

Alaska

Small Game Summary 2023

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Species considered small game in Alaska are defined by the Alaska Department of Fish and Game (ADF&G), for regulatory purposes as grouse, ptarmigan, and hare. Alaska has 7 species of grouse and ptarmigan (Tetraonidae) including ruffed (*Bonasa umbellus*), sharp-tailed (*Tympanuchus phasianellus*), sooty (*Dendragapus fuliginosus*), and spruce (*Falci pennis canadensis*) grouse; and rock (*Lagopus muta*), white-tailed (*L. leucurus*), and willow (*L. lagopus*) ptarmigan. In addition, Alaska has 2 species of hare (Leporidae) including Alaska (*Lepus othus*) and snowshoe (*L. americanus*) hare. All 9 species of small game can be legally harvested in Alaska with liberal seasons and bag limits for all game management units (Unit).

The statewide Small Game Program (SGP) has three primary responsibilities including research, management, and outreach. Recent research results are briefly described within the specific species sections. Management efforts largely focus on spring breeding and summer brood surveys, harvest composition, recommendations to the Alaska Board of Game (BOG) regarding regulatory proposals, and addressing concerns from staff and the public. Specific survey methods are fully described in Merizon and Carroll (2023). Survey and research efforts occur across the state from Nome to Ketchikan and along the road system from the Steese Highway south to the Kenai Peninsula. Outreach and education efforts focus on recruiting new hunters, providing hunters with tips, recommendations, and insight into Alaska's small game species.

This report summarizes the activities conducted by the SGP during the 2022 regulatory year (RY22, 1 July, 2022–30 June, 2023) in addition to brood survey results from summer 2023. Specifically, it addresses: 1) 2022-23 weather patterns, 2) species status including spring 2023 breeding and summer 2023 brood survey results, and 2022-23 harvest composition, 3) research updates, 4) recent BOG regulatory changes, and 5) new developments and outreach efforts. A more thorough multi-year (2021 and 2022) management report is available at <https://www.adfg.alaska.gov/index.cfm?adfg=smallgamehunting.research>.

2022 / 2023 Weather and Brood Production

August 2022 was very wet in Anchorage and Homer but dry in the Interior near Fairbanks (Alaska Climate Research Center 2023). Snow cover was present throughout much of Alaska by the end of October with records at some locations in Southeast. November temperatures were relatively mild in the Interior and along the Arctic Coast but cool in Southeast Alaska. By the end of December, Anchorage had recorded the snowiest year on record in the last 60 years. January 2023 temperatures were warmer than the long-term average for most of Alaska but by February most areas experienced cooler than average temperatures especially in the northern Interior. Juneau experienced heavy snowfall early in 2023 including blizzard conditions in the last few days of February. April 2023 was unusually cold throughout much of Alaska with 2 cold snaps recorded in Western and Interior Alaska and 2 to 3 times more snow recorded than the average in both Anchorage and Fairbanks. Winter 2023 was the second and third snowiest on record for Tok and Delta Junction, respectively and the second or third snowiest winter for the northern half of the Kenai Peninsula (National Weather Service 2023). The late break-up was a challenge for field crews in accessing many of the spring breeding survey locations throughout the state. June 2023 was cool and wet for much of the state. Conditions remained cool and wet throughout most of Southcentral into July but warmed up in the Interior with Delta Junction recording the warmest July on record. Fire weather was relatively mild throughout much of the summer of 2023 with activity only increasing in late July in the Interior.

Beginning in 2017 and continuing into 2022, a spruce bark beetle (*Dendroctonus rufipennis*) outbreak has severely affected large stands of mature (≥ 15 cm diameter) white spruce (*Picea glauca*) throughout Southcentral and the Kenai Peninsula. Much of the Matanuska-Susitna valley (Mat-Su) have been severely affected in addition to portions of the Anchorage bowl. This loss of habitat (feeding and roosting) may have a strong negative effect on spruce grouse populations throughout Southcentral and the Kenai Peninsula over the coming

years and has increased the wildfire risk in affected areas. Assessments of spruce bark beetle activity in 2022 was far lower than any year since 2015; however, the outbreak is still ongoing (United States Forest Service 2022).

Species Status

Ruffed Grouse

Spring breeding surveys were completed at long-term monitoring sites near Palmer, Delta Junction, Anderson, Fairbanks, and Tok. Surveys were conducted from 28 April to 21 May, 2023 in Interior Alaska and 23 April to 15 May, 2023 in the Mat-Su. Survey conditions in the Interior were generally good with light winds yet slightly warmer than preferred temperatures. Persistent, deep snow was present along survey routes into the second week of May similar to conditions experienced in spring 2022. Survey conditions in Mat-Su were also generally good yet with slightly warmer than preferred temperatures during surveys in mid-May. Deep snow was present on survey routes during late-April but had largely melted by mid-May. The average number of drumming males heard along survey routes in the Interior near Delta Junction and Anderson suggest ruffed grouse numbers are likely increasing. Surveys near Fairbanks and Tok showed little change in the average number of drumming males heard between 2022 and 2023. Anecdotally, a greater number of ruffed grouse were observed along survey routes and traveling to survey routes near Tok than in the previous 4 years and it is likely that ruffed grouse numbers are increasing throughout the Interior. The average number of drumming males heard on survey routes in Mat-Su continues to remain low from the high experienced in 2018.

The proportion of juveniles in the harvest (based on hunter harvested wing collections) is used as an index of chick survival (Merizon and Carroll 2023). In the Mat-Su, the number of wing donations in RY22 ($n = 18$) was similar to the long-term average ($n = 17$; 2011-2022) with the proportion of juveniles (0.72) making up the majority of the collection of harvested wings. In the Interior the number of wings received in RY22 ($n = 32$) was below the long-term average ($n = 45$) but above the number of wings received in the last 4 years. The proportion of juveniles in the harvested sample from the Interior in RY22 (0.78) was slightly lower than RY21 (0.84). The relatively small sample sizes and large geographic areas of collection warrant caution in drawing strong conclusions about population trends from the wing data alone. Hunter reports of ruffed grouse numbers were generally good in eastern Interior with fewer than expected in central Interior and Mat-Su during RY22.

Overall, spring breeding surveys coupled with warm and dry weather conditions in the Interior during the early brood rearing period suggest hunters may expect to see slightly more ruffed grouse this year near Fairbanks, Anderson, Delta Junction and Tok. Data from spring breeding surveys coupled with cooler and wet weather during the brood rearing period (mid-June to early-July) in Southcentral and the Mat-Su suggest hunters will continue to see low numbers of ruffed grouse.

Sharp-tailed Grouse

The SGP conducted annual spring breeding surveys near Delta Junction from 18 April to 4 May, 2023 and near Tok from 27 April to 30 April, 2023. Survey conditions were generally good with light winds and cool temperatures; however, persistent, deep snow was still present late into the breeding season (mid-May) on some routes. Although sharp-tailed grouse will gather and display on snow covered lek sites it is possible that the persistent snow resulted in a delay in the peak of breeding activity.

In Delta Junction, the average number of males observed per lek was lower in 2023 (1.8 males observed per lek) than in 2022 (2.7 males observed per lek), both of which were below the previous 5-year-average (2018-2022) of 3.4 males per lek. In Tok, the average number of males observed per lek was lower in 2023 (2.8 males per lek) than in 2022 (3.7 males per lek), which is lower than the previous 5-year-average (2018-

2022) of 3.9 males per lek. The number of active leks observed near Tok in spring 2023 was the same as in 2022 (5). For clarity, a lek is defined here as an area with ≥ 1 male sharp-tailed grouse observed displaying in at least 2 consecutive years. A lek is considered inactive or abandoned when no males are observed displaying for 5 consecutive years.

Sharp-tailed grouse brood surveys were completed during 22-23 July, 2023 near Delta Junction. Brood surveys have been completed near Delta Junction with the aid of pointing dogs since 2016; however, the number of transects completed each year has not been consistent for 2 reasons: staff and volunteer availability and alterations to survey transect length due to fencing on private property. There were several years where direct comparisons between years were possible (2017-2020), but due to recent fencing on private property and a shift to conducting more surveys on public lands comparisons are not possible from 2020 to 2023. Despite this, no sharp-tailed grouse broods were observed along 40.9 miles of transects in 2023; however, a brood that contained at least 1 ruffed grouse chick was observed. These results were similar to 2022 yet several hunters reported encountering a decent number of brood groups while hunting in fall 2022. We hope to expand the geographic scope of these surveys as we build the volunteer program to better capture trends in sharp-tailed grouse brood numbers from year to year.

There were more sharp-tailed grouse wings donated from hunters throughout the Interior in RY22 ($n = 69$) than in RY21 ($n = 55$) and the proportion of juveniles in the harvest calculated from donated wings was similar in RY22 (0.68) to RY21 (0.71). Despite poor results from brood surveys conducted in 2022 several hunters reported encountering decent numbers of broods while afield in fall 2022.

Overall, spring breeding surveys coupled with few observations during the brood rearing period suggest hunters should not expect to see an abundance of sharp-tailed grouse near Delta Junction or Tok; however, it is possible that fall 2023 will be similar to fall 2022 and more sharp-tailed grouse juveniles will be available for hunters than the results of the 2023 brood surveys would suggest.

Spruce Grouse

Limited data are available for spruce grouse. Relative abundance projections are limited to inference made from wing collections and field observations. However, beginning in fall 2019, a new roadside survey technique has been evaluated as an index of abundance in the Mat-Su. This technique has shown promise in its ability to provide an efficient and cost-effective means to index Southcentral spruce grouse population abundance. Results from this evaluation suggest Mat-Su spruce grouse may have declined from 2021 to 2022.

Wing donations for spruce grouse throughout Southcentral and the Kenai Peninsula in RY22 ($n = 171$) were very similar to RY21 ($n = 175$). The proportion of juveniles in the donated wing sample was 0.60 in RY22 compared to 0.40 in RY21, suggesting better juvenile production in RY22. The number of donated samples in the Interior was more than double in RY22 ($n = 149$) compared to RY21 ($n = 61$) and the proportion of juveniles in the harvest in RY22 (0.66) was very similar to RY21 (0.64) and has stayed relatively consistent since 2021.

In 2023, Southcentral spruce grouse populations will likely be negatively affected by the ongoing and widespread spruce bark beetle infestation throughout the region. It is likely that the cool and wet weather experienced in the later half of June and early July 2023 had a negative impact on survival of young spruce grouse chicks in Southcentral and in parts of the Kenai Peninsula, especially near Homer. Field observations suggest good chick production for spruce grouse in the Interior in 2023.

Sooty Grouse

Spring breeding surveys were completed in Juneau, Petersburg, Ketchikan, and Haines between 4 April and 20 May, 2023. The spring breeding estimate of the number of singing males (“hooters”) per stop was up in 2023 near Juneau (1.1 males per stop) and Haines (2.7 males per stop) compared to 2022 but down near Ketchikan (0.3 males per stop) and Petersburg (1.5 males per stop). The lower estimate recorded for Petersburg in 2023 may be less representative of all sooty grouse numbers at least in part because routes on Kupreanof Island have historically had 5 to 20 more hooters heard annually than the Mitkof Island routes and no surveys were completed on Kupreanof Island in 2023.

Very few sooty grouse wings were donated to the SGP in RY22 ($n = 3$). This makes it very difficult to draw any meaningful conclusions about differences in juvenile production between RY21 and RY22.

Southeast grouse hunters should anticipate good numbers of sooty grouse this fall and next spring except near Ketchikan where numbers are likely to be lower.

Rock Ptarmigan

Rock ptarmigan spring breeding surveys occurred from 20 April to 28 May, 2023 throughout the Kenai Peninsula, Alaska Range, and White Mountains. The spring breeding estimate of abundance for rock ptarmigan on the Kenai Peninsula in 2023 (0.8 males per stop) was up from 2022 (0.6 males per stop) and above the previous 5-year average (0.6 males per stop). The survey estimate for rock ptarmigan in the Alaska range was also up in 2023 (0.6 males per stop) from 2022 (0.3 males per stop) and above the previous 5-year-average (0.3 males per stop). Survey data from 2023 indicate rock ptarmigan at Donnelly Dome are likely stable at low density and increasing near Mount Fairplay (1.4 males per stop) and Eagle Summit (Steese Highway). The total number of males observed on the Mount Fairplay route in 2023 (18 males observed across 7 stops) was the highest since data collection began in 2015 and above the last high recorded in 2017 (12 males observed across 7 stops). Surveys were not completed within the Anchorage Bowl for rock ptarmigan in 2023 due to a combination of staff availability and poor weather. Rock ptarmigan populations throughout Southwestern Alaska and the Alaska Peninsula appear to be rebounding with several locations throughout the Yukon-Kuskokwim (YK) Delta observing more ptarmigan than in the recent past.

Thirty-six harvested rock ptarmigan wings were collected in RY22 with the majority coming from the Interior. There were 25 rock ptarmigan wings donated from the Interior in RY22 with approximately an equal mix of adults to juveniles (52%), with the majority of the wing donations coming from Units 20E (12) and 25C (12). It is difficult to make very meaningful inference from the small sample size as it is spread across a very large geographic area.

Brood surveys were completed between 15 July and 3 August, 2023 from Eagle Summit south to the Kenai Peninsula (including Denali Highway, Sheep Mountain, Hatcher Pass, and Chugach State Park (CSP)). Very few rock ptarmigan are typically observed on brood survey routes along the Denali Highway which are focused on willow ptarmigan. Surveys near Eagle Summit were only partially completed in 2023 as a result of volunteer availability and weather; therefore, direct comparisons between 2022 and 2023 are not possible. Anecdotally, several veteran volunteers reported seeing a good numbers of both rock and willow ptarmigan at Eagle Summit during the one day of surveys both on transects as well as between transects. At the time of publication, data was unavailable from 5 of the 9 brood survey locations in CSP. Data from 4 of the 9 routes suggest that chick survival may have been relatively low for rock ptarmigan. Again, the data for CSP is incomplete, but this would not be surprising given the cold and wet weather experienced in Southcentral during the summer of 2023. In 2023, brood surveys were not completed in rock ptarmigan habitat on the

Kenai Peninsula. The Kenai Peninsula also experienced a cold and wet summer, which likely had a negative impact on chick survival.

Overall, hunters can likely expect to see good numbers of rock ptarmigan in the Interior and possibly into the Alaska Range but likely fewer in Southcentral and on the Kenai Peninsula.

White-tailed Ptarmigan

Beginning in summer 2021, increased brood survey effort was employed throughout Southcentral Alaska for white-tailed ptarmigan. In addition to hunter harvested wing collections the brood survey data affords a much better understanding of white-tailed ptarmigan chick survival and subsequent population productivity throughout the Chugach, Kenai, and Talkeetna mountains. Data from CSP was incomplete at the time of publication and therefore it is unknown what hunters can expect to find in CSP for white-tailed ptarmigan numbers. In 2023, brood surveys were not completed in white-tailed ptarmigan habitat on the Kenai Peninsula. Both Southcentral and the Kenai Peninsula experienced cold and wet summers and it is likely that this had a negative impact on chick survival.

Sixty-three white-tailed ptarmigan wings were donated to the SGP in RY22 with all wings coming from the Mat-Su valley ($n = 37$) and the Kenai Peninsula ($n = 26$). The proportion of juveniles in the sample from the Mat-Su was 0.51 in RY22 compared 0.60 in RY21 and the proportion of juveniles in the sample from the Kenai Peninsula was very low in RY22 (0.31), suggesting that juvenile production was likely lower in RY22 compared to RY21.

Considering the limited data at time of publication and the cold and wet weather throughout Southcentral and the Kenai Peninsula hunters will likely find fewer white-tailed ptarmigan in 2023.

Willow Ptarmigan

Willow ptarmigan spring breeding surveys occurred from 20 April to 19 May, 2023 throughout the Kenai Peninsula, Anchorage Bowl, the Alaska Range, Nome, and White Mountains. The 2023 spring breeding estimate (1.57 males per stop) suggests that numbers of willow ptarmigan within the Anchorage Bowl were down from the high recorded in 2022 (3.27 males per stop). The spring breeding estimate for willow ptarmigan along the eastern Denali Highway (Unit 13B) in 2023 (1.24 males per stop) was similar to the 2022 estimate (1.16 males per stop) yet remains below the previous 5-year-average (1.43 males per stop). The 2023 estimate (0.82 males per stop) from the western Denali Highway (Unit 13E) remains very near the 2022 estimate (0.80 males per stop) but is higher than the previous 5-year-average (0.67 males per stop). The Denali National Park (DNP) estimate for 2023 (3.31 males per stop) was above both the 2022 estimate (2.95 males per stop) and the previous 5-year-average (2.46 males per stop) and is the highest estimate recorded since surveys were initiated in 2014. Surveys of willow ptarmigan near Delta Junction within the Donnelly Training Area (DTA) and near Mount Fairplay near Tok suggest numbers are likely increasing. The 2023 estimate (0.39 males per stop) for willow ptarmigan near Delta Junction was above the 2022 estimate (0.13 males per stop) and the previous 5-year-average (0.12 males per stop). The 2023 estimate (0.81 males per stop) for willow ptarmigan near Mount Fairplay showed a large increase over the estimate from 2022 (0.26 males per stop) and is above the previous 5-year-average (0.48 males per stop). Willow ptarmigan numbers throughout Southwestern Alaska appear to be rebounding according to field staff reports from early 2023.

Summer brood surveys were completed between 15 July and 3 August 2023 along the Denali Highway, Sheep Mountain, Hatcher Pass, CSP, and the Kenai Peninsula. Denali Highway brood surveys documented only 3 brood groups on transect, but the number of chicks per brood (8.3 chicks/brood average) was higher

than the previous 3 years. Although not included in the official results, 3 additional brood groups were encountered while travelling between transects. At the time of publication data was unavailable from 5 of the 9 brood survey locations in Chugach State Park (CSP). Data from 4 of the 9 routes suggest that chick survival in 2023 may be lower than 2022.

Hunter harvested willow ptarmigan wings were collected statewide ($n = 365$) during RY22. Samples were collected primarily from Southcentral ($n = 143$), the Seward Peninsula ($n = 83$), the Kenai Peninsula ($n = 43$), and the Alaska Range ($n = 47$). Only 13 willow ptarmigan wings were donated from the Interior in RY22. Statewide, the proportion of juveniles in the harvest was somewhat variable for RY22, although juvenile production appeared to be relatively good throughout the state. For example, the proportion of juveniles in the wing donations was 0.59 for Southcentral, 0.60 for the Alaska Range, 0.67 for the Kenai Peninsula, and 0.71 for the Seward Peninsula.

Overall, in 2023 hunters are likely to encounter more willow ptarmigan throughout much of the Alaska Range and Interior, similar numbers to 2022 on the Seward Peninsula, and possibly fewer numbers in Southcentral.

Alaska Hare

Currently there is no active monitoring effort underway for Alaska hare. Based on field reports from hunters and ADF&G staff, it appears that the hare populations are fairly stable at low density in Southwest and Western Alaska.

Beginning in 2018, a large research project was initiated attempting to estimate Alaska hare movement and identify a viable population estimation method. In April 2022, field work for this project was completed and data analysis and report writing has begun. A final report is anticipated in 2024. To date, 9 Alaska hares were fitted with a GPS necklace collar and thousands of pellets were collected for population estimation between units 17, 18, 22, and 23.

Snowshoe Hare

In the Interior, snowshoe hare populations peaked in 2018/19 and have hit the low of their normal 10-year population cycle and continue to remain low. In Southcentral hare populations peaked in 2020/2021 and likely remain near their population low as no surveys were completed for snowshoe hare in 2023. Field observations from 2023 suggest populations of snowshoe hare on the Kenai Peninsula continue to be high like they were in 2022.

Regulatory Changes

There were no changes made to the small game hunting regulations at either the January 2023 (Southeast region) or March 2023 (Southcentral region) Board of Game (BOG) meetings.

The next BOG meetings are scheduled for January 2024 in Kotzebue (Northern and Western Arctic regions) and March 2024 in Fairbanks (Interior and Eastern Arctic regions). For the upcoming BOG meeting schedule and the list of proposals to be considered during the 2023-2024 BOG cycle please visit the BOG webpage (www.boardofgame.adfg.alaska.gov).

Public Involvement and Support

The dedication of numerous veteran and new volunteers and their trained pointing dogs continues to allow the annual volunteer-based brood survey project to grow. This collaboration between the SGP and volunteers documents annual chick survival for sharp-tailed grouse and rock, white-tailed, and willow ptarmigan

throughout the road system of Alaska. Engaged volunteers and their highly trained pointing dogs are recruited to locate and enumerate broods along survey routes. Survey locations include Eagle Summit (Steese Highway), Delta Junction, Denali Highway, Hatcher Pass, Sheep Mountain, Chugach State Park, and the Kenai Mountains. Since 2021, volunteer hours have been used to match federal Pittman-Robertson funds that have allowed and will continue to allow the SGP to further increase overall population monitoring efforts and research. New participants are always welcome and encouraged to join the project. If you are interested in participating in this program as a future volunteer, please contact Cameron Carroll in Fairbanks (907.459.7237).

The statewide wing collection program continues to have widespread support among hunters. This program allows biologists to gain valuable insight into the harvest composition (age, sex, species, and Unit of harvest) of numerous hunted populations of grouse and ptarmigan. Please consider donating your harvested grouse and ptarmigan wings, it is often the only way the SGP can gather important biological information across Alaska. If you're interested in participating, at no cost, please contact your local ADF&G office or SGP staff for free wing envelopes.

References

Alaska Climate Research Center. 2023. Monthly reports for Alaska. <https://akclimate.org/data/monthly-reports/> (Accessed August 7, 2023).

Merizon, R.A. and C.J. Carroll. 2023. Status of grouse, ptarmigan, and hare in Alaska, 2021 and 2022. Alaska Department of Fish and Game, Wildlife Management Report ADF&G/DWC/WMR-2023-2, Juneau.

National Weather Service. 2023. Summit Creek annual snow depth plot. https://www.weather.gov/aprfc/Snow_Depth (Accessed August 9, 2023).

United States Forest Service. 2022. Current status of spruce beetle outbreak in Alaska. <https://www.fs.usda.gov/detailfull/r10/forest-grasslandhealth/?cid=FSEPRD536861&width=full> (Accessed August 7, 2023).