Dall's Sheep

Background

The National Park Service (NPS) has monitored sheep populations within Yukon-Charley since the 1980s. The same 7 core areas have been surveyed since 1997. The last survey occurred July 2023 and only 70 sheep were observed within the core survey areas, which represented a 78% population decline compared to the long-term average. Accurate Dall's sheep abundance and demographic data are critical for sustainable management of Dall's sheep populations and their harvest.

Figure 1. A picture of a Dall's sheep (NPS / JARED HUGHEY).

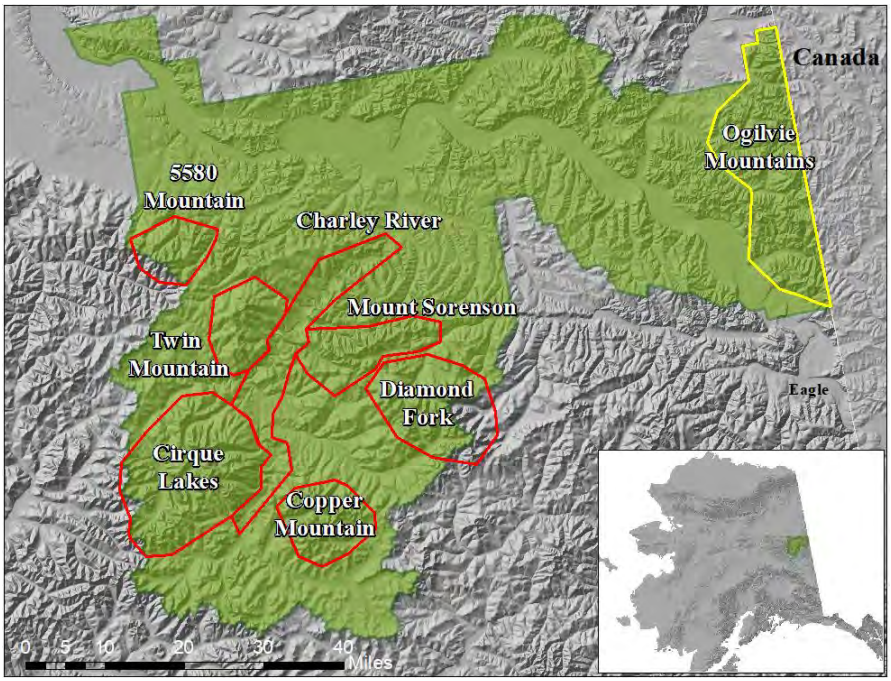

Figure 2. A map of Yukon-Charley Rivers National Preserve (green) and core sheep survey unit boundaries (red polygons). The yellow polygon represents the Ogilvie Mountains survey area.

Population Estimates

No aerial sheep surveys were conducted this summer, however, a float-based sheep survey conducted along the Charley River in June revealed a ratio of 52 lambs:100 ewes. The higher-than-average lamb:ewe ratio was encouraging as the population continues to recover from the most recent decline. The next aerial survey is scheduled for the summer of 2026.

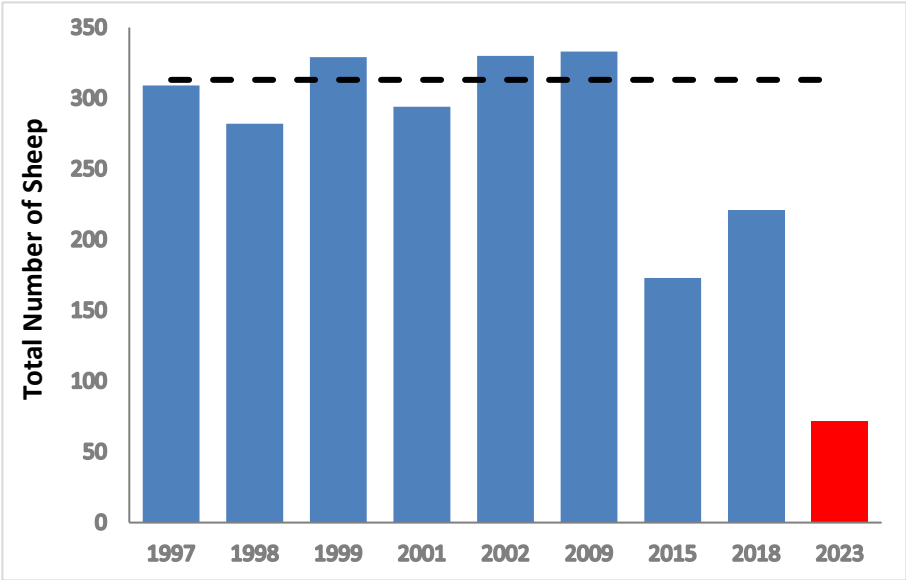

Figure 3. A bar graph depicting Dall's sheep population trends in the core 7-unit area of Yukon-Charley Rivers National Preserve, 1997-2018. Black dash line is the average for years prior to the 2015 population decline (i.e., 1997-2009) and the red bar is the current (2023) survey. Total number of sheep on y-axis and year on x-axis.

Management Actions

The Federal Subsistence Board closed sheep hunting on lands south of the Yukon River and within the Preserve during the 2024/25 seasons to enhance recovery of the sheep population.

Moose

Background

Moose are an important subsistence species for people along the upper Yukon River drainage. As such, the National Park Service has monitored moose populations within Yukon-Charley since the 1980s. Since 2003, surveys have been conducted every 3 years using the same protocols and over the same area. The last survey occurred in November 2022 and the next is scheduled for November 2025. NPS is also conducting a GPS collar study of adult female moose in the Preserve to understand adult survival, productivity, and movements. This year was the 5th season of monitoring calving and the 4th full year of monitoring adult survival and calf recruitment.

Population Estimate – Fall 2022

Observers counted a total of 183 moose during the survey, resulting in an estimate of 738 moose (90% confidence interval: 548-928; ± 26%) and a density of 0.24 moose/mi^2. The 2022 moose population estimate represents 35% and 15% decreases from the most recent 2015 and 2019 survey estimates, respectively, although the 2022 estimate is only significantly different from the 2015 estimate. The estimated composition was 19 calves: 100 cows, 60 bulls: 100 cows, and 7 yearling bulls: 100 cows. The YUCH moose population trend over the last 20 years of GSPE surveys is suggestive of a generally stable but low-density population exhibiting fluctuations between survey periods. However, the recent downward trend in population adds importance to conducting future surveys. See report for further details.

Collar Project Updates

NPS has 24 active collars on adult female moose in and around the Preserve. From May 1, 2023 – April 30, 2024, we had an adult survival rate of 87%; of the 4 mortalities, 3 occurred in May and June and the other in December. The calving rate based on GPS data in 2024 was approximately 85% and our long-term average from 2020 – 2024 is about 78%. Our twinning rate of calves counted from aerial surveys was 56%, our second highest in 5 years of monitoring, and our long-term average is 46%. The timing of calving is spring has remained consistent in the 5 years of monitoring and the long-term average is May 21. Survival of calves that we observed at calving through their first year of life was 15% for 2023 – 2024, which is the lowest we have measured (28% average over 4 years so far). NPS will continue monitoring in the upcoming year and plan to begin closing out the project by recapturing the animals and removing collars next spring. After we have finished collecting data, we plan to analyze everything and report back on some of the mechanisms underlying the population patterns we have observed.

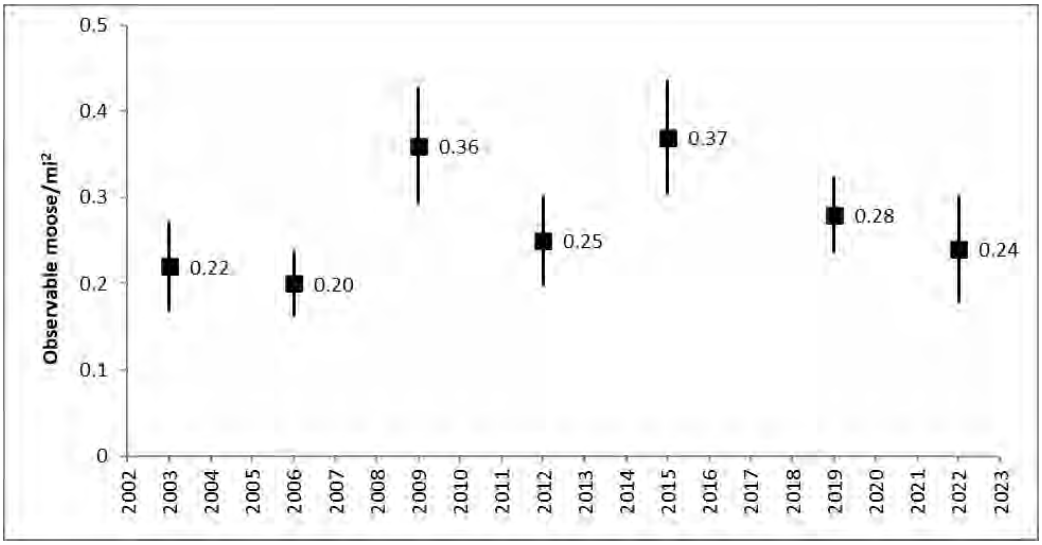

Figure 4. A graph of moose population density estimates from GSPE surveys from 2003 – 2022, Yukon-Charley National Preserve, Alaska. Observable moose/mi^2 on y-axis and years on x-axis.

Wolves

Background

The National Park Service has monitored the wolf population within Yukon-Charley for over 30 years, making it the third longest study of wolves in North America. Wolves are an apex predator and viewed as an important vital sign used to assess the health of the Preserve. The goal of the Wolf Monitoring Program is to assess population dynamics, monitor reproduction and survival, and track disease and genetic health.

Figure 5. A picture of NPS biologist collecting measurements and biological samples on a sedated wolf (NPS / Matt Cameron).

Population Dynamics and Survival

Over the 2023 biological year (May 1, 2023 – April 30, 2024), we tracked 22 GPS collared wolves across 7 packs. Five of the 7 packs denned, but only 3 of the packs retained pups into the fall. Of the 22 wolves, 10 died (4 natural mortality, 1 hunter mortality, 5 trap mortality) and one dispersed outside the Preserve resulting in a 50% survival/emigration of collared wolves. Two packs disbanded during the summer after the deaths of breeding adults and one pack disbanded over the winter after multiple pack members were trapped. The fall pack count averaged 10.7 wolves, higher than the long-term average of 7.4. The spring pack count averaged 6.0, higher than the long-term average of 5.0 wolves. The number of wolves monitored within the Preserve in the fall and spring was 46 and 31, respectively, which represents a decline of 20% and 24%, respectively, compared to the long-term average.

Other Studies

Over the last year, we deployed 5 video GPS collars on wolves in the Preserve. The cameras were set to collect 30-second video clips every daylight hour in March and again in June. The goal of the project is to collect data on winter and summer diets, behaviors, and record social behaviors during the early pup-rearing season. We have retrieved the video from the cameras and are processing the results.

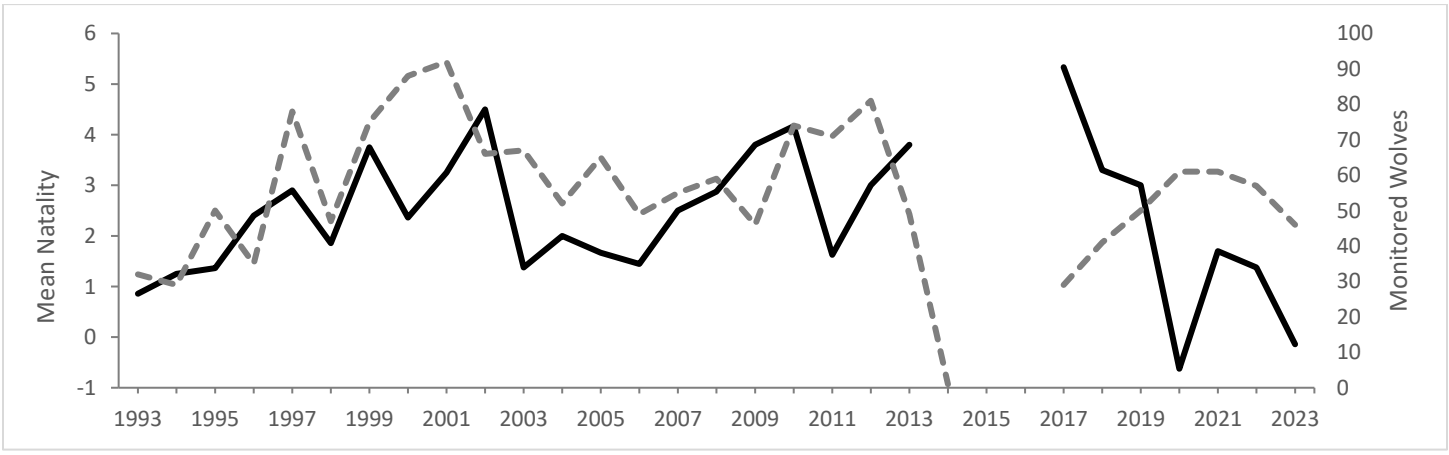

Figure 6. A line graph of the average number of wolves recruited into each pack over the summer (mean natality; solid black line) and the total number of wolves monitored during the fall (dashed grey line) in Yukon-Charley Rivers National Preserve. Mean natality and number of monitored wolves is on the y-axis and year on the x-axis.

Peregrine Falcons

Background

The National Park Service monitors Peregrine falcons in Yukon-Charley Rivers as part of the Central Alaska Inventory and Monitoring Network. This monitoring effort continues a program started by the US Fish and Wildlife Service in the 1970s. Surveys consist of boating from Circle to Eagle and back to Circle twice a year (May/June and July), stopping to observe likely nesting bluffs along the way. Biologists search for adult falcons and active nests, taking care to note the types of behaviors exhibited by detected individuals. When possible, biological samples (e.g., addled eggs, feathers, scat) are collected for contaminants and disease testing.

Figure 7. A picture of a biologist surveying for Peregrine falcons across the Yukon River from Tacoma bluff (NPS/ James Cash)

2024 Survey

Surveys were conducted in 2024 from May 27- June 10 and July 7- 27. The first trip yielded 19 detections of occupied territories and the second trip added 16 additional territories for a total of 35. Additional accomplishments of the 2024 survey include partnering with Outside Science Inside Parks to produce a public education video highlighting young scientists working on the project, assisting the wolf program with a GPS collar retrieval, and partnering with a UAF entomologist to collect valuable pollinator specimens from this understudied region.

Figure 8. A picture of a Peregrine falcon adult seen during 2024 surveys on the Yukon river (NPS/ Jared Hughey)

Trends

Peregrines exhibited remarkable population recovery following the banning of DDT in the 1970s, a pesticide that reduced their reproductive success. The population in Yukon-Charley appears to have peaked in the early 2010s. Population trends since then have fluctuated, however preliminary data assessment appears to indicate that we may be witnessing a decline. Efforts are underway to improve the monitoring program's ability to assess this potential decline, including through advanced data analysis techniques, increased staffing for surveys, expansion of the surveyed area, and collecting additional samples for genetics, contaminants, and disease analyses.

Figure 9. A picture of two nestling Peregrine falcons on a bluff above the Yukon River (NPS/ Jared Hughey)

Other NPS news

Fortymile Caribou Foraging Study

A team of researchers from the University of Montana and variety of government agencies, including the National Park Service, investigated factors that affect how Fortymile Herd caribou forage during summer, using a combination of GPS and video camera collars in east-central Alaska. As expected, the more common a forage was, the more likely caribou were to be found eating it. However, as caribou more heavily used an area, the less likely they were to forage on lichens. This may be due to competition among the caribou and depletion of lichens due to grazing. These types of impacts are known as 'density-dependent' impacts. Interestingly, foraging on shrubs increased in areas with high caribou use. This may be due to the greater quantity of forage that shrubs provide to caribou and/or the ability of shrubs to withstand greater foraging pressure compared to lichens. Insect harassment reduced the likelihood that caribou would be foraging. The study sheds light on the potential for 1) caribou to overgraze resources (like lichens), 2) better understanding caribou carrying capacity, and 3) how climate change may impact caribou foraging dynamics. Contact Kyle Joly for more information.

Journal article link:
https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2656.14109

Figure 11. A picture of a Fortymile Herd caribou foraging in the alpine of Yukon-Charley (NPS / Kyle Joly).

Coal Creek Restoration Project

The National Park Service (NPS) is performing baseline studies and preliminary analyses to improve salmon habitat and to protect historic and administrative resources on Coal Creek. Located in Yukon-Charley Rivers National Preserve, Coal Creek is a tributary of the Yukon River. The NPS is partnering with state agencies and Tanana Chiefs Conference on this project. Funding has been received from the Bipartisan Infrastructure Law (BIL) via the Gravel to Gravel Keystone Initiative. The project is currently in the early stages of development.

Figure 10. A picture of the mess hall at Coal Creek Camp (NPS / Chris Allan).

Fire destroys historic mess hall at Coal Creek Camp

On June 24th, Yukon-Charley Rivers National Preserve personnel working at Coal Creek Camp observed the Coal Creek Camp Mess Hall fully engulfed in fire. With a limited water supply available, a nearby National Park Service wildland fire crew and both on-scene maintenance and historic preservation staff established a portable water pump and hoses, working for several hours to successfully prevent the structural fire from spreading into the wildland environment. Due to the immense heat from the structural fire, the adjacent Coal Creek Camp Shower House, sluice box, and Bobcat skid-steer were also consumed in the fire. All persons on-site were safe and uninjured in the event. The NPS will be conducting an Origin and Cause Investigation to determine the source of the fire.

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