opportunity to redraft statutes to bring them into constitutional compliance. The real question here, which will be discussed in greater depth in Part IV, is whether the underlying assumption that owners know what breed of dog they have is correct. Evidence suggests not, but courts have been unwilling to explore the accuracy of the underlying assumption,¹⁷¹ specifically because if answered in the negative, it brings down the whole BSL house of cards.

D. Current Picture of BSL in the U.S. and Abroad

As of 2014, ‘pit bulls’ are the most common targets of BSL in the U.S. and abroad, but they are by no means alone.¹⁷² Other targeted breeds include: Rottweilers, Cane Corsos, Presa Canario, various types of mastiffs, chow chows, and Akitas, among others.¹⁷³ Currently, none

¹⁶⁸ *Dog Fanciers*, 820 P.2d at 652; *Tellings II*, 871 N.E.2d at 1158.

¹⁶⁹ *Dog Fanciers*, 820 P.2d at 652.

¹⁷⁰ See, e.g., *City of Lynn*, 533 N.E.2d at 647 (finding pit bull ban “leaves dog owners to guess at what conduct or dog ‘look’ is prohibited, and requires ‘proof of a dog’s ‘type’ which . . . may be impossible to furnish”); *Des Moines*, 469 N.W.2d 416, 418 (finding that language including “dogs of mixed breed” in pit bull ban “allows subjective determinations based on a choice of nomenclature by unknown persons and based on unknown standards”).

¹⁷¹ See, e.g., *Tellings II*, 871 N.E.2d at 1158 (quoting *Anderson*, 566 N.E.2d at 1228) (“[T]he physical and behavioral traits of pit bulls together with the commonly available knowledge of dog breeds typically acquired by potential dog owners . . . are sufficient to inform a dog owner as to whether he owns a dog commonly known as a pit bull dog.”); *Des Moines*, 469 N.W.2d at 418 (validating sections of ordinance pertaining to specific breeds because “the determination of a dog’s breed can be done according to objective standards” and these sections “permit a reader of ordinary intelligence to determine which dogs are included”); *Dog Fanciers*, 820 P.2d at 652 (“[T]he standards for determining whether a dog is a pit bull are readily accessible to dog owners, and . . . most dog owners are capable of determining the breed or phenotype of their dog.”).

¹⁷² *Breed-Specific Legislation (BSL) FAQ*, *supra* note 11.

¹⁷³ *Id.*

of the fifty states have enforceable statewide BSL.¹⁷⁴ As mentioned above, Ohio did have statewide BSL until 2012 when the legislature amended its dog law to eliminate its designation of dogs belonging to “a breed that is commonly known as a pit bull dog” as per se “vicious.”¹⁷⁵

For the most part, BSL in the U.S. is a local concern, and thirty-one of the fifty states continue to allow their local communities to enact BSL with no restriction.¹⁷⁶ U.S. military bases also continue to impose BSL against pit bulls, wolf hybrids, Rottweilers and other breeds.¹⁷⁷

Internationally, the United Kingdom and Spain have enacted forms of BSL on the national level.¹⁷⁸ Other international BSL includes restrictions in the Australian province of Victoria and in Winnipeg, Manitoba.¹⁷⁹ The Netherlands recently repealed BSL, determining it had no effect on rates of dog attacks.¹⁸⁰ Most notably, Italy had, at one time, placed restrictions or out-right bans on ninety-two different breeds of dog.¹⁸¹ That number was reduced to seventeen breeds, before the government finally repealed its BSL in favor of a new breed-neutral law directed at reducing dog bites.¹⁸²

¹⁷⁴ Arin Greenwood, *Critics Slam Mississippi Bill that Equates Pit Bulls and ‘Dangerous Dogs,’* THE HUFFINGTON POST, http://www.huffingtonpost.com/2015/01/26/mississippi-pit-bull-bill_n_6543414.html [<http://perma.cc/TXG9-YLFG>] (updated Jan. 27, 2015 9:59PM) (accessed Nov. 25, 2015). While no state has BSL currently, a Mississippi legislator has introduced a bill equating “pit bull” with dangerous dog. At the moment, it looks to have little support. *Id.*

¹⁷⁵ OHIO REV. CODE ANN. § 955.11(A)(1)(a) (West, repealed 2012). Ohio Governor John Kasich signed HB 14 into law on February 21, 2012. The bill removed the term “pit bull” from the definition of vicious dog, and effectively repealed the only example of statewide BSL. Kristin Poppalardo, *Bill of the Week: Ohio HB 14*, AM. VETERINARY MED. ASS’N, <http://atwork.avma.org/2012/02/28/bill-of-the-week-ohio-hb-14/> [<http://perma.cc/4MAT-2D3N>] (Feb. 28, 2012) (accessed Nov. 25, 2015).

¹⁷⁶ See CAL. FOOD & AGRIC. CODE § 31683 (West 2006); COLO. REV. STAT. § 18-9-204.5(5) (2004); 2013 Conn. Pub. Acts No. 13-103; FLA. STAT. § 767.14 (1990); 510 ILL. COMP. STAT. 5/24 (2003); ME. STAT. tit. 7, § 3950 (2005); MASS. GEN. LAWS ch. 140, § 157 (2012); MINN. STAT. § 347.51 (1989); NEV. REV. STAT. § 202.500 (2013); N.J. STAT. ANN. § 4:19-36 (West 1989); N.Y. AGRIC. & MKTS. LAW § 107 (Consol. 1997); OKLA. STAT. tit. 4, § 46 (2006); 3 PA. CONS. STAT. § 459-507-A (2008); 4 R.I. GEN. LAWS § 4-13-43 (2013); S.C. CODE ANN. § 47-3-710 (1992); S.D. CODIFIED LAWS § 40-34-16 (2014); TEX. HEALTH & SAFETY CODE ANN. § 822.047 (West 1991); UTAH CODE ANN. § 18-2-101 (LexisNexis 2014); VA. CODE ANN. § 3.2-6540.1 (2013) (Nineteen states preempt local BSL).

¹⁷⁷ Army Memorandum, *supra* note 130; Marine Corps Order, *supra* note 130; AIR FORCE STANDARDIZED PET POLICY, *supra* note 131.

¹⁷⁸ U.K. Dangerous Dogs Act, *supra* note 97; Rosado et al., *supra* note 16, at 167.

¹⁷⁹ Victoria Domestic Animals Act, *supra* note 98; Winnipeg Responsible Pet Ownership By-Law, *supra* note 96.

¹⁸⁰ *Dutch Agriculture Minister Scraps Pit Bull Ban*, EXPATICA DUTCH NEWS, http://www.expatica.com/nl/news/country-news/Dutch-Agriculture-Minister-scraps-pit-bull-ban_153159.html [<http://perma.cc/T2FV-2REG>] (June 11, 2008) (accessed Nov. 25, 2015).

¹⁸¹ *Italy Repeals Ban*, *supra* note 12.

¹⁸² *Id.*

Overall, despite strong opposition and significant evidence against its efficacy, BSL is alive and well in the U.S., as well as other parts of the world.

III. THE SCIENCE BEHIND CANINE AGGRESSION

A. *Research Does Not Support the Concept of a ‘Dangerous’ Breed*

As noted by the Ohio Court of Appeals in *Toledo v. Tellings*, to date, the scientific evidence concerning canine aggression does not point toward the identification of aggressive breeds as a whole.¹⁸³ Instead it suggests that the problem of canine aggression is a complex one involving many variables, and points to risk factors other than breed as more predictive of aggression.¹⁸⁴ Over the past ten years, several studies have been conducted to determine the efficacy of breed-specific laws enacted outside the U.S.¹⁸⁵ Universally, these studies fail to support BSL and, in fact, some have led many nations to repeal their BSL in favor of other breed-neutral measures.¹⁸⁶

A series of studies of Australian, Spanish, German, and Dutch BSL, published from 2006 to 2009, all asked the central question of whether BSL is justified based on statistical evidence.¹⁸⁷ Each study utilized different data and methodology, but all concluded that BSL was not an effective means of curbing canine aggression.¹⁸⁸

1. *Australian Study*

In a 2006 Australian study, published in the *Journal of Veterinary Behavior*, Dr. Stephen Collier analyzed the existing data regarding dog bites in several regions of Australia, comparing pre-BSL and post-BSL statistics to determine if BSL had any quantifiable effect.¹⁸⁹ Essentially, he analyzed the bite reports per breed and “population at-

¹⁸³ See *Tellings I*, 2006 WL 513946, at ¶ 64 (finding that expert testimony presented at trial “showed many of the beliefs and ‘myths’ about pit bulls to be simply untrue and unsupported by now accepted scientific, genetic, medical, or canine behavior principles”).

¹⁸⁴ Patronek, *supra* note 15, at 1726.

¹⁸⁵ See, e.g., Schalke et al., *supra* note 98 (discussing the efficacy of BSL in Germany).

¹⁸⁶ See Cornelissen & Hopster, *supra* note 27 (discussing a study evaluating BSL in the Netherlands finding BSL ineffective); Ott et al., *Is There a Difference? Comparison of Golden Retrievers and Dogs Affected by Breed-Specific Legislation Regarding Aggressive Behavior*, 3 J. VETERINARY BEHAV. 134 *passim* (2008) (discussing a study evaluating BSL in Lower Saxony, Germany finding BSL ineffective, and therefore BSL was repealed).

¹⁸⁷ E.g., Collier, *supra* note 14 (Australian study, 2006); Rosado et al., *supra* note 16, at 167 (Spanish study, 2007); Ott et al., *supra* note 186, at 135 (German study, 2008); Cornelissen & Hopster, *supra* note 27, at 293 (Dutch study, 190).

¹⁸⁸ Collier, *supra* note 16, at 21; Rosado et al., *supra* note 16, at 169; Ott et al., *supra* note 186, at 139–40; Schalke et al., *supra* note 98, at 101–02; Cornelissen & Hopster, *supra* note 27, at 297.

¹⁸⁹ Collier, *supra* note 16, at 17–22. The history of Australian BSL began in 1991. Based almost entirely on media reports of the dangerousness of the breed in the U.S. and the U.K., Australia prohibited the importation and breeding of American pit bull

tributable fraction percentage” (PAF%) of each breed present in the population, then compared these statistics over time, both before and after passage of BSL.¹⁹⁰

One important statistical flaw noted by Collier is that owners of American pit bull terriers, in particular, are quite logically reticent to register their dogs under the proper breed designation, and likely do not do so in the same numbers as other non-restricted breeds.¹⁹¹ The results of this flaw are obvious. Where the PAF% of a breed is underestimated, each attack recorded by that breed is diffused over a smaller estimated population, and it makes the breed seem more aggressive.¹⁹² Collier also points out that the identification of dog breeds involved in the attacks comes primarily from eyewitnesses to the attacks or the news media, and that neither are reliable sources of data,¹⁹³ a point that will be made in greater detail in later studies.

Even based on a review of these flawed numbers, Collier determined that aggressive dogs make up only a very small percentage of any breed (at the highest only 1% of any one breed), that BSL has shown no change in the number of bites in Australia, and that BSL directed at a breed or group of breeds with the worst bite records is unlikely to affect statistics for any length of time because there are many breeds that could be made dangerous through irresponsible ownership.¹⁹⁴

2. Spanish Study

Similarly, a 2007 Spanish study, also published in the *Journal of Veterinary Behavior*, considered the effects of Spain’s “Dangerous Animals Act” (DAA), which included both breed-specific and breed-neutral laws.¹⁹⁵ Reviewing dog-bite data from the five-year period immedi-

terriers (APBT), imposed restrictions and requirements on owners, and in some cases banned the dogs in certain areas. *Id.* at 17–18.

¹⁹⁰ *Id.* at 18–20. Collier is quick to point out many of the methodological problems with determining the “dangerousness” of any particular breed based on bite reports and percentage of registered dogs. *Id.* First and foremost, the reliability of the data is immediately questionable because the calculation of population attributable fraction percentage (PAF%) is inherently flawed. *Id.* at 19. The PAF% measures the percentage of a breed within the overall population. *Id.* at 18. For a simple example, if there are one hundred dogs in the population and ten of them are identified as APBT, the PAF% would be 10%. When the Australian governments calculate PAF% it is based primarily on the number of dogs within the population that are registered to the breed, those numbers are then extrapolated to encompass the estimated non-registered dogs. *Id.* Collier points out that this method presupposes that all breeds have about the same percentage of registered and unregistered dogs. *Id.* at 19. In general, this is unlikely, especially in a community where certain breeds are restricted, and thus owners would be reluctant to register such dogs. *Id.* at 19.

¹⁹¹ *Id.* at 19.

¹⁹² *Id.*

¹⁹³ *Id.* at 20.

¹⁹⁴ *Id.* at 21.

¹⁹⁵ Rosado et al., *supra* note 16, at 167. At the time of the study, the Spanish Dangerous Breed list included the pit bull terrier, Staffordshire bull terrier, American Stafford-

ately prior to the enactment of the new law, and the five-year period after the enactment of the new law, the researchers determined that BSL had no effect on the rate of dog bites.¹⁹⁶

The results of the study showed no great changes in the number of bite incidents or the breeds of dog involved in biting.¹⁹⁷ German shepherds and crossbreed dogs accounted for the majority of bites both before enactment of the DAA and after.¹⁹⁸ These are two of the most popular types of dogs in Spain, so it is logical that most bites would come from these breeds.¹⁹⁹ While researchers noted a slight increase in the reporting of bites attributed to dogs from the dangerous-breed list in the post-enactment period, they generally attributed this to the greater awareness of, and possibly bias against, breeds on the list due to media attention surrounding the enactment of the DAA.²⁰⁰ Such bias would manifest through over-identification.²⁰¹

What the study did show was that the BSL and accompanying dangerous-breed list was not based on actual likelihood of danger.²⁰² The dangerous breeds were involved in only 2.4% of biting incidents prior to enactment of the legislation, and the breeds themselves represented only about 4.2% of the canine population.²⁰³ Researchers also noted the DAA in general (both breed-specific and breed-neutral provisions) showed no real impact on bite frequency, but that bites continued to be more frequent in the rural, less densely populated areas than in urban areas.²⁰⁴ While at first this may seem counterintuitive, it is likely that the urban owner exerts more control over their dog in public settings, preventing many potential bite episodes.²⁰⁵

The Spanish researchers note that BSL measures were both over-inclusive and underinclusive of the aggressive dog population, because

shire terrier, Rottweiler, Argentine Dogo, Brazilian Fila, Tosa Inu, and Akita Inu breeds. *Id.*

¹⁹⁶ *Id.* at 169. The study, the first conducted over such a long period of time, looked specifically at statistics from the Aragon region of Spain, which comprises three provinces of the northeastern area of the country. *Id.* at 167. Researchers also compared bite rates in densely populated areas of the region, compared to sparsely populated and rural areas over the same time period. *Id.* These researchers used the 2001 official Aragon census to determine human population in the region, and utilized data collected on rabies vaccinations in the region to estimate the canine population based on breed. *Id.* Because rabies vaccination is mandatory in Aragon, researchers believed the vaccination numbers would mirror the great majority of the canine population. *See id.* (“Canine population data were obtained from the 2004 municipal census In this regard dogs were registered by a tax code linked to the rabies vaccination that remains mandatory once a year in this region.”).

¹⁹⁷ *Id.* at 169, 171.

¹⁹⁸ *Id.* at 170.

¹⁹⁹ *Id.*

²⁰⁰ *Id.* at 167, 171.

²⁰¹ Rosado et al., *supra* note 16, at 171.

²⁰² *Id.* at 172.

²⁰³ *Id.*

²⁰⁴ *Id.* at 169.

²⁰⁵ *Id.* at 170.

the vast majority of dogs whose breeds are included on the list are not aggressive, and some dogs of other breeds are aggressive.²⁰⁶ Again, this is an important point that will be addressed in later studies. Perhaps even more importantly, the researchers noted that BSL can give the public, both dog owners and non-owners, a false sense of security that if a breed is not on the list, it is *per se* 'safe.'²⁰⁷

3. German Studies

In 2008, a group of German researchers conducted their own studies to determine whether BSL is justified, through behavior and temperament testing.²⁰⁸ In July of 2000, the Lower Saxony region of Germany enacted BSL that restricted the keeping of pit bull-type dogs²⁰⁹ and eleven other breeds.²¹⁰ The keeping of breeds commonly known as pit bulls was prohibited unless the individual dog or dogs could pass a particular behavior evaluation established by the Ministry of Nutrition, Agriculture, and Forestry.²¹¹ Even if they passed the test, pit bulls were still required to be muzzled and leashed at all times while off private property.²¹² The other eleven breeds were subject to the muzzling and leash law, and after they passed the behavior test, such dogs could be exempted from the breed-specific restrictions.²¹³ Under no circumstances could pit bull-type dogs be exempted from muzzle and leash requirements.²¹⁴

For their research, the German group put 415 dog-and-owner teams through the official behavior evaluation.²¹⁵ An examiner observed each dog-and-owner team as it moved through twenty-one scena-

²⁰⁶ *Id.* at 172.

²⁰⁷ See Rosado et al., *supra* note 16, at 172 (discussing that owning a breed of dog not designated as a dangerous breed, such as a German shepherd, "might lead to a false sense of security regarding the risk of causing an incident").

²⁰⁸ Schalke et al., *supra* note 98, at 98.

²⁰⁹ *Id.* at 97–98 (including American Staffordshire terriers, bull terriers, and other dogs "of the pit bull type").

²¹⁰ *Id.* at 98. Doberman pinscher, Rottweiler, Staffordshire bull terrier, bull mastiff, Dogo Argentino, Fila Brasileiro, Caucasian Owtscharka, mastiff, Mastino Español, Mastino Napoletano, and Tosa Inu breeds are restricted in this group. *Id.*

²¹¹ *Id.*

²¹² *Id.*

²¹³ *Id.* at 98.

²¹⁴ Schalke et al., *supra* note 98, at 98.

²¹⁵ *Id.* All dogs were members of, or crossbreeds of one of five different breeds: American Staffordshire terriers, bull terriers, Rottweilers, Doberman pinschers, Staffordshire bull terriers, or "dogs of the pit bull type." *Id.* All dogs were privately owned and previously unknown to researchers. *Id.* The significant portion of the behavior evaluation was the temperament test, where the dog-and-owner teams were observed in twenty-one different situations involving commonplace dog-human contact. *Id.* at 99. These situations tested the relationship between the dog and owner and how the dog reacted to strangers, including friendly strangers, threatening strangers, people making abrupt or unusual movements, and people with uncommon appearances. *Id.* Additionally, dogs were exposed to situations which might typically arise in the presence of children, as well as common everyday occurrences such as moving bicycles, opening umbrellas, or passing joggers. *Id.* at 103 app.2. Dogs were also evaluated for dog-on-dog interactions,

rios, and the dog was assigned a score of 1 to 7 based on how aggressive its response was to each interaction.²¹⁶ A score of 1 indicated no aggression whatsoever, while 2 to 7 indicated aggression in six escalated steps.²¹⁷ The researchers noted no significant difference between breeds with regard to inappropriate aggression on this test.²¹⁸ All told, 95% of the dogs in the study reacted appropriately to each given situation.²¹⁹ Based on these conclusions, the researchers concluded breed-based classifications were not justified.²²⁰

In a follow-up article, published later in 2008, the German team conducted the same test on seventy golden retrievers.²²¹ Over 98% of these dogs reacted appropriately to each situation (compared to 95% in the former study), and 1.43% of the dogs displayed aggressive behavior in inappropriate situations (compared to 5% in the former study).²²² Comparing the two studies, the scientists again found no statistically significant difference between the golden retriever control group and the other breeds affected by BSL.²²³ As a result of the publication of these two studies, the government of Lower Saxony repealed its BSL.²²⁴

4. Dutch Study

In what is believed to be the first scientific evaluation of BSL commissioned by a government, researchers from the Netherlands conducted three surveys to determine if BSL was justified in their country.²²⁵ The first survey contacted over 40,000 Dutch households, identifying 1,420 people who had been bitten by a dog in the preceding

but the researchers did not include the results in this study as the focus of the study was on aggression toward people. *Id.* at 99.

²¹⁶ *Id.* at 98–99.

²¹⁷ *Id.* at 99. Of 415 dogs tested, 158 showed no aggressive behavior under any of the circumstances (score of 1) and an additional 201 only gave visual or auditory signals while staying still or backing away from the stimulus (score of 2). *Id.* A total of eighteen dogs exhibited bite movements, but either remained still, backed away, or stopped some distance from the stimulus (scores of 3 and 4). *Id.* Thirty-seven dogs exhibited threatening behavior, followed by an actual completed bite or attack (score of 5), while only one dog reacted with a bite or attack without first showing threatening behavior (score of 6). *Id.* No dogs reached a score of 7. *See id.* (415 dogs accounted for in numbers scoring 1 through 6). Of the dogs that showed some aggression, it was generally observed most frequently when the dog was physically threatened, followed by instances where a stranger made abrupt movements. *Id.* at 100. Of the thirty-seven dogs that reached the level of 5, only nineteen showed aggression at inappropriate times. *Id.*

²¹⁸ *Id.* at 99.

²¹⁹ *Id.*

²²⁰ Schalke et al., *supra* note 98, at 102.

²²¹ Ott et al., *supra* note 186, at 135.

²²² *Id.* at 134.

²²³ *Id.* at 140.

²²⁴ *See id.* at 134–35, 140 (reviewing results of previous study, reporting results of present study, and indicating that BSL was repealed).

²²⁵ *See* Cornelissen & Hopster, *supra* note 27, at 293 (study of effectiveness of BSL commissioned by the Dutch government, completed in 2009).

twenty-four months.²²⁶ The second survey was directed toward those individuals identified in the first survey, and asked respondents to give information about the dog–victim interaction as well as the breed of dog responsible for the bite.²²⁷ The last survey, reaching out to over 10,000 dog owners, collected information on breed and registration status.²²⁸

Based on these surveys, the researchers found that about 33% of victims were bitten by their own dogs, while 62% of all bites, and 75% of bites to children, occurred in non-public places.²²⁹ About 31% of the bites were characterized as “unintentional,” meaning they happened during play or by accident.²³⁰ Most bite incidents resulted in no injury or only minor injury (total of 80%).²³¹

Almost all persons surveyed about their injuries made a breed identification.²³² In total, eighty-six different breeds were identified.²³³ The study calculated bite risk indices based on the representation ratio, a likelihood that a dog of the breed would bite based on representation of the breed within the reference population.²³⁴ The average dog has a bite risk index of 1.²³⁵ Certain breeds had a bite risk index above 1, such as Belgian shepherds, Jack Russell terriers, German shepherds, and Dobermans, among others.²³⁶ Breeds such as golden retrievers, Yorkshire terriers, and the polymorphic mixed-breed group had ratios below 1.²³⁷ While these numbers may provide some general support for BSL against certain breeds, the researchers noted that eighty-six different breeds did bite.²³⁸ Eliminating one or two breeds or even twenty breeds does not eliminate the risk.²³⁹ The breadth of the entire study illustrates the complexity of the dog-bite problem.²⁴⁰ Simply eliminating breeds that bite the most implies re-

²²⁶ *Id.*

²²⁷ *Id.* at 293. In order to help with identification of breed, researchers included pictures of the fifty most popular breeds in the Netherlands, as well as pictures of breeds most commonly the subject of BSL. *Id.* In the study they acknowledge that the term ‘breed’ includes look-alikes and crossbreeds. *Id.*

²²⁸ *Id.* at 293.

²²⁹ *Id.* at 294.

²³⁰ *Id.* at tbl.1.

²³¹ *See* Cornelissen & Hopster, *supra* note 27, at 294 tbl.1 (32% resulted in no injuries, and 48% resulted in minor injuries).

²³² *Id.* (92%).

²³³ *Id.*

²³⁴ *Id.* at 297.

²³⁵ *See id.* at 293 (noting that the bite risk index is established by dividing the fraction of breed within the biting population by the fraction of breed within the canine population and that a breed with an average bite risk will necessarily have an index of 1).

²³⁶ *Id.* at 296 tbl.2.

²³⁷ Cornelissen & Hopster, *supra* note 27, at 296 tbl.2.

²³⁸ *Id.* at 294.

²³⁹ *See id.* at 297 (“Our findings . . . do not support the use of an attack record in developing mitigation strategies. We found that *all dogs can bite.*” (emphases in original)).

²⁴⁰ *Id.* at 293–97.

moving the most common breeds, a result that the researchers deemed “neither practicable nor desirable.”²⁴¹

Instead, the researchers urge multiple prevention strategies based on characteristics of the injuries.²⁴² For instance, the study supported the finding that most children are bitten in their own homes by dogs they know.²⁴³ Educating children on how to safely interact with dogs,²⁴⁴ combined with warning parents of the dangers of leaving children and dogs together unsupervised,²⁴⁵ should prevent many of the most common dog bites to children.²⁴⁶ Similarly, preventing dogs from biting their owners would require different strategies than preventing dogs from biting strangers in public locations.²⁴⁷ Recently, after the completion of the Dutch government’s inquiry into the efficacy of BSL, the Netherlands repealed its BSL in favor of prevention efforts that more closely matched the bite risks in the community.²⁴⁸

B. *Epidemiological Studies of Dog Bites Illuminate Complexity of Problem*

The findings of the Dutch study echo many of the epidemiological studies on dog bite prevention, showing that the factors contributing to dog bites are numerous and complex.²⁴⁹ Breed plays only a small part,

²⁴¹ *Id.* at 297.

²⁴² *Id.* at 296–97.

²⁴³ Cornelissen & Hopster, *supra* note 27, at 296.

²⁴⁴ *Id.* In *Harry Potter and the Prisoner of Azkaban*, author J.K. Rowling illustrates the problem of children who fail to respect the personal space of an animal. In one iconic scene (later portrayed in the movie of the same name) protagonist Harry Potter demonstrates a proper and respectful interaction with a potentially dangerous hippogriff named Buckbeak. The interaction goes very well, and the hippogriff allows Harry to ride on his back. Later, the antagonist, Draco Malfoy, always jealous of Harry’s successes, attempts to ride the hippogriff, but approaches the creature aggressively, paying no attention to the warning body language of the animal. In response, the hippogriff injures Malfoy and is sentenced to death for hurting the boy. This type of incident happens all the time in interactions between people (both children and adults) and dogs, and just like Buckbeak, it is the dog that pays the ultimate price with his life. In Rowling’s book, Harry Potter and his friends are able to save the day and protect Buckbeak, but such a happy ending is rare in real life. J. K. ROWLING, *HARRY POTTER AND THE PRISONER OF AZKABAN* 114–19, 218, 415 (Arthur A. Levine Books ed. 1999); *HARRY POTTER AND THE PRISONER OF AZKABAN* at 33:30 (Warner Bros. 2004).

²⁴⁵ Cornelissen & Hopster, *supra* note 27, at 296.

²⁴⁶ *See id.* (“Several successful educational interventions for the prevention of dog bites in children have been reported in the literature.”).

²⁴⁷ *Id.* at 296–97.

²⁴⁸ *See id.* at 293 (study itself contributed to the abolition of BSL in the Netherlands); *see also* EXPATICA DUTCH NEWS, *supra* note 180 (stating that the Agriculture Minister, Gerda Verburg, announced the repeal, citing the fact that the ban did not reduce biting incidents).

²⁴⁹ *See, e.g.*, AVMA Task Force on Canine Aggression and Human-Canine Interactions, *A Community Approach to Dog Bite Prevention*, 218 J. AM. VETERINARY MED. ASS’N 1732, 1733 (2001) (arguing that dog bite statistics “are not really statistics, and they do not give an accurate picture of dogs that bite”); J.R. Matthews & K.A. Lattal, *A Behavioral Analysis of Dog Bites to Children*, 15 J. DEV. BEHAV. PEDIATRICS 44, 45 (1994); Karen L. Overall & Molly Love, *Dog Bites to Humans—Demography, Epidemiol-*

if any.²⁵⁰ A 2013 comprehensive study of 256 dog bite-related fatalities (“DBRF”)²⁵¹ in the U.S. found a number of key preventable factors play a significant role in such deaths.²⁵² The authors noted that undue and widespread emphasis on breed has detrimentally affected efforts to prevent serious and fatal canine attacks because it “has contributed to a lack of appreciation of the ownership and husbandry factors that more directly impact dogs and the complex genetic factors that work in combination with husbandry to influence a dog’s behavior responses to a given set of stimuli.”²⁵³ In other words, when we focus on breed, we miss the real dangers.

This particular study was unique in that the information regarding the incidents was not taken solely from media reports, but rather from interviews of primary sources including law enforcement, animal control officers, veterinarians, prosecutors, dog owners, and witnesses and therefore more detailed information was gathered.²⁵⁴

Of the victim-related factors, it is important to note that 85% of the victims had either no relationship with the dog (74.2%)²⁵⁵ or only an incidental relationship (10.9%).²⁵⁶ Over half the victims were either under the age of five (45.3%) or their ability to properly interact with a dog was compromised (10.6%) due to drug and alcohol intake, dementia, Alzheimer’s disease, or uncontrolled seizure disorders.²⁵⁷ In 87.1% of the incidents, there was no able-bodied adult present at the scene to intervene.²⁵⁸

In relation to the characteristics of the dogs themselves, the sexual status of the dog stood out as particularly important. In 212 incidents (82.2%), only sexually intact dogs were involved, while another 4 incidents included both intact and altered dogs.²⁵⁹ For twenty-two in-

ogy, Injury, and Risk, 218 J. AM. VETERINARY MED. ASS’N 1923, 1932 (2001); CM Shuler et al., *Canine and Human Factors Related to Dog Bite Injuries*, 232 J. AM. VETERINARY MED. ASS’N 542, 542 (2008).

²⁵⁰ Karen L Overall, *Breed-Specific Legislation: How Data Can Spare Breeds and Reduce Dog Bites*, 186 VETERINARY J. 277, 278 (2010).

²⁵¹ Patronek, *supra* note 15, at 1726. DBRFs are extremely rare. *Id.* at 1726, 1729. The 256 DBRFs studied occurred over a ten-year period, with a mean of 25.6 incidents per year. *Id.* at 1729. The human population in the U.S. during this time period was approximately 295.5 million, while the canine population was estimated at 68.8 million. *Id.* This corresponds with a rate of 0.087 fatal bite incidents per 1 million people per year, and 0.38 fatal bite incidents per 1 million dogs per year. *Id.*

²⁵² *Id.* at 1726.

²⁵³ *Id.*

²⁵⁴ *Id.* at 1729.

²⁵⁵ *Id.* at 1730. Victims with no relationship with the dog were visitors, intruders, or passersby. *Id.* at 1727.

²⁵⁶ *Id.* at 1730. A victim with an incidental relationship is a person “other than the owner or primary caretaker . . . who is regularly present at the home, . . . and who does not regularly interact with the dog in positive and humane ways.” *Id.* at 1727.

²⁵⁷ Patronek, *supra* note 15, at 1729.

²⁵⁸ *Id.* at 1730.

²⁵⁹ *Id.* The authors theorize that it is possible or perhaps even likely that the sexually-intact dog incited the other dogs involved in these types of attacks. *Id.*

cidents, investigators were unable to determine the sex status of the dogs involved.²⁶⁰ Only 7% were documented to involve neutered male dogs alone,²⁶¹ and spayed female dogs were only noted to be involved in 2 of the 256 incidents (less than 1%).²⁶² While the investigators also gathered breed information on the dogs involved, they found that “disagreement occurred with sufficient frequency to cast doubt” on identifying breed without support from DNA evidence or pedigree papers.²⁶³

In the category of husbandry, researchers noted several factors contributing to DBRFs. In 37.5% of the incidents there was evidence of owner mismanagement²⁶⁴ and in 21.1% there was evidence of prior abuse²⁶⁵ or severe neglect²⁶⁶ of the dog.²⁶⁷ The most striking statistic was that 76.2% of DBRF-involved “resident” dogs, not family dogs.²⁶⁸ Resident dogs are generally isolated from positive interactions with humans.²⁶⁹ These dogs may be tethered or penned outside for most of their lives, or sequestered in a basement, garage or other location in the house, but the key factor is that resident dogs are isolated.²⁷⁰ Family dogs, on the other hand, are kept in the house and have positive interactions with the family.²⁷¹ This is a particular distinction that has gone unnoticed, or largely been ignored by the media, but it is a factor well worth exploring. In addition, 74.2% of deaths occurred on the dog owner’s property,²⁷² and in 87.1% of the incidents, the owner was not present.²⁷³

Documentation of the co-occurrence of these factors is, perhaps, the biggest take-away from this study. In over 80% of the DBRFs studied, at least four different factors were present at the time of the fatality, and in over 60% at least five factors were present.²⁷⁴ Thus, it is not usually one mistake by an owner that leads to a DBRF, it is a pattern of neglect, mismanagement, isolation, and abuse, coupled with a vul-

²⁶⁰ *Id.*

²⁶¹ *Id.* at 1730 tbl.2. Other neutered male dogs may have been involved in attacks by multiple dogs when an intact male was present. *Id.*

²⁶² *Id.* at 1730.

²⁶³ Patronek, *supra* note 15, at 1734. Unreliability of eyewitness breed identification will be explored in depth in Section V of this paper.

²⁶⁴ *Id.* at 1732. Mismanagement was defined as allowing the dog to be a danger, via either knowledge of prior dangerous acts, or allowing the dog to run loose. *Id.* at 1728.

²⁶⁵ *Id.* at 1732. Abuse included beating a dog, using it for dogfighting, sexual abuse of the dog, or evidence of other physical punishment. *Id.* at 1728. In general, abuse was considered more severe than neglect. *Id.*

²⁶⁶ *Id.* at 1732. Neglect was defined as either failure to provide adequate food, water, shelter or shade, or failure to obtain treatment for medical conditions. *Id.* at 1730.

²⁶⁷ *Id.* at 1732. The authors noted that the actual level of abuse or neglect may not have been thoroughly investigated, and therefore may be underreported. *Id.* at 1734.

²⁶⁸ *Id.* at 1732.

²⁶⁹ Patronek, *supra* note 15, at 1732.

²⁷⁰ *Id.*

²⁷¹ *Id.* at 1728.

²⁷² *Id.* at 1732.

²⁷³ *Id.* at 1731 tbl.3.

²⁷⁴ *Id.* at 1732 fig.1.

nerable victim, which leads to a DBRF. DBRFs are certainly rare, but they are also, in many cases, preventable—not through BSL, but through responsible dog ownership.

Similarly, recent studies surveying dog owners in the U.S. and United Kingdom about their experiences with canine aggression support the argument that canine aggression is a complex problem.²⁷⁵ These studies show “substantial within-breed variations” in aggression,²⁷⁶ suggesting that environmental and developmental factors play a major role in canine aggression.²⁷⁷ Specifically, researchers found increased instances of aggression in dogs subjected to physical punishment,²⁷⁸ unneutered male dogs,²⁷⁹ older dogs,²⁸⁰ dogs with younger owners,²⁸¹ and dogs with female owners.²⁸² On the other hand, researchers found decreased aggression in younger dogs,²⁸³ spayed female dogs,²⁸⁴ dogs with older owners,²⁸⁵ and puppies that had attended training classes.²⁸⁶ Again, the literature supports the fact that canine aggression does not occur in the vacuum of breed and requires a comprehensive, multi-faceted, and breed-neutral response.

C. Canine Brain Chemistry, and Genetics

One emerging area of scientific inquiry into canine aggression centers on the brain chemistry of aggressive dogs. While admittedly narrow, two studies published in 2010 and 2013 noted certain brain chemistry similarities in some aggressive dogs.²⁸⁷ In one study, the

²⁷⁵ See, e.g., Rachel Casey et al., *Human Directed Aggression in Domestic Dogs (Canis Familiaris): Occurrence in Different Contexts and Risk Factors*, 152 J. APPLIED ANIMAL BEHAV. SCI. 52, 52–63 (2014) (discussing the “relatively small amount of variance” when applying the same factors to aggressive and non-aggressive dogs, which suggests “a much greater importance of factors specific to the experience of individual dogs” instead of generally to their breed); Deborah Duffy et al., *Breed Differences in Canine Aggression*, 114 J. APPLIED ANIMAL BEHAV. SCI. 441, 451–52 (2008) (“Differences between lines of distinct breeding stock indicate that the propensity toward aggressive behavior is at least partially rooted in genetics, although substantial within-breed variation suggests that other factors (developmental, environmental) play a major part in determining whether aggressive behavior is expressed in the phenotype.”); Yuying Hsu & Liching Sun, *Factors Associated with Aggressive Responses in Pet Dogs*, 123 J. APPLIED ANIMAL BEHAV. SCI. 108, 109 (2010) (finding variables in environmental factors, such as “dog and owner characteristics, living environments and owner-dog interactions”, had “significant relationships” with aggression scores).

²⁷⁶ Duffy et al., *supra* note 275, at 451–52.

²⁷⁷ *Id.* at 457.

²⁷⁸ Casey et al., *supra* note 275, at 61; Hsu & Sun, *supra* note 275, at 109.

²⁷⁹ Casey et al., *supra* note 275, at 60; Hsu & Sun, *supra* note 275, at 109.

²⁸⁰ Casey et al., *supra* note 275, at 60.

²⁸¹ *Id.*

²⁸² *Id.* at 59.

²⁸³ *Id.* at 60.

²⁸⁴ *Id.*; Hsu & Sun, *supra* note 275, at 120.

²⁸⁵ Casey et al., *supra* note 275, at 60.

²⁸⁶ *Id.* at 61.

²⁸⁷ Marta Amat et al., *Differences in Serotonin Concentration Between Aggressive English Cocker Spaniels and Aggressive Dogs of Other Breeds*, 8 J. VETERINARY BEHAV. 19,

researchers looked at genes related to neurotransmitter²⁸⁸ systems in canine brains, and identified haploid genotypes²⁸⁹ (“haplotypes”) that seemed to indicate either risk of aggression or protection against aggression in dogs.²⁹⁰ Particularly, the researchers noted a correlation among low serotonin levels, higher than normal dopamine levels, and aggressive behavior.²⁹¹ These findings are similar to the findings of other studies in humans and animals that link serotonin hypoactivity and dopamine hyperactivity to impulse aggression.²⁹² Risk of aggression is likely a complex phenomenon resulting from combined effects of several haplotypes and environmental factors.²⁹³ The presence of one gene or haplotype will not cause aggressive behavior, but the presence of several specific haplotypes working together and combined with environmental factors, such as physical punishment²⁹⁴ or neglect/isolation,²⁹⁵ could cause a tendency toward aggression.²⁹⁶ These brain

19 (2013); J. Våge et al., *Association of Dopamine- and Serotonin-Related Genes with Canine Aggression*, 9 GENES BRAIN & BEHAV. 372, 373 (2010).

²⁸⁸ Neurotransmitters are chemicals that help communicate signals across the neurons of the brain. Serotonin and dopamine are present in both humans and animals and are linked to behavior, including aggressive behavior. Dongju Seo et al., *Role of Serotonin and Dopamine System Interactions in the Neurobiology of Impulsive Aggression and Its Comorbidity with Other Clinical Disorders*, 13 AGGRESSION & VIOLENT BEHAV. 383, 384 (2008).

²⁸⁹ Haploid genotypes, also called haplotypes, are collections of specific alleles (DNA sequences) that are closely linked on portions of chromosomes and are often inherited together. Nat'l Hum. Genome Res. Inst., *Developing a Haplotype Map of the Human Genome?for Finding Genes Related to Health and Disease*, GENOME.GOV, <http://www.genome.gov/10001665> [<http://perma.cc/67PP-QSMB>] (updated Feb. 22, 2012) (accessed Nov. 25, 2015).

²⁹⁰ Våge et al., *supra* note 287, at 373.

²⁹¹ *Id.* at 376.

²⁹² Seo et al., *supra* note 288, at 383.

²⁹³ Våge et al., *supra* note 287, at 376; Amat et al., *supra* note 287, at 21–22.

²⁹⁴ Patronek et al., *supra* note 15, at 1728, 1731. “Differences between lines of distinct breeding stock indicate that the propensity toward aggressive behavior is at least partially rooted in genetics, although substantial within-breed variation suggests that other factors (developmental, environmental) play a major part in determining whether aggressive behavior is expressed in the phenotype.” Duffy et al., *supra* note 275, at 457.

²⁹⁵ Patronek et al., *supra* note 15, at 1732.

²⁹⁶ James Fallon, a neuroscientist from University of California at Irvine, recently made waves in popular media for his research on human psychopathy. Barbara Bradley Hagerty, *A Neuroscientist Discovers a Dark Secret*, NPR, <http://www.npr.org/templates/story/story.php?storyId=127888976> (June 29, 2010, 12:00 AM) (accessed Nov. 25, 2015). Studying human brain scans and gene haplotypes, he long noted similarities among clinically diagnosed psychopaths in both areas. *Id.* What was particularly fascinating however, was his research into his own family. *Id.* Coming from a line of violent criminals that includes the infamous Lizzy Borden, he decided to conduct brain and genetic tests of his own seemingly well-adjusted and non-violent relatives. *Id.* What he discovered was that all of his relatives had normal brain scans and showed no risk for violence based on genetic markers. *Id.* Only one person’s brain and genes showed all the signs of psychopathy—his own. *Id.* But Dr. Fallon noted that he was not, himself, a violent criminal despite his brain scans and genes being consistent with those of psychopaths. *Id.* What Fallon hypothesized was that a third factor is necessary to activate the violent behavior, and in humans that is usually some form of childhood abuse whether

chemistry characteristics may be inherited by some dogs through certain breed lines, but they do not appear to be a breed-wide phenomenon. This means not every dog, or even most dogs of any particular breed, shows the brain chemistry of aggression.²⁹⁷ Just as the brain chemistry of violent humans is different than the majority of humans, so too the brain chemistry of aggressive dogs may be, simply, different than most other dogs regardless of breed.²⁹⁸ While this neuroscience-based inquiry is in its infancy it does give hope for the possibility of early diagnoses of aggressive tendencies that may respond to behavior modification therapy or even drug intervention before aggression actually occurs.

D. *Studies that Support BSL*

While the great majority of recent scientific studies reject BSL as a solution to the problem of dog bites, a few studies have been used to support such legislation. One of the most controversial of the supporting literature is a 2011 article published in the *Annals of Surgery* that purports to review all dog-bite traumas admitted to a level 1 trauma unit at the University of Texas Health Science Center in San Antonio over a fifteen-year period.²⁹⁹ The researchers attempted to determine the breed of the dogs involved in attacks on people subsequently admitted to the hospital.³⁰⁰ They established two categories: pit bulls (including dogs determined to be pit-mixes) and non-pit bulls.³⁰¹ However, there is no explanation of how the researchers established breed, nor is there a clear understanding of what characteristics were required to be included in the 'pit bull' category, since it included mixed breeds.³⁰² As will be discussed in greater depth in Part IV, determination of breed, especially when mixed breeds are involved, is much more complex and uncertain than it may at first appear.³⁰³ At the very least, the researchers should have provided information on

physical, sexual, or emotional. *Id.* This type of perfect storm of brain chemistry, genetics, and environment could very well be similar in instances of canine aggression and is further evidence of the complexity of this issue. In fact, the environmental factors contributing to canine aggression are well documented, and a combination of 'nature' and 'nurture' factors seems not only logical but likely. Patronek et al., *supra* note 15, *passim*.

²⁹⁷ For example, over 95% of dog breeds involved in the German study behaved properly under all circumstances. Schalke et al., *supra* note 98, at 102.

²⁹⁸ Just as we should not single out a race or ethnicity of humans as overly violent because a few of its members are violent, we should also not single out a canine breed in this manner.

²⁹⁹ John K. Bini et al., *Mortality, Mauling and Maiming by Vicious Dogs*, 253 *ANNALS SURGERY* 791, 791–96 (2011). Records of persons admitted from January 1, 1994 through April 30, 2009 were reviewed for the article. *Id.*

³⁰⁰ *Id.* at 792. Two hundred twenty-eight victims of dog attacks were admitted to the hospital, but breed assignment (by whatever means used by the researchers) was only available for eighty-two of those victims (only 36% of the incidents).

³⁰¹ *Id.*

³⁰² *Id.*

³⁰³ See discussion *infra* Part IV.

their methods of breed determination, whether by media report, victim or witness interview, AKC registration, etcetera. The study has also been criticized for its citation to highly questionable statistics from unpublished sources.³⁰⁴ This article concluded that from their evaluation of records, injuries sustained in attacks by pit bulls were generally more severe than those by non-pit bulls.³⁰⁵ However, even the authors admitted that their small sample size and the limitations of their retrospective data might have compromised their results.³⁰⁶ These shortcomings, coupled with questionable statistics and undefined method of breed determination, undermine this study's usefulness.

Similarly questionable is a recent study published in 2012 of the rate of dog-bite hospitalizations in areas of Manitoba, Canada, that have passed BSL at the community level.³⁰⁷ Researchers in the province of Manitoba attempted to compare the dog-bite related hospitalization rates in Manitoba's non-BSL communities with hospitalization rates in communities that have enacted BSL in order to determine the efficacy of BSL.³⁰⁸ When comparing the pre-BSL hospitalization rates to post-BSL hospitalization rates within individual jurisdictions, the researchers found "no significant reduction in the period after BSL implementation."³⁰⁹ It was only after researchers introduced "temporal and geographic variations" that they found any difference in comparing BSL and non-BSL jurisdictions.³¹⁰ Specifically, they compared urban jurisdictions to rural by comparing the single major metropolitan area of Winnipeg to the smaller city of Brandon, and they found that the "hospitalization rate in Winnipeg (city with BSL) relative to Brandon (city without BSL) was lower after implementation."³¹¹ These results are not surprising, nor should they be tied to BSL.³¹² Comparing Winnipeg, a city of nearly 700,000 people, to Brandon, a city of fewer than 50,000 people (less than 10% of Winnipeg's population), is comparing apples to oranges.³¹³ European researchers established that more densely populated areas generally have fewer dog-bite related injuries per capita.³¹⁴

³⁰⁴ See, e.g., Karen Delise, *Imprudent Use of Unreliable Dog Bite Tabulations and Unpublished Sources*, 225 ANNALS OF SURGERY e11, e11 (2012) (calling into question the methods and limitations used by the research team).

³⁰⁵ Bini et al., *supra* note 299, at 796.

³⁰⁶ *Id.*

³⁰⁷ Raghavan et al., *supra* note 16, at 177.

³⁰⁸ *Id.*

³⁰⁹ *Id.* at 181.

³¹⁰ *Id.*

³¹¹ *Id.* at 182.

³¹² *Winnipeg, Manitoba Far Behind Calgary in Community Safety*, NAT'L CANINE RESEARCH COUNCIL, <http://www.nationalcanineresearchcouncil.com/blog/winnipeg-manitoba-far-behind-calgary-in-community-safety/> [<http://perma.cc/VYY9-B5C2>] (July 9, 2012) (accessed Nov. 25, 2015).

³¹³ *Id.*

³¹⁴ Rosado et al., *supra* note 16, at 169.

In addition to these geographical differences, the Canadian researchers did not compare the same time periods in the BSL and non-BSL jurisdictions. Researchers compared data from the BSL jurisdictions while the legislation was in effect³¹⁵ to data from the non-BSL jurisdictions over the entire study time period from 1984 to 2006.³¹⁶ This presupposes that only BSL would change the rate of bite injury hospitalizations and that bite injuries have not gone down in many non-BSL jurisdictions during the time frame. On the contrary, dog-bite injuries have been decreasing across the country since 1994, and not necessarily in BSL jurisdictions.³¹⁷

In addition to these two studies whose authors have come out in favor of BSL, proponents also point to the following study out of Catalonia, Spain, despite no specific endorsement of BSL from its authors.³¹⁸ In this 2010 study, researchers noted a decline in dog-bite related hospitalizations from 1997 to 2008.³¹⁹ Stricter regulations on dog ownership were passed in the area in 1999, some of which were breed-specific.³²⁰ While the decline was noted, researchers acknowledged that it was not possible to tell which regulations were effective, whether the change was due to education related to the regulations, or whether other factors were involved in the decline.³²¹ Particularly, the authors noted that there was general decline in dog-bite related injuries documented during that time period in other locations, including the U.S., that could not be tied to specific interventions.³²²

The vast majority of current scientific literature disfavors and undermines the efficacy of BSL. Generally, BSL is characterized through these studies as simplistic and reactionary, based on little actual evidence, and sometimes based on nothing more than media hype. Governments should be looking more closely at the varied risk factors that contribute to dog aggression and dog bites instead of ending their inquiry at the breed of dog.

³¹⁵ Winnipeg passed BSL in 1990, and other small communities passed BSL between 1991 and 2006, so the amount of time considered in the study for each BSL community varied based on when the legislation was passed. Raghavan et al., *supra* note 16, at 177. The data from non-BSL communities was calculated for the full time period from 1984 to 2006. *Id.*

³¹⁶ *Id.* at 177–78.

³¹⁷ J. Gilchrist et al., *Dog Bites: Still a Problem?*, 14 *INJ. PREVENTION* 296, 296 (2008).

³¹⁸ Joan R. Villalbí et al., *Decline in Hospitalizations Due to Dog Bite Injuries in Catalonia, 1997–2008. An Effect of Government Regulation?*, 16 *INJ. PREVENTION* 408, 408–10 (2010).

³¹⁹ *Id.* at 408.

³²⁰ *Id.* at 409.

³²¹ *Id.*

³²² *Id.*; Gilchrist et al., *supra* note 317, at 296.

IV. THE UNRELIABILITY OF VISUAL IDENTIFICATION OF DOG BREEDS

The scientific research discussed in Part III above employs a number of different empirical strategies to study the issue of canine aggression, but none of them considers the impact of DNA analysis on BSL. Up until recently, visual identification of breed has been accepted as correct; however, new evidence suggests visual identification of breed is not reliable, and in so doing, it rocks the already shaky foundations of BSL.³²³ Strongly paralleling the DNA exoneration of humans wrongfully convicted of crimes based on eyewitness identification, we are now seeing that canine DNA tests can call into question many breed identifications.³²⁴

For over one hundred years, scientists and criminal law scholars have debated the reliability of eyewitness identification in criminal trials.³²⁵ The current general consensus finds that eyewitness identification is extremely unreliable, and some scholars even advocate for ways to decrease its prevalence in criminal trials or its evidentiary admissibility.³²⁶ As noted in a recent opinion by the Pennsylvania Supreme Court, forty-five of the fifty states and most federal jurisdictions now allow, at the discretion of the trial court, expert testimony to be introduced at criminal trials to explain the limits of human perception and the unreliability of eyewitness identification.³²⁷ Of the states that

³²³ Patronek, *supra* note 15, at 1726–27.

³²⁴ See Victoria L. Voith et al., *Comparison of Visual and DNA Breed Identification of Dogs and Inter-Observer Reliability*, 3 AM. J. SOC. RES. 17, *passim* (2013) (discussing the results of a study where “[o]ver 900 participants” were asked to identify breeds by sight); *Incorrect Breed Identification Costs Dogs Their Lives*, MADDIE’S FUND, <http://www.maddiesfund.org/incorrect-breed-identification.htm> [<http://perma.cc/692R-CJF2>] (Feb. 2012) (accessed Nov. 25, 2015).

³²⁵ See *Perry v. New Hampshire*, 132 S. Ct. 716, 730–31 (2012) (Sotomayor, J., dissenting) (“This Court has long recognized that eyewitness identifications’ unique confluence of features—their unreliability, susceptibility to suggestion, powerful impact on the jury, and resistance to the ordinary tests of the adversarial process—can undermine the fairness of a trial.”); *United States v. Wade*, 388 U.S. 218, 228 (1967) (“The vagaries of eyewitness identification are well-known; the annals of criminal law are rife with instances of mistaken identification.”).

³²⁶ “[A] vast body of scientific research about human memory has emerged. That body of work casts doubt on some commonly held views relating to memory Study after study revealed a troubling lack of reliability in eyewitness identifications. From social science research to the review of actual police lineups, from laboratory experiments to DNA exonerations, the record proves that the possibility of mistaken identification is real. Indeed, it is now widely known that eyewitness misidentification is the leading cause of wrongful conviction across the country.” *State v. Henderson*, 208 N.J. 208, 217–18 (2011). “The studies all lead inexorably to the conclusion that human perception is inexact and that human memory is both limited and fallible.” John P. Rutledge, *They All Look Alike: The Inaccuracy of Cross-Racial Identifications*, 28 AM. J. CRIM. L. 207, 210 (2001) (quoting *State v. Long*, 721 P.2d 483, 488 (Utah 1986)).

³²⁷ *Commonwealth v. Walker*, 92 A.3d 766, 782–83 (Pa. 2014).

have considered the issue, only Kansas and Louisiana preclude expert testimony on eyewitness identification per se.³²⁸

DNA evidence, and its use in freeing persons convicted of crimes on the basis of inaccurate eyewitness identification,³²⁹ has essentially forced the hands of the courts to reform the way they deal with inherently unreliable eyewitness testimony.³³⁰ It should come as no surprise then that human eyewitness identification of canines and canine breeds is not more accurate or reliable than identification of persons perpetrating criminal acts. And once again, it is DNA that provides irrefutable evidence of that fact.³³¹

To date, the most groundbreaking scientific study on the topic of visual identification of canine breeds came in a 2013 study in the *American Journal of Sociological Research*, which found that the accuracy of visual breed identification is extremely low even by persons who work in canine-related fields.³³² This study undermines the foundational basis of breed-specific laws and calls into question whether they could ever be implemented rationally or justly enforced.

Until the completion of the mapping of the canine genome,³³³ and tests to identify dog breeds through DNA became available,³³⁴ determination of breed was almost solely based on visual identification.³³⁵

³²⁸ *Id.* at 783.

³²⁹ The Innocence Project estimates that eyewitness misidentification plays a role in approximately 70% of wrongful convictions overturned through DNA evidence. *Eyewitness Misidentification*, THE INNOCENCE PROJECT, <http://www.innocenceproject.org/understand/Eyewitness-Misidentification.php> [<http://perma.cc/L6JG-2JJW>] (accessed Nov. 25, 2015).

³³⁰ The recent advent of DNA testing has raised the profile of erroneous eyewitness identifications, and the resulting overturned convictions based upon such testing increases the concern over the accuracy of eyewitness identification. Further, DNA testing has brought to the fore the other damaging impacts of erroneous eyewitness identification. *Walker*, 92 A.3d at 779.

³³¹ See generally Katie Bray Barnett, *Breed Discriminatory Legislation: How DNA Will Remedy the Unfairness*, 4 J. ANIMAL L. & ETHICS 161 (2011) (concluding that, due to the unreliability of eyewitness identification, “canine DNA should also be regularly admitted for breed identification.”).

³³² Voith et al., *supra* note 324, at 22–24. All 923 human participants in the study worked in canine-related fields, as veterinarians, shelter workers, and AKC show judges and would be expected to have a better ability to identify dog breeds than the average person. *Id.* at 21.

³³³ Kerstin Lindblad-Toh et al., *Genome Sequence, Comparative Analysis and Haplotype Structure of the Domestic Dog*, 438 NATURE 803 *passim* (Dec. 8, 2005).

³³⁴ The Wisdom Panel, by Mars Veterinary, is the dominant canine DNA test and boasts that it can identify over 200 breeds. Mars Veterinary, *FAQs*, THE WISDOM PANEL, http://www.wisdompanel.com/why_test_your_dog/faqs/#750 [<http://perma.cc/2HKJ-NL SL>] (accessed Nov. 25, 2015).

³³⁵ In some relatively rare cases, breed identification could be based upon registration by the AKC, UKC, or other similar canine organizations. See generally *Dog Breeds*, AM. KENNEL CLUB, http://www.akc.org/breeds/complete_breed_list.cfm [<http://perma.cc/G4PT-VZ9C>] (accessed Nov. 25, 2015) (stating that there are many factors the Board must consider in breed identification, including accuracy of records and proof of true breeding for generations of the particular breed in question); *Breed Standards*, UNITED KENNEL CLUB, <http://www.ukcdogs.com/Web.nsf/Webpages/Registration/BreedStand>

Whether a dog of mixed or unregistered heritage would be considered a particular breed was decided by the visual perception of the enforcer in most cases. In some cases, ‘expert’ witness testimony (opinion of shelter workers or even the breed identification made by the owner themselves) would satisfy the proof requirement.³³⁶

Based on Voith’s findings, those visual identifications are inherently unreliable. The study utilized 923 participants, all of which were persons engaged in dog-related professions and/or activities and were assumed to be knowledgeable about dogs and dog breeds in general.³³⁷ Each participant viewed one minute, color video clips of twenty mixed-breed dogs used in the study. Each participant was then asked to visually identify the dogs’ predominant breed or breeds.³³⁸ The results are staggering.

For fourteen of the twenty dogs, fewer than 50% of the respondents could visually identify any of the breeds that matched the DNA identification.³³⁹ That means over half of the participants could not identify even one of the two or three (or in some cases four or more) breeds identified by the Wisdom Panel as making up the heritage of fourteen of the twenty dogs.³⁴⁰

Not only were the participants generally wrong about their identifications, they also failed to agree on identification. Participants agreed on predominant breeds for only seven of the twenty dogs.³⁴¹ Of those seven, participants were wrong about three of them.³⁴² For those three dogs, the commonly agreed upon breed was not a breed identified by DNA testing at all.³⁴³ Significantly, of the twenty dogs in the study, only four had a predominant breed correctly and consistently identified by more than 50% of the participants through visual identification.³⁴⁴

This study undermines BSL in two ways. Most obviously, it calls into question the ability of any state or local government to enforce the laws justly. Unless every dog in a community receives a DNA test to determine breed heritage, enforcement will necessarily be both over-

ardsRev [<http://perma.cc/NS5A-2A4J>] (accessed Nov. 25, 2015) (advising that the standards be used by responsible breeders who are familiar with breeds and by UKC judges, but not by the typical dog owner due to the likelihood of misidentification).

³³⁶ See *State v. Lee*, 257 P.3d 799, 807 (Kan. Ct. App. 2011). In this case, DNA testing was done on a dog that was involved in the death of an adult woman in order to determine if the municipality banned that particular dog breed. *Id.* at 804. The testing results were admissible, but neither the defendant nor the prosecutor were able to obtain testimony from any representative of the lab conducting the testing. *Id.* at 809. Other expert testimony included primarily visual identification of dog breed by veterinarians. *Id.* at 807.

³³⁷ Voith et al., *supra* note 324, at 20–21.

³³⁸ *Id.* at 19.

³³⁹ *Id.* at 22–23.

³⁴⁰ *Id.* at 23–24.

³⁴¹ *Id.* at 22.

³⁴² *Id.*

³⁴³ Voith et al., *supra* note 324, at 22.

³⁴⁴ *Id.*

inclusive and under-inclusive. For example, in a community where pit bulls are banned, an attempt to enforce the ban without DNA testing will, based on Voith's findings, lead to a significant numbers of dogs with no 'pit bull-type' heritage being identified as a 'pit bull' or 'pit bull mix.' This is evidence of over-inclusion. Similarly, a number of dogs that do in fact have a 'pit bull-type' breed in their genetic make up, but that do not look in any way like a 'pit bull,' will be passed over for enforcement. Thus under-inclusion is also inevitable. The obvious question arises: Is the community concerned about a particular breed, or a particular 'look' of a dog?³⁴⁵ If it is the former, just enforcement is impossible without mandatory DNA testing of all dogs. If it is the latter, then clearly *breed*-specific legislation does not accomplish that goal.³⁴⁶

³⁴⁵ In his testimony before the trial court in *Toledo v. Tellings*, Toledo Dog Warden, Tom Skeldon, testified that he was more interested in the "look" of a dog, rather than its actual breed identification. Specifically, he testified that "even if a dog was 50 per cent pit bull, if it did not 'look like a pit bull,' the owner would not be charged. On the other hand, if a dog did 'look like a pit bull,' it would be classified as a pit bull and the owner would be subject to the 'vicious dog' laws." *Tellings I*, 2006 WL 513946, at *5.

³⁴⁶ See Voith et al., *supra* note 324, at 24. The lack of agreement among participants in the Voith study is telling here. Had participants been wrong about breed identification, but generally agreed on that inaccurate identification, we could at least see that laws based on visual identification alone or the "look" of the dog (while not technically "breed bans"), may be enforced consistently, if not accurately, such that all dogs that "looked" a certain way would be identified as included or excluded from a particular group. But, we see here, based on general lack of agreement among the 923 participants that even such inaccurate consistency seems implausible. The problem with visual identification has been acknowledged both by BSL proponents and opponents for some time. In 2004, while advocating for Bill 132 which would ban pit bulls in Ontario, Ontario Attorney General Michael Bryant responded to the argument of misidentification by stating, "Those who disagree with the ban will say that there will be identification problems. I don't doubt there will be some issues on the margins, but, by and large, I think most people know what a pit bull is. . . . I've said before and I will say again, if it walks like a pit bull, if it barks and bites like a pit bull, wags its tail like a pit bull, it's a pit bull. That is going to apply, I'm sure, to the vast majority of identification cases. That's number one. Number two, everybody knows what kind of dog they own. Who doesn't know what kind of dog they own? If you own a pit bull, you know you own a pit bull. If you know you don't own a pit bull, then surely will you have the papers to say, 'This isn't a pit bull,' it's a whatever, it's something else. Everybody knows what their dog is. So if they think they've got a pit bull, then they probably have a pit bull. If they know they have a pit bull, they definitely have a pit bull. If they have papers saying it's not a pit bull but an English bull terrier, then they don't have a pit bull." *Public Safety Related to Dogs Statute Law Amendment Act: Debate on Bill 132*, Legislative Assembly of Ontario (Nov. 4, 2004) (statement of Hon. Att'y Gen. Michael Bryant) (available at http://www.ontla.on.ca/house-proceedings/transcripts/files_html/2004-11-04_L084.htm#PARA711 [<http://perma.cc/L96P-UWVG>] (accessed Nov. 25, 2015)). This quote perfectly illustrates two major problems with BSL. First and foremost, Bryant presupposes what the Voith study has shown to be false, that people, even those who work in canine-oriented professions, do not necessarily know "what a pit bull is" by sight. Secondly, the argument also presupposes that most people have papered identification of their dogs. This too is false and has created a culture where the owners of dogs that are visually identified as pit bulls must prove otherwise or the dogs are subject to exclusion from the community and may be subject to euthanasia. Prior to DNA testing,

Perhaps even more importantly, the Voith study undermines the basis for breed discrimination at its roots. Can we even trust that the dog attacks upon which breed-specific legislation has historically been based actually involved the breed blamed for the attack? In some cases, where a dog is either registered as a particular breed or has known registered parents, we can be sure of its breed identification. Similarly, we may have DNA confirmation of breed. However, how many people identifying dogs at the scene of an attack to the police or media source stop to ask for breed registration or DNA results? The answer is none—and we would not expect them to do so. The basis of nearly every eyewitness breed identification related to an attack is based on the identifier’s subjective opinion of the look of the dog. Such evidence is inherently unreliable.³⁴⁷

As mentioned above, the cycle of breed discrimination begins with an increase in popularity of the breed, followed by a few attacks by the breed or by dogs that ‘look’ like the breed and are identified as the breed. As we will discuss in more detail in the next Section, images that invoke strong feelings of fear often cause humans to overemphasize and over-identify that danger.³⁴⁸ Even before the Voith study, there are countless examples of misidentification of dogs involved in attacks.³⁴⁹ Dogs ‘known’ in the public conscience to be dangerous are over-identified as the culprits, and are often subject to violence without any provocation other than visual identification of their breed.³⁵⁰

it was nearly impossible to prove a dog was not a pit bull unless it was a purebred, papered dog. *Id.*

³⁴⁷ Many of the same problems that cause unreliability of human identification by eyewitnesses likely cause problems in canine identification. In discussing the limits of facial recognition, professors Deborah Davis and Elizabeth F. Loftus note that “[humans’] fragile abilities are easily disrupted and contaminated through a variety of internal and external forces: such as one’s expectations and beliefs; the simple desire to help apprehend a perpetrator; the mere passage of time; or suggestion from police, co-witnesses, media, and other sources. Once contaminated, memories cannot be purified and restored to their original state through purportedly curative, non-suggestive procedures.” Deborah Davis & Elizabeth F. Loftus, *The Dangers of Eyewitnesses for the Innocent: Learning from the Past and Projecting into the Age of Social Media*, 46 *NEW ENG. L. REV.* 769, 773 (2012). With regard to canine identification, all of these forces may contribute to breed misidentification, but certainly the media hype, discussed in detail in other sections of this paper, necessarily contaminates identifications of dog breeds.

³⁴⁸ See Paul Slovic, *What’s Fear Got to Do with It—It’s Affect We Need to Worry About*, 69 *MO. L. REV.* 971, 986–89 (2004). Slovic notes that the picture of the mushroom cloud has, for over half a century, negatively impacted human perception of nuclear power and its risks. *Id.* at 986. Similarly, the visual of the charging pit bull with teeth bared is imprinted in the subconscious of many Americans, and negatively impacts the perception of these dogs and the associated risks.

³⁴⁹ DELISE, *supra* note 3, at 129, 143.

³⁵⁰ *Id.* See also Jeremy Jojola, *Hundreds of Pit Bulls Euthanized in El Paso County*, 9NEWS, <http://www.9news.com/story/news/local/investigations/2014/11/13/hundreds-of-pit-bulls-euthanized-in-el-paso-county/19009655/> [<http://perma.cc/YJU4-KEKP>] (Nov. 13, 2014, 10:35 PM) (discussing the euthanizing of dogs “because they have a square head, short hair and a straight tail”); Jared Maher, *3,497 Dead Dogs and Other Numbers from Denver’s Pit Bull Ban*, DENVER WESTWORD BLOGS, <http://blogs.westword.com/>

Now, the Voith study gives us scientifically measureable data to back up the anecdotal evidence that certain breeds will be over-identified by visual identification. Shelter workers, vets, and even dog owners over (and under) identify based on their own knowledge and understanding of breed standards. The tendency of over identification is likely to be enhanced for perceived vicious or dangerous breeds by eyewitnesses to dog attacks. Any list of ‘dangerous dogs’ based solely on anecdotal evidence or visual identification will necessarily be inaccurate and practically unenforceable.

V. BSL ARISES FROM FEAR, NOT RISK MANAGEMENT

By now, it should be fairly clear that the policy behind BSL is neither well grounded in science nor especially effective at curbing the problem it purportedly intends to curb—dog bites—especially severe and/or fatal bites. So, why do our communities continue to employ it? Why, despite scientific evidence to the contrary, do we continue to vilify a few select breeds of dog and perpetuate the vicious cycle of breed bias? The answers to these and similar questions can be found, not in the science of the dog, but rather in disciplines that focus on humans, particularly behavioral psychology. Current research in behavioral psychology helps explain why a simplistic knee-jerk response, in this case BSL, has become the go-to solution to a very complex problem. As we will see in this Section, the human brain is prone to certain errors of judgment, especially when dealing with emotionally charged dangers such as vicious dogs, and our responses to those dangers are often not formulated by rational thinking.³⁵¹ Therefore, a very real biological reason exists for why we continue to implement BSL, even though the data tells us it is ineffective and unresponsive to the true problem. Although BSL may reduce fear, it has little or no effect on the risk of danger it purports to address.

Over the last forty years, research in areas such as cognitive and behavioral psychology has yielded significant data on human decision-making at the individual level.³⁵² Essentially, the driving theory de-

latestword/2009/09/3497_dead_dogs_and_other_numbe.php [http://perma.cc/CC3J-CJ94] (Sept. 25, 2009, 2:50 PM) (accessed Nov. 25, 2015) (examining Denver’s prohibition on any dog that appears to be more than 50% pit bull).

³⁵¹ DANIEL KAHNEMAN, THINKING FAST AND SLOW 25 (2011).

³⁵² The psychology of human decision-making was pioneered by such notable psychologists as Amos Tversky, Daniel Kahneman, Paul Slovic, Sarah Lichtenstein, and Baruch Fischhoff. See, e.g., Paul Slovic et al., *Behavioral Decision Theory*, 28 AM. REV. PSYCHOL. 1, 4 (1977) (stating “the impetus for this change can be attributed to Tversky & Kahneman’s demonstrations”); Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263 *passim* (1979) [hereinafter *Prospect Theory*]. Beginning in the 1960s, these scientists and others considered the concept of risk and how people make decisions when faced with risk, also called “prospect theory.” Out of this foundation grew additional research in how human perception affects judgment, and how decisions are made intuitively through ‘heuristics.’ See, e.g., Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCIENCE 1124, 1124 (Sept. 1974) [hereinafter *Judgment Under Uncertainty*].

veloped over the past few decades is that a large portion of decisions made by humans everyday are not based on perfectly rational cogitation, but rather arise from a more intuitive place assisted by ‘heuristics.’³⁵³ A heuristic is defined as a “simple procedure [or shortcut] that helps find adequate, though often imperfect, answers to difficult questions.”³⁵⁴

Building upon this psychological research, neuroscientists explored the biological systems that produce these psychological decision-making responses.³⁵⁵ Since then, experts and scholars in economics, law, and public policy have applied this cognitive science research to both explain and critique how societies make decisions and policy on the macro level.³⁵⁶ One of the most important critiques of policy making to recently emerge from this work centers on the fact that human decisions and thus societal decisions—particularly in areas of law and policy—all too often arise from an emotional fear response based on inaccurate assessment of risk rather than from rational calculation.³⁵⁷ BSL is a perfect example of the type of laws and policy that arise from fear rather than reason.

A. *Dual Process Thinking and Decision-Making*

The behavioral research touched on above yielded a model to explain how humans answer questions and make decisions in our environment called the dual system model.³⁵⁸ The first type of decision-making, called ‘system 1,’ occurs quickly. These are the split-second, intuitive, almost unconscious decisions. The second type of thinking,

Prior to their work, it was generally believed that humans were almost always rational when making decisions, and it was emotions like anger and fear that occasionally got in the way and disrupted our normally rational decisions. See KAHNEMAN, *supra* note 351, at 8. This research turned the commonly held belief of rationality on its head. Instead, the results showed that human decision-making actually manifests systematic errors of reason quite regularly. *Judgment Under Uncertainty* at 1124.

³⁵³ *Judgment Under Uncertainty*, *supra* note 352, at 1124.

³⁵⁴ KAHNEMAN, *supra* note 351, at 98.

³⁵⁵ Joseph LeDoux, in his groundbreaking work, *The Emotional Brain*, sheds light on the parts of the human brain involved in decision-making functions. JOSEPH LEDOUX, *THE EMOTIONAL BRAIN: THE MYSTERIOUS UNDERPINNINGS OF EMOTIONAL LIFE passim* (1996). The amygdala, in particular, is connected to emotional response. *Id.* at 157. This portion of the brain is also connected to memory making. *Id.* at 203. It is especially involved in memory of highly emotional events or stimuli in the environment. *Id.* at 164. This provides a very important function in survival because it tells individuals, based on memory of other past similar events, how to act when action must be quick. It deeply seats memories that evoke strong emotion to be called upon later in future quick decision-making. *Id.*

On the other hand, when humans face harder questions and have the luxury of time to calculate risk and costs against benefits, another part of the brain, the neo-cortex, helps decision-making and functions to allow for high-order thinking and what is generally considered rational thinking.

³⁵⁶ CASS R. SUNSTEIN, *LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE passim* (2005).

³⁵⁷ *Id.* at 126–27.

³⁵⁸ KAHNEMAN, *supra* note 351, at 20–21.

called ‘system 2,’ is more deliberative, rational, reasoned, and overall slower.³⁵⁹

Despite decades of study, there is much that is unknown about the dual-process theory of thinking and much that will likely be discovered in the coming years. However, it is enough for purposes of the discussion here to understand the basic theory of dual process thinking, and to acknowledge that sometimes the systems do not work exactly when and how they should.³⁶⁰ While both levels of thinking are vital to human survival and development, at times, the quick, reactionary thinking of system 1 can and does overwhelm the higher-order, rational, and slower thinking of system 2.³⁶¹ Of course, while this is beneficial when fight or flight is necessary, sometimes system 1 takes over when it should not do so, when higher-order thinking, deliberation, and reason are necessary, leading to the systematic judgment errors that were observed by Tversky and Kahneman.³⁶²

In a nutshell, the research shows that system 1 bases its decisions much of the time on heuristics.³⁶³ These shortcuts allow the brain to make a decision without a long, complicated, and rational multi-stepped process.³⁶⁴ There are a number of different heuristics that assist intuitive decision-making including two that will be discussed in more depth below: the availability heuristic³⁶⁵ and the affect heuristic.³⁶⁶ Because these heuristics take a shortcut around reason and logic, the results, at times, can end up being quite wrong because some questions cannot be properly answered without system 2 thinking.³⁶⁷

³⁵⁹ *Id.* Kahneman and others use the names ‘system 1’ and ‘system 2,’ which remove the value judgment inherent in other terms used for the different kinds of thinking. *Id.* Readers might be more familiar with the terms ‘lizard brain’ or ‘reptilian brain’ and ‘neo-cortex’ which are much more viscerally descriptive but likely lead readers to value judgments about both types of thinking. The difference in these types of thinking can be demonstrated easily. First complete the following task: raise your right hand. Did you have to think about that act? Probably not, you just did it almost unconsciously and certainly intuitively. Now, answer this math question: what is 1157 divided by 13? We can all figure out the answer, but it is not a simple unconscious or intuitive process. We need to work at it and follow certain steps in our heads or on paper to arrive at the correct answer. *Id.* at 89. We engage in both forms of thinking regularly, and we need both. If we had to deliberate about which is our right hand and the process necessary to raise it, we would never have survived the evolutionary process (fight or flight only works because it is instantaneous), nor would we have the time or attention to devote our higher-order thinking to, for example, figure out the math problem. In many ways, it is the dual process that makes humans what we are. *Id.*

³⁶⁰ *Id.* at 10.

³⁶¹ *Id.* at 25.

³⁶² See *Prospect Theory*, *supra* note 352, *passim* (describing “several classes of choice problems in which preferences systematically violate the axioms of expected utility theory”); *Judgment Under Uncertainty*, *supra* note 352, *passim*.

³⁶³ KAHNEMAN, *supra* note 351, at 98.

³⁶⁴ *Id.* at 98–99.

³⁶⁵ SUNSTEIN, *supra* note 356, at 36–39; KAHNEMAN, *supra* note 351, at 129–36.

³⁶⁶ Paul Slovic et al., *The Affect Heuristic*, 177 *EURO. J. OPERATIONAL RES.* 1333 *passim* (Oct. 16, 2006) [hereinafter *The Affect Heuristic*].

³⁶⁷ *Id.*

When faced with a complex, difficult question, our brains, through the assistance of heuristics, will change the question to a much simpler one that can be answered.³⁶⁸ However, we do not always recognize that the question has changed, and therefore the answer does not match the original, complex question.³⁶⁹ The following are short discussions of the two heuristics most obviously at work in the policy decisions that have led to BSL: the availability heuristic and the affect heuristic.

1. *Availability Heuristic*

One of the most easily observable and common heuristics is the availability heuristic.³⁷⁰ When humans are asked to determine the likelihood of a result or the risk of a particular danger, we immediately call to mind examples to determine how likely that result is or how prevalent the risk.³⁷¹ What we can recall most readily will be considered more probable, more common, of greater risk, or more likely to occur.³⁷² Generally, we are more likely to recall events that are recent, vividly illustrated, or more emotionally engaging.³⁷³ Thus, it is those events, seared into our memories, which we believe more likely or more probable to occur again.³⁷⁴

³⁶⁸ KAHNEMAN *supra* note 351, at 98–99.

³⁶⁹ *Id.* at 99.

³⁷⁰ *Judgment Under Uncertainty, supra* note 352, at 1127.

³⁷¹ *Id.*

³⁷² *Id.*

³⁷³ SUNSTEIN, *supra* note 356, at 37.

³⁷⁴ DANIEL GARDNER, *THE SCIENCE OF FEAR* 3 (2008). Plane crashes are an example of a relatively rare event that is generally covered extensively and vividly by the media and thus believed to be a greater potential danger than car accidents. After 9-11, Americans abandoned air travel in droves, while car travel increased substantially. A study by psychologist Gerd Gigerenzer from Berlin's Max Planck Institute tracked this shift and found that it took about a year for air travel and car travel to return to normal levels. During that year, an additional 1,595 people died on U.S. roads as a result of the increase in automobile travel. Levels of flying and driving returned to normal in late 2002, and so did the number of deaths on U.S. highways. *Id.* Another more recent example is the Ebola scare in the U.S. While several persons infected with Ebola entered the country from West Africa and sought treatment, only two people—nurses who had treated one of the victims in Texas—were infected on U.S. soil. The CDC and other experts have continually attempted to allay the fears of citizens noting that Ebola can only be transmitted through bodily fluids and an infected person is not contagious until symptoms, such as fever, appear. Despite the fact that 99.99% of Americans are at no risk of contracting Ebola, a nationwide panic took hold. Alan Yuhas, *Panic: The Dangerous Epidemic Sweeping the Ebola Fearing U.S.*, *THE GUARDIAN*, <http://www.theguardian.com/world/2014/oct/20/panic-epidemic-ebola-us> [<http://perma.cc/D9LA-K52M>] (Oct. 20, 2014) (accessed Nov. 25, 2015). A school district in Ohio even closed for a few days because one of its administrators *may* have been on the same plane (not even the same flight) as one of the Texas nurses who later exhibited symptoms of Ebola. Lindsay Beaver, *Chain Reaction: Concern About Ebola Nurse's Flight Prompts School Closings in Two States*, *WASH. POST*, <http://www.washingtonpost.com/news/morning-mix/wp/2014/10/16/after-concern-about-ebola-patients-flight-schools-close-in-two-cities/> [<http://perma.cc/6KTA-EZYX>] (Oct. 16, 2014) (accessed Nov. 25, 2015). Similarly, several states passed mandatory quarantines for persons traveling back from West Africa, and

With regard to dangerous dogs, media coverage of dog attacks, especially when the dog is identified as a pit bull, is ubiquitous and often both vivid and emotionally provocative.³⁷⁵ The story of Diane Whipple, killed in San Francisco in 2001, is a perfect example.³⁷⁶ Her death was covered extensively in the media, particularly because it was such a rare event.³⁷⁷ First, any dog attack fatality is necessarily a rare event.³⁷⁸ The fact that she was a healthy adult, and that the attack was particularly savage, made the story even more provocative.³⁷⁹ Whipple was killed in her apartment building by two dogs (not pit bulls) being cared for by a neighbor.³⁸⁰ The story received international attention, and is possibly still the most commonly cited dog attack fatality case.³⁸¹ Whipple is certainly not the only case covered by the media. Any dog attack is major local news, and is sometimes covered extensively in other parts of the country.³⁸² Identification of the

many businesses suspended the rights of employees to travel to that region of the world. Brady Dennis et al., *NY, NJ, Illinois, to Impose New Ebola Quarantine Rules*, WASH. POST, http://www.washingtonpost.com/national/health-science/ny-nj-governors-impose-new-ebola-quarantine-rules/2014/10/24/8096e43e-5bac-11e4-8264-deed989ae9a2_story.html (Oct. 25, 2014) (accessed Nov. 25, 2015). While the nation became gripped with fear over Ebola, most citizens failed to recognize that in 2013 over 56,000 people died of influenza and/or pneumonia, but since the flu and pneumonia are known, common, and expected, they no longer cause the same fear. *Deaths and Mortality*, CTR. FOR DISEASE CONTROL, <http://www.cdc.gov/nchs/fastats/deaths.htm> [<http://perma.cc/MX8E-MNVY>] (accessed Nov. 25, 2015).

³⁷⁵ See DELISE, *supra* note 3, at 100 (stating that the “unbridled media coverage” of a CDC report on dog-bite related fatalities can “only be described as orgasmic”).

³⁷⁶ See Hussain, *supra* note 15, at 2847 (using the story of Diane Whipple as an example of the “extensive media coverage of serious pit bull attacks” which have “resulted in public fear of these dogs in particular”).

³⁷⁷ *Id.*

³⁷⁸ *Danger of Death!*, ECONOMIST, <http://www.economist.com/blogs/graphicdetail/2013/02/daily-chart-7> [<http://perma.cc/7GPS-TRNV>] (Jan. 14, 2013, 6:27 PM) (accessed Nov. 25, 2015). The Economist calculated that an American’s chance of dying as a result of contact with a dog is less than 1 in 11 million per year. That is less than the chances of being killed by lightning (1 in 10 million), and significantly less than the chances of being killed by firearm discharge (1 in approximately 500,000), falling down stairs (1 in approximately 157,000), or choking (1 in approximately 100,000). *Id.*

³⁷⁹ Evelyn Nieves, *A Bizarre Dog Attack Shakes San Francisco*, N.Y. TIMES (Feb. 1, 2001) (available at <http://www.nytimes.com/2001/02/01/us/a-bizarre-dog-attack-shakes-san-francisco.html> (accessed Nov. 25, 2015)).

³⁸⁰ *Id.*

³⁸¹ At least four law review articles about BSL tell the story of the attack on Diane Whipple in some detail. Amy Cattafi, Note, *Breed-Specific Legislation: The Gap in Emergency Preparedness Provisions for Household Pets*, 32 SETON HALL LEGIS. J. 351, 351 (2008); Karyn Grey, Note and Comment, *Breed-Specific Legislation Revisited: Canine Racism or the Answer to Florida’s Dog Control Problems?*, 27 NOVA L. REV. 415, 441 (2003); Hussain, *supra* note 15, at 2847; Heather K. Pratt, Comment, *Canine Profiling: Does Breed-Specific Legislation Take a Bite Out of Canine Crime?*, 108 PENN ST. L. REV. 855, 855 (2004). See *US Killer Dogs’ Owner Cleared*, BBC, <http://news.bbc.co.uk/2/hi/americas/2050595.stm> [<http://perma.cc/FN8W-KAKJ>] (June 18, 2002, 00:57 GMT) (accessed Nov. 25, 2015) (showing continued international interest in the story).

³⁸² See, e.g., Nieves, *supra* note 379 (discussing the attack which occurred in San Francisco).

dog involved as a pit bull (though in Whipple's case the dogs were not pit bulls) seems to spur more media coverage.³⁸³ Although dog attack fatalities are extremely rare, the extensive media coverage of these cases act on the availability heuristic and allow people to bring to mind these incidents readily, making them seem much more likely.³⁸⁴

In his book *Laws of Fear*, Cass Sunstein points out that the availability heuristic never works in a vacuum.³⁸⁵ What is 'available' to some people and cultures is less 'available' to others.³⁸⁶ Hence, with regard to BSL, some communities with more recent incidents or media coverage may be more likely to pass BSL, while other communities that do not have recent or vivid incidents of dog attacks or fatalities may be less likely to pass such laws.³⁸⁷ There are risks to every decision, but the availability heuristic has a tendency to emphasize certain risks to certain people, and deemphasize or even hide other risks.³⁸⁸ For example, banning pit bulls from a community has risks, though they may not be as 'available' in people's minds as the risk of an attack by a pit bull.³⁸⁹ For example, banning a breed may cause emotional distress in individuals and families forced to give up beloved pets.³⁹⁰

³⁸³ DELISE, *supra* note 3, at 100.

³⁸⁴ KAHNEMAN, *supra* note 351, at 135.

³⁸⁵ SUNSTEIN, *supra* note 356, at 89.

³⁸⁶ *Id.*

³⁸⁷ See, e.g., Andy Cerota, *Pit Bull Attacks Spur Proposal to Ban Dangerous Dogs in League City*, KPCR TV, <http://www.click2houston.com/news/pit-bull-attacks-spur-proposal-to-ban-dangerous-dogs-in-league-city/25627328> [<http://perma.cc/4HVH-FGUE>] (Apr. 23, 2014) (accessed Nov. 25, 2015) (explaining that "[s]everal recent vicious pit bull attacks have council members in League City contemplating whether they should impose tougher rules on owners of dangerous dogs").

³⁸⁸ An example of this is the fact that European countries are very concerned with the use of hormones in beef, while the U.S. has not shown the same concern. Contrarily, the U.S. has been much more precautionary when dealing with risks of mad cow disease. SUNSTEIN, *supra* note 356, at 20.

³⁸⁹ For example, one "risk" of breed bans is that such bans can harm persons with service animals counted as members of the banned breeds. Recently, after Moreauville, Louisiana passed a ban on pit bulls and Rottweilers, a family took to social media to seek support to save their family pit bull who provided both companionship for the family and assistance in predicting seizures in one of the children. Emanuella Gringberg & Natalie Sneddon, *Family Fights to Save Pit Bull from Being 'Impounded'*, CNN, <http://www.cnn.com/2014/11/22/living/louisiana-pit-bull-rottweiler-ban/index.html> [<http://perma.cc/ST62-M7TC>] (Nov. 23, 2014) (accessed Nov. 25, 2015).

³⁹⁰ See, e.g., Josh Saul, *Soap Actor Commits Suicide After Pup's 'Forced' Euthanasia*, N.Y. POST, <http://nypost.com/2012/01/28/soap-actor-commits-suicide-after-pups-forced-euthanasia/> [<http://perma.cc/P43F-5C9Q>] (Jan. 28, 2012, 5:00 AM) (accessed Nov. 25, 2015) (discussing how "[a] down-on-his-luck soap-opera actor took his own life . . . after he was forced to put his beloved dog to sleep"); Laura Rodriguez, *Couple Forced to Move Pit Bull Service Dog from Miami-Dade to Broward County*, NBC 6 S. FLA., <http://www.nbcmiami.com/news/local/Couple-Forced-To-Move-Pit-Bull-Service-Dog-From-Miami-Dade-to-Broward-County-231846691.html> [<http://perma.cc/8X6W-9VRZ>] (Nov. 13, 2013, 11:34 PM) (accessed Nov. 25, 2015); Doug Brown, *Veteran with Pit Bull Service Dog Sues Lakewood, Animal Warden*, SCENE, <http://www.clevescene.com/scene-and-heard/archives/2015/04/08/veteran-with-pit-bull-service-dog-sues-lakewood-animal-warden> [<http://perma.cc/8Z3Q-HRB8>] (Apr. 8, 2015, 6:02 PM) (accessed Nov. 25, 2015).

Bans and restrictions also make it harder for people to obtain housing with certain breeds of dog and may exacerbate the problem of homelessness.³⁹¹ It is also well known that pets provide stress relief for owners, reducing heart disease and other physical and mental illnesses,³⁹² and breeds that are often the subject of BSL have also been useful therapy dogs.³⁹³ Thus BSL can affect the health and well-being of individuals in the community deprived of their companion. Just because these risks are less ‘available’ to individuals and communities does not make them less frequent, less severe, or less important.

2. *The Affect Heuristic*

The affect heuristic, in particular, seems to work closely in conjunction with other heuristics. It describes how images and the positive and negative feelings (or affects) connected to those images influence decision-making processes.³⁹⁴ In his article *The Affect Heuristic*, Slovic points to research that shows how subliminal messages and pictures can influence decisions.³⁹⁵ For example, in one study subjects were shown smiling faces or frowning faces prior to having them evaluate Chinese ideographs.³⁹⁶ Those ideographs presented following a smiling face received significantly higher scores of “likability” than those that followed a frowning face.³⁹⁷ The priming was long lasting, so that even when subjects were shown the ideograph in a second session “primed” with the other face, the original impression caused by the priming in the first session remained in effect.³⁹⁸

One of the ways that the affect heuristic influences decisions seems to be the inverse relationship between benefit and risk.³⁹⁹ Where an individual believes an action has particularly strong benefits, that individual downplays the risks.⁴⁰⁰ Similarly, the opposite is true. When risk seems apparently high, the perception of the activity’s benefits is depressed.⁴⁰¹ Slovic used the example of nuclear power to

³⁹¹ Jaime Lutz, *Family Chooses Homelessness over Abandoning Pit Bull*, ABC NEWS, <http://abcnews.go.com/blogs/headlines/2014/02/family-chooses-homelessness-over-abandoning-pit-bull/> (Feb. 19, 2014, 9:57 AM) (accessed Nov. 25, 2015).

³⁹² Andrea Beetz et al., *Psychosocial and Psychophysiological Effects of Human-Animal Interactions: The Possible Role of Oxytocin*, 3 FRONTIERS IN PSYCHOL. 234 *passim* (2012).

³⁹³ John Platt, *Iowa Town’s Pit Bull Ban Forces Veteran Cop to Give up His Service Dog*, MOTHER NATURE NETWORK, <http://www.mnn.com/family/pets/stories/updated-iowa-towns-pit-bull-ban-forces-veteran-cop-to-give-up-his-service-dog> [<http://perma.cc/92MJ-R435>] (Dec. 23, 2011) (accessed Nov. 25, 2015).

³⁹⁴ *The Affect Heuristic*, *supra* note 366, at 1335.

³⁹⁵ *Id.* at 1336.

³⁹⁶ *Id.*

³⁹⁷ *Id.*

³⁹⁸ *Id.* This persistence has far-reaching consequences as it provides further evidence to show that emotion-based opinions are long lasting and difficult to counteract or change.

³⁹⁹ *Id.* at 1343–44.

⁴⁰⁰ *The Affect Heuristic*, *supra* note 366, at 1343–44.

⁴⁰¹ *Id.*

illustrate the inverse relationship of risk and benefit.⁴⁰² The study showed that no matter what position a subject started with (high risk, low risk, high benefit, or low benefit) the inverse relationship held true.⁴⁰³ Where people were provided information to show the benefits of nuclear power were high, their corresponding inference of the associated risks were low.⁴⁰⁴ Information showing low risk, produced perception of high benefit.⁴⁰⁵ High risk produced perception of low benefit, and as expected, low benefit led to a belief of high risk inherent to the activity.⁴⁰⁶

This risk–benefit relationship is often manipulated in advertising as illustrated by the tobacco industry.⁴⁰⁷ Slovic points out that for many years, tobacco companies have particularly used affect-driven advertising to counteract the Surgeon General warning of risks associated with cigarette smoking and tobacco use.⁴⁰⁸ It is easy to call to mind the pictures of the ruggedly handsome “Marlboro Man” on horseback, with blue skies and wide-open fields ahead of him.⁴⁰⁹ This picture has nothing to do with smoking a cigarette, but the advertisement evokes a feeling of well-being and benefit in the consumer.⁴¹⁰ If that feeling of benefit is strong enough, Slovic’s study shows that it can in fact depress the consumer’s perception of the risk of the activity.⁴¹¹

The affect heuristic clearly comes into play in our decision-making relative to dogs. Think about those persons whose first, and perhaps only, impression of a pit bull was the cover of *Time* magazine in 1987, or another who sees the local drug dealer with a pit bull in a spiked collar hanging out on the corner.⁴¹² These images evoke a negative response and promote a perception of high risk related to these dogs.⁴¹³ Compare that with the person who grew up with a pit bull-type dog and recalls the hours of playtime and naps on the couch with nostalgic fondness. The images are intensely positive, the benefits obvious, and the risks perceived as extremely low.⁴¹⁴ How easy is it then, to move either of these people from their established perceptions of pit bulls?

It would be naïve to believe that the scientists studying it, this author, or you the reader are not subject to the results of the affect heuristic.⁴¹⁵ It is likely impossible to eliminate it in any context, especially one with a particularly emotional bent, but perhaps self-aware-

⁴⁰² *Id.*

⁴⁰³ *Id.*

⁴⁰⁴ *Id.* at 1344.

⁴⁰⁵ *Id.* at 1343.

⁴⁰⁶ *The Affect Heuristic*, *supra* note 366, at 1343.

⁴⁰⁷ *Id.* at 1347.

⁴⁰⁸ *Id.* at 1347–48.

⁴⁰⁹ *Id.* at 1347.

⁴¹⁰ *Id.*

⁴¹¹ *Id.* at 1348.

⁴¹² Brand, *supra* note 4.

⁴¹³ SUNSTEIN, *supra* note 356, at 87.

⁴¹⁴ *Id.* at 86.

⁴¹⁵ *The Affect Heuristic*, *supra* note 366, at 1349.

ness may at least somewhat temper its ability to manipulate.⁴¹⁶ In describing the heuristic, Slovic observes that, “[the affect] heuristic appears at once both wondrous and frightening: wondrous in its speed, and subtlety, and sophistication, and its ability to ‘lubricate reason’; frightening in its dependency upon context and experience, allowing us to be led astray or manipulated—inadvertently or intentionally—silently and invisibly.”⁴¹⁷

B. *The Results of Heuristics*

Accepting that the heuristics described above (and others) do indeed influence decisions, how then do they guide macro-level decisions such as economic behavior, legislative action, regulation, and public policy decisions?

1. *Probability Neglect*

One of the main factors behind the systematic errors that arise from decision-making via heuristics is that humans cannot accurately calculate probability intuitively.⁴¹⁸ Sunstein names this phenomenon ‘probability neglect.’⁴¹⁹ Generally, it occurs because a heuristic (through system 1 thinking) leads to a particular and perhaps irrational decision, and because sometimes we cannot appreciate probability accurately, we struggle to override irrational decisions presented by the heuristic.⁴²⁰

Probability neglect follows from the actions of heuristics. Where we can call to mind ‘available’ examples of a danger, or our emotions are intensely engaged by fear of a result, we will overestimate the likelihood of that risk and neglect the true probability of that result.⁴²¹ On the other hand, where a risk does not give rise to any particular examples in our mind, or where it is so commonplace it does not raise a strong emotional response, we are likely to underestimate the probability of the risk.⁴²²

Probability neglect is not just experienced by self-interested individuals. Administrative regulators, judges, legislators, and other public actors can experience probability neglect.⁴²³ In *Probability Neglect*:

⁴¹⁶ *Id.*

⁴¹⁷ *Id.*

⁴¹⁸ SUNSTEIN, *supra* note 356, at 39.

⁴¹⁹ KAHNEMAN, *supra* note 351, at 144.

⁴²⁰ SUNSTEIN, *supra* note 356, at 39, 87.

⁴²¹ *Id.* at 39–40. “[W]ith respect to risks of injury or harm, vivid images and concrete pictures of disaster can ‘crowd out’ other kinds of thoughts, including the crucial thought that the probability of disaster is very small. ‘If someone is predisposed to be worried, degrees of unlikeliness seem to provide no comfort, unless one can prove that harm is absolutely impossible, which itself is not possible.’” *Id.* at 82–83 (quoting JOHN WEINGART, *WASTE IS A TERRIBLE THING TO MIND* 362 (2001)).

⁴²² SUNSTEIN, *supra* note 356, at 37.

⁴²³ Cass R. Sunstein, *Probability Neglect: Emotions, Worst Cases, and Law*, 112 *YALE L.J.* 61, 63 (2002) [hereinafter *Probability Neglect*].

Emotions, Worst Cases, and Law, Cass Sunstein points out the resulting damage:

[T]he demand for legal intervention can be greatly affected by probability neglect, so that government may end up engaging in extensive regulation precisely because intense emotional reactions are making people relatively insensitive to the (low) probability that the relevant dangers will ever come to fruition.⁴²⁴

This is exactly what happens with BSL. Because of the availability and affect heuristics that kick in after a severe dog attack in a community, or even one across the country heavily covered by the media, the public and public officials neglect the low probability of another incident and have an intense need to control the risk with regulation and law.⁴²⁵ As Sunstein and Kahneman both note, public fear itself is a kind of harm and should not be trivialized.⁴²⁶ Legislatures and regulators should do what they can to reduce fear, and where laws or regulations are rational responses to a danger they should be promoted.⁴²⁷ However, while the knee-jerk reaction of BSL may reduce fear, it likely has little or no effect on the risk of danger.⁴²⁸ Also, where small risks are overemphasized and large risks are underemphasized, resources are misallocated away from where they are needed most.⁴²⁹ While studies of the economic impact of BSL are limited, at least one county task force concluded BSL enforcement was an inefficient use of resources, noting that the seizure, impoundment, and maintenance of pit bulls cost the jurisdiction over half-a-million dollars annually, and could cost up to \$68,000 per animal between initial seizure and euthanasia.⁴³⁰

⁴²⁴ *Id.* at 68.

⁴²⁵ *See id.* at 92, 99–100 (pointing out the tendency for people to call for laws and regulations in response to these heuristics).

⁴²⁶ SUNSTEIN, *supra* note 356, at 63; KAHNEMAN, *supra* note 351, at 144.

⁴²⁷ SUNSTEIN, *supra* note 356, at 63; KAHNEMAN, *supra* note 351, at 144.

⁴²⁸ *See, e.g.*, NAT'L CANINE RESEARCH COUNCIL, *supra* note 312; Ott et al., *supra* note 186, at 135; Cornelissen & Hopster, *supra* note 27, at 293. Laws and policies that reduce public fear, thereby taking pressure off of legislators, but do not actually affect the risk of danger, can promote a false sense of security amongst community members and lead to increased risks when individuals lower their guard against a danger believed to be removed. In communities where pit bulls are banned, dog bites, and even dog attack fatalities remain a risk.

⁴²⁹ Sunstein points to shark attacks as an example of such misallocation of resources: "In the summer of 2001, vivid images of shark attacks created a public outcry about new risks for ocean swimmers. Consider the fact that a NEXIS search found 940 references to shark attacks between August 4, 2001, and September 4, 2001, with 130 references to 'the summer of the shark.' This was so notwithstanding the exceedingly low probability of a shark attack and the absence of any reliable evidence of an increase in shark attacks in the summer of 2001. Predictably, there was considerable discussion of new regulations to control the problem and eventually regulations were adopted. Public fear seemed relatively impervious to the fact that the underlying risk was miniscule." *Probability Neglect*, *supra* note 423, at 99–100 (internal citations omitted).

⁴³⁰ *Report of the Vicious Animal Legislation Task Force*, Prince George's County, Maryland, 7, 15 (July 2003) (available at http://animalfarmfoundation.org/files/Report_

2. *Role of the Media*

Sunstein and Gardner, among others, have noted the enormous role media plays in fueling fear by presenting examples where ‘worst-case scenarios’ actually occur.⁴³¹ News stories sensationalize these examples, activating heuristics and promoting probability neglect.⁴³² Media sources choose emotionally evocative stories because they make better news, but they also provide the fodder for the ‘availability,’ ‘affect,’ and ‘representativeness’⁴³³ heuristics for the same reason.⁴³⁴

It is likely not a coincidence that the beginning of the upswing in ‘panics’ over various remote risks began in the 1980s when the news business became ever more global, more competitive, and more profit-centered.⁴³⁵ Over the past forty years, news has increasingly become a source of profit that supports other entertainment and media companies that must convince the public to watch their news shows and read their papers and magazines.⁴³⁶ Unfortunately, the stories that sell are ones that pique emotion, including stories that pique the fear response.⁴³⁷

of_the_Vicious_Animal_Legislation_-_Prince_Georges_County_-_2003.pdf [http://perma.cc/Y449-47VA] (accessed Nov. 25, 2015)) (concluding the law and administrative regulations concerning vicious dogs are costly and inefficient in terms of the fiscal and human resources required to enforce the breed specific portion of the ordinance.”). See also Erica Jamieson, *3 Reasons BSL Doesn’t Work and How to Fix It*, EXAMINER.COM, <http://www.examiner.com/article/3-reasons-bsl-doesn-t-work-and-how-to-fix-it> [http://perma.cc/EY2G-DXNV] (Sept. 15, 2015) (accessed Nov. 25, 2015) (“[T]he cost to the county to confiscate and euthanize a single dog with the label ‘pit bull’ was about \$68,000 with no measurable result in increased safety.”).

⁴³¹ *Probability Neglect*, *supra* note 423, at 85–86; SUNSTEIN, *supra* note 356, at 65. For example, Sunstein points to the anthrax attacks of October 2001 and the ‘summer of the shark,’ while Daniel Gardner in *SCIENCE OF FEAR* points out a variety of media panics over the past few decades, including internet pedophiles in the early 2000s, satanic cults in the 1990s, and child abductions in the 1980s. *Probability Neglect*, *supra* note 423 at 99–102; GARDNER, *supra* note 374, at 34.

⁴³² SUNSTEIN, *supra* note 356, at 38, 103, 206.

⁴³³ The representativeness heuristic guides people in their prediction of probability. The probability that A is a member of B’s class, is evaluated or determined based on how much A resembles, or is representative of, B. An example used by Tversky and Kahneman considers the question of how probable it is that a particular neighbor named ‘Steve’ is a librarian. When Steve is described in terms such as withdrawn, shy, and bookish yet helpful, people estimate the probability of him being a librarian to be high, mainly based upon the fact that he resembled the stereotype of a librarian, even though the actual probability of him being a librarian is quite low. See *Judgment Under Uncertainty*, *supra* note 352, at 1124.

⁴³⁴ SUNSTEIN, *supra* note 356, at 103.

⁴³⁵ *Id.*; see also, David A. Logan, *All Monica, All of the Time: The 24-Hour News Cycle and the Proof of Culpability in Libel Actions*, 23 U. ARK. LITTLE ROCK L. REV. 201, 201–04 (Fall 2000) (tracing the history of the 24-hour news cycle and its impacts on contemporary journalism, media coverage, and the law—often resulting in misstatements of facts).

⁴³⁶ Logan, *supra* note 435, at 201–04.

⁴³⁷ One of the recurring themes on the HBO drama, *Newsroom*, is the conflict between the idealistic, old-time ‘newsman’ who wants to educate the public about the news they should know about, and the modern network that employs him and must give

Problems can arise from such intense media focus on relatively low risks.⁴³⁸ As Sunstein points out:

Media coverage of highly unusual crimes makes people fearful of risks that they are most unlikely to face. When newspapers and magazines emphasize deaths from anthrax or mad cow disease, we should expect a significant increase in public concern, not only because of the operation of the availability heuristic, but also because people will not naturally make sufficient adjustments from the standpoint of probability.⁴³⁹

Over time, continued coverage of remote risks can cause long-lasting changes in a society's perception of certain risks.⁴⁴⁰ Risks associated with certain breeds of dog, especially pit bulls, have been stressed to such a degree by media and other popular culture mediums that the term 'pit bull' now not only means a type of dog, but is also defined as "an aggressive or tenacious" person.⁴⁴¹ The perception of pit bulls, Rottweilers, and other breeds as vicious or dangerous is so engrained into the American public's consciousness that it will be very hard to ever reverse.⁴⁴²

3. *Biases, Predispositions, and Cascading*

It is important to note that individuals view events, even those covered by mass media, through individual lenses. Our previous biases, beliefs, opinions and experiences predispose us to treat certain events differently than others.⁴⁴³ For example, gun control advocates are more likely to pay attention to, remember, and recall stories about how guns were used in the commission of crimes, while Second Amendment advocates tend to focus on stories of the shop owner who had a gun and was able to prevent a crime.⁴⁴⁴ Thus, biases are reinforced through heuristics—our biases make certain examples and stories

the public the news they want because it will pay the bills. See *The Newsroom In Brief*, HBO, <http://www.hbo.com/the-newsroom/inside/in-brief/video/the-newsroom-in-brief-will-mcavoy.html?autoplay=true> (accessed Nov. 25, 2015) (discussing the development of one of the main characters in the series, Will McAvoy, and his issues with the modern news system).

⁴³⁸ SUNSTEIN, *supra* note 356, at 85.

⁴³⁹ *Id.* at 87.

⁴⁴⁰ *Id.*

⁴⁴¹ *Pit Bull Definition*, MERRIAM-WEBSTER, [http://www.merriam-webster.com/dictionary/pit bull](http://www.merriam-webster.com/dictionary/pit%20bull) [<http://perma.cc/GGQ5-S668>] (accessed Nov. 25, 2015).

⁴⁴² While it is relatively easy to evoke fear and probability neglect concerning low risk dangers, it is not at all easy to turn back that fear. Presentation of statistics, probabilities, and other facts to reverse the effect of the heuristics meet with very limited success. Sunstein advises that sometimes the best means of reducing fear is actually just to 'change the subject' of the conversation. SUNSTEIN, *supra* note 356, at 125.

⁴⁴³ The discussion of the affect heuristic above shows us that if we are "primed" to think positively about something, that positivity is likely to persist and influence us in subsequent evaluations. *The Affect Heuristic*, *supra* note 366, at 1336.

⁴⁴⁴ SUNSTEIN, *supra* note 356, at 39.

more “available” than others, reinforcing our original opinions and feelings.⁴⁴⁵

These biases and predispositions do not exist solely in individuals. Humans are social creatures, and rarely do we keep our own opinions, thoughts, biases, and predispositions to ourselves—instead, we like to share them.⁴⁴⁶ Most particularly, we like to share our fears.⁴⁴⁷ Social sharing in this context often leads to a phenomenon called “cascading.”⁴⁴⁸

Any person who has spent even a small amount of time on a social media site, or even reading e-mail, over the past twenty years should be quite familiar with the phenomenon of cascading as it relates to fear.⁴⁴⁹ Social cascades occur when people pay attention to and adopt the fears of others around them.⁴⁵⁰ When a person sees that others around them share the same concern, it is amplified and forwarded on to others.⁴⁵¹ Media of all kinds—traditional, new, and social—play roles in cascading, but it is our social networks that often play the biggest roles.⁴⁵² As discussed above, all actions have risks associated with them, so cascading events are not baseless, but they can and do result in an amplification of the fear that is out of proportion to the actual risks of the activity.⁴⁵³ For example, consider the actual likelihood of a stranger abducting a child from a bus stop or a person falling victim to a terrorist attack or mass shooting. Children are far more at risk of being kidnapped by a parent or other family member than by a stranger at a bus stop.⁴⁵⁴ And the likelihood of becoming a victim of gun violence at home far outstrips our risk of victimization in a school shooting or terrorist attack.⁴⁵⁵ Despite the actual risk, we fear the stranger and the foreign terrorist far more than our ex-spouse or a family member.

The Ebola scare of 2014 is a recent example of a cascading event. Fears were passed within social groups and communities and rational

⁴⁴⁵ *Id.* at 93. Sunstein notes that our “predispositions” play a role in determining which examples we find most salient. *Id.*

⁴⁴⁶ *Id.* at 94.

⁴⁴⁷ *Id.* at 96.

⁴⁴⁸ *Id.* at 95.

⁴⁴⁹ Snopes.com is an entire website devoted to investigating the truth of questionable news reports, urban legends, rumors, chain emails, Facebook stories, and the like. SNOPE.COM, <http://snopes.com/info/aboutus.asp> (accessed Nov. 25, 2015).

⁴⁵⁰ SUNSTEIN, *supra* note 356, at 6, 95–96.

⁴⁵¹ *Id.* at 101.

⁴⁵² *Id.* at 102.

⁴⁵³ *Id.* at 101.

⁴⁵⁴ GARDNER, *supra* note 374, at 185–186. The average number of family abductions of children per year is 200,000, while the number of stranger abductions of children under the age of 18 is 115. *Id.*

⁴⁵⁵ See Dewey G. Cornell, *Gun Violence and Mass Shootings—Myths, Facts, and Solutions*, WASH. POST, <http://www.washingtonpost.com/news/the-watch/wp/2014/06/11/gun-violence-and-mass-shootings-myths-facts-and-solutions> [<http://perma.cc/2U22-HE2N>] (June 11, 2014) (accessed Nov. 25, 2015) (noting that school shootings are rare and most homicides occur in homes rather than public places).

argument and discourse concerning the true risks of Ebola infection were drowned out by the voices of friends and family.⁴⁵⁶ On the opposite side, the risks of death from flu or antibiotic resistant MRSA infections are very real for many Americans, but discussion of these topics amounts to little more than background noise.⁴⁵⁷ Certain types of fears are probably more susceptible to cascading; for instance, the new and unknown danger (Ebola) is much more fearsome than the one we live with every day (flu).⁴⁵⁸ Similarly, those fears that touch a particular emotional chord or that pique moral outrage are more likely to be expressed to others, discussed, and amplified.⁴⁵⁹

4. Moral Panics

One particular type of cascading event is called a “moral panic.”⁴⁶⁰ Moral panics occur when a group or segment of society becomes fearful of a “perceived moral threat” that somehow attacks or undermines the group or societal values.⁴⁶¹ Because these panics tap into deeply held morals and beliefs, and threaten them on some level, they can be even more powerful than other cascades in a society.⁴⁶²

Cass Sunstein points to “extreme leaps” in concern in the U.S. during the 1970s and 1980s over problems like teen suicide, gang violence, AIDS, children born out of wedlock, or even herpes.⁴⁶³ This time period coincided with a “near exponential growth” of nationwide media frenzies over issues that seemed to attack our very moral core.⁴⁶⁴ These “panics” were instigated and sustained by vivid coverage in the media, causing the concern to far outstrip the actual danger.⁴⁶⁵ Moral panics continue today as fear of the impacts that immigrants, alternative sexual orientations, and different religions have on a society’s moral fabric.⁴⁶⁶ Certainly news media, as well as social media, contribute to these moral panics.⁴⁶⁷

There are elements of the moral panic phenomenon in BSL, especially in regards to pit bulls. Historically, pit bulls have been closely

⁴⁵⁶ Kalev Leetaru, *Don’t Blame CNN for the Ebola Panic*, FOREIGN POL’Y MAG. (Oct. 24, 2014) (available at <http://foreignpolicy.com/2014/10/24/dont-blame-cnn-for-the-ebola-panic/> [<http://perma.cc/4NVQ-G2MB>] (accessed Nov. 25, 2015)).

⁴⁵⁷ See *Deaths and Mortality*, CDC, <http://www.cdc.gov/nchs/fastats/deaths.htm> [<http://perma.cc/F8F9-W8RB>] (accessed Nov. 25, 2015) (showing 56,979 deaths from influenza and pneumonia in 2013); *Methicillin-Resistant Staphylococcus Aureus Infections*, CDC, <http://www.cdc.gov/mrsa/tracking/index.html> [<http://perma.cc/F878-8RGC>] (accessed Nov. 25, 2015) (showing an estimate of 75,309 MRSA infections in 2012).

⁴⁵⁸ SUNSTEIN, *supra* note 356, at 43.

⁴⁵⁹ *Id.* at 96, 98.

⁴⁶⁰ *Id.* at 98.

⁴⁶¹ *Id.*

⁴⁶² *Id.*

⁴⁶³ *Id.* at 38.

⁴⁶⁴ GARDNER, *supra* note 374, at 58.

⁴⁶⁵ SUNSTEIN, *supra* note 356, at 38.

⁴⁶⁶ *Id.* at 98.

⁴⁶⁷ *Id.* at 102–03.

linked to criminal elements in society, particularly dogfighters, drug dealers, and gang members.⁴⁶⁸ Because the perception of these dogs is one of ‘counterculture’ and the ‘other’ in society, people have been more willing to allow ‘that breed’ of dog to be banned, because that breed, as symbolized by its most common owners, is morally corrupt.⁴⁶⁹ After reading the 1987 *Time* magazine piece, *Time Bombs on Legs*, it is no wonder the moral panic against pit bulls ensued.⁴⁷⁰ The author, perhaps appealing to the scaremongering running rampant throughout the decade, painted a picture that inextricably linked the pit bull with moral corruption.⁴⁷¹ These were the dogs of drug dealers and gang members.⁴⁷² Pit bulls prowled inner city streets and were used to conceal drugs placed in their collars.⁴⁷³ The dogs, the author claimed, were weapons of choice, like guns and knives—to be used against the unsuspecting.⁴⁷⁴ *People* magazine also peddled the morally corrupt picture of pit bulls and their owners, insisting the regular dog owning public did not favor the dog, but only ‘back-alley types,’ ‘drug dealers and lowlifes’ and ‘inner city teenagers’ sought out the breed.⁴⁷⁵

In *Toledo v. Tellings*, the Ohio Supreme Court showed further evidence of moral panic when it referenced the testimony of the local dog warden who warned, “Toledo police officers fire their weapons in the line of duty at pit bulls more often than they fire weapons at people and all other breeds of dogs combined[,] and pit bulls are frequently shot during drug raids because pit bulls are encountered more frequently in drug raids than any other dog breed.”⁴⁷⁶ Whether these statistics are accurate or not is irrelevant. The mere fact that these dogs are present at drug raids (through no fault of their own) and often shot

⁴⁶⁸ See Brand, *supra* note 4; Sager, *supra* note 4; Swift, *supra* note 4 (noting prevalent public perception that pit bulls are associated with drug dealers and violent criminals, as well as the frequency with which pit bulls are subjected to dogfighting).

⁴⁶⁹ See, e.g., Barnes et. al., *Ownership of High-Risk (“Vicious”) Dogs as a Marker for Deviant Behaviors*, 21 J. INTERPERSONAL VIOLENCE, 1616 *passim* (2006) (linking socially deviant behavior with owning what the authors of the study defined as a high-risk dog: pit bulls or breeds typically covered under BSL).

⁴⁷⁰ Brand, *supra* note 4.

⁴⁷¹ *Id.*

⁴⁷² *Id.*

⁴⁷³ *Id.*

⁴⁷⁴ *Id.*

⁴⁷⁵ Green, *supra* note 4. “Pit bulls are, in fact, less popular among ordinary dog lovers than among back-alley types who prize them for the very qualities that make them dangerous. Although organized dog fighting is illegal in the U.S., thousands of fans still savor the so-called sport. To satisfy the demand for combatants, unscrupulous breeders peddle hundreds of pit bulls crossbred for great strength and explosive temperament. Drug dealers and other lowlifes favor pit bulls as fearsome guard dogs, and inner-city teenagers have begun to adopt them as symbols of manhood.” *Id.*

⁴⁷⁶ *Tellings II*, 871 N.E.2d at 1157.

by officers⁴⁷⁷ was sufficient to support their reputation as a vicious breed.

C. Results of Misplaced Fear

The risk of being killed by a dog (any dog, not just one targeted by BSL) in the U.S. is about the same or even less than being killed in a lightning strike.⁴⁷⁸ The odds of dying from falling down the stairs, choking, or hypothermia are far greater than the odds of dying from a dog attack.⁴⁷⁹ For some reason we treat the danger from dogs differently, and I posit that the reason for this different treatment is the effect of the availability and affect heuristics. The graphic stories of children being mauled coupled with magazine covers picturing vicious dogs with teeth bared activate the availability and affect heuristics, leading us to neglect the true probability of the risk and overestimate the danger.⁴⁸⁰ Considering that the media obsession with focusing on pit bulls and breed identification and the cascading and moral panic effects that follow, it is easy to see why our fear of dogs, particularly pit bulls, far exceeds the actuality of the danger.⁴⁸¹ Arguably, this excessive fear has led to over-responsiveness in the form of BSL enacted by local governments, but what are legislatures and governments supposed to do in the face of excessive fear and moral panics among constituents?⁴⁸² Part VI of this article will tackle the solution to the BSL quandary and point legislatures in a better direction to responsibly and effectively tackle the problem of serious dog attacks.

VI. RECOMMENDATIONS

This Article has reviewed the history of dangerous dog panics, the foundations of BSL, and the current state of such laws in the U.S. and abroad. We see that available scientific evidence does not support the notion that certain breeds are inherently dangerous. We also see that comparative studies show that BSL is largely ineffective. Furthermore, we now know that the errors of human judgment of both risk perception and visual breed identification have compounded the problem and further promoted otherwise poor public policy regarding ‘dangerous’ dogs. Legislatures, policy makers, courts, and animal advocates all have a role in ending BSL and putting forward more positive and effective policy to curb serious dog bites.

⁴⁷⁷ *Id.* This statistical argument seems circular. Pit bulls are more often shot by officers, but is that because they are actually more dangerous or because officers are simply more afraid of them due to shared societal fears?

⁴⁷⁸ See *Danger of Death!*, *supra* note 378 (depicting the likelihood of death from dog attacks as significantly less likely than many other potential causes of death).

⁴⁷⁹ *Id.*

⁴⁸⁰ See Brand, *supra* note 4; Sager, *supra*, note 4; Swift, *supra* note 4 (describing the pervasive nature of the public’s association of pit bulls with crime and danger).

⁴⁸¹ SUNSTEIN, *supra* note 356, at 102.

⁴⁸² *Id.*

A. Legislatures and Policy Makers

First and foremost, lawmakers must recognize the true nature and complexity of the question they are attempting to answer. In discussing the effects of heuristics on decision-making, Daniel Kahneman points out that heuristics often take the complex question asked and reformulate it into a simpler, more easily answered question.⁴⁸³ For instance, the question, “How do we prevent serious dog-bite related injuries?” has effectively been changed to, “How do we prevent the ‘type’ of dog that I think causes serious injuries from biting people?” Unless we as a society would choose to ban all dogs, the answer to the first question is necessarily complex. The epidemiological studies discussed above point to multiple interrelated factors that lead to serious dog attacks, and an effective legislative solution requires a multi-faceted approach.⁴⁸⁴ But, the simple act of changing the question slightly makes it much easier to answer. Now, you need only determine what type of dog causes serious injuries, and simply make it unlawful to own that type of dog. That second question is even further simplified by turning the question of ‘type’ into a question of ‘breed.’ This, of course, does not answer the original question, but few lawmakers in jurisdictions with BSL have noticed.

Once legislatures reframe the question and acknowledge the difficulty and complexity of the question, they are better able to craft meaningful policy initiatives. First and foremost, policy makers must stop obsessing over breed, recognizing that only a small portion of any one breed is dangerous and that visual breed identification is wholly unreliable. Instead, focus should be on the known factors that contribute to serious dog attacks. The Patronek study and similar research is a great place to start.⁴⁸⁵ Patronek’s study determined that the co-occurrence of a number of factors tended to precipitate dog-bite related fatalities.⁴⁸⁶ This pattern included poor treatment of the dog in the form of neglect, abuse, or at the very least, isolation of the dog from positive human interaction.⁴⁸⁷ It often included owner mismanagement such as letting a dog run loose often or failing to supervise a dog when it is in the presence of a vulnerable victim such as a child or an elderly adult.⁴⁸⁸ Usually, the worst attacks—the fatal ones—involve unaltered dogs, particularly unneutered male dogs.⁴⁸⁹

This list of common characteristics gives legislators a good starting point for policy action. Patronek’s observation that most attacks include a co-occurrence of at least four of these factors is heartening

⁴⁸³ KAHNEMAN, *supra* note 351, at 97–99.

⁴⁸⁴ See, e.g., Patronek, *supra* note 15 *passim* (discussing the multiple factors leading to serious dog attacks and the potential legislative solution).

⁴⁸⁵ *Id.*

⁴⁸⁶ *Id.* at 1732 fig.1.

⁴⁸⁷ *Id.* at 1726.

⁴⁸⁸ *Id.* at 1729–30, 1732.

⁴⁸⁹ Patronek, *supra* note 15, at 1730.

because, if a policy can eliminate even one or two of these factors in a given situation, then the probability of a serious attack drops precipitously.

How, then, can resources be allocated more effectively to reduce dog attacks? First, legislatures must increase penalties for animal abuse and neglect, and put more resources toward investigation and prosecution. In addition to current definitions of neglect and abuse, however, legislatures should include language that defines isolation of dogs from humans as a form of abuse. There is plenty of literature to support the understanding that dogs have evolved in a way that they crave, even require, human interaction for well-being.⁴⁹⁰ Some jurisdictions have enacted legislation prohibiting tethering a dog on a chain or other wire for long periods of time.⁴⁹¹ This is a beginning, but it does not get to the heart of the problem since isolation can occur within the home or in a fenced-in yard with no tie-out.

Second, legislatures and policy makers should find new ways of encouraging spaying and neutering. This not only helps with the dog-bite problem, but also with reducing the number of homeless pets in shelters. Some jurisdictions have attempted mandatory spay-neuter laws, though they are extremely controversial, difficult to enforce, and easily ignored by citizens.⁴⁹² A better way to encourage spaying and neutering may be what Sunstein calls “nudging.”⁴⁹³ Nudging is the use of laws or policies to make a citizen act (or not act) in a desired way without mandating it.⁴⁹⁴ In this case, it would be a policy that either makes it more attractive to spay or neuter your dog or more unattractive to leave your dog intact.⁴⁹⁵ Legislatures would do well to expend resources to provide free spay-neuter services, especially in low-income neighborhoods.⁴⁹⁶ In fact, when Los Angeles had a low-cost spay/neu-

⁴⁹⁰ Crista L. Coppola, *Human Interaction and Cortisol: Can Human Contact Reduce Stress for Shelter Dogs?*, 87 *PHYSIOLOGY & BEHAV.* 537, 540 (2006). Human contact showed a decrease in cortisol levels for shelter dogs, indicating a reduction in stress response. *Id.*

⁴⁹¹ See, e.g., H.B. 2783, 77th Gen. Assemb., Reg. Sess. (Or. 2013) (limiting the amount of time an animal may be tethered to ten hours within a twenty-four hour period).

⁴⁹² See, e.g., C.D. Watson, *The Trouble with Mandatory Spay/Neuter Laws*, PETSADVISOR, <http://www.petsadviser.com/animal-welfare/mandatory-spay-neuter-laws/> [<http://perma.cc/RET9-CGHW>] (April 22, 2013) (accessed Nov. 25, 2015) (pointing to the various mandatory spay-neuter laws and describing the issues and difficulties with implementation of such laws).

⁴⁹³ RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* 6 (2008).

⁴⁹⁴ *Id.*

⁴⁹⁵ For example, Allegheny County, PA, where Duquesne University School of Law is located, charges less for a dog license if the dog is spayed or neutered rather than left intact. Allegheny County, Pa., Dog License Application (available at <http://www.allegheycounty.us/treasurer/Regular-Dog-License-Application.pdf> (accessed Nov. 25, 2015)).

⁴⁹⁶ NATHAN WINOGRAD, *REDEMPTION: THE MYTH OF PET OVERPOPULATION AND THE NO KILL REVOLUTION IN AMERICA* 29 (2007).

ter program, the city discovered that for every dollar the community put into the program it saved ten dollars in animal control costs because of the reduction in the number of pets taken in at shelters.⁴⁹⁷ With such savings, and adding the reduction in serious dog bites to the equation, communities might even do well to consider paying a nominal fee to citizens to encourage them to spay and neuter.

Certainly educational efforts would also be a positive step, though the reach and effectiveness of such measures has always been questionable. It is a fairly easy step for policy makers to insist that all children receive education concerning proper ways of interacting with dogs. This can be accomplished in schools through the help of humane societies and other animal advocate groups, and it will make a difference. Educating dog owners on management issues is a tougher question. Perhaps again, communities can provide a 'nudge' to encourage dog owners to attend educational sessions. Different types of communities may require different forms of nudges, and local legislatures could be in the best position to accomplish widespread spaying and neutering.

These are just a few of the possible breed-neutral efforts that legislatures could pursue once they properly restate the real question and address the true complexities of the issue.

B. Courts

Despite their current disinterest in these issues, courts now have an even clearer role in addressing the legitimate constitutional problems with BSL. The Voith study, and others like it, has shown that breed-specific laws as they currently exist are impossible to enforce with any semblance of fairness. If the target of a ban is based on the 'look' of a dog alone, it is not a breed-specific law at all—breed has little to do with it. Basing such laws on visual identification is also, as the Massachusetts court noted in *American Dog Owners Ass'n v. City of Lynn*, too reliant upon the subjective opinion of the person enforcing the law.⁴⁹⁸

Bans based on actual breed should require DNA evidence. The problem with this of course is two-fold: 1) it would be wildly expensive, and 2) the dogs banned would likely not accurately reflect the intentions of the legislature. Either way, courts should recognize there is truly a question as to whether this sort of law can ever be rationally related to a government interest. In light of the vast expansion of scientific evidence now available, courts must stop simply parroting the *Sentell* court and engage in a meaningful analysis under the rational basis test.

Second, as an added incentive to engage in the rational basis analysis, courts must recognize that BSL infringes upon personal liberties in an unequal way. BSL infringes upon the liberties of certain disen-

⁴⁹⁷ *Id.*

⁴⁹⁸ 533 N.E.2d at 647 (Mass. 1989).

franchised members of the community far more than on others. No, there is likely no particular ‘suspect class’ involved, but there is an argument that BSL has a disproportional effect on the poor, and that fact is worthy of consideration.

In his discussion of the problem of fear pertaining to national security issues, Sunstein points out a primary problem with heuristics when they promote ineffective safety measures. “Simply because of fear, the public and its leaders will favor precautionary measures that do little to protect security, but that compromise important liberties.”⁴⁹⁹ Sunstein is particularly concerned when the cost of certain liberties is borne by a particular identified group and with no detriment to most people.⁵⁰⁰

With regard to BSL, it is the poor who bear the brunt of pit bull bans most severely. Persons with monetary means can escape the effect of BSL if so inclined. They can afford the cost of defending a dog in court, they can move out of municipal borders to avoid BSL, and they can afford to pay for special insurance premiums or build particular enclosures as required in some ordinances. These expenses, however, are beyond the means of many. The only options for many poor are euthanasia or rehoming of their dogs. In addition to the direct effects of BSL, the indirect effects of BSL include discrimination by landlords or insurance companies. Again, it is the poor who are most affected by these costs.

It is likely no coincidence that the conversation about pit bulls has changed as more white, middle and upper class people identify themselves as pit bull owners. Suddenly, it is not just the rights of the dogfighters, ‘drug dealers,’ ‘lowlifes,’ and ‘inner-city youth’ that are being restricted, it is also the rights of the teacher, the doctor, the athlete,⁵⁰¹ and the actress.⁵⁰²

⁴⁹⁹ SUNSTEIN, *supra* note 356, at 204.

⁵⁰⁰ *Id.*

⁵⁰¹ MLB pitcher Mark Buehrle, owner of a pit bull named Slater, has had to deal with pit bull bans in Miami and Toronto. While with the Miami Marlins, the pitcher and his family bought a house in nearby Broward County to avoid the Miami-Dade county ban. Once traded to the Toronto Blue Jays however, Buehrle and his family had to make a tough decision. In the end, they decided to have the family and Slater remain at their home in St. Louis, while the pitcher went to Toronto to play during the eight-month season. Buehrle has the financial means to make decisions like this, though it certainly could not be easy for him or his family. Others are not so lucky. Jerry Crasnick, *Lonely Days Ahead for Mark Buehrle*, ESPN, http://espn.go.com/mlb/story/_/id/8921726/outlawed-pit-bull-keep-mark-buehrle-away-family [<http://perma.cc/C8LJ-T67G>] (Feb. 7, 2013) (accessed Nov. 25, 2015).

⁵⁰² Actresses such as Jessica Biel, Kayle Cuoco, and Kristin Bauer are well-known pit bull owners and advocates. See *Actress Kaley Cuoco Responds To Kelly Ripa’s Pit Bull Comment*, CBS L.A., <http://losangeles.cbslocal.com/2012/10/11/actress-kaley-cuoco-responds-to-kelly-ripas-pitbull-comment/> [<http://perma.cc/BNP5-4NNN>] (Oct. 11, 2012) (accessed Nov. 25, 2015) (providing links to the Twitter-feed discussion between the celebrities regarding pit bulls); *Famous Pit Bull Lovers, Celebrity Pit Bulls*, ANIMAL PLANET, <http://www.animalplanet.com/pets/dog-famous-pit-lovers-pictures/> [<http://>

Though the founding fathers did not have the benefit of modern cognitive science, they did have an understanding of human behavior. In *The Federalist Paper 78*, Alexander Hamilton charges the judiciary:

to guard the Constitution and the rights of individuals from the effects of those ill humors, which the arts of designing men, or the influence of particular conjunctures, sometimes disseminate among the people themselves, and which, though they speedily give place to better information, and more deliberate reflection, have a tendency, in the meantime, to occasion dangerous innovations in the government, and serious oppressions of the minor party in the community.⁵⁰³

The judiciary has thus far been generally unhelpful at curbing the results of BSL panic. Has the judiciary failed in its special role of protecting individual liberties against the whims of the majority? It is not to be suggested that the right to share your home with the dog of your choice is a fundamental right, or should not be regulated under any circumstances, but certainly there is a point where the overwhelming evidence shows a law is not rationally related to its purpose. Where BSL is not repealed by legislatures, courts have a duty to look to the rights of individuals and protect them against laws that infringe upon liberties for no legitimate reason. Certainly courts can look to the science surrounding this issue and be willing to employ a true rational basis test. If for no other reason, courts must reconsider the constitutionality of BSL because problems with visual identification prevent consistent or just application of these laws.

C. *Animal Advocates*

Animal advocates have been doing the heavy lifting in opposing BSL, but as Sunstein notes it is very hard to un-ring a bell of panic and fear once it has been rung.⁵⁰⁴ His primary solution is to change the subject of the popular conversation.⁵⁰⁵ Like reformulating the question, changing the subject takes the emphasis off of the fear-inducing factor and places it on the correct topic, presumably allowing the panic to run its course. Certainly, efforts to change the subject have already

perma.cc/C6WY-N282] (accessed Nov. 25, 2015) (showcasing the celebrity's fondness for her pit bull named Tina).

⁵⁰³ THE FEDERALIST NO. 78 (Alexander Hamilton).

⁵⁰⁴ *Probability Neglect*, *supra* note 423, at 95. "There is . . . a striking asymmetry between increasing fear and decreasing it. If people are now alarmed about a low-probability hazard, is there anything that government can do to provide assurance and to dampen concern? This is an unanswered question. The only clear point is that government is unlikely to be successful if it simply emphasizes the low probability that the risk will occur. There appears to be no evidence that any particular strategy will succeed. But the best approach may well be simple: Change the subject. We have seen that discussions of low-probability risks tend to heighten public concern, even if those discussions consist largely of reassurance. Perhaps the most effective way of reducing fear of a low-probability risk is simply to discuss something else and to let time do the rest. Of course, media attention can undermine this approach." *Id.*

⁵⁰⁵ *Id.*

begun. Breeds other than pit bulls that are targeted by BSL have advocates in the form of breed clubs and organizations that watch out for the image of the breed portrayed in society and the media. For pit bulls, ironically, it was the investigation, arrest, and subsequent prosecution of Michael Vick on dogfighting-related charges, as well as the efforts of the advocates who worked to save Vick's dogs from euthanasia, that most effectively changed the conversation on pit bulls, moving it away from the 'viciousness' of the dogs to their victimhood at the hands of dogfighters.

While some progress has been made in regard to rehabilitating the image of pit bulls, the prior demonization was so long-lasting and so wide in scope that a full-scale makeover of the pit bull may be too much to ask, at least in the short term. The phrase 'pit bull' has been given new meanings in the popular lexicon, and that will be difficult to root out. It may, in fact, be best to stop using the term 'pit bull' to refer to any dog. Like the 'Siberian' and 'Cuban bloodhounds' of the last century, a simple name was sufficient to wipe out the baggage of breed bias. Since there is no actual 'pit bull' breed, this may be possible, even if difficult. There is a current movement among shelters and advocates to avoid the term pit bull altogether. Some go so far as to suggest avoiding breed designations for any dog in a shelter or rescue and simply calling them American Shelter Dogs.⁵⁰⁶ That solution seems warranted, not only in order to change the conversation on pit bulls, but also because the science shows humans, even animal shelter workers, lack the ability to accurately identify breeds of dog by sight.

VII. CONCLUSION

The risk of severe or fatal dog bites is very small. While experts estimate there have been about 4.7 million dog bites per year in America in past years,⁵⁰⁷ this statistic remains questionable because there is no reporting requirement. Even assuming accuracy of the statistic, a large number of those bites are very minor, not even requiring medical attention.⁵⁰⁸ It is estimated that there are upward of 77 million dogs in households across the U.S.⁵⁰⁹ With the number of dogs in our society, it is actually quite amazing that serious injury from dog attacks is so rare. It is a testament to the relationship that has been built between humans and canines over the millennia. Dogs have been

⁵⁰⁶ *Introducing the American Shelter Dog, the Dog You've Always Known*, LEWIS & CLARK HUMANE SOC'Y, <http://www.mtlchs.org/pages/ASD.htm> [<http://perma.cc/9ENQ-5RW7>] (accessed Nov. 25, 2015).

⁵⁰⁷ Gilchrist et al., *supra* note 317, at 296.

⁵⁰⁸ *Id.* at 300.

⁵⁰⁹ *Pet Industry Market Size & Ownership Statistics*, AM. PET PRODS. ASS'N, http://www.americanpetproducts.org/press_industrytrends.asp [<http://perma.cc/YCW7-S539>] (accessed Nov. 25, 2015).

man's (and woman's) best friend for tens of thousands of years; it is now time that humans return the favor by enacting laws that regulate the real but minor risk of severe injury from dog bites while also reducing the irrational fear response that precipitates unjust laws.