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Breed Characteristics of Abandoned and Lost Dogs in the Czech Republic

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Records on sheltered dogs were collected from 3 municipal dog shelters situated in different regions of the Czech Republic from 2010 to 2013. A total of 3,875 dogs were analyzed in this study. Among these, 1,614 dogs were subsequently reclaimed (lost dogs) and 2,261 dogs were abandoned and offered for adoption. The ratio of purebred dogs and crossbred dogs differed significantly when comparing lost (66.4% vs. 33.6%) and abandoned dogs (35.0% vs. 65.0%). The median time until lost dogs were reclaimed was 1 day, and it was not affected by purebred status. The median time until abandoned dogs were adopted was 23 days. In abandoned dogs, purebred status had a significant effect on the time the dog spent at the shelter before adoption. The median time until adoption for crossbred dogs was 27 days, whereas the median time until adoption for purebred dogs was 19 days. The breed group influenced the length of stay (LOS) in abandoned dogs. Small companion dogs had the shortest LOS (median = 15 days) and guard dogs had the longest LOS (median = 25 days).

Keywords: adoption, dog, purebred status, shelter, stray

Modern dog breeding during the past 300 years has generated great variations in morphology, physiology, and behavior, which have given rise to more than 400 dog breeds recognized today by official dog kennel organizations around the world (Turcsan, Kubinyi, & Miklosi, 2011). The popularity of dog breeds, over time, shows the kind of large and apparently whimsical fluctuations that are usually considered a hallmark of fashions and fads, because there is no indication that breeds with more desirable behavior, longer lives, or fewer inherited genetic disorders have been more popular than other breeds (Ghirlanda, Acerbi, Herzog, & Serpell, 2013). Breeds more commonly surrendered to shelters may have been correspondingly more popular among residents of the county or may have been relinquished because of breed-specific problems (Lepper, Kass, & Hart, 2002).

Several studies have been used to monitor the adoption potential of shelter dogs. Breed and purebred status are among the most important variables that affect the time until adoption. The preferences of potential adopters vary regionally and over time, though. Generally, mixed-breed dogs are sheltered more often than dogs with exterior characteristics of a specific breed

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(Nemcova & Novak, 2003; New et al., 2000; Patronek, Glickman, & Moyer, 1995). However, purebred dogs make up a significant proportion of shelter dogs as up to 41% of dogs received by the shelter were reported to be purebred (Patronek et al., 1995).

In Italy, purebred dogs were reported to have stayed at the shelter significantly longer than mixed breeds did (Mondelli et al., 2004), whereas the opposite was found in the United Kingdom and in Pennsylvania in the United States (Diesel, Smith, & Pfeiffer, 2007; Patronek et al., 1995). Among purebred dogs, toy dogs stayed the shortest amount of time (Clevenger & Kass, 2003; Lepper et al., 2002; Posage, Bartlett, & Thomas, 1998; Protopopova, Gilmour, Weiss, Shen, & Wynne, 2012), and fighting breeds were the least likely to be adopted and stayed the longest (Lepper et al., 2002; Protopopova et al., 2012). However, in New York state no-kill shelters, dogs in the guard group had the greatest length of stay (LOS) and those in the giant group had the shortest LOS, which was shorter than that of toy dogs (Brown, Davidson, & Zuefle, 2013). Understanding the local specifics is critical to improving adoption success. Shelter personnel could utilize this information to increase the adoption of frequently overlooked companion nonhuman animals (Lepper et al., 2002).

Differences in the breeds and purebred status of dogs admitted to dog shelters for different reasons (either because they were lost and found as strays but subsequently reclaimed from the shelter by their caregivers [owners] or because they were abandoned by their owners) have not been studied much. The aim of this study was to characterize the purebred status and breeds of lost and abandoned dogs admitted to no-kill dog shelters in the Czech Republic, where stray dogs picked up by private citizens or by officials authorized to impound stray animals are kept. Furthermore, breeds of dogs reclaimed by their owners and breeds of dogs who stayed at the shelter were compared.

MATERIALS AND METHODS

Records on sheltered dogs were collected from three municipal dog shelters situated in different regions of the Czech Republic. The subjects of this retrospective study were all impounded dogs placed by the shelters from January 1, 2010, to December 31, 2013. For the purposes of this study, dogs were divided into two groups. One group included dogs who were reclaimed by their owners from the shelter (lost dogs). The second group included dogs who were abandoned and subsequently adopted. Dogs who were neither reclaimed nor rehomed within the monitored period and who remained in the shelters after December 31, 2013, were not included in the analysis. Purebred status was monitored in both groups. Dogs who did not belong to any recognized breed were considered mixed-breed (crossbred). Furthermore, purebred dogs were categorized into breed groups. Breed categorization reflects the purpose of breeds as commonly perceived by the public and was based on the previously published groupings (Brown et al., 2013; Lepper et al., 2002). Local specifics were taken into account, though. The dog breeds and categories used in this analysis are summarized in Table 1 and also include Czech Republic national dog breeds. The LOS of each dog was examined to determine how purebred versus crossbred status and breed group influenced the probability of the dog being abandoned or reclaimed by his or her owner and the duration of time spent in the shelter. The LOS, in days, was the difference between the intake date and the date when the dog was adopted or returned to his or her owner.

TABLE 1
Breed Categories Used to Classify Dogs in the Shelters

<i>Group/Breed</i>	<i>No. Abandoned</i>	<i>No. Reclaimed</i>	<i>Total</i>
Giant dogs	16	39	55
Great Dane	4	2	6
Brazilian Mastiff	2	2	4
Leonberger	2	1	3
Yugoslavian Shepherd Dog	0	4	4
Central Asia Shepherd Dog	3	1	4
Caucasian Shepherd Dog	1	3	4
Great Pyrenees	0	3	3
Bernese Mountain Dog	1	22	23
Newfoundland Dog	1	1	2
Irish Wolfhound	2	0	2
Guard dogs	235	234	469
German Shepherd Dog	150	157	307
Belgian Shepherd Dog	3	3	6
White Swiss Shepherd Dog	3	1	4
Hovawart	0	1	1
Schnauzer	10	15	25
Czechoslovakian Wolfdog	4	3	7
Rottweiler	34	24	58
Doberman	13	0	13
Boxer	5	7	12
Cane Corso	3	2	5
Rhodesian Ridgeback	7	10	17
Akita	0	6	6
Slovak Chuvach	1	2	3
Briard	1	0	1
Beauceron	0	3	3
Louisiana Catahoula Leopard Dog	1	0	1
Bull dogs	44	46	90
American Staffordshire Terrier	28	31	59
American Pit Bull Terrier	14	12	26
American Bulldog	1	1	2
American Bandog	1	2	3
Hunting dogs	53	117	170
Pointer	2	0	2
Weimaraner	0	25	25
Hungarian Pointing Dog	2	10	12
German Pointing Dog	3	5	8
Munsterlander	2	2	4
Bohemian Pointing Griffon	1	7	8
Irish Red Setter	2	4	6
Gordon Setter	0	2	2
Bernese Hound	0	1	1
Slovakian Hound	1	0	1
Bavarian Mountain Scenthound	0	1	1
Beagle	31	39	70
English Springer Spaniel	1	0	1

(Continued)

TABLE 1 – *continued*

<i>Group/Breed</i>	<i>No. Abandoned</i>	<i>No. Reclaimed</i>	<i>Total</i>
Irish Terrier	1	0	1
Bull Terrier	5	2	7
Fox Terrier	1	10	11
Welsh Terrier	1	0	1
German Hunting Terrier	0	6	6
Border Terrier	0	3	3
Retrievers	121	247	368
Golden Retriever	15	50	65
Labrador Retriever	106	197	303
Nordic sledge dogs	9	23	32
Alaskan Malamute	1	7	8
Siberian Husky	7	13	20
Samoyed	1	3	4
Companion dogs—large	1	7	8
Borzoï	0	1	1
Afghan Hound	0	2	2
Collie	0	2	2
Dalmatian	1	1	2
Chow Chow	0	1	1
Companion dogs—medium	54	60	114
English Cocker Spaniel	26	23	49
American Cocker Spaniel	2	0	2
Border Collie	1	8	9
Australian Shepherd	1	2	3
Whippet	0	2	2
Shar Pei	5	2	7
Medium Poodle	16	15	31
Tibetan Terrier	0	2	2
Shiba	2	6	8
Bulldog	1	0	1
Companion dogs—small	258	299	557
Cavalier King Charles Spaniel	5	7	12
Miniature German Spitz	8	4	12
Miniature Pinscher	23	11	34
Prague Ratter	12	9	21
Miniature Schnauzer	3	5	8
Griffon	0	1	1
French Bulldog	16	3	19
Pug	2	2	4
Chihuahua	15	16	31
Bichon Frise	11	18	29
Maltese	15	17	32
Bolognese	1	9	10
Chinese Crested Dog	7	2	9
Miniature Poodle	10	13	23
Lowchen	0	1	1
Lhasa Apso	1	1	2
Shih Tzu	4	13	17

(Continued)

TABLE 1 – *continued*

<i>Group/Breed</i>	<i>No. Abandoned</i>	<i>No. Reclaimed</i>	<i>Total</i>
Japanese Chin	0	1	1
Pekingese	1	0	1
Tibetan Spaniel	1	0	1
Yorkshire Terrier	29	69	98
Australian Silky Terrier	1	0	1
Jack Russell Terrier	10	27	37
Parson Russell Terrier	0	1	1
West Highland White Terrier	6	11	17
Cesky Terrier	0	1	1
Dachshund	77	57	134

Note. Naming convention follows Federation Cynologique Internationale breeds nomenclature.

The results were analyzed using the statistical package Unistat 5.6 (Unistat Ltd., London, England). Three independent variables were constructed from the shelter's original information: reason for admission (two levels: abandoned, lost), purebred status (two levels: purebred, crossbred), and breed group (nine levels: giant, guard, bull, hunting, retrievers, Nordic sledge, companion–large, companion–medium, and companion–small). The effects of these independent variables on LOS in the shelter before adoption as a dependent variable were analyzed. For LOS, normality was checked using the Kolmogorov-Smirnov test (Zar, 1999). As data were not distributed normally, nonparametric methods were used for testing. First of all, the median for LOS was calculated for each level of the monitored independent variables in abandoned and lost dogs. The effects of variables, reason for admission, and purebred status were analyzed by a two-tailed Mann-Whitney *U* Test. The effect of breed group was analyzed using a Kruskal-Wallis analysis of variance and subsequently by a nonparametric multisample median test (Zar, 1999) as a post-hoc test for pairwise comparisons. We also calculated actual and relative frequencies of lost and abandoned dogs in selected categories according to purebred status and breed group and analyzed differences among these categories. Frequencies were compared on the basis of a chi-square analysis of 2×2 contingency tables (Zar, 1999). A *p* value $< .05$ was considered significant.

RESULTS

From 2010 to 2013, a total of 3,875 impounded dogs were placed by the three shelters analyzed in this study. Of these, 1,614 dogs were subsequently reclaimed by their owners and 2,261 dogs were abandoned by their owners and offered for adoption. There were 2,012 crossbred dogs and 1,863 purebred dogs. The list of breeds and numbers of purebred dogs recorded in this study are included in Table 1. Forty-eight percent of dogs received by the shelters were purebred. The six most common breeds were German shepherd (16.5%), Labrador Retriever (16.3%), Dachshund (7.2%), Yorkshire Terrier (5.3%), Beagle (3.8%), and Golden Retriever (3.5%); these accounted for more than 50% of all incoming purebred dogs.

More than half (57.5%) of the purebred dogs were reclaimed by their owners, compared with 27.0% of crossbred dogs. Out of all reclaimed dogs, 66.4% were purebred and 33.6% were crossbred. Out of all abandoned dogs, 35.0% were purebred and 65.0% were crossbred. The ratio of purebred dogs and crossbred dogs differed significantly ($p < .001$) when comparing the group of dogs reclaimed by their owners (lost dogs) and the group of abandoned dogs.

The number of dogs in breed categories processed in this study and their LOS at the shelter have been summarized in Table 2. The most common breeds admitted to the shelters, either as lost or abandoned, were small companion dogs followed by guard dogs and retrievers. Small companion dogs and guard dogs were significantly more often abandoned than reclaimed by their owners ($p = .026$ and $p < .001$, respectively). Retrievers ($p < .001$), hunting dogs ($p = .002$), and giant dogs ($p = .042$) were significantly more frequently reclaimed by their owners than abandoned and offered for adoption. In bull breeds, Nordic sledge dogs, and large and medium-sized companion dogs, the numbers of abandoned and lost dogs did not differ ($p > .05$).

The median time until adoption for abandoned dogs was 23 days (mean LOS = 66.3 days, range = 0–1,794 days). In abandoned dogs, purebred status had a significant effect ($p < .001$) on the time a dog spent at the shelter before adoption. The median time until adoption for crossbred dogs was 27 days (mean LOS = 71.0 days, range = 0–1,684 days), whereas the median time until adoption for purebred dogs was 19 days (mean LOS = 57.4 days, range = 0–1,794 days). The median time until being reclaimed by the owner for lost dogs was 1 day (mean LOS = 2.2 days, range = 0–372 days). Among lost dogs, purebred status did not have a significant effect ($p > .05$) on the time a dog spent at the shelter.

Breed group influenced ($p < .001$) the LOS in abandoned dogs. Small companion dogs had the shortest LOS (median = 15 days), which was significantly ($p < .001$) shorter than the LOS of any other breed group. Guard dogs had the longest LOS (median = 25 days) when the group of large companion dogs was omitted because only one dog was included in the large companion dog group (adopted after 33 days). The LOS of guard dogs was significantly ($p < .001$) longer than the LOS of other breed groups except for large companion dogs.

TABLE 2
Numbers and Median Length of Stay (LOS) of Breed Groups of Dogs in the Shelters

<i>Breed Group</i>	<i>Abandoned Dogs</i>			<i>Reclaimed Dogs</i>		
	<i>n</i>	<i>%</i>	<i>LOS (Days)</i>	<i>n</i>	<i>%</i>	<i>LOS (Days)</i>
Giant dogs	16	2.02	16.5	39	3.64	0
Guard dogs	235	29.71	25.0	234	21.83	0
Bull dogs	44	5.56	18.5	46	4.29	0
Hunting dogs	53	6.70	18.0	117	10.91	0
Retrievers	121	15.30	23.0	247	23.04	0
Nordic sledge dogs	9	1.14	15.0	23	2.15	0
Companion dogs—large	1	0.13	33.0	7	0.65	0
Companion dogs—medium	54	6.83	20.5	60	5.60	1
Companion dogs—small	258	32.62	15.0	299	27.89	0
Purebred dogs total	791	34.98	19.0	1,072	66.42	0
Crossbred dogs	1470	65.02	27.0	542	33.58	1

DISCUSSION

There is no central register of dogs in the Czech Republic, but according to the estimates of the State Veterinary Administration of the Czech Republic, the dog population is more than 1 million (Voslarova & Passantino, 2012). Other estimates put the numbers even higher, up to 2 million. Considering the country's population of around 10.4 million people, the Czech Republic is counted among the countries with the largest number of dogs per capita in Europe. About one quarter of the dog population is estimated to be purebred dogs with documented pedigrees officially registered with the kennel club. The numbers of purebred dogs and crossbred dogs in the shelters monitored in this study were similar (1,863 and 2,012, respectively), but it is likely that many of the dogs recorded by the shelter personnel as purebred were not pedigree dogs because many breeders do not officially register their puppies. Taking this into account, the ratio of purebred pedigree dogs and crossbred dogs in the total population of dogs in the Czech Republic seems to be similar to the ratio of dogs admitted to the Czech shelters.

The ratio of purebred dogs and crossbred dogs differed significantly when comparing the group of dogs reclaimed by their owners (lost dogs) and the group of abandoned dogs. Significantly higher numbers of purebred dogs were among lost dogs, whereas significantly higher numbers of crossbred dogs were among abandoned dogs. This is in accordance with the results of a shelter survey carried out in the United States that showed mixed-breed animals were at increased risk for relinquishment (New et al., 2000). Mixed-breed dogs and cats obtained at very little or no cost were frequent in the population of animals relinquished to shelters. In our study, crossbred dogs represented 65.0% of abandoned dogs. This finding corroborates the results of an earlier Czech study that showed that mixed-breed dogs were sheltered more often than dogs with exterior signs of a specific breed (Nemcova & Novak, 2003).

Acquiring a purebred dog is more likely to involve some degree of planning and investing money. Accordingly, a greater purchase price was associated with a decreased risk for relinquishment in the United States (Patronek, Glickman, Beck, & McCabe, 1996). In cases of dogs getting lost, owners of purebred dogs are more likely to seek them and reclaim them from a shelter as demonstrated by the results of our study in which 66.4% of reclaimed dogs were purebred. Similarly, more than two thirds (67.7%) of purebred dogs were reclaimed by their owners in a Pennsylvania shelter, compared with 41.2% of mixed-breed dogs (Patronek et al., 1995). Furthermore, the authors found that more purebred dogs were reclaimed the same day they were admitted compared with mixed-breed dogs (46.1% vs. 38.0%). The LOS of purebred and crossbred dogs who were reclaimed by their owners did not differ significantly in our study though.

However, abandoned purebred dogs were adopted significantly faster and thus spent less time at the shelter than did crossbred dogs. Accordingly, analysis of a database representing all rehoming centers in the United Kingdom showed that purebred dogs were rehomed at the fastest rate (Diesel et al., 2007). This may be explained by the large number of crossbred dogs in shelters or by the attractiveness of purebred dogs commonly perceived as more valuable by potential adopters, but it may also be influenced by the activity of breed clubs and their members who actively seek new homes for sheltered dogs of their breeds.

Approximately one fifth (19.4%) of purebred dogs in a Pennsylvania shelter were adopted through a breed rescue group (Patronek et al., 1995). There are no records available on the efficiency of breed rescue groups in the Czech Republic, but the number of breed clubs claiming

they helped dogs of their breeds in need seems to be increasing. The opposite was found in one Italian shelter where purebred dogs stayed at the shelter significantly longer than mixed breeds did (Mondelli et al., 2004). However, the authors did not elaborate on the reasons, and the LOS of both purebred and crossbred dogs (20 days and 15 days, respectively) in that shelter was quite short, shorter than the average LOS found in other studies including ours. Generally, the LOS will differ between no-kill facilities and shelters where dogs who are not reclaimed by their owners within a given period of time are euthanized. In some countries, including the Czech Republic, the law forbids euthanizing shelter dogs unless they are severely ill. Thus, dogs could remain in shelters for extended periods of time until they are adopted (Normando et al., 2006).

Purebred status (Lepper et al., 2002) and breed type (Brown et al., 2013; Clevenger & Kass, 2003) have been reported as factors that influence adoption success. The currently recognized breed groupings were created by different national kennel club organizations, like the Federation Cynologique Internationale (FCI) or the American Kennel Club, and they are based on morphological similarity, anecdotal information about the breeds' behavioral utility, and scarce historical evidence. However, dogs today are usually regarded as family members or as companions in Western cultures and are generally no longer utilized in their original roles (Turcsan et al., 2011). Therefore, for the purposes of this study, all purebred dogs were categorized into breed groups of common utilitarian purposes to determine if such groups influenced the LOS at the shelters.

The most common breeds admitted to the shelters either as lost or abandoned were small companion dogs followed by guard dogs and retrievers. This reflects the estimations of the most common breeds of dogs in the Czech Republic. German shepherds, Dachshunds, Yorkshire Terriers, and Labrador Retrievers have been regularly listed among the top five dog breeds in recent years, and they were also the most common among sheltered dogs in our study. However, small companion dogs and guard dogs were abandoned significantly more often than they were reclaimed by their owners, whereas sheltered retrievers were significantly more frequently reclaimed by their owners than they were abandoned and offered for adoption.

Because the same ratio was found in hunting dogs, the natural strong instinct to track and/or chase prey enhanced by centuries of selective breeding (Schmutz & Schmutz, 1998) may be the reason why retrievers and other hunting dogs are at greater risk for being lost. Giant breeds were also more frequently reclaimed by their owners than they were abandoned, but the total number of giant dogs admitted to the shelters in our study was too small to draw conclusions. In bull breeds, Nordic sledge dogs, and large and medium-sized companion dogs, the numbers of abandoned and lost dogs did not differ.

Despite being the most common group among the sheltered purebred dogs, small companion dogs had the shortest LOS. Small companion dogs were adopted significantly faster than any other breed group. This group also included lap breeds, otherwise called toy breeds, who were reported to have the highest adoption successes and the shortest stays in other shelter studies (Clevenger & Kass, 2003; Lepper et al., 2002; Posage et al., 1998; Protopopova et al., 2012). Shorter snouts and wider craniums are common features of dogs within this group, and they give the dogs' faces a more puppy-like appearance. Selection for neotenuous features in many breeds of companion cats and dogs has been noted and explained by the baby schema proposed by ethologist Konrad Lorenz (Archer & Monton, 2011).

Lorenz described the baby schema ("kindchenschema") as a set of infantile physical features, such as the large head, high and protruding forehead, large eyes, chubby cheeks, small nose and

mouth, short and thick extremities, and plump body shape, which is perceived as cute or cuddly and elicits caretaking behavior from other individuals (Glocker et al., 2009). Infantile facial features are similarly preferred in companion dogs and cats (Archer & Monton, 2011) and can explain why small companion dogs who have retained the infant features into adulthood have the highest adoption success at dog shelters. Other factors such as assumptions of low maintenance and space requirements, easy handling, and affectionate temperament may be involved too.

There was general agreement on the preference for small breeds among shelter studies, with the exception of the adoption records from two no-kill shelters in New York state where giant breeds had the shortest LOS (Brown et al., 2013). The authors explain these discrepancies by a regional difference in breed preference, breed availability, or both. According to the authors, breeds in the giant group were easily recognizable due to their imposing appearances, and in the shelters studied, these breeds were relatively unique, which might have made them more desirable than those in other groups. In our study, giant dogs were also among those staying the shortest time together with Nordic sledge dogs; these two groups did not significantly differ in LOS. Both groups were represented by only a few dogs, corroborating the theory of the desirability of uniqueness.

Large companion dogs were the least represented among both abandoned and lost dogs in our study. Because only one large companion dog (Dalmatian) was admitted to a shelter as abandoned, it was impossible to analyze the LOS of this group. The dog was adopted after 33 days, thereby making this group have the longest LOS. When omitting this group because only one dog was present, guard dogs had the longest LOS. Similarly, in the United States, the guard breeds were less likely to be adopted (Lepper et al., 2002) and had the longest LOS in the shelters (Brown et al., 2013). If the judgments people make about which dog to adopt from a shelter begin with preconceived notions about the kind of dog who would make an appropriate or an inappropriate companion animal (Wright, Smith, Daniel, & Adkins, 2007), guard breeds are disadvantaged. Intimidating appearance, natural wariness of strangers, and need for an experienced owner reduce the number of possible adopters.

Surprisingly, a significantly shorter LOS was found in bull breeds who exhibit similar characteristics. Some of the breeds listed here as bull were ranked among fighting breeds in other studies and were the least likely to be adopted, and they stayed in the shelters the longest (Lepper et al., 2002; Protopopova et al., 2012). However, our categorization of bull breeds is closer to a bully group (Brown et al., 2013), and the LOS corresponds to their findings. Some countries have adopted dangerous dog laws to impose special restrictions on owners of dogs who are officially labeled dangerous (Collier, 2006; Debove, 2001; Kuhne & Struwe, 2006; Michaux & Lanchais, 2007; Rosado, Garcia-Belenguer, Leon, & Palacio, 2007), with bull breeds typically being among them. Despite serious discussion in recent years, no such law has yet been introduced in the Czech Republic. Based on the results of our study, bull dogs are considered for adoption equally with companion dogs of medium size, who have statistically the same LOS.

Hunting dogs also did not differ in LOS from bull and medium-sized companion dogs. In this case, comparisons with other studies are difficult due to differences in categorization of hunting or hound breeds based on regional traditions and legislation regulating the use of hunting dogs. Individuals in the hound group remained longer in the shelters compared with dogs in most of the other groups (Brown et al., 2013) as well as those who were adopted more successfully than some other breeds (Posage et al., 1998). In the Czech Republic, the use of dogs for hunting is regulated by the Game Management Act. Only a purebred dog of a breed recognized by the FCI

with a pedigree can be used. Thus, sheltered dogs of hunting breeds with unknown origins cannot be adopted for hunting purposes and can only be adopted as companions. A significantly longer LOS was found for retrievers, originally a hunting breed too, but now they are more often kept as companions or assistance dogs.

Although retrievers have a reputation as a very even-tempered breed and are excellent family dogs, their size may be a limiting factor. Size is important to adopters; large dogs may not be considered by some potential adopters because of housing restrictions (Shore, Petersen, & Douglas, 2003). Despite their size, retrievers stayed in shelters for a significantly shorter time than did guard dogs, who stayed the longest. Dogs of similar size were perceived differently by the general public. Stereotypes activate implicit perceptions and expectations about the characteristics and behavior of any individual perceived to be a member of the target group, regardless of the specific target's actual traits and behaviors (Wright et al., 2007). People's perception of a special breed seems to overshadow the size and color effect of a dog's features (Blecker, Hiebert, & Kuhne, 2013).

CONCLUSION

Purebred status influenced the likelihood of a dog being reclaimed from the shelter as well as the LOS at the shelter for abandoned dogs. Furthermore, the LOS was influenced by breed group in abandoned dogs, with small companion dogs staying the shortest amount of time and guard dogs staying the longest. Understanding potential adopters' perceptions of different breeds and their preferences may help shelter personnel establish effective procedures. Putting more effort into seeking new homes, particularly for dogs who are less likely to be adopted, can decrease the LOS of dogs at the shelter. This is particularly important in no-kill shelters, where the LOS is not limited and dogs not preferred by adopters can stay there for years if suitable adopters are not actively sought.

REFERENCES

- Archer, J., & Monton, S. (2011). Preferences for infant facial features in pet dogs and cats. *Ethology*, 117, 217–226. doi:10.1111/j.1439-0310.2010.01863.x
- Blecker, D., Hiebert, N., & Kuhne, F. (2013). Preliminary study of the impact of different dog features on humans in public. *Journal of Veterinary Behavior: Clinical Applications and Research*, 8, 170–174. doi:10.1016/j.jveb.2012.06.005
- Brown, W. P., Davidson, J. P., & Zuefle, M. E. (2013). Effects of phenotypic characteristics on the length of stay of dogs at two no kill animal shelters. *Journal of Applied Animal Welfare Science*, 16, 2–18. doi:10.1080/10888705.2013.740967
- Clevenger, J., & Kass, P. H. (2003). Determinants of adoption and euthanasia of shelter dogs spayed or neutered in the University of California Veterinary Student Surgery Program compared to other shelter dogs. *Journal of Veterinary Medical Education*, 30, 372–378. doi:10.3138/jvme.30.4.372
- Collier, S. (2006). Breed-specific legislation and the pit bull terrier: Are the laws justified? *Journal of Veterinary Behavior: Clinical Applications and Research*, 1, 17–22. doi:10.1016/j.jveb.2006.04.011
- Debove, C. (2001). Dangerous dogs legislation. *Point Veterinaire*, 32(217), 52–54.
- Diesel, G., Smith, H., & Pfeiffer, D. U. (2007). Factors affecting time to adoption of dogs re-homed by a charity in the UK. *Animal Welfare*, 16, 353–360.
- Ghirlanda, S., Acerbi, A., Herzog, H., & Serpell, J. A. (2013). Fashion vs. function in cultural evolution: The case of dog breed popularity. *PLoS One*, 8, e74770. doi:10.1371/journal.pone.0074770

- Glocker, M. L., Langleben, D. D., Ruparel, K., Loughhead, J. W., Gur, R. C., & Sachser, N. (2009). Baby schema in infant faces induces cuteness perception and motivation for caretaking in adults. *Ethology*, 115, 257–263. doi:10.1111/j.1439-0310.2008.01603.x
- Kuhne, F., & Struwe, R. (2006). Dangerous dogs in Berlin in comparison to the dog population—ways to reduce the dangerousness of dogs. *Berliner und Munchener Tierarztliche Wochenschrift*, 119, 445–455.
- Lepper, M., Kass, P. H., & Hart, L. A. (2002). Prediction of adoption versus euthanasia among dogs and cats in a California animal shelter. *Journal of Applied Animal Welfare Science*, 5, 29–42. doi:10.1207/S15327604JAWS0501_3
- Michaux, J. M., & Lanchais, T. (2007). Dangerous dogs law updated. *Bulletin De L'Academie Veterinaire De France*, 160, 373–376.
- Monelli, F., Previde, E. P., Verga, M., Levi, D., Magistrelli, S., & Valsecchi, P. (2004). The bond that never developed: Adoption and relinquishment of dogs in a rescue shelter. *Journal of Applied Animal Welfare Science*, 7, 253–266. doi:10.1207/s15327604jaws0704_3
- Nemcova, D., & Novak, P. (2003). Adoption of dogs in the Czech Republic. *Acta Veterinaria Brno*, 72, 421–427.
- New, J. C., Salman, M. D., King, M., Scarlett, J. M., Kass, P. H., & Hutchison, J. M. (2000). Characteristics of shelter-relinquished animals and their owners compared with animals and their owners in U.S. pet-owning households. *Journal of Applied Animal Welfare Science*, 3, 179–201.
- Normando, S., Stefanini, C., Meers, L., Adamelli, S., Coultis, D., & Bono, G. (2006). Some factors influencing adoption of sheltered dogs. *Anthrozoos*, 19, 211–224. doi:10.2752/089279306785415556
- Patronek, G. J., Glickman, L. T., Beck, A. M., & McCabe, G. P. (1996). Risk factors for relinquishment of dogs to an animal shelter. *Journal of the American Veterinary Medical Association*, 209, 572–581.
- Patronek, G. J., Glickman, L. T., & Moyer, M. R. (1995). Population dynamics and the risk of euthanasia for dogs in an animal shelter. *Anthrozoos*, 8, 31–43.
- Posage, J. M., Bartlett, P. C., & Thomas, D. K. (1998). Determining factors for successful adoption of dogs from an animal shelter. *Journal of the American Veterinary Medical Association*, 213, 478–482.
- Protopopova, A., Gilmour, A. J., Weiss, R. H., Shen, J. Y., & Wynne, C. D. L. (2012). The effects of social training and other factors on adoption success of shelter dogs. *Applied Animal Behaviour Science*, 142, 61–68. doi:10.1016/j.applanim.2012.09.009
- Rosado, B., Garcia-Belenguer, S., Leon, M., & Palacio, J. (2007). Spanish Dangerous Animals Act: Effect on the epidemiology of dog bites. *Journal of Veterinary Behavior: Clinical Applications and Research*, 2, 166–174. doi:10.1016/j.jveb.2007.07.010
- Schmutz, S. M., & Schmutz, J. K. (1998). Heritability estimates of behaviors associated with hunting in dogs. *Journal of Heredity*, 89, 233–237. doi:10.1093/jhered/89.3.233
- Shore, E. R., Petersen, C. L., & Douglas, D. K. (2003). Moving as a reason for pet relinquishment: A closer look. *Journal of Applied Animal Welfare Science*, 6, 39–52. doi:10.1207/S15327604JAWS0601_04
- Turcsan, B., Kubinyi, E., & Miklosi, A. (2011). Trainability and boldness traits differ between dog breed clusters based on conventional breed categories and genetic relatedness. *Applied Animal Behaviour Science*, 132, 61–70. doi:10.1016/j.applanim.2011.03.006
- Voslarova, E., & Passantino, A. (2012). Stray dog and cat laws and enforcement in Czech Republic and in Italy. *Annali Dell Istituto Superiore Di Sanita*, 48, 97–104. doi:10.4415/ann_12_01_16
- Wright, J. C., Smith, A., Daniel, K., & Adkins, K. (2007). Dog breed stereotype and exposure to negative behavior: Effects on perceptions of adoptability. *Journal of Applied Animal Welfare Science*, 10, 255–265.
- Zar, J. H. (1999). *Biostatistical analysis* (4th ed.). Englewood Cliffs, NJ: Prentice-Hall.