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# ANNUAL REPORT OF SURVEY-INVENTORY ACTIVITIES

## PART IX. SMALL GAME/UPLAND GAME

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Volume XV

Federal Aid in Wildlife Restoration

Project W-22-3, Job 10.0



(Printed February 1985)

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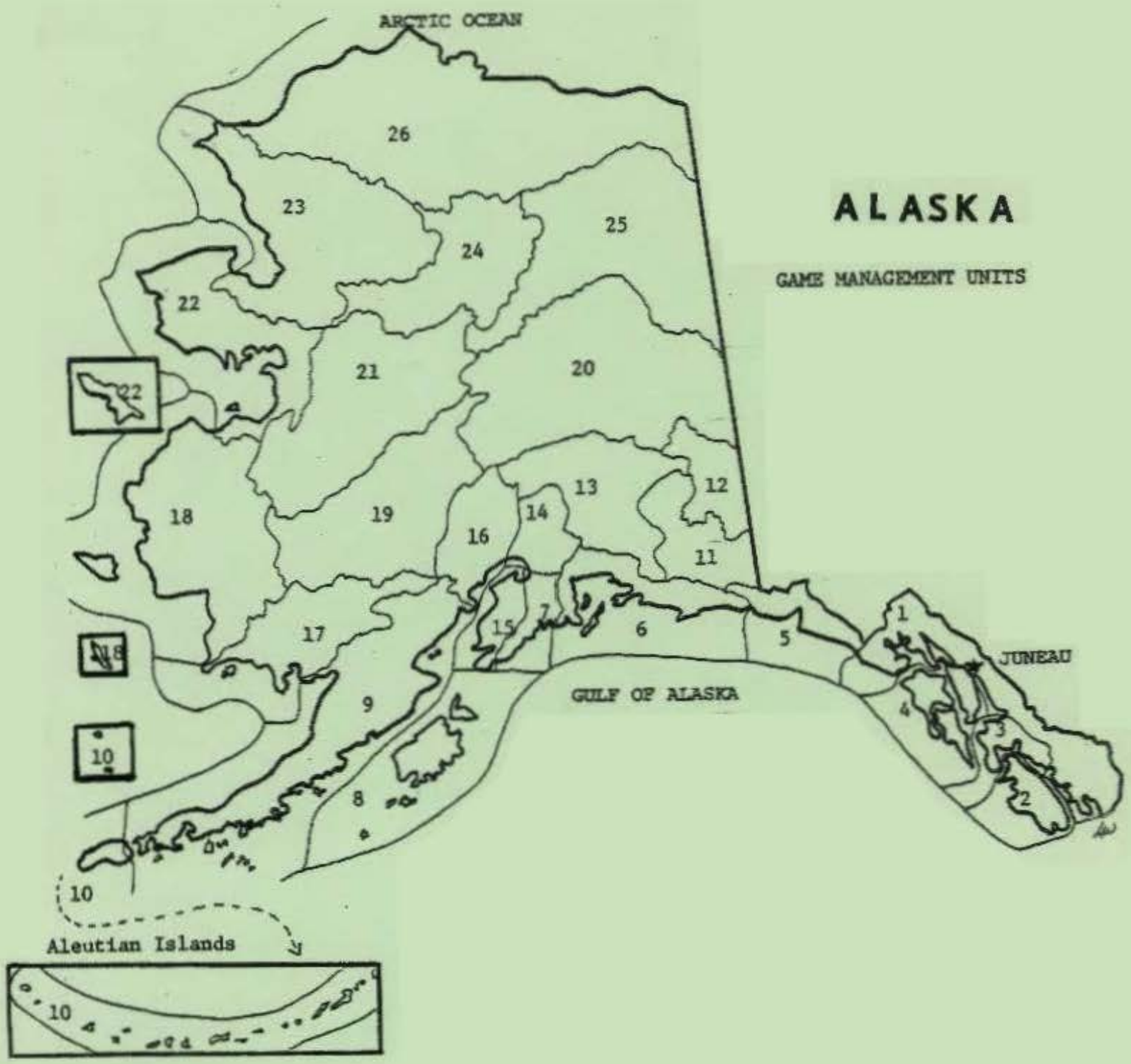
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## Statewide Harvest and Population Status

Reports on small game are submitted as information may be available, rather than on a strict annual schedule. This volume contains reports on Interior small game populations (from questionnaire), Units 18, 22, 23 and 26A, and the statewide small game questionnaire. Population levels of ptarmigan, grouse, Arctic and snowshoe hares vary dramatically from year to year and between areas. These population "cycles" are due to natural causes, and hunting has little effect except locally.

Very limited data are presented on rates and amounts of harvest. No system is presently in place to quantify statewide harvests of small game.

Robert A. Hinman
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SMALL GAME

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS: 12, 19, 20, 21, 24, and 25

GEOGRAPHICAL DESCRIPTION: Interior Alaska

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Hunting Regulations No. 24.

Population Status and Trend

Observations by department personnel, reports from sportsmen, and responses to annual abundance and trapper questionnaires provided information to assess fall and winter small game populations on a region-wide basis. Data from these sources suggested that during the 1983-84 season, ruffed, spruce, and sharp-tailed grouse populations were moderately low in Interior Alaska, with little change from 1982-83. Grouse were moderately abundant in the Huslia, Tanacross, Central, and McGrath areas. In spring 1984, observers noticed an increase in ruffed grouse drumming in the Fairbanks area, which indicated an increase in numbers of ruffed grouse.

Ptarmigan remained fairly low throughout the Interior, and especially near Fairbanks and the Tanana Hills. Snowshoe hare populations were moderately low in the Fairbanks area, but moderate to high numbers of hares could still be found in the upper Porcupine drainage and in various scattered local areas. Most observers thought that numbers of hares had declined since 1982-83.

The breeding population of rock ptarmigan remained low at Eagle Summit, approximately 80 mi northeast of Fairbanks. On 18-22 May 1984, a census of rock ptarmigan was conducted on the 15-$mi^2$ study area at Eagle Summit. Eight males and 1 female ptarmigan were found in the Mastadon/Miller Creek area. A similar census performed by the same person the preceding year yielded only 3 males and 1 female ptarmigan. These counts are extremely low compared to the 38 males counted in this area in 1980, and a previous count of 170 male ptarmigan in 1962. Since 1974, the number of breeding males has ranged between 3 (1983) and 38 (1980).

It is unknown whether population trends at Eagle Summit are representative of changes in ptarmigan numbers throughout the

Tanana Hills. Rock ptarmigan were scarce during late fall and early winter 1983 at Murphy and Ester Domes near Fairbanks, and few were seen in Fairbanks during the entire winter. In other years ptarmigan were frequently observed in Fairbanks and at the Creamers Field wildlife area.

Mortality

Hunter harvest, the only small game mortality factor monitored, was obtained through a questionnaire to hunting license holders in the Interior. The Small Game Hunter Questionnaire, designed to assess hunter interest and harvest, was initiated on a statewide basis in 1978. The 1983-84 questionnaire was mailed only to Unit 12, 19, 20, 21, 24, and 25 residents. Names were randomly selected from a list of license holders at the rate of every 3rd name (rural areas) and every 10th name (urban and road system areas). Unfortunately, an oversight in computer programming precluded comparisons between responses from rural and urban road system hunters.

In December 1983, 2,100 questionnaires were mailed and 733 hunters returned the questionnaire. Among respondents, 333 (45%) hunted small game during fall 1983, and 323 reported harvesting at least 1 species of small game. On the average, hunters went on 14 trips for small game, and 27% indicated that members of their family under 16 years of age also hunted small game.

For the most part, hunters did not travel far in search of small game. Most Fairbanks hunters stayed within Subunit 20B, the most popular areas being the Richardson Highway area west of the Salcha River, the Chena River valley (including Eielson Air Force Base and the Chena Hot Springs Road), and Murphy Dome. Hunters residing in the Delta area generally hunted in the Delta area, Subunit 20D, although several reported traveling down to Summit Lake and the Denali Highway for ptarmigan.

Questionnaire responses pertaining to harvest are summarized in Table 1. During the entire 1983-84 season each successful hunter took an average of 15 grouse, 13 ptarmigan, and 10 snowshoe hares. Tok area hunters averaged the most grouse during the 1983-84 season (59 grouse/hunter) and also the most ptarmigan (43 ptarmigan/hunter). Hunters from the Fort Yukon-Venetie area reported the highest rate of success for hares during the season (29 hares/hunter).

The species breakdown within our sample of the regional grouse harvest was as follows: spruce grouse, 61%; ruffed grouse, 32%; and sharp-tailed grouse, 4%.

Ptarmigan hunting was extremely poor in the Fairbanks area during the 1983-84 season. Consequently, the Murphy Dome check station was not operated. Hence, we have no harvest information for the 1983 season, but from all indications, few ptarmigan were shot at Murphy Dome or elsewhere in the Fairbanks area. Virtually no ptarmigan were seen in the vicinity of Fairbanks during the winter months.

## Management Summary

Grouse, ptarmigan, and hare populations fluctuate markedly in abundance. While hunting is thought to have little effect on small game population trends over broad geographical areas, hunting can influence local abundance. Currently, grouse populations are moderately low to moderate, ptarmigan populations are low, and hare populations are moderately low, except in the upper Porcupine, where moderate to high numbers are still found.

The 31 March closure of ptarmigan hunting along the Steese Highway has been in effect for 6 seasons, but the rock ptarmigan breeding population at Eagle Summit has remained relatively low. It is recommended that additional areas on Eagle Summit be sought out to survey so that a comparison can be made.

It is not known if hunting is the major factor responsible for low ptarmigan numbers at Eagle Summit. Efforts should also be directed toward determining the winter range of ptarmigan breeding at Eagle Summit. This information would aid in evaluating the biological significance of ptarmigan harvests in heavily hunted areas such as Murphy Dome.

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Table 1. Summary of 1983-84 small game harvest reported by hunters.

| Hunter residence | Number[a] successful hunters | Number grouse taken | Grouse[b] per hunter | Number ptarmigan taken | Ptarmigan[b] per hunter | Number hares taken | Hares[b] per hunter | Total animals taken | Total taken/ hunter |
|---|---|---|---|---|---|---|---|---|---|
| Subunit 19A | 20 | 521 | 28 | 148 | 19 | 87 | 10 | 756 | 38 |
| Subunit 19D | 17 | 244 | 16 | 41 | 5 | 16 | 3 | 301 | 18 |
| Chicken | 2 | 8 | 4 | 0 | 0 | 0 | 0 | 8 | 4 |
| Delta | 20 | 223 | 13 | 132 | 15 | 71 | 7 | 426 | 21 |
| Fairbanks | 170 | 1752 | 12 | 639 | 10 | 580 | 10 | 2971 | 18 |
| Healy | 7 | 17 | 4 | 124 | 25 | 30 | 6 | 171 | 24 |
| Nenana, Clear | 8 | 156 | 20 | 42 | 11 | 51 | 13 | 249 | 31 |
| Tok, Tetlin, Northway | 9 | 293 | 59 | 128 | 43 | 42 | 9 | 463 | 52 |
| Tanana | 2 | 24 | 12 | 0 | 0 | 0 | 0 | 24 | 12 |
| Subunit 21B | 4 | 70 | 18 | 0 | 0 | 1 | 1 | 71 | 18 |
| Subunit 21D | 19 | 101 | 8 | 18 | 5 | 61 | 8 | 180 | 10 |
| Subunit 21E | 10 | 123 | 15 | 64 | 16 | 53 | 9 | 240 | 24 |
| Allakaket, Bettles | 3 | 11 | 6 | 40 | 20 | 50 | 17 | 101 | 34 |
| Huslia, Hughes | 8 | 156 | 23 | 116 | 23 | 80 | 20 | 352 | 44 |
| Central | 1 | 20 | 20 | 15 | 15 | 0 | 0 | 35 | 35 |
| Fort Yukon, Venetie | 6 | 34 | 7 | 35 | 12 | 114 | 29 | 183 | 31 |
| Unknown | 17 | 138 | 14 | 16 | 5 | 11 | 4 | 165 | 10 |
| Totals | 323 | 3891 | 15 | 1558 | 13 | 1247 | 10 | 6696 | 21 |

[a] Total number of hunters who reported harvesting any species of small game.
[b] Average based on the number of hunters who reported having taken the given type of small game.

SMALL GAME

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 18

GEOGRAPHICAL DESCRIPTION: Yukon-Kuskokwim Delta

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Hunting Regulations No. 24.

Population Status and Trend

The arctic hare population in Unit 18 is concentrated around the mouth of the Yukon River in open willow scrublands, but these hares are also occasionally numerous on Nelson Island, along the Johnson River southwest of Bethel, and between the Yukon and Kuskokwim Rivers north of Bethel. Arctic hare populations on Nelson Island, in the Kotlik area of the lower Yukon, and other coastal regions of Unit 18 are apparently low but increasing. Extensive spring flooding along the Lower Yukon and adjacent coastal areas in the 1960's virtually destroyed local populations; these populations have taken years to recover. Arctic hare population density, on average, is lower than that of snowshoe hares; arctic hares require more time to recover from previous lows and never reach high numbers typified by snowshoe hares (M. Rearden, pers. commun.).

Predation has apparently been low on arctic hares during winter 1983-84. Fox populations are reported to be low in the Kotlik area, and poor snowmachine travel conditions this past winter have limited hunter access. Lack of snow has also facilitated overwinter survival of arctic hares in Unit 18, because low willows used as forage have not been covered by heavy snow (C. Hunt, pers. commun.). Coastal residents reported that arctic hares were moderate-to-low in number. Individuals from Kotlik and Alakanuk reported hares to be uncommon, although pockets of higher density do exist.

Arctic hare numbers were also reported to be low along the Lower Kuskokwim River in early 1984 (D. Strom, pers. commun.). Arctic hares clearly prefer open areas, while snowshoe hares remain close to willows and alders. Where these hares occur sympatrically in Unit 18, some habitat segregation occurs. Both species, however, prefer willows as winter forage. Arctic hares are found in the open along the edge of willows, while snowshoes are more often found within willow thickets.

In summary, arctic hares in Unit 18 are concentrated around the mouth of the Yukon River, are recovering from a previous population low, but were still relatively uncommon as of spring 1984.

Snowshoe hares have often been abundant in willows and alders along the lower Kuskokwim River near Bethel (notably along Napakiak Slough), but populations are currently (spring 1984) reported to be low and recovering slightly from a population crash in 1982 (D. Strom, pers. commun.). Snowshoe hare populations were also reported to have crashed in 1982 along the Tuluksak River, where they were formerly abundant in willows on revegetating spoil banks deposited by gold mining operations. Snowshoe hare populations along the lower Yukon were reported to be low and declining in 1982, and were generally low throughout this portion of the Unit in 1983-84. However, locally high concentrations were observed, particularly in the upper Andreafsky drainage, and populations in the lower Yukon area have increased somewhat since last year.

Grouse are confined to forested northern and eastern areas of Unit 18, including the Kuskokwim River valley above Bethel and along the Yukon River above Pilot Station. Spruce grouse were reported to be abundant in the Paimiut Slough area along the Yukon River, but were only moderately dense throughout the Lower Yukon area and less common than during the 1981 peak. Residents of upriver villages on the Yukon did not feel that spruce grouse were either unusually common or scarce. Ruffed grouse were reported to be common along the road system near Aniak on the border of Unit 18. Ruffed grouse are also found in wooded drainages and in the hills above Lower Kalskag. Most of Unit 18 is lowland tundra, however, and does not support these birds.

Some willow ptarmigan breed during spring and summer in riparian habitats on the flats of the Yukon-Kuskokwim Delta, but most ptarmigan in Unit 18 breed in willow thickets on foothills and mountainsides in the Kilbuck Range, and along the outer coast of the Yukon-Kuskokwim Delta.

A resident ptarmigan population breeds near Bethel, and low numbers of these birds remain in the area throughout the year. There are, however, heavy flights of ptarmigan through the Bethel area in fall and early spring. This regional migration between the coast and mountains includes flights of up to 120 mi along riparian corridors. Ptarmigan move from the Delta to the mountains in September; trappers report that ptarmigan remain in riparian willow thickets during winter in the Kilbuck Range. The reverse movement occurs during March or April, as ptarmigan follow the retreating snow line from the mountains to the coast. The time ptarmigan spend in the

immediate Bethel area depends upon spring snow conditions. If there is no snow, ptarmigan move through the area rapidly. When snow cover is heavy near Bethel, ptarmigan may remain as long as 6 weeks.

In 1984 heavy movement of ptarmigan through the Bethel area lasted approximately 7 days (11-18 March) and decreased rapidly thereafter. On 16 March, 15 flocks of ptarmigan were seen in 3 hours from a single office window in Bethel, and as many as 500 ptarmigan were observed near buildings at the edge of town (D. Strom, pers. commun.). These observations immediately followed the 1st spring thaw.

Ptarmigan apparently move primarily along riparian corridors, such as the Kuskokwim and Johnson Rivers. Bethel is located at the edge of a riparian zone, and ptarmigan either move around the periphery of inhabited areas or fly directly over town, well above ground. The 1st 1984 observations of unusual numbers of ptarmigan near Bethel were made on 11 March; locally intense movements were reported on 14-16 March, and ptarmigan numbers decreased abruptly by 18 March (D. Strom, pers. commun.).

We observed large numbers of ptarmigan northeast of Dall Lake, 70 mi southwest of Bethel, on 22 March 1984. These large flocks were widely distributed along the edge of the snow-covered area (snow line) towards the coast when the Bethel area was snow-free. Ptarmigan apparently prefer the "edge effect" of snow and bare ground. The birds feed in open areas with snow cover, but retreat into willow thickets with snow banks to roost. At the time of these observations ptarmigan were still in white winter plumage and sought the camouflage of a snowy background.

Ptarmigan near Dall Lake were feeding extensively on crowberries projecting through the shallow snow. Eleven ptarmigan collected by USFWS biologists at Bethel at the time of peak spring movement contained crowberries, cranberries, and willow leaves and buds.

Flocks of ptarmigan were observed feeding on berries along the tops and sides of low tundra hills near Bethel.

We also observed large flocks of ptarmigan on 25 March 1984 on Nelson Island. The birds were concentrated in low riparian willow thickets. Nelson Island was then completely covered with snow. Few ptarmigan were seen on the exposed uplands of Nelson Island. D. Strom (pers. commun.) noted abundant ptarmigan tracks in the snow around the airport runway at Chefornak on 10 April 1984. Local residents of Chefornak reported that ptarmigan had just moved into the area. A resident of Chevak

also reported large numbers of ptarmigan moving through at that time. Ptarmigan were apparently moving to coastal areas where snow cover persists longer than further inland. Low snowfall in 1983-84 also aided overwinter survival, because ptarmigan were easily able to forage on low willows.

There is also a general eastward movement of ptarmigan through the Bethel area in fall. Flocks were observed in the evening flying toward the Kilbuck Mountains, where these birds winter in the foothills and river valleys. In mid-October 1983, USFWS biologists flew a low-level line transect from the coast (southeast of Chevak) to Bethel and reported very large numbers of ptarmigan (at least 1 flock/mi). These ptarmigan were already in winter plumage and were quite conspicuous because no snow had yet fallen (M. Rearden, pers. commun.).

On the Yukon Delta ptarmigan numbers were low this year, although greater than last year. Because snow was light this year ptarmigan movements probably were not normal, accounting for the low numbers of ptarmigan observed. Most villagers contacted believed ptarmigan numbers were low in their local areas as well. The status of rock ptarmigan is not known because of their wide distribution and absence near major population centers.

In summary, ptarmigan were locally abundant in spring 1984 in Unit 18, but their distribution was patchy, their movements seasonal, and they were concentrated in riparian willows.

## Mortality

Hunting mortality only significantly affects small game populations near settlements and villages in Unit 18. This is especially true of river villages without easy access to moose or marine mammals, but with heavy subsistence reliance on small game and furbearers. In the unit overall, however, mortality does not significantly affect small game populations.

Little is known about other types of natural mortality affecting small game populations in Unit 18. Due to a rabies epizootic, red fox populations are currently low, and predation by foxes is believed to be light. Lynx are also uncommon, and predation on hares is believed to be light as well. Wolves are rare throughout the unit and are not believed to significantly affect small game populations.

## Management Summary and Recommendations

Reports from coastal villages indicated that arctic hare populations were highly localized, low-to-moderate in density, but increasing. The density of snowshoe hares was low throughout

the unit. In general, however, snowshoe hare populations appeared to have crashed in 1982 but are now recovering slightly. Grouse are reported to be common in forested margins of the Unit, and ptarmigan are locally abundant. Hunting only appears to affect small game populations near villages and towns. Overall, we do not believe hunting mortality is a significant factor affecting small game populations.

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SMALL GAME

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 22

GEOGRAPHICAL DESCRIPTION: Seward Peninsula

PERIOD COVERED: 1 July 1983-30 June 1984

## Season and Bag Limit

See Hunting Regulations No. 24.

## Population Status and Trend

Excluding waterfowl, Unit 22 is known to support 4 species of small game: willow ptarmigan, rock ptarmigan, snowshoe hare, and arctic hare. Limited information gathered by biologists conducting aerial surveys and from hunters and trappers indicates that small game populations in most areas are still declining. This trend has been observed for the last 3 years.

## Mortality

No information was obtained during the past year regarding causes of mortality or their effects on small game populations on the Seward Peninsula. Conversations with village residents indicated that unitwide hunting mortality on most species was low, and that hunting has significantly impacted small game populations only in the immediate vicinity of the villages.

## Management Summary and Recommendations

During the past 3 years, a marked decline in densities of all species of small game on the Seward Peninsula has been noted. This decline is accompanied by a decline in the lynx harvest last year. Although data are not available, it appears that major changes in all small game populations are more directly related to weather, natural predation, and other natural phenomena than to hunting.

Because I believe that hunting has had a negligible impact on small game populations in the unit, no changes in seasons or bag limits are recommended.

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# SMALL GAME

## SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 23

GEOGRAPHICAL DESCRIPTION: Kotzebue Sound

PERIOD COVERED: 1 July 1983-30 June 1984

### Season and Bag Limit

See Hunting Regulations No. 24.

### Population Status and Trend

Ptarmigan populations have increased significantly throughout the unit since the last reporting period, when populations were low. Numerous flocks of ptarmigan were observed during moose surveys along the Wulik and Kugururok Rivers. Low fox and lynx populations may have contributed to good ptarmigan productivity and survival.

Snowshoe hare populations continued to decline to very low levels in most areas of Unit 23 except on the northern Seward Peninsula where hares are still present in low-to-moderate numbers.

Arctic hare densities were moderate throughout the area from the Selawik Hills to the Goodhope River drainage. A large concentration was observed along the Cripple River drainage during a moose survey on 23 March 1984. Four hares were collected and sent to the University of Alaska Museum, Terrestrial Vertebrate Collection. The combined weight of the 4 hares including the shipping box was 49 pounds.

### Mortality

No estimate of small game taken by local residents for human consumption and dog food is available. Hunting probably has little impact on small game populations in Unit 23.

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SMALL GAME

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 26A

GEOGRAPHICAL DESCRIPTION: Western Arctic Slope

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Hunting Regulations No. 24.

Population Status and Trend

This is the 1st small game survey-inventory report dealing exclusively with Subunit 26A. In previous years small game status was summarized for all of Unit 26.

Small game species in Subunit 26A are practically limited to willow ptarmigan. These birds inhabit willow bottoms on the Colville River and other drainages on the North Slope. Near Barrow, willow ptarmigan occur inland on the nearby Meade and Inaru Rivers. Individual flocks were occasionally observed in Barrow and along the Chukchi Sea coast to the southwest. No willow ptarmigan counts were conducted during the reporting period; however, willow ptarmigan tracks and flocks of birds appeared to be abundant on the Colville River drainage system. These observations were made 30 April-8 May 1984 during extended late winter moose counts. Ptarmigan may thus be more abundant in this area than during the previous reporting period. Ptarmigan sign was certainly more visible during spring 1984.

Mortality

Willow ptarmigan were probably harvested by residents of most communities on the western North Slope. However, most of this harvest appears to be either sporadic or incidental to other activities such as snowmachine travel between communities. No harvest data are available.

Management Summary and Recommendations

A trend-count transect between Barrow and Atqasuk will be established during fall, 1984 and again in late winter 1985 using the Barrow-Atqasuk snowmachine trail. Observations of ptarmigan during late winter moose counts on the Colville River will also be quantified on a tentative basis.

A 3rd small game management activity for the next reporting period will be to informally interview hunters concerning the presence and location of hares on the North Slope. Although historically reported by Bee and Hall (1956) to be present on the North Slope, Arctic hare distribution at this time is problematic.

No changes in seasons or bag limits are recommended at this time.

Literature Cited

Bee, J. W., and E. R. Hall. 1956. Mammals of Northern Alaska. Univ. Kansas Museum Nat. Hist. Misc. Publ. No. 8:31-34.

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# UPLAND GAME ABUNDANCE

## SURVEY-INVENTORY PROGRESS REPORT

STATEWIDE

PERIOD COVERED: 1 July 1983-30 June 1984

### Techniques

The standard small game abundance questionnaire was mailed in early October 1983 to 350 people throughout the state, and by the end of March 1984, 167 replies had been received. As in the past, the bulk of replies came from the Interior and Gulf regions. Replies were tabulated and analyzed as in previous years (see Game Bird Report, March 1966. Pages 3-4 in Fed. Aid in Wildl. Rest., Vol. VII, Proj. W-6-R-6, Work Plan I, and Proj. W-13-R-1, Work Plan B). A summary of responses was mailed to cooperators. Replies to the questionnaire are summarized in Table 1.

### Findings

Replies to the 1983-84 questionnaire indicated that grouse populations were moderately low in most of the state. Cooperators from the Gulf and Southeast regions reported moderate populations of grouse, but other regions reported low numbers. Except for the Gulf area where grouse numbers had increased, there was a slight decline or little change in population levels.

Numbers of ptarmigan (all species) were reported to be moderately low to low in most areas. Ptarmigan populations had increased slightly in the Gulf, Southeast, Kodiak, and Alaska Peninsula areas. Numbers of ptarmigan declined in the Brooks Range and declined very slightly in the Interior and Western regions.

Snowshoe hare populations were reported low everywhere except in the Gulf region. Cooperators from the Gulf region reported moderate numbers of hares and an increase in population levels. Elsewhere in the state, except Kodiak, a slight decline in numbers of hares was reported. The 2 responses from Kodiak indicated an increase in hare numbers.

### Management Summary and Conclusions

The standard small game abundance questionnaire has repeatedly indicated that grouse, ptarmigan, and hare populations fluctuate considerably throughout the state. Hunting pressure has

little effect on fluctuations over broad geographical regions of Alaska. The management goals of providing the maximum opportunity to participate in small game hunting are being met under the current long seasons and liberal bag limits.

Therefore, no changes in the current approach to small game management are recommended.

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Table 1. Summary of replies to questionnaire on grouse, ptarmigan, and hare populations, 1983-84.

| Area and species | Present abundance[a] | | | | Comparison with 1982[a] | | | |
|---|---|---|---|---|---|---|---|---|
| | High | Mod. | Low | Index[b] | More | Same | Fewer | Index[b] |
| Brooks Range-12 replies | | | | | | | | |
| Grouse (general) | 0 | 2 | 3 | 2.6 | 1 | 1 | 2 | 4.0 |
| Spruce Grouse | 0 | 0 | 5 | 1.0 | 0 | 2 | 3 | 2.6 |
| Ptarmigan (general) | 1 | 0 | 7 | 2.0 | 0 | 3 | 4 | 2.7 |
| Rock Ptarmigan | 0 | 3 | 3 | 3.0 | 0 | 3 | 3 | 3.0 |
| Willow Ptarmigan | 0 | 1 | 7 | 1.5 | 0 | 3 | 5 | 2.5 |
| Snowshoe Hare | 0 | 0 | 9 | 1.0 | 1 | 4 | 4 | 3.7 |
| Western-13 replies | | | | | | | | |
| Grouse (general) | 0 | 1 | 3 | 2.0 | 0 | 2 | 2 | 3.0 |
| Ptarmigan (general) | 0 | 2 | 9 | 1.7 | 2 | 2 | 5 | 3.7 |
| Willow Ptarmigan | 0 | 2 | 4 | 2.3 | 1 | 1 | 2 | 4.0 |
| Snowshoe Hare | 1 | 0 | 10 | 1.7 | 2 | 4 | 4 | 4.2 |
| Alaska Peninsula-14 replies | | | | | | | | |
| Ptarmigan (general) | 1 | 2 | 7 | 2.6 | 3 | 5 | 1 | 5.9 |
| Willow Ptarmigan | 0 | 2 | 6 | 2.0 | 2 | 3 | 3 | 4.5 |
| Snowshoe Hare | 2 | 0 | 9 | 2.5 | 0 | 5 | 5 | 3.0 |
| Kodiak-3 replies | | | | | | | | |
| Ptarmigan (general) | 0 | 1 | 2 | 2.3 | 11 | 0 | 0 | 9.0 |
| Snowshoe Hare | 0 | 1 | 1 | 3.0 | 1 | 0 | 0 | 9.0 |
| Southeastern-22 replies | | | | | | | | |
| Grouse (general) | 2 | 9 | 4 | 4.5 | 3 | 6 | 6 | 4.2 |
| Spruce Grouse | 1 | 5 | 7 | 3.2 | 1 | 8 | 4 | 4.1 |
| Blue Grouse | 2 | 10 | 5 | 3.4 | 2 | 12 | 3 | 4.8 |
| Ptarmigan (general) | 0 | 2 | 3 | 2.6 | 1 | 4 | 0 | 5.8 |
| Willow Ptarmigan | 0 | 3 | 4 | 2.7 | 0 | 6 | 1 | 4.4 |
| Snowshoe Hare | 1 | 0 | 7 | 2.0 | 1 | 3 | 4 | 3.5 |
| Gulf-39 replies | | | | | | | | |
| Grouse (general) | 4 | 7 | 5 | 4.8 | 6 | 5 | 2 | 7.2 |
| Ruffed Grouse | 0 | 0 | 3 | 1.0 | 0 | 2 | 1 | 3.7 |
| Spruce Grouse | 5 | 15 | 9 | 5.4 | 11 | 8 | 7 | 5.6 |
| Sharp-tailed Grouse | 0 | 2 | 1 | 3.7 | 0 | 1 | 1 | 3.0 |
| Ptarmigan (general) | 1 | 8 | 10 | 3.1 | 6 | 7 | 3 | 5.8 |
| Rock Ptarmigan | 0 | 8 | 3 | 3.9 | 3 | 3 | 4 | 4.6 |
| Willow Ptarmigan | 1 | 8 | 11 | 3.0 | 5 | 10 | 3 | 5.4 |
| White-tailed Ptarmigan | 0 | 0 | 1 | 1.0 | 0 | 1 | 0 | 5.0 |
| Snowshoe Hare | 7 | 17 | 9 | 4.8 | 18 | 11 | 2 | 7.1 |

Table 1. Continued.

| Area and species | Present abundance[a] | | | | Comparison with 1982[a] | | | |
|---|---|---|---|---|---|---|---|---|
| | High | Mod. | Low | Index[b] | More | Same | Fewer | Index[b] |
| Interior-64 replies | | | | | | | | |
| Grouse (general) | 2 | 16 | 37 | 2.5 | 15 | 19 | 21 | 4.6 |
| Ruffed Grouse | 0 | 10 | 33 | 1.9 | 6 | 23 | 15 | 4.2 |
| Spruce Grouse | 5 | 17 | 26 | 3.3 | 16 | 16 | 17 | 4.9 |
| Sharp-tailed Grouse | 0 | 4 | 19 | 1.7 | 7 | 7 | 9 | 4.7 |
| Ptarmigan (general) | 0 | 10 | 32 | 2.0 | 4 | 29 | 14 | 4.2 |
| Rock Ptarmigan | 0 | 5 | 19 | 2.8 | 3 | 12 | 10 | 3.9 |
| Willow Ptarmigan | 0 | 7 | 20 | 2.0 | 3 | 15 | 10 | 4.0 |
| White-tailed Ptarmigan | 0 | 6 | 6 | 3.0 | 0 | 8 | 4 | 3.3 |
| Showshoe Hare | 1 | 11 | 42 | 2.0 | 2 | 31 | 21 | 3.6 |
| Statewide-167 | | | | | | | | |
| Grouse (general) | 9 | 37 | 53 | 3.2 | 25 | 36 | 33 | 4.7 |
| Ruffed Grouse | 0 | 10 | 36 | 1.9 | 6 | 25 | 16 | 4.1 |
| Spruce Grouse | 11 | 38 | 49 | 3.4 | 28 | 36 | 32 | 4.8 |
| Sharp-tailed Grouse | 0 | 6 | 20 | 1.9 | 7 | 8 | 10 | 4.5 |
| Ptarmigan (general) | 3 | 24 | 69 | 2.3 | 16 | 50 | 27 | 4.5 |
| Rock Ptarmigan | 0 | 17 | 33 | 2.4 | 7 | 22 | 26 | 3.6 |
| Willow Ptarmigan | 1 | 24 | 54 | 2.3 | 13 | 38 | 24 | 4.4 |
| White-tailed Ptarmigan | 0 | 6 | 7 | 2.8 | 0 | 9 | 4 | 4.5 |
| Snowshoe Hare | 12 | 29 | 87 | 2.7 | 25 | 58 | 40 | 4.5 |

[a] Based on the number of answers to each question; not all cooperators answered all questions.

[b] Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).