



## Exploring the Dog Diversity of District Buner, Pakistan

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### ABSTRACT

**Objective:** The present study was documented to explore the dog diversity and different types of Dog breeds in district Buner. **Methods:** The current study was carried out from August 2021 to August 2022. During the study 11 different types of breeds were identified in district Buner. **Results:** The identified species of Dog in district Buner consist of German shepherd (*Canis lupus familiaris*), Pointer dog (*Canis lupus*), American eskimo dog (*Canis lupus*), Siberian huskey (*Canis lupus familiaris*), Belgium shepherd (*Canis lupus*), Bull terrier (*Canis lupus*), American Labrador (*Canis lupus familiaris*), Toy poodle (*Canis lupus familiaris*), Gull doing (*Canis lupus*), Stray dog (*Canis lupus domesticus*) and vikhan sheep dog (*Canis lupus domesticus*). **Conclusion:** About 40 different specimens of dogs were collected in each tehsil. During the investigation Stray dogs were the most dominant breed followed by German shepherd.

### INTRODUCTION

The dog was the first mammal to be domesticated. The grey wolf (*Canis lupus*) was the origin of all modern dog breeds, according to molecular genetic research, and the domestication process took place in different areas across Asia. Dog domestication was marked by centuries of selective breeding that resulted in more than 400 recognized breeds with significant differences in size, form, physiology, behavior, and illness susceptibility dogs swiftly spread throughout Europe and to other continents after becoming domesticated. Unlike modern dog

breeds, the village dogs were not subjected to the same level of selective breeding and veterinary care. They gradually evolved spatially distinct genetic differentiation (1).

Modern village dogs appear to be complicated combinations of many non-native breeds and/or mixtures of both non-native breeds and indigenous village dogs. The domestic dog is a member of the Canidae family, which includes 35 closely related species that have diverged in the last 10 million years. There has been a lot of interest in the



evolutionary links between canids in recent years, which has led to investigations based on both morphological and molecular evidence, including DNA sequencing (2).

Researchers have been able to recreate the dog's family tree with some accuracy because of the introduction of DNA sequencing technologies. Taken together, the existing findings point to three primary groups within the dog's family, (1) canids that look like red foxes, (2) canids from South America, and (3) canids that look like wolves. These three clades account for 93% of all canids alive today. The grey fox belongs to a distinct lineage that appears to be the most basic, implying that live canids originated in North America roughly ten million years ago (3).

When looking at the wolf-like canids more closely, the results show that grey wolves are the closest living 'cousins' of domestic dogs, followed by coyotes, golden jackals, and Ethiopian wolves. These evolutionary relationships suggest that the dog has numerous near cousins within its genus, as evidenced by the fact that all members of the *Canis* genus may generate fertile hybrids, and several species may have genomes that represent natural hybridization (4).

The dhole and African wild dog are the closest relatives of the *Canis* genus (thus completing the members of the wolf-like canids). Dhole and African wild dogs, on the other hand, do not form a monophyletic group, and their precise relationship to the *Canis* genus remains a mystery. Finally, genetic analysis appears to suggest an African origin for the wolf-like canids because the two African species are genetically related. Jackals are the most basal members of this clade (5).

Dogs descended from grey wolves as long as 16 300 years ago, according to mtDNA studies. Dogs appear to have lived with people 12,000-14,000 years ago, according to fossil evidence. Ancient Persia pottery depicted dogs that looked exactly like present-day village dogs 7500 years ago. While various 'breeds' of dogs resembling Afghan Hounds or Salukis were first spotted on pots from the same region around 6000 years ago, this suggests that human-dog selection began in earnest during that time. In Egypt 4500 years ago, dogs like current sighthounds, mastiffs, and Basenjis were depicted in a variety of activities with people. The Saluki and Afghan Hound of the

Middle East, the Siberian Husky and Samoyed of Russia, the Akita Inu and Shiba Inu of Japan, the Alaska Malamute of North America, the Basenji of Africa, and the Chow, Lhasa Apso, Pekingese, Shar Pei, Shi Tzu, and Tibetan Terrier of China are among the oldest breeds (6).

## MATERIALS AND METHODS

### Study Area

District Buner is situated between the districts Mardan, Swat, Swabi, and Shangla, and located between 34-9° and 34-43° N latitude and 72-10° and 72- 47° E longitude and 120km far from the Peshawar City in the northern part of the province Khyber Pakhtunkhwa. District Buner comprises high mountain ranges, streams, and lakes. It has many villages and is divided into seven subdivisions. District Buner is separated from Swat by the high mountain ranges of Elum, from Mardan it is separated by the mountain ranges of Surkaway, from Swabi it is separated by the hills of Chinglai and from Puran it is further separated by the mountain ranges of Duma (Hamayun, 2003). District Buner has an altitudinal range of 366-291 m, with a total area of 1865 km<sup>2</sup> and a population of 506,048 individuals. The largest stream (Barandu) is the main source of irrigation for the land of district Buner. District Buner is made up of plains undulating land and mountain slopes. The plains and undulating areas lie on the lower elevation and mountain slopes with barren rocks are on the higher elevation the hydrology of the district Buner is covered by seasonal streams. For 2000 years district Buner was a region of Swat Valley, now it is a separate district (7).

## RESULTS

The present research work was conducted to evaluate the diversity and distribution of Dogs in district Buner. The survey and investigation of specimens were done from August 2021 to August 2022. A total of 40 sample of Dogs were collected. The identification revealed 11 different types of breeds. The most dominant species was recorded Stray Dog and followed by German shepherd. The reported species of Dog consist of German shepherd (*Canis lupus familiaris*), Pointer dog (*Canis lupus*), American eskimo dog (*Canis lupus*), Siberian huskey (*Canis lupus familiaris*), Belgium shepherd (*Canis lupus*), Bull terrier (*Canis lupus*), American Labrador (*Canis lupus familiaris*), Toy

poodle (*Canis lupus familiaris*), Gull dong (*canis lupus*), Stray dog (*Canis lupusdomesticus*) and

vikhan sheep dog (*Canis lupusdomesticus*).

**Table 1**

*Reported breed of dogs Buner*

S.NO	Common Name	Order	Family	Genus	Species	Subspecies
1.	German shepherd	Carnivora	Canidae	<i>Canis</i>	<i>lupus</i>	<i>Canis domesticus</i>
2.	Siberian husky	Carnivora	Canidae	<i>Canis</i>	<i>Lupus</i>	<i>Canis domesticus</i>
3.	Belgian shepherd	Carnivora	Canidae	<i>Canis</i>	<i>lupus</i>	<i>Canis domesticus</i>
4.	Toy Poodle	Carnivora	Canidae	<i>Canis</i>	<i>lupus</i>	<i>Canis domesticus</i>
5.	Bull terrier	Carnivora	Canidae	<i>Canis</i>	<i>lupus</i>	_____
6.	Pointer dog	Carnivora	Canidae	<i>Canis</i>	<i>lupus</i>	_____
7.	American eskimo dog	Carnivora	Canidae	<i>Canis</i>	<i>lupus</i>	_____
8.	Labrador Retriever	Carnivora	Canidae	<i>Canis</i>	<i>lupus</i>	<i>Canis domesticus</i>
9.	Stray dog	Carnivora	Canidae	<i>Canis</i>	<i>lupus</i>	<i>Canis domesticus</i>
10.	Gull dong	Carnivora	Canidae	<i>Canis</i>	<i>lupus</i>	_____
11.	Vikhan sheep dog	Carnivora	Canidae	<i>Canis</i>	<i>lupus</i>	<i>Canis domesticus</i>

**Table 2**

*Morphological study of dogs in district Buner*

S.No	Species types	Color	Size	Height	Weight
1.	German Shepherd	Black/black silver	26 inches	24-26 inches	75-95 pound
2.	Siberian husky	Grey/white/black/red	35-36.5 inches	20-22 inches	35-50pound
3.	Belgian shepherd	White/black	23-26.5 inches	23-24 inches	55-75 pound
4.	Toy Poodle	White	14-17 inches	10 inches	7-70 pound
5.	Bull terrier	Black/white	35-75 inches	21-22 inches	53-55 pounds
6.	Pointer dog	White/black	30-28 inches	24-27 inches	44-46 pounds
7.	American eskimo dog	White/white with biscuit creamy marking	13-16 inches	15 inches	6.8 to 18.1 kg
8.	Labrador Retriever	White/black, and chocolate	21-25 inches	15-22 inches	55-75 pound
9.	Stray dog	White/black and yellow	31-58 inches	20-25 inches	20-25 kg
10.	Bull dog (Gull dong)	White with occasional dark	30-60 inches	18-22 inches	20-29 kg

**Table 3**

*Tehsil-wise population of dogs district Buner*

S.No	Dogs Diversity	Daggar	Gagra	Chagharzi	Gadezi	Mandnr	Khudokhel
1.	Hunter/Pointer dogs	49	40	30	47	43	32
2.	Fighting dogs	45	47	26	32	37	24
3.	Native dogs	45	32	38	46	49	39
4.	Exotic dogs	10	8	5	10	9	7
5.	Working dogs	5	5	7	8	10	6
6.	Security dogs	7	6	12	10	10	13

## DISCUSSION

The current study was conducted on the dog diversity of district Buner from August 2021 to August 2022. During the study, we collected/observed 11 different breeds of dogs in district Buner. These collection was taxonomically treated and identified with key. We have reported German shepherd (*Canis lupus familiaris*), Pointer dog (*Canis lupus*), American eskimo dog (*Canis lupus*), Siberian huskey (*Canis lupus familiaris*), Belgium shepherd (*Canis lupus*), a Bull terrier (*Canis lupus*), American Labrador (*Canis lupus familiaris*), Toy poodle (*Canis lupus familiaris*), Gull dong (*canis lupus*), Stray dog (*Canis lupus*

*domesticus*) and vikhan sheepdog (*Canis lupus domesticus*) We collected or capture seventy 40 different images of dogs in each tehsil.

Katrien *et al.*, 2016 investigated the genetic diversity of 23 dog breeds raised in Belgium was investigated using both genealogical analysis and microsatellite markers. Some of these breeds are native breeds, with only small populations maintained. Pedigree and molecular data, obtained from the Belgian Kennel Club, were used to calculate the inbreeding coefficient, realized effective population size as well as probabilities of gene origin and average observed heterozygosity (8).

In the current study in district Buner 10 different breeds of dogs were investigated and their identification was done with relevant literature and sources. Different breeds of dogs were identified based on morphology and phenotype. The street dogs are found in great numbers in district Buner. We have investigated an Indian pariah dog found in the South Asian region. We have investigated some exotic species in district Buner some of them are German Shepherd, Belgian Shepherd, and American Labrador. In our study in district Buner, we have used many books and research papers for investigation or terrier Etc. Bull Dog (Gull dang) is a mixed species which are also found in sufficient quantity in district Buner.

From his study it was found out the dog breeds identified in Mumbai city are Labrador Retriever of pale or yellow color (fawn), Indian Pariah, German Shepherd, and others. It is observed that overall 40% preference is for Labrador Retriever followed by 10 % for Indian Pariah and German Shepherd. This indicates that a maximum percentage of dog owners preferred Labrador Retriever. Whereas, very little preference for remaining breeds. Dog owners mostly prefer Labrador Retrievers which are friendly and medium breed dogs (9).

In our study the dog breeds found in district Buner are stray dogs followed by a German shepherd and Bull terrier. The American Labrador of white color was reported in tehsil Mandanr. It was observed that in district Buner overall preference is given to German shepherd followed by Bullterrier whereas for remaining breeds. The owner mostly prefers German shepherds because they are intelligent, strong, smart, and loyal so used for guarding purposes.

According to (Tajet *al.*,2015) like in any other part of the developing world, the lifestyle of stray dogs in Balochistan is influenced by the cultural and eating habits of its human pupation. In residential areas, garbage stacks provide leftover food to stray dogs while in commercial areas, hotels, bakeries, and fast food points contribute to stray dog feeding. Culturally leftover food is either offered directly to stray dogs or thrown away in a way that makes it easily accessible to stray dogs. City poultry retailers and local slaughterhouses also play an important role in feeding stray dogs (10).

According to our study, we worked on the morphology and diversity of stray dog/street dog/Indian Pariah dog also known as Indian native dog/South Asian pye dog/desi dog. It is a landrace of a dog native to the Indian subcontinent. They are street dogs. They are not pure indigenous dogs but mixed breeds especially where European colonists historically settled in India due to being administered with European dog breeds. Their colors are solid fawn, pied(fawn/black and white), and black(rare). Their hair are short and found in large numbers.

## CONCLUSION

The present research work was conducted to evaluate the diversity and distribution of Dogs in district Buner. The survey and investigation of specimens were done from August 2021 to August 2022. A total of 40 sample of dogs were collected. The identification revealed 11different types of breeds. The most dominant species were recorded Stray Dog and followed by German shepherd.

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