

Alaska

Small Game Summary 2017

Richard A. Merizon and Cameron J. Carroll

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 (*Falcapennis 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 components including research, management, and outreach. Recent research results are briefly described within the specific species sections. Management efforts largely focus on spring breeding and brood surveys, harvest composition, recommendations to the Alaska Board of Game (BOG) regarding regulation changes, and addressing concerns from staff and the public. Specific survey methods are fully described in Carroll and Merizon (2017). Survey and research efforts to date have focused on the more heavily hunted 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 2016 regulatory year (RY16, 1 July, 2016–30 June, 2017). Specifically, it addresses: 1) 2016/2017 weather patterns, 2) species status including spring breeding survey, summer brood survey, and harvest composition results 3) research updates, 4) recent regulatory changes, and 5) new developments and outreach efforts. A more thorough multi-year (2017 and 2018) management report will be published by December 2018 highlighting these topics in more detail (available at: www.smallgame.adfg.alaska.gov).

2016 / 2017 Weather and Brood Production

A warm and mostly dry period persisted for areas between Fairbanks and the Kenai Peninsula between June and early July 2016, which was very favorable for grouse and ptarmigan chicks. However, the Alaska Peninsula was wet and cool potentially causing higher ptarmigan chick mortality. Late July through September saw cloudy conditions with frequent drizzle and rain throughout Southcentral and the Interior with relatively mild temperatures (monthly averages ranged from the mid-40s into the 60s).

The first fall snow was observed along the Chugach Mountains and Alaska Range in mid-September 2016. However, persistently warm daytime temperatures (highs near 40-45F) caused very little snow accumulation above 1,000' in these areas through December.

On average 2016 was warmer than the recent past. For all of 2016, Anchorage, Fairbanks, Barrow, King Salmon, and Cold Bay documented between 71-87% of days with above average temperatures (Alaska Dispatch News, 30 December, 2016). In addition the polar arctic temperatures also remained well above normal during the first half of the 2016-17 winter (Alaska Dispatch News, 17 November, 2016). Temperatures reached 36F above average over the first

half of November 2016 which was driven by record low sea ice coverage and warm, moist air from the south.

Warmer than average temperatures may have contributed to higher than normal ptarmigan mortality in Southcentral, the Alaska Peninsula, and the Alaska Range between late September and early December due to a mismatch in plumage / landscape color.

Near normal monthly temperatures and snowfall were documented throughout the road system between January and March 2017. The Fairbanks area received significant snowfall that persisted throughout the second half of the winter. Near normal temperatures also were recorded for much of January and February with daytime temperatures reaching only -20F to -30F in portions of the Interior.

The spring of 2017 was near normal. March was cool and clear with persistently strong high pressure over much of the state for the entire month. However, temperatures and precipitation patterns returned to near normal throughout April and May 2017. In late May, snow and cooler temperatures returned to the Alaska Range and the Chugach, Kenai, and Talkeetna mountains (above 2,000').

Weather conditions throughout Southcentral and the Interior during the hatch and early brood rearing period (first two weeks of June) for grouse were generally good with temperatures averaging 53.3°F in Southcentral and 62.8°F in the Interior and below average precipitation recorded in Anchorage bowl and slightly above average precipitation recorded in Fairbanks (www.akclimate.org). Temperatures were especially warm within the first two weeks of June near Fairbanks and likely aided early chick survival.

Species Status

Ruffed Grouse

Springtime breeding surveys were conducted from 22 April to 13 May in Interior Alaska and 7 April to 12 May in the Matanuska-Susitna valley (Mat-Su). Survey conditions were excellent with ideal temperatures and relatively calm winds. Surveys were conducted at long-term monitoring sites near Palmer, Delta Junction, Anderson, and Tok. Overall, counts of drumming males in Mat-Su suggest a decrease in ruffed grouse abundance from spring 2016. Counts in the Interior suggested that ruffed grouse populations near Tok and Delta Junction may be declining in abundance but populations near Anderson are likely still increasing. Harvest composition data for the Interior in RY16 was limited (n = 51) because wing donations were limited to ruffed grouse harvested in GMU 20 only (largely subunits 20B and 20D). This was likely at least partially a result of a decrease in hunter participation in the wing collection program. Analysis of the data did not indicate a change in the proportion of juveniles (z-test for proportions, $p= 0.39$) in RY16 (71% juveniles) compared to RY15 (77% juveniles). The proportion of juveniles in the harvest (based on hunter harvested wing collections) is used as an index of juvenile recruitment (Carroll and Merizon 2014). General observations of ruffed grouse broods in the Interior and the Mat-Su this summer indicate strong brood production, which was expected given the relatively warm and dry conditions observed in the first 2 weeks of June for these regions. Hunters should expect to see good numbers of ruffed grouse in areas around Fairbanks and near Anderson but possibly fewer throughout the eastern Interior and Mat-Su regions.

Sharp-tailed Grouse

We conducted our annual springtime surveys near Delta Junction from 18-25 April and near Tok on 27-29 April. Survey conditions were excellent with light to moderate winds and little

snow cover. The count of males in Delta Junction was up from 4.05 males/lek last year to 4.87 males/lek although the change was not statistically significant (two-sample t-test, $p > 0.50$). Harvest composition from wing collections ($n = 72$) throughout the Interior from fall 2016 to winter 2017 (RY16) did not show a statistically significant difference (z-test for proportions, $p = 0.47$) in the proportion of juveniles in the harvest compared to RY15. Brood counts conducted near Delta in mid-July documented an average of 4.3 chicks per brood group ($n = 9$), which was up from average of 3.3 observed in 2016 ($n = 6$); however small sample sizes from both years make it difficult to draw any strong conclusions from this data alone. Hunters should expect to see good numbers of sharp-tailed grouse near Delta Junction this season.

Spruce Grouse

Limited data are available for spruce grouse. All abundance projections are limited to inference made from wing collections and field observations. Harvest composition throughout Southcentral and the Kenai Peninsula ($n = 160$) for RY16 had significantly higher proportion of juveniles (72%, $P = 0.003$) than RY15 (64%). The Interior ($n = 96$) documented a lower proportion of juveniles in RY16 (71%) than in RY15 (76%), however the difference was not significant (z-test for proportions, $P = 0.29$). Fall 2016 abundance appeared to be similar to slightly higher throughout Southcentral and the southern Interior. However, in southwestern Alaska spruce grouse populations appeared to be much lower than in 2015 and are expected to remain low in 2017. As with many other grouse species in the Interior and Southcentral there are numerous reports of highly productive broods suggesting good abundance of spruce grouse this fall.

Sooty Grouse

The third year of spring breeding surveys were completed in Juneau and Petersburg between 7 April and 19 May 2017. Survey routes occur along popular hiking trails in Juneau, Douglas Island, and on roads of Mitkof and Kupreanof islands in Petersburg. Data collected in spring 2017 reflects similar to slightly lower abundance than in 2016 in both Juneau and Petersburg. Indications are that the monitored populations appear to be quite stable despite slight inter-annual variability. Hunters reported decent to good hunting in April and May 2017. Due to low sample size of hunter harvested wings an estimate of the proportion of juveniles in the harvest was not possible. However, most of the hunter harvested wings turned in were males from the last 4 weeks of the season (April 15 to May 15). Hunters should expect sooty grouse population abundance to remain near the long-term average throughout Southeast Alaska.

Rock Ptarmigan

Rock ptarmigan spring breeding surveys occurred from 28 April to 20 May 2017 throughout the Kenai Peninsula, Anchorage Bowl, Alaska Range, and White Mountains. Overall, spring breeding surveys in the Anchorage Bowl and Alaska Range documented a modest decrease from 2016 in number of breeding males. However, spring surveys indicated similar to slightly more breeding males on the Kenai Peninsula and in the White Mountains than in spring 2016. Spring breeding densities along the Denali Highway were lower than in 2016. Reports from DWC staff in Bethel, Dillingham, and King Salmon all suggest low to very low rock ptarmigan abundance in western and southwestern Alaska including the Alaska Peninsula. What exactly is causing the decline in western and southwestern Alaska is unknown however spring weather patterns and predation are likely contributing to the decline observed since 2015.

Hunter harvested rock ptarmigan wings were collected during RY16 ($n=39$) from primarily the Alaska Range and the Chugach Mountains. Due to the limited sample size of wings collected across such a wide geographic area, little inference can be gained from comparing the data from 2016 and 2015. However, chick production in the Alaska Range, Interior, and Southcentral mountains was likely strong during summer 2017 due to warm temperatures, dry conditions in June, and good insect production

Brood surveys conducted with volunteers and their pointing dogs near Eagle Summit in July documented fewer chicks per brood group (3.2 chicks per brood group, $n = 4$) than in 2016 (6.3 chicks per brood group, $n = 4$); however small sample sizes from both years make it difficult to draw any strong conclusions from this data alone. Data collected from radio-collared rock ptarmigan hens that were monitored during nesting and throughout the majority of the brood rearing period (late June/early July) suggest better nest success in 2017 (58% of hens that nested successfully hatched ≥ 1 chick, $n = 19$) compared to 2016 (50% of hens that nested successfully hatched ≥ 1 chick, $n = 12$) and although no data exists from 2016 73% of hens that successfully hatched chicks in 2017 had chicks with them at the end of June.

Beginning in 2013, research was initiated on rock ptarmigan in Alaska. A study in Unit 25C (Eagle Summit) is currently (2015-present) documenting annual movement, mortality, and productivity. This study also involves a spring survey to estimate density of breeding males, an index of the breeding population. A second study (2013-2017) in Unit 13B also documenting and estimating movement, mortality, and productivity has been completed and data are now being analyzed. We expect that these studies will enable us to better inform the public of population changes, which will affect ptarmigan hunters. Preliminary results show that 1) females tend to disperse greater distances than males during the fall and winter, 2) males tend to stay close to breeding territories throughout the winter and flock together, 3) both sexes have a high degree of breeding sight fidelity, and 4) trail cameras have proven very useful in monitoring early chick production and nesting ecology of hens. Results from Unit 13B study should be available in a final report by December 2017.

White-tailed Ptarmigan

Little is known about white-tailed ptarmigan other than wing collections and hunter reports. This is a difficult species for which to complete spring breeding surveys due to access. Wing collections revealed nearly 46% juveniles ($n=41$) from samples collected within the Chugach, Kenai, and Talkeetna mountains. During the 2016-17 season, hunters reported generally encountering similar to or fewer white-tailed ptarmigan than in previous years in the southern Talkeetna and western Chugach mountains. Much like other grouse and ptarmigan, we anticipate good chick production based on the relatively warm and dry conditions experienced across much of the Alaska Range and Southcentral mountains in June 2017.

Willow Ptarmigan

Willow ptarmigan spring breeding surveys occurred from 28 April to 12 May, 2017 throughout the Kenai Peninsula, Anchorage Bowl, Alaska Range, and White Mountains. Surveys in the Alaska Range and White Mountains documented a decrease over 2016 in the number of breeding males. Spring breeding densities along the Denali Highway were slightly lower than in 2016. However, summer brood surveys along the Denali Highway in July 2017 suggest abundant and large broods. Reports from DWC staff in Bethel, Dillingham, and King Salmon all suggest low to very low willow ptarmigan abundance in western and southwestern Alaska including the Alaska Peninsula. What exactly is causing the decline is

unknown however spring weather patterns and predation are likely contributing to the decline observed since 2015.

Hunter harvested willow ptarmigan wings were collected statewide (n = 330) during RY16. Samples were collected from primarily the Kenai and Seward peninsulas, the Alaska Range, and the Chugach Mountains resulting in a significantly lower proportion of juveniles in the RY16 harvest (60%) than in RY15 (67%). Despite generally good chick rearing conditions during summer 2016 in the Alaska Range and Southcentral Alaska, western and southwestern Alaska and the Alaska Peninsula experienced a cool, wet summer that likely contributed to poor chick survival.

Beginning in April 2013 a study was initiated to examine movement and mortality of willow ptarmigan in the proposed Watana Hydroelectric study area. This has been a joint study with the Alaska Energy Authority, University of Alaska Fairbanks, and ADF&G. This project has completed its final year of field work and a final report will be available by December 2017.

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 population is fairly stable at a low density in Southwest and Western Alaska.

In March 2017, efforts were made to test various capture methods for Alaska hare in southwest Alaska. With refined capture methods, the Small Game Program and DWC staff plan to embark on radio collaring individuals and learn more about their movement, mortality, and overall life history in the coming year. The SGP is also examining the efficacy of using pellets as a method for estimating abundance.

Snowshoe Hare

In the Interior, snowshoe hare are nearing the peak of their predictable and significant population cycle that occurs over a 9-10 year period. In Southcentral, snowshoe hares are also increasing in abundance but likely will peak between 2018 and 2019. The Kenai Peninsula snowshoe hare population will likely peak between 2019 and 2020. Based on roadside counts in the Interior as well as staff observations while completing other field work in spring 2017, snowshoe hare have increased significantly since 2015 in locations near Fairbanks, Delta Junction, and Tok. Snowshoe hare are also increasing in the Mat-Su and Anchorage.

Regulatory Changes

There were no changes made to small game season dates, bag limits, or methods and means of harvest during the 2016-2017 BOG cycle. For the upcoming BOG meeting schedule and the list of proposals to be considered during the 2017-2018 BOG cycle please visit the BOG webpage (<http://www.adfg.alaska.gov/index.cfm?adfg=gameboard.main>).

New Developments and Outreach

In July 2017 the SGP continued efforts initiated in 2016 to monitor brood number and size of select hunted populations of sharp-tailed grouse and rock and willow ptarmigan throughout the road system of Alaska. Engaged volunteers and their highly trained pointing dogs are used to locate and enumerate broods along survey routes. Survey locations include Eagle Summit

(Steese Highway), Delta Junction, Denali Highway, and Hatcher Pass. 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).

Through the support of an outside conservation organization called the Founding Forty the SGP will be initiating three separate projects beginning July 2017. One, grouse habitat manipulation will continue on state land near Tok and possibly on state lands located near Delta Junction and Fairbanks for the benefit of ruffed and sharp-tailed grouse. Two, a research modeling project will examine the role winter conditions play in the life history of ruffed grouse in the southern Interior of Alaska. Three, additional Alaskans Afield small game hunting classes will be created throughout Alaska including Nome, Kotzebue, Bethel, Ketchikan, Juneau, and Fairbanks.

Our statewide wing collection program continues to have 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. Please consider donating your harvested grouse and ptarmigan wings, it is often the only way the SGP can gather important biological information across our large state. If you're interested in participating, at no cost, please contact your local ADF&G office or small game staff.

Literature Cited

Alaska Dispatch News, 30 December 2016. <https://www.adn.com/alaska-news/weather/2016/12/30/dont-let-the-recent-snowy-weather-fool-you-alaska-is-having-a-really-warm-winter/>.

Alaska Dispatch News, 17 November 2016. <https://www.adn.com/arctic/2016/11/17/the-north-pole-is-an-insane-36-degrees-warmer-than-normal-as-winter-descends/>.

Carroll, C. J., R. A. Merizon. 2017. Status of grouse, ptarmigan, and hare in Alaska, 2015 and 2016. Alaska Department of Fish and Game, Wildlife Management Report ADF&G/DWC/WMR-2017-1, Juneau.