

An analysis of cross-species interactions between humans and domesticated animals (dogs and cows) from Bangladesh.

Md. Abdula Alsad¹

¹University of Chittagong Faculty of Biological Science

September 30, 2023

Abstract: This study delves into an often overlooked facet of animal relationships, shedding light on the intricacies that render these bonds distinct. The research centers on the mechanisms through which animals cultivate friendships, the benefits they derive from such connections, and the myriad manifestations of these relationships across three distinct regions in Bangladesh. Notably, this investigation extends beyond intraspecies interactions to encompass interspecies bonds, including those between humans and feline and ovine companions, the companionship shared between a young feline and a human, human-canine affiliations, and the human-goat relationships. By examining these varied connections, this research seeks to unveil the profound emotional ties that transcend species boundaries and underscore the transformative influence they exert on the well-being of animals.

Keywords: Ethology, Zoology, Animal Behavior, Behavioral Diversity, Domestic Animals

Introduction: Animals are fascinating creatures that never cease to amaze us with their unique abilities and behaviors. One aspect of their lives that has been gaining attention in recent years is their ability to form deep and lasting friendships with members of their own species and even with members of other species. From unlikely pairings, such as a cat and a man, to more common partnerships, like a dog and a human, these bonds can be heartwarming and fascinating to observe. On the basis of three different regions of Bangladesh, I attempted to investigate some of the most fascinating instances of animal friendship, exploring the scientific underpinnings of these bonds and the priceless lessons they can impart about the relationships we develop with others. In the vast and diverse animal kingdom, friendships transcend species boundaries, defying conventional expectations and captivating the hearts of enthusiasts. It can be a source of protection, with individuals banding together to avoid potential threats. It can also serve as a means of survival, with different species depending on each other for food, shelter, or mutual defense. Perhaps the most significant aspect of animal friendship is the emotional bond that can develop between individuals, transcending the boundaries of instinct and biological necessity. Dolphins are known for forming complex social networks, with individuals often developing strong bonds that can endure throughout their lifetime. Elephants display remarkable empathy and solidarity, offering comfort and support to their fellow herd members in times of distress. Even seemingly solitary big cats have been observed to form social bonds, displaying moments of affection and dependence on one another. While friendships in some animals may have clear evolutionary advantages, others seem to defy any logical explanation. Consider the well-known story of Owen and Mazie, a young hippopotamus and an older turtle who became inseparable friends after meeting in a Kenyan wildlife sanctuary (Hatkoff 2006). Despite their stark differences in size, species, and behavior, their friendship blossomed, captivating the world and reminding us of the unexpected connections that arise in nature. In light of the fact that there had not been any research on this subject from a Bangladeshi perspective, I thought about conducting a study and gathering information to share with everyone, whether they love animals or not.

Materials and Methods

My work evolved from a few years of observation in Dinajpur and Chattogram. I began pursuing a course at the University of Edinburgh on Ethology that improved my thinking because I was particularly interested in human connections with cats, dogs, cows, goats, and lambs. Furthermore, I am interested in more than simply intra- and inter-species interactions. For example, consider the friendship between a hippopotamus and a turtle, the friendship between a dolphin and a dog, or the friendship between a dog and an elephant or duck. I completed the task in several stages. Viz-

- 1) Observing how animals communicate within themselves and with humans and recording how humans interact with domesticated animals.
- 2) I tried to find out the conditions under which animals form relationships.
- 3) Generating scientific explanations behind those relationships.
- 4) Studying and correlating what researchers have previously said about it.

In Dinajpur, I chose Balagari village as the research site, and Jobra in Chittagong as my research areas. (Figure 01 goes about here), (Figure 02 goes about here). I concentrated my efforts on the following animal species (Table 01 goes about here). Health reports of those species are: (Table 02 goes about here)

The following equipment was utilized to record vocalizations, photos, and video clips, as well as to save data: a Samsung Galaxy M21 Smartphone, a Dell Laptop for verifying them, and a Samsung PC for putting the data into a Word File.

Results:

i. In dogs: One of the primary means of communication among creatures is through the use of body language, which encompasses colorful postures, gestures, and facial expressions that convey intentions and feelings. In the case of dogs, there are specific body language signals that indicate friendly intentions towards other dogs, such as a relaxed body posture, a wagging tail, and soft eye contact. Dogs also display collaborative actions, taking turns during play and sharing coffers without aggression or possessiveness. This collaborative nature fosters trust and strengthens the bond between dogs. Furthermore, I noticed that dogs establish their friendliness with humans through their constant sight and goodwill to guard their possessors from implicit pitfalls or perils. They engage in exercise with humans, similar to playing football or going for walks together. These observances were made in the Dinajpur and Chattogram areas. Though, in Dinajpur, a few groups of unaccompanied Doberman pinschers were set up to be largely suspicious of nonnatives and responded with chasing actions and barking. These dogs were repeatedly seen sleeping along roads, had a black fleece color, and displayed aggressive and biting tendencies. On the other hand, pet dogs or dogs kept in houses were observed to make adoring gestures, similar to licking, and to sleep near or in bed with their possessors at night. An intriguing observation was that dogs would incontinently lift their eyebrows, particularly the left brow, upon seeing their pet parents, which is considered a sign of affection according to a Japanese study (Miho Nagasawa et al., 2013).

ii. In cows: My experience is with domestic cows in Dinajpur and Rajshahi. I saw a cow interested in someone who would follow him around and shadow him to pursue affection or perhaps inquiry. Please do not mistake it for a greedy cow that may be used to you feeding them and following you after some spare. A cow following you in a tender manner will approach slowly and walk calmly ahead or alongside you. Cows love to be gentled by humans they trust, though they are cautious of any similar gesture from anyone they perceive to be a trouble to them. A good scrape behind their observance or annoyance on their head will please a cow and help grow the mortal bond. I constantly noticed how individual cows would come in quest of being gentled by walking up and rubbing their heads against me in the barn. Cows actually communicate in the herd by mooing, which is a basic thing. A happy cow that is used to mortal commerce will also communicate by mooing. It's a truly distinctive moo they use with us, where the tone is low and truly calm. This is due to the pleasure that mortal commerce brings to the cow. They come lightly to give themselves away in the abuse process, helping the owner they love. Also, in every disquisition area I saw, cows would use their speeches like humans use their hands. This proves that cows are social brutes; a cow's

lick is a tender way for her to accept you into her herd. They exercise this type of social grooming. On a dairy estate, I observed it and collected information from the dairy owner every time. Once a thigh is born, instinct kicks in, and the mother cow stands up directly and begins licking the thigh to drink it into the herd. Also, in some cows, I noticed that a cow that's comfortable enough to drop her guard may begin to play with her owner. It will do this by rubbing or nudging you with their head and displaying a generally provocative manner. This shows us the emotional lives cows live and the part we play in them as humans. I recorded a clip where, when walking to and from pasture, cows will pick their way to find the swish path for them, and the ultimate of the herd will maunder along in the same direction as it twists and turns towards the barn. It's a simple illustration of how mature people put their faith in herd leaders for all kinds of tasks. The habits they make without any mortal guidance or intervention are genuinely fascinating and show how significant their favored habits are in a cow's quotidian life.

The requirements and reasons: The formation of bonds between animals and humans is deeply rooted in evolutionary biology, where such associations are often underpinned by mutual benefits, adaptive advantages, or shared evolutionary history (Hare & Tomasello, 2005). For instance, the coevolutionary relationship between humans and dogs, characterized by mutualism and symbiosis, dates back thousands of years (Morey, 1994). Dogs provided humans with companionship, protection, and assistance in hunting, while humans reciprocated with food and shelter. This process is well-documented as an exemplar of mutualistic coevolution. Furthermore, the tameness and docility observed in many domesticated animals can be favored by natural selection when such traits increase the likelihood of obtaining resources from humans (Wilkins et al., 2014). Effective communication, such as dogs' understanding of human cues, contributes to the formation of these bonds. Dogs have evolved to understand and respond to human cues, such as gestures and vocalizations (Hare & Tomasello, 2005), enhancing their ability to cooperate and form strong bonds with humans. The capacity for emotional attachment, particularly in social species, further solidifies these connections (Herzog, 2007). These multifaceted factors have evolved over time, illustrating the complex interplay between animals and humans in shaping these remarkable relationships. After studying and assessing those three creatures, I came to learn about the needs they should consider before creating a link with people. To become friends, they must first understand who they are, i.e., identify their opponents among other people. Individual recognition may appear to be a given, but not all animal species have it, and evidence for some is lacking (Sheehan et al., 2014). Despite this, it is common in the animal realm, with instances in both vertebrates and invertebrates that employ visual, auditory, or olfactory cues, or a mix of these, to recognize individuals from one another (Tibbetts and Dale 2007). Then, if they find the opponent species behaving rudely or in a doubtful situation or find themselves disassociated from that individual for an extended period of time, they must reconsider the nature of that relationship as well as that opponent species. This is a questionable situation. Now, come to the fact of perplexity. There might be a variety of causes for the animal's perplexity, such as the opponent being an old foe whom the animal has forgotten. Many animals remember and understand the nature of their relationships with others because it might be dangerous if they start seeing their former opponents as pals. Some research says dogs can remember well (Karinna Hurley, 2017). There is a lot of evidence suggesting cows are capable of complicated learning as well as long-term memory achievement and have highly developed spatial and discriminative cognitive capacities. They have the ability to distinguish between complicated stimuli, such as homogenous and human (Marino, L., & Allen, K. 2017). Moreover, if the animals are not benefiting from the contacts or the friendships have no precise explanation, we may claim that neither the animals are benefiting nor is it a positive relationship. Again, it is likely that they will be injured or exploited in any duty indiscriminately by the opponent interspecies bonding possessor. It mostly depends on the species. The personalities of the partners with whom they build bonds are important. Knowing who your friends are, how they act, and who their foes are may all be beneficial.

Biochemical Mechanism: As noted before, fellowship appears to be controlled, at least in part, by emotion. The sentiments involved in amity not only have a behavioral and cognitive element but, like any emotion, also necessitate a certain physiological structure. Not unexpectedly, oxytocin (occasionally called the "love hormone") appears to play a major role. Oxytocin, mesotocin (the oxytocin homolog of amphibians, reptiles, and cats), or isotocin (the oxytocin homolog of fish) promote and grease aspects of social adhesion,

similar to trust and cooperation, in both humans(De Drue and Kret 2015) and other creatures(Young and Wang 2004). In addition, endorphins, which are involved in the price system, are released during certain social actions. Since these endorphins have a positive effect, this process can be an important driving force in the inauguration of cordiality (Keverne et al., 1989). In discrepancy, a lack of social contact may actually be stressful (e.g., Stocker et al. 2016). Avoidance and the associated high cortisol situations may constitute an elective cause for cordiality baptism. Ultimately, the combination of multicolored biochemical substances and their relations with each other play important roles in, for illustration, the perception of social stimulants and social memory but also in aggressive behavior (Brent et al. 2014). Social comity is a vital factor contributing to brute fellowship. Just as some people naturally gravitate towards certain people, creatures also show a preference for certain mates. This comity can be determined by factors like age, personality traits, and social scale within their separate species. Another important aspect is the interactional part. Numerous cases of brute amity are raised on a give-and-take basis, with both parties supporting and helping each other. This reciprocity strengthens the bond and ensures the relationship's uninterrupted existence. Interestingly, exploration has shown that animal fellowship can have a profound effect on a person's emotional well-being. Like humans, creatures experience positive feelings when they engage in social relations with their musketeers. These relationships can reduce stressful situations, increase overall happiness, and indeed ameliorate their chances of survival in certain circumstances. The wisdom behind beastly benevolence extends to the natural position. Research has revealed that social cling triggers the release of oxytocin, frequently referred to as the "love hormone," in both humans and other creatures. This hormone plays an important role in adding trust, empathy, and rapport between people, strengthening the foundation of their fellowship. Not only can figuring out the complexities of animal friendships increase our awareness of the wonders of the natural world, but it also provides clarity regarding the universal need for companionship and connection. Researchers are interested in learning more about the complexities of social behavior through the study of these bonds. Mental ability and empathy overcome racial and biological limitations. Understanding wildlife comfort reveals a wonderful blend of participation, emotional ties, and biological processes. These relationships, which cross species borders, provide us with a glimpse of the intense bonds that can develop between many creatures.

Communication processes: In my research areas, I observed and recorded that one of the most common forms of communication among animals is through body language. They use a combination of postures, gestures, and facial expressions to convey their intentions and emotions. For instance, a wagging tail in dogs signifies happiness and excitement, while flattened ears in cats indicate fear or aggression. These subtle cues allow animals to understand each other's moods and intentions, fostering a sense of trust and camaraderie. In addition to body language, animals also communicate through vocalizations. From the melodic songs of birds to the haunting howls of wolves, each species has its own distinct repertoire of sounds that serve various purposes. These vocalizations can be used to establish territory, attract mates, warn of danger, or even call for assistance. In the realm of animal friendships, vocalizations play a significant role in reinforcing social bonds and maintaining group cohesion. Interestingly, some animals have even developed specialized communication systems to interact with friends of different species (Massen et al., 2010). Furthermore, scent plays a crucial role in animal communication and bonding. Many animals possess scent glands that release pheromones, chemical signals that convey information about identity, reproductive status, and even emotional states. These scent cues can be used to recognize familiar individuals, establish group hierarchies, and convey social affiliation. In some cases, animals engage in mutual grooming, not only to maintain hygiene but also to exchange scents and reinforce social bonds. Communication in animal friendships goes beyond language barriers and species boundaries. Through a complex interplay of body language, vocalizations, scent, and specialized behaviors, animals establish deep connections with individuals from different species. However, humans communicate with them using some gestures, vocalizations or even talking in manly-voice; Noticed these things in the rural areas of the research areas.

Discussion: After conducting such research on two distinct animals in Dinajpur and Chattogram, I got to know the ways they communicate and how humans answer or command them to eat, enter the house, drink water, etc. Also, I understood the symptoms they bear to exhibit cordiality towards others and the

mechanisms behind the process of making friends beyond barriers. I got some clues about the requirements the animals could emphasize before forming a bond with interspecies beasts. I've written down the impacts of these friendships. Interspecies cordiality in creatures can have significant impacts on their emotional well-being, social skill development, and conservation skills. Those creatures have a unique capability to form deep and meaningful relationships with humans. They offer more than just a physical appearance; they offer emotional support, unconditional love, and a sense of belonging. Interacting with creatures can reduce stress and enrich overall internal well-being. Cross-species learning promotes social chops and expands the behavioral force. It's a relationship assembled around trust and collective affection. Children who grow up with lovely animals develop empathy, responsibility, and a lesser understanding of others' needs. When we offer them sanctum, food, and care, they give us their unvarying constancy, fellowship, and unconditional love. It's a symbiotic bond that brings bottomless joy and fulfillment to both parties involved. So, whether it's a wagging tail, a purring clinch, or a cheerful chirp, the bonding we make with our animals is truly extraordinary. They remind us of the essential connection between humans and creatures, transcending species boundaries and bringing us nearer to the natural world. Interspecies cordiality can ease social cohesion and cooperation, enhance survival rates, and maintain biodiversity. The growing fashionability of domestic or favorite pets in Bangladesh or Asia has led to the growth of the pet industry, creating employment openings and profit for businesses. Bangladesh is known for its beast-related lodestones, similar to wildlife sanctuaries, which attract callers from around the world. Beast welfare and protection are also emphasized in Bangladesh, with non-profit associations and beast harbors supporting diligence like pet inventories and veterinary services. Traditional drug practices, similar to barracuda bones and bear corrosiveness, have led to an economic blackout, affecting conservation efforts. Creatures are also used for transportation, husbandry, and labor, contributing to frugality through beast-concentrated ecotourism. Animal-assisted cure programs can enrich internal health and reduce healthcare costs, leading to an improved quality of life. I think these connections I observed in Dinajpur, Chattogram, or all over Bangladesh not only foster emotional connections but also significantly contribute to the region's economy.

Conclusion: In conclusion, exploring the intricate bonds of animal friendships allows us to appreciate the beauty and complexity of these relationships. Animals, like humans, have the ability to form deep connections and meaningful friendships with one another. From elephants forming lifelong bonds to dolphins showing altruism, these friendships remind us of the incredible emotional intelligence and social dynamics that exist in the animal world. By studying and understanding animal friendships, we gain insight into the many ways in which animals communicate, cooperate, and support each other. We witness acts of loyalty, empathy, and even self-sacrifice that transcend species boundaries. These friendships remind us that empathy and companionship can be found in unexpected places and that we are not alone in our need for social connection and emotional support. Furthermore, these animal friendships also highlight the importance of conservation efforts. As we learn more about the intricate bonds that animals form, we are reminded of the interconnectedness of ecosystems and the impact of human activities on these relationships. By appreciating and honoring the beauty of animal friendship, we are inspired to protect and preserve the habitats and environments that enable these relationships to flourish. Ultimately, the exploration of animal friendships allows us to expand our understanding of the natural world and the wonders it contains. It invites us to marvel at the depth of passion and connection that exists beyond our own species and to celebrate the bond that unites us all.

Funding: No funding was processed for this research.

Acknowledgement: All praise to the great Allah, who has given me the intelligence and ability to research this important topic. Being a one-man research team, I felt depressed, made mistakes, and stopped working, but Almighty Allah kept me safe each time. Words cannot express my feelings and praises to Allah. I also could not have undertaken this journey without learning to write a research paper through tutorials given at Halda River Research Laboratory in Dept. of Zoology, University of Chittagong. Additionally, this endeavor would not have been possible without the generous support of my elder brother and a fisheries researcher, Md. Ataur Rahman, who reviewed my article and encouraged me in my research too. I would be remiss in not mentioning my family, especially my parents and my younger sister Toiyba Khatun, my uncle, and my

aunt in Chittagong. Their belief in me has kept my spirits and motivation high during this process.

Conflict of Interest: The author declares no conflict of interest.

Reference:

- Brent, L. J. N., Chang, S. W. C., Gariépy, J.-F., & Platt, M. L. (2014). The neuroethology of friendship. *Animals*, 10(1), 43. DOI: 10.3390/ani10010043. PMID: 31878310; PMCID: PMC7022888.
- De Dreu, C. K. W., & Kret, M. E. (2015). Oxytocin conditions intergroup relations through upregulated in-group empathy, cooperation, conformity, and defense. *Biological Psychiatry*, 79, 165–173.
- Hare, B., & Tomasello, M. (2005). Human-like social skills in dogs? *Trends in Cognitive Sciences*, 9(9), 439-444.
- Morey, D. F. (1994). The early evolution of the domestic dog. *American Scientist*, 82(4), 336-347.
- Wilkins, A. S., Wrangham, R. W., & Fitch, W. T. (2014). The “domestication syndrome” in mammals: a unified explanation based on neural crest cell behavior and genetics. *Genetics*, 197(3), 795-808.
- Herzog, H. A. (2007). Gender differences in human–animal interactions: A review. *Anthrozoös*, 20(1), 7-21.
- Hatkoff, I., Hatkoff, C., Kahumbu, P., & Greste, P. (2006). *Owen & Mzee: The True Story of a Remarkable Friendship*. New York, Scholastic Press.
- Hurley, K. (2017). Your Dog Remembers Even More about What You Do Than You Think. *Scientific American Magazine Website*.
- Keverne, E. B., Martensz, N. D., & Tuite, B. (1989). Beta-endorphin concentrations in cerebrospinal fluid of monkeys are influenced by grooming relationships. *Psychoneuroendocrinology*, 14, 155–161.
- Marino, Lori & Allen, Kristin. (2017). The Psychology of Cows. *Animal Behavior and Cognition*, 4, 474-498. DOI: 10.26451/abc.04.04.06.2017.
- Massen, J. J. M., Sterck, E. H. M., & de Vos, H. (2010). A review of close social associations in animals and humans: Functions and mechanisms of friendship. *Behaviour*, 147, 1379–1412.
- Nagasawa, M., Kawai, E., Mogi, K., & Kikusui, T. (2013). Dogs show left facial lateralization upon reunion with their owners. *Behavioural Processes*, 98.
- Sheehan, M. J., Straub, M. A., & Tibbetts, E. A. (2014). How does individual recognition evolve? Comparing Responses to identity information in *Polistes* species with and without individual recognition. *Ethology*, 120, 169–179.
- Stocker, M., Munteanu, A., Stöwe, M., Schwab, C., Palme, R., & Bugnyar, T. (2016). Loner or socializer? Ravens’ adrenocortical response to individual separation depends on social integration. *Hormones & Behaviour*, 78, 194–199.
- Tibbetts, E. A., & Dale, J. (2007). Individual recognition: It is good to be different. *Trends in Ecology & Evolution*, 22, 529–537.
- Young, L. J., & Wang, Z. (2004). The neurobiology of pair bonding. *Nature Neuroscience*, 7, 1048–1054.

Tables and Figure Legends

Common Name	Region	Scientific Name	Number of the species
Indian Pariah Dog (Desi Kutta)	Both in Dinajpur and Chittagong	<i>Canis familiaris</i> <i>lupus</i>	5-8
Doberman Pinscher	Rajshahi	<i>Canis familiaris</i> <i>lupus</i>	6-7
Red Chittagong Cattle (Cow Breed)	Chittagong	<i>Bos</i> sp.	02
Sahiwal Cattle (Cow Breed)	Dinajpur, Chittagong	<i>Bos</i> sp.	03
Pabna Cattle (Cow)	Dinajpur, Bogura, Rajshahi	<i>Bos</i> sp.	03
North Bengal Grey	Dinajpur	<i>Bos</i> sp.	12-15

Table 01. Species details of the research in Bangladesh

Animal	Health Condition and Stage	Gender	Age (approximately)
Indian Pariah	Strong, Mature	Males and Females	8-11Years
Doberman Pinscher	Strong, Mature	Males	9 Years
Red Chittagong Cattle	Unhealthy and Healthy, Mature	Males	15 Years
Sahiwal Cattle	Healthy and Strong, Mature and Immature	Males	14 Years
Pabna Cattle	Unhealthy, Mature	Males, Females	15 Years
North Bengal Grey	Healthy and Unhealthy, Mature and Immature	Males, Females	13 Years

Table 02. Health Information of the species



Figure 01. Dinajpur Region, Balagari is situated near Rangpur and Gaibandha District

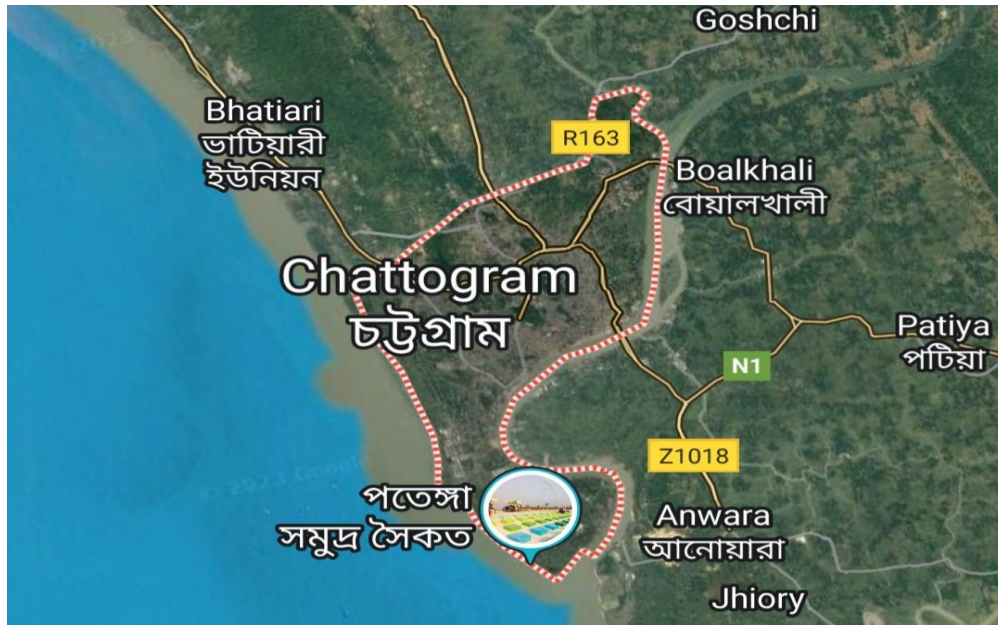


Figure 02. Chattogram region where second research was conducted, there in Hathazari