

# Alaska

## Small Game Summary 2022

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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 Carroll and Merizon (2021). 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 2021 regulatory year (RY21, 1 July, 2021–30 June, 2022) in addition to brood survey results from summer 2022. Specifically, it addresses: 1) 2021-22 weather patterns, 2) species status including spring 2022 breeding and summer 2022 brood survey results, and 2021-22 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 will be published by January 2023 highlighting these topics in more detail (available at: [www.smallgame.adfg.alaska.gov](http://www.smallgame.adfg.alaska.gov)).

### **2021 / 2022 Weather and Brood Production**

August 2021 experienced heavy rainfall throughout Southcentral and the Interior. The first significant snowfall of the season was recorded in Anchorage in mid-September. Despite a brief warm up by mid to late October temperatures plummeted for much of the state and set numerous record low temperatures throughout November. Bethel recorded the coldest November in over 80 years followed by the warmest December on record. In December 2021 and January 2022 temperatures returned to near normal or slightly above normal in Southcentral and Interior; however, heavy snow was recorded from Southeast to the Interior and western Alaska. This period also documented a severe icing event over a large geographic scale that deposited 1-3cm of ice throughout the western Alaska Range and much of west-central Interior. Icing also occurred throughout Southcentral and portions of Southwest Alaska. This icing event likely reduced subnivean habitat for grouse and ptarmigan and may have had severe impacts on the ability of Dall's sheep, moose, and caribou to access winter feed. Temperatures soared to above average in February and March throughout the entire state; however, snowfall continued accumulating in Southcentral and the Interior. Southwest Alaska snow that fell in the early winter was gone by early-March. As a result of this warm-up, much of the subnivean habitat remained poor or inaccessible.

Spring 2021 was near normal for temperatures and precipitation. Deep snow throughout Interior and Southcentral challenged SGP field crews in accessing spring breeding survey locations. By mid-May, a rapid rise in temperatures caused flooding and very swollen rivers by late May in some Interior and Southcentral rivers. Southwest Alaska had very little snow to melt in April and May and temperatures were well above average through May and much of June 2022. Between mid-May and mid-July most regions of the state experienced a prolonged warm, clear, and dry period that exacerbated the fire season. By mid-July more than 2

million acres had burned statewide. Despite the fires these conditions were likely highly favorable to early grouse and ptarmigan chick survival throughout the state.

Beginning in mid-July, a significantly wetter and cooler period continued through early August. Snow was observed (>5,000') in the southern Talkeetna and Chugach mountains in late-July.

Beginning in 2017 and continuing into 2021, a spruce bark beetle (*Dendroctonus rufipennis*) outbreak has severely affected large stands of mature ( $\geq 15$ 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.

## 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 29 April to 20 May, 2022 in Interior Alaska and 24 April to 16 May, 2022 in the Mat-Su. Survey conditions in the Interior were generally good with light winds and cool temperatures save for a few evening surveys; however, persistent, deep snow was still present late into the breeding season (mid-May) near Delta Junction and Tok. Similarly, survey conditions in Mat-Su were good; however, persistent snow was present on many of the routes through late-April or early-May. The average number of drumming males heard along survey routes in the Interior near Delta Junction and Tok remained low and relatively unchanged from 2021. However, survey data from routes near Fairbanks and Anderson suggest ruffed grouse numbers are likely increasing. Overall, counts of drumming males in Mat-Su in spring 2022 suggest ruffed grouse numbers have remained low for the past 3 years.

The proportion of juveniles in the harvest (based on hunter harvested wing collections) is used as an index of chick survival (Carroll and Merizon 2021). In the Mat-Su, the number of wing donations in RY21 ( $n = 13$ ) was below the long-term average making it very difficult to make meaningful inference based on the small sample size. In the Interior wing donations received in RY21 ( $n = 19$ ) were comparable to RY20 ( $n = 17$ ), which was likely a result of lower ruffed grouse abundance but also partly due to reduced hunter participation in wing donations due to persistent effects of Covid-19. Although Covid-19 likely did not keep grouse and ptarmigan hunters from hunting it may have made it more challenging for hunters to donate their wings. The proportion of juveniles in the harvested sample from the Interior in RY21 (84%) did not change from RY20 (82%); however, we urge caution in drawing strong conclusions as the sample of donated wings was small and came from a wide geographic area. Overall, hunter reports of ruffed grouse numbers were poor to very poor in the Mat-Su and the Interior during RY21.

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 and Anderson. Hunters should anticipate poor ruffed grouse hunting near Delta Junction, Tok, and in the Mat-Su region.

### Sharp-tailed Grouse

The SGP conducted annual spring breeding surveys near Delta Junction from 20 April to 4 May, 2022 and near Tok from 29 April to 2 May, 2022. 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). 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 2022 (2.7 males observed per lek) than in 2021 (3.3 males observed per lek), both of which were below the previous 5-year-average (3.8 males per lek). The number of active leks (21) observed near Delta Junction in 2022 was the same as in 2021. In Tok, the average number of males observed per lek was up slightly from 2021 (3.7 males observed per lek) to 2022 (4.3 males observed per lek), which was slightly higher than the previous 5-year-average (3.9 males per lek). The number of active leks observed near Tok was up from 4 in 2021 to 5 in 2022. For clarity, a lek is defined here as an area with  $\geq 1$  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 23-24 July, 2022 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 2022. Despite this, no broods were observed along 42.5 miles of transects in 2022. It is likely that weather and scenting conditions for dogs were not favorable for locating brood groups as there was heavy rain the night before the first day of surveys and little wind both days.

Similar numbers of sharp-tailed grouse wings were donated from hunters throughout the Interior in RY21 ( $n = 55$ ) than in RY20 ( $n = 46$ ), which, like ruffed grouse, was likely partly due to lower abundance but also reduced hunter participation due to effects of Covid-19. The proportion of juveniles in the harvest calculated from donated wings was up in RY21 (71%) from RY20 (57%). Most hunters reported seeing fewer sharp-tailed grouse in RY21; however, at least 1 hunter reported finding several large groups of sharp-tailed grouse on agricultural lands near Delta Junction and had no problem filling the bag limit in the early part of the season.

Overall, spring breeding surveys coupled with few observations during the brood rearing period suggest hunters may expect to see slightly lower abundance of sharp-tailed grouse near Delta Junction and similar numbers to last year near Tok this season.

### **Spruce Grouse**

Limited data are available for spruce grouse. 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. Early results from this evaluation suggest Mat-Su spruce grouse populations increased modestly in fall 2021.

Wing donations for spruce grouse throughout Southcentral and the Kenai Peninsula were down slightly again for RY21 ( $n = 175$ ) versus RY20 ( $n = 192$ ). Similar to RY20 (41%), RY21 samples documented poor chick survival in summer 2021 (40%). The number of donated samples in the Interior was similar in RY21 ( $n = 61$ ) to RY20 ( $n = 67$ ) as was the proportion of juveniles in the harvest in RY21 (64%) compared to RY20 (66%).

In 2022, Southcentral spruce grouse populations will likely be negatively affected by the ongoing and widespread spruce bark beetle infestation throughout the region. However, as a result of the warm dry

weather pattern through mid-July 2022 hunters should expect to see similar numbers of spruce grouse as in fall 2021. Summer 2022 field observation on the Kenai Peninsula suggest strong chick survival throughout the eastern peninsula. Field observations suggest good chick production for spruce grouse in the Interior. That coupled with the excellent weather conditions observed in June and July, hunters should expect to see average to slightly above average numbers of spruce grouse this season.

### **Sooty Grouse**

Spring breeding surveys were completed in Juneau, Petersburg, and Ketchikan between 6 April and 25 May, 2022. The spring breeding index was down in Juneau and Petersburg compared to 2021 but up slightly in Ketchikan. It is uncertain what has caused the multi-year decline in the Juneau area; however, deep snow and delayed melt during spring 2021, a very wet and snowy winter, and defoliation impacts from the western black-headed budworm may all have contributed. According to survey data, peak breeding activity was near the long-term average in 2022.

Southeast grouse hunters should anticipate fewer sooty grouse this fall and next spring when compared to the recent past.

### **Rock Ptarmigan**

Rock ptarmigan spring breeding surveys occurred from 25 April to 24 May, 2022 throughout the Kenai Peninsula, Anchorage Bowl, Alaska Range, and White Mountains. Spring breeding abundance of rock ptarmigan in 2022 on the Kenai Peninsula was down slightly from 2021 but near the recent 5-year average, down in Anchorage, but up throughout the Alaska Range in 2022. Survey data indicate rock ptarmigan at Donnelly Dome are likely stable yet decreasing near Mount Fairplay and Eagle Summit (Steese Highway). Rock ptarmigan populations throughout Southwestern Alaska and the Alaska Peninsula appear to be rebounding with several locations throughout the Yukon-Kuskokwim (YK) Delta observing high spring breeding abundance in May 2022. Spring and summer temperatures in 2022 in Southwestern Alaska and the Alaska Peninsula were warm and mostly dry and likely contributed to strong chick survival.

Sixteen harvested rock ptarmigan wings were collected in RY21 most from Unit 14. There were no rock ptarmigan wings donated from the Interior in RY21.

Brood surveys were completed between 15 and 31 July, 2022 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 more focused on willow ptarmigan. Surveys near Eagle Summit were only partially completed in 2022 as a result of volunteer and SGP staff availability; therefore, comparisons between 2021 and 2022 are not possible. Field observations from BLM staff conducting trail work in the area suggested good chick production during summer 2022. Surveys in CSP documented very good chick production in 2022 (n = 6; 5.5 chicks/brood; range 3-9). Although few rock ptarmigan were observed in Hatcher Pass or the Kenai Mountains, chick survival was likely strong in those areas based on the warm and dry summer.

Overall, hunters are likely to encounter relatively abundant rock ptarmigan populations throughout much of the Alaska Range, Southcentral, and western Alaska with possibly fewer rock ptarmigan near Eagle Summit in 2022.

### **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 production

throughout the Chugach, Kenai, and Talkeetna mountains. Similar to rock and willow ptarmigan, surveys in CSP and the Kenai Mountains suggest good chick survival of white-tailed ptarmigan in 2022 ( $n = 5$ ; 5 chicks/brood; range 4-6).

Much like other ptarmigan species in 2022, we anticipate abundant populations of white-tailed ptarmigan throughout the Alaska Range, Chugach, Kenai, and Talkeetna mountains.

### **Willow Ptarmigan**

Willow ptarmigan spring breeding surveys occurred from 24 April to 29 May, 2022 throughout the Kenai Peninsula, Anchorage Bowl, the Alaska Range, Nome, and White Mountains. Spring breeding surveys in 2022 along the eastern Denali Highway (Unit 13B) were up very slightly from 2021 yet remain below the 5-year average. Estimates from the western Denali Highway (Unit 13E) and Denali National Park (DNP) were up from 2021. Surveys of willow ptarmigan near Delta Junction within the Donnelly Training Area (DTA) suggest a stable to slightly increasing numbers from 2021 to 2022, and numbers near Mount Fairplay were down from 2021 to 2022. Willow ptarmigan populations throughout Southwestern Alaska and the Alaska Peninsula appear to be rebounding with several locations throughout the YK Delta observing high spring breeding abundance in May 2022.

Summer brood surveys were completed between 15 and 31 July 2022 along the Denali Highway, Sheep Mountain, Hatcher Pass, CSP, and the Kenai Peninsula. Denali Highway brood surveys documented only 3 brood groups (5.5 chicks/brood average). Despite few brood groups, which was anticipated based on very low chick survival for at least 2 prior seasons, the high number of chicks per brood is very promising and as a result hunting along the Denali Highway is expected to be better than fall 2021. Similar to rock and white-tailed ptarmigan, surveys in CSP documented very good chick survival of willow ptarmigan in 2022 ( $n = 4$ ; 6.2 chicks/brood; range 7-10).

Hunter harvested willow ptarmigan wings were collected statewide ( $n = 267$ ) during RY21. Samples were collected from primarily Southcentral ( $n = 138$ ), the Kenai Peninsula ( $n = 38$ ), and the Alaska Range ( $n = 58$ ). Only 16 willow ptarmigan wings were donated from the Interior in RY21. Statewide, the proportion of juveniles in the harvest was highly variable for RY21. For example, wing donations from Southcentral (78%) suggest very good chick production and survival compared to the Kenai Peninsula (42%), and the Alaska Range (43%). Wing collection data from RY21 further confirms the summer 2021 brood survey results of very poor chick survival along the Denali Highway and Kenai Peninsula.

Overall, hunters are likely to encounter more willow ptarmigan throughout much of the Alaska Range in 2022 compared to 2021, even higher numbers are expected throughout Southcentral, Kenai Peninsula, and western Alaska in 2022.

### **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. In Southcentral hare populations peaked during in 2020/2021 and are near the low of their cycle. Populations on the Kenai Peninsula are abundant and likely peaked in 2022. Based on ADF&G staff observations, snowshoe hare remain abundant throughout the YK delta and lower Kuskokwim River. However, hare abundance is low in most of Bristol Bay and the Seward Peninsula.

### **Regulatory Changes**

During the January 2022 meeting the BOG adopted a proposal that requested a season, harvest limit, and salvage requirement for Alaska hare in Unit 17. Regulations will be identical to those in Unit 9. During the March 2022 meeting the BOG adopted a proposal that requested a salvage requirement for snowshoe hare. As defined under this new regulation, salvage is for human use which means that any use of either the meat or hide will meet the legal requirement including salvage of meat, hide, and used for human consumption, dog training, trapping bait, etc. Both new regulations will take effect during the RY22 season.

For the upcoming BOG meeting schedule and the list of proposals to be considered during the 2022-2023 BOG cycle please visit the BOG webpage ([www.boardofgame.adfg.alaska.gov](http://www.boardofgame.adfg.alaska.gov)).

### **Public Involvement and Support**

Beginning in July 2021 and continuing in 2022, several volunteer organizers nearly tripled the annual volunteer-based brood survey project that 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 Kenai Mountains. Beginning in 2021, volunteer hours were 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 either Rick Merizon in Palmer (907.746.6333) or Cameron Carroll in Fairbanks (907.459.7237).

Our 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.