

Pit Bull Identification in Animal Shelters

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Introduction:

Breed identification is used in dog adoption, lost and found, and regulation. In animal shelters, staff members usually assign breed according to what relinquishing owners report their dogs to be or based on appearance alone since most dogs arrive without a known pedigree.¹ Today, there is a negative public perception of pit bulls and labeling a dog as a pit bull can have a negative impact on its adoptability. Sometimes these negative impressions have resulted in bans on owning pit bulls in hopes of guarding public safety. To date, there is no universally accepted definition of a pit bull, nor is there a universally accepted method of breed identification.²

Hypothesis and Objective:

Shelter staff members and veterinarians routinely make subjective breed assessments, but the reliability and repeatability of their conclusions is unknown. The objective of this study was to test the hypothesis that agreement among shelter staff members regarding identification of pit bulls would be poor and there would be poor agreement between visual breed identification and DNA breed signatures.

Methods:

In this prospective cross-sectional study, 4 staff members at 4 different shelters each recorded the suspected primary breed of 30 dogs, for a total of 16 observers and 120 dogs. In this study, the terms American pit bull terrier, American Staffordshire terrier, Staffordshire bull terrier, and pit bull were included in the study definition of pit bull-type breeds. Blood was collected from each dog for DNA breed signature. Dogs were coded as "pit bull" if American Staffordshire terrier or Staffordshire bull terrier were identified to comprise at least 25% of the breed signature. Agreement among individual shelter staff members regarding identification of pit bulls was determined with the kappa statistic. The sensitivity and specificity of each staff member's identification of pit bulls with DNA breed signature as a gold standard was calculated.

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Figure 1: Shelter staff sensitivity in identifying true pit bulls

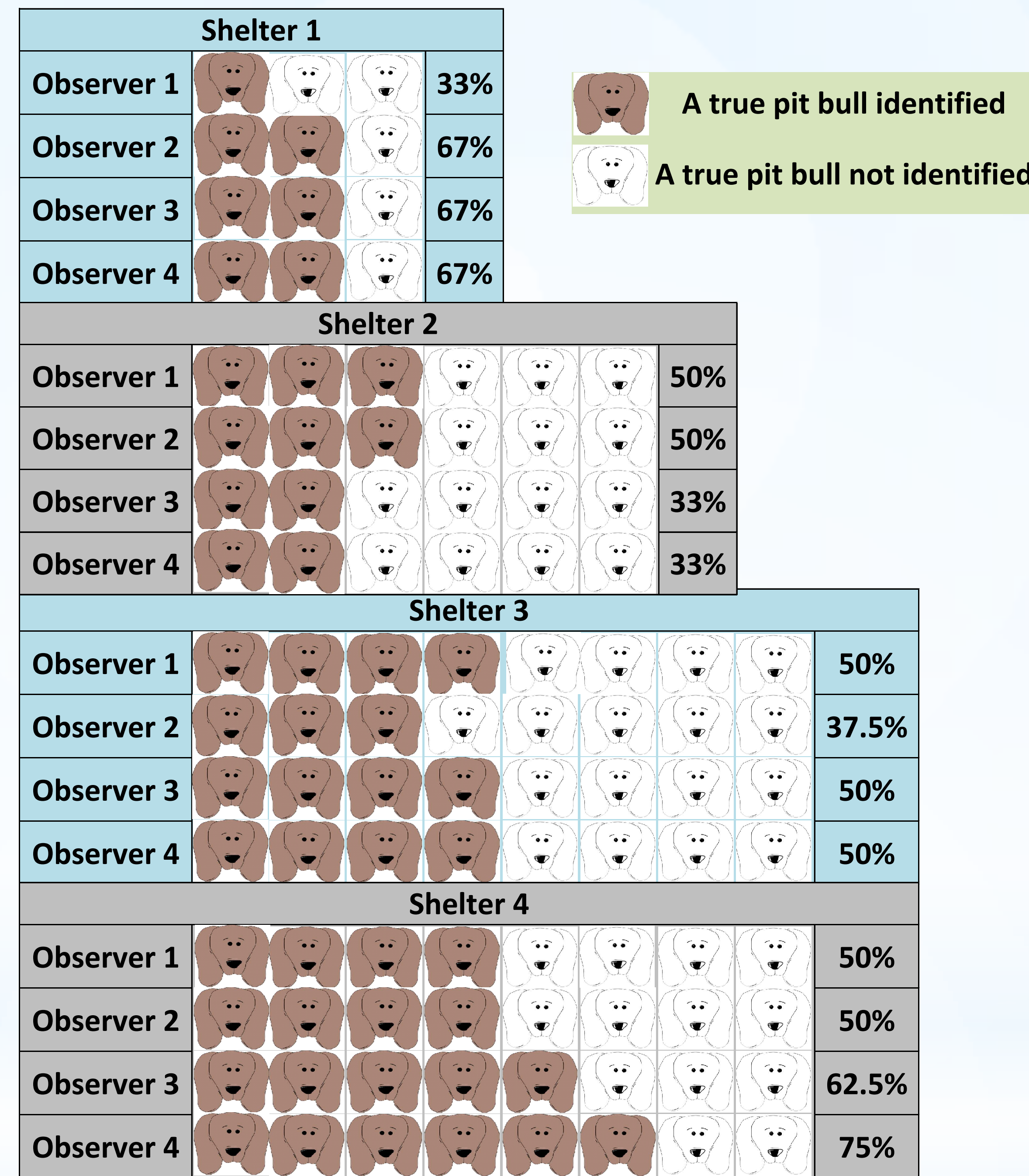


Table 1: Examples of staff breed designations and genetic breed designations for several study dogs

Dog	Photo	Staff 1	Staff 2	Staff 3	Vet	DNA breed
Dog 7		Lab/ Am. Staff	Am. Staff/ Lab	Am. Staff/ Lab	Pit Bull/ Lab	Irish Water Spaniel 25%; Siberian Husky, 25%; Boston Terrier, 25%
Dog 8		Boxer/ Lab	Am. Staff/ Chow	Boxer/ Lab	Am. Staff/ Greyhound	Boxer, 25%; Alaskan Malamute, 25%
Dog 9		Am. Staff	Am. Staff Mix	Pit Bull	Am. Pit Bull Terrier	Am. Bulldog, 50%; Am. Staff, 50%
Dog 11		Aust. Cattle Dog/ Border Collie	Catahoula/ Lab	Border Collie/ Aust. Cattle Dog	Border Collie/ Aust. Cattle Dog	Aust. Cattle Dog, 25%; Am. Staff, 25%
Dog 59		Pit Bull Mix	Pit Bull	Am. Pit Bull Terrier Mix	Pit Bull Mix	Am. Bulldog, 50%; Am. Staff, 50%
Dog 62		Jack Russell Terrier/ Hound	Basenji/ Lab	Shar-Pei/ Rat Terrier	Chihuahua Mix	Chow, 25%; Am. Staff, 25%; Siberian Husky, 25%

Results:

- 120 total dogs: 25 "true" pit bulls by DNA analysis + 95 "non-pit bulls"
- Shelter staff identified 55 out of the 120 dogs to be pit bull type breeds
- Only 36% of these dogs actually were true pit bulls by DNA analysis.
- Shelter staff missed identifying 5 (20%) of the 25 true pit bulls.
- Only 8 (32%) of the 25 pit bulls were identified as a pit bull by all staff.
- Accuracy in breed assignment varied among individuals, with sensitivity for pit bull-type breed identification ranging from 33% to 75% and specificity ranging from 52% to 100%.
- The shelter staff agreement had a kappa value that was poor to fair (0.093-0.324).

Conclusions:

- DNA analysis failed to confirm pit bull-type breeds in the pedigree in more than half of the dogs identified as pit bulls by shelter staff at the time of the study.
- One in 5 dogs genetically identified as pit bulls were missed by shelter staff
- One in 2 dogs labeled pit bulls by shelter staff lacked DNA breed signatures for pit bull terrier-type breeds.
- Lack of consistency among shelter staff in breed assignment suggests that visual identification of pit bulls is unreliable.
- Focusing on other attributes of dogs such as personality, behavior, and history instead of breed may help predict safety of individual dogs towards people and other animals.³
- Public safety may be better preserved by recognition and mitigation of risk factors for dog attacks and on identification and management of individual dangerous dogs, rather than on exclusion of particular breeds.^{4,5}

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