

Ben Finkelstein

Animal Behavior

Ethogram

## Study of Wolf Behavior

### **Abstract:**

I was a freshman when I wrote a term paper on the evolutionary changes between wolves and dogs. Ever since, I have been fascinated by the history surrounding this unique species. Thus when time came to decide an animal to study, wolves were the first things that came to mind. My father notified me of a conservatory specializing in wolf rehabilitation and reproduction not far from where we lived as soon my theoretical endeavor became a reality.

As I contemplated which observational methods to utilize, I remembered wolves' reputation for being remarkably social. Thus it dawned on me to record a sociometric matrix based on social interactions between captive wolves in their respective enclosures. While the largest grouping of wolves in an enclosure topped at only three, I found what I was looking for in the incredibly social pair that was the brother-sister combo, Zephyr and Alawa. Additionally, I recorded ab libidum sampling from the siblings as well as from a neighboring Artic Grey wolf named Atka. While the ab libidum proved to simply gather a taste for typical wolf behavior, my sociometric study brought me closer to the species than I ever could have imagined.

### **Introduction:**

The Animal Kingdom in its entirety offers our observational desires infinite varieties of species to study. While some trump others in terms of how interesting they may be,

Wolves to me have proven most valuable to study. Known primarily for their tendency to live in packs, Wolves (*canis lupis*) are one of the most communicative species on the Earth. Their trademark howls and cries serve a multitude of different purposes ranging from marking territory to announcing the location of a kill. However, the two main species of American wolves, the Red wolf and Grey wolf, have experienced times relatively recent from today in which they have struggled for survival.

Wolves are also the source of great controversy. Their aggressive nature towards potential prey, often livestock of nearby farmers, has brought infamy to the entire wolf race. For this reason, along with many others such as hunting, habitat decimation, and general eradication, have wolf populations slowly diminished. By 1970, natural Grey wolf populations existed only in two states within the continental United States.

However, in 1973, Congress initiated the Endangered Species Act thus helping revitalize natural wolf populations in America. As a result, thousands of wolves were reintroduced to the wild. Additionally, due to various predator control programs and said habitat destruction, red wolves were declared extinct in the wild after a recovery effort saw the capturing of the remaining 14 wild red wolves. By 1987, enough red wolves had been bred in captivity to re-release into the wild. While the number of wolves in the wild today remains relatively low at under just 10,000, the comeback they have made from virtual extinction is astounding. Since the endangerment of wolves became evident to the public, hundreds of conservatories both large and small have sprouted to help assure that crises like this never happen again to a species that means no harm.

Wolves are known for much more than their tendencies to eat your local farmer's favorite cow, however, as they also are the oldest and first ancestors of the domestic dog.

While it may be difficult to envision your miniature dachshund as once being a grey wolf, this is a fact of history.

Over the course of millions of years, wolves have slowly adapted to the presence of humans as they have evolved both mentally and physically to suit the needs of an average dog. Of course this change did not occur quickly, as the evolutionary differences between wolves and dogs took hundreds of thousands of years to complete. Some of the fundamental differences include differentiating size, snout length, jaw strength, and adaptive ability. Similarities between the two species, however, are evident. In addition to obviously similar appearance, dogs and wolves share most behaviors. Despite popular belief, humans did not craft the evolutionary change that prompted wolves' domestication, but instead wolves themselves altered their own behavior. This is among the most noticeable of any evolutionary change as the behavioral similarities between a household dog and wild wolves give us a glimpse at how wolves interact in the wild. With this in consideration did I make the decision to observe this species.

### **Methods:**

My decision to observe wolf behavior was in part due to my knowledge of the existence of the Wolf Conservatory Center located in South Salem, a town not far from where I live in Bedford. Founded in 1996 with the intention of assisting in the wolf population recovery process, the WCC has since stood as a keystone for all wolf conservationists in the area.

While the Center began initially with only three "ambassador" wolves, it has grown exponentially throughout the years and is now home to 21 wolves of various subspecies. Many of these wolves were born into captivity and cannot be returned to the wild, but

some have been acquired from natural circumstances. These acquired wolves are treated separately from those who are to be kept in captivity as they are to be reintroduced to the wild upon their readiness. Every wolf, contained either alone or with one or two other members of the same breed, is granted ample space within the boundaries of the property in which they are free to roam. Two of the wolves I observed (Zephyr and Alawa) lived within one plot as their being members of the same Canadian/Rocky Mountain Grey wolf litter deemed them compatible to share a space. Atka, on the other hand, remained alone in his. What sets aside wolves who are compatible to live with others from wolves who are selected to live alone is determined by behavior. Some show signs of aggression towards others while some, especially those born from the same litter, show signs of compatibility and even cooperation. Of course there is bound to be "sibling rivalry", but these sibling wolves are generally more behaved as a couple than those who may compete for dominance.

While the surroundings for the wolves are maintained, their diet is not. In an attempt to simulate real-life scenarios, WCC feeds their wolves local road kill based on a spontaneous schedule. This means that instead of feeding the wolves every Monday and Friday, the Center selects random days based on the amount of meat they have to offer. With this in effect, the wolves typically eat two days a week. Additionally to road kill, the Center obtains spoiled meats free of charge from gratuitous local groceries. All of these relatively unorthodox methods of caretaking are implemented in order for the wolves to display as natural of a variety of a behaviors as possible.

When I first arrived at the Center, it was a very chilly Saturday morning. While my initial plan was to spend two and a half hours at the center, the blistering cold winds and

impending freezing rain limited me to only an hour and a half. I was given the option of observing either a duo of red wolves, a lone red wolf, Zephyr and Alawa, Atka, or any combination of those just listed.. After observing all surrounding wolves, I concluded Atka's behavior to be the most interesting of any to gather Ab Libidum sampling data. The red wolves appeared to be far too skittish to gather sufficient data for my sociometric matrix, however, upon arriving at Zephyr and Alawa's property, I was taken aback by their immediate interest in my presence. Thus I selected the two of them to gather information on regarding my matrix. While my presence undoubtedly altered their regular behavior, this was perhaps for the better as part of my goal was to instigate behaviors otherwise absent in ordinary encounters.

While my observation methods were relatively standard, the information I gathered proved to be an accurate representation of their behavior. I was encouraged to only dedicate one hour to my ab libidum sampling due to its possible repetitiveness. This repetitiveness was evident within 10 minutes of observation. What ab libidum sampling calls for is a constant scrutiny of any behavior, not matter how miniscule, performed by the animal. This behavior could range from standing, to howling, to eating a cheeseburger; if it occurs, it counts. Thus the repetition comes into play when the wolf I observe decides to take a 15-minute power nap. Now having deducted one of my five hours of observational study, I now was faced with the task of dedicating the remaining four to sociometry.

As I headed towards the property in which Zephyr and Alawa (the Rocky Mountain Grey wolf siblings) resided, I anticipated their interactions to be not only abundant alone, but to be entirely amplified based on my presence. What I got instead was 4 broken hours of random behavior, but that is a story for the results section. What a sociometric matrix

embodies is a constant noting of social interactions between a group of animals. These interactions may range from nudging to fighting, as long as one member of the group initiates the action. One loophole of the matrix design is that as an observer, one is allowed to initiate interactions themselves (i.e. throwing a stick into the pen and watching them fight [hint hint]). Thus a sociometric matrix is as easily manipulated by the observer as by the actual interactions the animals have themselves.

While I observed during seemingly optimal study hours, my distraction faded every now and again. This occasional lack of focus may have contributed to a few missed observations and/or perhaps other hastier ones. In terms of animal error, however, there did not appear to be such occurrences as nothing abnormal took place during my observational hours.

### **Results:**

I entered my five-hour observation period skeptical of the data I was about to receive. I understood how unpredictable wolf behavior was, and tacking on five hours to this possibly daunting possibly slightly interesting activity seemed unfavorable. Thus when it came to dedicating one hour to ab libidum, I divided the time in 30 minute intervals between Atka, and Zephyr and Alawa. Unfortunately, what I observed in Atka was just what I dreaded.

When I walked over to Atka and set my time to 30 minutes, he was immediately exhibiting interesting behaviors as instantly my fears of a dreadful 30 minutes vanished. Whimpering like a dog begging for food at the dinner table, Atka stood, all four feet in contact with the ground thus hoisting him above it, not three feet from the fence seemingly

avoiding eye contact with me. While of course I understand eye contact to be a sign of aggression among wolves, I took Atka's lack of this as a sign of friendliness.

A beautiful Artic Grey wolf, Atka stood about the height of a very large German Shepard and had a snow-white coat. After impressing me with his persistent whimpering (the emitting of a high pitched whine from the mouth) for approximately four minutes, Atka walked (moved one foot in front of the other) closer to the fence and began licking (touching objects with his tongue) a small plastic crate located adjacent to the fence. Whether Atka's decision to lick a plastic crate was based on taste preference or simply showing off was unknown to me as he then began to lick a bucket filled with ice. This appeared to be more for Atka's personal entertainment as this behavior continued for a few more minutes before he stood, right flank facing us, by the fence. After handing us a fine display of his furry coat, the Artic wolf proceeded to walk away from the fence towards a spot of dirt nearest a small pool of water located 10 feet from the fence. He stood over this spot and promptly laid, stomach down and chest facing us with the intention to sleep, on the ground.

The behavior that followed was something I had been waiting to witness the moment I stepped through the gates of the Wolf Conservation Center. Upon the caretaker's prompt, Atka released the most fearsome howl (elongated noise emitted from vocal chords) I have ever encountered. I recorded 14 howls, and with each deafening burst did every wolf on the property respond with a chorus of howls. Too astounded to record immediately, I stood in awe as Atka and company howled over and over. After all was howled and done, Atka rose from his dirt patch, walked over to the fence and once again

began licking the ice bucket. Not long after Atka's renewed interest in licking ice did he return to his same dirt patch, lay down in the same position, and go to sleep.

I now began to worry of the apparent repetitiveness in Atka's behavior as his slumber lasted for an additional five or six minutes. It was not until Zephyr, one of the wolves in the neighboring plots, wandered (used his legs to move) close to the edge of Atka's fence. Whereas I expected an interesting reaction to this, Atka simply whimpered as he did when I first saw him. Not long after the whimpering did Atka scratch the left side of his neck with his rear left leg, similarly to the way a dog would. Suddenly, nearby birds chirped out to each other and roused Atka's attention. He perked up his ears (an action in which the ears point upwards) once more and turned his head side to side as he once again rose from his sleeping spot and again paced towards the fence. He then appeared to enjoy the feeling of rubbing against the fence as he began pacing side to side rubbing both his left and right flank against it.

As my time with Atka drew to a close, he finished his behavioral endeavors by displaying to us a glance of at his speed. He took from his rubbing spot on the face to a jog (a brisk walk) across his property and swiftly out of sight. As 30 minutes with this graceful abruptly ended, I made my way down towards the plot that enclosed the siblings Zephyr and Alawa.

The sibling wolves proved much less interesting and active to me as Atka had. I noted this instantly as the first behavior they exhibited to me was sleep. As I walked down the slippery staircase towards their land plot, Alawa and Zephyr we're no longer jubilant at the presence of a stranger, but instead tired. They slept near each other, a behavior I noted as rather significant. While Alawa slept similarly to the way Atka did: stomach down,

Zephyr slept more casually with his left side down and right facing the sky. It was not until I, with the intention of slightly instigating arousal, walked over to the fence that they stirred from their sleep to react. Immediately, they both perked their ears and opened their eyes in perfect synchronization as they acknowledged my presence. Apparently my presence was not enough to arouse Alawa further, as she promptly lay her head back down and returned to sleep, but Zephyr on the other hand showed some unexpected interest. After scratching (using his claws to itch a particular area) the right side of his neck with his rear right leg, Zephyr hopped up (stood up quickly) and walked towards me. I noticed that Zephyr's eyes were fixated on me, thus indicating his aggressive intentions. As my nerves began to catch up with me, Zephyr began to walk up the hill of his plot towards Atka. While these actions and behaviors numbered few, I caught a slight glimpse of the social interactions not only between Alawa and Zephyr, but between wolves not even placed in the same property. Thus I entered my sociometric study with immense optimism.

Having organized my data by which wolves initiate whatever interaction, I began first by observing Alawa and Zephyr and noting the interactions between them. However, for the first time period I focused more intensely on the interactions caused by Zephyr. The first behavior that I noted was a rather interesting one. Instead of occurring between Zephyr and Alawa, Zephyr instead responded to a howl initiated by Atka in the neighboring plot. This howling, fascinating at first, became rather annoying with the tenth or eleventh occurrence, but not long after did social interactions between Zephyr and Alawa begin. Alawa had just urinated (released waste fluid from an orifice) on a nearby patch of grass when not long after did Zephyr walk over to sniff (inhale air through the nose in order to identify scent) it. While I am not sure the significance behind this behavior, it is

undoubtedly somewhat a social interaction. After 15 minutes of virtually no social action whatsoever, I decided to intervene. After throwing a particularly tempting stick over the fence enclosing the property, Zephyr and Alawa both bounded towards it. It was Zephyr, however, who bared his teeth (stretched his lips upward) and growled (low, throaty noise emitted from mouth) and snarled viciously at Alawa. While Alawa growled in response, it was obvious that Zephyr held the hierarchy among the two. This was potentially in part due to him being male and Alawa being female. I attempted this intervention a few more times in order to test my hypothesis of Zephyr's dominance and each time did I record the same conclusion. After my third stick throw, however, it appeared that Zephyr had had enough of Alawa's interest in the stick, as he initiated a ventral-ventral confrontation and bared all of his vicious looking teeth. It was after this encounter that I decided I had thrown enough sticks. Unfortunately, the bullying did not stop there. As the caretaker neared the fence with a bucket full of treats, both Zephyr and Alawa reacted immediately; showing signs of almost puppy-like behavior. But when the caretaker raised one particularly tasty slab of raw meat to the fence, it was Zephyr who tackled (used his body to aggressively move another) Alawa out of the way in order to obtain the treat. This persisted for the remainder of the treat giving. Eventually, other insignificant encounters between the two, such as the occasional nudging (unintentionally bumping into) or brushing, signaled me to switch to observing Alawa's instigations.

Initially appearing the inferior wolf, a majority of Alawa's behaviors were influenced by or directly correlated to Zephyr. Although she initiated one lackluster growl during the treat ceremony, she actually tailed (followed close behind) Zephyr wherever he went. Not long after I first began observing the pair did I notice that wherever Zephyr paced, whether

it be flanking the fence or in any which direction, Alawa would follow in almost identical fashion. This continued even when Zephyr drew out of sight up the hill that connected their plot with Atka's. After following the pair up this hill, they responded almost immediately by pacing back down, one after the other, just the way they had originally gone up.

As my patience began to grow thin, Atka released yet a howl. This time, Zephyr and Alawa reversed roles. While Zephyr simply stood unphased by the call, Alawa threw back her head and howled in response. In intervals, she whimpered as Atka had when I first observed him. Thus it was interesting to see a rather negative reaction to an otherwise incredible stimulus. After this, interactions between the siblings became rather friendly and almost nurturing. A couple times did I notice Alawa walking behind Zephyr, seemingly attempting to sniff his tail. On another occasion, I noticed the two standing side by side and appearing to almost press themselves against each other. I took these gestures as friendly for two main reasons: the first being the clearly visual tenderness of the actions, and the second being the fact that they embodied something other than aggression.

Not long after these concluding behaviors did the ideology strike me that I need not only study wolves located in the same plot, but instead those who might have any contact with each other at all. Thus I began to research the interactions initiated by Atka. Despite his existing in separate living spaces from the siblings, Atka held a clear influence over their actions and connecting behaviors between the three were evident.

While of course the interactions between the three wolves were limited due to their respective confinements, this did not limit their ability to socialize. In fact, this separation may have in fact amplified such an ability. While Atka's primary social contribution was initiating every howl (even at the expense of my intervention), he also displayed a curious

whimpering when Zephyr and Alawa approached his enclosure, a whimpering similar to when I first observed him. These couple of actions were the only ones Atka managed to use to communicate with the others by. Although it was limited, his display of socialization opened new doors for me.

### **Discussion:**

Throughout the entirety of my observations, all three wolves exhibited behaviors I thought typical of wolves to conduct. The occasional prance, growl, or howl were all things I had anticipated from the wolves. What I did not anticipate, however, were their social interactions. I had known that wolves were characterized as one of the most social animals on the planet, but to the extent of which they displayed this was unknown to me.

Having no prior knowledge to the way wolves actually conducted themselves in the wild, it was perhaps an inaccurate representation of their abilities to observe them in captivity. I was told prior to my arrival that Zephyr and Alawa were relatively tolerate of each other, but that they occasionally had flares of “sibling rivalry”. Such a rivalry was apparent in the exchanged growls and shows of teeth between the two, but what I did not know was that these were more than simple displays of aggression, but instead a test of dominance.

In accordance with L. David Mech’s *Alpha Status, Dominance, and Division of Labor in Wolf Packs*, Every pack has both an alpha male and alpha female (Mech 1). While Mr. Mech’s data was based on various observations of wild wolf packs, it was clear to see a hierarchy forming among the wolves at the Center. What now dawns on me is the fact that

while Zephyr maintained a “bully” role over Alawa (growling at her sticks and what not), Alawa did not completely submit.

Although few, there were occurrences in which Alawa retaliated with a growl or display of teeth of her own. This retaliation signified that Alawa was not inferior, but instead perhaps on equal ground as Zephyr considering Mech’s hypothesis. Thus, if taking into conclusion Mech’s ideology, Alawa was not inferior to Zephyr, but instead the alpha female along side the alpha male. Whether or not Alawa and Zephyr are genetically alphas, or whether their isolation together caused them to adapt the role, Mech’s conclusion appears to be correct in this circumstance regardless of the fact that these two wolves are in captivity.

What captivates me further is Atkas’ apparent submission to anyone, wolf or man, who approaches him. Whether it was me, the caretaker, or Zephyr, Atka released a soft whimper whenever any of us drew near. Though he did initiate virtually every howl session, I interpreted this whimper to be a symbol of inferiority.

As my time at the Wolf Conservation Center drew to a close, I reflected on my time as one of sympathy towards these wolves’ way of life and how fortunate I was to catch a mere glimpse of it.

**References:**

<http://animals.nationalgeographic.com/animals/mammals/wolf/>

<http://www.sierraclub.org/habitat/esa/gray-wolf.aspx>

<http://nywolf.org/our-wolves/ssp/red-wolves/134-red-wolf-history>

[http://www.pbs.org/wgbh/evolution/library/01/5/l\\_015\\_02.html](http://www.pbs.org/wgbh/evolution/library/01/5/l_015_02.html)

<http://nywolf.org/about/history>

Bergstrom, Bradley J. "Endangered wolves fall prey to politics." *Spore* 1098 (2011): 1106.

Clutton-Brock, Juliet. "Origins of the dog: domestication and early history." *The domestic dog: Its evolution, behaviour and interactions with people* (1995): 7-20.

Mech, L. David. "Alpha status, dominance, and division of labor in wolf packs." *Canadian Journal of Zoology* 77.8 (1999): 1196-1203.

Fentress, John C., et al. "12. A multidimensional approach to agonistic behavior in wolves." *Man and wolf: advances, issues, and problems in captive wolf research* 4 (1987): 253.

Mech, L. David. *The Wolf: The Ecology and Behavior of an Endangered Species*. Garden City, NY: Published for the American Museum of Natural History by the Natural History, 1970. Print.

**Appendices:**

**SEE ATTACHED**