

Animal maltreatment: Implications for behavioral science professionals

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Despite the widespread belief among the public and an increasing number of law enforcement personnel that individuals who harm animals often harm other people, the subject of animal maltreatment has received little attention from behavioral scientists. Advances in comparative neuroanatomy have highlighted the ability of animals to feel physical and emotional pain, including complex psychological reactions to traumatic events. These advances, and recent studies (however sparse) that support the notion that perpetrators of crimes against animals often commit other crimes, have arguably created an ethical and practical imperative for behavioral scientists to undertake a serious examination of animal maltreatment and potential mechanisms for responding to it. In addition, the close and complex relationships many Americans have with animals and the advancements in animal protection law in the past two decades necessitate expertise on the part of forensic psychologists and psychiatrists, who will increasingly be called upon to evaluate animal maltreatment offenders and consult on related policy and legislation.

1 | INTRODUCTION

In 2000, sociologist Clifton Flynn authored an article entitled “Why family professionals can no longer ignore violence to animals” for the journal *Family Relations*. In it, he put forth seven reasons: (i) animal abuse is a serious antisocial behavior by children and adolescents; (ii) it is a relatively common childhood occurrence; (iii) it has potential negative developmental consequences; (iv) violence toward animals is related to interpersonal violence; (v) it is connected to and may be a marker of family violence; (vi) the well-being of companion animals is being neglected; and (vii) it will help achieve a less violent society (Flynn, 2000b).

Despite Flynn's call to stop ignoring animal maltreatment, the subject has received relatively little attention among family and forensic practitioners and scholars. A search of English language journal articles between 2012

and 2017 using the term “animal abuse” in the database PsychInfo yields only 43 results; by comparison, a search of “child abuse” yields 7,180. A review of the American Psychology-Law Society's conference programs from the past five years (2014, 2015, 2016, 2017, 2018) yields only two paper presentations (including one by this author) and two posters on animal maltreatment. A search of the Society's journal, *Law and Human Behavior*, reveals that no articles on animals or their mistreatment were published (American Psychological Association, 2018). Likewise, review of the *Journal of the American Academy of Psychiatry and the Law* suggests that only two articles and one book review on animal maltreatment have been published in the past 10 years (American Academy of Psychiatry and the Law, 2008–2018). The most recent edition of the seminal text *Psychological Evaluations for the Courts* (Melton et al., 2018) does not address animal maltreatment or evaluations of its perpetrators, nor does the *Handbook of Forensic Assessment* (Drogin, Dattilio, Sadoff, & Gutheil, 2011) nor the *Handbook of Forensic Psychology* (Weiner & Otto, 2014).

Despite the ubiquity of animals in human life, “the field of psychology has barely touched upon the topic of human–animal relations as an important domain of human activity” (Amiot & Bastian, 2014, p. 6). Typically, animal maltreatment is not incorporated into specialty training for forensic psychologists and psychiatrists, and most undergraduate and graduate study for members of these professions involves using animals as test subjects (Bowd, 1980). Traditionally, animals have not been conceptualized as victims of violent crime (Arluke & Luke, 1997).

The fact that society places much more value on the lives of humans accounts for only part of this inattention to the maltreatment of animals (Arluke & Luke, 1997). Historically, interest in and concern for animals was perceived as reflecting sentimentality, excessive emotion, lack of reason, and femininity (Isfahani-Hammond, 2013), which may have discouraged scholarly exploration. Additionally, according to Flynn (2000b), widespread socially and culturally acceptable forms of violence against animals such as killing them for meat and sport (hunting, fishing) that are sanctioned by powerful institutions such as the government contribute to disinterest in less acceptable forms of violence against animals. Many social and behavioral scientists may also be naïve to the severity of animal maltreatment, conceiving of animal cruelty, perhaps, as a slap or a kick that causes little injury rather than the beating, burning, stabbing, and mutilation often necessary to reach the attention of criminal justice personnel. Behavioral scientists may conclude that animal maltreatment warrants further study with greater exposure to the severity of these acts, the nature of which, at least in the public consciousness, implies a disturbance and arguably a level of dangerousness in the individual committing them (Piper, 2003).

Arguments for increased attention to animal maltreatment among behavioral science professionals can be made on several ethical and practical grounds, including but not limited to: (i) increased understanding of the complexity of the cognitive and emotional capacities of animals; (ii) the increased tendency of Americans to view companion animals as friends and/or family; (iii) the relationship between animal maltreatment and interpersonal violence as revealed in extant literature; (iv) growing awareness of this relationship among law enforcement personnel; and (v) elevation in status among animals, particularly pets, in American law. Each of these are explored below, as are future directions in human–animal studies. Finally, opportunities for behavioral science professionals to respond to animal maltreatment are proposed.

2 | ADVANCEMENTS IN COMPARATIVE NEUROANATOMY

2.1 | Animal sentience

In recent years, scientific study has illuminated the degree of animals' sentience and their ability to experience pleasurable states such as joy and aversive states such as pain and fear (Broom, 2007), or as ethologist Mark Bekoff puts it “the ability to feel, perceive, or be conscious, or to experience subjectivity” (Bekoff, 2013). Research in comparative neuroanatomy over the past 40 years, including analyses of brains across many species, has demonstrated even greater structural and functional similarities between human and non-human animals than had previously been assumed (Boyle, 2009). All vertebrates and even some invertebrates have a central nervous system, which consists of a brain and spinal cord (Boyle, 2009; Butler & Hodos, 2005).

The neuroanatomic components necessary for nociception, the physiologic or neuroanatomic components necessary to sense and transmit the noxious stimuli to the brain where it is interpreted as pain, have been described in animals once speculated to be unable to feel pain, such as reptiles (Mosley, 2011; Stoskopf, 1994) and rodents (Barrott, 2012). Pain imaging studies indicate that mice and rats possess structures analogous to the human cortical areas that are active during pain perception (Thompson & Bushnell, 2012). Three types of nociceptor have been identified in the avian peripheral nervous system, and they likely perceive pain in a manner similar to that of mammals (Douglas, Guzman, & Paul-Murphy, 2018).

Fish appear to have the ability to experience negative states such as pain and stress in a way analogous to that experienced by other vertebrates, and the physiological changes that occur in response to acute and chronic stress in fish are similar to those described for mammals (Braithwaite & Ebbesson, 2014; Brown, 2016). Experimental studies on hermit crabs (Elwood & Appel, 2009), prawns (Barr, Laming, Dick, & Elwood, 2007), crabs, and lobsters (Elwood, 2012) reveal behavior consistent with pain such as avoidance learning, physiological responses, and protective motor reactions. Reptiles display characteristic responses to painful stimulation that are reduced by analgesia, and like amphibians possess an endogenous opioid system involved in pain mechanisms found in mammals (Sneddon, Elwood, Adamo, & Leach, 2014). Awareness that these animals suffer may lead to movements criminalizing or increasing penalties for their maltreatment and have implications for evaluators tasked with assessing the clinical significance of it.

2.2 | Advanced cognitive abilities in animals

Discoveries of the cognitive abilities of animals have also abounded over the past half-century. We know now that dogs can learn how to operate latches and simple machines through observation, understand 150 to 250 words, count, and deceive others to obtain rewards (Coren, 2009). Humans were once thought to be unique in their ability to use tools, but we now know that chimpanzees can use tools and can learn to do so more efficiently by watching how others use them (Yamamoto, Humle, & Tanaka, 2013). There is strong evidence that animals including birds and chimpanzees have theory of mind, in that they understand the goals, intentions, perception, and knowledge of others (Butler, 2008; Call & Tomasello, 2008). In addition, scientists are now finding complex neurons, which were once believed to be unique to humans, in several species including humpback whales (Hof & Van der Gucht, 2007) and elephants (Hakeem et al., 2008). Macaque monkeys, for example, have mirror neurons, which assist in empathic behavior and learning (Damasio & Meyer, 2008).

Recent experiments have demonstrated the underpinnings of empathy in other species as well. For example, when rats were given the choice to free another rat or keep him contained and eat all of the chocolate themselves, rats chose to free their cage mates and share the chocolate (Bartal, Decety, & Mason, 2011). Hens' heart rates increased and they emitted maternal vocalizations when they observed their chicks exposed to a noxious stimulus (Edgar, Lowe, Paul, & Nicol, 2011).

As with humans, there is evidence that the affective state of animals can alter their cognition, with more positive states being associated with an increased likelihood of judging ambiguous information positively (optimistic cognitive bias) and more negative states associated with an increased likelihood of judging ambiguous information negatively (pessimistic cognitive bias). For example, starlings in enriched cages were more likely to classify ambiguous signals as being associated with a positive outcome than starlings housed in standard, unenriched cages (Bateson & Matheson, 2007). Likewise, pigs were more likely to approach a hatch and were faster to do so in response to an ambiguous cue when housed in the enriched environment than when housed in a barren environment (Douglas, Bateson, Walsh, Bedue, & Edwards, 2012).

Complex cognitive abilities have also been demonstrated in many non-mammals in recent years. Lemon sharks can learn through observation (Guttridge et al., 2013). Fish are capable of engaging in complicated behaviors that require higher cognitive processes and social skills, including deception, problem solving, forming relationships within and between species, and using gestures and sounds to communicate (Sneddon & Leach, 2016). For example, coral reef rabbitfish demonstrate reciprocity when searching for food in pairs: they take turns foraging around the reef

while the other looks out for danger (Brandl & Bellwood, 2015). Many invertebrates demonstrate at least simple learning (Mather, 2011).

2.3 | Emotional experiences of animals

Ethological research over the past 20 years has also illuminated parallels in the emotional lives of animals and those of humans. For example, by performing MRI of dogs' brains, neuroscientist Gregory Berns (2013) discovered that many of the same things that activate the human caudate, which is associated with positive emotions such as love and attachment, also activate the dog caudate. According to Berns, this finding suggests that dogs have a level of sentience comparable to that of a human child.

Similarities in the brain structures responsible for stress responses in humans and other animals explain why many non-human animals exhibit complex psychological reactions to traumatic events that are akin to Posttraumatic Stress Disorder (PTSD). PTSD-like symptoms have been found in a variety of species including chimpanzees (Bradshaw, Capaldo, Lindner, & Grow, 2008; Ferdowsian et al., 2011), elephants (Rizzolo & Bradshaw, 2018), parrots (Yenkosky, Bradshaw, & McCarthy, 2010), mice (Deslauriers, Wijngaarde, Geyer, Powell, & Risbrough, 2017), and dogs (Burghardt, 2013; Yamamoto, 2003). Dr. Walter F. Burghardt, Jr., chief of behavioral medicine at the Daniel E. Holland Military Working Dog Hospital at Lackland Air Force Base, trains veterinarians to recognize signs of "canine PTSD" in dogs working in the U.S. military. These signs include hypervigilance, avoidance of work areas in which they have previously been comfortable and marked changes in temperament. Treatment for the dogs includes "desensitization counterconditioning," similar to exposure therapy for human victims of trauma, and medications used to treat panic attacks in humans (Brait, 2015; Burghardt, 2013; Dao, 2011).

Much scholarly attention has focused on measuring and mitigating the effects of trauma on human victims of abuse. Awareness of the extent of animal suffering arguably brings with it ethical obligations to study, attempt to prevent, and treat this suffering, and to consider it with greater seriousness.

2.4 | Human valuation of animal lives

Existing literature reveals that the value humans place on specific animals depends on the latter's size, species, and breed as well as on our perceptions of their status, beauty, cognitive ability, usefulness, economic viability, and potential harmfulness (Amiot & Bastian, 2014; Kellert, 1984). Humans tend to perceive animals similar to us, such as other mammals, as possessing higher cognitive abilities (Eddy, Gallup, & Povinelli, 1993), and feel greater empathy toward them (Harrison & Hall, 2010; Hills, 1995; Westbury & Neumann, 2008). Those seen as dissimilar to us such as invertebrates tend to be perceived as not having a mind or identity; as such, there is a lack of concern for their treatment (Elwood, Barr, & Patterson, 2009; Horvath, Angeletti, Nascetti, & Carere, 2013; Kellert, 1993). Humans may be particularly drawn to animals such as dogs, especially puppies, because they share features with human infants such as big eyes, large foreheads, and soft contours (Amiot, Bastian, & Martens, 2016). Humans tend to view the abuse of these animals, and of other animals similar to humans including primates, as more negative and deserving of greater punishment than the abuse of other animals such as fish (Allen et al., 2002; Rajcecki, Rasmussen, & Craft, 1993). Future research among behavioral scientists might examine whether incidents of harm to anthropomorphized animals (those to whom we attribute human traits) such as dogs and cats, as suggested by cultural anthropologist Margaret Mead (1964) more than 50 years ago, signal a greater risk of interpersonal violence when compared with acts against relatively dissimilar or socially devalued animals such as possums.

3 | CHANGES IN THE ROLE OF PETS IN AMERICAN HOUSEHOLDS

Changes in the role of pets in American households underscore the need for further research on animal abuse. According to the American Veterinary Medical Association (2012), 36.5% of American households have dogs and

30.4% have cats. Animals have assumed increasingly greater roles in our lives over the past century. They were once relegated to the backyard, but following inventions such as parasite control, antibiotics, and cat litter in the 1930s and 40s animals began sharing homes and even beds with their humans (Davis, 2015). The development of mechanical devices that could replace animal labor and the emergence of humane organizations also facilitated the transition of animals from servants to companions in most American homes (Zawistowski, 2008). Perhaps due to positive portrayals of pets in films and television shows such as *Lassie* and the increase in disposable income over the past 50 years (Herzog, 2011), most Americans, 63.2% of those surveyed, consider their pets as family members (American Veterinary Medical Association, 2012).

While birthrates in the U.S.A. fell 10% between 2007 and 2014 (Hamilton & Kirmeyer, 2017), "ownership" of small dogs increased (Ferdman, 2014). Some Americans refer to these pets as "fur babies" and conceive of them as children (Blouin, 2013; Maharaj & Haney, 2015) who meet their emotional needs much as children provide emotional fulfillment for their parents (Blackstone, 2014). More Americans live alone, choose not to have children, have children later, and live longer; individuals living alone or without children are more likely to be attached to their pets (Herzog, 2011). Some bestow upon them the same treatment children might receive: organic food, daycare, medical treatment (antidepressants, chemotherapy), to name a few, a phenomenon that social critics refer to as "the humanization of pets" (Pierce, 2016).

The greater role that pets play in our lives has implications for community resource development and public policy. For example, an estimated 44% of respondents surveyed chose not to evacuate prior to Hurricane Katrina because they did not want to leave their pets behind, according to one poll (Fritz Institute, 2006). The loss of human lives of those unwilling to evacuate without their pets in 2005 led Congress to pass legislation in 2006 requiring local and state authorities who seek federal emergency grants to include pets in disaster plans (Brulliard, 2017; Glassey, 2018).

The close relationships humans have with their pets has also influenced social and legal responses to domestic violence. Numerous studies of battered women reveal that many delay leaving their abusive partners out of fear that those partners will harm or kill their pets; jealousy over the woman's close relationship with her pet is among the reasons cited for the pet abuse (Flynn, 2000a; Loring & Bolden-Hines, 2004). Estimates of the percentage of women who delay fleeing to a shelter because of concern for their pets are 18% (Ascione, 1997; Flynn, 2000b), 33% (Volant, Johnson, Gullone, & Coleman, 2008), 43.5% (Fitzgerald, 2005), and 48% (Carlisle-Frank, Frank, & Nielsen, 2004). Some domestic violence shelters have responded to this phenomenon by partnering with humane societies to find foster placements for pets of domestic violence victims while they seek refuge in a shelter (Lunghofer, 2016). Approximately 32 states, the District of Columbia, and Puerto Rico have enacted legislation that includes provisions for pets in domestic violence protection orders (Wisch, 2017a). By identifying when pet abuse is most likely to occur along the continuum of domestic violence and in conjunction with other forms of offending, behavioral scientists may help develop more effective prevention and intervention strategies (Campbell, Thompson, Harris, & Wiehe, 2018).

Animals' greater role in our lives leads to increasingly complex relationships and dynamics hitherto unrecognized. For example, a female veterinary technician in Scotland was recently convicted of animal cruelty for deliberately inducing seizures in her cocker spaniel by injecting her with insulin, then rushing the dog to the animal hospital for emergency treatment multiple times. Reportedly, the animal enjoyed good health after being removed from the technician's custody. No explanation was given for this behavior other than attention seeking (McAnally, 2017). Individuals who commit similar acts on their children are frequently diagnosed with Munchausen Syndrome by Proxy, a disorder previously assumed to have only human victims. Cases have been documented in which other pets were similarly victimized (Oxley & Feldman, 2016).

Veterinarians have also noted "malingering" among pet "owners," that is, reporting false symptoms in their pets, to obtain controlled medications for their personal use (LeBourgeois, Foreman, & Thompson, 2002). However, these phenomena have not been subject to scientific study or even systematic data collection. These increasingly close and complex relationships that humans have with animals warrant further study, as forensic professionals may be involved in more criminal and civil cases involving maltreatment in the future, particularly in light of evolving laws concerning the treatment of animals, discussed in a subsequent section.

4 | “THE LINK” BETWEEN ANIMAL MALTREATMENT AND INTERPERSONAL VIOLENCE

4.1 | Popular opinion

Scholarly research by mental health professionals on animal maltreatment in recent years has focused largely on the link between this and interpersonal violence (Flynn, 2011), a concept that has grown in popular opinion as well (Piper, 2003). This interest may be due in part to campaigns by animal protection organizations such as the Humane Society of the United States' First Strike (2008) and repeated insistence from People for the Ethical Treatment of Animals (PETA) that “people who commit acts of cruelty toward animals rarely stop there” (n.d.).

Media reports of men arrested for beating their girlfriends' pets, couples charged with neglecting their children and animals, and dogfighters convicted of drug and weapons possession have also raised public consciousness regarding the relationship between animal maltreatment and interpersonal offending, as have profiles of notorious criminals (Piper, 2003). For example, media reports that Nikolas Cruz, who killed 17 people at Marjory Stoneman Douglas High School in Parkland, FL, bragged about mutilating animals emerged soon after his arrest (Arluke, 2018). Several U.S. “school shooters” had a history of beating or otherwise abusing animals, particularly dogs and cats (Verlinden, Hersen, and Thomas, 2000), including Columbine High School shooters Eric Harris and Dylan Klebold (Arluke & Madfis, 2014). That most serial killers have a history of animal cruelty is a widely held axiom that has received minimal actual study (save the review by Levin & Arluke, 2009).

It is important to note, however, that most young people who harm animals do not become school shooters or serial killers. PETA's pronouncement that “people who harm animals rarely stop there” is questionable, as base rates of a single act of animal maltreatment in youth, particularly boys, are high (Flynn, 2000b), and the percentage who go on to commit interpersonal violence is unknown (Flynn, 2011). Rather, recent research suggests a more nuanced view of the significance of animal maltreatment in terms of its correlation to interpersonal violence, as discussed below. This section provides an overview of recent findings regarding the relationship between animal maltreatment and interpersonal violence, particularly the co-occurrence of animal cruelty with other types of offending, including domestic violence and child maltreatment.

4.2 | Animal maltreatment and criminal offending

Research regarding “the link” between animal maltreatment and other types of criminal offending has grown, however slowly, since the publication of Flynn's article, with recent studies examining the prevalence of violence toward humans and other forms of offending among those with an admitted or reported history of animal maltreatment. For example, using FBI data, Levitt, Hoffer, and Loper (2016) reviewed the criminal histories of 150 adult men charged with physically abusing, sexually assaulting, or neglecting animals between 2004 and 2009. Of the 150 offenders, 144 (96%) had other criminal charges prior to and/or within six months to six years after the animal maltreatment arrest; a minimum of 41% were arrested for interpersonal violence and at least 18% were arrested for a sex offense.

4.3 | A history of animal maltreatment among incarcerated males

Inmates disproportionately endorse having committed animal cruelty in childhood (see, e.g., Hensley & Tallichet, 2009), and a history of animal cruelty has distinguished inmates with a history of interpersonal violence, attempted to completed homicide, and chronic aggressiveness from inmates without such a history (Kellert & Felthous, 1985; O'Grady, Kinlock, & Hanlon, 2007). For example, Merz-Perez, Heide, and Silverman (2001) compared 45 inmates with histories of violent offenses with 45 inmates in the same maximum security prison who had no violent offenses in their criminal histories. Fifty-six percent of the violent inmates endorsed having committed past acts of animal cruelty on a self-report measure compared with 20% of the non-violent inmates. Furthermore, 26% of the violent offenders endorsed having abused a companion animal compared with 7% of the non-violent offenders (all three of whom

reported dogfighting). Inmates with a history of recurrent animal cruelty in childhood were more likely to have committed recurrent violence toward humans in adulthood (Alys, Wilson, Clarke, & Toman, 2009; Hensley, Brown, & Trentham, 2017; Hensley, Tallichet, & Dutkiewicz, 2009; Overton, Hensley, & Tallichet, 2012; Tallichet & Hensley, 2004). For a more complete review of similar studies, see, for example, that by Levitt (2016).

4.4 | Animal maltreatment, conduct disorder, and callous and unemotional traits

Animal cruelty in youth is highly indicative of conduct disorder. Frick et al. (1994) found that, of 440 children and adolescents who had been referred to mental health clinics, 82% of children displaying animal cruelty (per the report of adults close to them) were diagnosed with conduct disorder. This finding suggests that animal cruelty does not exist in isolation but is typically but one of several deviant behaviors.

Results of a meta-analysis indicate that, in clinical samples, the median age of onset of animal cruelty reported by parents is 6.5 years, meaning that it is observed earlier than bullying, cruelty to people, vandalism, or fire setting (Frick et al., 1993). Early onset of conduct disorder (e.g., prior to age 10) is typically associated with a poorer prognosis (American Psychiatric Association, 2013). Cruelty to animals, then, may be a particularly important warning sign because it is one of the earliest reported symptoms of conduct disorder.

In another notable study using clinic referred and community samples, Luk, Staiger, Wong, and Mathai (1999) found that children identified by their parents as sometimes or definitely cruel to animals exhibit more symptoms of conduct disorder than children without a history of animal cruelty. These authors and others (e.g., Dadds, Turner, & McAloon, 2002) concluded that animal cruelty may be a marker of a subgroup of youth with conduct disorder who have a poorer prognosis. This finding may be because cruelty to animals is associated with callous and unemotional traits in youth (Dadds, Whiting, & Hawes, 2006; Hartman, Hageman, Williams, St. Mary, & Ascione, 2016). Cruelty to animals may be an early manifestation of the subgroup of children developing conduct problems associated with traits of low empathy and callous disregard rather than the more common pathway of externalizing and parenting problems (Dadds et al., 2006).

It is children and adolescents with both severe conduct problems and elevated callous and unemotional traits who appear to be at greater risk for more severe and persistent antisocial outcomes (Frick, Ray, Thornton, & Kahn, 2014). Using data from the longitudinal Pathways to Desistance Study, Walters (2014) found that childhood animal cruelty predicted future aggressive and non-aggressive (income) offending equally; it was interpersonal hostility and callousness/unemotionality that mediated the relationship between animal cruelty and subsequent offending, suggesting a possible causal relationship. Together, these findings have obvious implications for behavioral science and criminal justice professionals in terms of identifying youthful offenders at particularly high risk for interpersonal violence in adulthood who might be targeted for intervention.

Recent studies exploring personality characteristics of adult animal cruelty perpetrators parallel the aforementioned findings. Using a sample of 60 male patients in a German forensic hospital, Stupperich and Strack (2016) found that animal abuse correlates with callous, unemotional traits in adult men and development of sadistic crimes. Although the subsample of animal abusers was small (10), they scored significantly higher on the Psychopathy Checklist: Screening Version than non-abusers, namely on items revealing a lack of remorse and empathy, and superficial and grandiose interactions with others. Of the 10, six were sexual sadists who confessed to crimes involving intentionally inflicting and being sexually aroused or gratified by suffering inflicted on a conscious other.

Likewise, in a study of prison inmates with childhood and adolescent histories of animal maltreatment, regression analyses revealed that abusing an animal for fun as a youth was the most statistically salient motive for predicting later interpersonal violence as adults (Hensley & Tallichet, 2008). Whether an individual's motivation for animal maltreatment is associated with his risk for interpersonal offending is another area in which behavioral scientists might offer valuable information to refine violence risk assessment.

Kavanagh, Signal, and Taylor (2013) surveyed individuals with special attention to the "Dark Triad": narcissism, Machiavellianism (manipulativeness), and psychopathy. Individuals with higher levels of the Dark Triad demonstrated

less positive attitudes toward animals and reported engaging in more acts of animal cruelty. In particular, higher levels of psychopathy were associated with having intentionally killed a stray, feral, or wild animal for no good reason, and having intentionally hurt or tortured an animal for the purpose of causing pain.

Schwartz, Fremouw, Schenk, and Ragatz (2012) found that college students who reported two or more instances of animal abuse scored significantly higher on measures of criminal thinking, particularly on the subscale of Power Orientation, which reflects a strong need to be in control of different situations. Conversely, college students with high levels of empathy held more positive attitudes toward animals, more negative beliefs about animal cruelty, and found animal abuse and neglect more distressing than students with low levels of empathy (Erlanger & Tsytarev, 2012).

Using a sample of adult male sex offenders, Walters (2017) found animal cruelty may serve as a marker for fearlessness and callous-unemotional traits. According to Walters and Noon (2015), animal cruelty may be thought of as a predictor of future criminality by virtue of its association with manipulateness, hostility, and instrumental criminality and premeditated violence.

4.5 | Animal cruelty and intimate partner violence

Results of several studies suggest that animal cruelty in domestic violence relationships may be indicative of a particularly high-risk relationship. For example, Walton-Moss, Manganello, Frye, and Campbell (2005) analyzed data from an 11 city study of women who had survived their intimate partner's attempt to kill them, individuals close to women who were killed by their intimate partners (mothers, sisters, friends), and a control group of non-abused women. They found that, of the five partner characteristics associated with abuse, threatened or actual abuse of a pet had the largest effect for risk of intimate partner violence; women who reported partner pet abuse were 7.59 times more likely to be victims of severe intimate partner violence than women whose partners did not abuse animals.

Based on the reports of a sample of 1,283 women seeking services at an urban domestic violence shelter, Simmons and Lehmann (2007) found that the batterers who also abused the family pets used more forms of violence, including sexual assault and stalking, against their partners than batterers who did not abuse the pets. Campbell et al. (2018) used a sample of domestic violence incidents in Indiana to which law enforcement responded. They found that suspects with a history of abusing their partner's pet(s) were significantly more likely to have a prior unreported violent incident against the victim and a history of strangling the victim, forcing her to have sex, and threatening to kill her and/or her children.

During interviews with researchers, 55% of incarcerated men in Utah who had a violent intimate relationship in which a pet was present acknowledged abusing or killing the pet (Ascione & Blakelock, 2003). Those who acknowledged pet abuse also reported higher rates of forcing their partner to engage in anal and/or oral sex, firesetting, and punching, kicking, or biting others. Using a sample of men arrested for domestic violence, Febres et al. (2014) found that adulthood animal abuse was positively associated with interpersonal violence perpetration. Although the former did not predict the latter beyond antisocial personality disorder traits and alcohol use, results revealed a trend toward a significant association between adulthood animal abuse and severe psychological aggression and physical assault.

It is unclear, however, whether animal cruelty is correlated with more severe intimate partner violence across cultures and countries. Hartman, Hageman, Williams, and Ascione (2018) did not find a strong relationship between severe physical interpersonal violence and animal abuse in their survey of women and their daughters seeking services from domestic violence agencies. They noted, however, that this finding may be a function of the sample, nearly half of which was comprised of Mexican immigrants; Mexican-born men were nearly four times less likely to harm an animal than non-Hispanic U.S.-born men. In contrast, using a sample of women receiving services from domestic violence shelters in Canada, Barrett, Fitzgerald, Stevenson, and Cheung (2017) found that women whose pets were more frequently and severely abused by their partners reported experiencing significantly higher rates of physical, sexual, and psychological abuse by their partners compared with abused women who reported little or no maltreatment of their pets by their partner.

4.6 | Animal maltreatment and child maltreatment

Animal maltreatment may be a reliable marker of other forms of family violence such as child or elder abuse. For example, DeViney, Dickert, and Lockwood (1983) examined 53 families with substantiated cases of child maltreatment and found evidence of concurrent abuse and/or neglect of a pet in 60% of these households. Existing records of animal abuse were found in 88% of families with substantiated child physical abuse, compared with 34% of families with either child sexual abuse or neglect.

Girardi and Pozzulo (2012) surveyed child protection workers regarding animal cruelty during their child protection investigations. Forty-five percent of respondents had directly observed children and 28% of respondents had directly observed caregivers physically harming animals during investigations over the previous year. Additionally, 94% of child protection workers reported that they had observed evidence of animal neglect and 44% had observed evidence of physical abuse of animals during child protection investigations in the previous year, although very few had reported the abuse.

Using a large survey of mostly White, female college students, DeGue and DiLillo (2009) found that participants who witnessed animal abuse were significantly more likely to report experiencing physical abuse, emotional abuse, and severe domestic violence as a child than participants who did not witness it. Witnessing and perpetrating animal cruelty were significant predictors of child abuse victimization or domestic violence exposure; approximately 60% of individuals who witnessed or perpetrated animal abuse also experienced family violence.

In another survey of female undergraduates, Sanders and Henry (2015) found that animal abusers exhibited significantly higher levels of bullying perpetration and victimization when compared with non-abusers. Additionally, results from regression analyses indicated that animal abuse, like bullying and victimization, was a significant predictor of various behavioral issues.

Juvenile offenders in Florida who admitted to engaging in animal cruelty were more likely than other juvenile offenders to report having had multiple adverse childhood experiences (Bright, Huq, Spencer, Applebaum, & Hardt, 2018). The likelihood of engaging in animal cruelty was more than three to five times higher for youth who experienced physical abuse or neglect, sexual abuse, household violence, or lived with someone who was mentally ill.

In a large sample of children age 5 to 12 living in the U.K., children who were cruel to animals were more likely to have been maltreated than other children (McEwan, Moffitt, & Arseneault, 2014). In a study of secondary students in Western Australia, animal cruelty was the only risk factor examined that was associated with all forms of violence. Students involved in greater frequency of acts of animal cruelty had increased odds of being threatened with physical harm in the community and at school, being physically hurt at home or by someone at school or someone in the community, and physically hurting someone else at school or in the community compared with those involved in less frequent acts of animal cruelty (Baxendale, Lester, Johnston, & Cross, 2015). Using a large, national, longitudinal, and multigenerational sample of families from 1977 to 2004, Simmons, Knight, and Ellis (2014) found that a history of animal abuse predicts deviant beliefs, drug and alcohol abuse, and serious offending. Results such as these suggest that mental health and child welfare professionals should assess for child maltreatment or domestic violence when they learn of a child or adolescent witnessing or perpetrating animal abuse.

5 | LAW ENFORCEMENT INTEREST IN ANIMAL CRUELTY

The increasing seriousness with which many law enforcement agencies are treating animal maltreatment creates an opportunity for behavioral science professionals to provide input in animal hoarding and abuse cases and in matters such as investigative techniques and dispositional outcomes, as they do with child maltreatment. Historically, crimes that involved animals were grouped into an "all other offenses" category in the Federal Bureau of Investigation's (FBI) Uniform Crime Reporting (UCR) Program's annual Crime in the United States report. However, on January 1, 2016,

the FBI's National Incident-Based Reporting System (NIBRS) began collecting detailed data from participating law enforcement agencies on acts of animal maltreatment, including gross neglect, torture, organized abuse, and sexual abuse. The acts are counted alongside crimes such as homicide in the FBI's criminal database (FBI, 2016), signaling to other law enforcement agencies the need to take animal maltreatment seriously. Of note, the deputy executive director of the National Sheriffs' Association (n.d.) consistently pointed to the link between crimes against animals and other types of offending when advocating for this change.

Interest in combatting animal maltreatment is evident among local law enforcement agencies as well. Some city police departments, such as the Austin Police Department (n.d.), now have officer(s) tasked exclusively with investigating crimes against animals. In 2005, the City of Los Angeles began operating the Animal Cruelty Task Force (ACTF), which is comprised of Department of Animal Services officers, Los Angeles Police Department detectives, and the Office of the City Attorney. The stated mission of the ACTF is to "break the connection between animal abuse and human violence" and educate communities about the significance of animal cruelty and neglect (Los Angeles Police Department, n.d.).

In 2009, Baltimore's mayor created an Anti-Animal Abuse Task Force, which has since evolved into a commission designed to "eliminate animal abuse and neglect and make Baltimore a city where residents and animals are treated with dignity and respect" (Flory, n.d.). The San Bernardino County Illegal Animal Fighting and Abuse Task Force was spearheaded by the District Attorney's Office in 2012 after he observed dogfighting and cockfighting rings bringing crime into local communities (Cruz, 2012). The task force is multidisciplinary in nature and "designed to promote community awareness, education and prosecution of animal fighting and abuse in San Bernardino County" (San Bernardino County District Attorney, n.d.).

Other animal cruelty task forces were created by animal protection organizations to support law enforcement. For example, the Animal Cruelty Task Force of Southern Arizona was created by the Humane Society of Southern Arizona (n.d.) to increase awareness of animal cruelty laws, enhance and coordinate enforcement of animal cruelty laws, and "educate law enforcement, animal care professionals and other interested agencies in aspects of animal cruelty and the relationship of animal cruelty to other forms of assaulting behavior." The Vermont Animal Cruelty Task Force (n.d.) is a state-wide coalition, whose members include representatives from the state's Animal Control Association, Humane Federation, Veterinary Medical Association, Police Chiefs Association, and Sheriff's Association, among others, and The Humane Society of the United States' New England Regional Office. The task force, which began in 2000, trains humane agents and law enforcement officers to investigate animal cruelty complaints, maintains an Animal Cruelty Response Network to provide resources to municipal offices, serves as a resource for legislators and other policymakers, and lobbies for state and local legislation to protect animals from abusive situations. Inherent in the frameworks of most, if not all, of these organizations and those like them is a belief that crimes against animals are frequently connected to those against people.

6 | INCREASED STATUS OF ANIMALS IN AMERICAN LAW

Greater attention to animal maltreatment offenses by law enforcement is perhaps a consequence of more robust legislation, for animal law has evolved significantly over the past 15 years (Blumenauer, 2016), as evident in the creation of animal abuse registries, the increase in cross-reporting laws, and the enactment of felony cruelty provisions. As of 2014, all 50 states have felony provisions against certain types of animal maltreatment (Wisch, 2015). According to Overcash (2012), the trend in modern American animal law is toward increased protection of animals. This development represents a departure from previous centuries when laws were predicated on protecting the "property" of and benefiting humans who had an economic interest in the animal's wellbeing. Now there is a greater focus on the suffering of the animal(s) involved, and fewer exceptions that allow defendants to justify their cruel acts toward animals. When interpreting a statutory requirement of intent, most courts will find that the only intent required is that the defendants intended to perform the acts that they committed, not that they intended to, for

example, torture the animal. Overcash noted, however, that many state protections focus on companion animals to the exclusion of other animals, including those used in agriculture.

Trial court judges have occasionally required individuals convicted of sexual abuse of animals to register on state sex offender registries, although the Michigan Court of Appeals and Kansas Supreme Court later reversed two of these rulings. Texas law explicitly identifies bestiality as an offense that qualifies for registration in the sex offender registration program (Wisch, 2017b).

Over the past five years, several counties and the state of Tennessee have created animal abuse offender registries, similar to sex offender registries but for those convicted of animal maltreatment. The names, photos, and addresses of the offenders are publicly searchable (Brulliard, 2016). Tennessee is also one of several states with cross-reporting statutes aimed at addressing the link between animal maltreatment and interpersonal violence. Such laws vary by state but generally require employees of a child or adult protective services agency who encounter an abused or neglected animal during the course of their employment to report the maltreatment to the appropriate authorities. Other laws require animal control workers or veterinarians who encounter child or elder maltreatment to do the same (Lunghofer, 2016; National District Attorneys Association, 2014).

In 2016, Alaska became the first U.S. state to empower judges statutorily to take into account the wellbeing and best interest of animals when deciding custody following divorce of their "owners" (Arcaro, 2017). Illinois followed suit with a similar law in 2017 (Vivanco-Pregaman, 2017). A handful of states, beginning in 2001 with Tennessee, have adopted statutes expressly authorizing the recovery of non-economic damages for the intentional or negligent death of a companion animal. Such laws recognize that the loss of the companionship, love, and affection of a pet results in emotional distress that is not limited to the animal's fair market value (Defabritiis, 2012).

State courts have also rendered decisions reflecting elevations in animals' legal standing. For example, in 2014, the Oregon Supreme Court recognized for the first time that animals could be legal victims of maltreatment when rejecting the merger of guilty findings for 20 counts of animal abuse into a single conviction; the Court ruled that each animal was the individual victim of abuse at the hands of his/her "owner." The same year, the Court applied the exigent circumstances exception to animals, allowing law enforcement to enter and seize abused and neglected animals without a warrant in order to prevent serious harm or death to an animal (Tatoian, 2015).

Judges in the U.S.A. routinely appoint advocates in cases involving children and the seriously ill. In 2016, Connecticut became the first state to allow judges to appoint lawyers and law students as advocates for dogs and cats in cases of abuse and neglect (Rojas, 2017). The attorneys, who work pro bono, review police and medical records, interview animal control officers and veterinarians, and testify on the animals' behalf.

Advancements in the legal protection of animals have accompanied greater scholarly interest in animal law and additional resources to support enforcement (Tischler, 2012). More than half of the law schools in the U.S.A., including Columbia and Yale, offer an animal law course (Tischler, 2012). Some, including Harvard, Stanford, UCLA, and the University of Pennsylvania, offer an animal law program and/or publish an animal law journal. Some universities in the U.S.A. offer undergraduate and graduate degrees, certificates, or specializations in animal studies, but most are focused on natural rather than social or behavioral sciences (Animals & Society Institute, n.d.).

7 | BEHAVIORAL SCIENCES AND HUMAN-ANIMAL INTERACTION

Despite advances in animal law, the fields of psychology and psychiatry have been slow to embrace the scientific evaluation of our relationship with animals (Amiot & Bastian, 2014), resulting in minimal data on animal-assisted interventions, treatment for animal cruelty offenders, and basic aspects of animal maltreatment. Specifically, there is a dearth of empirical information on the prevalence, causes, typology, and trajectory of various forms of animal maltreatment (Gupta, Lunghofer, & Shapiro, 2017). Criminal justice data including the percentage of animal maltreatment cases that result in detection, arrest, prosecution, and conviction is also lacking. Speciesism, discrimination

against a being and relative disregard for its interests because of the species to which it belongs, may be the remaining prejudice limiting scientific inquiry (see, e.g., Cottee, 2010).

Although animal-assisted therapy and the pairing of service animals with veterans suffering from PTSD are increasingly popular, little research has been undertaken about the effect of the pairing on the veterans or the animals (Stern et al., 2013). Likewise, prison programs that match inmates with animals, typically dogs, to foster and train have received very little scholarly attention (Mulcahy & McLaughlin, 2013). Although anecdotal reports suggest that animals can have a tremendous impact on inmates, it is unclear whether this impact can include measurable decreases in antisocial behavior or recidivism. Little research exists on the effects of dogs in courtrooms to comfort child and other victim witnesses, on both the victim and the jury (Spruin and Mozova, 2017).

The American populace has recognized our profound relationships with animals, evident, for example, in the creation of domestic violence shelters that allow pets and the development of animal-assisted therapy programs (DeMello, 2012). Approximately half of all U.S. states have laws mandating or permitting judges to order those convicted of certain types of animal maltreatment to undergo a psychiatric evaluation. The vagueness of the statutes suggests, however, that their creation was spurred by a layperson understanding of the dangerousness of those who harm animals rather than an organized body of research (Levitt & Grisso, 2016).

Similarly, more than half of U.S. states have laws allowing or directing judges to sentence those convicted of certain forms of animal maltreatment to counseling or anger management (Sylvester & von Fricken, 2016) despite a lack of empirical evidence that counseling is effective in reducing animal maltreatment or preventing animal abusers from harming people (Gupta et al., 2017). Public sentiment increasingly favors the notion that those who abuse animals may very well harm people. However, effective public policy requires that the nuances of this overlap be distilled.

Among the questions that require study is what distinguishes young animal abusers who graduate to abusing or killing people from those who do not. Do, as Levin and Arluke (2009) posit, incidents of animal maltreatment in which a socially valued, anthropomorphized animal such as a cat or dog is tortured in a "hands on" manner for sadistic gratification predict subsequent violence against humans? Does whether the animal "belongs" to the offender matter? Is the nature of the abuse qualitatively different (e.g., severity, frequency, type of animal) for those who graduate to adult offending and those who do not (Felthous & Kellert, 1986)? Are dimensions or features of the maltreatment including direct involvement, variety of cruelty acts, variety of species victimized, lack of self-restraint, motivations for cruelty, enjoyment of the animal's pain, and lack of remorse meaningful in evaluating aggressive individuals (Dadds et al., 2002)? Which interventions result in a reduction of animal maltreatment behaviors?

8 | CONCLUSIONS

Despite limited scholarly attention to the topic of animal maltreatment among forensic professionals, the research conducted in the near 20 years since Flynn's article has supported his principal arguments. As described above, animal maltreatment among children and adolescents has potential negative developmental consequences, including, perhaps, persistent antisociality. Longitudinal studies and those using random samples from the general population, however, are clearly needed (Flynn, 2011).

Animal maltreatment is linked to other types of criminal offending including interpersonal violence and seems to be a marker of family violence. Recognition of this connection is growing among law enforcement personnel, as evident in the FBI's decision to collect data on animal maltreatment offenses and in the creation of interdisciplinary animal cruelty task forces in various jurisdictions. The legal response to the elevation in status of at least some animals has involved strengthening animal maltreatment laws and adding provisions permitting or mandating psychological/psychiatric evaluations and counseling of animal maltreatment offenders. Again, behavioral science professionals are needed to respond to these legislative changes by developing assessment protocols and empirically supported interventions for these diverse groups: those convicted of physically abusing, neglecting, sexually assaulting, or fighting animals.

The increased tendency of Americans to view companion animals as friends and/or family amplifies “the link” between animal maltreatment and interpersonal violence in domains such as domestic violence, wherein a large percentage of women report delaying escape to domestic violence shelters due to concern that their abusive partners will harm or kill their pets. Behavioral science professionals have much to offer in the design and evaluation of programs addressing populations such as these.

Finally, but not insignificantly, scientific developments in recent decades have illuminated the complexity of the cognitive abilities and emotional responses of animals. Awareness of the depth of their suffering creates ethical obligations to respond to animal maltreatment in a serious, thoughtful manner, that is, to consider animal maltreatment a worthy field of study irrespective of its connection to interpersonal violence. By targeting animal maltreatment, behavioral science professionals are in a unique position to contribute to research and practice that may reduce the amount of violence in society, toward both humans and other animals.

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