Alaska
Small Game Summary 2016

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, Storch 2000) including ruffed (*Bonasa umbellus*), sharp-tailed (*Tympanuchus phasianellus*), sooty (*Dendragapus fuliginosus*), and spruce (*Falcipennis 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 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 population demographic surveys, recommendations to the Alaska Board of Game regarding regulation changes, and addressing concerns from staff and the public. Specific survey methods are fully described in Carroll and Merizon (2014). Survey and research efforts to date have focused on the more heavily hunted road system from the Steese Highway south to the Kenai Peninsula. The programs outreach and education component are described below.

This report details the activities conducted by the Small Game Program during the 2015 regulatory year (RY15, 1 July, 2015–30 June, 2016). Specifically, it addresses: 1) winter 2015/2016 spring weather and brood production, 2) species status including breeding and brood survey and harvest composition results and research updates, 3) regulatory changes, and 4) new developments and outreach efforts. A more thorough multi-year management report will be published by December 2016 highlighting these topics in more detail.

2016 Spring Weather and Brood Production

Much like the winter of 2014-15, December 1, 2015 through February 2016 experienced unusually low snowfall across the state in locations below 800-1,000' and unusually warm mid-winter temperatures. The National Weather Service documented the warmest period on record for Barrow, King Salmon, and Sitka and the second warmest mid-winter period on record for Anchorage, Juneau, and Yakutat (Alaska Dispatch News, 1 March, 2016). The month of February was the warmest February ever recorded for the state as a whole (Alaska Dispatch News, 10 March 2016) with an average monthly temperature of 17.2°F degrees compared to the long-term average of 4.8°F degrees. The same period was also unusually dry at lower elevations throughout the state. Fairbanks set record low precipitation for the same mid-winter period. However, montane areas above 1,000' elevation in the Chugach, Talkeetna, Kenai mountains, and the Alaska Range were either near or above average snowfall. The warm weather pattern was likely driven by several factors including a powerful El Niño and warm water in the north Pacific Ocean driven by the Pacific decadal oscillation (Alaska Dispatch News, 10 March 2016).

What snow was present below 800-1,000' elevation largely melted by early to mid-March in Southcentral and late March to early April throughout the majority of the southern Interior. A combination of low snowfall throughout the winter and virtually no rainfall into early June created severe fire danger across much of the state. However, fire danger was lessoned by mid-

June for much of the state with several weather events that produced near average monthly rainfall.

This warm dry weather pattern in April through mid-June was very favorable for grouse and ptarmigan breeding activity, nesting, and early chick survival. Statewide breeding activity of male grouse and ptarmigan occurred either near the historical average or was early for several populations. Based on a sample of closely monitored rock ptarmigan in both the Alaska Range and White Mountains, incubation began between 22-29 May with clutches hatching between 11-24 June. Broods of ruffed, sharp-tailed, and spruce grouse and rock and willow ptarmigan in Southcentral, Interior, the Alaska Range, and White Mountains were documented with average clutch sizes of 5-11 chicks per brood. Mid-summer brood surveys using pointing dogs in these same areas revealed abundant and large broods of grouse and ptarmigan throughout all survey areas. One of the primary drivers of grouse and ptarmigan population productivity is the weather pattern 2-3 weeks post hatch, particularly for ptarmigan. Weather conditions across much of Alaska have been very favorable to early chick survival with low rainfall, average to record high temperatures, no snow below 6,000', and good insect and berry production (based on numerous field visits and staff reports). Based on all of these variables we anticipate strong chick survival and recruitment into the hunting population for both grouse and ptarmigan across much if not all of Alaska.

Species Status

Ruffed Grouse

Springtime breeding surveys were conducted from 17 April to 14 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 the Interior and Mat-Su indicated a modest increase in ruffed grouse abundance from spring 2015. Harvest composition from wing collections throughout the Interior from fall 2015 to winter 2016 was somewhat limited (n=115) because the data was collected over a relatively large area, yet we detected a significant increase (z-test for proportions, p=0.06) in the proportion of juveniles in the harvest in RY15 (77% juveniles) compared to 2014 (68% 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. This coupled with higher counts of drumming males heard during 2016 surveys, hunters should expect to see as many if not more ruffed grouse this fall than fall of 2015.

Sharp-tailed Grouse

We conducted our annual springtime surveys near Delta Junction from 18-30 April and initiated monitoring of several leks near Tok on 23-29 April. Survey conditions were excellent with light to moderate winds and no snow cover. The count of males in Delta Junction was down from 4.22 males/lek last year to 3.76 males/lek although the change was not statistically significant (two-sample t-test, $p>0.50$). Harvest composition from wing collections (n = 71) throughout the Interior from fall 2015 to winter 2016 did not show a statistically significant difference (z-test for proportions, p=0.46) in the proportion of juveniles in the harvest compared to 2015. Although the sample size is small from harvested wings, and therefore caution should be taken when interpreting these results, the data combined with late summer observations of numerous sharp-tailed grouse broods suggests

that the population of sharp-tailed grouse near Delta Junction is likely stable or slightly increasing.

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 = 244) for RY15 had significantly higher proportion of juveniles (65%, P=0.003) than RY14 (56%). The Interior also documented a higher proportion of juveniles in RY15 (76%, P=0.002) than in RY14 (64%). Fall 2015 abundance was higher than 2014 throughout much of the state, as reported by hunters and ADF&G staff. As with many other grouse species in the Interior and Southcentral there are numerous reports of highly productive broods suggesting higher abundance of spruce grouse this fall.

Sooty Grouse
We completed our second year of spring breeding surveys in Juneau and Petersburg on 8-15 April 2016. Survey routes occur along popular hiking trails in Juneau, Douglas Island, and on roads of Mitkof and Kupreanof islands in Petersburg. Data collected in April 2016 reflects similarly high abundance as in 2015 in both Juneau and Petersburg; however it is difficult to make intra-annual comparisons with only 2 years of data. Hunters reported good hunting in April and May 2016. However, too few hunter harvested wings were collected to estimate proportion of juveniles in the harvest. 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 22 April to 25 May 2016 throughout the Kenai Peninsula, Anchorage Bowl, Alaska Range, and White Mountains. Surveys in the Alaska Range and White Mountains documented a continued modest increase in the number of breeding males. Spring breeding densities were significantly higher along the eastern Denali Highway in 2016 (two-tailed t-test P=0.02) than in 2015.

Hunter harvested rock ptarmigan wings were collected during RY15 (n=72) from primarily the Alaska Range, Unalaska Island, and Seward Peninsula. 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 2015 and 2014. However, chick production in the Alaska Range and Interior and Southcentral mountains was strong during summer 2016 due to warm temperatures, dry conditions in June, and good insect production. Large broods (3-7 chicks per brood) were documented during brood surveys in late July 2016 near Hatcher Pass. Average brood size observed during brood surveys near Eagle Summit was 6 chicks per brood with a range of 2-13 chicks per brood.

Beginning in 2013, research was initiated on rock ptarmigan in Alaska. Two studies documenting annual movement, mortality, and productivity are underway. One within Unit 13B (2013-present) and a second at Eagle Summit on the Steese Highway (2015-present). The study on Eagle Summit also involves a spring survey to estimate density of breeding males, an index of the breeding population. We expect that this information 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 abundance surveys. Wing collections revealed nearly 54% juveniles from samples collected within the Chugach, Kenai, and Talkeetna mountains. Hunters reported generally encountering more white-tailed ptarmigan in larger flocks in the southern Talkeetna Mountains during winter 2015-16 than in previous years. Much like other grouse and ptarmigan, we anticipate good chick production based on summer 2016 weather patterns.

Willow Ptarmigan

Willow ptarmigan spring breeding surveys occurred from 22 April to 25 May 2016 throughout the Kenai Peninsula, Anchorage Bowl, Alaska Range, and White Mountains. Surveys in the Alaska Range and White Mountains documented a continued increase in the number of breeding males. Spring breeding densities were significantly higher along the entire Denali Highway in 2016 (two-tailed t-test P=0.002) than in 2015.

Hunter harvested willow ptarmigan wings were collected statewide (n = 351) during RY15. Samples were collected from primarily the Kenai and Seward peninsulas and the Alaska Range resulting in a modestly higher proportion of juveniles in the RY15 harvest (67%) than in RY14 (57%) although not statistically significant. This is an outcome of strong chick production in summer 2015 caused by a warm, dry 2015 spring and summer.

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 2016. Much has been learned about annual willow ptarmigan mortality and movement patterns in Unit 13.

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.

Snowshoe Hare

Snowshoe hare generally experience a predictable and significant population cycle that peaks about every 8-10 years. The previous high in this cycle occurred between 2008 and 2010 depending on location. The low in the cycle was likely reached in 2014 for the Interior and portions of Southcentral and likely occurred in 2015 on the Kenai Peninsula. Based on roadside counts in the Interior as well as staff observations while completing other field work in spring 2016, snowshoe hare are increasing near Fairbanks, Delta Junction, and Tok. Snowshoe hare are also increasing in the Mat-Su and Anchorage. Abundance is still relatively low outside of localized areas and the next population high is not expected until approximately 2018-2020 however, Interior hunters can expect to see a modest increase during the winter of 2016-17.

Regulatory Changes

There were no regulatory changes that affected small game season dates, bag limits, or methods and means of harvest during the March 2016 Board of Game meeting in Fairbanks. For the upcoming Board of Game meeting schedule or list of proposals to be considered please visit the Board of Game webpage (http://www.adfg.alaska.gov/index.cfm?adfg=gameboard.main).

New Developments and Outreach

New in 2016 is the creation of the first ever grouse and ptarmigan brood surveys throughout Interior and Southcentral Alaska. The Small Game Program has been working closely with international partners, ADF&G staff, and most importantly volunteer dog handlers and the their trained pointing dogs to develop a protocol for the enumeration of sharp-tailed grouse, rock and willow ptarmigan broods. Surveys locations include Eagle Summit (Steese Highway), Delta Junction, Denali Highway, and Hatcher Pass. Survey routes are completed in late June through July enumerating brood size, density, and species composition. As a result of these surveys the Small Game Program will have a much more comprehensive and robust understanding of population productivity, demographics, and movement immediately prior to the hunting season for the benefit of hunters and the regulatory process. 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).

The Small Game Program has also been active in trying to better inform the public through web media, handouts, and outreach programs. The program continues to participate in the Becoming an Outdoors Women (BOW) workshop in Chickaloon every March. For the second consecutive year we participated in the Alaskans Afield courses offered both in Palmer and Fairbanks in July 2016. Both Alaskans Afield and BOW offer an introduction to Alaska's small game species, hunting regulations, techniques, and recommended gear through a 3-4 hour class along with hands on field dressing instructions. Visit the ADF&G website for upcoming classes (http://www.adfg.alaska.gov/index.cfm?adfg=outdooreducation.main).

Our statewide wing collection program continues to have strong 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 Small Game Program 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

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