National Park Service
U.S. Department of the Interior

Denali National Park and Preserve

# 2025 Annual Wolf Report

DENALI
Wolf Project

**On the cover, left**: Wolf tracks on the East Fork River. *Photo credit J. Neville.*

**On the cover, right:** Wolf tracks on the McKinely River. *NPS Photo/Klauder*

# Contents

A wolf hunts for ground squirrels. *NPS Photo/Kirby*

# Background

Wolves are one of six keystone large mammal species in interior Alaska, along with grizzly bears, black bears, moose, caribou, and Dall sheep. Wolves are important to people and to the ecosystem as a whole. As a top predator, wolves may play a key role in influencing ungulate populations, such as caribou. This may also influence vegetation patterns and promote species diversity .

Wolves are found in all three parks of the Central Alaska Monitoring Network (CAKN): Denali National Park and Preserve (Denali), Yukon-Charley Rivers National Preserve, and Wrangell-St. Elias National Park and Preserve. Indeed, wolves are specifically identified in the enabling legislation and management objectives of all three CAKN parks.

This report summarizes efforts to monitor wolves in Denali National Park and Preserve through December 2025. The main goal of monitoring is to track how many wolves there are and where they're moving. However, a variety of additional data is obtained in the monitoring process. This information can help future wildlife management and research, and can also help develop scientific models of predator/prey systems.

For example, scientists use data obtained from wolf monitoring to help protect wolf dens as part of the Denali Wolf-Human Conflict Management Plan. In heavily visited portions of the park, managers want to know where active wolf dens and rendezvous sites (pup rearing areas) are so that they can be protected from disturbance.

Additionally, data on the genetic, physical, and immunological characteristics of wolves, obtained in the course of wolf capture, will be important in evaluating long-term changes in wolf populations in Alaska.

Information gathered through wolf monitoring can also help scientists determine whether the park packs are being impacted by activities happening outside of the parks, such as intensive wolf harvest or wolf control.

Wolf tracks. *NPS Photo*

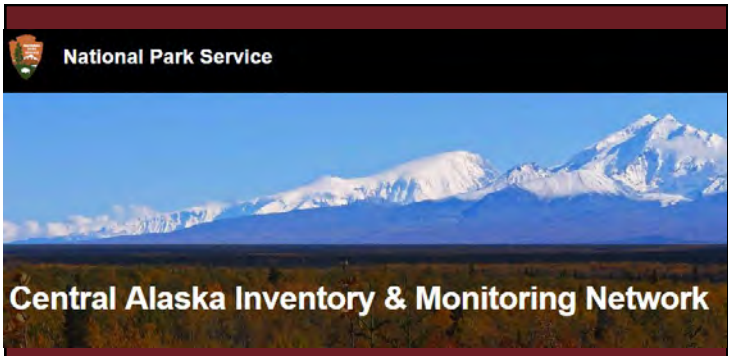
Wolves are important to people in Alaska. Some value the opportunity to hunt or trap wolves while others value their existence or the opportunity to see a wolf. Wolves are of great significance to Denali's visitors because of the exceptional opportunities to view wolves in Denali. The unique long-tenured research project in Denali allows scientists around the world to understand how wolves live in a relatively intact ecosystem, and will be invaluable for years to come.

Park-wide monitoring of wolves in Denali was initiated by Resource Management Ranger John Dalle-Molle in 1986, with principal investigators L. David Mech and Layne Adams. Field work and project management from 1986 to 2016 was conducted by Dr. Layne Adams, Dr. Steve Arthur, Dr. Bridget Borg, John Burch, and Tom Meier. Beginning in 2017, Dr. Bridget Borg oversaw the program, and field work and program support was conducted by biological technician Kaija Klauder.

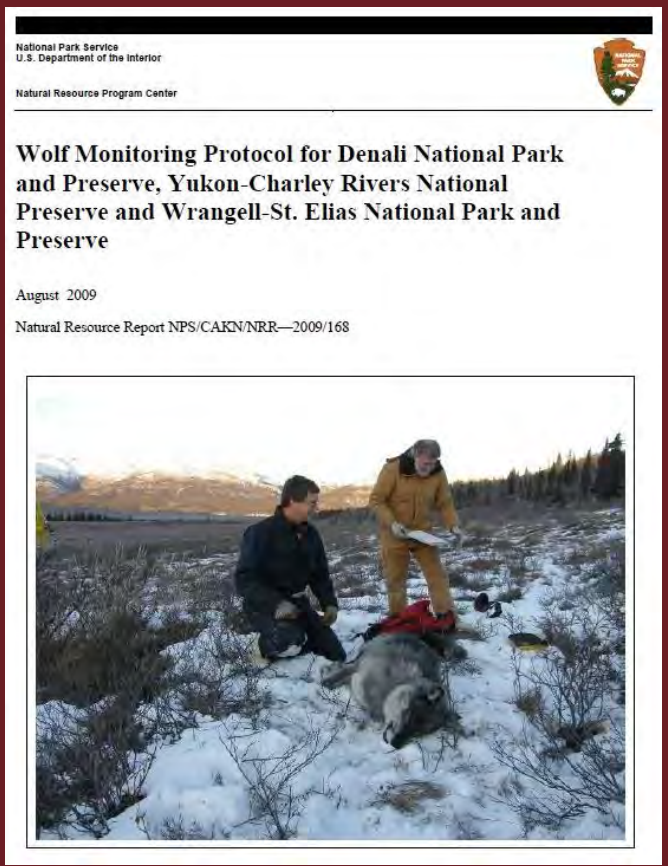
# Wolf Project Goals

**Wolf research and monitoring in Denali occurs annually to meet the following measurable objectives:**

- Capture and radio-collar 1-3 individuals in each wolf pack identified in the study area.
- Determine the demography (numbers, colors, age structure) of monitored wolf packs.
- Obtain genetic samples from captured wolves.
- Determine pack size for each collared pack in fall (early winter) and spring (late winter).
- Detect pack extinction and pack formation events in the population.
- Locate non-radio-collared wolf packs on Park and Preserve lands using aerial snow tracking.
- Detect changes in wolf density, pack size, and home range size over time.
- Monitor and detect changes in the physical, immunological, and genetic makeup of the wolf population over time.
- Investigate the effects of wildlife management activities on the natural and healthy character of wolves in Denali.
- Investigate the biological and social characteristics of wolf viewing by visitors in Denali, and factors that may affect wolf viewing opportunities.




The 2009 wolf monitoring protocol, one of the first protocols approved for the Central Alaska Network's Inventory and Monitoring Program, identifies the long term monitoring objectives for Denali's Wolf Project . It also lays out procedures that parks use to collect the data.


National Park Service
U.S. Department of the Interior

Natural Resource Program Center

**Wolf Monitoring Protocol for Denali National Park and Preserve, Yukon-Charley Rivers National Preserve and Wrangell-St. Elias National Park and Preserve**

August 2009

Natural Resource Report NPS/CAKN/NRR—2009/168

# 2025 Summary


In 2025, we monitored 15 wolf packs in and around the Denali study area and captured and collared 11 wolves during two capture efforts, including 2 recaptures of wolves collared in previous years to replace aging or failed collars. 17 aerial tracking bouts were conducted to observe wolf pack locations, obtain pack counts, locate den sites, and provide estimates of pups produced. Information from these flights also documented wolves feeding at kills 13 times, comprised of 6 caribou and 7 moose. In spring 2024, 46 wolves in 11 packs resided in the study area, for an estimated population of 50 wolves. There was evidence that 9 out of 10 packs regularly monitored during denning season denned in 2025. Two of those packs failed to recruit any pups, the remainder recruited 26 pups. 10 collared wolves (residents and dispersers combined) died in 2025: 5 were harvested, 3 died of natural unknown causes, and 2 starved. In fall 2025, 61 wolves were counted in 10 packs within the study area, for an estimated population of 66 wolves. See territory map (page 9) for Spring 2026 estimates.

In addition to addressing our long-term monitoring goals, the Denali Wolf Project worked with multiple collaborators on several research projects.

# Reproduction and Mortality

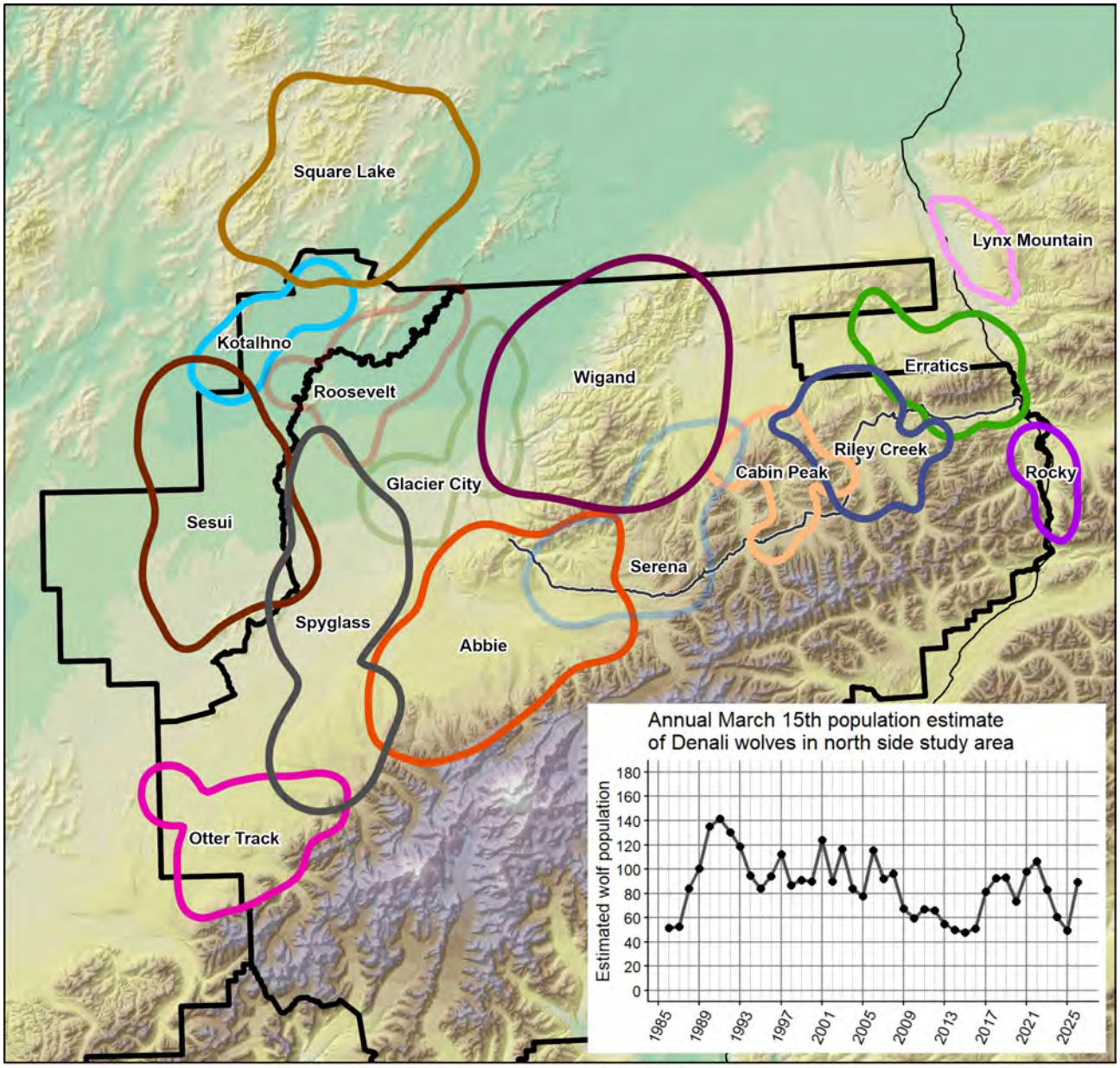
**2025**

| | Spring Pack Count | Fall Pack Count | Reproduction | | Mortality | | |
|---|---|---|---|---|---|---|---|
| **PACK** | | | **Denned** | **Fall Pup Count** | **Natural** | **Human-Caused** | **Description** |
| **Eastern Region** | | | | | | | |
| Erratics | 2 | 2 | no | | | | |
| Cabin Peak | NA | 5 | | | | | |
| Lynx Mountain† | Unk | Unk | yes | 5 | | | |
| Riley Creek | 9 | 11 | yes | 5 | 1 | 2 | 1 starved; 2 dispersers har- |
| Wigand | 1 | 2 | No | | | | |
| **Western Region** | | | | | | | |
| Abbie | 8 | 12 | yes | 4 | | 1 | 1 disperser harvested |
| Bearpaw† | 0 | | | | | 1 | 1 harvested |
| Square Lake† | | Unk | Suspected | Unk | | | |
| Glacier City | 3 | 0 | Suspected | 0 | 2 | | 1 starved, 1 natural un-known |
| Kotalhno | 3 | 3 | Unk | | | | |
| Roosevelt | 2 | | Suspected | 0 | 1 | | 1 natural unknown |
| Serena | 3 | 4 | Yes | 1 | 1 | | 1 natural unknown |
| Sesui | 7 | 9 | yes | 5 | | | |
| Spyglass | 2 | 4 | no | | | | |
| Otter Track | 6 | 9 | Yes | 5 | | | |
| **TOTALS*** | **46** | **61** | | **25** | **5** | **4** | |

*These numbers are not considered official population counts and may differ from official counts due to existence of lone wolves, dispersers, etc. Please consult https://www.nps.gov/dena/learn/nature/wolf-research.htm#wolf-population-data for official population figures.

†Resided outside of the study area

# Spring 2026 Population Map




**Study area wolves observed March 2026: 68 wolves in 10 groups**
**(Square Lake and Lynx Mountain majority outside study area).**
**Population estimate north side: 89 wolves**
**Home ranges based on locations from April 1, 2025 - March 31, 2026.**

Pack name (Pack size as of 3/15/2026)

- Abbie (12)
- Cabin Peak (5)
- Erratics (3)
- Glacier City (0)
- Kotalhno (5)
- Lynx Mountain (unk)
- Otter Track (11)
- Riley Creek (11)
- Rocky (4)
- Roosevelt (0)
- Serena (0)
- Sesui (11)
- Spyglass (4)
- Square Lake (unk)
- Wigand (2)

# 1501GM — Rising from the ashes

Kaija Klauder

The lives of wild wolves in Denali are enigmatic. It's difficult to know what they experience outside our occasional glimpses of them during monitoring flights. There is no doubt that the life of every wolf involves risk, excitement, family bonds, and pivotal moments that can make – or break – their future success. Sometimes, we are lucky enough to gather enough information that a wolf's life story begins to take shape. 1501GM (GM standing for "grey male") was one such wolf. He was first collared in 2015, the year I arrived in Denali. His story stands out to me as one of perseverance, drama, and a combination of skill and luck that I might even call charisma.

In many cases, we don't know much about a wolf before they were captured. But in his case, we can use a combination of genetic and pack count data to piece together the first years of his life. Using genetic samples collected from collared wolves over time, we have been able to create a detailed pedigree or "family tree" showing how wolves are related to one another. Thus, we know that 1501 was born to Grant Creek leaders 0719BF and 0811GM in 2011. These were illustrious parents. 0719BF lived to be seven and was thought to be a breeder for five seasons. 0811GM lived to be nine or ten and was thought to be a breeder for six seasons. Both of these exceed the average lifespan and breeder tenure for Denali wolves, suggesting they possessed skill and wisdom.

The years between the birth of 1501GM in 2011 and his first capture in 2015 were a tumultuous time for the Grant Creek pack. In the spring of 2012 , the pack numbered 15 strong. But his mother 0719BF died in May. After this loss the pack began to fragment, which is not uncommon after the death of one of its leaders (Borg et al., 2015; Cassidy et al., 2023). It seems likely that 1501GM dispersed following the death of the pack matriarch. How can we know this when he wasn't yet collared? By February of 2013, the pack was down to only three members: 0811GM, and two uncollared greys. One was collared in March and proved to be female; she quickly dispersed and was harvested outside the park. Now down to just two, 0811GM and the other grey denned and produced pups in May of 2013. Clearly this companion was a female. She was collared in March of 2014 and given the number 1404GF. Unfortunately nothing is known about this new female's origin, and genetic testing could not be completed. So it is clear that 1501GM was not with the pack at this time. The union of 1404GF and 0811GM revived the Grant Creek pack, which grew to seven by spring 2014. The now elderly 0811GM died that summer of unknown natural causes, not long after his ninth birthday – a remarkably long and successful life. Following his death, 1404GF and a few other yearlings/adults nurtured two pups that survived to the fall of 2014.

The death of 0811GM opened up a vacancy for a breeding male in the pack. Into that vacancy, we deduce, returned 1501GM. When exactly did he return, and what had he been doing between

fall 2012 and spring 2015? Perhaps he traveled alone, or tried unsuccessfully to start a pack elsewhere. What we do know is, by March 2015 he was traveling with three other wolves in the Grant Creek pack again. We collared him at that time in the Windy Creek drainage on the south side of the Alaska Range. He was assessed as being almost four years old, and a possible breeding male. He weighed a hefty 113lbs, and was noted as having a scar on his nose and a cut on his tongue. The GPS location data from that summer revealed he faithfully attended the pack's den in the summer of 2015, supporting our designation of breeding male.

1501GM in March of 2015. *NPS photo*

He was collared with a special collar designed to sense motion in three planes, which can be used to identify what the wolf is doing – resting, walking, running, feeding, etc. The high resolution motion data helped reveal that wolves expend more energy – both by moving more, and moving faster – during the pup rearing and recruitment seasons, and that deep winter snow and high summer temperatures are associated with reduced movement (Bryce et al., 2022). Because of higher demand on the battery, the collar could only run for about six months. Consequently, he was recaptured in October of 2015, and the collar was replaced with a conventional monitoring collar. His weight in October was a robust 115lbs.

2015 and 2016 were good years for the Grant Creek pack. Their massive territory spanned the Alaska range, stretching from Windy Creek and Broad Pass in the south and along the East Fork and Toklat drainages into Wigand Flats to the north. In 2015 they denned on the East Fork, where 1501GM himself had likely grown up. Seven pups were observed although only two survived into the fall. In 2016 two females whelped (1404GF and an unknown other), and 1501GM was kept very busy commuting roughly 20 miles over the crest of the Alaska range between one den on the on the north side on the East Fork river, and another on the south side on a tributary of the upper West Fork of the Chulitna. That year, a total of 12 pups were observed between the two dens, of which six survived into the fall. By the fall of 2016 the pack had grown to 12 strong: six adults and six pups. At this point, 1501GM had achieved what every wolf strives for: find a mate, produce pups, and pass on his genes.

However, trouble was brewing to the north. The neighboring Riley Creek pack was also gaining strength – and ambition. Their leader was a tenacious female, 1202BF. Her pack was also

# 1501GM continued

large, and had many mouths to feed: at least six adults and eight pups. Her story has gained a rightful place as its own epic in the annals of Denali wolves (see the *2018 Annual Wolf Report* and documentary *A Good Wolf* for a telling of her incredible life and death). Her successful leadership echoed that of her older brother: 0811GM, 1501GM's father.

Despite their relatedness, when Grant Creek and Riley Creek packs clashed in December of 2016, 1202BF showed no mercy to her nephew's pack. Based on GPS locations, the packs first encountered each other on Sable Pass, near the territorial boundary. Although we don't know the details of this encounter, Grant Creek quickly retreated west, into the heart of their territory. This should have been enough to leave Riley Creek behind. But in a matter of hours, Riley Creek began to pursue, trailing Grant Creek for 20 miles through Grant Creek's own territory. Was Grant Creek aware that they were being followed? We can't know. In less than two days, Riley Creek caught up to Grant Creek in the Stony drainage near an old moose kill. There, a massive fight ensued that left the snow heavily trampled down with wolf tracks for a quarter mile along the drainage. Left dead in the snow were Grant Creek matriarch 1404GF, and 1602GF, the daughter of 1404GF and 1501GM. 1404GF had been deliberately buried in scraped up moss and snow, and on both females one front leg had been severed from their bodies – on 1404GF the left, and on 1602GF the right. This grisly signature we attribute to 1202BF, as it was repeated two years later when she alone killed another female and removed her right foreleg.

1501GM and the remaining Grant Creek pack members fled, rushing back over Sable and the high snowy passes of the Alaska Range, completing the 15+ mile traverse from Sable to the middle reaches of the Bull River on the south side in 12 hours of December darkness. Riley Creek had never before ventured south of the range, and Grant Creek might have felt they were safe. Ominously, 1202BF and Riley Creek continued to pursue – trailing Grant Creek to the Bull River, then east to Cantwell, likely encountering Grant Creek again near the mouth of Windy Creek, causing Grant Creek to do an about-face and run west into Broad Pass. Finally, Riley Creek headed north, back to their own territory. After four days of pursuits and fights, it was over.

We don't know exactly how many uncollared wolves in either pack were also injured, killed, or permanently separated from their pack during the chaotic escapes. However, Riley Creek's pack counts remained at 12 or more, suggesting no losses from their pack. Grant Creek was not so fortunate. While we can only speculate what 1501GM or the others experienced and felt during this time, it was objectively a huge blow to the Grant Creek pack. From a pack of 12, the next monitoring flight found 1501GM with only one other wolf. By the following flight he appeared to be with three, who all appeared to be pups. The pack was shattered. For most

wolves, this would likely have been the end of their story. But not, as it turned out, for 1501GM.

He stayed on the south side of the Alaska Range for about three weeks, then in January 2017 headed north, moving purposefully across the Alaska range, straight through his former territory (in which Riley Creek were now making themselves comfortable) and into the territory of the tiny McKinley Slough pack, consisting of just two wolves. 1501GM had never traveled to this area since being collared. Perhaps he had during his younger years? We can't know. A single day after arriving in the territory, his locations showed him with resident breeding female 1402GF. 1402GF was first captured well into adulthood, making age estimations slightly less certain, but we believe she was born in 2009, making her already almost eight years old – a time when the lives of most wolves are winding down. 1402GF traveled alternately with 1501GM and her mate 1306GM for several days, until 1306GM moved to the western part of the territory and stayed separate. A week later, 1402GF and 1501GM were together for good.

Did 1501GM drive away rival male 1306GM? 1306GM was behaviorally male but in fact a hermaphroditic wolf, which is why the pair had no pups (see *Denali Wolf Annual Report 2017* and Borg et al., 2024). 1306GM died within a month from a deep and infected penetrating abdominal wound – not the kind likely to be sustained from a wolf fight. Did 1501GM somehow detect this opportunity to easily usurp a breeding male? Was 1402GF more prepared to abandon her mate if he were already injured? GPS locations don't allow us to answer these questions. However it happened, barely a month from the death of his mate and loss of most of his pack, 1501GM found himself once again a territorial male with an experienced mate – akin to winning the lottery twice.

It's not certain if any of the former Grant Creek pack members made the territorial transition with 1501GM, but multiple sightings in early 2017 showed 1501GM and 1402GF with a third wolf, who we presumed was also from Grant Creek. Accordingly, we decided to continue calling the group Grant Creek, even though they remained in the traditional McKinley Slough territory centered in the Wigand Flats. Despite being together during breeding season, the pack showed no evidence of denning in 2017. However, by the fall the pack had grown to five, and the additional wolves were not pups. It is unknown where these additional members came

1501GM in March of 2018. *NPS photo*

# 1501GM continued

from, and not all of them seemed to linger. By spring 2018 the pack was back down to three. The most consistently seen third wolf was a small individual who was tannish in color and presumed to be female. We recollared 2501GM in March, and he weighed in at 108lbs. He was missing many incisors and had additional scarring on his face, including a large healing wound on his forehead above his left eye.

1501GM 's head injury in March of 2018. *NPS photo*

The pack denned in 2018 and produced a litter of seven pups (perhaps the first pups for nine-year-old 1402GF), all of which survived through fall, boosting the pack size to ten. Another good year followed: five pups recruited in 2019, and a fall pack size of 14. We assumed that 1501GM was getting a second chance at fatherhood. But there's a twist: of the three wolves we collared who were born into Grant Creek during this time (1812GM, 1906GF, and 1915BF), genetic analysis showed that although 1402GF was their mother, 1501GM was not their father. So who was? We don't know. Evidently an uncollared male, either in the pack or a wandering Don Juan. Despite joining up with her so quickly, were 1501GM and 1402GF not actually mates, but simply companions until another male turned up that 1402GF was prepared to mate with? We thought it was possible that in 2018 two females may have whelped – 1402GF and the small tan – so it's possible that 1501GM did father pups during this time that we did not detect. But that still leaves the question of who fathered the others.

The spring 2020 pack size remained 14, and his pack was thriving, but 1501GM was getting old. When pups were being born in May and he turned nine, he stopped attending the den area and lingered near the edges of the territory. Was he being pushed out by a younger male? Did he leave of his own accord? We don't know. By the end of May 1501GM was with an unexpected companion: 1604GF, the nine-year-old former matriarch of Eagle Gorge pack, who had been traveling alone for a year since the death of her mate the preceding April. Two elderly wolves with long lifetimes of experience – I wish we could know if or how they were able to sense or communicate their respective knowledge, and what their companionship in their sunset years offered them. 1501GM stayed with her in the Eagle Gorge territory for the summer of 2020, until late August when they separated.

Less than a month after their separation, 1501GM was dead of starvation, his emaciated body laid on its side next to a mossy moose antler. His carnassials were no longer sharp, his

1501GM 's final resting place. *NPS photo*

lower incisors were all missing, his upper incisors were broken and worn. After necropsy, his skull revealed damage above his left eye; what appeared to be a break or fracture that had mostly healed over – a common location for wolves to receive kick injuries from ungulates. This was the injury we had seen scabbed over at his 2018 capture. Despite being in good health, the Eagle Gorge female 1604GF outlived 1501GM by only a few months before being killed – by 1501GM's former packmates. 1402GF lived for another year, to the incredible age of 12, before likely being killed by other wolves.

1501GM's massive skull sits on a shelf in my office, watching me work. When I feel frustrated, tired, or overwhelmed, I look over at his skull and the others that sit alongside it, imagining the fortitude and courage they embodied as they faced hunger, danger, and loss. I think also of how they faced it: together, as a pack. Wolves are deeply social, and the bonds that bind family members can drive them to risk their lives for one another. 1501GM inspires me to be bold, to stand by my "pack" – whether that's family, colleagues, or community – and to not give up hope.


1501GM's skull, showing healed fracture. *NPS Photo*

Borg, B. L., Brainerd, S. M., Meier, T. J., & Prugh, L. R. (2015). Impacts of breeder loss on social structure, reproduction and population growth in a social canid. *Journal of Animal Ecology*, *84*(1), 177–187. https://doi.org/10.1111/1365-2656.12256

Borg, B. L., Klauder, K. J., & Beckmen, K. B. (2024). Suspected True Hermaphroditism in a Free-ranging Gray Wolf (Canis lupus) in Interior Alaska, USA. *Journal of Wildlife Diseases*, *60*(2), 546–549. https://doi.org/10.7589/JWD-D-23-00038

Bryce, C. M., Dunford, C. E., Pagano, A. M., Wang, Y., Borg, B. L., Arthur, S. M., & Williams, T. M. (2022). Environmental correlates of activity and energetics in a wide-ranging social carnivore. *Animal Biotelemetry*, *10*(1), 1–16. https://doi.org/10.1186/s40317-021-00272-w

Cassidy, K. A., Borg, B. L., Klauder, K. J., Sorum, M. S., Thomas-Kuzilik, R., Dewey, S. R., Stephenson, J. A., Stahler, D. R., Gable, T. D., Bump, J. K., Homkes, A. T., Windels, S. K., & Smith, D. W. (2023). Human-caused mortality triggers pack instability in gray wolves. *Frontiers in Ecology and the Environment*, *21*(8), 356–362. https://doi.org/10.1002/fee.2597

# Pack Narratives

## EASTERN PACKS

### Cabin Peak

*Pack Counts: Spring – NA| Fall – 5*
*Collared Wolves: 2509BM, 2510GF*

In December 2025, we tracked and located a pack of 5 uncollared wolves in the Cabin Peak area, and collared two wolves, 2509BM and 2510GF. We suspect that this pack has been in the area since the spring, based on tracks and sightings of wolves on the East Fork in summer 2025, including a sighting of a pup that was not associated with any of our monitored packs.

### Erratics

*Pack Counts: Spring – 2| Fall – 2*
*Collared Wolves: 2109GF, 2411GF*

By spring 2025, the Erratics pack was down to a pair of female wolves (2411GF and 2109GF). No additional wolves were collared in March 2025. Beginning in late March, 2411GF began moving separately from 2109GF. However, in early June, she rejoined 2109GF, and their territory shifted north to the park road and Stampede road corridors. From May to August 2025, a third grey wolf was seen intermittently with the Erratic females, but it was not seen consistently in the fall/winter. There was no sign of denning in 2025. Fall count remained 2 wolves.

### Riley Creek

*Pack Counts: Spring – 9| Fall – 11*
*Collared Wolves: 1911GM, 2007BF, 2401GF, 2410BF, 2507GM, 2508GM*

Riley Creek retained strong pack numbers through 2025, with 9 wolves in spring and 11 wolves by fall. The pack experienced some know adult losses in 2025. In addition to the dispersals (see below), in July breeding male 1911GF died of apparent starvation at the advanced age of 10 years old. The pack denned on the Sanctuary and recruited 5 pups. 2007BF is now so old (8.5 years) that her coat appears nearly white or silver. In December, we added two collars to the pack, on young males 2507GM and 2508GM.

An August monitoring flight caught a comical scene of the Riley Creek pups:

***"As I came up on them an adult gray had just flushed some ptarmigan and gave a full speed but unsuccessful chase. This got all the pups excited/scared and they shot-gunned out in all directions. I circled around for quite a while letting them all come out of the bushes and regroup."***

**Riley Creek dispersers:** 2410BF had left the Riley territory in December of 2024, and joined up with 2308GM, the former breeding male of Abbie pack, who was traveling alone as a disperser. 2308BM was harvested in the Stampede at the beginning of February 2025. 2410BF continued traveling alone as a disperser and was harvested a month later in the same area. Subsequently, in late March or early April 2025, 2401GF dispersed from the Riley Creek pack. In late April, not long after her dispersal, 2401GF was harvested in the Stampede corridor.

### HOW TO NAME A COLLARED WOLF:

1. Last two digits of the year
2. The order of wolves collared that year
3. One letter for the color of the wolf (G = gray, B = black)
4. One letter for the sex of the wolf (F = female, M = male)

How would you name this wolf? A gray female that was the 7th wolf collared in 2021.

## Serena

*Pack Counts: Spring – 3 | Fall – 4*
*Collared Wolves: 2307GF, 2406GM*

After diminishing in size in 2024 from 8 to 3, Serena pack held steady with a spring count of 3 wolves. We replaced the collar of 2307GF in March 2025, and identified her as a likely breeding female because she was in estrous and appeared to have previously nursed pups. Based on GPS locations, 2307GF denned on Moose Creek in 2025. Breeding male 2406GM also attended a den site on the Toklat and five pups were seen at this site early in the summer; thus we presume that the third adult in the pack was a female who also whelped. However, only a single pup was subsequently observed, beginning at a fall rendezvous site near to Moose Creek, and we suspect that the litter seen on the Toklat did not survive. The pack had a fall pack size of 4 wolves.

A monitoring flight in August showed how we can use behavior to help us determine pup counts, as described in this narrative from the radio-tracking pilot:

***"I first found the female in a thick clump of brush up there. After a couple low passes, she came out briefly then went back in. I didn't think I was going to get a visual on any pups. Then I spotted the male that I had heard close by returning. He came to the brush patch and both the female and a very excited little gray pup came out to meet him. After a lot of tail wagging, he vomited up something that both the pup and 2307GF quickly ate. No other pups were seen. And with as excited and promptly that the one pup came out of the bushes, I expect if there had been other pups, they would have shown themselves as well."***

In mid-December, 2307GF and 2406GM began traveling separately inside the territory. In the last days of December, 2307GF died of unknown natural causes. 2406GM left the territory and was harvested in the Stampede in late January 2026, ending monitoring of the Serena pack.

## Wigand

*Pack Counts: Spring – 1 | Fall – 2*
*Collared Wolves: 2413BM*

After the death of breeding female 2404GF in late December 2024, remaining adult 2413BM was only seen alone, suggesting that the remaining pups from 2024 did not survive. He began ranging widely in the eastern area of the park, spending increasing time in the Kantishna hills and in Abbie territory southwest of Wonder Lake. In December of 2025 he was observed to have a companion for the first time, offering hope that the pack could continue.

## Lynx mountain

*Pack Counts: Spring – 8 | Fall – unk*
*Collared wolves: 2103BF*

After Bearpaw female 2103BF dispersed in April of 2023, she appeared to settle later that year in a territory to the northeast of the Park. Because she was outside the study area, and in an area of thick vegetation, monitoring opportunities were limited. In 2025, her GPS locations revealed denning behavior, and a flight in August observed 5 pups at the pack's rendezvous site. Monitoring of this pack will likely remain very limited.

Wolf pups on a trail camera photo in Denali. *NPS photo*

# WESTERN PACKS

## Abbie

*Pack Counts: Spring – 8 | Fall – 12*
*Collared Wolves: 2112GF, 2310BM, 2409GF*

Abbie continued to be a robust pack. Their spring 2025 count remained at 8 wolves, same as the previous fall. In March 2025, we recollared breeding male 2310BM. Also monitored are elderly breeding female 2112GF, who is now 10 years old and completely white, and 2409GF, a smaller nearly-white female. The pack denned on slippery creek and recruited 4 pups, for a fall count of 12 wolves.

## Glacier City

*Pack Counts: Spring – 3 | Fall – 0*
*Collared Wolves: 1904GF, 2502GF*

After facing a significant decrease in pack size in 2024, Glacier City pack began 2025 with a spring count of 3 wolves. We collared adult female 2502BF in March. The summer GPS locations of breeding female 1904GF suggested that she denned, but no pups were ever observed. In late July, 2502BF died at a presumed rendezvous site of unknown natural causes. Shortly thereafter in early August,1904GF moved out of the territory to the west and died of apparent starvation at the age of 9. The fate of the other pack member is unknown, ending monitoring of the Glacier City pack.

## Kotahlno

*Pack Counts: Spring – 3 | Fall – 3*
*Collared Wolves: 2306GF, 2407BM, 2305GM (dispersed)*

This pack was challenging to monitor in 2025. 2306GF's collar had registered a mortality signal in late December 2024, and investigation indicated 2306GF died of unknown natural causes. This left a single collar on 2407BM. The pack's spring count decreased from 10 in fall of 2024 to 3 wolves. We collared adult female 2503BF in March, but in early April, 2503BF dispersed to the north, where she appeared to den near Square Lake (see Square Lake pack). 2407BM remains collared in traditional Kotahlno territory. While his collar still provides a VHF signal for aerial tracking, the collar has partially failed and does not transmit GPS locations, and aerial visuals have been limited. However, a May monitoring flight observed 2 pack members that had treed a wolverine in a dead spruce – a glimpse into the complex interactions between carnivores in Denali. We did not see evidence that the pack denned or produced pups. The fall count remained at 3 wolves.

Otter Track female 2503GF begins to recover after capture. *NPS photo/Borg*

## Otter Track

*Pack Counts: Spring – 6 | Fall – 9*
*Collared Wolves: 2504GM, 2505GF*

We located this previously uncollared pack in the far southwest portion of the park during 2025 March captures. We collared a young male, 2504GM, and a presumed breeding female, 2505GF. The pack denned on the upper Swift Fork and recruited 5 pups, for a fall pack size of 9.

## Roosevelt

*Pack Counts: Spring – 2| Fall – 0*
*Collared Wolves: 1903BF*

Like their Glacier City neighbors, the Roosevelt pack was lost in 2025. Their spring count remained at just 2 wolves, same as the previous fall. Breeding female 1903BF appeared to den, but died of unknown natural causes in mid-June at the age of 9. The fate of the surviving pack member is unknown, ending monitoring of the Roosevelt pack.

Of note, 1903BF and Glacier City female 1904GF were both first collared in the Roosevelt pack in March 2019 at almost 3 years of age, and both died in summer 2025. Genetic results indicate that they were sisters, born to Roosevelt female 1811GF. Collectively, they whelped 8 litters as they led their neighboring packs, thought we documented only 11 of their pups who reached 6 months of age. This legacy speaks to the challenges of successfully raising pups in the western area of the park where prey are scattered and typically at very low density.

## Sesui

*Pack Counts: Spring – 7| Fall – 9*
*Collared Wolves: 2405GF, 2412GM*

This pack remained relatively large in 2025, beginning the year with a spring count of 7 wolves. No additional wolves were collared in March. The pack denned on the Foraker, and recruited 4 pups, for a fall 2025 count of 9 wolves.

## Spyglass

*Pack Counts: Spring – 2| Fall – 4*
*Collared Wolves: 2402GF, 2408BM*

Spyglass pack began the year with a spring count of 2, both of whom (2402GF and 2408BM) were collared. GPS locations suggested denning, but no pups were ever observed through the fall. We were pleasantly surprised to finally observe 2 pups in January 2026, allowing us to update the fall pack count to 4.

## Square Lake

*Pack Counts: Spring – unk | Fall – unk*
*Collared Wolves: 2503BF*

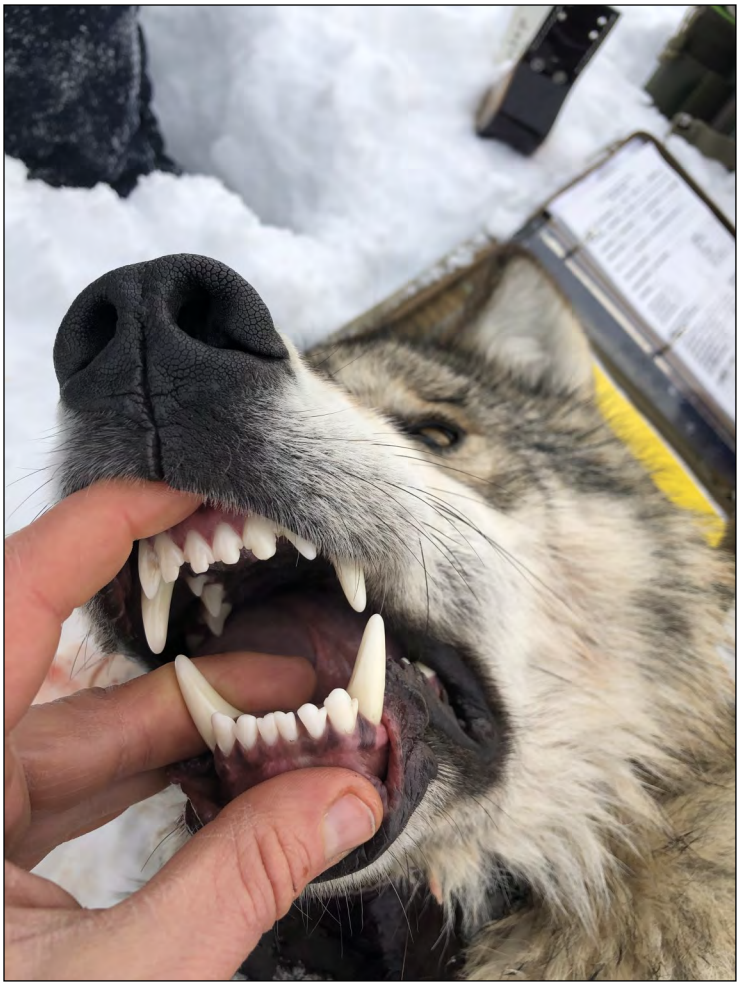
When 2503BF dispersed from Kotahlno territory in April 2025, she soon appeared to den near Square Lake. Although we have not been able to get a visual of her or any packmates, her denning behavior outside of traditional Kotahlno territory led us to assign her to a new pack. Because her locations are now primarily outside the park, visual monitoring is limited.

2503BF healing from a significant snout wound. *NPS photo/Klauder*

# Wolf Management

## COLLARING

Denali has been collaring members of the wolf population since 1986 in order to track movements, estimate territory locations and sizes and estimate the population size and density. Current methods of wolf monitoring used in Denali follow the Wolf Monitoring Protocol for Denali National Park and Preserve, Yukon-Charley Rivers National Preserve, Alaska (Meier et al. 2009). In brief, this method involves capture and radio-collaring of one or two members of each wolf pack in the study area and locating and counting wolves during aerial tracking flights periodically through the year. Morphological data, including sex, weight, age and color, and blood and tissue samples for genetics and disease analysis, are gathered from captured wolves.



Staff examine and document tooth wear during capture to assess age and health. This wolf is young and has teeth in excellent condition. *NPS Photo/Bridget Borg*

In 2025, staff captured and collared 11 wolves during two capture efforts, including 2 recaptures of wolves collared in previous years to replace aging or failed collars.

## CLOSURES

The Denali Wolf-Human Management plan stipulates that closures will be implemented around active dens, and will automatically be implemented around a den that was active in the previous two years, until it can be determined if the den is active or not.

### South Sanctuary Wolf Closure

The south Sanctuary wolf closure was implemented on May 19th, 2025, and lifted on September 19th, 2025 after it was determined that the wolves had left the area. This closure did allow for through-traffic by boaters on the Sanctuary River.

# Outreach and Collaborations

## OUTREACH

- Documentary Film "A Good Wolf," directed by Ramey Newell, — Bridget Borg and Kaija Klauder
- Large Mammal Research in Denali, 2025 Science Symposium Presentation, May 2025 — Kaija Klauder
- Wolves of Denali Field Seminar August 2025 — Bridget Borg
- History and Impact of Wolf Research In Denali, Wolf Park IN, October 2025 — Kaija Klauder
- Continued updates to wolf web page: https://www.nps.gov/dena/learn/nature/wolves.htm

## PUBLICATIONS

Denali wolf project staff were not authors on any publications in 2025.

## COLLABORATIONS

- Isotopic analysis and mercury levels in wolf populations, Dr. Ben Barst, University of Alaska Fairbanks
- Skull morphology and facial musculature of wolves, Dr. Sarah Kienle, Baylor University

# READING WOLF BEHAVIOR: WHAT IS THIS WOLF COMMUNICATING?

NPS Photo

## Neutral

A wolf that has its ears slightly forward or slightly back, is walking or trotting, and may only glance in your direction is neutral about your presence. Enjoy the lucky sighting and do not try to attract its attention.

NPS Photo

## Curious

A wolf that fixes its gaze on you with its ears up is curious. It may approach slowly or walk around you to get a better look. Curious behavior usually results in the wolf leaving once it realizes you are a human. If the wolf follows you or shows interest in tents or vehicles, encourage it to leave by shouting and waving your arms.

NPS Photo

## Howling

Wolves howl to communicate with pack members, often as a chorus. Wolves will howl to gather the pack or to communicate with pups. Howls may also be used as a warning to other wolves to stay away. Enjoy this sound of the wild!

**Interactions between wolves and humans are very rare. If you do see a wolf, pay attention to its behavior to determine how to respond.**

Pinterest

## Fearful/Defensive

A wolf with its ears pinned, hackles up, crouching, with lips pulled back and tail between its legs is acting out of fear or defending itself. Back away quickly and give it space. Barking or bark-howling by wolves is also a sign that you are too close. Leave the area if you hear this.

Holly Kuchera

## Aggressive/Predatory

Aggressive or predatory attacks on humans are extremely rare. If a wolf has its eyes fixed on you, ears forward, is standing tall, and has its tail up, it is acting dominant and may become aggressive. A predatory wolf may stalk with head lowered and gaze fixed, or rush directly at its prey. **DO NOT RUN.** Shout, make noise, and be tough.

## WHAT SHOULD I DO IF A WOLF APPROACHES ME?

Wolves are wild animals! Stay at least **25 yards** away from wolves at all times. Never feed a wolf. If a wolf approaches you in a predatory or aggressive manner, or is curious and not leaving, **DO NOT RUN!** Get tough! Shout aggressively and make other loud noises, maintain eye contact, and throw rocks.

# 2025 Annual Wolf Report