

Alaska

Small Game Summary 2018

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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 (*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 responsibilities including research, management, and outreach. Recent research results are briefly described within the specific species sections. Management efforts largely focus on 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 2017 regulatory year (RY17, 1 July, 2017–30 June, 2018). Specifically, it addresses: 1) 2017/2018 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).

2017 / 2018 Weather and Brood Production

For Southcentral, Interior, and portions of Western Alaska, spring and summer 2017 were near normal with average to slightly above average temperatures and near normal precipitation (www.akclimate.org). June and July 2017 were warm and generally very favorable for grouse and ptarmigan chick survival. This resulted in large and numerous broods of sharp-tailed grouse and rock and willow ptarmigan throughout monitored populations in Southcentral and Interior Alaska. Reports from hunters and residents on the Seward Peninsula also reported very abundant populations of willow ptarmigan throughout the Nome road system during the fall and winter of 2017-2018. However much like summer of 2016, Southwestern Alaska (Yukon-Kuskokwim delta and Alaska Peninsula) again suffered a wet and cold summer between late-June and August. Again, this likely strongly contributed to observations of very low rock and willow ptarmigan abundance by ADF&G staff and fall 2017 hunters in those areas. Throughout much of the winter of 2017-2018, Southwestern Alaska received very little snow until January or February further adding negative pressure to those ptarmigan populations.

The winter of 2017-2018 for Southcentral and Interior Alaska received near normal temperatures and precipitation through October. However, November and December were warmer than normal for the

Chugach, Talkeetna, and Kenai mountains with high elevation snow and low elevation rain through much of December. Very little snow was documented in Southcentral until mid-January. However, near normal snowfall returned in February and March. The Interior and Alaska Range received near record snowfall throughout January and March.

The snow began melting in late-March in Southcentral and Fairbanks was largely snow-free by early-May, although snow did persist in some areas near Fairbanks, Anderson, and Delta Junction until the second week of May. The DOT crew clearing the Denali Highway was unable to open the roadway until May 18 due to late winter snow, delayed onset of melt, and a deep snow pack.

Throughout 2017 and 2018 a growing spruce bark beetle (*Dendroctonus rufipennis*) outbreak became obvious throughout Southcentral Alaska and the Kenai Peninsula. The Kenai Peninsula has experienced the outbreak for the past 3-4 years however the threat has moved throughout the Anchorage bowl and particularly the central and northern Susitna valley. Beetle infestations have moved rapidly and have largely impacted white spruce (*Picea glauca*) greater than 15cm in diameter. This outbreak could have a significant impact on the spruce grouse populations throughout these areas.

During the first half of June 2018, several significant snowfall events were observed throughout the Kenai, Chugach, and Talkeetna mountains, and the Alaska Range. This had an impact on alpine nesting ptarmigan throughout those mountains and resulted in lower than average chick survival and subsequently lower proportion of juveniles is expected in the fall 2018 harvest.

Temperature and precipitation were generally cooler and drier in the Interior in June 2018. Drier conditions likely had a positive influence on chick survival for grouse and ptarmigan in the Interior, although spring breeding surveys did not indicate large abundance for any grouse or ptarmigan species.

Species Status

Ruffed Grouse

Spring breeding surveys were conducted from 16 April to 11 May in Interior Alaska and 13 April to 10 May in the Matanuska-Susitna valley (Mat-Su). Survey conditions were good however persistent snow covered many of the survey routes throughout much of the survey period. Surveys were conducted at long-term monitoring sites near Palmer, Delta Junction, Anderson, Fairbanks, and Tok. Overall, counts of drumming males in Mat-Su suggest a modest increase in ruffed grouse abundance from spring 2017 and one that has remained above the long-term average since 2014. Counts across the Interior were down in 2018. It is important to note that in most Interior survey locations, deep snow persisted throughout the survey period and surveys may have preceded the peak of drumming activity. It was observed that song birds were generally not present during surveys until May, which is unusual and suggests a slightly delayed breeding season was likely.

In the Interior, wing donations in RY17 ($n = 133$) were higher than those received in RY16 ($n = 57$), which was likely a result of both availability of grouse and increased hunter participation in RY17. Analysis of the data did not indicate a change in the proportion of juveniles (z-test for proportions, $p = 0.78$) from RY16 (72% juveniles) to RY17 (70% 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 2017). General observations of ruffed grouse broods in the Mat-Su this summer indicate average brood production, which was expected given the relatively cool and often wet conditions observed in the first 2 weeks of June. There have been fewer reports of ruffed grouse broods in the Interior. However, weather during the first few weeks of June was likely favorable for

chick survival with drier than average conditions. Hunters should expect to see average numbers of ruffed grouse in the Mat-Su but likely lower than average in the Interior.

Sharp-tailed Grouse

We conducted our annual spring breeding surveys near Delta Junction from 16 to 26 April and near Tok from 26 April to 6 May. Survey conditions were generally good with light to moderate winds. However, substantial snow cover made travel to some survey areas difficult and subsequently led to substantial flooding along access trails near Delta Junction when temperatures warmed. Both of these may have led to a delay in peak breeding. The count of males in Delta Junction was down from 5.3 males/lek in 2017 to 3.2 males/lek in 2018. The number of active leks was also down in 2018 ($n = 15$) from 2017 ($n = 23$) but similar to the number of active leks in 2016 ($n = 16$) and 2015 ($n = 17$). The number of males/lek from 2017 is slightly higher than previously reported due to changes made in determining a true lek. Following Hagen et al. (2011) a lek is defined here as an area with ≥ 1 male sharp-tailed grouse observed displaying in 2 or more of the last 7 years.

More wings were donated from hunters throughout the Interior in RY17 ($n = 160$) than in RY16 ($n = 82$) and although the proportion of juveniles in the harvest was lower in RY17 (62% juveniles) compared to RY16 (71% juveniles) the difference was not significant (z-test for proportions, $p=0.17$), indicating good juvenile production in both years.

Brood counts conducted near Delta Junction in mid-July documented an average of 1.0 chick per brood ($n = 2$), which was down from the average of 4.3 chicks per brood observed in 2017 ($n = 9$). From these numbers it appears as though chick production was poor this summer. However, small sample sizes from both years make it difficult to draw strong conclusions from this data alone regarding juvenile production. Additionally, scenting conditions were poor (e.g. little wind) making it more challenging for pointing dogs to locate birds before they flushed. This resulted in the inability to positively age birds. Hunters should expect to see lower 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 ($n = 176$) for RY17 had significantly lower proportion of juveniles (59%, z-test for proportions, $P=0.01$) than RY16 (73%; $n = 163$). Harvest composition from donated wings in the Interior were up in 2017 ($n = 160$) from 2016 ($n = 107$) and indicated a lower proportion of juveniles in RY17 (68%) than in RY16 (73%), however the difference was not significant (z-test for proportions, $P=0.35$). In 2018, based on numerous observations of large to average size broods throughout Interior and Southcentral Alaska, spruce grouse populations are expected to be near the long-term average. ADF&G staff observations near King Salmon suggest good chick production during summer 2018. However, throughout Southwestern Alaska and portions of the Kenai Peninsula populations appear to be lower than average and following a recent trend of lower than average production.

Sooty Grouse

Spring breeding surveys were completed in Juneau and Petersburg between 9 April and 22 May. Data collected in 2018 reflects lower abundance than in 2017 in Juneau, Douglas and Mitkof islands.

However, survey results from Kupreanof Island reflect higher abundance than in 2017. Hunters reported fewer birds in general throughout Southeast Alaska during fall 2017 and spring 2018. Due to low sample size of hunter harvested wings ($n=42$) 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 away from urban centers; however lower than average near urban centers.

Rock Ptarmigan

Rock ptarmigan spring breeding surveys occurred from 14 April to 22 May throughout the Kenai Peninsula, Anchorage Bowl, and Alaska Range. No breeding surveys were completed in the White Mountains in 2018. Overall, spring breeding surveys in the Anchorage Bowl, Alaska Range, and the Kenai Peninsula documented a modest decrease from 2017 in number of breeding males. Reports from ADF&G staff in Bethel, Dillingham, and King Salmon all suggest continued low to very low rock ptarmigan abundance in Southwestern Alaska and 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. In the southern portion of the Seward Peninsula rock ptarmigan populations appear to be strong.

Hunter harvested rock ptarmigan wings were collected during RY17 ($n=38$) from primarily Southcentral ($n = 26$). Due to the limited sample size of wings collected across such a wide geographic area, little inference can be made about the proportion of juveniles in the RY17 harvest.

Brood surveys were completed during the last 2 weeks of July near Eagle Summit (Unit 25C), across the Denali Highway (Units 13B and 13E), and in Hatcher's Pass (Unit 14A). At Eagle Summit, surveys documented slightly more chicks per brood group (3.8 chicks per brood group, $n = 6$) than in 2017 (3.2 chicks per brood group, $n = 5$); however small sample sizes from both years make it difficult to draw any strong conclusions from this data alone. Very few rock ptarmigan were located along the Denali Highway during brood survey efforts in summer 2018. Data collected from radio-collared rock ptarmigan hens that were monitored during the nesting and brood rearing period at Eagle Summit and along the Denali Highway suggest poor nest success and low chick survival compared to 2017. Overall, hunters can expect lower abundance in RY18 with a low proportion of juveniles contributing the fall harvest.

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. A second study (2013-2017) in Unit 13B, also documented movement, mortality, and productivity has been completed (Merizon et al. 2018). For a full list of recent SGP reports please visit (www.smallgame.adfg.alaska.gov). A third study (2018-2020) was initiated this spring examining and comparing the reproductive ecology of rock ptarmigan between the Steese and Denali highway populations.

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 50% juveniles (n=23) in RY17 from samples collected within the Chugach, Kenai, and Talkeetna mountains. During the RY17 season, hunters reported generally encountering fewer white-tailed ptarmigan than in previous years in the southern Talkeetna and western Chugach mountains. Much like other grouse and ptarmigan, we anticipate poor chick production based on the cool and wet conditions experienced across much of the Alaska Range and Southcentral mountains in June and early July 2018.

Willow Ptarmigan

Willow ptarmigan spring breeding surveys occurred from 20 April to 24 May throughout the Kenai Peninsula, Anchorage Bowl, Alaska Range, and White Mountains. Surveys in the Alaska Range and Anchorage bowl documented a significant increase from 2017. The number of breeding male willow ptarmigan, particularly in Unit13B (eastern Denali Highway) were nearly double the previous high in 2016. However, summer brood surveys along the Denali and Steese Highways in July 2018 suggest very low chick survival with few and small broods overall due to very cool and wet conditions throughout June and early July 2018. Spring surveys on the Kenai Peninsula also documented a modest increase from 2017. However, spring surveys in the White Mountains documented a decrease over 2017 in the number of breeding males. Reports from ADF&G staff in Bethel, Dillingham, and King Salmon all suggest continued low to very low willow ptarmigan abundance in Southwestern Alaska and the Alaska Peninsula. What exactly is causing the decline is unknown however spring weather patterns and predation are likely strong contributors to the decline observed since 2015. Spring breeding surveys for willow ptarmigan were initiated along the Nome road system (Unit 22C) for the first time in 2018. Results suggest strong spring breeding abundance and field observations throughout summer 2018 report a robust willow ptarmigan population throughout at least the southern Seward Peninsula.

Hunter harvested willow ptarmigan wings were collected statewide (n = 418) during RY17. Samples were collected from primarily the Alaska Range, Southcentral, and Western Alaska. A modestly higher (65%) but not statistically significantly proportion of juveniles in the RY17 harvest was observed compared to RY16 (60%) and very near the recent 3-year statewide average. Western Alaska had the highest proportion of juveniles (72%, n=183) and Southcentral had the lowest (60%, n=110). Very poor chick rearing conditions were experienced during June and early July 2018 throughout Southcentral, Interior, Alaska Peninsula, and Southwestern Alaska. This likely resulted in low chick survival and hunters can anticipate a low proportion of juveniles in the fall 2018 harvest.

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 and 2018, efforts were made to test various capture methods for Alaska hare in Southwest and Western Alaska. In May 2018 the first Alaska hare was captured north of Nome and fitted with a GPS tracking collar. Also, beginning in July 2018, a large scale study will be initiated evaluating movement and mortality rates of Alaska hare at various locations in Southwestern Alaska as well as the evaluation of various long-term monitoring techniques including genetic mark-recapture.

Snowshoe Hare

In the Interior, snowshoe hare are at the peak of their 8-10 year population cycle and are readily available to hunters. In Southcentral, snowshoe hares are also very abundant but likely will peak in 2019 and the Kenai Peninsula in either 2019 or 2020. Based on roadside counts in the Interior as well as ADF&G staff observations in spring 2018, snowshoe hare are highly abundant and widespread throughout the Interior in locations near Delta Junction, Fairbanks, Healy, and Tok as well as many locations throughout Southcentral like Glennallen and Anchorage.

Regulatory Changes

During the February 2018 meeting in Dillingham the BOG addressed 7 small game proposals. Beginning with the RY18 season, unit 13B and 13E ptarmigan hunting season dates will be aligned from August 10 to February 15. The daily bag limit will remain 10 ptarmigan per day. Unit 9 ptarmigan season dates will change to August 10 to February 28 with a reduced daily bag limit of 10 ptarmigan per day. Unit 9 Alaska hare will have a defined season from November 1 to January 31 with a yearly bag limit of 4 and a salvage requirement of either the hide or meat.

For the upcoming BOG meeting schedule and the list of proposals to be considered during the 2018-2019 BOG cycle please visit the BOG webpage (www.boardofgame.adfg.alaska.gov).

New Developments and Outreach

In July 2018 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).

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. 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 small game staff.