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To Whom it May Concern,

I have been requested to provide a rebuttal to expert reports in Plaintiffs' case against the City of Sioux City, Iowa (16-cv-1407-LRR). I have not received compensation for preparing this report. I would like to refute positions and conclusions drawn in testimony in this case regarding breed specific restrictions against animals identified as 'pit bulls', particularly comments offered in the reports of Alan Beck and Douglas Skinner.

Background

I have undergraduate degrees in psychology and biology from Wesleyan University in Connecticut and a doctorate in comparative and physiological psychology from Washington University in St. Louis with dissertation work on canid behavior and aggression. I became a Senior Vice President for The American Society for the Prevention of Cruelty to Animals (ASPCA) in August of 2005, after serving for 21 years in various capacities at the Humane Society of the United States, including Vice President for Field Services and Vice President for Research and Educational Outreach. In addition to my position with the ASPCA, I am Affiliate Assistant Professor, Small Animal Clinical Sciences, in the College of Veterinary Medicine at the University of Florida, Gainesville, Florida where I teach classes within the Masters Program in Veterinary Forensic Sciences, including a class on Forensic Applied Animal Behavior which focuses on the application of current scientific knowledge of animal behavior to the law.

I am a Fellow of the Denver University Center for Human-Animal Interaction and the Oxford (U.K.) Center for Animal Ethics. I am a member of the advisory council of the Association of Prosecuting Attorneys. For nearly forty years I have worked closely with humane societies, animal care and control agencies, dog trainers and law-enforcement, serving as an expert on dog behavior, dog aggression, dog-bite prevention, illegal dogfighting and the interactions between people and animals.

I have been an advisor on animal-related public health problems to many city and state governments, law enforcement agencies, utility companies, the Centers for Disease Control, the National Sheriffs Association, the International Association of Chiefs of Police and the U.S. Postal Service.

I was a member of the American Veterinary Medical Association's Task Force on Human/Canine Interaction, established to review the dog bite problem and appropriate community responses. I have served as an expert witness in many civil and criminal trials

dealing with dangerous dogs, including the first trials to result in manslaughter and murder convictions of owners of dogs involved in fatal attacks and the high-profile murder/manslaughter trials in the San Francisco dog-mauling death of Diane Whipple. I have participated in several large scale seizures of dogs involved in dog-fighting operations, including the Michael Vick case and the 2007 seizure of more than 400 dogs from 20 locations in eight states and have assisted in the handling and assessment of several hundred dogs from such law enforcement responses. Below is a list of the cases in which, during the previous 4 years, I have testified as an expert at trial or by deposition: (1) May 2014 – Santa Ana, CA – Christian v. Orange County Animal Control; (2) September 2015 – Buffalo, NY – People v. Shannon Richardson; (3) May 2016 – Toronto, Canada, Crown v. Eric Christopher Flemming.

I have provided training on dangerous dog issues and bite prevention for hundreds of professionals in animal care and control, law enforcement, emergency services and public health. I have served as a subject matter expert in the development of statewide law enforcement training on officer safety in encounters with dogs for California, Colorado, Ohio, Tennessee and Texas.

I was a contributor to *The domestic dog: Its evolution, behaviour and interactions with people* (1995: Cambridge University Press, and 2nd edition 2016), *The Humane Society of the United States' Complete Guide to Dog Care* (1998: Little Brown) and *Animal Law and Dog Behavior* (1999: Lawyers & Judges Publishing). I co-edited *Cruelty to Animals and Interpersonal Violence* (1998: Purdue University Press) and am author of *Animal Cruelty Prosecution: Opportunities for Early Response to Crime and Interpersonal Violence* (2006: National District Attorneys Association) and co-author of *Forensic Investigation of Animal Cruelty: A Guide for Veterinary and Law Enforcement Professionals* (2006: HSP) and *Investigating & Prosecuting Animal Abuse: A Guidebook on Safer Communities* (2013, National District Attorneys Association). I developed the **Dogfighting Toolkit for Law Enforcement: Addressing Dogfighting in Your Community(2011)** under a grant from Community Oriented Policing Services of the U.S. Department of Justice.

Comments on Expert Witness Reports

General Comments on Dr. Beck's Report

Dr. Beck's report is simply a copy of testimony he prepared in 2005 in reference to proposed legislation in Toronto. According to Dr. Beck's declaration "My opinions on these topics has not changed." As a colleague of Dr. Beck, I find this statement to be distressing and embarrassing, indicating that he has apparently neither sought nor been influenced by an enormous amount of research related to the issues that have emerged in the last 12 years. Among the many developments relevant to the issue of breed specific legislation (BSL) that he has chosen to overlook in his report are:

1. Major advances in the understanding of canine genetics, including the sequencing of the canine genome, challenging many old assumptions about the connections between appearance of breeds and the underlying genetic variation.

2. Many studies attempting to understand genetic contributions to aggressive behavior in a variety of species and the general failure to find simple connections between particular genetic composition (including “breed”) and behavior, as well as a lack of evidence for simple genetic determination of aggressive behavior in dogs. (*e.g.*, Duffy *et al.*, 2008).

3. Much research looking at epigenetic (*e.g.* environmental and experiential) influences on the expression of many genes - documenting that genetic background alone is a poor predictor of many traits, including behavior.

4. Extensive work with hundreds of dogs from recent fighting history showing wide variations in behavior and success in rehabilitating and modifying behaviors of many of these dogs.

5. Extensive work by Voith (2013), Olson (2015) and others on the inaccuracy of visual determination of breed, even by experienced animal care and control professionals, when compared with DNA determination. Also, assessment of breed factors (or lack thereof) in fatal dog attacks when results are limited to verified breed determination.

6. Epidemiological assessment of theoretical and actual impact of BSL on reducing injury in areas that have conducted appropriate comparisons, as well as economic analyses of the true costs of implementing BSL (*e.g.*, Cunningham, 2005; Collier, 2006; Patronek *et al.*, 2010; Williams, 2013)).

7. Assessment of human factors that provide the strongest predictors of serious and fatal attack (*e.g.*, Patronek *et al.*, 2013).

Response to specific assertions in Dr. Beck’s 2005 report:

Page 1 - “Dog bite is extremely common, perhaps epidemic.”

The source cited dates from a 1974 paper by Harris, Imperato and Oken, reviewing data from New York City from more than 40 years ago. The use of the term arose in response to municipal dog bite reports from specific municipalities with no standardization of data collection methods. Such systems were created to track exposure to zoonotic disease, primarily rabies, and not mechanical trauma caused by a dog. They are inadequate to capture dog bite incidence in general with any accuracy. Further, the two national, standardized Injury Control and Risk Surveys (ICARIS) conducted by the Centers for Disease Control and Prevention call into question the notion of a dog bite “epidemic”. The second survey, conducted in the early 2000’s, showed a decline in the overall number of bites from the first, conducted in 1994. It also showed that the rate of medically attended bites to children had declined by 47%. (Gilchrist *et al.*, 2008)

Page 2 - “Certain types of dogs actually bite a victim in ways more like a predatory attack inflicting multiple bites or tearing of flesh.”

The source cited (Borchelt *et al.*, 1983), of which Dr. Beck and I are both co-authors, does not report that.

Page 2- Review of pit bull attacks

“They identified 157 dog-related fatalities from 1979 – 1988. . .”

The most serious error, including misuse of my published work, is the continued reliance on statistics of dog bite-related fatalities (DBRFs) as a source for the extrapolation to breed-specific characteristics that define the general population of dangerous dogs. The oft cited CDC and American Veterinary Medical Association (AVMA) reports (Sacks *et al.*, 1996, 2000) tracking the rare instances of DBRFs make several key points that usually go unmentioned by Dr. Beck and others in the use of the data in these studies that render this data meaningless in drawing epidemiological conclusions outside of this rare incident. Concern about such misuse of the data even prompted the AVMA to release a letter warning against such misapplication of the data. As a coauthor of most of these reports, I feel it necessary to address the misuse of this data.

First – DBRFs are a very rare phenomenon, generally fewer than 20-30 instances per year from a population of nearly 70 million dogs. This is roughly half the incidence of US deaths by lightning strikes and bee stings; one-tenth the number of the annual US deaths from West Nile Virus; and 0.2% of the homicides in the US in 2014. (Source: FBI). Public health and risk assessment decisions based on rare or isolated instances are invariably driven by emotion and panic rather than objective review of the contributing factors and assessment of the most effective response (Kluger, 2006). Fear of dog attack evokes a very primal, emotional fear comparable to what might be evoked in imagining an encounter with a wild animal, promoting a search for solutions that appear to address the issue, but which ignores the underlying dynamics. Of course, a domestic dog is not a wild animal. If insurers attempted to restrict coverage based on each potential source of mortality to covered clients it would be epidemiologically more appropriate to deny coverage if the insured possessed bathtubs, ladders, swimming pools, guns, knives, large screen TVs and many other instruments related to significantly greater number of deaths than dogs. And no company would insure an automobile driver.

Second - epidemiological extrapolations must be based on populations that are representative of the populations at risk. DBRFs represent a unique intersection of multiple problems related to dog bite epidemiology. DBRFs represent a unique “perfect storm” of negative factors (Gladwell, 2006). They are NOT simply bites by inherently more dangerous dogs. They reflect a unique end result of a multiplicity of potentially preventable co-occurring factors. (Patronek *et al.*, 2013). Enacting legislation to reduce DBRFs based only on the presumed breed of a dog is meaningless, and has been shown as extremely unlikely to be effective. (Patronek *et al.*, 2010).

Third - even if data from DBRFs were relevant to the formation of public policy, the question remains “which data do you use?” Although the number of fatalities has remained relatively constant over the last 30 years, the breeds that are “overrepresented” in this aberrant set change over time. At varying times the predominant breeds involved have been German shepherd dog, Doberman, pit bulls, Rottweiler, Akita, and others. During the 20-year period 1979-1998, more than 30 different breed descriptors were assigned to dogs involved in fatalities. (Sacks, 2000). In the more recent paper covering the years 2000-2009, the authors reliably identified the breed of the dog in only 45 of the 256 cases. Twenty different breeds were identified, including two known breed mixes, were identified in those 45 incidents.

Focusing on a single breed as the “source” of the dog bite problem reflects a 19th century epidemiological mindset that attempts to identify the vector of a public health problem and eliminate that vector. This is the mindset originally applied to animal control due to

its early function as a way of controlling a disease - namely rabies. The dog bite problem is **not** a disease problem with a single vector, it is a complex societal issue that must address a wide range of human behaviors in ways that deal with irresponsible behavior that puts people and animals at risk, while minimizing the burdens placed on responsible pet owners. This has long been my stated personal opinion, as well as that of the organizations with which I have worked on these issues, including the HSUS, the ASPCA, the CDC and the AVMA (Lockwood, 1986, 1987, 1988, 1992).

Page 2 - “Later studies still demonstrate that pit bull dogs account for the majority of fatal dog attacks.”

The development of improved coding criteria for dog bite related injuries and fatalities has allowed the methodology of Sacks *et al.* (2000) to be superseded by a study reporting the result of a comprehensive analysis of all DBRFs that occurred over a ten-year period. This study is the most comprehensive investigation of such incidents yet to be published. Rather than rely solely on media reports, the authors also compiled detailed histories on the basis of reports from homicide detectives, animal control reports, and interviews with investigators, which were then coded for descriptive analysis. The study identified seven potentially preventable factors that co-occurred, in various numbers and combinations, in these incidents. Breed was not one of them. The authors were only to make valid breed determinations in 17.6% of the cases studied. Twenty breeds, including two known mixes, were identified. (Patronek *et al.*, 2013).

Page 4 - “The definition of pit bull . . . is a common one.”

Breed identification of dogs of unknown origin by visual inspection has repeatedly been shown not to correspond with breed identification by DNA analysis. A recent study at the Western University of Health Sciences asked >900 persons engaged in animal related occupations to name the breed or breeds in mixed breed dogs, based on a visual inspection. Their responses did not correlate with the breeds identified through DNA analysis. Further, these respondents frequently disagreed with each other regarding the breed or breeds of the same dog (Voith *et al.*, 2013). Researchers from the University of Florida who conducted a similar survey have reported inconsistent identification of pit bull-type dogs. The respondents to the UF survey included veterinarians, animal control officers, kennel staff, veterinary assistants/technicians, and shelter customer service staff. Their responses did not correlate with DNA analysis; and they frequently disagreed with each other as to whether or not a dog was a pit bull (Olson *et al.*, 2015). Hoffman *et al.* (2014) showed shelter workers in the US and the United Kingdom a photo array of 20 dogs and asked, among other questions, whether or not the dog was a pit bull. The findings indicated a lack of consensus, both between and within the United States and United Kingdom, about what constitutes a pit bull terrier. In a litigation challenging a breed ban in Minneapolis, Minnesota, plaintiff showed a photographic array of 24 dogs to animal control officials. The officials were unable to agree as to which dogs were banned pursuant to the statute. The court ruled the Minneapolis statute void for vagueness. Subsequently, the State of Minnesota enacted a statute prohibiting communities from regulating dogs on the basis of breed. (Tanick, 2009).

Page 4- “inherent fighting nature” of all pit-bull like dogs

This assertion is not correct. Even among bloodlines of champion fighting dogs maintained for illegal dogfighting, it is common that many of the offspring of

accomplished fighters will show little or no inclination toward dog-dog aggression, leading to high incidence of culling within even these highly inbred lines (Lockwood, 2011).

Page 4 - Opposition to breed-specific bans

Dr. Beck's review of opposition to breed bans reflects a decade-old list of arguments that have evolved and been invalidated through extensive new information. Breed-specific restrictions and regulations have been resoundingly and universally opposed by professionals in veterinary medicine, animal behavior, animal care and control, and animal protection as an approach that is ineffective, costly, epidemiologically unsound, and unfair to responsible owners of affected dogs. Among the US animal-related organizations opposed to breed-specific regulation are the Humane Society of the United States, the American Society for the Prevention of Cruelty to Animals, the American Humane Association, the Best Friends Animal Society, the American Veterinary Medical Association, the American Veterinary Society of Animal Behavior, the Centers for Disease Control and Prevention, and the National Animal Control Association (the professional association of animal control officers charged with enforcing community animal regulations).

Contrary to Dr. Beck's assertions, breed laws have been a source of continuing controversy largely because of their recognized ineffectiveness in reducing incidence of dog bite-related injury. Two countries (Italy and the Netherlands) have repealed their breed specific laws in recent years. US breed specific laws are similarly selective and outdated. During the period January 2012 through May 2014, approximately seven times as many communities repealed or rejected breed specific laws as enacted them. Nineteen states currently preempt their towns and counties from regulating dogs on the basis of breed.

First, applying a "numbers needed to treat" analysis to dog bites, it has been shown that removing a group of dogs, however defined, from a community is unlikely to prevent even one dog bite-related hospitalization, and impossibly unlikely to prevent a fatality. (Patronek *et al.*, 2010).

Second, though breed bans have been in place in jurisdictions since the 1980s, no well-designed peer-reviewed study has ever been produced showing that the ban has reduced the number of dog bites, the incidents of dog bite-injury hospitalizations (DBIHs), or the number of DBRFs.

Beginning even before Dr. Beck's 2005 report, several studies have reviewed the effectiveness of such policies. In the UK, the Dangerous Dog Act of 1991 did not seem to reduce the number of dog bites to humans caused by restricted breeds over the following 2 years (Klaassen *et al.*, 1996). Longer-term analysis showed bites to have increased 25% since passage of the act (Collier 2006). Martinez *et al.* (2011) report that breeds classified as dangerous in Spain did not display aggressiveness more often than those not listed. Schalke *et al.* (2008) and Ott *et al.* (2008) looked at the results of temperament tests in Germany of 415 dogs receiving compulsory standardized tests and found no significant differences between Golden Retrievers and restricted breeds, resulting in the withdrawal of breed-specific legislation in Lower Saxony.

Dr. Beck also testified on behalf of a bylaw in Ontario that banned pit bull dogs. A survey conducted by the Toronto Humane Society showed no significant drop in dog bites cases following enactment of the ban. (Peat, 2010).

A widely reported study purporting to suggest BSL may be effective fails to provide any legitimate statistical evidence for that conclusion. Raghavan *et al.* (2012) looked at a variety of urban and rural jurisdictions in Manitoba, Canada where pit bull bans were identified, and examined differences in dog-bite injury hospitalization rates with and without breed-specific legislation (BSL). No significant differences were observed in the dog-bite injury hospitalization rates in Winnipeg relative to Brandon after the implementation of BSL in Winnipeg. In fact, Winnipeg showed higher (but not significant) rates of DBIH with an average overall incidence of 2.84 DBIH per 100,000 person-years in Winnipeg compared to 2.50 in Brandon. At best, the only conclusion that can be drawn from such data is that BSL has no measurable epidemiological impact or advantage, as is predicted in the “numbers needed to ban” analysis developed by Patronek *et al.* (2010).

Denver County, Colorado banned pit bull dogs in 1989. According to statistics available from the Colorado Trauma Registry, the county continues to have one of the highest rates of dog bite-injury hospitalization in the state, nearly 30 years after the ban was enacted. A study of life-threatening dog bite injuries to Denver children over a six-year period did not identify any of the dogs implicated as pit bulls. (Calkins *et al.*, 2001) Dr. Beck has testified in defense of this ineffective ordinance.

Third, published studies have not shown that dogs subject to bans and restrictions are more likely to bite or injure a human being than another kind of dog. Martinez *et al.* (2011) report that breeds classified as dangerous in Spain did not display aggressiveness more often than those not listed. Schalke *et al.* (2008) and Ott *et al.* (2008) looked at the results of temperament tests in Germany of 415 dogs receiving compulsory standardized tests and found no significant differences between Golden Retrievers and restricted breeds, resulting in the withdrawal of breed-specific legislation in Lower Saxony. Duffy *et al.* (2008) report aggression-related data based on use of the Canine Behavioral Assessment Research Questionnaire (C-BARQ) with owners of 30 breeds, as well as a sample of breed club members. They emphasize that the high within-breed variation in C-BARQ scores suggests that it is “inappropriate to make predictions about a given dog’s propensity for aggressive behavior based solely on its breed.” (p. 451). They further note the C-BARQ scores for stranger-directed aggression found among Pit Bull Terriers were about average and were inconsistent with their reputation as a ‘dangerous breed’. Their C-BARQ scores for owner-directed aggression were below average.

An AVMA review of the literature of dog bite injuries covering more than 40 years and 12 countries concluded that breed was not a significant predictive factor of aggressiveness in its own right, and that pit bull type dogs are not implicated in controlled studies. (AVMA, 2014).

Page 5- Why do no “experts” such as veterinarians and humane societies support a ban?

Dr. Beck's personal opinions as to why veterinarians and humane societies oppose breed-specific regulations do not, in fact, address the findings and concerns of these organizations, which I have summarized above. However, Dr. Beck's attribution of professionals having "a worry about losing one's constituency (*i.e.*, business type concern) is disingenuous and unsupported. When asked in sworn testimony about the motivations behind the CDC's not recommending breed specific legislation (Sacks *et al.*, 2000), Dr. Beck intimated that the motivation was political. However, he also admitted that he could not document or substantiate that belief. (Beck deposition, pp 62-63). Dr. Sacks, lead author on the paper Dr. Beck was characterizing, collaborated on Patronek *et al.* (2013) which provides detailed quantitative evidence critical of BSL.

Page 5 - "There are still many in our cities that do not appreciate. . ."

The US dog population is estimated at more than 70 million, approximately one dog for every 4.5 human beings. It is probably the highest dog-to-human ratio in the world. An estimated 43.3 million American households included at least one dog as of 2011, up from 34.5 million in 1991. Dr. Beck's dark hint of an impending threat to the human-canine relationship without breed bans cannot be supported. There is no evidence that one or another presumed breed of dog threatens the strength or endurance of this millennia-old relationship.

CONCLUSION

Dr. Beck claims, offering no support, that pit bull owners should take "the intensive steps necessary" to control their dogs, implying that such steps are qualitatively different from those other dog owners must take. The academic and professional literature does not support this claim. In fact, steps he lists, "training, socialization, supervision around other animals and people, especially children, etc." are steps that every dog owner is expected to take with his/her dog. The implication that pit bull dogs require more training, socialization and/or supervision than other dogs cannot be supported.

Comment on Dr. Skinner's Report

The Report of Dr. Skinner deserves little commentary. He simply rehashes unsupported breed generalizations with little reference to actual data. His CV makes no mention of any published research or controlled study of dog breeds or any indication of familiarity with recent advances in canine genetics or dog bite epidemiology. He says he has seen "pit bull" dogs in his practice, and offers a general characterization of their history. He does not, however, correlate that characterization with his clinical experience.

He writes that it is not possible to definitively say whether a dog will attack a human being, an assertion consistent with the conclusion of the CDC (Sacks *et al.*, 2000) and the AVMA (2014). However, having made this statement, Dr. Skinner goes on to infer "a likelihood of behavior based on the dominant attribute the dog possesses," specifically, that a dog that looks like it might be a member of a specific breed will "act" like a member of that breed. Dr. Skinner offers this observation without evidence. Contrary to his observation, it is well documented that there is variation among members of the same breed, and even more between breed mixes. Dr. Skinner was right the first time. We cannot predict a dog's behavior based upon its appearance.

Dr. Skinner does not cite any books or papers from the professional/academic literature to support his opinions. He has simply reiterated common breed stereotypes often reported in surveys of veterinarians (Takeuchi& Mori, 2006) but not supported by specific clinical experience.

Thus both of these “expert” reports present views that are outdated, strongly contradicted by a wealth of new scientific and other academic research and ultimately damaging to responsible pet ownership.

Sincerely

A handwritten signature in black ink that reads "Randall Lockwood". The signature is written in a cursive, flowing style.

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- Senior Vice President for Anti-Cruelty Initiatives and Legislative Services, The American Society for Prevention of Cruelty to Animals, September 2006 – June 2008
- Senior Vice President for Anti-Cruelty Initiatives and Training, The American Society for Prevention of Cruelty to Animals, August 2005 - September 2006
- Vice President, Research and Educational Outreach, Humane Society of the United States, February 2000- July 2005
- Vice President, Training Initiatives, Humane Society of the United States, Washington, DC, November 1993 - February, 2000.
- Vice President, Field Services, Humane Society of the United States, Washington, DC, May 1990 - October 1993
- Director, Higher Education Programs, Humane Society of the United States, August 1984 - May 1990.
- Assistant Professor, Department of Psychology, State University of New York, Stony Brook, NY, 1977 - 1984.
- Visiting Assistant Professor, Department of Psychology, Washington University, St. Louis, MO, 1976 - 1977.

Education:

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- University of California, Irvine, CA, Dept. of Population and Environmental Biology. 1970-1971. (Major emphasis - behavioral ecology).
- Wesleyan University, Middletown, CT. B.A. 1970 (Magna cum Laude). Majors in psychology and biology.

Other Certification: Certified Compassion Fatigue Specialist, Traumatology Institute of the University of South Florida, Tampa (2004). Other Teaching Affiliations: Adjunct Faculty, School of Leadership, **Duquesne University**, Pittsburgh, PA (2005-2008), **Denver University** School of Social Work, Center for Human-Animal Interaction, Fellow (2010-), , **Oxford Center for Animal Ethics**, Fellow (2012-), Adjunct Faculty – **Canisius College**, Masters Program in Anthrozoology (2012), **University of Florida**, Affiliate Assistant Professor, Small Animal Clinical Sciences, College of Veterinary Medicine (2013-).

Membership in Professional Organizations:

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- International Veterinary Forensic Sciences Association – Board of Directors (2009 - 2014)
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- Association of Prosecuting Attorneys Animal Cruelty Advisory Council (2010 -)
- National District Attorneys Association Center for Prosecution of Animal Abuse, Advisory Board (2010 -)
- Wild Canid Research and Survival Center- Research Director (1976-1979)
- Defenders of Wildlife - Board of Directors (1981-1984)
- Center for the Respect of Life and the Environment - Board of Directors (1993-2005)
- William & Charlotte Parks Foundation for Animal Welfare, Chairman (1993-1995, 2003-2005)
- AVMA Task Force on Human-Canine Interaction (1998-2001)

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