## 1968 Annual Repart <br>  <br> OREGON STATE GAME COMMISSION ${ }^{\top}$ game division



## 1968

# ANNUAL REPORT 

## GAME DIVISION


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## INTRODUCTION

This report provides a statistical summary of all game inventories and a brief explanation of major service and development programs executed during the period July 1, 1966 through June 30, 1967.

It is designed as a reference for persons directly engaged in management of Oregon's game resources. It does not provide descriptive material that would make it attractive to the public. For this reason, it is not printed in quantity and its distribution is limited.

Maintenance of Oregon's wildlife resources and maximum recreational opportunites requires an intimate knowledge of the habits and requirements of the animals and the preferences of the people. Systematic inventories provide a basis for evaluating the trends and limiting factors of game populations, and public hearings are held to determine the preferences of the public.

Since game management is the art of making land produce wildlife for public use, and the land is not controlled by the managing agency, it is obvious that any accomplishments are the product of cooperative effort.

Most of Oregon's landowners have cooperated fully in programs designed to maintain wildlife populations and provide public recreation. In return, the department has given vigilant attention to the wildiffe and recreational conflicts that are encountered by landowners and has endeavored to resolve problems through cooperative effort.

Greatest progress has been made on the 52 percent of the state that is in public ownership. In many instances federal agencies have been granted funds to enhance wildiffe habitat and state participation in such development programs was significantly increased in 1967.

Basic game research is executed by the Research Division of the department and is not included in this report.

Protection programs are efficiently executed by the State Police Department, which is primarily responsible for enforcement of Oregon laws, and the U. S. Fish and Wildiife Service, which executes the cooperative predator and rodent control program.

The game management program is planned and coordinated by four staff specialists and executed by 22 district game biologists stationed in five administrative regions.


The demand for hunting continued to increase in 1967, but at a lesser rate than in 1966. Hunting license sales totaled 348,293 , an increase of 1.4 percent. Deer tag sales totaled 287,622, representing an increase of .6 percent. E1k tag sales declined 7 percent to 64,996 in response to shortened seasons and other regulatory adjustments.

The yield in terms of big game hunting totaled $1,903,000$ man-days, a decline of 4.7 percent from 1966. A series of fire closures from August through the first week of deer season, and resultant confusion, contributed to the decline in participation.

The yield of animals was high, with 142,000 deer, 10,530 elk, 427 antelope, 5 goats, and an estimated 3,800 bear taken during the 1967 seasons.

Although 1967 production was below normal in most herds, the winter was comparatively mild, resulting in a high survival through the 1967-68 winter and populations comparable to 1967 on most ranges in the spring of 1968.

Trapping and transplanting of Roosevelt elk was continued in western Oregon in an effort to increase the distribution of that popular species. A total of 52 elk were transplanted.

Research projects pertinent to the management and development of black-tailed deer, mule deer, Roosevelt elk, and related forest and range resources were vigorously executed by the Research Division.

## BLACK-TAILED DEER

Spring inventories provided a count of 15,708 blacktails on 3,580 miles of sample routes. This averaged 4.4 deer per mile compared with 4.6 in 1967. The Northwest Region population remained stable while the Southwest Region recorded a decline and the Central Region an increase.

In the fall of 1967, herd composition inventories resulted in the classification of 5,880 blacktails. This work indicated an increase in the percent of bucks and a decline in fawns.

Survival was high in western Oregon during the 1967-68 winter. Even the Cedar Creek research enclosure carried its population of 113 deer per square mile through the winter with a loss of only three fawns.

In the 1967 hunting season, 114,710 hunters enjoyed 729,480 days of recreation and took 54,820 blacktails. These figures include early, general, and extended seasons.

Complaints of damage to agricultural crops in western oregon continued at the same level with 1,155 received during the report year.


Table 1
BLACK-TAILED DEER POPULATION TRENDS

| Units by Region | Miles Traveled | $\begin{gathered} \text { Deer } \\ \text { Observed } \\ \hline \end{gathered}$ | Deer per Mile |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1968 | 1967 | 1966 | 1965 |
| Alsea | 412 | 1,418 | 3.4 | 3.0 | 3.1 | 2.9 |
| Clatsop | 102 | 265 | 2.6 | 2.4 | 2.2 | 2.4 |
| McKenzie | 425 | 2,861 | 6.7 | 7.2 | 6.0 | 5.8 |
| Nestucca | 95 | 192 | 2.0 | 1.9 | 1.7 | 2.2 |
| Polk | 223 | 513 | 2.3 | 2.0 | 1.7 | 1.9 |
| Santiam | 557 | 1,290 | 2.3 | 3.1 | 2.7 | 2.4 |
| Siuslaw | 137 | 401 | 2.9 | 3.1 | 2.9 | 2.5 |
| Trask | 252 | 766 | 3.0 | 2.9 | 3.5 | 2.2 |
| Wilson | 127 | 362 | 2.9 | 2.3 | 2.7 | 3.1 |
| Willamette | 119 | 144 | 1.2 | 1.1 | - | - |
| NORTHWEST | 2,449 | 8,212 | 3.4 | 3.4 | 3.4 | 3.1 |
| Applegate | 67 | 294 | 4.4 | 5.5 | 2.6 | 5.2 |
| Chetco | 71 | 252 | 3.5 | 4.0 | 3.9 | 4.5 |
| Dixon | 148 | 674 | 4.6 | 4.6 | 3.2 | 3.2 |
| Elkton | 60 | 149 | 2.5 | 4.4 | 4.0 | 3.9 |
| Evans Cr. | 58 | 293 | 5.1 | 3.3 | 2.7 | 3.1 |
| Melrose | 120 | 529 | 4.4 | 6.1 | 4.0 | 3.8 |
| Powers | 83 | 307 | 3.7 | 2.4 | 1.1 | 6.8 |
| Rogue | 149 | 1,185 | 7.9 | 10.8 | 7.3 | 9.7 |
| Sixes | 99 | 781 | 8.0 | 13.2 | 8.8 | 4.6 |
| Tioga | 156 | 354 | 2.3 | 2.0 | 1.5 | 1.0 |
| SOUTHWEST | 1,011 | 4,818 | 4.8 | 5.9 | 5.2 | 4.6 |
| Hood River | 10 | 21 | 2.1 | 4.2 | 8.6 | 6.5 |
| Keno | 39 | 814 | 20.9 | 22.7 | 22.2 | 20.9 |
| Wasco | 71 | 1,843 | 26.0 | 18.1 | 31.1 | 28.2 |
| CENTRAL | 120 | 2,678 | 22.3 | 18.4 | 26.9 | 23.7 |
| STATE TOTALS <br> AND AVERAGES | 3,580 | 15,708 | 4.4 | 4.6 | 5.2 | 4.4 |

Table 2
NOILISOdWOD वצ্ᅥ'

| Units by Region | Deer Classified |  |  |  | Average Number per 100 Does |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | * 1968 |  | 1967 |  | 1966 |  |
|  | Bucks | Does | Fawns | Total | Bucks | Fawns | Bucks | Fawns | Bucks | Fawns |
| Alsea | 30 | 72 | 71 | 173 | 42 | 99 | 34 | 79 | 71 | 82 |
| Clatsop | 22 | 36 | 28 | 86 | 61 | 78 | 59 | 89 | 75 | 74 |
| McKenzie | 136 | 441 | 204 | 781 | 31 | 47 | 40 | 69 | 64 | 55 |
| Nestucca | 8 | 18 | 16 | 42 | 44 | 89 | 41 | 88 | 38 | 71 |
| Polk | 19 | 54 | 42 | 115 | 35 | 78 | 31 | 85 | 46 | 71 |
| Santiam | 63 | 114 | 83 | 260 | 55 | 73 | 40 | 78 | 34 | 69 |
| Siuslaw | 38 | 111 | 63 | 212 | 34 | 57 | 34 | 83 | 31 | 61 |
| Trask | 28 | 107 | 76 | 211 | 26 | 71 | 34 | 82 | 34 | 69 |
| Willamette | 21 | 78 | 36 | 135 | 27 | 46 | - | - | 30 | 66 |
| Wilson | 14 | 30 | 23 | 67 | 47 | 77 | 51 | 86 | 58 | 70 |
| NORTHWEST | 379 | 1,061 | 642 | 2,082 | 37 | 61 | 38 | 78 | 52 | 70 |
| Applegate | 65 | 118 | 73 | 256 | 55 | 62 | 46 | 58 | 63 | 61 |
| Chetco | 15 | 52 | 35 | 102 | 29 | 67 | 42 | 68 |  | - |
| Dixon | 79 | 178 | 170 | 427 | 44 | 96 | 37 | 93 | 57 | 82 |
| Elkton | 19 | 60 | 57 | -136 | 32 | 95 | 26 | 77 | 31 | 55 |
| Evans Creek | 44 | 85 | 58 | 187 | 52 | 68 | 47 | 89 | 33 | 75 |
| Melrose | 66 | 229 | 185 | 480 | 29 | 81 | 21 | 96 | 26 | 96 |
| Powers | 35 | 105 | 60 | 200 | 33 | 57 | 25 | 76 | 32 | 72 |
| Rogue | 151 | 413 | 269 | 833 | 37 | 65 | 32 | 67 | 38 | 70 |
| Sixes | 32 | 68 | 62 | 162 | 47 | 91 | 18 | 62 | 30 | 73 |
| Tioga | 54 | 100 | 79 | 233 | 54 | 79 | 70 | 102 | 70 | 55 |
| SOUTHWEST | 560 | 1,408 | 1,048 | 3,016 | 40 | 74 | 34 | 78 | 39 | 74 |
| Keno | 26 | 144 | 45 | 215 | 18 | 31 | 17 | 39 | 17 | 29 |
| Wasco | 117 | 308 | 142 | 567 | 38 | 46 | 36 | 59 | 42 | 54 |
| CENTRAL | 143 | 452 | 187 | 782 | 32 | 41 | 23 | 46 | 33 | 45 |
| TOTALS AND AVERAGES | 1,082 | 2;921 | 1,877 | 5,880 | 37 | 64 | 33 | 72 | 42 | 66 |

[^0]Table 3
BLACK-TAILED DEER WINTER LOSSES

| Units by Region | Winter Losses |  |  |  | Total Carcasses | Miles Traveled | Carcasses per Mile |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Sex |  | Age |  |  |  |  |  |  |  |  |
|  | Male | Female | Young | Adult |  |  | 1968 | 1967 | 1966 | 1965 | 1964 |
| Alsea |  |  |  |  | 0 | 5 | - | - | - | - | - |
| Clatsop |  |  |  |  | 0 | 29 | - | - | - | 0.2 | - |
| McKenzie |  | 1 |  | 1 | 1 | 7 | 0. 1 | - | - | 0.1 | 0.4 |
| Santiam |  |  |  |  | 0 | 29 | - | - | - | - | - |
| Siuslaw |  | 1 | 1 |  | 1 | 13 | - | - | - | 0.1 | 0.8 |
| Trask |  |  | 1 |  | 1 | 23 | - | - | - | 0.2 | - |
| Wilson |  |  |  |  | 0 | 24 | - | - | - | 0.2 | - |
| Nestucca |  |  |  |  | 0 | 23 | - | - | - | - | - |
| Polk |  |  |  |  | 0 | 14 | $\rightarrow$ | 0.1 | - | - | - |
| NORTHWEST |  | 2 | 2 | 1 | 3 | 167 | - | - | - | - | 0.1 |
| Elkton |  |  |  |  | 0 | 2 | - | - | - | 0.5 | 0.1 |
| Applegate |  |  | 1 |  | 2 | 23 | - | - | - | - | - |
| Melrose | 1 |  |  | 1 | 1 | 5 | 0.2 | - | - | 1.5 | 0.9 |
| Dixon |  | 1 | 1 |  | 1 | 5 | 0.2 | - | - | 0.7 | - |
| Evans Creek |  |  |  |  | 0 | 20 | - | - | - | 1.0 | - |
| Rogue |  |  | 8 | 3 | 15 | 70 | 0.2 | - | 0.1 | 0.1 | 0.1 |
| Powers | 1 |  | 1 |  | 1 | 2 | 0.5 | - | - | 0.3 | - |
| Tioga |  |  |  |  | 0 | 2 | - | - | - | 1.5 | 0.2 |
| SOUTHWEST | 2 | 1 | 11 | 4 | 20 | 129 | 0.2 | - | 0.1 | 0.3 | 0.2 |
| Hood River |  |  |  |  | 0 | 10 | - | - | - | 0.4 | - |
| Wasco |  |  |  |  | 0 | 71 | - | - | - | 0.1 | - |
| CENTRAL |  |  |  |  | 0 | 81 | - | - | - | 0.1 | - |
| TOTALS AND AVERAGES | 2 | 3 | 13 | 5 | 23 | 377 | - | - | - | 0.1 | 0.1 |

[^1]
## MULE DEER

A 12 percent decline in animals counted on mule deer winter ranges was in part due to the mild winter and wide distribution. A total of 43,858 was tallied on 3,586 miles of census routes.

Post season herd composition work resulted in the classification of 20,178 deer in the fall of 1967 . The carry-over of 19 bucks per 100 does was near normal; however, the fawn survival of only 66 fawns per 100 does was below normal.

Analysis of the antler class of mule deer bucks recorded in herd composition work revealed an increase of yearlings, reflecting the good production in 1966.

Mule deer wintered well. The carcass per mile index again fell below 0.1 per mile traveled. Complaints of crop damage by mule deer declined.

Hunting pressure on mule deer remained about the same as in 1966 , with 156,290 persons participating and taking 87,180 mule deer. Antlerless animals provided 34 percent of the yield.

Recovery of a buck with a tight neck rope resulted in some adverse publicity and elimination of the use of collars in marking programs. This finding, combined with the fact that the mild winter did not provide satisfactory trapping conditions, retarded the mule deer migration study. A summary of findings derived from tagging of deer on the Bryant Mountain winter range is presented on Page $17^{\circ}$.

## Interstate Deer Herd

Animal inventories for the Interstate deer herd, which summers in Oregon and winters in California, are conducted jointly by the California and Oregon Game Departments, the Modoc and Fremont National Forests, and the Bureau of Land Management.

Information pertaining to this herd is included in the following table.

basic data of the devil's garden-Interstate deer herd

| YEAR | TRACK COUNT | DEER LIARVEST |  |  |  |  | HERD COMP. <br> COUNTS PER <br> 100 DOES |  | $\begin{aligned} & \text { *RAINFALL } \\ & \text { ALTUPAS. } \end{aligned}$ | $\begin{gathered} \text { GROWTH } \\ (\text { IN. }) \end{gathered}$ | $\begin{gathered} \text { BITTERED } \\ \text { LIVESTOCK } \\ \text { ouSE. } \end{gathered}$ | USH UTDEERCUSE | IEIzATION |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Bucks |  | ANTLEMLESS |  | TOTAL |  |  | TOTAL |  |  |  | \%PLOTS OVER |
|  |  | Ont. | CALIF. | QRE. | CALIF. |  | $\begin{aligned} & 100 \text { DOES } \\ & \text { BUCKS FAWNS } \end{aligned}$ |  |  |  |  |  | \% USE | $60 \%$ USE |
| 1948 | 9,665 |  |  |  |  |  | 11 | 85 |  | 14.08 |  | 18.4 | 16.2 | 36.3 |  |
| 1949 | 14,011 | 2,500 | 670 | 0 | 0 | 3,170 | 17 | 94 | 14.15 | 3.5 | 18.8 | 21.5 | 39.9 |  |
| 1950 | 13,256 | 2,440 | 310 | 688 | 1,319 | 4,757 | 19 | 77 | 11.59 | 3.2 | 10.3 | 29.5 | 48.3 |  |
| 1951 | 17,570 | 3,149 | 967 | 2,343 | 1,504 | 7.963 | 13 | 77 | 12.14 | 3.7 | 16.1 | 29.9 | 40.2 | 20 |
| 1952 | 10.547 | 1,898 | 98 | 1,399 | 0 | 3,395 | 12 | 55 | 19.69 | 5.4 | 7.1 | 18.2 | 34.3 | 17 |
| 1953 | 11,601 | 2,798 | 128 | 1,893 | 0 | 4,819 | 19 | 97 | 16.28 | 3.8 | 13.5 | 15.6 | 22.7 | 5 |
| 1954 | 17,615 | 3,821 | 361 | 1,850 | 0 | 6,032 | 18 | 88 | 12.31 | 3.2 | 8.5 | 19.1 | 32.6 | 11 |
| 1955 | 17,170 | 3,494 | 441 | 2,574 | 2,008 | 8,517 | 15 | 73 | 8.13 | 3.0 | 7.5 | 44.7 | 53.2 | 46 |
| 1956 | 12,240 | 4,659 | 899 | 3,931 | 1,885 | 11,374 | 20 | 85 | 14.31 | 4.5 | 12.0 | 30.3 | 37.8 | 20 |
| 1957 | 11,695 | 4,912 | 925 | 2,173 | 0 | 8,010 | 14 | 83 | 15.17 | 4.3 | 10.5 | 14.8 | 26.8 | 6 |
| 1958 | 12,819 | 3,168 | 662 | 981 | 285 | 5,096 | 15 | 80 | 17.40 | 4.8 | 9.0 | 28.7 | 39.2 | 15 |
| 1959 | 14,642 | 4,738 | 1,345 | 1,609 | 0 | 7,692 | 11 | 64 | 9.37 | 2.4 | 8.2 | 17.6 | 26.6 | 3 |
| 1960 | 14,203 | 4,658 | 646 | 2,394 | 554 | 8,252 | 11 | 58 | 10.28 | 2.1 | 7.0 | 31.2 | 39.4 | 4 |
| 1961 | 13,091 | 3,409 | 684 | 2,123 | 0 | 6,216 | 10 | 61 | 8.47 | 1.8 | 6.0 | 17.0 | 24.0 | 1 |
| 1962 | 12,112 | 2,589 | 212 | 1,302 | 0 | 4,103 | 11 | 76 | 10.87 | 2.6 | 4.4 | 18.2 | 24.2 | 10 |
| 1963 | 7,193 | 1,964 | 84 | 0 | 0 | 2,048 | 12 | 75 | 17.34 | 2.5 | 8.0 | 13.5 | 17.9 | 1 |
| 1964 | 16,513 | 3,188 | 152 | 591 | 0 | 3,931 | 16 | 60 | 12.95 | 3.5 | 9.0 | 30.0 | 38.0 | 10 |
| 1965 | 10,906 | 2,471 | 164 | 956 | 0 | 3,591 | 12 | 56 | 14.59 | 3.9 | 11.0 | 36.0 | 45.0 | 27 |
| 1966 | 11,249 | 2,854 | 350 | 1,742 | 0 | 4,946 | 15 | 57 | 11.20 | 2.7 | 16.0 | 21.9 | 37.9 | 10 |
| 1967 | ** | 2,446 | 286 | 1,088 | 1,015 | 4.835 | 13 | 41 | 13.27 | 3.6 | 6.7 | 14.6 | 21.3 | - |

[^2]

Table 4
MULE DEER POPULATION TRENDS

| Units by Region | Herd Range | Miles Traveled | Deer <br> Observed | Deer per Mile |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 1968 | 1967 | 1966 | 1965 |
| Deschutes | Tumalo | 50 | 111 | 2.2 | 3.1 | 2.2 | 2.1 |
| Grizzly | N. Ochoco | 10 | 187 | 18.7 | 23.9 | 4.6 | 9.4 |
|  | Trout Creek | 28 | 427 | 15.3 | 13.6 | 15.0 | 15.8 |
|  | McKay-Ochoco | 37 | 554 | 15.0 | 14.0 | 8.7 | 8.6 |
|  |  | 75 | 1,168 | 15.6 | 15.1 | 10.6 | 11.7 |
|  | Swan Lake <br> N. Goodlow | $\begin{aligned} & 59 \\ & 41 \end{aligned}$ | $\begin{aligned} & 699 \\ & 594 \end{aligned}$ | $\begin{aligned} & 11.8 \\ & 14.5 \end{aligned}$ | $\begin{aligned} & 20.6 \\ & 27.6 \end{aligned}$ | $\begin{aligned} & 15.7 \\ & 16.9 \end{aligned}$ | $\begin{aligned} & 11.2 \\ & 17.7 \end{aligned}$ |
| Klamath |  | 100 | 1,293 | 12.9 | 23.5 | 16.2 | 13.9 |
| Maupin | Maupin | 43 | 179 | 4.2 | 4.7 | 2.6 | 3.9 |
| Maury | Maury Mtn. | 79 | 1,477 | 18.7 | 17.3 | 14.3 | 12.9 |
| Metolius | Metolius | 90 | 277 | 3.1 | 3.4 | $3 \cdot 3$ | 3.2 |
|  | McKay-Ochoco | 18 | 336 | 18.7 | 19.8 | 13.0 | 9.3 |
|  | S. Ochoco | 74 | 1,291 | 17.4 | 20.7 | 22.3 | 21.5 |
|  | S. Fk. J. Day | 53 | 1.302 | 24.6 | 15.6 | 15.1 | 16.3 |
|  | N. Ochoco | 63 | 999 | 15.9 | 18.8 | 16.7 | 27.3 |
| Ochoco |  | 208 | 3,928 | 18.9 | 18.6 | 17.6 | 19.4 |
|  | N. Paulina | $130$ | $351$ | $2.7$ | $3.9$ | $3.3$ | 3.2 |
|  | Devil's Garden | $95$ | $783$ | $8.2$ | $7 \cdot 7$ | $5.9$ | 7.8 |
| Paulina |  | 225 | 1,134 | 5.0 | 5.5 | 4.1 | 4.7 |
| Sprague | Sprague | 20 | 220 | 11.0 | 27.0 | 20.5 | 28.8 |
| Sherman | Lower Deschutes | 50 | 236 | 4.7 | 10.2 | 6.7 | 4.9 |
| CENTRAL |  | 940 | 10,023 | 10.7 | 11.6 | 10.5 | 10.4 |

Table 4
MULE DEER POPULATION TRENDS (continued)


Table 4
MULE DEER POPULATION TRENDS
(continued)

| Units by Region | Herd Range | $\begin{gathered} \text { Miles } \\ \text { Traveled } \end{gathered}$ | $\begin{gathered} \text { Deer } \\ \text { Observed } \\ \hline \end{gathered}$ | Deer per Mile |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 1968 | 1967 | 1966 | 1965 |
| Starkey | Grande Ronde | 90 | 393 | 4.4 | 5.5 | 5.5 | 3.4 |
|  | Shaw Mtn. | 35 | 400 | 11.4 | 12.5 | 11.8 | 9.0 |
|  |  | 125 | 793 | 6.9 | 7.0 | 7.3 | 6.7 |
| Ukiah | Bridge Creek | 19 | 237 | 12.5 | 10.6 | 30.3 | 27.5 |
|  | Birch Creek | 22 | 471 | 21.4 | 21.3 | 14.9 | 19.0 |
|  | McKay Creek | 21 | 128 | 6.1 | 14.2 | 29.3 | 24.8 |
|  |  | 62 | 836 | 13.5 | 16.3 | 23.2 | 22.7 |
| Umatilla | Umatilla | 20 | 372 | 18.6 | 13.7 | 15.5 | 10.4 |
|  | Meacham Cr. | 52 | 946 | 18.2 | 17.1 | 13.3 | 14.5 |
|  |  | 72 | 1,318 | 18.3 | 15.8 | 14.2 | 13.0 |
| Walla Walla | Walla Walla | 41 | 295 | 7.2 | 10.9 | 9.0 | 8.6 |
| Wenaha |  | 38 | 125 | 3.3 | 5.1 | 9.1 | 10.3 |
| Wheeler | Lone Rock | 15 | 275 | 18.3 | - | - | - |
|  | John Day Riv. | 24 | 144 | 6.0 | 12.2 | 10.2 | 9.1 |
|  | Waterman | 52 | 287 | 5.5 | 11.4 | 9.3 | 12.6 |
|  |  | 91 | 706 | 7.8 | 11.7 | 9.6 | 11.5 |
| NORTHEAST |  | 1,495 | 20,208 | 13.5 | 15.3 | 14.0 | 13.3 |
| Beulah | N. Side Malheur | - 45 | 757 | 16.8 | 25.1 | 19.1 | 21.7 |
|  | Ironside | 26 | 118 | 4.5 | 7.1 | 18.3 | 7.7 |
|  | Cottonwood | 50 | 116 | 2.3 | 2.9 | 2.7 | 3.6 |
|  |  | 121 | 991 | 8.2 | 12.1 | 11.1 | 11.5 |
| Fort Rock | North Lake | 160 | 2,511 | 15.7 | 15.5 | 13.2 | 12.7 |
|  | Crooked Cr. | 36 | 590 | 16.4 | 18.0 | 12.1 | 6.7 |
|  | W. Goose Lake | 22 | 45 | 2.0 | 7.6 | 9.0 | 9.0 |
|  | Gearhart | 62 | 826 | 13.3 | 28.5 | 14.5 | 20.5 |
|  | S. Goodlow | 22 | 592 | 26.9 | 32.1 | 25.3 | 19.6 |
| Interstate |  | 142 | 2,053 | 14.5 | 23.2 | 14.7 | 15.1 |

Table 4
MULE DEER POPULATION TRENDS ( continued)

| Units by Region | Herd Range | $\begin{gathered} \text { Miles } \\ \text { Traveled } \\ \hline \end{gathered}$ | Deer <br> Observed | Deer per Mile |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 1968 | 1967 | 1966 | 1965 |
| Malheur | S. Side Malheur | 75 | 161 | 2.2 | 5.2 | 5.5 | 5.3 |
|  | Riverside | 33 | 50 | 1.5 | 1.9 | 1.6 | 3.6 |
|  | Drewsey | 21 | 317 | 15.1 | 12.9 | 11.0 | 15.0 |
|  | Stinkingwater | 27 | 122 | 4.5 | 12.3 | 9.1 | 7.6 |
|  |  | 156 | 650 | 4.2 | 6.8 | 6.1 | 6.6 |
| Owyhee | Mahogany Mtn. | 50 | 175 | 3.5 | 3.7 | 3.9 | 5.5 |
| Silver Lake | Silver Lake | 142 | 3,647 | 25.7 | 25.2 | 26.9 | 25.9 |
|  | Dry Mountain | 30 | 744 | 24.8 | 11.1 | 13.7 | 10.2 |
|  | Silvies River | 47 | 198 | 4.2 | 3.6 | 2.9 | 3.7 |
|  | South Izee | 24 | 185 | 7.7 | 10.0 | 9.0 | 7.3 |
| Silvies |  | 101 | 1,127 | 11.2 | 7.4 | 7.2 | 6.3 |
| Steens Mountain $\begin{aligned} & \text { Alvord } \\ & \text { French }\end{aligned}$ |  | 18 | 296 | 16.4 | 42.8 | 34.7 | 41.7 |
|  |  | 44 | 955 | 21.7 | 12.6 | 12.6 | 16.6 |
|  |  | 62 | 1,251 | 20.2 | 21.3 | 19.0 | 23.9 |
| Warner | Deep Creek Crooked Creek E. Goose Lake | 96 | 824 | 8.6 | 11.3 | 8.2 | 11.9 |
|  |  | 44 | 160 | 3.6 | 9.5 | 5.3 | 6.9 |
|  |  | 17 | 184 | 10.8 | 9 | 5 | 8.5 |
|  |  | 157 | 1,168 | 7.4 | 10.8 | 7.4 | 10.1 |
| Whitehorse | Whitehorse | 60 | 54 | 0.9 | 1.2 | 0.8 | 1.3 |
| SOUTHEAST |  | 1,151 | 13,627 | 11.8 | 13.8 | 11.8 | 12.3 |
| TOTALS AND AVERAGES |  | 3,586 | 43,858 |  |  |  |  |
|  |  |  |  | 12.2 | 13.8 | 12.4 | 12.3 |


MULE DEER HERD COMPOSITION

| Units by Region |  |  |  |  | * 1968 |  | Numbe | per 1 | Does |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Deer Classified |  |  |  |  |  | 1967 |  | 1966 |  |
|  | Bucks | Does | Fawns | Total | Bucks | Fawns | Bucks | Fawns | Bucks | Fawns |
| Deschutes | 42 | 153 | 94 | 289 | 27 | 61 | 27 | 85 | 37 | 45 |
| Grizzly | 68 | 414 | 276 | 758 | 16 | 67 | 16 | 90 | 13 | 52 |
| Klamath | - | * *242 | 148 | 390 | - | 61 | 12 | 74 | 10 | 55 |
| Maupin | 6 | 91 | 68 | 165 | 7 | 75 | 7 | 74 | 20 | 84 |
| Maury | 20 | 248 | 174 | 442 | 8 | 70 | 9 | 81 | 14 | 66 |
| Metolius | 61 | 227 | 131 | 419 | 27 | 58 | 26 | 78 | 28 | 50 |
| Ochoco | 59 | 422 | 282 | 763 | 14 | 67 | 13 | 76 | 15 | 59 |
| Paulina | 368 | 1,307 | 831 | 2,506 | 28 | 64 | 25 | 83 | 28 | 50 |
| Sprague | - | - | - | - | - | - | 20 | 90 | 18 | 53 |
| Sherman | 17 | 280 | 211 | 508 | 6 | 75 | 16 | 82 | 27 | 54 |
| CENTRAL | 641 | 3,384 | 2,215 | 6,240 | 19 | 65 | 17 | 80 | 19 | 55 |
| Baker | 17 | 111 | 59 | 187 | 15 | 53 | 14 | 77 | 9 | 96 |
| Catherine Cr. | 58 | 321 | 210 | 589 | 18 | 65 | 16 | 72 | 26 | 76 |
| Chesnimnus | 40 | 273 | 212 | 525 | 15 | 78 | 9 | 68 | 14 | 80 |
| Desolation | 7 | 73 | 48 | 128 | 10 | 66 | 13 | 80 | 23 | 64 |
| Heppner | 103 | 623 | 460 | 1,186 | 17 | 74 | 11 | 78 | 15 | 87 |
| Imnaha | 42 | 232 | 209 | 483 | 18 | 90 | 11 | 79 | 24 | 75 |
| Keating | 46 | 271 | 176 | 493 | 17 | 65 | 8 | 85 | 11 | 65 |
| Lookout Mtn. | 34 | 353 | 201 | 588 | 10 | 57 | 13 | 66 | 7 | 90 |
| Minam | 59 | 222 | 188 | 469 | 27 | 85 | 30 | 86 | 36 | 73 |
| Murderer's Cr. | 117 | 750 | 436 | 1,303 | 16 | 58 | 16 | 63 | 17 | 60 |
| Northside | 94 | 323 | 187 | 604 | 29 | 57 | 28 | 75 | 33 | 60 |
| Sled Springs | 48 | 245 | 242 | 535 | 20 | 99 | 12 | 85 | 13 | 89 |
| Snake River | 56 | 332 | 216 | 604 | 17 | 65 | 21 | 78 | 21 | 83 |
| Starkey | 29 | 126 | 112 | 267 | 23 | 89 | 23 | 93 | 22 | 88 |
| Ukiah | 33 | 203 | 131 | 367 | 16 | 65 | 19 | 77 | 16 | 81 |
| Umatilla | 20 | 152 | 98 | 270 | 13 | 64 | 10 | 84 | 16 | 72 |
| Walla Walla | 29 | 195 | 108 | 332 | 15 | 55 | 20 | 71 | 36 | 82 |
| Wenaha | 20 | 120 | 127 | 267 | 17 | 105 | 29 | 60 | 17 | 84 |
| Wheeler | 36 | 303 | 234 | 573 | 12 | 77 | 11 | 80 | 10 | 73 |
| NORTHEAST | 888 | 5,246 | 3,654 | 9,788 | 17 | 70 | 16 | 76 | 20 | 76 |

Table 5
MULE DEER HERD COMPOSITION

| Units by Region | Deer Classified |  |  |  | Average Number per 100 Does |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | * 1968 |  | 1967 |  | 1966 |  |
|  | Bucks | Does | Fawns | Total | Bucks | Fawns | Bucks | Fawns | Bucks | Fawns |
| Beulah | 17 | 172 | 117 | 306 | 10 | 68 | 16 | 73 | 17 | 68 |
| Fort Rock | 190 | 558 | 343 | 1,091 | 34 | 61 | 55 | 91 | 39 | 65 |
| Interstate | 57 | 376 | 199 | 632 | 15 | 53 | 13 | 69 | 23 | 49 |
| Malheur Hiver | 21 | 100 | 77 | 198 | 7 | 85 | 16 | 67 | 22 | 47 |
| Owyhee | 6 | 33 | 27 | 66 | 18 | 82 | 24 | 78 | 24 | 63 |
| Silver Lake | 133 | 547 | 331 | 1,011 | 24 | 61 | 19 | 91 | 23 | 65 |
| Silvies | 28 | 247 | 135 | 410 | 11 | 55 | 15 | 66 | 16 | 57 |
| Steens Mtn. | 77 | 486 | 263 | 826 | 16 | 54 | 23 | 42 | 20 | 47 |
| Warner | 15 | 179 | 62 | 256 | 8 | 35 | 13 | 59 | 11 | 57 |
| Whitehorse | 8 | 42 | 28 | 78 | 19 | 67 | 26 | 68 | 9 | 17 |
| SOUTHEAST | 552 | 2,740 | 1,582 | 4,874 | 20 | 58 | 21 | 71 | 23 | 55 |
| TOTALS AND AVERAGES | 2,081 | 11,370 | 7,451 | 20,902 | 18 | 66 | 17 | 76 | 20 | 63 |

*Herd composition counts made in November-December of 1967.
**Substracted from totals when computing buck/doe ratios.

Table 6
MULE DEER ANTLER CLASS PERCENTAGES

| Region. | Percent Spikes |  |  |  | Percent Two Points |  |  |  | Percent <br> Three Points |  |  |  | Percent Four Points and Over |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1968 | 1967 | 1966 | 1965 | 1968 | 1967 | 1966 | 1965 | 1968 | 1967 | 1966 | 1965 | 1968 | 1967 | 1966 | 1965 |
| CENTRAL | 15 | 10 | 17 | 11 | 39 | 30 | 35 | 39 | 14 | 17 | 19 | 16 | 32 | 43 | 29 | 34 |
| NORTHEAST | 17 | 6 | 7 | 8 | 44 | 45 | 41 | 39 | 15 | 19 | 20 | 22 | 24 | 30 | 32 | 31 |
| SOUTHEAST | 10 | 5 | 12 | 6 | 38 | 41 | 33 | 33 | 17 | 20 | 20 | 17 | 35 | 34 | 35 | 44 |
| STATE AVERAGES | 14 | 7 | 12 | 8 | 40 | 39 | 36 | 37 | 15 | 19 | 20 | 19 | 31 | 36 | 32 | 36 |



$$
\text { Table } 7
$$

MULE DEER WINTER LOSSES

| $\begin{gathered} \text { Units } \\ \text { by } \\ \text { Region } \end{gathered}$ | Winter Losses |  |  |  | Total <br> Carcasses | $\begin{gathered} \text { Miles } \\ \text { Traveled } \end{gathered}$ | Carcasses per Mile |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Sex |  | Age |  |  |  |  |  |  |  |  |
|  | Male | Female | Young | Adult |  |  | 1968 | 1967 | 1966 | 1965 | 1964 |
| Grizzly |  |  |  |  | 0 | 59 | - | - | - | - | - |
| Interstate |  | 1 | 7 | 1 | 8 | 84 | 0.1 | 0.1 | - | - | - |
| Klamath | 1 | 2 | 3 | 1 | 4 | 100 | - | 0.1 | 0.2 | 0.1 | 0.1 |
| Maury | 1 | 0 | 4 | 0 | 4 | 80 | - | - | - | - | - |
| Metolius |  | 1 |  | 1 | 1 | 24 | - | - | - | - | - |
| Ochoco |  | 2 | 2 | 2 | 4 | 131 | - | - | - | - | - |
| Paulina |  | 1 | 1 | 2 | 3 | 47 | - | - | - | - | - |
| Sprague |  | 2 | 2 | 1 | 3 | 20 | 0.2 | 0.1 | - | 0.2 | - |
| CENTRAL | 2 | 9 | 21 | 8 | 27 | 545 | - |  |  |  |  |
| Baker | 4 | 4 | 3 | 5 | 8 | 79 | 0.1 | 0.2 | - | 0.7 | 0.6 |
| Catherine Cr. | 1 |  |  | 1 | 1 | 22 | - | - | - | 0.1 | 0.3 |
| Chesnimnus |  |  |  |  | 0 | 117 | - | - | - | - | 0.2 |
| Heppner | 2 |  | 3 | 6 | 9 | 105 | - | 0.1 | - | 0.2 | 0.1 |
| Imnaha |  |  |  |  | 0 | 41 | - | - | - | - | 0.7 |
| Keating | 4 | 3 | 5 | 2 | 7 | 71 | 0.1 | 0.2 | - | 0.1 | 1.0 |
| Lookout Mtn. | 3 | 2 | 2 | 3 | 5 | 32 | 0.2 | - | - | 0.1 | 0.4 |
| Minam | 2 | 3 | 1 | 4 | 5 | 76 | - | - | - | - | 1.3 |
| Murderer's Cr. | 2 | 2 | 2 | 3 | 5 | 30 | 0.2 | - | 0.1 | - | 0.2 |
| Northside |  | 2 | 2 | 1 | 3 | 56 | - | - | 0.1 | - | - |
| Sled Springs |  | 2 |  | 2 | 7 | 57 | 0.1 | - | - | - | 1.9 |
| Snake River |  |  |  |  | 2 | 137 | - | - | - | 0.1 | 0.4 |
| Starkey |  |  |  |  | 0 | 125 | - | - | - | - | 0.1 |
| Wenaha |  |  |  |  | 2 | 58 | - | - | - | - | 0.8 |
| Wheeler |  |  | 1 | 5 | 6 | 91 | - | 0.2 | - | - | 0.1 |
| NORTHEAST | 18 | 18 | 19 | 32 | 60 | 1,097 | - |  |  |  |  |

Table 7
MULE DEER WINTER LOSSES
(Continued)


## BRYANT DEER HERD INVESTIGATION

Early studies of the interstate movement of mule deer between Klamath and Lake Counties of Oregon and Modoc County of California (A. C. Randle 1937-40; Fischer and Davis 1944) revealed a significant winter concentration of mule deer at the south end of Bryant Mountain and north of the Clear Lake Hills. With little evidence of movement of deer from that wintering area to the more critical Devil's Garden winter range, the Bryant Mountain population has not been considered an integral part of the Devil's Garden-Interstate deer herd.

In 1966, the limited knowledge of the density and habits of the Bryant deer herd was reviewed by the Interstate Deer Herd Advisory Committee and it was concluded that a study should be initiated to determine the size and seasonal distribution of those animals.

This report provides a concise summary of findings during the first year of that study. More detailed reports of individual segments of the work are available.

## The Study:

Mr. Dan Eastman, Klamath District Game Biologist for the Oregon Game Commission, exercised leadership in the design and execution of the Bryant Mountain Study and was assisted by representatives of the California Department of Fish and Game and the U. S. Forest Service.

A trapping and marking program was employed on the winter range to identify individual animals which, through subsequent observation and comparison with unmarked animals, could provide a "Lincoln Index" estimate of the wintering population and information on seasonal distribution and mortality rates of that population.


## DEER MARKING

From January 13 to February 19,1967 , subcommittee representatives of the Interstate Technical Committee captured 502 deer on the 48 -square-mile Bryant Mountain winter range. Up to 51 traps were employed in 32 days of effort. Three hundred eight deer were marked with duplicate round aluminum numbered ear tags with streamers attached, and a numbered neck collar with a bell stamped corresponding to the ear tag number.

There were 16 adult bucks, 162 adult does, 68 buck fawns, and 62 doe fawns successfully marked and released. Those captured in the west half of the winter range were marked with white streamers and collars and those in the east half marked with red.

The neck collar of polyethylene plastic rope with an attached nylon-plastic flap was tied with extra slack on all fawns and adult bucks. A heavy rubber band was used to temporarily reduce the slack in all buck fawns and some of the others. Each collar number of white on red and black on white was individual for purposes of future field identification.

## POPULATION ESTIMATE

From February 19 to March 5, 1967, an intensive area census was conducted by two observers by car, foot and horseback throughout the Bryant Mountain winter range. All herd observations were plotted on field maps by number of deer seen as to those marked and unmarked. Marked deer were identified by the collar number whenever possible.

A first census was completed with a tally of 1,787 animals. Then the study area was subjected to another search for a tally of 1,552 deer. Some portions of the winter range were searched a third time.

From the number of marked animals encountered on census, slightley above six percent of all observed, the total population was computed at a conservative 4,780 deer.

The numbered collar on all deer permitted identification of 146 individuals out of 223 observations. This was an invaluable addition to a refined population estimate. In addition, the direction of spring movement and numbers involved was well established from collar identification.


## SUMMER DISTRIBUTION

The distribution of the Bryant Mountain winter range deer on summer range in Oregon was determined from 65 reported sightings of marked animals and 25 kil recoveries in the 1967 hunting season.

Most of the spring migration occurred in an easterly direction into the Interstate Management Unit. The summer distribution was mostly in common with the Devil's Garden-Interstate herd which disperses over a 2,000-square-mile range in Oregon. Lesser numbers of Bryant deer appeared in parts of the Klamath and Sprague Management Units.

Summer spotlight counts and hunting results on the resident. Bryant Mountain herd in Oregon indicated very few of those deer were exposed to the marking project in California.

## SUMMER POPULATION TREND AND COMPOSITION

Systematic sampling of deer activity on the summer range of the Interstate herd is conducted by dragging selected strips of forest road and counting and classifying the tracks of deer that cross the counting strip during a known exposure period.

Comparison of track counts in the northwest quarter of the Interstate Unit indicated an increase in the density of adult and yearling deer; however, fawn production and survival through August was the lowest on record and the result was a decline in summer deer density when compared with 1966 measures.

Low 1967 fawn survival was confirmed by the post-season herd composition inventories on the Bryant winter range in December 1967.

HERD COMPOSITION

| FALL COMPOSITION |  |  |  |  | SPRING SURVIVAL |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | Deer <br> Classified | Per 100 Does |  | Fawns Per 100 Adults | $\begin{gathered} \text { Deer } \\ \text { Classified } \end{gathered}$ | Fawns Per 100 Adults | $\begin{gathered} \text { Fawn Loss } \\ \text { Per } \\ 100 \text { Adults } \\ \hline \end{gathered}$ |
|  |  | Bucks | Fawns |  |  |  |  |
| 62-63 | 108 | 14 | 55 | 48 | 117 | 36 | 12 |
| 63-64 | 445 | 11 | 75 | 67 | 47 | 47 | 20 |
| 64-65 | 314 | 13 | 64 | 57 | 207 | 44 | 13 |
| 65-66 | 607 | 8 | 56 | 52 | 332 | 36 | 16 |
| 66-67 | 452 | 15 | 61 | 53 | 237 | 52 | 1 |
| 67-68 | 325 | 11 | 41 | 37 |  |  |  |

FIRST YEAR RETURNS
OF MARKED BRYANT DEER
FROM 1967 HUNTING

| DEER MARKED |  | HUNTING RECOVERIES |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Oregon |  | California |  | Total |  |
| Sex and Age | Number | No. | Percent | No. | rcent | No. | Percent |
| Buck, Adult | 16 | 1 |  | 3 |  | 4 | (25\%) |
| Buck, Fawn | 68 | 9 |  | 1 |  | 10 | ( $15 \%$ ) |
| Subtotal | 84 | 10 | ( $12 \%$ ) | 4 | (5\%) | 14 | ( $17 \%$ ) |
| Doe, Adult | 162 | 13 |  | 4 |  | 17 | ( 10\%) |
| Doe, Fawn | 62 | 2 |  | 1 |  | 3 | (5\%) |
| Subtotal | 224 | 15 | (7\%) | 5 | ( $2 \%$ ) | 20 | (9\%) |
| TOTALS | 308 | 25 | (8\%) | 9 | ( $3 \%$ ) | 34 | ( $11 \%$ ) |



## DEER HARVEST

Oregon's 1967 hunting season provided for the taking of any buck with a visible antler plus a liberal antlerless opportunity in all south central Oregon management units. Although the general hunting season was delayed one week by a state-wide closure as a fire prevention measure, no special closures such as in 1966 were in effect on the summer range of interstate deer once the general season opened. Three late season hunts within the summer range of the Bryant deer herd provided an additional antlerless opportunity for 3,000 tag holders, but Bryant deer apparently had migrated and were not exposed to these hunts.

Oregon hunters reported killing 25 marked Bryant deer. There were a total of ten bucks ( 12 percent of bucks marked) and 15 does ( 7 percent of does marked) reported taken during the 1967 season. This is 8 percent of the total deer marked. The potential yield could be three to four times as high without jeopardizing the breeding population. Sixty percent of all recoveries were in the Interstate Unit in common with Devil's Garden-Interstate deer. The remainder came from the Silver Lake, Klamath, and Sprague Units to the north and west.

In California, only one marked deer kill was reported during the regular season; an illegal two-point buck on the winter range. By means of a late season, California hunters reported harvesting eight marked deer (three bucks and five does) from the immediate vicinity of the winter range.

The total combined reported harvest of Bryant marked deer for 1967 is 34 ( 11 percent of all marked) animals of which 17 percent of all bucks that were marked were taken and 9 percent of the does.

## RECAPTURE PROJECT, 1968

California hunters in the 1967 late season killed two bucks in the rut which had been marked as adults on the Bryant winter range. In both cases the collar was overly tight during this period of swollen necks. One of the incidents was sensationalized by certain news media and aroused severe public criticism of the technique of deer marking.

Between December 19, 1967 and February 7, 1968, a team of Oregon and California representatives operated 39 traps throughout the original marking area to recapture and remove collars from previously marked deer. In 40 trapping days, 294 deer were captured including 116 that repeated. There were 28 female deer
captured that carried a neck collar, which was removed. A marked buck and a doe were captured that had lost the neck collar. There were 115 deer successfully ear-tagged during the program.

In no instance was discomfort noted in collared animals. Neck and collar measurements plus photographic evidence indicated ample slack in female deer. No collared bucks were captured.

During and following the trapping effort, special attention was given to identifying marked deer in the field from the collar number. A total of 42 individual deer (excludes all with collars removed) with collars, including seven bucks, are known to be alive. From recoveries, recaptures, and identified sightings in 1968, the fate is known of 114 of the original 308 marked deer.

## Preliminary Conclusions:

Although much additional information on the seasonal movements and mortality rate of the Bryant wintering population will accrue from the marked animals, the findings to date indicate the following:

1. Approximately 5,000 mule deer wintered on the 48-square-mile Bryant winter range in 1967.
2. The Bryant winter population is not confined to the Bryant Mountain area in summer. They were found widely distributed in the Interstate, Klamath, and Sprague Units of Oregon.
3. Few of the Bryant deer summer in California or are available to California hunters in October.
4. No evidence of an interchange between the Bryant and Devil's Garden winter ranges was found.
5. Collectively, Oregon and California hunters took 14, or 17 percent, of the marked bucks and 20 , or 9 percent, of the marked females during the 1967 hunting season.
6. A finding that the rope collars were injuring mature bucks during the rut provided cause to change the method of marking in future studies.

## ROOSEVELT ELK

A count of 2,700 elk on 437 miles of census routes indicated a slight increase of Roosevelt elk in western Oregon in 1967.

Classification of 4,989 animals revealed an increase in the carry-over of bulls and normal calf survival. The averages were 6 bulls and 43 calves per 100 cows.

Hunting pressure on Roosevelt elk continued to decline as a result of the separate tag regulation and shortened seasons. A total of 18,100 persons hunted the species and took 2,440 bulls, averaging 14 percent success. This represents a 17 percent decline from the 1964 season when 21,888 hunters reported hunting the species.

The elk transplanting program was continued with 52 animals moved to new ranges in Douglas, Josephine, Curry, and Lane Counties during the 1967-68 winter. This effort to increase the distribution of Roosevelt elk is the most constructive means of meeting the increased public demand for elk hunting.

Elk damage to agricultural lands in winter remains a problem; however, a winter archery season provided a means of harassing offending animals and was effective in areas where landowners cooperated by allowing hunter access. It is estimated that over 100 elk were taken by archers.

A fecundity study was initiated in the fall of 1967 in an attempt to determine the cause of poor calf production in Roosevelt elk.

MILLICOMA TREE FARM ELK SEASONS

| $\begin{gathered} \text { First Day } \\ \text { Cars } \end{gathered}$ | Year | Hunter Visits | Bull Harvest |  |  |  | Known Illegal Kill |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Percent |  |  |  |  |
|  |  |  | Adults | Yearlings | Yearlings | Total | Spikes | Antlerless | Total |
| 159 | 1955 | 1,113 | 59 | - | - | 59 | 11 | 3 | 14 |
| 330 | 1956 | 2,479 | 64 | - | - | 64 | 19 | 4 | 23 |
| 593 | * 1957 | 4,151 | 83 | 56 | 40 | 139 | - | 16 | 16 |
| 486 | * 1958 | 4,190 | 54 | 77 | 59 | 131 | - | 13 | 13 |
| 670 | * 1959 | 4,998 | 77 | 83 | 52 | 160 | - | 5 | 5 |
| 861 | * 1960 | 5,500 | 44 | 99 | 70 | 143 | - | 6 | 6 |
| 668 | * 1961 | 6,317 | 60 | 102 | 63 | 163 | - | 7 | 7 |
| 76911 | * 1962 | 4,802 | 22 | 67 | 75 | 89 | - | 9 | 9 |
| 707 | * 1963 | 6,000 | 79 | 74 | 48 | 153 | - | 10 | 10 |
| 856 | * 1964 | 8,170 | 62 | 92 | 60 | 154 | - | 18 | 18 |
| 930 | * 1965 | 7,317 | 17 | 114 | 87 | 131 | - | 6 | 6 |
| 1,497 | * 1966 | 8,041 | 55 | 95 | 63 | 150 | - | 8 | 8 |
| 710 | * 1967 | 5,327 | * * 20 | 43 | 68 | 121 | - | 3 | 3 |

[^3]Table 8
ROOSEVELT ELK POPULATION TRENDS

| Units by Kegion | $\begin{gathered} \text { Miles } \\ \text { Traveled } \\ \hline \end{gathered}$ | $\begin{gathered} \text { E1k } \\ \text { Observed } \\ \hline \end{gathered}$ | Elk per Mile |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1968 | 1967 | 1966 | 1965 |
| Clatsop | 43 | 896 | 20.8 | 15.6 | 17.0 | 16.0 |
| McKenzie | 70 | 343 | 4.9 | 2.3 | 4.0 | 3.5 |
| Nestucca | 23 | 200 | 8.7 | 6.7 | 4.7 | 7.8 |
| Trask | 24 | 118 | 4.9 | 5.1 | 1.5 | 1.3 |
| Wilson | 29 | 422 | 14.6 | 14.4 | 12.5 | 13.0 |
| NORTHWEST | 189 | 1,979 | 10.5 | 9.3 | 8.4 | 7.4 |
| Chetco | 71 | 8 | 0.1 | - | - | - |
| Dixon | 49 | 106 | 2.2 | 1.9 | - | - |
| Elkton | 41 | 73 | 1.8 | 1.7 | 0.6 | 0.6 |
| Evans Creek | 12 | 25 | 2.1 | - | - | - |
| Melrose | 36 | 104 | 2.9 | 2.5 | 3.1 | 2.8 |
| Powers | 66 | 87 | 1.3 | 1.2 | 2.1 | 0.9 |
| Rogue | 39 | 6 | 0.2 | - | - | 0.9 |
| Tioga | 94 | 388 | 4.0 | 1.4 | 3.1 | 4.5 |
| SOUTHWEST | 408 | 797 | 2.0 | 2.4 | 2.2 | 2.5 |
| TOTALS AND AVERAGES | 597 | 2,776 | 4.6 | 5.6 | 5.5 | 5.2 |



## Table 9

ROOSEVELT ELK HERD COMPOSITION

| Units by Region | Elk Classified |  |  |  | Average Number per 100 Cows |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | 1968 |  | 1967 |  | 1966 |  |
|  | Bu11s | Cows | Calves | Total | Bul1s | Calves | Bul1s | Calves | Bu11s | Calves |
| Clatsop | 46 | 985 | 453 | 1,484 | 5 | 46 | 3 | 50 | 4 | 43 |
| McKenzie | 45 | 311 | 125 | 481 | 14 | 40 | 3 | 26 | 12 | 38 |
| Nestucca | 13 | 192 | 86 | 291 | 7 | 45 | 5 | 71 | 5 | 43 |
| Trask | 8 | 155 | 70 | 233 | 5 | 45 | 1 | 48 | 8 | 50 |
| Willamette | 14 | 69 | 30 | 113 | - | - | - | - | - | - |
| Wilson | 32 | 820 | 372 | 1,224 | 4 | 45 | 2 | 56 | 3 | 45 |
| NORTHWEST | 158 | 2,532 | 1,136 | 3,826 | 6 | 45 | 3 | 50 | 5 | 44 |
| Chetco | 3 | 10 | 3 | 16 | 30 | 30 | - | - | - | - |
| Dixon | 8 | 75 | 20 | 103 | 11 | 27 | 3 | 58 | 10 | 37 |
| Elkton | 4 | 52 | 15 | 71 | 8 | 29 | 17 | 58 | 14 | 56 |
| Evans Cr. | 1 | 17 | 7 | 25 | 6 | 41 | - | - | - | - |
| Melrose | 4 | 75 | 25 | 104 | 5 | 33 | 8 | 29 | 12 | 41 |
| Powers | 3 | 51 | 19 | 73 | 6 | 37 | 3 | 33 | 15 | 43 |
| Rogue | 2 | 15 | 4 | 21 | 14 | 27 | - | - | - | - |
| Tioga | 30 | 516 | 204 | 750 | 6 | 40 | 6 | 31 | 7 | 29 |
| SOUTHWEST | 55 | 811 | 297 | 1,163 | 7 | 37 | 6 | 35 | 8 | 33 |
| TOTALS AND AVERAGES | 213 | 3,343 | 1,433 | 4,989 | 6 | 43 | 4 | 47 | 6 | 40 |

## ROCKY MOUNTAIN ELK

A significant decline in the number of elk observed on both aerial and ground census routes was partially due to the mild winter and wide distribution of Rocky Mountain elk. Approximately 2,114 miles of aerial census provided a count of 11,624 animals, or 5.5 elk per mile; a decline of 26 percent from the count in the spring of 1967. A similar decline of density was observed on the ground routes with 2,314 animals observed on 363 miles of sample.

Classification of 4,676 elk during the early winter revealed an improvement in the carry-over of bulls and near normal calf survival. The average for northeastern Oregon was 9 bulls and 48 calves per 100 cows. The 1966-67 average was 6 bulls and 53 calves per 100 cows.

Concern for low carry-over of bulls from the 1966 season induced the Commission to shorten the 1967 elk season by one week. This action resulted in a 7 percent decline in hunting pressure and 6 percent decline in the take of bulls. A total of 46,100 persons reported taking 5,220 bulls and 2,690 antlerless animals. Success averaged 17 percent.

The mild winter did not force the elk onto agricultural lands and the number of complaints serviced declined by 40 percent.

Improved access roads through critical winter elk ranges and the rapidly growing popularity of snowmobiles appear to have a significant effect upon the distribution of Rocky Mountain elk. With the cooperation of the forest Service a study of the problem has been initiated to document effects and seek constructive solutions.


Table 10
ROCKY MOUNTAIN ELK POPULATION TRENDS (Aerial Census)


Table 10
ROCKY MOUNTAIN ELK POPULATION TRENDS
(Aerial Census)
continued

| Units by Region | Herd Range | $\begin{gathered} \text { Miles } \\ \text { Traveled } \end{gathered}$ | $\begin{gathered} \text { Elk } \\ \text { Observed } \end{gathered}$ | E1k per Mile |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 1968 | 1967 | 1966 | 1965 |
|  | Umatilla | 35 | 433 | 12.4 | 19.8 | 17.0 | 7.6 |
|  | Meacham Creek | 38 | 540 | 14.2 | 17.7 | 34.0 | 18.3 |
|  | Mt. Emily | 20 | 44 | 2.2 | 3.0 | - | - |
| Umatilla |  | 93 | 1,017 | 10.9 | 15.3 | 22.7 | 12.9 |
| Walla Walla | Walla Walla | 55 | 1,056 | 19.2 | 22.8 | 22.1 | 21.3 |
|  | Lookingglass | 60 | 324 | 5.4 | 6.1 | 11.0 | 3.4 |
|  | Wenaha | 159 | 1,460 | 9.2 | 19.7 | 15.6 | 12.3 |
| Wenaha |  | 219 | 1,784 | 8.1 | 16.0 | 14.5 | 9.9 |
| NORTHEAST TOTALS |  | 2,114 | 11,624 | 5.5 | 7.5 | 7.1 | 7.3 |



Table 11
ROCKY MOUNTAIN ELK POPULATION TRENDS (Ground Census)

| Units by Region | Herd Range | Miles Traveled | $\begin{gathered} \text { Elk } \\ \text { Observed } \end{gathered}$ | Elk per Mile |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 1968 | 1967 | 1966 | 1965 |
| Chesnimnus |  | 109 | 550 | 5.0 | $5 \cdot 7$ | 9.8 | 10.9 |
| Heppner | N. Fk. J. Day | 29 | 6 | 0.2 | 1.8 | 0.0 | 0.8 |
| Minam |  | 58 | 220 | 3.8 | 8.4 | 5.9 | 8.0 |
| Sled Springs |  | 14 | 104 | 7.4 | 10.4 | 13.7 | 12.1 |
| Ukiah | Bridge Creek Birch Creek McKay Creek | $\begin{aligned} & 19 \\ & 22 \\ & 21 \end{aligned}$ | $\begin{array}{r} 473 \\ 13 \\ 0 \end{array}$ | $\begin{array}{r} 24.8 \\ 0.5 \\ 0.0 \end{array}$ | $\begin{array}{r} 19.4 \\ 0.0 \\ 1.1 \end{array}$ | $\begin{aligned} & 2.9 \\ & 0.5 \\ & 0.5 \end{aligned}$ | $\begin{array}{r} 35.4 \\ 9.5 \\ 0.0 \end{array}$ |
|  |  | 62 | 486 | 7.8 | 6.3 | 0.8 | 9.6 |
|  | Umatilla <br> Meacham Creek | $\begin{aligned} & 20 \\ & 52 \end{aligned}$ | $\begin{aligned} & 158 \\ & 332 \end{aligned}$ | $\begin{aligned} & 7.9 \\ & 6.4 \end{aligned}$ | $\begin{array}{r} 13.6 \\ 9.0 \end{array}$ | $\begin{array}{r} 7.5 \\ 14.0 \end{array}$ | $\begin{aligned} & 7.5 \\ & 9.0 \end{aligned}$ |
| Umatilla |  | 72 | 490 | 6.8 | 10.2 | 11.6 | 8.5 |
| Walla Walla | Walla Walla | 47 | 370 | 7.9 | 14.8 | 15.5 | 12.8 |
| Wenaha | Wenaha | 38 | 88 | 2.3 | 17.0 | 14.0 | 12.6 |
| NORTHEAST TOTALS |  | 429 | 2,314 | 5.4 | 9.0 | - | - |


Table 12
ROCKY MOUNTAIN ELK HERD COMPOSITION

| Unit | Elk Classified |  |  |  | Average Number Per 100 Cows |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | 1968 |  | 1967 |  | 1966 |  |
|  | Bul1s | Cows | Calves | Total | Bul1s | Calves | Bu11s | Calves | Bu11s | Calves |
| Baker | 15 | 94 | 50 | 159 | 16 | 53 | 20 | 86 | 28 | 53 |
| Catherine Cr. | 7 | 85 | 48 | 140 | 8 | 56 | 3 | 53 | 5 | 47 |
| Chesnimnus | 7 | 110 | 39 | 156 | 6 | 35 | 3 | 48 | 1 | 55 |
| Desolation | 5 | 12 | 4 | 21 | - | - | 11 | 37 | 20 | 26 |
| Heppner | 16 | 171 | 78 | 265 | 9 | 46 | 10 | 61 | 9 | 43 |
| Imnaha | 31 | 273 | 124 | 428 | 11 | 45 | 5 | 40 | 14 | 48 |
| Minam | 25 | 126 | 64 | 215 | 20 | 51 | 13 | 47 | 21 | 50 |
| Sled Springs | 4 | 233 | 93 | 330 | 2 | 40 | 4 | 43 | 2 | 50 |
| Snake River | 23 | 334 | 153 | 510 | 7 | 46 | 9 | 60 | 15 | 45 |
| Starkey | 64 | 427 | 242 | 733 | 15 | 57 | 6 | 66 | 10 | 55 |
| Ukiah | 16 | 135 | 52 | 203 | 12 | 39 | 8 | 53 | 9 | 51 |
| Umatilla | 12 | 475 | 218 | 705 | 3 | 46 | 3 | 51 | 3 | 63 |
| Walla Walla | 9 | 207 | 89 | 305 | 4 | 43 | - | 53 | 3 | 51 |
| Wenaha | 24 | 305 | 177 | 506 | 8 | 58 | 5 | 48 | 9 | 37 |
| TOTALS AND | 258 | 2,987 | 1,431 | 4,676 |  |  |  |  |  |  |
| AVERAGES |  |  |  |  | 9 | 48 | 6 | 53 | 9 | 49 |

## ANTELOPE

Aerial census in the spring of 1968 provided a count of 4,125 antelope in 7,593 miles of sample for the second highest population index in thirteen years in spite of the addition of more sample miles and poor production in 1967.

Herd composition information from observations in August 1967 revealed low fawn production or survival. Only 32 fawns per 100 does were classified. This was the lowest recorded fawn ratio. Buck ratios have remained high, averaging 31 bucks per 100 does.

Hunters reported taking 427 bucks during the 1967 season. This is the reported kill with 87 percent of the hunters returning their report cards. The estimated total kill, including nonreporting hunters, was 460 antelope.

Table 13
1968 AERIAL ANTELOPE

| Unit and Area | Herd Range | Miles <br> Traveled | Antelope Observed | Antelope per Mile |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 1968 | 1967 | 1966 | 1965 | 1964 | 1963 |
| Silvies |  | 125 | 74 | 0.6 | 1.2 | 1.3 | - | - | - |
| Maury |  | 325 | 477 | 1.5 | 1.9 | 0.6 | 1.4 | 2.8 | 3.8 |
| Ochoco |  | 125 | 302 | 2.4 | 1.6 | 1.4 | - | - | - |
| AREA I TOTALS |  | 575 | 853 | 1.5 | 1.7 | 1.1 | 1.4 | 2.8 | 3.8 |
| Paulina |  | 200 | 332 | 1.7 | 1.7 | 1.7 | 1.5 | 1.9 | 1.8 |
| Silver Lake |  | 225 | 153 | 0.7 | 0.7 | 0.3 | 0.5 | 0.6 | 0.7 |
| Wagontire |  | 320 | 382 | 1.2 | 1.3 | 1.1 | 1.2 | 0.2 | 0.2 |
| AREA II TOTALS |  | 745 | 867 | 1.2 | 1.2 | 1.0 | 1.0 | 0.9 | 1.2 |
| Abert Rim |  | 100 | 240 | 2.4 | 3.0 | 3.4 | 3.5 | 0.4 | 3.0 |
| Warner |  | 55 | 218 | 4.0 | 5.6 | 4.8 | 7.2 | 7.5 | 5.7 |
| Interstate |  | 75 | 59 | 0.8 | 1.4 | 1.2 | 1.6 | 1.2 | 1.8 |
| Klamath |  | - | - | 0.3 | - | 0.3 | 0.4 | 1.0 | 0.9 |
| AREA III TOTALS |  | 230 | 517 | 2.2 | 3.1 | 3.0 | 2.0 | 1.9 | 3.0 |
| Hart Mountain | Hart Mountain | 100 | 85 | 0.9 | 1.4 | 1.5 | 0.8 | 1.6 | 3.7 |
|  | Big Sprgs. Tbl. | 240 | 1,667 | 6.9 | 8.0 | 3.2 | 7.7 | 7.0 | 1.5 |
|  | Catlow Valley | 270 | 376 | 1.4 | 1.6 | 1.3 | 1.5 | 1.8 | 1.2 |
|  | Fields Basin | 50 | O | 0.0 | - | 0.8 | 0.0 | 0.7 | 0.7 |
|  | Sagehen Flat | 240 | 0 | 0.0 | - | 2.3 | 0.0 | 0.0 | 3.2 |
| Subtotals Hart | Mountain | 900 | 2,128 | 2.4 | 2.7 | 2.1 | 2.6 | 2.6 | 2. 1 |
| Juniper | Chain Lakes | 160 | 142 | 0.9 | 0.7 | 0.6 | 0.6 | 0.2 | 0.7 |
|  | Foster Flat | 80 | 221 | 2.8 | 1.8 | 1.5 | 1.0 | 1.2 | 1.4 |
| Subtotals Juniper |  | 240 | 363 | 1.5 | 1.1 | 0.9 | 0.8 | 0.5 | 1.0 |

1968 AERIAL ANTELOPE INVENTORY (continued)

| Unit and Area | Herd Range | Miles Traveled | Antelope Observed | Antelope per Mile |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 1968 | 1967 | 1966 | 1965 | 1964 | 1963 |
| Steens | Alvord Desert | 30 | 58 | 1.9 | 1.7 | 2.8 | 1.1 | 2.1 | 2.5 |
|  | Blitzen Valley | 90 | 0 | 0.0 | 0.8 | 0.1 | 0.0 | 0.0 | 0.0 |
|  | Bridge Creek | 40 | 26 | 0.6 | 0.8 | 0.4 | 0.6 | 0.8 | 1.0 |
|  | Red "S" Field | 60 | 0 | 0.0 | 0.3 | 0.2 | 0.0 | 0.6 | 0.1 |
| Subtotals Steens |  | 220 | 84 | 0.4 | 0.8 | 0.5 | 0.3 | 0.6 | 0.6 |
| AREA IV TOTALS |  | 1,360 | 2,575 | 1.9 | 2.1 | 1.6 | 1.9 | 1.9 | 1.6 |
| Beulah | Brogan | 75 | 193 | 2.6 | 2.4 | 2.7 | 1.1 | 2.1 | 1.0 |
|  | Harper | 100 | 258 | 2.6 | 1.4 | 2.2 | 1.3 | 1.5 | 2.3 |
| Subtotals Beulah |  | 175 | 451 | 2.6 | 1.8 | 2.4 | 1.2 | 1.8 | 1.6 |
| Malheur | Harney Valley | 50 | 75 | 1.5 | 1.5 | 1.1 | 1.8 | 0.6 | 1.5 |
|  | Coleman Mtn. | 90 | 356 | 3.9 | 3.5 | 0.7 | 3.4 | 1.0 | 1.1 |
|  | Juntura | 150 | 94 | 0.6 | 1.1 | 0.8 | 0.7 | 1.2 | 1.1 |
| Subtotals Malheur |  | 290 | 525 | 1.8 | 1.9 | 0.8 | 1.7 | 1.0 | 1.2 |
| Owyhee | Saddle Mtn. | 150 | 552 | 3.7 | 4.4 | 3.5 | 3.4 | 3.2 | 2.3 |
|  | Freezeout | 50 | 43 | 0.9 | 0.3 | 1.1 | 0.4 | 0.6 | 0.4 |
|  | Mahogany | 150 | 316 | 2.1 | 1.0 | 1.0 | 1.3 | 1.1 | 0.9 |
|  | Vale | 25 | 61 | 2.4 | 1.4 | 1.5 | - | - | - |
|  | Sucker Creek | 25 | 51 | 2.0 | 1.5 | 2.0 | - | - | - |
| Subtotals Owyhee |  | 400 | 1,023 | 2.6 | 2.2 | 2.0 | $2 \cdot 1$ | 1.5 | 1.4 |
| AREA V TOTALS |  | 865 | 1.999 | 2.3 | 2.0 | 1.6 | 1.9 | 1.5 | 1.3 |
| Whitehorse | Bowden Hills | 250 | 183 | 0.7 | 1.3 | 1.6 | 1.1 | 1.0 | 1.0 |
|  | Sheephead | 50 | 0 | 0.0 | - | 1.4 | - | 0.0 | 0.3 |
|  | Whitehorse | 75 | 188 | 2.5 | 0.3 | 2.1 | 0.0 | 0.6 | 0.6 |
|  | Antelope Flat | 75 | 3 | - | - | 0.0 | 0.0 | 0.0 | 2.8 |
|  | Deer Flat | - | - | - | - | - | 0.1 | 0.4 | 2.3 |
|  | Antelope Res. | 25 | 113 | 4.5 | 4.0 | - | - | - | - |
| AREA VI TOTALS |  | 475 | 487 | 1.0 | 1.1 | 1.3 | 0.6 | 0.5 | 1.3 |
| GRAND TOTALS |  | 4,250 | 7,298 | 1.7 | 1.8 | 1.5 | 1.6 | 1.4 | 1.6 |

Table 14
1968 ANTELOPE HERD COMPOSITION

| Management Game Mgt. <br> Unit District | Bucks | Does | Fawns | Total | Bucks per 100 Does | Fawns per 100 Does |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Beulah Malheur | 9 | 33 | 20 | 62 | 27 | 61 |
| Hart Mtn. $\quad$ Harney | $\begin{array}{r} 9 \\ 36 \end{array}$ | $\begin{array}{r} 73 \\ 164 \end{array}$ | $\begin{aligned} & 14 \\ & 62 \end{aligned}$ | $\begin{array}{r} 96 \\ 262 \end{array}$ |  |  |
| Hart Mtn. Total | 45 | 237 | 76 | 358 | 19 | 32 |
| Interstate S. Lake | 13 | 7 | 3 | 23 | - | 43 |
| Juniper Harney | 7 | 29 | 17 | 53 | 24 | 59 |
| Malheur Riv. Harney <br>  Malheur | 3 9 | $\begin{aligned} & 32 \\ & 32 \end{aligned}$ | $\begin{aligned} & 15 \\ & 12 \end{aligned}$ | $\begin{aligned} & 48 \\ & 53 \end{aligned}$ |  |  |
| Malheur Riv. Total | 12 | 64 | 27 | 103 | 19 | 42 |
| Maury Deschutes <br>  Ochoco | $\begin{aligned} & 6 \\ & 7 \end{aligned}$ | $\begin{aligned} & 23 \\ & 12 \end{aligned}$ | $\begin{array}{r} 11 \\ 1 \end{array}$ | $\begin{aligned} & 41 \\ & 19 \end{aligned}$ |  |  |
| Maury Total | 13 | 35 | 12 | 60 | 37 | 34 |
| $\begin{aligned} \text { Murderer's Cr. } & \text { Grant } \\ & \text { Harney } \end{aligned}$ | $\begin{array}{r} 27 \\ 2 \end{array}$ | $\begin{aligned} & 54 \\ & 37 \end{aligned}$ | $\begin{aligned} & 32 \\ & 16 \end{aligned}$ | $\begin{array}{r} 113 \\ 55 \end{array}$ |  |  |
| Murderer's Cr. Total | 29 | 91 | 48 | 168 | 32 | 53 |
| Ochoco Ochoco | 15 | 52 | 22 | 89 | 29 | 42 |
| Owyhee Malheur | 11 | 53 | 23 | 87 | 21 | 43 |
| Paulina Deschutes | 4 | 14 | 2 | 20 | 29 | 14 |
| Silver Lake N. Lake | 30 | 41 | 12 | 83 | 73 | 29 |
| Silvies Deschutes | 9 | 15 | 6 | 30 | 60 | 40 |
| $\begin{array}{ll}\text { Wagontire } & \text { S. Lake } \\ & \text { Deschutes }\end{array}$ |  | $\begin{aligned} & 14 \\ & 87 \end{aligned}$ | $\begin{array}{r} 4 \\ 23 \end{array}$ | $\begin{array}{r} 20 \\ 122 \end{array}$ |  |  |
| Wagontire Total | 14 | 101 | 27 | 142 | 14 | 27 |

Table 14

| Management Game Mgt. <br> Unit District | Bucks | Does | Fawns | Total | Bucks per 100 Does | Fawns per 100 Does |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Warner S. Lake | 50 | 218 | 72 | 340 | 23 | 33 |
| Whitehorse Harney <br>  Malheur | $42$ | $\begin{array}{r} 16 \\ 245 \end{array}$ | $\begin{array}{r} 9 \\ 133 \end{array}$ | $\begin{array}{r} 30 \\ 420 \end{array}$ |  |  |
| Whitehorse Total | 47 | 261 | 142 | 450 | 18 | 54 |
| TOTALS AND <br> AVERAGES | 308 | 1; 265 | 509 | 2,068 | 24 | 40 |



Table 15
ANTELOPE HERD COMPOSITION

|  |  |  |  |  | Per 100 Does |  |
| :--- | :---: | ---: | :---: | :---: | :---: | :---: |
| Year | Bucks | Does | Fawns | Total | Bucks | Fawns |
| 1968 | 296 | 1,164 | 486 | 1,946 | 25 | 42 |
| 1967 | 285 | 917 | 290 | 1,492 | 31 | 32 |
| 1966 | 298 | 1,029 | 436 | 1,763 | 31 | 40 |
| 1965 | 269 | 879 | 343 | 1,491 | 31 | 39 |
| 1964 | 412 | 854 | 432 | 1,698 | 48 | 51 |
| 1963 | 355 | 887 | 581 | 1,823 | 40 | 66 |
| 1962 | 321 | 785 | 452 | 1,558 | 41 | 57 |
| 1961 | 214 | 770 | 347 | 1,331 | 28 | 45 |
| 1960 | 326 | 942 | 555 | 1,823 | 35 | 59 |
| 1959 | 393 | 806 | 361 | 1,560 | 50 | 45 |
| 1958 | 274 | 711 | 551 | 1,536 | 39 | 77 |
| 1957 | 203 | 608 | 493 | 1,304 | 33 | 81 |
| 1956 | 236 | 542 | 320 | 1,098 | 44 | 59 |
| 1955 | 194 | 455 | 268 | 917 | 43 | 59 |
| 1954 | 350 | 730 | 477 | 1,557 | 48 | 65 |
| 1953 | 417 | 950 | 589 | 1,956 | 44 | 62 |
| 1952 | 419 | 952 | 470 | 1,841 | 44 | 49 |
| 1951 | 334 | 694 | 417 | 1,445 | 48 | 60 |
| 1950 | 371 | 612 | 555 | 1,538 | 63 | 91 |
|  |  |  |  |  |  |  |



## ROCKY MOUNTAIN GOATS

An aerial inventory of mountain goat habitat in the wallowa Mountains on August 16,1967 provided a count of 21 goats. This is fewer than the 32 seen in 1966 or the 39 in 1964.

Most of the goats were still located along the Hurricane and Hurwal divides. No goats were found in the upper Eagle Creek or around Hawkins Pass where they had been reported seen.

In 1967, all five hunters killed goats.

## BIGHORN SHEEP

No hunting season was scheduled for sheep in 1967. Eighteen were sighted on the east side of the Steens Mountains and another eighteen were seen in the vicinity of Leslie Gulch near owyhee Reservoir.

An unsuccessful attempt was made in November 1967 to catch sheep on Hart Mountain by driving them with a helicopter. In August 1968, men on foot were successful in driving and catching eight that were transplanted on the Sheldon Refuge in Nevada.


Abundant moisture in the spring of 1967 produced an unusually good grass growth on most mule deer and Rocky Mountain elk ranges.

The average length of bitterbrush leaders was 4.9 inches. This was 1.2 inches longer than the 1966 average growth, and utilization was 52 percent compared with 67 percent the previous year. The cold, dry spring of 1968 negated this gain, however, with very poor browse production.

Table 16
BITTERBKUSH UTILIZATION

| Units by Region | No. of Transects | $\begin{gathered} \text { Av. Twig } \\ \text { Length } \\ \hline \end{gathered}$ | 1967-68 |  |  | 1966-67 | $1965-66$ | 1964-65 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Summer | Winter | Total |  |  |  |
| Deschutes | 4 | 4.7 | 0 | 7 | 7 | 31 | 25 | 40 |
| Grizzly | 6 | 5.0 | 48 | 23 | 71 | 78 | 57 | - |
| Klamath | 11 | 4.6 | 26 | 32 | 58 | 74 | 70 | 70 |
| Maury | 6 | 4.3 | 73 | 15 | 88 | 80 | 70 | 77 |
| Metolius | 7 | 4.9 | 8 | 23 | 31 | 48 | 42 | 52 |
| Ochoco | 9 | 5.0 | 35 | 29 | 64 | 64 | 54 | 63 |
| Paulina | 26 | 4.5 | 6 | 30 | 36 | 57 | 35 | 32 |
| Sprague | 2 | 4.4 | 0 | 36 | 36 | 72 | 71 | 69 |
| Wasco | 21 | 3.7 | 12 | 27 | 39 | 17 | 42 | 53 |
| CENTRAL | 72 | 4.4 | 23 | 25 | 48 | 58 | 51 | 58 |
| Heppner | 2 | 4.2 | 32 | 35 | 67 | 72 | 59 | 64 |
| Murderer's Cr. | 5 | 9.2 | 10 | 76 | 86 | 95 | 55 | 85 |
| Northside | 6 | 8.4 | 0 | 57 | 57 | 80 | 30 | 70 |
| Wheeler | 6 | 4.5 | 23 | 38 | 61 | 69 | 56 | 55 |
| NORTHEAST | 19 | 6.9 | 16 | 52 | 68 | 79 | 50 | 65 |
| Fort Rock | 9 | $5 \cdot 1$ | 7 | 54 | 61 | 70 | 66 | 66 |
| Interstate | 7 | 4.1 | 30 | 23 | 53 | 73 | 63 | 64 |
| Malheur | 6 | 6.1 | 23 | 25 | 48 | 65 | 37 | 61 |
| Silver Lake | 7 | 5.4 | 7 | 55 | 62 | 75 | 58 | 69 |
| Silvies | 10 | 4.0 | 20 | 15 | 35 | 50 | 40 | 45 |
| Warner | 9 | 4.9 | 6 | 27 | 33 | 54 | 43 | 41 |
| SOUTHEAST | 49 | 4.9 | 16 | 33 | 49 | 64 | 51 | 57 |
| TOTALS AND AVERAGES | 140 | 4.9 | 19 | 33 | 52 | 67 | 51 | 61 |

Table 17
range vegetative trends

|  | average vegetative composition |  |  |  |  |  | average vegetative denstiy |  |  |  |  |  | AVERAGE LITTER |  | average |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | DESITABLE |  | InTERMEDIATE |  | DESIRABLE |  | DESTRABLE |  | InTERHEDIATE |  | LEAST DESIRABLE |  |  |  |  |  |
| Herb rance | 1962 | 1967 | 1962 | 1967 | 1962 | 1967 | 1962 | 1967 | 1962 | 1967 | 1962 | 1967 | 1962 | 1967 | 1962 | 1967 |
| Southside <br> (2 clusters) | 0.0 | 0.0 | 92.7 | 86.3 | 7.3 | 14.2 | 0.0 | 0.0 | 14.3 | 8.5 | 2.5 | 5.3 | 77.6 | 83.6 | 78.0 | 75.7 |
|  | 0.0 |  | -6.4 |  | +6.9 |  | 0.0 |  | -5.8 |  | +2.8 |  | +6.0 |  | -2.3 |  |
| Crane Mountain <br> (4 Clusters) | 8.8 | 14.0 | 63.8 | 60.0 | 26.9 | 26.0 | 3.0 | 5.3 | 8.5 | 9.9 | 11.2 | 11.4 | 43.2 | 38.7 | 30.4 | 29.7 |
|  | +5.2 |  | -2.2 |  | +0.9 |  | +2.3 |  | +1.4 |  | +0.2 |  | -4.5 |  | -0.7 |  |
| Mid. Fk. John Day ( 1 Cluster) | 9.7 | 12.0 | 78.7 | 55.0 | 11.7 | 33.0 | 1.7 | 3.0 | 12.3 | 9.0 | 4.3 | 6.7 | 15.0 | 13.3 | 52.7 | 55.3 |
|  | +2.3 |  | -23.7 |  | +21.3 |  | +1.3 |  | -3.3 |  | +2.3 |  | -1.7 |  | +2.6 |  |
| North Goodlow <br> (2 Clusters) | 18.5 | 23.9 | 55.7 | 51.9 | 25.9 | 24.4 | 10.2 | 6.5 | 7.7 | 4.8 | 7.7 | 7.8 | 50.7 | 57.4 | 17.0 | 20.0 |
|  | +5.4 |  | -3.8 |  | -1.5 |  | -3.7 |  | -2.7 |  | +0.1 |  | +6.7 |  | +3.0 |  |
| South Goodlow <br> (2 clusters) | 1.9 | 1.5 | 42.9 | 43.4 | 55.3 | 55.2 | 1.0 | 1.2 | 2.7 | 2.4 | 19.7 | 10.2 | 19.4 | 27.0 | 40.0 | 41.8 |
|  | -0.4 |  | +0.5 |  | -0.1 |  | +0.2 |  | -0.3 |  | -9.5 |  | +7.6 |  | +1.8 |  |



Table 18
CONDITION AND TREND READING SCHEDULE

| Region | 1968 |  | 1969 |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Herd Range | No. | Herd Range | No. |
| Central | Maury Mtn. | 3 | Metolius | 3 |
|  | Devil's Garden | 2 | Tumalo | 2 |
|  | Sprague River | 2 | Goodlow Mtn. | 5 |
| Northeast | Burnt River | 4 | Keating | 3 |
|  | Chesnimnus | 1 | Snake River | 1 |
|  | Heppner | 1 |  |  |
|  | Izee | 4 | N. Fk. Ukiah | 4 |
|  | N. Fk. John Day | 7 | Northside | 8 |
|  | Umatilla | 1 | Waterman | 3 |
| Southeast | Drewsey | 3 | Frenchglen | 3 |
|  | Dry Mountain | 4 | Silver Lake | 3 |
|  | Fort Rock | 3 | Whitehorse | 3 |



Complaints of damage to agricultural crops state-wide increased slightly this report year, from 1,404 to 1,467 . Most problems occurred in the Northwest Region where about 80 percent were handled by issuance of repellents. Eleven tons of specially prepared blood meal were purchased from a Chicago firm in the spring and issued with small cloth bags.

Funds expended for deer and elk-proof fences amounted to $\$ 10,519.49$, less than one-half the previous year's level.

Table 19
big game damage complaints

| Units by Game Mgt,  <br> Resrions Wietrict | $\frac{\text { No. of } \mathrm{f}}{\text { Deet }}$ | $\frac{\text { laints }}{\text { Eik }}$ | $\begin{gathered} \text { Killı } \\ \text { Permits } \end{gathered}$ | $\begin{gathered} \text { Hisze } \\ \text { Permits } \end{gathered}$ | $\begin{gathered} \text { Fence } \\ \text { Contracts } \end{gathered}$ | Tree Cages | Haystacks Paneled | $\begin{aligned} & \text { Hepel- } \\ & \text { lents } \end{aligned}$ | Slazing by Employees | Other |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Alsea Mid-Willamette | 133 |  | 11 |  | 8 | 2 |  | 114 |  | 4 |
| Clatsop North Coast <br> NW-Willamette <br> Total clatsop  | $\begin{array}{r} 40 \\ 5 \end{array}$ | 30 | $\begin{array}{r} 15 \\ 1 \end{array}$ $16$ | $\begin{array}{ll}2 \\ & \\ & \end{array}$ | 22 |  |  | $\begin{array}{rr} 39 & \\ 1 & 40 \end{array}$ | 12 |  |
| McKenzie Lane <br> Mid-Willamette  <br> Total McKenzie  | $\begin{aligned} & 36 \\ & 26 \end{aligned}$ |  | $\begin{array}{ll} 9 & \\ 5 & 14 \end{array}$ |  | $\begin{array}{r} 10 \\ 5 \end{array}$ $15$ | 12 |  | $\begin{array}{ll}10 & \\ 20 & \\ & 30\end{array}$ |  | $\begin{array}{ll}3 & \\ 2 & 5\end{array}$ |
| Nestucca North Coast | 3 | 1 | 1 | 1 |  |  |  | 4 | 1 |  |
| Polk N. Willamette | 63 |  | 23 |  | 4 |  |  | 44 |  | 1 |
|  | $\begin{array}{lr} 50 & \\ 88 & \\ 23 & \\ & 161 \end{array}$ |  | $\begin{array}{rr} 8 & \\ 43 & \\ 8 & \\ & 59 \end{array}$ |  | $\begin{array}{ll}7 & \\ 3 & \\ & 10\end{array}$ | $\begin{array}{lll}2 & \\ i & \\ & 3\end{array}$ |  | $\begin{array}{ll} 35 & \\ 69 & \\ 12 & \\ & 116 \end{array}$ |  | $\begin{array}{ll} 1 & \\ 5 & \\ 2 & \\ & 8 \end{array}$ |
| Siuslaw Lane | 40 |  | 5 | 2 | 5 | 4 |  | 24 |  | 5 |
| Trask North Coast <br>  N. W1llamette <br> NW Willamette  <br> Total Trask  | $\begin{array}{r} 7 \\ 16 \\ 10 \end{array}$ |  | $\begin{array}{ll} 1 & \\ 6 & \\ 4 & \\ & 11 \end{array}$ |  | 1 | 12 |  | $\begin{array}{rr} 9 & \\ 13 & \\ 8 & 30 \end{array}$ |  | $\begin{array}{ll}1 & \\ \\ & 1\end{array}$ |
| Willamette N. Willamette NW Willamette Total Willamette | $\begin{array}{lr} 66 & \\ 93 & \\ & 159 \end{array}$ | F | $\begin{array}{ll}28 & \\ 34 & \\ & 62\end{array}$ | 22 | 1 | 12 |  | $\begin{array}{ll} 64 & \\ 70 & 134 \end{array}$ |  | $\begin{array}{r} 3 \\ 14 \end{array}$ $17$ |
| Wilson N. Coast | 8 | 3 | 2 |  | 1 |  |  | 5 | 3 |  |
| TOTAL NORTHWEST REGION | 707 | 35 | 204 | 7 | 47 | 15 |  | 541 | 16 | 41 |
| Applegate Jackson-Josephine | 78 |  | 15 | 4 |  | 1 |  | 59 |  | 3 |
| Chetco Jackson-Josephine Total Chetco | $\begin{array}{ll}5 & \\ 3 & 8\end{array}$ |  | 1 |  | 1 |  |  | $\begin{array}{ll}2 & \\ 2\end{array}$ |  | $\begin{array}{ll}1 & \\ 1 & 2\end{array}$ |
| $\begin{array}{ll}\text { Dixon } \quad \text { Douglas } \\ & \text { Jackson-Josephine }\end{array}$ <br> Total Dixon | $\begin{array}{rr}38 & \\ 6 & 44\end{array}$ |  | 1 |  | 1 | 1 |  | $\begin{array}{r} 27 \\ 6 \end{array}$ $33$ |  | $\begin{array}{r}8 \\ 8 \\ \hline\end{array}$ |

Table 19
big game damage complaints

Table 19
big game damage complaints

Table 19
big game damage complaints

| Units by Game Mgt. <br> Regions District | $\frac{\text { No. of } \mathrm{e}}{\text { Deer }}$ | $\frac{i n t s}{\text { Elk }}$ | $\begin{gathered} \text { Kilil } \\ \text { Permits } \end{gathered}$ | Haze <br> Permits | Fenc <br> Contracts | $\begin{aligned} & \text { Tree } \\ & \text { Cages } \\ & \hline \end{aligned}$ | Haystacks Paneled | $\begin{aligned} & \text { Repel- } \\ & \text { lents } \\ & \hline \end{aligned}$ | Hazing by Employees | Other |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Northside Grant | 5 | 1 |  |  |  |  | 3 |  |  | 1 |
| Ochoco Grant | 1 |  |  |  |  |  | 1 |  |  |  |
| Sherman Heppner | 5 |  | 3 |  |  |  | 7 |  |  |  |
| Silvies Grant |  |  |  |  |  |  |  |  |  |  |
| Sled Springs Wallowa | 6 | 5 |  |  |  |  | 2 |  | 4 | 4 |
| Snake RiverBaker-Union <br> WallowaTotal Snake River | 55 |  |  |  | 11 |  | 3 |  |  |  |
| Starkey Baker-Union | 5 | 5 |  |  |  |  | 31 | 4 |  |  |
| Ukiah Umatilla | 1 |  |  |  |  |  |  |  |  | 1 |
| Umatilla Baker-Union <br> Umatilla <br> Total Umatilla  | $\begin{array}{ll}7 \\ & 7\end{array}$ | $\begin{array}{ll}4 & \\ 2 & 6\end{array}$ |  | 1 |  | 1 |  | $\begin{array}{ll}5 \\ & 5\end{array}$ | 2 | 3 2 |
| Walla Walla Umatilla |  |  |  |  |  |  |  |  |  |  |
| WenahaBaker-Union <br> WallowaTotal Wenaha |  |  |  |  |  |  |  |  |  |  |
| Wheeler Grant <br> Heppner <br> Total Wheeler | $\begin{array}{rr} 1 & \\ 20 & \\ & 21 \end{array}$ |  | 3 | 1 | 66 |  | 88 | $2 \quad 2$ | 4 | 22 |
| TOTAL NORTHEAST REGION | 127 | 43 | 17 | 4 | 13 | 1 | 161 | 21 | 25 | 25 |
| Beulah Malheur | 2 |  |  |  |  |  | 2 |  |  |  |
| Fort Rock North Lake | 9 |  |  |  | 1 |  | 13 |  |  | 1 |
| S. Lake <br> Total Hart Mtn. |  |  |  |  | + |  |  |  |  |  |

Table 19
big game damage complaints


Table 20
FENCES COMPLETED
May 1967 through April 1968

| Unit | Game Mgt. <br> District | No. of of Fences | Rods Fenced | Money Expended |
| :---: | :---: | :---: | :---: | :---: |
| Alsea | Mid-Will. | 10 | 247 | \# 679.25 |
| McKenzie | Lane | 10 | 286 | 775.23 |
|  | Mid-Wil1. | 3 | 131 | 360.25 |
|  |  | 13 | 417 | 1,135.48 |
| Polk | N. Will. | 4 | 713 | 1,960.25 |
| Santiam | Mid-Will | 1 | 27 | 74.25 |
|  | N. Will. | 3 | 514 | 1,413.50 |
|  |  | 4 | 541 | 1,487.75 |
| Siuslaw | Lane | 13 | 399 | 1,097.26 |
| Trask | N. Will. | 1 | 21 | 57.75 |
| Willamette | NW Will. | 2 | 84 | 231.00 |
| Wilson | N. Coast | 1 | 297 | 816.75 |
| NORTHWEST REGION |  | 48 | 2,719 | 7,465.49 |
| Dixon | Douglas | 1 | 23 | 69.00 |
|  | Jackson-Josephine | ne | 48 | 144.00 |
|  |  | 2 | 71 | 213.00 |
| Evans Creek | Douglas | $\dagger$ | 134 | 402.00 |
| Melrose | Douglas | 6 | 580 | 1,740.00 |
| Powers | Jackson-Josephine | ne 1 | 51 | 153.00 |
| Sixes | S. Coast | 5 | 653 | 1,959.00 |
| SOUTHWEST REGION |  | 15 | 1,489 | 4,467.00 |
| Imnaha | Wallowa | 2 | 65 | 195.00 |
| Snake River | Wallowa | 1 | 80 | 240.00 |
| Wheeler | Heppner | 1 | 37 | 111.00 |
| NORTHEAST REGION |  | 4 | 182 | 546.00 |
| STATE TOTALS |  | 67 | 4,390 | 12,478.49 |

## HUNTING SEASONS

The hot, dry weather in August and September of 1967 forced postponement of most early seasons and made hunting difficult in the general season.

The earlier closing date for Rocky Mountain elk hunting accomplished the purpose of allowing more escapement of mature bulls.

The new Heppner regulated hunting area was an apparent success, with hunters and ranchers satisfied.

Analysis of the response from 14,250 randomly selected hunters indicated an estimated harvest of 142,000 deer, 10,350 elk, 3,800 bear, 427 antelope, and 5 mountain goats. Licensed hunters, totaling 348,000 , purchased 64,997 elk tags and 287,622 deer tags. Six percent of the persons buying deer tags did not hunt, whereas 64,200 persons hunted elk. Elk tag sales declined 4,883 from 1966. Deer tags issued increased 1,661 over 1966. Deer hunters averaged 52 percent success compared with 55 percent in 1966. Elk hunters averaged 16 percent success compared with 17 percent in 1966. Antlerless deer provided 24 percent of the total deer harvest. Thirty-seven percent of the elk harvest was antlerless animals compared with 30 percent in 1966. Hunters participating in early and late deer seasons, including archery, controlled, and extended seasons, harvested 19,600 deer. The survey indicated 9,570 persons hunted with a bow and killed 850 deer and 260 elk.

A need for more definitive information about the habits, preferences, and experiences of elk hunters provided cause to interrogate a random sample of elk hunters. A summary of those findings follows in the supplemental report.

Statistical information is presented in the following tables.


## SUMMARY OF 1967 BIG GAME SEASONS

Western Oregon Deer Season - September 30-November 5 Rogue and Keno Units - September 30-October 29
Eastern Oregon Deer Season - September 30-October 22
Roosevelt Elk Season - November 11-November 22
Rocky Mountain Elk Season - October 28-November 19

MANAGEMENT UNIT DEER SEASONS
WESTERN OREGON DEER UNITS
Open Season-October 14-November 5
Bag Limit-1 deer. Both the deer tag and the permit must be attached to any

| Units | Counties P | Permits |
| :---: | :---: | :---: |
| Alsea | Benton and Lincoln | 9,500 |
| Applegate | Josephine | 400 |
| Chetco | Curry and Josephine | 700 |
| Clatsop | Clatsop | 1,200 |
| Dixon | Douglas and Jackson | 2,000 |
| Elicton | Douglas and Coos | 800 |
| Evans Cree | Jackson and Josephine | 600 |
| - Keno | Klamath | 750 |
| McKenzie | Lane and Linn | 12,000 |
| Melrose | Douglas | 3,000 |
| Nestucca | Tillamook | 2,000 |
| Polk | Polk and Lincoln | 2,000 |
| Powers | Coos, Curry, Josephine, Douglas | 1,000 |
| *Rogue | Jackson | 1,200 |
| Santiam | Mult, Clackamas, Marion, Linn | 9,000 |
| Sixes | Curry | 2,500 |
| Siuslaw | Lane | 2,500 |
| Tioga | Coos and Douglas | 1,500 |
| Trask | Tillamook and Yamhill | 3,000 |
| Willamette | Columbia and Washington | 7,000 |
| Wilson | Tillamook | 2,000 |
| TOTAL |  | 64,650 |

- Season Dates: Oct. 14-29.

EASTERN OREGON DEER UNITS
Open Season-Oct 14-22.
Bag Limit-1 deer. Both the deer tag and the permit must be attached to an



## CONTROLLED DEER SEASONS



## BEAR

Lands within the exterior boundaries of the Mt. Hood, Willamette, Deschutes, Umpqua, Rogue, Winema, Fremont, Ochoco, Malheur, and Umatllla National Forests and the Aogue, Winema, Eremont, Ochoco, Malheur, and Uraatilla National Forests and the Management Areas.

$$
1 \text { bear } \quad \text { Aug. } 12 \text {-Dec. } 31
$$

The area 1 mile from the Rogue River from Grave Creek to Lobster Creek is closed to all bear hunting.

## SUMMARY OF 1967 BIG GAME SEASONS

 ( continued)
## ANTELOPE SEASON-AUGUST 19-27

Bag Limit-One buck antelope with horns longer than ears.
Fee- $\$ 5.00$ (1962, 1963, 1964, 1965 and 1966 tag holders ineligible).
Area
Area
Area II …................... $\begin{array}{ll}\text { Area II ………- } & 150 \\ & 100\end{array}$ Area
Area
Area V
Area VI $\qquad$ 100
100
205 Ochoco, Maury, Silvies, and Murderer's Creek Ochoco, Maury, Silvies, and Murderer's Cree
Paulina, Wagontire, Fort Rock, Silver Lake Paulina,
Warner
Juniper, Hart Mountain, Steens
Juniper, Hart Mountain, Ste
Beulah, Malheur, Owyhee
Whitehorse
Whitehors
TOTAL $\qquad$ 845


## ARCHERY SEASONS

Area
Canyon Creek (Grant County)
Crane Mountain (Lake County)
Eastern Oregon Management Units
(Wasco, Deschutes, Baker, Keating, and Starkey Units)
Government Island (Multnomah County)
Hart Mountain (Lake County)
Hart Mountain (Lalse County)
Heppner (
Malheur Refuge (Harney County)
Malheur Ref
Mt Emily
Mit. Emily (Union, Umatilla Countles)
Pine Grove (Wasco County)
Roosevelt Elk Areas
(Clatsop, Wilson, Nestucca and Tioga Units, $W$. part of Melrose \& S. part of Elkton Units)
Western Oregon Management Units
(Alsea, Rogue, and Sices Units) $\qquad$

Dates
Bag Limit
1 deer and 1 elk _-_Aug. 26-Oct. 22
1 deer Oct. 23-Dec. 31
1 deer and 1 elk ___Aug. 26-Sept. 17
1 deer
1 de
deer
deer
deer
-_- Nov. 4-Nov.
deer and 1 elk --- Aug. 26-Sept. 24
1 deer and 1 elk ....... Aug. 26-Sept. 17

1 elk $\qquad$ Jan. 1, 1968-

1 deer $\qquad$ Apr. 15, 1968 Aug. 26-Sept. 17,


Table 21
SUMMARY 1967 DEER SEASONS

| Units by Regions | general derr seasons |  |  |  |  |  |  |  | EARLY SEASONS | LATE SEASONS | $\begin{gathered} \text { TOTAL } \\ \text { DEER } \\ \hline \end{gathered}$ | $\begin{aligned} & \text { DEER PER } \\ & \text { SQ. MI. } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Hunters | Munter Days | $\begin{aligned} & \text { Budt } \\ & \text { 1-2 pt. } \end{aligned}$ | $\begin{aligned} & \text { Bucks } \\ & 3 \text { pt. + } \end{aligned}$ | Dows | Total | Percent <br> Munter <br> Success | Per cent Yearling Bucks |  |  |  |  |
| Alsec | 10,590 | 60,910 | 1,680 | 1,420 | 1,030 | 4,130 | 39 | 41 | 80 | 1,360 | 5,570 | 2.59 |
| Clatso | 4,070 | 24.760 | 750 | 520 | 360 | 1,630 | 40 | 46 | 0 | 0 | 1,630 | 1.67 |
| Mc Kenzie | 14,750 | 84,800 | 2,080 | 1,390 | 1,760 | 5,230 | 35 | 40 | 260 | 2,490 | 7.980 | 1.96 |
| Nestucca ................. | 1,260 | 6,760 | 120 | 260 | 260 | 640 | 51 | 19 | 0 | 0 | 640 | 1.86 |
| Polk........................ | 3.380 | 17,980 | 410 | 260 | 450 | 1,120 | 33 | 37 | 0 | 720 | 1,840 | 3.05 |
| Santiam.................. | 12,690 | 72,390 | 1,270 | 840 | 1,340 | 3,450 | 27 | 37 | 140 | 1,550 | 5,140 | 1.16 |
| Siustaw. | 3.260 | 18,680 | 580 | 560 | 280 | 1,420 | 44 | 41 | 0 | 590 | 2,010 | 2.05 |
| Trask.... | 7,350 | 36,530 | 910 | 710 | 860 | 2,480 | 34 | 37 | 0 | 640 | 3,120 | 2.98 |
| Willamette | 4,130 | 22,910 | 380 | 330 | 430 | 1.140 | 28 | 33 | 0 | 1,230 | 2,370 | 1.41 |
| Wilson.. | 4,020 | 19,680 | 530 | 430 | 460 | 1,420 | 35 | 37 | 0 | 0 | 1.420 | 2.44 |
| NORTHWEST .......... | 65,500 | 365,400 | 8,710 | 6,720 | 7.230 | 22.660 | 35 | 38 | 480 | 8.580 | 31.720 | 1.88 |
| Applegato ............... | 2.670 | 15,670 | 340 | 510 | 60 | 910 | 34 | 37 | 100 | 60 | 1.070 | . 79 |
| Chetco..................... | 2,130 | 15,020 | 400 | 540 | 200 | 1,140 | 54 | 35 | 0 | 0 | 1,140 | . 68 |
| Dixon. | 5,180 | 29,400 | 1,240 | 1.350 | 650 | 3,240 | 63 | 38 | 180 | 60 | 3.480 | 1.48 |
| Elkton..................... | 2,020 | 12,101 | 570 | 340 | 280 | 1.190 | 59 | 48 | 180 | 140 | 1,510 | 1.60 |
| Evans Cr. ............... | 1,930 | 11,550 | 350 | 450 | 180 | 980 | 51 | 36 | 60 | 140 | 1.180 | 1.46 |
| Melrosa | 4,800 | 30,950 | 1,010 | 860 | 460 | 2,330 | 49 | 43 | 210 | 210 | 2.750 | 2.26 |
| Powers .................... | 2,740 | 14,710 | 410 | 880 | 160 | 1,450 | 53 | 28 | 20 | 120 | 1.590 | 1.61 |
| Rogue........................ | 8,540 | 52,880 | 1.060 | 1,490 | 510 | 3,060 | 36 | 35 | 240 | 120 | 3.420 | 1.92 |
| Sixes...................... | 4,250 | 25,730 | 950 | 980 | 580 | 2,510 | 59 | 38 | 0 | 0 | 2.510 | 2.57 |
| Tioga ........................ | 2,440 | 14,780 | 360 | 480 | 430 | 1,270 | 52 | 28 | 0 | 0 | 1,270 | 1.31 |
| SOUTHWEST........... | 36,700 | 222.700 | 6,690 | 7,880 | 3.510 | 18.080 | 49 | 37 | 990 | 850 | 19.920 | 1.52 |
| Deschutes | 8,480 | 43,340 | 1,560 | 1,250 | 510 | 3,320 | 39 | 47 | 100 | 0 | 3,420 | 2.40 |
| Fort Rock | 5,940 | 28,120. | 1,260 | 980 | 650 | 2,890 | 49 | 44 | 0 | 840 | 3,730 | 1.96 |
| Grizzly | 3,900 | 16,910 | 840 | 470 | 620 | 1,930 | 49 | 44 | 0 | 0 | 1,930 | 1.29 |
| Hood Riv | 520 | 2,020 | 80 | 80 | 0 | 160 | 31 | 50 | 0 | 0 | 160 | . 42 |
| Keno........................ | 2,100 | 12,950 | 260 | 300 | 410 | 970 | 46 | 27 | 0 | 100 | 1,070 | 1.07 |
| Klamath................... | 7,520 | 39,190 | 1,720 | 820 | 930 | 3,470 | 46 | 50 | 0 | 640 | 4,110 | 3.33 |
| Maupin.................... | 1,260 | 6,620 | 350 | 300 | 40 | 690 | 55 | 51 | 0 | 0 | 690 | 1.09 |
| Maury ..................... | 2,350 | 10,440 | 630 | 220 | 410 | 1,260 | 54 | 50 | 0 | 0 | 1,260 | 1.21 |
| Metolius ................. | 3,020 | 12,660 | 550 | 280 | 430 | 1,260 | 42 | 44 | 0 | 0 | 1.260 | 1.63 |
| Ochoco................... | 10,670 | 45,150 | 2,090 | '1,000 | 930 | 4,020 | 38 | 52 | 0 | 0 | 4,020 | 2.55 |
| Paulino................... | 6,590 | 30,220 | 1,480 | 600 | 780 | 2,860 | 43 | 52 | 0 | 0 | 2.860 | 1.40 |
| Sherman................ | 2,960 | 11,520 | 810 | 420 | 340 | 1,570 | 53 | 52 | 0 | 0 | 1,570 | . 79 |
| Sprague .................. | 5,840 | 25,160 | 1,270 | 820 | 1,310 | 3.400 | 58 | 37 | 0 | 930 | 4,330 | 5.06 |
| Wasco ..................... | 4,950 | 24,000 | 840 | 750 | . 360 | 1.950 | 39 | 43 | 40 | 120 | 2,110 | 2.12 |
| CENTRAL................ | 66.100 | 308.300 | 13,740 | 8.290 | 7.720 | 29,750 | 45 | 46 | 140 | 2.630 | 32.520 | 1.78 |
| Baker.. | 4.270 | 19.100 | 1,280 | 660 | 650 | 2,590 | 61 | 49 | 20 | 0 | 2,610 | 1.74 |
| Catherine Cr. | 2.650 | 11.560 | . 600 | 240 | 520 | 1,360 | 51 | 44 | 0 | 0 | 1,360 | 2.36 |
| Chesnimnus........ter | 1.450 | 5,830 | 420 | 200 | 180 | 800 | 55 | 53 | 0 | 0 | 800 | 1.26 |
| Columbia Basin....... | 780 | 2,860 | 200 | 120 | 210 | 530 | 68 | 38 | 0 | 0 | 530 | . 19 |
| Desolation.............. | 2,290 | 10.630 | 550 | 320 | 480 | 1.350 | 59 | 41 | 0 | 0 | 1,350 | 1.95 |
| Heppner | 9.750 | 39,820 | 2,250 | 1.120 | 1.820 | 5.190 | 53 | 43 | 60 | 260 | 5,510 | 3.69 |
| Imnoho. | 2,940 | 13,950 | 610 | 500 | 670 | 1.780 | 61. | 34 | 400 | 0 | 2.180 | 5.41 |
| Keating.................. | 2,720 | 11.540 | 580 | 390 | 660 | 1.630 | 60 | 36 | 20 | 1,130 | 2,780 | 3.48 |
| Lookout M4.............. | 1.740 | 6.850 | 390 | 310 | 360 | 1.060 | 61 | 37 | 0 | 10 | 1.060 | 1.99 |
| Minarn.................... | 1,410 | 6.710 | 300 | 160 | 180 | 640 | 45 | 47 | 940 | 0 | 1.580 | 1.74 |
| Murderer's Cr......... | 5,500 | 27.040 | 860 | 750 | 1.060 | 2.670 | 49 | 32 | 20 | 0 | 2,690 | 2.21 |
| Northside................ | 5.820 | 26,330 | 1.450 | 980 | 1,280 | 3.710 | 64 | 39 | 0 | 740 | 4,450 | 4.12 |
| Sled Springs............ | 3,320 | 16,790 | 1.170 | 400 | 710 | 2,280 | 69 | 51 | 0 | 0 | 2.280 | 2.64 |
| Snalue River............. | 2.800 | 13,730 | 640 | 580 | 640 | 1.860 | 66 | 34 | 710 | 0 | 2.570 | 3.38 |
| Starkey | 2,360 | 13.100 | 520 | 330 | 320 | 1.170 | 50 | 44 | 20 | 0 | 1,190 | . 77 |
| Ukiah | 3,600 | 18,810 | 600 | 570 | 320 | 1.490 | 41 | 40 | 0 | 0 | 1.490 | 1.96 |
| Umatilla................ | 2,840 | 15.410 | 600 | 400 | 240 | 1,240 | 44 | 48 | 20 | 0 | 1,260 | 1.67 |
| Walla Walla............ | 720 | 3,540 | 200 | 20 | 120 | 340 | 47 | 59 | 0 | 0 | 340 | 1.21 |
| Wenaha................... | 730 | 3,790 | 260 | 100 | 120 | 480 | 66 | 54 | 0 | 0 | 480 |  |
| Wherler................. | 7.510 | 28,910 | 2,010 | 1.030 | 1,330 | 4,370 | 58 | 46 | 0 | 230 | 4,600 | 3.41 |
| NORTHEAST........... | 65,200 | 296,300 | 15,490 | 9,180 | 11.870 | 36,540 | 56 | $42 \quad 2$ | 2.210 | 2,360 | 41.110 | 2.12 |
| Beulah................... | 3,950 | 15,740 | 900 | 900 | 610 | 2,410 | 61 | 37 | 0 | 0 | 2,410 | . 89 |
| Hart Mi | . 300 | 1,210 | 80 | 140 | 0 | 2,220 | 73 | 36 | 20 | 0 | 2. 240 | . 09 |
| Interstote................... | 7.080 | 41,070 | 1.790 | 840 | 1,170 | 3,800 | 54 | 47 | 0 | 700 | 4.500 | 2.10 |
| Juniper...................... | . 140 | 1750 | 40 | 0 | 0 | 40 | 29 | 100 | 0 | - 0 | + 40 | . 01 |
| Malheur River......... | 2.620 | 10,230 | 500 | 620 | 100 | 1,220 | 47 | 41 | 0 | 0 | 1.220 | . 42 |
| Owyhee | 7400 | 1,130 | , ù | 120 | 10 | . 120 | 30 | 0 | 0 | 0 | . 120 | . 04 |
| Silver Lk. ................. | 7.440 | 33,650 | 1.400 | 680 | 1,370 | 3.450 | 46 | 41 | 0 | 580 | 4.030 | 4.61 |
| Silvies $\qquad$ | 3,730 | 16,800 | 830 | 860 | 0 | 1.690 | 45 | 49 | 0 | 0 | 1,690 | . 98 |
| Steens M4. ................ | 1,090 470 | 4,440 2,230 | 330 180 | 400 | 0 | 730 300 | 67 | 45 | 10 | 0 | 740 | . 39 |
| Wagontire............... | 470 1.970 | 2,230 8,770 | 180 630 | 120 380 | 120 | 300 1130 | 64 57 | 60 56 | 0 50 | 0 | 300 1180 | .10 1.34 |
| Warner.................. | 1,970 510 | 1,380 | 630 90 | 380 170 | 120 0 | 1,130 260 | 57 51 | 56 35 | 50 0 | 0 | 1.180 .260 | 1.34 .05 |
| SOUTHEAST ........... | 29.700 | 137.400 | 6.770 | 5,230 | 3,370 | 15,370 | 52 | 44 | 80 | 1,280 | 16.730 | . 57 |
| STATE TOTALS........ 26 | 263,200 | * 1,330,100 | 51.400 | 37.300 | 33,700 | 122,400 | 47 | 423 | 3,900 | 15,7001 | 142,000 | 1.48 |

* Early and late deer seasons provided an additional 146,300 man-days of hunting.

Table 22

## 1967 EARLY AND EXTENDED DEER SEASONS

| Areas by Region | No. of Hunters | Harvest |  |  | Percent Success |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Bucks | Antlerless | Total |  |
| Corvallis W.S. | - | 15 | 72 | 87 | - |
| High Cascade Buck | 3,560 | 400 | - | 400 | 11 |
| McDonald Forest | - | 88 | 250 | 338 | - |
| N.W. Agricultural \& Polk-Wi1lamette | 21,880 | 3,880 | 4,280 | 8,160 | 37 |
| NORTHWEST | 25,440 | 4,383 | 4,602 | 8,985 | 34 |
| High Cascade Buck | 1,360 | 220 | - | 220 | 16 |
| SOUTHWEST | 1,360 | 220 | - | 220 | 16 |
| Sprague River | 530 | - | 380 | 380 | 72 |
| CENTRAL | 530 | - | 380 | 380 | 72 |
| Heppner | 60 | - | 40 | 40 | 66 |
| Wheeler | 340 | - | 230 | 230 | 68 |
| NORTHEAST | 400 | - | 270 | 270 | 67 |
| Ft. Rock Winter R. | 900 | - | 830 | 830 | 92 |
| Ft. Rock Muzzle L. | - | 1 | 9 | 10 | - |
| Silver Lake | 800 | - | 580 | 580 | 73 |
| SOUTHEAST | 1,700 | 1 | 1,419 | 1,420 | 83 |
| STATE TOTALS | 29,430 | 4,604 | 6,671 | 11,275 | 38 |



Table 23
1967 CONTROLLED DEER SEASONS

| Areas by Region | $\begin{gathered} \text { Available } \\ \text { Tags } \end{gathered}$ | Harvest |  |  | Percent Success |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Bucks | Antlerless | Total |  |
| Douglas Agri. | 1,500 | 520 | 480 | 1,000 | 67 |
| Jackson Agri. | 600 | 185 | 175 | 360 | 60 |
| Josephine Agri. | 750 | 120 | 80 | 200 | 27 |
| SOUTHWEST | 2,850 | 825 | 735 | 1,560 | 55 |
| B1y | 1,000* | - | 700 | 700 | 80 |
| Bryant Mtn. | 350 | - | 260 | 260 | 74 |
| Goodlow | 1,000** | - | 380 | 380 | 84 |
| Sprague River | 1,000 | - | 550 | 550 | 55 |
| CENTRAL | 3,350 | - | 1,890 | 1,890 | 71 |
| Eagle Valley | 800*** | - | 560 | 560 | 90 |
| Imnaha | 500 | 165 | 235 | 400 | 80 |
| Medical Sprs. | 600 | - | 570 | 570 | 95 |
| Northside | 1,000 | - | 740 | 740 | 74 |
| Ritter | $400 / 1$ | - | 220 | 220 | 55 |
| Sled Springs | $600 \frac{1}{2}$ | - | 480 | 480 | 82 |
| Snake River | 1,000-2 | 325 | 385 | 710 | 75 |
| Wallowa Pack | 1,000/3 | 460 | 200 | 660 | 66 |
| Wallowa Valley | $500-3$ | 95 | 185 | 280 | 63 |
| NORTHEAST | 6,400 | 1,045 | 3,575 | 4,620 | 76 |
| Hart Mountain | 25 | 17 | - | 17 | 68 |
| SOUTHEAST | 25 | 17 | - | 17 | 68 |
| State totals | 12,625 | 1,887 | 6,200 | 8,087 | 69 |


| * | 878 |
| :--- | :--- |
| issued |  |
| $* *$ | 452 issued |
| $* * *$ | 620 issued |
| $\angle 1$ | 583 issued |
| $\frac{2}{2}$ | 943 issued |
| 441 issued |  |



| Year | Deer <br> Tags Issued | Total Deer Harvested | Percent Munter Suctess | MULE DEER |  |  |  |  |  | BLACK-TAILED DEER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | *Hunfers | Number Harvested | Percent Hunter Success | Percent of Total | Antlerless Harvest | Percent Antlerless | *Hunters | Number Harvested | Percent Hunter Success | Percent of Total | Antlerless Harvest | Percent Antleriess |
| 1952 | 188,250 | 77.897 | 41 | 126,719 | 53,030 | 61 | 68 | 20,570 | 39 | 61,531 | 24,867 | 40 | 32 | 5,210 | 21 |
| 1953 | 204,808 | 105,275 | 51 | 121,356 | 64,607 | 53 | 61 | 24,652 | 38 | 83,552 | 40,668 | 49 | 39 | 13,045 | 32 |
| 1954 | 215,047 | 112,622 | 52 | 134,617 | 76,877 | 57 | 68 | 22,410 | 29 | 80,430 | 35,745 | 44 | 32 | 8,043 | 22 |
| 1955 | 230,585 | 133,834 | 58 | 148,566 | 90,126 | 61 | 67 | 37,752 | 42 | 81,919 | 43,708 | 53 | 33 | 13,446 | 31 |
| 1956 | 233,842 | 146,568 | 54 | 146,568 | 85,394 | 58 | 68 | 37,978 | 44 | 87,274 | 40,277 | 46 | 32 | 13,340 | 33 |
| 1957 | 221,960 | 116,409 | 52 | 140,627 | 81,873 | 58 | 70 | 26,853 | 33 | 81,333 | 34,626 | 43 | 30 | 8,877 | 26 |
| 1958 | 233,885 | 116,251 | 50 | 139,183 | 71,250 | 51 | 61 | 19,308 | 27 | 94,702 | 45,001 | 47 | 39 | 15,251 | 34 |
| 1959 | 248,701 | 145,823 | 59 | 138,856 | 88,261 | 64 | 61 | 23,686 | 27 | 104,750 | 56,670 | 54 | 39 | 20,108 | 35 |
| 1960** | 259,739 | 157,504 | 61 | 141,102 | 96,122 | 68 | 61 | 28,254 | 29 | 110,725 | 61,382 | 55 | 39 | 20,133 | 33 |
| 1961 | 265,326 | 163,939 | 62 | 147,597 | 97.951 | 66 | 60 | 30,538 | 31 | 101,971 | 65,988 | 65 | 40 | 24,529 | 37 |
| 1962 | 263,838 | 139,712 | 53 | 143,580 | 76,776 | 53 | 55 | 24,977 | 32 | 108,343 | 62,936 | 58 | 45 | 21,932 | 35 |
| 1963 | 258.375 | 117.619 | 45 | 136,676 | 64,678 | 47 | 55 | 15,403 | 24 | 105,603 | 52,941 | 50 | 45 | 16,754 | 32 |
| 1964 | 271,339 | 143,023 | 53 | 148,215 | 84,665 | 57 | 59 | 19,931 | 23 | 110,555 | 58,358 | 53 | 41 | 18,807 | 32 |
| 1965 | 277,857 | 119,369 | 43 | 143,618 | 71,637 | 50 | 60 | 19,242 | 27 | 108,281 | 47,732 | 44 | 40 | 13,348 | 27 |
| 1966 | 285,961 | 147,975 | 52 | 156,720 | 88,516 | 56 | 60 | 22,821 | 26 | 114,049 | 59,459 | 52 | 40 | 14,687 | 25 |
| 1967 | 287,600 | 142,000 | 52 | 153,950 | 87,180 | 57 | 61 | 29.518 | 34 | 109,250 | 54,820 | 50 | 39 | 15,089 | 27 |

Table 25
1967 ELK SEASONS

| Units by Regions | Hunter Numbers | Huntar-Days |  | harvest |  |  |  | HUNTER <br> SUCCESS <br> Per cont | YEARUNG hUNTERS BULLS par Par cont Sq. Mi. |  | $\begin{gathered} \text { ELK } \\ \text { sq. } \mathrm{Pq} . \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Yearling Buils | $\begin{aligned} & \text { Adult } \\ & \text { Bulls } \end{aligned}$ | Anterless | Total |  |  |  |  |
|  |  | Tatal | Averag* |  |  |  |  |  |  |  |  |
| Alsea.. | 670 | 2,680 | 4.0 | 67 | 20 | 0 | 87 | 13 | 77 | . 31 | . 04 |
| Clatsop.................. | 7,070 | 35,830 | 5.1 | 710 | 270 | 92 | 1,072 | 15 | 72 | 7.25 | 1.10 |
| McKenzie ................ | . 990 | 4,760 | 4.8 | 54 | 50 | 0 | 104 | 11 | 57 | . 24 | . 03 |
| Nestucca.................... | 40 | +170 | 4.3 | 6 | 0 | 0 | 6 | 15 | 100 | . 12 | . 02 |
| Santiam ................. | 120 | 510 | 4.2 | 3 | 6 | 0 | 9 | 8 | 33 | . 03 | . 00 |
| Siuslaw.................. | 50 | 210 | 4.2 | 3 | 0 | 0 | 3 | 6 | 100 | . 05 | . 00 |
| Trask...................... | 620 | 1,930 | 3.1 | 57 | 9 | 0 | 66 | 11 | 86 | . 59 | . 06 |
| Willamette............... | 120 | 680 | 5.7 | 3 | 6 | 0 | 9 | 7 | 33 | . 07 | . 01 |
| Wilson .................... | 2,260 | 10,270 | 4.5 | 251 | 69 | 29 | 349 | 15 | 78 | 3.88 | . 60 |
| NORTHWEST........... | 11,940 | 57,040 | 4.8 | 1,154 | 430 | 121 | 1,705 | 14 | 73 | . 73 | . 10 |
| Dixon..................... | 400 | 1,850 | 4.6 | 14 | 17 | I | 32 | 8 | 45 | . 17 | . 01 |
| Elkton...................... | 820 | 3,730 | 4.5 | 106 | 46 | 7 | 159 | 19 | 70 | . 87 | . 17 |
| Meirose....................... | 510 | 2,100 | 4.1 | 43 | 23 | 0 | 66 | 13 | 65 | . 42 | . 05 |
| Powers................... | 370 | 1,630 | 4.4 | 40 | 6 | 0 | 46 | 12 | 87 | . 37 | . 05 |
| Rogue ..................... | 240 | 840 | 3.5 | 0 | 0 | 0 | 0 | 0 | 0 | . 13 | . 00 |
| Sixes...................... | 60 | 100 | 1.7 | 6 | 0 | 0 | 6 | 10 | 100 | . 06 | . 01 |
| Tioga....................... | 3,620 | 16,200 | 4.5 | 351 | 186 | 48 | 585 | 16 | 65 | 3.74 | . 60 |
| SOUTHWEST ........... | 6,020 | 26,450 | 4.4 | 560 | 278 | 56 | 894 | 15 | 67 | . 65 | . 10 |
| Deschutes............... | 70 | 580 | 8.3 | 3 | 3 | 3 | 9 | 13 | 50 | . 05 | . 01 |
| Grizzly | 30 | 140 | 4.7 | 0 | 1 | 6 | 7 | 23 | 0 | . 02 | . 00 |
| Hood River............. | 10 | 20 | 2.0 | 4 | 0 | 0 | 4 | 40 | 100 | . 03 | . 01 |
| Keno................... | 70 | 430 | 6.1 | 3 | 9 | 0 | 12 | 17 | 25 | . 07 | . 01 |
| Ochoco .................. | 550 | 2,650 | 4.8 | 2 | 21 | 19 | 42 | 8 | 9 | . 35 | . 03 |
| Wasco..................... | 670 | 3,570 | 5.3 | 21 | 21 | 0 | 42 | 6 | 50 | . 67 | . 04 |
| CENTRAL................ | 1,400 | 7,390 | 5.3 | 33 | 55 | 28 | 116 | 8 | 38 | . 08 | . 02 |
| Baker..................... | 2,720 | 17,100 | 6.3 | 151 | 139 | 146 | 436 | 16 | 52 | 1.81 | . 29 |
| Catherine Cr. .......... | ,700 | 5,170 | 6.6 | 42 | 52 | 45 | 139 | 18 | 45 |  | . 24 |
| Chesnimnus............. | 2,450 | 14,650 | 6.0 | 343 | 49 | 80 | 472 | 19 | 87 | 3.85 | . 74 |
| Desolation .............. | 3,060 | 20,730 | 6.8 | 169 | 118 | 61 | 348 | 11 | 50 | 4.43 | . 50 |
| Heppner................. | 2.830 | 18,460 | 6.5 | 200 | 82 | 132 | 414 | 15 | 71 | 1.90 | . 28 |
| Imnaha ................... | 1,510 | 10,010 | 6.6 | 150 | 70 | 108 | 328 | 22 | 68 | 3.75 | . 81 |
| Keating-.................. | 570 | 3,900 | 6.8 | 18 | 26 | 31 | 75 | 13 | 41 | . 71 | . 09 |
| Lookout Mtre, ,.......... | 30 |  | 2.0 | 2 | 13 | $11{ }^{2}$ | 4 | 13 | 100 | . 06 | . 01 |
| Minam................... | 1,540 | 10,670 | 6.9 | 98 | 138 | 110 | 346 | 22 | 41 |  |  |
| Murderer's Cr......... | 830 | 3,510 | 4.2 | 22 | 44 | 73 | 139 | 17 | 33 | . 68 | . 11 |
| Northside............... | 1.220 | 6,310 | 5.2 | 22 | 31 | 102 | 155 | 13 | 41 | 1.13 | . 14 |
| Sled Springs ........... | 3,320 | 22,480 | 6.8 | 407 | 88 | 314 | 809 | 24 | 82 | 3.84 | . 94 |
| Snake River ............. | 1,720 | 11,540 | 6.7 | 170 | 106 | 152 | 428 | 25 | 62 | 2.30 | . 56 |
| Starkey .................. | 5,530 | 39,070 | 7.1 | 379 | 106 | 171 | 656 | 12 | 78 | 3.60 | . 43 |
| Ukiah..................... | 3,190 | 23,800 | 7.5 | 214 | 80 | 93 | 387 | 12 | 73 | 4.20 | . 51 |
| Umatilla................. | 4,430 | 30,740 | 6.9 | 421 | 85 | 198 | 704 | 16 | 83 | 5.89 | . 94 |
| Walla Walla ............ | 1.730 | 9,920 | 5.7 | 158 | 68 | 239 | 465 | 27. | 70 | 6.18 | 1.66 |
| Wenaha................. | 5,680 | 36,150 | 6.4 | 650 | 169 | 486 | 1,305 | 23 | 79 | 13.82 | 3.18 |
| Wheeler................. | 250 | 1,070 | 4.3 | 0 | 3 | 21 | 24 | 10 | 0 | . 19 | . 02 |
| NORTHEAST ............ | 43,390 | 285,340 | 6.6 | 3,616 | 1,454 | 2,564 | 7,634 | 18 | 71 | 2.62 | . 46 |
| Beulah................... | 810 | 5,240 | 6.5 | 13 | 35 | 76 | 124 | 15 | 27 | . 30 | . 05 |
| Malheur River......... | 370 | 2.070 | 5.6 | 11 | 18 | 15 | 44 | 12 | 38 | . 13 | . 02 |
| Silvies...................... | 270 | 1,270 | 4.7 | 3 | 0 | 10 | 13 | 5 | 100 | . 16 | . 01. |
| SOUTHEAST............ | 1,450 | 8,580 | 5.9 | 27 | 53 | 101 | 181 | 12 | 34 | . 20 | . 02 |
| STATE TOTALS ......... | 64,200 | 384,800 | 6.0 | 5,390 | 2,270 | 2,870 | 10,530 | 16 | 70 | . 67 | . 11 |

Table 26
ELK HUNTING TRENDS
1933-1967

| Year | State Total |  |  |  |  | Rocky Mountain Elk |  |  |  |  | Roosevelit Elk |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Hunturs | avils | Cows | Tatal | Success | Hunters | Bulis | Cows | Total | Sutcess | Hufitery | tulis | Cows | Total | Success |
| 1933 | 2,523 | 579 | 0 | 579 | 23\% | 2,440 | 579 | 0 | 579 | 23\% |  | 198 | Open |  |  |
| 1940 | 6,152 | 1,340 | 1,179 | 2,529 | 41\% | 4,809 | 1,152 | 1,179 | 2,331 | 48\% | 1,343 | 198 | 0 | 198 | 15\% |
| 1945 | 12,625 | 7,270 | 2,243 | 2,465 | 20\% | 7,270 | 2,176 | 67 | 2,243 | 30\% | 1,327 | 222 | 0 | 222 | 17\% |
| 1950 | 24,713 | 3,157 | 2,234 | 5,391 | 22\% | 16,726 | 2,210 | 1,234 | 3,444 | 21\% | 6,076 | 947 | 1,000 | 1,947 | 32\% |
| 1955 | 29,309 | 4.228 | 1.855 | 6,083 | 21\% | 21,504 | 3,361 | 1,749 | 5,110 | 24\% | 6,205 | 867 | 106 | 973 | 16\% |
| 1961 | 51,349 | 9,707 | 2,384 | 12,091 | 23\% | 36,514 | 7,098 | 1,863 | 8,934 | 24\% | 14,835 | 2,609 | 521 | 3,130 | 22\% |
| 1962 | 52,983 | 7.998 | 2,178 | 10,176 | 19\% | 39,432 | 6,460 | 1,925 | 8,385 | 21\% | 13,559 | 1,538 | 253 | 1,791 | 13\% |
| 1963 | 54,724 | 10,082 | 3,606 | 13,688 | 25\% | 41,216 | 6,959 | 3,606 | 10,565 | 26\% | 13,508 | 3,123 |  | 3,123 | 23\% |
| 1964 | 62,898 | 11,846 | 5,311 | 17,157 | 27\% | 41.010 | 7,576 | 4,879 | 12,455 | 30\% | 21,888 | 4,270 | 432 | 4,702 | 21\% |
| 1965 | 67,387 | 8.066 | 4,200 | 12,266 | 18\% | 47,651 | 5,768 | 3,594 | 9,362 | 20\% | 19,736 | 2,298 | 606 | 2,904 | 15\% |
| 1966 | 68,178 | 8,030 | 3,372 | 11,402 | 17\% | 49,504 | 5,529 | 3,189 | 8,718 | 18\% | 18,674 | 2,501 | 183 | 2,684 | 14\% |
| 1967 | 64,200 | 7,660 | 2,870 | 10,530 | 16\% | 46,100 | 5,220 | 2,690 | 7,910 | 17\% | 18,100 | 2,440 | 180 | 2,620 | 14\% |




## Sources of Information

Past analyses of elk hunter report cards and the general hunting questionnaire provided estimates of numbers of hunters, days of hunting, and numbers and kinds of animals taken by geographical units, but did not provide needed information on hunting pressure by time interval or the influences of time of hunting or special regulations upon hunter success.

For this reason, a supplemental questionnaire (Exhibit A) was designed and mailed in January 1968 to a random sample of two universes of elk hunters. One universe was the 3,235 persons who reported hunting elk on the 1966 general hunting questionnaire. The other universe was the 4,000 persons who received a 1967 antlerless elk permit that was valid during the general Rocky Mountain elk season.

A third questionnaire sampled the experience of the 843 licensed nonresident elk hunters to compare their experience with that of residents.

Collective evaluation of this combination of inventories is required for the development of significant conclusions, and in some instances the sample size is not adequate to measure smaller units of activity.

## Hunting and Yield by Unit

Computer analysis of report card data and the general hunting questionnaire provides a measure of the distribution of hunting pressure and harvest of elk by geographical units, as reported in Table 25. The questionnaire determined the number of hunters, days of hunting, and kill of elk. The report cards were used to determine the distribution of hunters and harvest by units.

Collectively, 64,200 persons hunted elk for 384,800 days and took 10,530 elk.

Rocky Mountain elk herds provided approximately 78 percent of hunting and 75 percent of the harvest.
Table 28 SUMMARY OF
1967 ELK HUNTING INVENTORIES

| Source | Universe Sampled | Questionnaires Issued | Questionnaires Returned | Persons Hunting | Days Hunted | Heported Harvest |  |  |  | Success |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | Spikes | Bul1s | $\begin{gathered} \text { Antler- } \\ \text { less } \end{gathered}$ | Total |  |
| $\underset{\text { Elk Tags }}{\frac{11}{1967}}$ | 65,113 | 65,113 | 23,586 | 23,154 | - | 2,274 | 852 | 1,355 | 4,481 | 19\% |
| $\underset{\substack{\angle 2 \\ \text { Hunting } \\ \text { Licenses }}}{ }$ | 348,209 | 16,903 | 14,248 | 2,950 | 17,665 | 250 | 115 | 131 | 496 | 17\% |
| $\begin{array}{\|l} \angle 3 \\ 1966 \\ \text { Elk } \\ \text { Hunters } \end{array}$ | 3,235 | 572 | 453 | 287 | 2,030 | 24 | 16 | 15 | 45 | 16\% |
| $\begin{array}{\|} \angle 4 \\ 1967 \\ \text { Permit } \\ \text { Holders } \end{array}$ | 4,000 | 600 | 514 | 493 | 3,906 | 20 | 3 | 212 | 235 | 48\% |
| $\begin{aligned} & \frac{15}{1967} \\ & \text { Non- } \\ & \text { Residents } \end{aligned}$ | 843 | 132 | 103 | 103 | 721 | - | - | - | 24 | 23\% |

[^4]The supplemental questionnaire provided an estimate of the number of hunters and days of hunting by time interval during authorized seasons. The date of kill on report cards provided the best measure of the kind and numbers of elk taken by time interval.

This combination of data indicated the following patterns of participation and success:

## Rocky Mountain Elk

Table 29 and Figures 1 and 2 display the reported distribution of hunting pressure and kill intervals during the 1967 season.

It is significant that the opening of the general season on October 28 and the opening of antlerless elk seasons on November 11 were peak periods for both hunting pressure and kill, but the last weekend provided the greatest yield of animals in relation to hunter effort.

Fifty-nine percent of the total yield of bulls occurred during the first week of the general season.

Roosevelt E1k
Combination of questionnaire and report card data for Roosevelt elk indicates sustained heavy hunting pressure through the 12-day season (November 11-22) with peaks of activity on the two weekends.

Table 29 and Figures 3 and 4 display estimates of hunting pressure and kill during the season.

The sample of archers is too small to accurately measure that activity; however, estimates based upon questionnaire and card return data are included.

Table 29
1967 ELK SEASONS
DISTRIBUTION OF HUNTING PRESSURE AND KILL BY TIME INTERVAL

| Period | Hunters | Hunter Days | Yield of Elk |  |  |  | $\begin{gathered} \text { Days } \\ \text { per E } 1 \mathrm{k} \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Spikes | Bulls | Antlerless | Total |  |
| ROCKY MOUNTAIN ELK: |  |  |  |  |  |  |  |
| Oct. 28 - Nov. 3 | 28,580 | 105,500 | 2,228 | 841 | 77 | 3,146 | 34 |
| Nov. 4 - Nov. 10 | 23,050 | 67.400 | 513 | 260 | 48 | 821 | 83 |
| Nov. 11 - Nov. 17 | 26,740 | 93,750 | 697 | 307 | 1,790 | 2,794 | 34 |
| Nov. 18 - Nov. 19 | 17,980 | 26,400 | 221 | 124 | 512 | 857 | 31 |
| Gen. Season Totals |  | 293,050 | 3,659 | 1,532 | 2,427 | 7,618 | 39 |
| Special Seasons Totals | 600 | 2,000 | 6 | 3 | 249 | 258 | 8 |
| Archery - Totals | 750 | 5,250 | 5 | 15 | 14 | 34 | 154 |
| ROCKY MTN. ELK TOTALS | 46,100 | 300,300 | 3,670 | 1,550 | 2,690 | 7.910 | 38 |
| ROOSEVELT ELK: |  |  |  |  |  |  |  |
| Nov. 11 - Nov. 17 | 17,000 | 49,600 | 1,307 | 488 | 0 | 1,795 | 28 |
| Nov. 18 - Nov. 22 | 12,000 | 27.900 | 390 | 209 | 0 | 599 | 47 |
| Gen. Season Totals |  | 77,500 | 1,697 | 697 |  | 2,394 | 32 |
| Archery - Totals | 1,000 | 7,000 | 23 | 23 | 180 | 226 | 31 |
| HOOSEVELT ELK TOTALS | 18,100 | 84,500 | 1.720 | 720 | 180 | 2,620 | 33 |
| GRAND TOTALS | 64,200 | 384,800 | 5,390 | 2,270 | 2,870 | 10,530 | 37 |

Figure 1


Figure 2


Figure 3


Figure 4


## Influence of Antlerless Permits:

The responses from persons receiving 1967 antlerless elk permits indicated a substantially different distribution of hunting effort, as shown in Table 30 and Figure 5 .

In spite of the fact that their antlerless permits gave them an advantage, only 48 percent of the reporting permit holders reported success.

Approximately one-third of the permit holders hunted prior to the opening of the antlerless seasons on November 11, and 176 (9 percent) of the elk taken by permit holders were bulls. Ninety percent of the permit holders participated in the opening of the permit season.

With two percent of the reporting permit holders not hunting and nine percent taking bulls, the net take of antlerless elk was .41 per permit, or 2.4 permits per antlerless elk taken.

Table 29 and Figure 1 illustrate the influence of the permit seasons on hunting pressure. The third week increase of 3,700 hunters and 26,350 days of hunting over that of the second week is primarily a product of permit incentive to entire hunting parties.

Table 30
DISTRIBUTION OF ROCKY MOUNTAIN ELK HUNTING
BY ANTLERLESS PERMIT HOLDERS
October 28 - November 19, 1967

| Hunter |  |  |  |  |  | $\begin{aligned} & \text { Days } \\ & \text { per Elk } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Oct. 28 - Nov. 3 | 1,385 | 5,370 | 70 |  | 70 | 77 |
| Nov. 4 - Nov. 10 | 1,735 | 5.323 | 16 |  | 16 | 333 |
| Nov. 11 - Nov. 17 | 3,432 | 16,314 | 39 | 1,105 | 1,144 | 14 |
| Nov. 18 - Nov. 19 | 1,938 | 3,393 | 54 | 545 | 599 | 6 |
| TOTALS | 3,840 | 30,400 | 179 | 1,650 | 1,829 | 17 |

Figure 5


Number of Hunting Trips and Hunting Days:
Information from questions 2 and 3 relating to number of hunting trips and days of hunting are summarized by universes as follows:

| Universe | Percent of Hunters |  |  |  | Av. Days Hunted |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} 1 \\ \text { Trip } \end{gathered}$ | $\begin{gathered} 2 \\ \text { Trips } \end{gathered}$ | $\begin{gathered} 3 \\ \text { Trips } \end{gathered}$ | Trips |  |
| Rocky Mountain E1k Hunters | 27 | 38 | 24 | 11 | 7 |
| Roosevelt Elk Hunters | 42 | 52 | 6 | 0 | 6 |
| Permit Holders | 25 | 39 | 25 | 11 | 8 |
| Nonresidents | 78 | 22 |  | 1 | 7 |
| Average | 34 | 42 | 16 | 8 | 7 |

## Size of Hunting Parties:

An average party size of 4 persons was consistently reported by Rocky Mountain elk hunters, with both the random universe and the antlerless permit holders reporting the same average.

Roosevelt elk hunters reported an average of 3 persons per party.

Distribution of Antlerless Elk Permits:

Answers from the random universe of 1966 hunters indicated the following distribution of antlerless permits by party:
No Permits - $80 \%$ of parties
1
Permit $-34 \%$ of parties
2 Permits - $5 \%$ of parties
3 Permits - $5 \%$ of parties
4 Permits - $5 \%$ of parties
$5+$ Permits - None

Vacation Time:
One-half of the Kocky Mountain elk hunters and 21 percent of the Roosevelt elk hunters reported using vacation time for elk hunting.

In contrast, a similar question to deer hunters in 1967 indicated that only 27 percent used vacation time.

Equipment Used:
Answers to Question 5 provided the following measures of hunting equipment and preferences.

ELK HUNTING EQUIPMENT
(Percent of Hunters Using)

| Equipment | $166-167$ <br> Hunters | Permit <br> Hunters | Rocky Mtn <br> Hunters | Roosevelt <br> Hunters | Average |
| :--- | :---: | :---: | :---: | :---: | :---: |
| 4-Wheel Drive | 61 | 62 | 64 | 47 | 62 |
| 2-Way Radio | 20 | 18 | 20 | 16 | 19 |
| Horses | 11 | 12 | 12 | 2 | 12 |
| Archery | 2 | 2 | 1 | 3 | 2 |
| Developed |  |  | 11 | 11 | 2 |

## Hunting Accommodations:

A good response to Question 6 provided the following estimates of the accommodations used by the different universes of elk hunters.

TYPE OF ACCOMMODATIONS
Percent of Hunting Days

| Accommodation | $166-167$ <br> Hunters | Permit <br> Hunters | Rocky Mtn. <br> Hunters | Roosevelt <br> Hunters | Average |
| :--- | ---: | :---: | :---: | :---: | :---: | :---: |
| Camping in Tent | 37 | 36 | 38 | 7 | 36 |
| Trailer or |  |  |  |  |  |
| Camper | 35 | 41 | 40 | 29 | 39 |
| Lodging, not home | 6 | 8 | 7 | 21 | 8 |
| At Home | 21 | 14 | 14 | 52 | 16 |
| No Shelter | 1 | 1 | 1 | 1 | 1 |

It is significant that over 75 percent of the Rocky Mountain elk hunters are equipped to camp. In contrast, 52 percent of the Roosevelt elk hunting is done in one-day trips from home.

## The Hunter Population:

An objective in sampling 1966 elk hunters was to determine the rate of turnover in the elk hunter population.

A total of 166 , or 37 percent, of 453 reports from 1966 elk hunters indicated "no hunt" in 1967.

A 6 percent decline in total elk hunters in 1967 partially accounts for the loss, but it is apparent that nearly one-third of the elk hunters are new or intermittent.

## Nonresident Elk Hunters:

Responses from 103 of the 843 nonresident persons who purchased elk tags in 1967 provided the following information:
$23 \%$ of the nonresidents were successful.
$91 \%$ hunted Rocky Mountain elk.
$10 \%$ employed a guide.
$50 \%$ of the guided nonresidents were successful.
$82 \%$ had knowledge, or were with persons who had knowledge, of the area hunted.
$49 \%$ of the nonresidents had hunted elk in oregon before.
$77 \%$ of the nonresidents intend to return.
Nonresident elk hunters spent an average of \$275.00 in Oregon, or approximately ${ }^{\#} 1,186.00$ per elk taken.

## SUMMARY:

An analysis of voluntary reports from randomly selected 1967 elk hunters provided the following information:

1. Thirty-seven percent of the persons hunting elk in 1966 did not hunt elk in 1967. This suggests an annual turnover of approximately one-third in the population of elk hunters.
2. Opening day of the general elk season and opening day of the permit season provide two peak periods of hunting pressure and kill. However, large numbers of hunters were afield throughout the general seasons.
3. The yield of bull elk in relation to hunting effort was greatest during the first and last weekends of the eastern Oregon season.
4. Elk hunters are better equipped, spend more vacation time, and more time afield than deer hunters.
5. Only 41 percent of the antlerless elk per its that were valid during the 1967 general season were used, $n$ an antlerless animal. Nine percent of the permit holders took bulls and 4 percent did not hunt.
6. Elk hunters, like deer hunters, make comparatively little use of developed campgrounds.
7. Over 75 percent of the Rocky Mountain elk hunters camp out in tents or trailers.
8. Over 50 percent of the Roosevelt elk hunting is done in oneday trips from home.
9. Nonresident elk hunters took about 194 elk in 1967 and spent approximately $\$ 232,400$ in Oregon.
Their success averages 23 percent, in contrast to the state average of 17 percent.

10. Did you hunt elk in 1967?
(If "No," stop here and mail.)
11. Please report all of your 1967 elk hunting trips individually.
(Do not report elk killed by persons other than yourself.)

No. in Kill
Party (Yes or No)

Dates Hunted To $\qquad$
From $\qquad$
$\qquad$
$\qquad$
From $\qquad$ To $\qquad$
From $\qquad$ To $\qquad$
From $\qquad$ To $\qquad$ To $\qquad$
From $\qquad$ Adult Bull
3. The elk killed was a spike $\square$
4. How many persons in your general season party received a 1967 antlerless elk permit? $\qquad$
5. Did you use any of the following during your elk hunting trips?
a. Vacation time
b. 4-wheel drive vehicles
c. 2 -way radios
d. Horses
e. Aircraft
f. Bow and arrow
g. Developed campgrounds

6. Please list the number of days you hunted elk while:
a. Camping in a tent
b. Camping in a trailer or camper
c. Camping, no shelter
d. Staying in lodging away from home
(motels, relatives, etc.)
e. Staying at home
7. Did you receive an antlerless elk permit in 1967? Yes $\square$

No $\square$


## PHEASANTS

The carry-over of pheasants for the spring breeding season showed an average density of 19.9 birds per 100 acres on the 12,913 acres of habitat sampled. This state-wide average indicated a breeding population only 2 percent greater than in 1967 , when 19.5 birds per 100 acres were counted. Population densities varied considerably by area with Malheur, Umatilla, and Morrow Counties showing sharp declines while wasco and Sherman Counties and the Willamette Valley contained a greater number of breeding birds. Ratios of cocks per 100 hens were substantially higher in most areas thanwere recorded last year. A summary of the breeding population data is presented in Tables 1 and 2.

An increase of 11 percent from 1967 was recorded in the wintering population of pheasants on the E. E. Wilson Management Area. The population increase was the first improvement noted since 1965 and the greatest increase recorded since the general decline started in 1963. As shown in Table 3, the ratio of 64 cocks per 100 hens was also the largest since 1962.

As a measure of determining breeding populations, crowing counts were conducted on 53 sample routes during the height of the breeding season. The technique involves recording the number of cocks heard crowing during a two-minute interval at each of 20 stops made a mile apart on each sample route. The
state-wide index of cocks heard per mile decline 3 percent from 1967. The western Oregon index dropped approximately 7 percent while the crowing index in eastern Oregon increased 2 percent. A four-year comparison is shown in Table 4.

An intensive brood count survey was conducted between July 29 and August 9 to determine the success of the nesting season and to provide a basis for forecasting the size of fall populations. The results are included in Table 5. Four hundred ninety-nine hens were counted with only 79 percent having broods as compared with 88 percent in 1967. Individual broods contained 5 percent fewer chicks and the average number of chicks per hen declined 12 percent from last year.

During the two-week period a total of 3,097 pheasants was counted on 2,583 miles of sample routes. The number of birds are expressed in birds per 10 miles of sample routes and show a state-wide population decline of 14 percent. The most drastic declines were recorded in Umatilla and Malheur Counties, while the lower Willamette Valley showed a slight increase.

The sharp decline in pheasant numbers in Malheur County also resulted in the fewest number of damage complaints since 1961. A summary of the complaints is presented in Table 6.

During the state-wide five-week season, which extended from October 21 through November 26, 72, 135 hunters bagged 263,316 pheasants; an average of 3.7 birds per hunter. The kill increased over 1965 and 1966 but is considerably below the harvest of the eight-year period between 1957 and 1964. A summary of the upland game seasons since 1951 is given in Table 24, and a distribution of hunting pressure and kill is shown in Table 25.

## VALLEY QUAIL

The spring breeding population of valley quail is determined by the quadrat method of sampling and is conducted in conjunction with the pheasant inventory. On the samples totaling 12,913 acres, 2,596 quail were counted and represents a state-wide increase of 39 percent from the 1967 inventory. Western oregon breeding populations rose 18 percent from 10.7 to 12.6 birds per 100 acres, while in eastern Oregon the number of breeders increased 50 percent, from 16.5 to 24.7 birds per 100 acres.

A total of 7,102 birds was recorded on 4,047 miles of production survey routes, an increase of 17 percent over 1967. Production was especially good in eastern Oregon with
substantial increases observed in all areas. A uniform decline averaging 47 percent was recorded in the willamette Valley while an increase of 11 percent was tallied in southwestern Oregon. Table 7 presents the production information.

Number of chicks per brood averaged 9.9, a decline of 10 percent from the high production season in 1967, while the average ratio of chicks per adult decreased 18 percent.

## BOBWHITE QUAIL

Only a small population of bobwhites exists in the Willamette Valley, Malheur County, and the northern part of Umatilla County. Six bobwhites were observed on spring quadrat routes in Malheur County and nine heard while running quadrats in the mid-Willamette district.

During production inventory in late August only two broods containing 13 chicks were observed in Washington and Yamhill Counties.

## MOUNTAIN QUAIL

Tables 12 and 13 summarize the number of mountain quail observed on big game sample routes. Relatively few observations were made, so the data cannot be relied upon to measure breeding population trends. No birds were seen in central Oregon or on the northeastern Oregon samples. The increase averaged 51 percent throughout western Oregon. Ninety-six percent more quail were observed in the Northwest Region while 37 percent fewer birds were seen in southwestern Oregon.

Production data is summarized in Table 8. A total of 141 broods was counted on 2,125 miles of sample routes compared with 65 broods in 1967. The number of chicks per brood declined from an average of 9.4 last year to 7.9. Eastern Oregon populations were more than double the 1967 level while populations west of the Cascades showed an increase of 58 percent.

## CHUKAR PARTRIDGE

Chukar numbers observed on 1,395 miles of big game routes last winter increased 35 percent from the previous year. Table 9 presents the information and shows the increased carry-over of breeding birds on all of the major chukar areas.

The August production surveys on 1,795 miles of samples revealed 6,136 chukars compared with 3,338 on the same routes last year. Population increases, averaging 81 percent, were recorded. Increased production was observed in all parts of eastern Oregon except in the Columbia and Ochoco districts. A direct comparison in production trends cannot be made, however, since over half the increase was recorded in Malheur county where drought and sparse range vegetation tended to concentrate the birds along streams where complete counts could be made. Table 10 shows production and population trends in the major chukar areas.

The average number of chicks per brood increased 10 percent from 1967 while the ratio of chicks per adult declined in all areas except Grant County.

## HUNGARIAN PARTRIDGE

Numbers of Hungarian partridge observed on big game samples declined 58 percent from the previous year with most of the drop occurring in Morrow and Umatilla Counties. A summary is contained in Table 9.

Production data is presented in Table 11 . Only 291 birds were counted on 1,954 miles sampled due to the sparse and wide distribution of the species. Increased production was apparent in the Columbia Basin but a decrease in Union and Baker Counties. Average number of chicks per brood declined 28 percent and chicks per adult dropped 39 percent.

## FOREST GROUSE

Blue and ruffed grouse numbers seen on big game samples are summarized in Tables 12 and 13. A 75 percent increase in blue grouse and 148 percent increase in ruffed grouse breeding populations was recorded in western Oregon, while the breeding populations east of the Cascades remained static. The increase was most pronounced along the north coast. Substantially more blue grouse were heard on the spring hooting and drumming counts, as shown in Table 14.

Table 15 presents the results of the blue grouse production inventory.

Even with a good spring breeding population of ruffed grouse, production fell off sharply. The number of adult birds observed on the 1,701 miles of sample routes compared favorably with 1967 but the average size of the broods dropped 50 percent while the average number of chicks per adult declined 27 percent. Table 16 presents the results of the early August inventory.

## SAGE GROUSE

The 1968 counts of male sage grouse on 25 traditional strutting grounds show a population of 682 strutting cocks. On 21 samples where comparisons could be made with last year, the number of breeding males increased 32 percent. All of the increase occurred in Harney County while declines were recorded on strutting grounds in Deschutes and Lake Counties. A comparison of counts is given in Table 17.

Sage grouse populations and production, as indicated in Table 18, show a marked improvement over last year. Over three times as many birds were observed on 703 miles of production habitat, with major increases recorded in Malheur and Harney Counties. Production in Crook and Lake Counties was comparable to 1967 while a decrease was noted in a relatively small population in Deschutes County.

A shortage of water and sparse vegetation over the entire range tended to concentrate the birds in areas where they were more easily observed. The major population increases recorded in the sampled areas have undoubtedly been influenced somewhat by these drought conditions.

Production from a good carry-over of breeding stock was fair, with an average of 4.5 chicks per brood recorded. A large number of adult birds, however, failed to bring off broods. A ratio of slightly over one chick for each two adults was recorded, compared with one chick per adult last year.

## TURKEYS

Little information is available on turkeys since reliable inventory methods have not been developed to measure production or population trends. Even estimates of the size of populations based on general observations are often misleading as the birds are difficult to observe at any season of the year.

Frequent reports and sightings on the east slope of Mt. Hood
reveal a wide distribution of birds in the mixed conifer and hardwood forest from Mosier south into the Warm Springs Indian Reservation. Very few broods, however, were observed on the White River Management Area in areas heavily used in prior years.

Reports of the sightings of turkeys continue to be received from the vicinity of release sites elsewhere in eastern oregon.

No trapping was attempted due to the mild winter and little snowfall. Turkeys could not be baited to trapping sites when ample natural food was available.

## SILVER GRAY SQUIRRELS

Fair populations of silver gray squirrels exist in the foothills of the Cascades and Coast Ranges, with the heaviest concentrations located in Hood River and Wasco Counties and southwestern Oregon.

Records have been kept on the number of squirrels seen in Jackson and Josephine Counties while conducting regular field work, as well as animals observed on big game sample routes. The following tables indicate a general increase in the numbers noted during the year but a sharp decline in the population observed on sampled areas.

Random Gray Squirrel Tally Jackson and Josephine Counties

| Year | 1968 | 1967 | 1966 | 1965 | 1964 | 1963 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| No. Seen | 87 | 73 | 70 | 84 | 36 | 35 |

Gray Squirrel Trends on Big Game Samples
Jackson and Josephine Counties

| Miles | Squirrels | Squirrels per Mile |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Traveled | Seen | 1968 | 1967 | 1966 | 1965 | 1964 | 1963 |
| 112 | 9 | . 08 | . 21 | . 18 | .27 | . 05 | .03 |

## MOURNING DOVES

August roadside counts of doves along 1,656 miles of samples are summarized in Table 19. The average number of birds per mile in 1968 was 8 percent above the 1967 figure but 10 percent below the average of the previous four years.

Mourning doves continue to winter in western Oregon in large numbers. According to the results of the upland game quadrat survey, the average density of doves per 100 acres of habitat in the Willamette Valley was 15.7 while in the Rogue Valley an average of 26 birds per 100 acres was recorded. Table 20 summarizes results of quadrat surveys for the past eight years.

The annual call count survey, as part of a nationwide effort, was conducted between May 20 and June 10 . Results are shown in Table 21. The average number of doves heard per mile in 1968 decreased 18 percent from the 1967 figure and, except in 1965, is the lowest number of doves heard on the routes since they were randomized in 1964. The number of doves observed on the same routes declined only 3 percent.

## BAND-TAILED PIGEONS

The preseason inventory of band-tailed pigeons at mineral springs and tideflat concentration areas is presented in Table 22. More pigeons were counted at ten watering sites while fewer birds were recorded at five locations. Three new census areas are included for which no comparison can be made with use in previous years.


## HUNTING SEASONS

The following table contains a synopsis of the 1967 hunting season dates and bag limits for the various upland game species.

1967 UPLAND GAME SEASONS

|  | $\begin{gathered} \text { Open Season } \\ \text { (all dafes inclusive) } \end{gathered}$ | Open Area | Daily Bag Limit | Possession Limit |
| :---: | :---: | :---: | :---: | :---: |
| UPLAND GAME: <br> Silver Gray Squirrel | Sept. 30-Nov. 5 | Hood River and Wasco Counties *Southwest Area | 5 | 5 |
|  | Entire Year | *Northwest Area | No Limit | No Limit |
| Blue and Ruffed Grouse | Sept. 9-Sept. 24 | * Eastern Oregon | 3 | 6 |
|  | Sept. 30-Nov. 5 | *Western Oregon | 3 | 6 |
| Sage Grouse | No open season |  |  |  |
| Chukar and Hungarian Partridge | Sept. 30-Jan. 17 | *Eastern Oregon | 8 | 16 |
| Cock Pheasants | $\begin{aligned} & \text { 8:00 a.m. Oct. 21- } \\ & \text { Nov. } 26 \end{aligned}$ | *Eastern Oregon except Klamath County | 3(a) | 12(a) |
|  |  | *Western Oregon and Klamath County | 2 | 8 |
| Valley and Mountain Quail | $\begin{aligned} & \text { 8:00 a.m. Oct. 21- } \\ & \quad \text { Nov. } 26 \\ & \hline \end{aligned}$ | *Western Oregon | 10 | 20 |
|  | $\begin{aligned} & \text { 8:00 a.m. Oct. 21- } \\ & \text { Jan. } 17 \end{aligned}$ | *Eastern Oregon | 10 | 20 |
| Turkey | $\begin{aligned} & \text { 8:00 a.m. Nov. 20-- } \\ & \text { Nov. } 22 \end{aligned}$ | Wasco Management Unit | 1 | 1 |
| MIGRATORY BIRDS: Mourning Dove | Sept. 1-30 \& Oct. $21-$ Nov. 9 | Entire State | 12 | 24 |
| Band-Tailed Pigeon | Sept. 1-30 | Entire State | 8 | 8 |

Random survey sampling was conducted by mail questionnaire following the 1967 seasons. Of the total of 17,391 questionnaires mailed, 14,248 ( 82 percent) were returned. projection of the results indicates that 91,769 of the 348,000 licensed hunters hunted upland game. An estimated 898,663 birds were killed and 746,178 days of recreation were provided while hunting a total of ten species. Table 23 summarizes the results of the 1967 seasons while Table 24 compares the results with past years.

Tables 25 through 32 present the kill by species and geographical area as determined from the mail survey. An estimate of the amount of habitat located in each geographical unit is provided to arrive at indices of kill per square mile for comparative purposes.

Upland game hunting for a limited number of juveniles was permitted on the E. E. Wilson Management Area on four days in September and October and for juveniles and adults on four days in October. One hundred seven pheasants and 23 valley quail were killed by the 290 hunters. A comparison with past years is presented in Table 33.

An estimated 150 turkeys were killed during the third annual fall turkey season held in the wasco Management Unit. An estimated 4,000 hunters participated in the three-day hunt. Following the fall season, a nine-day spring gobbler hunt was held for 250 permit holders. Only 133 of the permit holders (53 percent) submitted report cards, showing a kill of 15 gobblers. Twenty-two permit holders reported they did not hunt.

Trends in posting of private land to prevent or control trespass is recorded in Table 34. A total of 27 percent of the farmland ownerships located along 638 miles of sample route was posted arainst hunting during the 1967 season.

## GAME FARM OPERATIONS

During the 1967 season, 21,613 ring-necked pheasants, 70 Kalij pheasants, 948 chukar partridge, 138 Hungarian partridge, 562 bamboo partridge, and 30 Chilean tinamou were produced by artificial methods on the E. E. Wilson Game Management Area. A summary appears in Table 35.

For the third year all pheasant hatches were sexed as the chicks were removed from the incubators and, except for the first hatch which was kept for breeding purposes, only the cocks were retained for rearing. The female chicks were disposed of to individuals to raise on a share basis or were sold at $20 \phi$ each. Accuracy in sexing amounted to 92 percent for the birds classified as cocks and 97 percent for the hen chicks retained for breeders. Hatching success averaged 76 percent with 95 percent of the birds hatched, reared, and released.

Pheasant liberations in 1967 are summarized in Table 36. The releases totaled 21,469 birds, of which 11,189 were in western Oregon and 10,280 east of the Cascades. of the total, 3,038 were liberated as adults in the spring, 6,522 as young during the summer, and 11,909 as adult cocks just prior to and during the hunting season. Holding pens designed to accommodate 2,500 cocks were operated on the Denman, Klamath, Summer Lake, and Ladd Marsh Management Areas. Eight-week-old birds were brought to these areas and held for release during the hunting season.

Six hundred two chukars were raised for release on the Ladd Marsh Management Area during the hunting season, and 294 for restocking depleted ranges in Lake County. Hatching and rearing success were high at 87 and 98 percent, respectively.

A small breeding stock of Hungarian partridge is being maintained. Two hundred twenty-eight birds (61 percent) were hatched from settings of 372 eggs and 138 ( 61 percent) of the birds raised. All of the 208 birds liberated were planted in Union County.

A greater effort was made to improve the production of bamboo partridges. A better egg ratio per hen was attained and a higher percentage of the hatched chicks ( 70 percent) was raised to maturity. Hatching success, however, remained very low. Releases of 253 birds were made at three sites just prior to the laying season. Ninety birds were liberated in the dunes north of Coos Bay, 90 in the dunes near Florence, and 73 in the Soap Creek area in Benton County.

The Kalij pheasant production was comparable with 1966, with low egg fertility being the principal limiting factor. Only 90 eggs hatched out of 365 incubated ( 25 percent), but 70 ( 78 percent) of the birds were raised. One experimental release of 27 birds was made in the Soap Creek area in early February 1968.

Production of Chilean tinamou was better than anticipated, with 37 percent of the 108 incubated eggs hatching and 30 of the birds raised.

Table 1
UPLAND GAME POPULATION TRENDS

| REGION | HABITAT | PIIEASANTS |  |  |  |  | VALLEY QUAILPE'H 100 ACRES |  |  |  | HUNGARIAN PARTRIDGEPER 100 ACRES |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | PER 100 ACRES |  |  |  | 1968 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | COCKS PER <br> 100 HENS |  |  |  |  |  |  |  |  |
|  |  | 1968 | 1967 | 1986 | 1965 |  | 1968 | 1967 | \$966 | 1965 | 1968 | 1967 | $\underline{1966}$ | 1965 |
| NORTHWEST | NO. WILLAMETTE | 12.7 | 9.6 | 11.5 | 22.8 | 46 | 11.7 | 5.1 | 7.0 | 7.1 | - | - | - | - |
|  | SO. WILLAMETTE | 13.5 | 12.9 | 8.5 | 30.0 | 88 | 4.4 | 5.1 | 2.8 | 3.4 | - | - | - | - |
| SOUTHWEST | ROGUE-UMPQUA | 12.1 | 11.1 | 11.3 | 14.7 | 128 | 23.2 | 24.0 | 23.4 | 28.2 | - | - | - | - |
| WESTERN OREGON |  | 12.8 | 11.2 | 10.3 | 23.1 | 80 | 12.6 | 10.7 | 9.7 | 11.5 | - | - | - | - |
| CENTRAL | COLUMBIA | 35.7 | 22.1 | 17.8 | 21.8 | 25 | 35.0 | 17.1 | 27.0 | 16.1 | 0.3 | - | 0.4 | 0.1 |
|  | UPPER DESCHUTES | 6.6 | 7.5 | 9.1 | 9.7 | 29 | 21.1 | 16.2 | 14.3 | 13.0 | 0.7 | 0.1 | 0.1 | 0.1 |
| NORTHEAST | BLUE MTN. VAlley | 5.8 | 5.2 | 15.6 | 16.6 | 46 | 8.8 | 4.4 | 7.8 | 11.1 | 0.1 | 0.5 | 0.2 | 1.0 |
|  | UMA TILLA-MORROW | 25.1 | 38.2 | 52.0 | 49.6 | 44 | 35.2 | 31.5 | 51.2 | 30.9 | 0.1 | 0.5 | 0.2 | 1.5 |
| SOUTHEAST | GREAT BASIN | 25.6 | 10.7 | 9.7 | 8.7 | 12 | 28.5 | 6.2 | 19.3 | 16.4 | - | - | - | - |
|  | MALHEUR | 38.9 | 71.0 | 69.1 | 69.8 | 17 | 30.4 | 25.9 | 22.5 | 42.7 | 0.3 | 0.3 | - | 0.5 |
| EASTERN OREGON |  | 24.2 | 23.8 | 27.9 | 27.3 | 26 | 24.7 | 16.5 | 23.0 | 19.0 | 0.3 | 0.3 | 0.2 | 0.6 |
| STATE TOTALS |  | 19.9 | 19.5 | 22.3 | 25.9 | 38 | 20.1 | 14.5 | 18.7 | 16.6 | 0.3 | 0.3 | 0.2 | 0.6 |

Table 2
Summary 1968 UPLAND GAME SPRING POPULATION INVENTORY

| Region | $\begin{gathered} \text { Game } \\ \text { District } \\ \hline \end{gathered}$ | Samples |  | PHEASANTS |  |  |  |  | Valley quail |  | BOBWHITE QUALL |  | HUNGARIAN PARTRIDGE |  | CHUKAR <br> PARTRIDGE |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  | Per 100 |  | $\text { P'er } 100$ |  | Per 100 |  | Per 100 |  | Per foo |
|  |  | No. | Acres | Cocks | Hens | Uncl. | Total | Acres | No. | Acres | No. | Acres | No. | Acres | No. | Acres |
| Northwest | $t$ NW Willamette | 9 | 534 | 29 | 38 | 9 | 76 | 14.2 | 24 | 4.5 |  |  |  |  |  |  |
|  | No. Willamette | 21 | 1,206 | 25 | 79 | 41 | 145 | 12.0 | 179 | 14.8 |  |  |  |  |  |  |
|  | Mid-Willamette | 17 | 1,116 | 68 | 75 | 26 | 169 | 15.1 | 75 | 6.7 |  |  |  |  |  |  |
|  | Lane | 9 | 576 | 27 | 33 | - | 60 | 10.4 | - | - |  |  |  |  |  |  |
| Southwest | $t$ Douglas | 14 | 840 | 44 | 24 | - | 68 | 8.1 | 272 | 32.4 |  |  |  |  |  |  |
|  | Southwest | 10 | 600 | 39 | 41 | 26 | 106 | 17.7 | 62 | 10.3 |  |  |  |  |  |  |
| WESTERN OREGON |  | 80 | 4,872 | 232 | 290 | 102 | 624 | 12.8 | 612 | 12.6 |  |  |  |  |  |  |
| Central | Columbia | 13 | 1,522 | 99 | 400 | 45 | 544 | 35.7 | 532 | 35.0 |  |  | 4 | 0.3 |  |  |
|  | Ochoco | 12 | 952 | 16 | 67 | - | 83 | 8.7 | 271 | 28.5 |  |  | 10 | 1.1 |  |  |
|  | Deschutes | 7 | 420 | 4 | 3 | - | 7 | 1.7 | 18 | 4.3 |  |  |  |  |  |  |
| Northeast | $t$ Heppner | 9 | 645 | 39 | 53 | 7 | 119 | 18.4 | 278 | 43.1 |  |  |  |  | 5 | 0.8 |
|  | Umatilla | 13 | 780 | 34 | 113 | 351 | 498 | 63.8 | 223 | 28.6 |  |  | 1 | 0.1 | 4 | 0.5 |
|  | Northeast | 26 | 1,800 | 37 | 84 | - | 121 | 6.7 | - | - |  |  |  |  |  |  |
|  | Grant | 5 | 335 | 2 | - | - | 2 | 0.6 | 187 | 55.8 |  |  | 2 | 0.6 |  |  |
| Southeast | $t$ Lake | 5 | 375 | 10 | 86 | - | 96 | 25.6 | 107 | 28.5 |  |  |  |  |  |  |
|  | Malheur | 20 | 1,212 | 51 | 297 | 124 | 472 | 38.9 | 368 | 30.4 | 6 | 0.5 | 4 | 0.3 |  |  |
| EASTERN OREGON |  | 110 | 8,041 | 292 | 1,103 | 527 | 1,942 | 24.2 | 1,984 | 24.7 | 6 | 0.1 | 21 | 0.3 | 9 | 0.1 |
| State tota | Tals | 190 | 12,913 | 524 | 1,393 | 629 | 2,566 | 19.9 | 2,596 | 20.1 | 6 | 0.1 | 21 | 0.3 | 9 | 0.1 |

Table 3
E. E. WILSON UPLAND GAME POPULATION TRENDS

| Year | Pheasants |  |  | Valley Quail |  | Bobwhite Quail |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Per | 100 Acres | Cock-Hen Ratio | Per | 100 Acres | Per | 100 Acres |
| 1953 |  | 173.7 | 133: 100 |  | 19.5 |  | 48.5 |
| 1954 |  | 142.0 | 70:100 |  | 7.7 |  | 34.0 |
| 1955 |  | 169.0 | 80:100 |  | 21.2 |  | 22.0 |
| 1956 |  | 70.3 | 40:100 |  | - |  | - |
| 1957 |  | 70.0 | 71:100 |  | 5.0 |  | 3.7 |
| 1958 |  | 129.0 | 90:100 |  | 3.2 |  | 3.5 |
| 1959 |  | 148.5 | 99:100 |  | 8.2 |  | 4.7 |
| 1960 |  | 98.9 | 91:100 |  | 5.3 |  | 0.0 |
| 1961 |  | 148.9 | 57:100 |  | 22.8 |  | 2.1 |
| 1962 |  | 103.0 | 74:100 |  | 4.3 |  | 0.0 |
| 1963 |  | 136.7 | 43:100 |  | 6.9 |  | 0.0 |
| 1964 |  | 69.7 | 44:100 |  | 0.0 |  | 0.0 |
| 1965 |  | 73.4 | 34:100 |  | 13.8 |  | 0.0 |
| 1966 |  | 47.8 | 59:100 |  | 0.0 |  | 0.0 |
| 1967 |  | 43.1 | 29:100 |  | 0.0 |  | 0.0 |
| 1968 |  | 47.8 | 64:100 |  | 12.7 |  | 0.0 |



Table 4
PHEASANT CROWING COUNTS

| Area | County | No. of Samples | Av. Calls Heard per Stop |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1968 | 1967 | 1966 | 1965 |
| NO. WILLAMETTE | Clackamas | 2 | 12.3 | 11.8 | 11.1 | - |
|  | Marion | 2 | 7.3 | 6.3 | 8.2 | 16.3 |
|  | Polk | 2 | 15.9 | 17.6 | 10.8 | 8.4 |
|  | Yamhill | 2 | 15.7 | 15.4 | 16.6 | 15.3 |
| SO. WILLAMETte | Benton | 1 | 8.5 | 14.2 | 7.2 | 15.4 |
|  | Lane | 1 | 11.5 | 13.2 | 14.1 | 13.5 |
|  | Linn | 2 | 8.2 | 6.3 | 5.9 | 11.6 |
| ROGUE-UMPQUA | Douglas | 9 | 2.0 | 3.4 | 3.1 | 3.2 |
|  | Jackson | 2 | 18.6 | 15.6 | 18.1 | 16.4 |
|  | Josephine | 1 | 4.1 | 5.2 | 3.8 | 3.6 |
| WESTERN OREGON |  | 24 | 8.3 | 8.9 | 8.1 | 8.6 |
| COLUMBIA | Hood River | 1 | 3.0 | 2.7 | 2.4 | 2.7 |
|  | Jefferson | 1 | 1.9 | 1.6 | 2.6 | 2.4 |
|  | Sherman | 1 | 4.5 | 3.2 | 2.0 | 2.4 |
|  | wasco | 2 | 2.8 | 4.1 | 2.8 | 3.7 |
| UPPER DESCHUTES | Crook | 1 | 2.2 | 2.0 | 3.5 | 3.5 |
|  | Deschutes | 1 | 0.3 | 0.4 | 1.2 | 1.2 |
| BLUE MTN. VALley | Baker | 5 | 5.9 | 5.0 | 9.5 | 12.7 |
|  | Grant | 1 | 2.6 | 7.0 | 6.1 | 10.6 |
|  | Union | 4 | 11.0 | 11.1 | 18.3 | 16.6 |
|  | wallowa | 3 | 5.0 | 2.9 | 3.2 | 2.1 |
| UMATILLA-MORROW | Morrow | 1 | 3.0 | 3.3 | 3.1 | 3.7 |
|  | Umatilla | 1 | 6.0 | 11.0 | 6.5 | 10.5 |
| Great basin | Harney | 1 | 0.3 | 0.4 | 0.8 | 0.5 |
|  | Lake | 3 | 1.8 | 2.0 | 2.0 | 1.8 |
| MALHEUR | Malheur | 3 | 5.9 | 6.5 | 5.3 | 7.6 |
| EASTERN OREGON |  | 29 | 4.9 | 4.8 | 6.1 | 7.0 |
| STATE AVERAGES |  | 53 | 6.4 | 6.6 | 6.9 | 7.6 |


1968 PHEASANT PRODUCTION INVENTORY

| District | $\begin{gathered} \text { Miles } \\ \text { Traveled } \end{gathered}$ | Total <br> Birds Observed | Birds per 10-Mile Sample |  |  | Hens |  | ```Chicks per Brood``` | Chicks per Hen |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | Number | \% With |  |  |  |  |
|  |  |  | 1968 | 1967 | 1966 | Observed | Broods |  | 1968 | 1967 | 1966 |
| NW Will. | 62 | 138 | 23 | 18 | 19 | 21 | 90 | 5.9 | $5 \cdot 3$ | 6.3 | 6.7 |
| N. Will. | 346 | 503 | - 15 | 12 | 13 | 57 | 95 | 7.5 | 7. 1 | 6.3 | 5.6 |
| Mid-will. | 228 | 173 | 8 | 12 | $9^{\circ}$ | 16 | 81 | 6.4 | 5.2 | 7.4 | 5.3 |
| Lane | 222 | 103 | 5 | 2 | 16 | 17 | 100 | 4.7 | 4.7 | 5.7 | $5 \cdot 3$ |
| NORTHWEST | 858 | 917 | 11 | . 10 | 13 | 111 | 93 | 6.5 | 6.0 | 6.6 | 5.5 |
| Umpqua | 200 | 58 | 3 | 4 | 7 | 10 | 80 | 6.5 | 5.2 | 5.4 | 5.6 |
| Rogue | 195 | 459 | 24 | 21 | 18 | 61 | 72 | 5.6 | 4.0 | 4.1 | 3.1 |
| SOUTHWEST | 395 | 517 | 13 | 12 | 12 | 71 | 73 | 5.7 | 4.2 | 4.4 | 3.8 |
| WESTERN OREGON | 1,253 | 1,434 | 11 | 11 | 13 | 182 | 85 | 6.2 | 5.3 | 5.6 | 4.8 |
| Columbia | 233 | 188 | 8 | 16 | 10 | 45 | 62 | 4.6 | 2.9 | 5.3 | 5.1 |
| Ochoco | 146 | 85 | 6 | 6 | 9 | 14 | 86 | 5.2 | 4.4 | 3.8 | 4.1 |
| CENTRAL | 379 | 273 | 7 | 9 | 7 | 59 | 68 | 4.8 | 3.3 | 4.8 | 4.6 |
| Umatilla | 256 | 394 | 15 | 29 | 28 | 97 | 69 | 3.7 | 2.6 | 4.6 | 4.4 |
| Morrow | 113 | 68 | 6 | 6 | 5 | 9 | 67 | 6.7 | 4.4 | 5.6 | 4.0 |
| Union | 87 | 158 | 18 | 32 | 29 | 25 | 100 | 5.6 | 5.6 | 4.5 | 4.5 |
| Baker | 132 | 120 | 9 | 6 | 21 | 17 | 65 | 8.0 | 5.2 | 4.0 | 3.3 |
| Grant | 70 | 87 | 12 | 7 | 8 | 7 | 86 | 4.8 | 4.1 | 7.0 | 3.6 |
| NORTHEAST | 658 | 827 | 13 | 19. | 20 | 155 | 74 | 5.1 | 3.8 | 4.7 | 4.1 |
| Lake | 103 | 93 | 9 | 8 | 9 | 15 | 87 | 4.9 | 4.3 | 4.6 | 3.9 |
| Malheur | 190 | 470 | 25 | 32 | 29 | 88 | 78 | 7.2 | 5.6 | 5.4 | 6.2 |
| SOUTHEAST | 293 | 563 | 19 | 23 | 22 | 103 | 80 | 6.5 | 5.2 | 5.2 | 5.9 |
| EASTERN OREGON | 1,330 | 1,663 | 13 | 16 | 16 | 317 | 75 | 5.4 | 4.0 | 5.0 | 4.6 |
| STATE TOTALS | 2,583 | 3,097 | 12 | 14 | 15 | 499 | 79 | 5.8 | 4.6 | 5.2 | 4.7 |

Table 6
MALHEUK COUNTY PHEASANT DAMAGE

| Year | Damage Complaints |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Corn | Grain | Beets | Other | Total |
| 1958 | 31 |  | 13 |  | 44 |
| 1959 | 45 | 8 | 14 |  | 67 |
| 1960 | 18 | 3 | 6 |  | 27 |
| 1961 | 10 | 3 | 2 |  | 15 |
| 1962 | 14 | 1 | 2 |  | 17 |
| 1963 | 24 | 11 | 9 |  | 44 |
| 1964 | 28 | 2 | 7 | 2 | 39 |
| 1965 | 23 | 8 | 2 |  | 33 |
| 1966 | 34 | 6 | 5 | 2 | 47 |
| 1967 | 20 | 6 | 5 | 2 | 33 |
| 1968 | 10 | 1 | 6 |  | 17 |


Table 7
1968 VALLEY QUAIL PRODUCTION INVENTORY

| District | Miles Traveled | Total Birds Observed | Birds per 10-Mile Sample |  |  | BirdsClassified |  | Chicks per Brood | Chicks per Adult |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1968 | 1967 | 1966 | Adults | Chicks |  | 1968 | 1967 | 1966 |
| NW Will. | 62 | 42 | 7 | 21 | 1 | 20 | 22 | 7.3 | 1.1 | 6.3 | - |
| N. Wi11. | 346 | 410 | 12 | 14 | 6 | 146 | 267 | 13.1 | 1.8 | 2.1 | 4.0 |
| Mid-Will. | 228 | 150 | 7 | 25 | 13 | 8 | 27 | 9.0 | 3.4 | 4.9 | 4.0 |
| Lane | 222 | 73 | 3 | 6 | 3 | 19 | 50 | 8.3 | 2.6 | 1.6 | 2.1 |
| NORTHWEST | 858 | 675 | 8 | 16 | 7 | 193 | 366 | 10.6 | 1.9 | 3.0 | 3.1 |
| Umpqua | 200 | 189 | 9 | 15 | 9 | 16 | 64 | 11.8 | 4.0 | 4.9 | 6.2 |
| Rogue | 195 | 291 | 15 | 7 | 10 | 74 | 166 | 9.8 | 2.2 | 1.4 | 1.5 |
| SOUTHWEST | 395 | 480 | 12 | 11 | 10 | 90 | 230 | 10.5 | 2.6 | 3.3 | 2.9 |
| WESTERN OREGON | 1,253 | 1,155 | 9 | 14 | 8 | 283 | 596 | 10.5 | 2.1 | 3.1 | 3.0 |
| Columbia | 367 | 679 | 19 | 20 | 14 | 149 | 368 | 9.4 | 2.5 | 4.0 | 3.1 |
| Ochoco | 209 | 916 | 44 | 33 | 29 | 151 | 621 | 8.6 | 4.1 | 5.0 | 5.2 |
| Deschutes | 120 | 153 | 13 | 13 | 18 | 45 | 108 | 9.0 | 2.4 | 3.1 | 3.3 |
| Klamath | - | - | - | 2 | 6 | - | - | - | - | 3.0 | 2.4 |
| CENTRAL | 696 | 1,748 | 25 | 20 | 17 | 345 | 1,097 | 9.1 | 3.2 | 4.2 | 3.8 |
| Umatilla | 256 | 215 | 8 | 13 | 8 | 81 | 134 | 5.1 | 1.7 | 3.3 | 3.7 |
| Morrow-Gilliam | 149 | 490 | 33 | 18 | 15 | 94 | 364 | 10.4 | 3.9 | $3 \cdot 7$ | 3.7 |
| Wallowa | 363 | 321 | 9 | 5 | 4 | 38 | 203 | 12.7 | 5.3 | 6.2 | 3.3 |
| Union | 87 | 43 | 5 | 6 | 6 | 15 | 28 | 11.5 | 1.9 | 5.7 | 7.4 |
| Baker | 232 | 184 | 8 | 1 | 11 | 43 | 81 | 13.5 | 1.9 | 2.3 | 2.4 |
| Grant | 209 | 910 | 44 | 29 | 16 | 234 | 436 | 8.2 | 1.9 | 3.1 | 3.6 |
| NORTHEAST | 1,296 | 2,163 | 17 | 11 | 9 | 505 | 1,246 | 9.6 | 2.5 | 3.5 | 3.4 |
| Lake | 97 | 478 | 49 | 27 | 58 | 91 | 381 | 8.9 | 4.2 | 3.7 | 4.7 |
| Harney | 375 | 230 | 6 | 3 | 1 | 31 | 199 | 12.5 | 6.4 | 6.8 | 6.4 |
| Malheur | $330^{\circ}$ | 1,328 | 40 | 34 | 26 | 237 | 1.091 | 12.9 | 4.6 | 5.3 | 4.8 |
| SOUTHEAST | 802 | 2,036 | 25 | 17 | 18 | 359 | 1,671 | 11.0 | 4.7 | 5.0 | 4.8 |
| EASTERN OREGON | 2,794 | 5,947 | 21 | 15 | 13 | 1,209 | 4,014 | 9.8 | $3 \cdot 3$ | 4.2 | 4.0 |
| STATE TOTALS | 4,047 | 7,102 | 18 | 15 | 12 | 1,492 | 4,610 | 9.9 | 3.1 | 3.8 | 3.8 |

Table 8
1968 MOUNTAIN QUAIL PRODUCTION INVENTORY

| District | Miles Traveled | Total <br> Birds <br> Observed | Birds per 10-Mile Sample |  |  | Birds Classified |  |  | Chicks per Brood | Chicks per Adult |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1968 | 1967 | 1966 | Adults | Chicks | Total |  | 1968 | 1967 | 1966 |
| N. Coast | 669 | 218 | 3 | 3 | 2 | 42 | 176 | 218 | 8.8 | 4.2 | 4.6 | 4.2 |
| NW Will. | 105 | 25 | 2 | 5 | 4 | 4 | 21 | 25 | 5.3 | 5.3 | 3.4 | 5.0 |
| N. Will. | 346 | 3 | - | 2 | - | 1 | 8 | 9 | 5 | 3.0 | 5.5 | 4.0 |
| Mid-Will. | 113 | 9 | 1 | 2 | 1 | - | - | - | - | - | 3.6 | 5.2 |
| Lane | 136 | 145 | 11 | 3 | 0 | 19 | 113 | 132 | 12.6 | 5.9 | 3.0 | 5 |
| S. Coast | 100 | 257 | 26 | 9 | 5 | 30 | 197 | 227 | 13.1 | 6.6 | 4.5 | 2.8 |
| Umpqua | 100 | 100 | 10 | 8 | 9 | 11 | 82 | 93 | 7.5 | 4.6 | 5.9 | 6.1 |
| Rogue | 114 | 114 | 10 | 6 | 1 | 15 | 84 | 99 | 10.5 | 5.6 | 3.8 | 1.2 |
| WESTERN | 1,683 | 871 | 5 | 4 | 2 | 122 | 681 | 803 | 7.6 | 5.6 | 4.6 | 4.1 |
| Ochoco | 63 | 31 | 5 | 4 | 4 | 3 | 28 | 31 | 9.3 | 9.3 | 7.7 | 2.8 |
| Klamath | - | - | - | 12 | 18 | - | - | - | - | - | 2.9 | 7.5 |
| Wallowa | 363 | 228 | 6 | 1 | 1 | 30 | 169 | 199 | 9.5 | 5.6 | 7.0 | 2.8 |
| Grant | 10 | 57 | 57 | 24 | - | 9 | 42 | 51 | 8.4 | 4.7 | 5.0 | . |
| Union | 6 | 27 | 45 | - | - | 3 | 24 | 27 | 12.0 | 8.0 | 5. | _ |
| EASTERN | 442 | 343 | 8 | 2 | 2 | 45 | 263 | 308 | 9.5 | 5.6 | 4.8 | 3.2 |
| STATE TOTALS | 2,125 | 1,214 | 6 | 3 | 2 | 167 | 944 | 1,111 | 7.9 | $5 \cdot 7$ | 4.6 | 3.9 |

Table
CHUKAR AND HUNGARIAN PARTRIDGE OBSERVED ON BIG GAME SAMPLES

| District | Miles Traveled | CHUKAR PARTRIDGE |  |  |  |  | HUNGARIAN PARTRIDGE |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Birds per Mile |  |  |  | No. | Birds per Mile |  |  |  |
|  |  | No. | 1968 | 1967 | 1966 | 1965 |  | 1968 | 1967 | 1966 | 1965 |
| Morrow | 167 | 32 | .19 | .26 | .37 | .21 | - | . 12 | . 13 | .26 | .46 |
| Umatilla | 210 | 28 | . 13 | .03 | .09 | .15 | 8 | .04 | . 30 | .06 | .08 |
| Wallowa | - | - | - | .25 | .62 | .83 | - | - | .07 | .10 | .15 |
| Blue Mtn. | 360 | 208 | .58 | .46 | .77 | . 62 | 23 | .06 | .03 | .26 | . 17 |
| Grant | 112 | 16 | .14 | .02 | .04 | . 13 | 5 | .04 | . 02 | .00 | .00 |
| Harney | 207 | 13 | .06 | .03 | .06 | .48 | 0 | .00 | .00 | .00 | .00 |
| Malheur | 339 | 53 | .16 | .09 | .84 | 1.28 | 0 | .00 | .00 | .00 | .00 |
| TOTALS | 1,395 | 350 | .25 | . 18 | .41 | . 55 | 36 | .03 | .06 | .11 | . 12 |


Table 10
1968 CHUKAR PARTRIDGE PRODUCTION INVENTORY

| District | M1Ies <br> Traveled | Total <br> Birds Observed | Birds per 10-Mile Sample |  |  | Birds | Classified |  | Chicks per Brood | Chicks per Adult |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1968 | 1967 | 1966 |  | Chicks | Total |  | 1968 | 1967 | 1966 |
| Columbia | 134 | 285 | 21 | 38 | 29 | 86 | 94 | 180 | 9.4 | 1. 1 | 3.6 | 2.9 |
| Ochoco | 63 | 196 | 31 | 38 | 20 | 60 | 96 | 156 | 6.5 | 1.6 | 3.0 | 2.0 |
| CENTRAL | 197 | 481 | 24 | 38 | 26 | 146 | 190 | 336 | 8.1 | 1.3 | 3.3 | 2.6 |
| Umatilla | 182 | 230 | 13 | 20 | 11 | 46 | 184 | 230 | 9.0 | 4.0 | 6.7 | 3.4 |
| Morrow- |  |  |  |  |  |  |  |  |  |  |  |  |
| Gilliam | 149 | 385 | 26 | 20 | 12 | 95 | 206 | 301 | 7.6 | 2.2 | 4.9 | 1.9 |
| Wallowa | 193 | 903 | 47 | 25 | 11 | 167 | 541 | 708 | 13.9 | 3.2 | 6.3 | 4.7 |
| Baker | 100 | 656 | 66 | 37 | 87 | 120 | 207 | 327 | 11.5 | 1.7 | 2.5 | 3.9 |
| Grant | 195 | 762 | 39 | 15 | 11 | 77 | 498 | 575 | 9.7 | 6.5 | 6.3 | 3.9 |
| NORTHEAST | 819 | 2,936 | 36 | 22 | 17 | 505 | 1,636 | 2,141 | 11.6 | 3.2 | 5.1 | $3 \cdot 7$ |
| Lake | 264 | 39 | 1 | 0 | 0 | 7 | 32 | 39 | 8.0 | 4.6 | - | - |
| Harney | 375 | 303 | 8 | 4 | 4 | 51 | 252 | 303 | 14.8 | 4.9 | 8. 1 | 1.5 |
| Malheur | 140 | 2,377 | 170 | 75 | 179 | 540 | 1,837 | 2,377 | 13.3 | 3.4 | 5.3 | 4.1 |
| SOUTHEAST | 779 | 2,719 | 35 | 12 | 32 | 598 | 2,121 | 2,719 | 13.3 | 3.5 | 5.6 | 3.8 |
| STATE TOTALS | 1,795 | 6,136 | 34 | 20 | 23 | 1,249 | 3.947 | 5,196 | 12. 1 | 3.2 | 4.8 | 3.6 |


Table 12
GROUSE AND MOUNTAIN QUAIL TRENDS IN EASTERN OREGON

| District | Miles <br> Traveled | BLUE GROUSE |  |  |  | RUFFED GROUSE |  |  |  | MOUNTAIN QUAIL |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Birds per Mile |  |  |  | Birds per Mile |  |  |  | Birds per Mile |  |  |  |
|  |  | No. | 1968 | 1967 | 1966 | No. | 1968 | 1967 | 1966 | No. | 1968 | 1967 | 1966 |
| Lower Deschutes | 63 | 26 | . 41 | . 00 | . 02 | 0 | . 00 | . 03 | . 00 | 0 | . 00 | . 03 | . 09 |
| Klamath | - | - | - | . 00 | . 00 | - | - | . 00 | . 00 | - | - | . 46 | . 49 |
| CENTRAL | 63 | 26 | . 41 | . 00 | .01 | 0 | . 00 | . 01 | . 00 | 0 | . 00 | . 32 | . 25 |
| Morrow | 167 | 2 | . 01 | . 00 | . 01 | 0 | . 00 | . 00 | . 00 | 0 | . 00 | . 00 | . 00 |
| Umatilla | 210 | 23 | . 11 | . 05 | . 17 | 9 | . 05 | . 05 | . 03 | 0 | . 00 | . 00 | . 00 |
| Wallowa | - | - | - | . 08 | . 46 | - | - | . 02 | . 03 | - | - | . 00 | . 00 |
| Blue Mountain | 360 | 19 | . 05 | . 11 | . 12 | 1 | Tr. | . 00 | . 01 | 0 | . 00 | . 00 | . 00 |
| Grant | 21 | 1 | . 05 | . 05 | . 00 | 1 | . 05 | . 00 | . 00 | 0 | . 00 | . 00 | . 00 |
| NORTHEAST | 758 | 45 | . 59 | . 71 | . 20 | 11 | . 01 | . 01 | . 02 | $\bigcirc$ | . 00 | . 00 | . 00 |
| TOTALS AND | 821 | 71 |  |  |  | 11 |  |  |  | 0 |  |  |  |
| AVERAGES |  |  | . 09 | . 06 | . 19 |  | . 01 | . 01 | . 02 |  | . 00 | . 06 | . 02 |


Table 13
GROUSE AND MOUNTAIN QUAIL TRENDS IN WESTERN OREGON

| District | Miles Traveled | BLUE GROUSE |  |  |  | RUFFED GROUSE |  |  |  | MOUNTAIN QUAIL |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Birds per Mile |  |  |  | Birds per Mile |  |  |  | Birds per Mile |  |  |  |
|  |  | No. | 1968 | 1967 | 1966 | No. | 1968 | 1967 | 1966 | No. | 1968 | 1967 | 1966 |
| No. Coast | 124 | 94 | . 76 | . 28 | .15 | 65 | . 52 | .14 | . 14 | 121 | . 97 | . 19 | . 06 |
| NW Willamette | 11 | 0 | . 00 | . 00 | .09 | 2 | . 18 | . 10 | .09 | 6 | . 55 | .40 | . 00 |
| No. Willamette | - | - | - | . 00 | .13 | - | - | . 00 | . 00 | - | - | . 11 | . 00 |
| Mid-Willamette | - | - | - | . 17 | .05 | - | - | .05 | . 08 | - | - | .37 | .43 |
| Lane | 30 | 5 | .17 | . 90 | . 18 | 5 | . 17 | .27 | . 09 | 14 | .47 | . 70 | . 36 |
| NORTHWEST | 165 | 99 | .60 | .30 | . 12 | 72 | . 44 | . 12 | . 10 | 141 | . 85 | . 30 | . 18 |
| So. Coast | - | - | - | . 19 | . 04 | - | - | . 00 | .00 | - | - | . 36 | . 23 |
| Rogue | 112 | 3 | . 03 | .03 | .01 | 0 | .00 | . 00 | .00 | 37 | . 33 | . 24 | . 39 |
| SOUTHWEST | 112 | 3 | . 03 | . 08 | . 02 | 0 | . 00 | . 00 | . 00 | 37 | . 33 | . 28 | . 32 |
| TOTALS AND | 277 | 102 |  |  |  | 72 |  |  |  | 178 |  |  |  |
| AVERAGES |  |  | . 37 | .21 | . 08 |  | .26 | .07 | .06 |  | . 64 | . 29 | . 24 |

Table 14
GROUSE HOOTING AND DRUMMING COUNTS

| District | Miles Traveled | BLUE GHOUSE |  |  |  |  | RUFFFED GROUSE |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Total | Averase Heard per Mile |  |  |  | Total lleard | Average Heard per |  |  | Mile |
|  |  | Heard | 1968 | 1967 | 1966 | 1965 |  | 1968 | 1967 | 1966 | 1965 |
| No. Coast | 40 | 38 | .95 | . 80 | .55 | .45 | 21 | . 53 | .48 | . 40 | . 33 |
| Nw Willamette | 55 | 16 | .29 | . 25 | .73 | .94 | 5 | .08 | .33 | .11 | .21 |
| No. Willamette | 32 | - 27 | .84 | .26 | . 28 | .73 | 0 | .00 | .00 | .00 | .00 |
| Mid-Willamette | - | - | $\cdots$ | .14 | . 05 | . 02 | - | - | .05 | .02 | .02 |
| Lane | 50 | 17 | .34 | - | - | - | 0 | .00 | - | - | - |
| Umpqua | 80 | 97 | 1.21 | 1.04 | .00 | 1.30 | 0 | . 00 | . 00 | . 00 | . 00 |
| Deschutes | 27 | 64 | 2.37 | - | - | - | 0 | . 00 | - | - | - |
| TOTALS | 284 | 259 | .91 | .53 | . 23 | . 48 | 26 | . 09 | . 13 | . 08 | . 09 |


Table 15
1968 BLUE GROUSE PRODUCTION INVENTORY

| District | Miles Traveled | $\begin{gathered} \text { Total } \\ \text { Birds } \\ \text { Observed } \end{gathered}$ | Birds per 10-Mile Sample |  |  | Birds Classified |  |  | ```Chicks per Brood``` | Chicks per Adult |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1968 | 1967 | 1966 | Adults | Chicks | Total |  | 1968 | 1967 | 1966 |
| N. Coast | 669 | 117 | 2 | 2 | 2 | 53 | 64 | 117 | 3.0 | 1.2 | 2.4 | 2.4 |
| NW Will. | 105 | 3 | - | 2 | 3 | 2 | 1 | 3 | 1.0 | 0.5 | 2.3 | 3.0 |
| N. Will. | 205 | 27 | 1 | 1 | - | 11 | 16 | 29 | - | 1.4 | 2.8 | 5.0 |
| Mid-Will. | 113 | 9 | 1 | 5 | - | - | - | - | - | - | 2.1 | 0.5 |
| Lane | 136 | 36 | 3 | 7 | 5 | 18 | 18 | 36 | 3.0 | 1.0 | 1.9 | 1.8 |
| S. Coast | 100 | 73 | 7 | 2 | 1 | 11 | 58 | 69 | 6.4 | 5.3 | 2.0 | 3.5 |
| Umpqua | 100 | 18 | 2 | 4 | 10 | 3 | 15 | 18 | 5.0 | 5.0 | 4.1 | 7.9 |
| WESTERN | 1,428 | 283 | 2 | 3 | 2 | 98 | 172 | 272 | 3.9 | 1.8 | 2.4 | 2.7 |
| Umatilla | 17 | 0 | - | 15 | 10 | - | - | - | - | - | 2.1 | 1.0 |
| Union | 23 | 25 | 10 | 3 | 5 | 6 | 15 | 21 | 5.5 | 2.5 | - | 1.6 |
| Wallowa | 253 | 98 | 4 | 3 | 2 | 43 | 55 | 98 | 3.1 | 1.3 | 2.9 | 1.9 |
| Grant | 60 | 32 | 5 | 2 | - | 13 | 19 | 32 | 3.8 | 1.5 | - | - |
| EASTERN | 353 | 155 | 4 | 3 | 2 | 62 | 89 | 151 | 3.5 | 1.4 | 2.7 | 1.7 |
| STATE TOTALS | 1,781 | 438 | 2 | 3 | 2 | 160 | 261 | 423 | 3.7 | 1.6 | 2.5 | 2.2 |

Table 16
1968 RUFFED GROUSE PRODUCTION INVENTORY

| District | $\begin{gathered} \text { Miles } \\ \text { Traveled } \end{gathered}$ | Total <br> Birds <br> Observed | Birds per 10-Mile Sample |  |  | Birds Classified |  |  | ```Ghicks per Brood``` | Chicks per Adult |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1968 | 1967 | 1966 | Adults | Chicks | Total |  | 1968 | 1967 | 1966 |
| N, Coast | 669 | 76 | 1 | 2 | 2 | 27 | 49 | 76 | 3. 1 | 1.8 | 2.8 | 4.2 |
| NW Will. | 105 | 1 | - | 0 | - | 1 | - | 1 | 3. | - | - | - |
| N. Will. | 205 | 3 | - | - | - | 1 | 2 | 3 | 2.0 | 2.0 | - | - |
| Mid-Wi11. | 113 | 1 | - | 0 | 0 | 1 | - | 1 | - | - | _ |  |
| Lane | 136 | 14 | 1 | 1 | 0 | 2 | 12 | 14 | 6.0 | 6.0 | 6.0 | - |
| S. Coast | 100 | 6 | 1 | - | - | 1 | 5 | 6 | 5.0 | 5.0 | . | - |
| Umpqua | 100 | 0 | - | - | 4 | - | 5 | - | S. | 5. | _ | 5.0 |
| WESTERN | 1.428 | 101 | - | - | - | 33 | 68 | 101 | 3.4 | 2.1 | 2.9 | 4.2 |
| Wallowa | 253 | 13 | 1 | - | 1 | 3 | 9 | 12 | 3.0 | 3.0 | 3.0 | 2.5 |
| Grant | 20 | 13 | 7 | 4 | - | 3 | 10 | 13 | 5.0 | 3.3 | 6.0 | 2. |
| EASTERN | 273 | 26 | 1 | - | 1 | 6 | 19 | 25 | 3.8 | 3.2 | 3.6 | 2.3 |
| STATE TOTALS | 1,701 | 127 | - | - | - | 39 | 87 | 126 | 2.4 | 2.2 | 3.0 | $3 \cdot 5$ |



Table 18
1968 SAGE GROUSE PRODUCTION INVENTORY

| District | Miles <br> Traveled | Total Birds Observed | Birds per 10-Mile Sample |  |  | Birds Classified |  |  | Chicks per Brood | Chicks per Adult |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1968 | 1967 | 1966 | Adults | Chicks | Total |  | 1968 | 1967 | 1966 |
| Crook | 15 | 60 | 40 | 54 | 59 | 17 | 33 | 50 | 2.8 | 1.9 | 1.9 | 0.6 |
| Deschutes | 65 | 7 | 1 | 7 | 3 | 4 | 3 | 7 | 3.0 | 0.8 | 1.2 | 1.2 |
| Lake | 153 | 164 | 11 | 4 | 11 | 78 | 35 | 113 | 4.4 | 0.4 | 0.8 | 0.7 |
| Harney | 375 | 263 | 7 | 3 | 6 | 90 | 173 | 263 | 3.8 | 1.9 | 0.5 | 0.3 |
| Malheur | 95 | 1,257 | 132 | 23 | 82 | 856 | 333 | 1,189 | 5.6 | 0.4 | 1.9 | 1.1 |
| STATE TOTALS | 703 | 1,751 | 25 | 8 | 20 | 1,045 | 577 | 1,622 | 4.5 | 0.6 | 1.2 | 0.8 |



Table 19
AUGUST MOURNING DOVE ROADSIDE COUNT TRENDS

| Habitat Area | Miles Traveled | Doves Seen | Doves per Mile |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1968 | 1967 | 1966 | 1965 |
| North Willamette | 407 | 532 | 1.3 | 1.6 | 1.9 | 1.0 |
| South Willamette | 288 | 513 | 1.8 | 2.0 | 2.2 | 2.0 |
| Rogue | 195 | 1,178 | 6.0 | 5.5 | 3.8 | 2.6 |
| Lower Deschutes | 278 | 946 | 3.4 | 1.7 | 2.4 | 2.4 |
| Upper Deschutes | 200 | 563 | 2.8 | 4.7 | $7 \cdot 6$ | 10.2 |
| Klamath | - | - | - | 0.1 | 0.7 | 0.6 |
| Columbia Basin | 138 | 296 | 2.1 | 2.4 | 3.0 | 3. 1 |
| Blue Mtn. Valley | - | - | - | 1.2 | 0.8 | 0.9 |
| Great Basin | 150 | 119 | 0.8 | 2.0 | 3.7 | 3.0 |
| TOTALS | 1,656 | 4,147 | 2.5 | 2.3 | 2.7 | 2.8 |



Table 20
MOURNING DOVE SPRING QUADRAT COUNT TRENDS

| Region | Doves per 100 Acres |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1968 | 1967 | 1966 | 1965 | 1964 | 1963 | 1962 | 1961 |
| Willamette Valley | 15.7 | 22.4 | 3.8 | 23.3 | 12.5 | 5.0 | 10.5 | 8.0 |
| Rogue R. Valley | 26.0 | 27.8 | 20.2 | 15.5 | 32.0 | 4.3 | 10.7 | 22.2 |
| Douglas County | 11.0 | - | - | - | - | - | - | - |
| Ochoco District | 2.9 | - | - | - | - | - | - | - |



Table 21
MOURNING DOVE CALL COUNT TRENDS

| Year | Routes | Miles <br> Traveled | Doves Heard <br> Per Mile | Doves Seen <br> Per Mile |
| :--- | :---: | :---: | :---: | :---: |
| 1953 | 7 | 140 | 1.65 | 0.93 |
| 1954 | 14 | 280 | 1.40 | 1.06 |
| 1955 | 15 | 300 | 1.57 | 1.55 |
| 1956 | 17 | 340 | 1.46 | 1.69 |
| 1957 | 17 | 340 | 1.67 | 0.87 |
| 1958 | 17 | 340 | 1.47 | 1.39 |
| 1959 | 18 | 360 | 1.98 | 2.16 |
| 1960 | 18 | 360 | 1.87 | 1.47 |
| 1961 | 18 | 360 | 2.07 | 1.37 |
| 1962 | 20 | 320 | 1.76 | 1.16 |
| 1963 | 18 | 360 | 1.68 | 1.44 |
| $1964 *$ | 18 | 360 | 0.89 | 1.45 |
| 1965 | 18 | 360 | 0.61 | 0.46 |
| 1966 | 1867 | 18 |  | 0.84 |
| 1968 | 18 |  | 0.84 | 0.71 |

*Randomized routes established in 1964.


```
Table 22
BAND-TAILED PIGEON TRENDS
```

| County | Area | Pigeons Counted |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1968 | 1967 | 1966 | 1965 |
| Benton | Pigeon Butte | 246 | 44 | 150 | 502 |
|  | Long Tom | - | 92 | - | - |
| Columbia | Dutch Canyon | 603 | 632 | 374 | 257 |
|  | Canyon Creek | 282 | 114 | - | - |
|  | St. Helens | 423 | 485 | - | - |
| Coos | Blueslide | 902 | - | - | - |
|  | Isthmus Slough | 485 | 172 | 315 | 454 |
|  | Parkerburg | 901 | - | - | - |
| Douglas | Hudson Slough | 988 | 870 | - | 949 |
|  | Canton Creek | 181 | 368 | 285 | 507 |
| Lane | Cushman | 230 | 405 | 678 | 573 |
|  | Cheshire | 382 | 131 | - | - |
|  | Fall Creek | 670 | - | - | - |
| Lincoln | Drift Creek | - | 1,412 | - | - |
| Linn | Crawfordsville | 333 | 274 | 746 | 708 |
| Marion | Aurora | 122 | 106 | 179 | 376 |
| Polk | Grande Ronde | 318 | 104 | 113 | 300 |
| Tillamook | Nehalem | 703 | 752 | 712 | 617 |
| Yamhill | Silver Springs | 252 | 144 | 208 | 262 |
|  | Fairdale | 268 | 105 | 102 | - |
| TOTALS |  | 8,289 | 6,210 | 3,862 | 5,581 |

Table 23
1967 GAME BIRD SEASONS

| Species | Hunters | Kill | $\begin{array}{c}\text { Days } \\ \text { Hunted }\end{array}$ | $\begin{array}{c}\text { Birds } \\ \text { per } \\ \text { Hunter }\end{array}$ | $\begin{array}{c}\text { Birds } \\ \text { per }\end{array}$ | $\begin{array}{c}\text { Day } \\ \text { Days }\end{array}$ |
| :--- | ---: | ---: | ---: | :---: | :---: | :---: |
| per Hunter |  |  |  |  |  |  |$]$

Table 24

| YEAR | PHEASANTS |  | Quajl |  | $\begin{aligned} & \text { CHUKAR } \\ & \text { PARTRIDGE } \end{aligned}$ |  | HLH GARIAM: PARTRIDEGE |  | FOREST GROUSE |  | SAGE GROUSE |  | MOURNING <br> DOVES |  | BAND-TAILED PIGEON5 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | HINTTERS | K!LL | HUNTERS | KJLL | HUNTERS | KILL | HilNITFRS | XILL | HUNTERS | XJLL | HUNTERS | KILL | HINTERS | KILI | HERNTERS | KILL |
| 1951 | 83,920 | 237,037 | 12,777 | 75,373 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1952 | 82,145 | 244,791 | 21,903 | 107,105 |  |  |  |  | 24,400 | 40,504 |  | 18,788 |  |  |  |  |
| 1953 | 90,441. | 274,940 | 28,340 | 147,651 |  |  |  |  | 22,812 | 36,043 |  | 11,406 |  |  |  |  |
| 1954 | 94,699 | 292,527 | 29,950 | 149,352 |  |  |  | 24,858 | 19,120 | 32,886 |  |  |  |  |  |  |
| 1955 | 92,741 | 278,223 | 25,545 | 149,740 |  |  |  | 12,006 | 19,536 | 31,923 |  |  |  |  |  |  |
| 1956 | 83,206 | 226,320 | 25,472 | 115,643 |  | 3,820 |  | 12,226 | 21,636 | 36,780 |  |  |  |  |  |  |
| 1957 | 88,691 | 310,096 | 21,930 | 124,431 | 5,321 | 10,319 | 5,321 | 11,609 | 18,813 | 38,916 |  |  | 13,169 | 117,875 | 14,621 | 93,853 |
| 1958 | 102,789 | 477,075 | 38,470 | 280,345 | 15,809 | 91,558 | 11,172 | 45,190 | 27,315 | 73,510 | 7,374 | 21,284 | 16,870 | 158,474 | 20,278 | 122,226 |
| 1959 | 97,474 | 375,641 | 32,588 | 224,123 | 11,373 | 36,326 | 6,016 | 16,818 | 15,332 | 32,770 | 7,127 | 17,304 | 17,557 | 194,189 | 13,143 | 86,019 |
| 1960 | 94,599 | 351,656 | 30,670 | 190,873 | 9,442 | 37,683 | 5,543 | 16,765 | 17,208 | 36,586 |  |  | 14,893 | 173,108 | 13,096 | 86,956 |
| 1961 | 91,117 | 375,755 | 35,088 | 242,040 | 15,033 | 75,268 | 5,205 | 15,581 | 17,819 | 45,180 | 2,725 | 6,659 | 18,340 | 202,082 | 15,003 | 121,032 |
| 1962 | 82,430 | 329,481 | 29,037 | 129,894 | 19,029 | 124,727 | 5,604 | 16,552 | 14,380 | 29,194 | 3,541 | 10,571 | 16,566 | 164,116 | 14,133 | 121,446 |
| 1963 | 84,024 | 374,243 | 31,460 | 265,491 | 28,299 | 295,243 | 8,885 | 36,535 | 13,944 | 34,553 | 1,913 | 4,117 | 16,542 | 184,030 | 11,997 | 90,505 |
| 1964 | 81,722 | 336,846 | 31,213 | 230,875 | 25,572 | 194,530 | 7,744 | 26,334 | 12,351 | 27,313 | 3,718 | 8,669 | 17,320 | 208,513 | 12,460 | 103,885 |
| 1965 | 75,373 | 254,575 | 26,383 | 168,274 | 19,653 | 130,132 | 6,021 | 17,288 |  |  |  |  | 16,205 | 163,064 | 12,597 | 105,173 |
| 1966 | 72,133 | 243,436 | 26,171 | 158,585 | 16,554 | 115,151 | 5,122 | 15,907 | 7,725 | 16,836 | 2,234 | 3,731 | 16,370 | 196,797 | 12,415 | 121,069 |
| 1967 | 72,135 | 263,316 | 34,512 | 250,988 | 16,483 | 81,766 | 4,339 | 10,365 | 12,746 | 37,412 |  |  | 16,617 | 172,429 | 9,862 | 82,212 |

Table 25
1967 PHEASANT KILL

| Habitat Area | Hunters | Ki11 | Days Hunted | Square Miles of Habitat | ```irds Killed per Square Mile``` |
| :---: | :---: | :---: | :---: | :---: | :---: |
| North Willamette | 23,003 | 61,239 | 112,727 | 1,525 | 40.2 |
| South Willamette | 10,374 | 23,580 | 46,916 | 909 | 25.9 |
| NORTHWEST | 33.377 | 84,819 | 159,643 | 2,434 | 34.8 |
| Umpqua | 1,479 | 2,573 | 5,207 | 331 | 7.8 |
| Rogue | 4,508 | 11,258 | 21,697 | 236 | 47.7 |
| SOUTHWEST | 5,987 | 13,831 | 26,904 | 567 | 24.4 |
| Lower Deschutes | 3.927 | 12,297 | 17,234 | 859 | 14.3 |
| Upper Deschutes | 3,078 | 10,070 | 13,316 | 344 | 29.3 |
| Klamath | 2,594 | 6,681 | 13,316 | 289 | 23.1 |
| CENTRAL | 9,599 | 29,048 | 43,866 | 1,492 | 19.5 |
| Columbia Basin | 6,957 | 33,602 | 33,551 | 1,999 | 16.8 |
| Blue Mountain | 5,478 | 22,071 | 22,987 | 739 | 29.9 |
| NORTHEAST | 12,435 | 55,673 | 56,538 | 2,738 | 20.3 |
| Malheur | 9,065 | 75,219 | 48,082 | 330 | 227.9 |
| Great Basin | 1,672 | 4,726 | 6,075 | 537 | 8.8 |
| SOUTHEAST | 10,737 | 79,945 | 54,157 | 867 | 92.2 |
| STATE TOTALS | 72, 135 | 263,316 | 341,108 | 8,098 | 32.5 |

Table 26
1967 QUAIL KILL

| Habitat Area | Hunters | Kill | Days Hunted | Square Miles of Habitat | Birds Killed per <br> Square Mile |
| :---: | :---: | :---: | :---: | :---: | :---: |
| North Coast | 336 | 1,315 | 909 | 1,623 | 0.8 |
| North Willamette | 8,928 | 46,527 | 50,003 | 4,296 | 10.8 |
| South Willamette | 4,920 | 24,663 | 22,643 | 4,562 | 5.4 |
| NORTHWEST | 14,184 | 72,505 | 73,555 | 10,481 | 6.9 |
| South Coast | 336 | 2,508 | 1,524 | 1,814 | 1.4 |
| Umpqua | 1,032 | 6,379 | 4,028 | 2,862 | 2.2 |
| Rogue | 1,896 | 10,299 | 9,920 | 2,543 | 4.0 |
| SOUTHWEST | 3,264 | 19,186 | 15,472 | 7,219 | 2.7 |
| Lower Deschutes | 3,072 | 21,669 | 12,796 | 3,140 | 6.9 |
| Upper Deschutes | 3,240 | 37,616 | 15,104 | 5,665 | 6.6 |
| Klamath | 1,152 | 12,904 | 5,698 | 3,900 | 3.3 |
| CENTRAL | 7,464 | 72,189 | 33,598 | 12,705 | 5.7 |
| Columbia Basin | 2,304 | 12,466 | 9,897 | 5,915 | 2.1 |
| Blue Mountain | 2,472 | 23,908 | 10,364 | 10,769 | 2.2 |
| NORTHEAST | 4,776 | 36,374 | 20,261 | 16,684 | 2.2 |
| Ma1heur | 3,624 | 36,301 | 18,002 | 9,918 | 3.7 |
| Great Basin | 1,200 | 14,389 | 5,452 | 16,994 | 0.8 |
| SOUTHEAST | 4,824 | 50,690 | 23,454 | 26,912 | 1.9 |
| STATE TOTALS | 34,512 | 250,944 | 166,340 | 74,001 | 3.4 |

Table 27
1967 CHUKAR PARTRIDGE, KILL

| Habitat Area | Hunters | Kil1 | Days <br> Hunted | Square Miles of Habitat | Birds Killed per Square Mile |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Lower Deschutes | 3,436 | 15,812 | 11,715 | 1,609 | 9.8 |
| Upper Deschutes | 1,177 | 2,213 | 3,308 | 3,150 | 0.7 |
| CENTRAL | 4,613 | 18,025 | 15,023 | 4,759 | 3.8 |
| Columbia Basin | 2,019 | 11,607 | 8,506 | 2,472 | 4.7 |
| Lower Snake | 3,700 | 20,976 | 12,586 | 3,619 | 5.8 |
| Upper John Day | 216 | 1,156 | 796 | 1,600 | 0.7 |
| Lower John Day | 1,538 | 8,140 | 4,303 | 1,877 | 4.3 |
| NORTHEAST | 7.473 | 41,879 | 26,191 | 9,568 | 4.4 |
| Malheur | 3,412 | 17,681 | 13,257 | 3,194 | 5.5 |
| Great Basin | 985 | 4,181 | 2,288 | 3,745 | 1.1 |
| SOUTHEAST | 4,397 | 21,862 | 15,545 | 6,939 | 3.2 |
| STATE TOTALS | 16,483 | 81,766 | 56,759 | 21,266 | 3.8 |

Table 28
1967 HUNGARIAN PARTRIDGE KILL

| Habitat Area | Hunters | Ki11 | Days Hunted | Square Miles of Habitat | Birds Killed per Square Mile |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Lower Deschutes | 883 | 1,494 | 3,084 | 2,517 | 0.6 |
| Upper Deschutes | 514 | 1,061 | 1,708 | 3,494 | 0.3 |
| CENTRAL | 1,397 | 2,555 | 4.792 | 6,011 | 0.4 |
| Columbia Basin | 686 | 1,904 | 2,942 | 5,305 | 0.4 |
| Blue Mountain | 1,422 | 4,387 | 5,623 | 7,001 | 0.6 |
| NORTHEAST | 2,108 | 6,291 | 8,565 | 12,306 | 0.5 |
| Malheur | 809 | 1,398 | 4,009 | 5,156 | 0.3 |
| Great Basin | 25 | 121 | 47 | 1,552 | - |
| SOUTHEAST | 834 | 1,519 | 4,056 | 6,708 | 0.2 |
| STATE TOTALS | 4,339 | 10,365 | 17,413 | 25,025 | 0.4 |

Table 29
1967 BLUE AND RUFFED GROUSE KILL

| Habitat Area | Hunters | Kili | Days Hunted | Square Miles of Habitat | ```Birds Killed per Square Mile``` |
| :---: | :---: | :---: | :---: | :---: | :---: |
| North Coast | 1,148 | 3,762 | 4,831 | 1,333 | 2.8 |
| North Willamette | 2,929 | 8,337 | 10,619 | 2,043 | 4.1 |
| South Willamette | 2,507 | 8,082 | 9,663 | 3,013 | 2.7 |
| NORTHWEST | 6,584 | 20,181 | 25,113 | 6,389 | 3.2 |
| South Coast | 422 | 999 | 1,363 | 1,442 | 0.7 |
| Umpqua | 984 | 2,392 | 3,301 | 2,228 | 1.1 |
| Rogue | 656 | 1,254 | 1,842 | 1,894 | 0.7 |
| SOUTHWEST | 2,062 | 4,645 | 6,506 | 5,564 | 0.8 |
| Lower Deschutes | 234 | 347 | 598 | 623 | 0.6 |
| Upper Deschutes | 141 | 232 | 407 | 2,172 | 0.1 |
| Klamath | 304 | 418 | 673 | 2,251 | 0.2 |
| CENTRAL | 679 | 998 | 1,578 | 5,046 | 0.2 |
| Columbia Basin | 1,101 | 3,321 | 2,344 | 610 | 5.4 |
| Blue Mountain | 2,273 | 8,221 | 6,673 | 3,769 | 2.2 |
| NORTHEAST | 3,374 | 11,542 | 9,017 | 4,379 | 2.6 |
| Great Basin | 47 | 46 | 72 | 1.486 | - |
| SOUTHEAST | 47 | 46 | 72 | 1,486 | - |
| STATE TOTALS | 12,746 | 37.412 | 42,286 | 22,864 | 1.6 |

Table 30
1967 MOURNING DOVE KILL
Table 31
1967 BAND-TAILED PIGEON KILL

| Habitat Area | Hunters | Kil1 | Days Hunted | Square Miles of Habitat | $\begin{gathered} \text { Birds Killed } \\ \text { per } \\ \text { Square Mile } \end{gathered}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| North Coast | 1,251 | 13,767 | 5,951 | 1,333 | 10.3 | 15.7 |
| North Willamette | 2,862 | 18,016 | 10,964 | 2,043 | 8.8 | 11.3 |
| South Willamette | 2,069 | 14,519 | 7,614 | 3,013 | 4.8 | 10.1 |
| NORTHWEST | 6,182 | 46,302 | 24,529 | 6,389 | 7.2 | 11.6 |
| South Coast | 1,660 | 17,749 | 8,715 | 1,442 | 12.3 | 19.7 |
| Umpqua | 818 | 11,897 | 3,772 | 2,228 | 5.3 | 5.0 |
| Rogue | 1,058 | 5,779 | 3,960 | 1,894 | 3.1 | 3.6 |
| SOUTHWEST | 3,536 | 35,425 | 16,447 | 5,564 | 6.4 | 8.3 |
| Lower Deschutes | 144 | 485 | 492 | 221 | 2.2 | 2.5 |
| CENTRAL | 144 | 485 | 492 | 221 | 2.2 | 2.5 |
| STATE TOTALS | 9,862 | 82,212 | 41,468 | 12,174 | 6.8 | 9.9 |

Table 32
1967 SILVER GRAY SQUIRREL KILL

| Habitat Area | Hunters | Ki11 | Days Hunted | Square Miles of Habitat | Animals Taken per Square Mile |
| :---: | :---: | :---: | :---: | :---: | :---: |
| North Willamette | 1,268 | 10,036 | 6,757 | 2,043 | 4.9 |
| South Willamette | 1,019 | 3,743 | 3,429 | 3,013 | 1.2 |
| NORTHWEST | 2,287 | 13,779 | 10,186 | 5,056 | 2.7 |
| South Coast | 348 | 1,492 | 1,459 | 1,442 | 1.0 |
| Umpqua | 920 | 5,262 | 3,839 | 2,228 | 2.4 |
| Rogue | 1,417 | 7,188 | 6,449 | 1,894 | 3.8 |
| SOUTHWEST | 2,685 | 13,942 | 11,747 | 5,564 | 2.5 |
| Lower Deschutes | 746 | 3,499 | 2,380 | 623 | 5.6 |
| Klamath | 224 | 950 | 973 | 2,251 | 4.2 |
| CENTRAL | 970 | 4,449 | 3,353 | 2,874 | 1.5 |
| STATE TOTALS | 5,942 | 32,170 | 25,286 | 13,494 | 2.4 |

Table 33
E. E. WILSON JUVENILE PHEASANT SEASON

| Year | Total Hunters | Pheasants |  |  |  | $\begin{array}{r} \text { Quail } \\ \text { Killed } \\ \hline \end{array}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Pheasants Killed | $\begin{aligned} & \text { Birds } \\ & \text { per } \\ & \text { Hunter } \\ & \hline \end{aligned}$ | $\begin{gathered} \text { Highest } \\ \text { Daily } \\ \text { Kill } \\ \hline \end{gathered}$ | $\begin{gathered} \hline \text { Lowest } \\ \text { Daily } \\ \text { Kill } \\ \hline \end{gathered}$ |  |
| 1951 | 272 | 299 | 0.8 | - | - | - |
| 1952 | 255 | 276 | 1.1 | - | - | - |
| 1953 | 302 | 200 | 0.7 | 35 | 6 | - |
| 1954 | 314 | 268 | 0.8 | 37 | 10 | - |
| 1955 | 188 | 67 | 0.4 | 26 | 11 | 28 |
| 1956 | 252 | 172 | 0.7 | 41 | 6 | - |
| 1957 | 261 | 226 | 0.8 | 73 | 5 | - |
| 1958 | 184 | 185 | 1.0 | 40 | 26 | 12 |
| 1959 | 178 | 199 | 1.1 | 49 | 15 | 5 |
| 1960 | 269 | 289 | 1.1 | 73 | 28 | 35 |
| 1961 | 573 | 468 | 0.8 | 106 | 15 | 67 |
| 1962 | 584 | 546 | 0.9 | 114 | 4 | 53 |
| 1963 | 593 | 307 | 0.5 | 57 | 8 | 42 |
| 1964 | 559 | 319 | 0.6 | 65 | 9 | 27 |
| 1965 | 440 | 115 | 0.3 | 29 | 3 | 7 |
| 1966 | 384 | 104 | 0.3 | 30 | 2 | 9 |
| 1967 | 290 | 107 | 0.4 | 31 | 3 | 23 |



Table 34
1967 LAND ACCESS SURVEY

| County | $\begin{gathered} \text { Miles } \\ \text { Sampled } \\ \hline \end{gathered}$ | Not Posted (Percent) | No Hunting <br> (Percent) | Hunting by Permission (Percent) |
| :---: | :---: | :---: | :---: | :---: |
| Benton | 21 | 55 | 44 | 1 |
| Crook | 56 | 61 | 36 | 3 |
| Deschutes | 50 | 79 | 19 | 2 |
| Douglas | 60 | 70 | 26 | 4 |
| Hood River | 23 | 94 | 6 | 0 |
| Jackson | 30 | 57 | 43 | 0 |
| Jefferson | 48 | 61 | 36 | 2 |
| Linn | 33 | 76 | 23 | 1 |
| Marion | 20 | 86 | 13 | 1 |
| Polk | 22 | 55 | 45 | 0 |
| Sherman | 70 | 68 | 31 | 1 |
| Wasco | 150 | 45 | 45 | 10 |
| Washington | 35 | 80 | 18 | 2 |
| Yamhil1 | 20 | 90 | 9 | 1 |
| TOTALS | 638 | 70 | 27 | 2 |


Table 35
1967 GAME BIRD PRODUCTION

|  | Pheasants | Chukar Partridge | Hungarian Partridge | Bamboo Partridge | Kalij Pheasants | Tinamou |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| January 1 Inventory | 3,161 | 294 | 200 | 429 | 74 | 20 |
| Losses | 123 | - 0 | 4 | 15 | 11 | 0 |
| Spring Liberations | 3,038 | 294 | 196 | 253 | 0 | 0 |
| Eggs Gathered | 91,949 | 2,291 | 424 | 2,574 | 398 | 112 |
| Eggs to Individuals | 18,044 | 570 | 0 | 0 | 0 | 0 |
| Eggs Set | 48,456 | 1,115 | 372 | 2,166 | 365 | 108 |
| Birds Hatched | 36,662 | 971 | 228 | 808 | 90 | 38 |
| Percent Hatched | 75.7 | 87.1 | 61.3 | 37.3 | 24.7 | 36.5 |
| Birds Raised | 21,613* | 948 | 138 | 562 | 70 | 30 |
| Percent Raised | 94.8 | 97.6 | 60.5 | 69.6 | 77.8 | 78.9 |
| Birds Liberated | 21,469** | 896 | 208 | 253 | 0 | 0 |
| Spring | 3,038 | 294 | 196 | 253 | 0 | 0 |
| Summer | 9,422 | 0 | 0 | 0 | 0 | 0 |
| Fall | 9,009 | 602 | 12 | 0 | 0 | 0 |
| December 31 Inventory | 3,182 | 346 | 126 | 723 | 133 | 50 |

[^5]Table 36
1967 PHEASANT LIBERATIONS

| Counties by Regions | Spring | Summer Young | Fall <br> Adult | $\begin{gathered} \text { Total } \\ \text { Released } \\ \hline \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: |
| Benton | 428 |  | 618 | 1,046 |
| Clackamas. | 384 |  | 264 | 648 |
| Clatsop |  |  | 384 | 384 |
| Columbia | 414 |  | 844 | 1,258 |
| Lane |  | 540 | 1,290 | 1,830 |
| Linn | 33 | 42 | 437 | 512 |
| Marion | 287 |  | 644 | 931 |
| Multnomah |  |  | 776 | 776 |
| Polk |  |  | 243 | 243 |
| Washington | 384 |  |  | 384 |
| Yamhill | 304 |  | 505 | 809 |
| NORTHWEST | 2,234 | 582 | 6,005 | 8,821 |
| Douglas | 384 |  | 500 | 884 |
| Jackson | 384 |  | 1,040 | 1,424 |
| Josephine |  |  | 60 | 60 |
| SOUTHWEST | 768 |  | 1,600 | 2,368 |
| WESTERN OREGON TOTALS | 3,002 | 582 | 7,605 | 11,189 |
| Crook | 36 | 405 |  | 441 |
| Deschutes |  | 315 |  | 315 |
| Jefferson |  |  | 768 | 768 |
| Klamath |  | 720 | 884 | 1,604 |
| Wasco |  | 720 |  | 720 |
| CENTRAL | 36 | 2,160 | 1,652 | 3,848 |
| Baker |  | 720 |  | 720 |
| Gil1iam |  | 360 |  | 360 |
| Grant |  | 720 |  | 720 |
| Morrow |  | 720 | 600 | 1,320 |
| Umatil1a |  |  | 384 | 384 |
| Union |  |  | 1,168 | 1,168 |
| Wheeler |  | 360 |  | 360 |
| NORTHEAST |  | 2,880 | 2,152 | 5,032 |
| Harney |  | 500 |  | 500 |
| Lake |  | 400 | 500 | 900 |
| SOUTHEAST |  | 900 | 500 | 1,400 |
| EASTERN OREGON TOTALS | 36 | 5,940 | 4,304 | 10,280 |
| STATE TOTALS | 3,038 | 6,522 | 11,909 | 21,469 |



## Administration

Under the Migratory Bird Treaty Act of 1918 , all waterfowl are classified as migratory birds and, while the birds are in the United States, primary jurisdiction for their management rests with the U. S. Fish and Wildlife Service. Each state, however, has an obligation to assist with management of the resource. State participation includes obtaining factual data on reproduction, migrations, and mortality, and on breeding, feeding, and wintering grounds. To assure results which can be interpreted on a flyway basis, the seven Pacific Flyway states have formed a fact finding committee to coordinate and carry out the comprehensive program.

## Weather and Habitat Conditions

The mild winter of 1967-68 was one of the driest on record for southeastern Oregon, the region containing the major waterfowl production marshes in the state. Relatively little precipitation fell, either as rain or snow, during the winter and spring months. As a result, many of the small marshes and potholes went dry before the start of the breeding season, and water levels of the large marshes, reservoirs, lakes, and streams were drastically reduced. The drought continued into the summer period, further shrinking the amount of waterfowl production habitat.
Table
GOOSE PRODUCTION TRENDS 1965-1968

| Transect | 1968 | 1967 | 1966 | 1965 | 1968 | 1967 | 1966 | 1965 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Klamath Hiver | 188 | 250 | 252 | 210 | 848 | 1,132 | 1,137 | 945 |
| Sprague River | 18 | - | 15 | 21 | 80 | - | 67 | 95 |
| Spring Lake | 4 | 5 | 5 | 4 | 16 | 24 | 24 | 18 |
| Nuss Lake | 28 | 22 | 14 | 42 | 127 | 97 | 65 | 188 |
| Agency Lake | 85 | 70 | 57 | 48 | 384 | 323 | 255 | 218 |
| Wocus Bay | 49 | 13 | 42 | 74 | 222 | 58 | 189 | 331 |
| Howard Bay | 59 | 18 | 29 | 13 | 266 | 79 | 122 | 60 |
| Summer Lake | 36 | 21 | 34 | 21 | 165 | 93 | 136 | 98 |
| N. Lake County | 12 | 50 | 58 | 25 | 41 | 211 | 252 | 114 |
| Columbia River | 2 | 11 | 5 | 12 | 7 | 49 | 30 | 66 |
| Wickiup Reservoir | 1 | 10 | 0 | 7 | 5 | 38 | 0 | 21 |
| G. I. Ranch | 21 | 12 | 16 | 19 | 85 | 56 | 68 | 73 |
| Jefferson County | 4 | 2 | 4 | - | 13 | 9 | 17 | - |
| S. Lake County | 2 | 27 | 22 | 9 | 7 | 109 | 101 | 53 |
| Ladd Marsh | 5 | 5 | 5 | 5 | 27 | 20 | 29 | 33 |
| Hanks Marsh | 22 | 24 | 5 | - | 100 | 108 | 20 | - |
| Malheur Refuge | 222 | 444 | 355 | 222 | 1,000 | 2,000 | 1,800 | 1,000 |
| Klamath Forest Refuge | 64 | 67 | 33 | - | 290 | 300 | 150 | - |
| TOTALS | 822 | 1,051 | 951 | 732 | 3,393 | 4,706 | 4,462 | 3,313 |
| Production in 1968 down 27.9 percent from 1967 |  |  |  |  |  |  |  |  |

## Production

Goose production in Oregon declined 28 percent from the peak production season in 1967, and 13 percent from the previous six-year average. The decline was due primarily to the loss of habitat. There was little apparent shift of breeding birds from drought-stricken regions to permanent water areas. Production on established transects is presented in Table 1.

With the filling of the John Day impoundment in April 1968, twenty-four islands formerly heavily used by nesting Canada geese were inundated and eliminated forever as production areas. Goose production on these islands has been measured annually since 1950 through nest counts conducted by the Washington Department of Game with the assistance of the Bureau of Sport Fisheries and Wildlife and the Oregon State Game Commission. Results obtained during the past 14 years are shown in Table 2.

Table 2
Columbia River Goose Nest Survey

| Year | No. Nests | Year | No. Nests |
| :--- | :---: | :---: | :---: |
| 1968 | 203 | 1961 | 183 |
| 1967 | 197 | 1960 | 163 |
| 1966 | $87 *$ | 1959 | 178 |
| 1965 | 200 | 1958 | 115 |
| 1964 | 140 | 1957 | 177 |
| 1963 | 200 | 1956 | $81^{*}$ |
| 1962 | 151 | 1955 | $80^{*}$ |
| *Incomplete survey. |  |  |  |

Just prior to filling the John Day pool, a search was made of all the islands in the impoundment area and 1,200 goose eggs picked up. They were transferred to Washington's Kennewick Game Farm by helicopter, where they were hatched and raised. At the age of six weeks the goslings were released at a number of sites along the Columbia River and tributaries.

Goose production at Summer Lake is also measured through nest counts on established samples. Nesting success is verified
through brood counts in June. Results of the annual surveys are shown in Table 3 .

Table 3
Summer Lake Goose Nest Survey

|  | Spring Inventory |  |  | Summer Inventory |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Year | No. Nests | No. Eggs |  | No. Broods | No. Young |
| 1968 | 41 | 93 | 36 | 165 |  |
| 1967 | 31 | 24 | 21 | 93 |  |
| 1966 | 23 | 97 | 34 | 136 |  |
| 1965 | - | - | 21 | 98 |  |
| 1964 | 40 | 205 | 56 | 231 |  |
| 1963 | 47 | 245 | 55 | 243 |  |
| 1962 | 42 | 216 | 46 | 205 |  |
| 1961 | 57 | 282 | 63 | 261 |  |
| 1960 | 54 | 265 | 55 | 265 |  |

In spite of the loss of considerable marsh habitat to drought in southeastern Oregon, duck production on a state-wide basis is up 47 percent from the low production season in 1967. See Table 4. A major shift of breeding birds did occur from areas of drought to permanent water areas, with increased production recorded on most transects. Production of dabblers increased 9 percent, with teal and wood ducks showing substantial gains while gadwalls showed a marked decline. Tables 5 and 6 present production by transect and species. All divers showed striking increases in production, with a major shift of breeders to the Klamath Basin quite apparent.

Table 4
896T-ك96T SaNAtu NOTLONGOZd YOn

|  | SquareMiles | Total Broods |  |  |  | Total Young. |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Transect M |  | 1968 | 1967 | 1966 | 1965 | 1968 | 1967 | 1966 | 1965 |
| Klamath Basin | 26 | 266 | 59 | 236 | 172 | 1,703 | 313 | 1,374 | 959 |
| Klamath Mgt. Area | - 2 | 76 | 43 | 89 | - | 485 | 327 | 608 | - |
| Klamath Forest Ref | Ref. 10 | 101 | 48 | - | - | 703 | 293 | - | - |
| Summer Lake | 1 | 118 | 105 | 85 | 53 | 799 | 758 | 573 | 364 |
| Upper Klamath Ref. | f. 20 | 70 | 31 | - | - | 461 | 186 | - | - |
| N. Lake County | 4 | 3 | 19 | 11 | 4 | 24 | 132 | 76 | 37 |
| Hanks Marsh | 5 | 37 | 19 | - | - | 245 | 112 | - | - |
| Umatilla County | 4 | 17 | 7 | 6 | 3 | 86 | 39 | 36 | 20 |
| Wallowa County | 4 | 9 | 7 | - | - | 64 | 38 | - | - |
| Jefferson County | y 1 | 9 | 6 | 8 | 7 | 57 | 53 | 71 | 53 |
| Wasco County | 1 | 20 | 32 | 15 | 19 | 107 | 227 | 79 | 114 |
| Malheur County | 45 | 31 | 81 | 45 | 91 | 189 | 531 | 317 | 555 |
| Columbia County | 3 | 25 | 23 | 20 | 21 | 176 | 138 | 152 | 131 |
| Crook County | 1 | 53 | 15 | 12 | 12 | 310 | 124 | 101 | 89 |
| Deschutes County | y 6 | - | 41 | 8 | 12 | - | 294 | 58 | 73 |
| Jackson County | 11 | 30 | 31 | 15 | 36 | 185 | 213 | 71 | 259 |
| Douglas County | 1 | - | 3 | - | - | - | 28 | - | - |
|  | 145 | 865 | 570 | 550 | 430 | 5,594 | 3,806 | 3,516 | 2,654 |
| Production in 1968 up 47 percent from 1967. |  |  |  |  |  |  |  |  |  |

Table 5
DUCK PRODUCTION BY SPECIES 1965-1968

| Species | Number of Broods |  |  |  | Number of Young |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1968 | 1967 | 1966 | 1965 | 1968 | 1967 | 1966 | 1965 |
| Dabblers: |  |  |  |  |  |  |  |  |
| Mallard | 193 | 199 | 161 | 167 | 1,145 | 1,352 | 1,108 | 1,071 |
| Pintail | 17 | 14 | 11 | 23 | 101 | 98 | 73 | 159 |
| Gadwall | 98 | 71 | 49 | 25 | 678 | 498 | 345 | 186 |
| B.W./Cinn. Teal | 128 | 76 | 76 | 48 | 802 | 589 | 526 | 316 |
| G. W. Teal | 4 | 2 | 2 | 3 | 23 | 5 | 12 | 15 |
| Widgeon | 5 | 12 | 3 | 12 | 32 | 82 | 24 | 85 |
| Shoveler | 7 | 6 | 4 | 0 | 45 | 43 | 30 | 0 |
| Wood Duck | 36 | 22 | 13 | 20 | 233 | 129 | 84 | 111 |
| Subtotals | 488 | 402 | 319 | 298 | 3,059 | 2,796 | 2,202 | 1,943 |
| Divers: |  |  |  |  |  |  |  |  |
| Redhead | 226 | 44 | 180 | 114 | 1,477 | 274 | 1,101 | 643 |
| Canvasback | 82 | 3 | 18 | 2 | 514 | 20 | 93 | 9 |
| Scaup | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 16 |
| Bufflehead | 0 | 4 | 1 | 3 | 0 | 26 | 6 | 16 |
| Goldeneye | 0 | 2 | 0 | 1 | 0 | 13 | 0 | 5 |
| Ruddy | 62 | 12 | 33 | 13 | 487 | 60 | 173 | 69 |
| Subtotals | 1 370 | 65 | 232 | 136 | 2, 478 | 393 | 1,373 | 758 |
| Miscellaneous: |  |  |  |  |  |  |  |  |
| A. Merganser | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H. Merganser | 0 | 4 | 2 | 1 | 0 | 24 | 11 | 6 |
| Unid. Ducks | 9 | 1 | 13 | 15 | 55 | 2 | 76 | 79 |
| Subtotals | 9 | 5 | 15 | 16 | 55 | 26 | 87 | 85 |
| TOTALS | 867 | 472 | 566 | 450 | 5,592 | 3,215 | 3,662 | 2,786 |

Table 6
duck production by transect, 1968

| TRANSECT <br> B - Broods <br> Y - Young |  |  |  |  |  |  | Umatilla County |  | Wasco County |  |  |  |  |  |  |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SPECIES |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mallard | $\mathbf{B}$ $\mathbf{Y}$ | 30 | $\begin{array}{r} 26 \\ 141 \end{array}$ | $\begin{array}{r} 30 \\ 166 \end{array}$ | $\begin{array}{r} 32 \\ 217 \end{array}$ |  | $\begin{array}{r} 9 \\ 46 \end{array}$ | $\begin{array}{r} 7 \\ 46 \end{array}$ | $\begin{array}{r} 9 \\ 47 \end{array}$ | $\begin{array}{r} 17 \\ 102 \end{array}$ | 5 31 | 17 94 | $\begin{array}{r} 18 \\ 113 \end{array}$ | 6 40 | 7 42 | $\begin{array}{r} 5 \\ 30 \end{array}$ | $\begin{array}{r} 193 \\ 1,145 \end{array}$ |
| Gadwall | B <br> $\mathbf{Y}$ | $\begin{array}{r} 31 \\ 198 \end{array}$ | $\begin{array}{r} 8 \\ 59 \end{array}$ | 8 59 | $\begin{array}{r} 31 \\ 229 \end{array}$ | $10^{1}$ |  |  |  | 36 |  | 4 30 |  |  | 32 | 4 25 | 98 678 |
| Widgeon | B $\mathbf{Y}$ |  |  | 12 |  |  |  |  |  | 3 18 |  | 1 2 |  |  |  |  | 5 32 |
| B.W./Cinn. Teal | B $\mathbf{Y}$ | 5 33 | 3 21 | $\begin{array}{r} 16 \\ 117 \end{array}$ | $\begin{array}{r} 32 \\ 207 \end{array}$ |  | 1 5 | $\begin{aligned} & 1 \\ & 5 \end{aligned}$ | $\begin{aligned} & 11 \\ & 60 \end{aligned}$ | $\begin{array}{r} 2 \\ 16 \end{array}$ | $\begin{array}{r} 4 \\ 33 \end{array}$ | $\begin{array}{r} 23 \\ 121 \end{array}$ | $\begin{array}{r} 8 \\ 45 \end{array}$ | 7 4 | 11 72 | $\begin{array}{r} 4 \\ 26 \end{array}$ | 128 802 |
| G. W. Teal | $\mathbf{8}$ $\mathbf{Y}$ |  |  |  |  |  | 1 5 | $\begin{aligned} & 1 \\ & 5 \end{aligned}$ |  |  |  | 13 |  |  |  |  | 4 23 |
| Shoveler | B $\mathbf{Y}$ | 3 19 |  |  | ${ }_{14}^{2}$ |  |  |  |  |  |  |  |  |  | 1 | 1 | 7 4 |
| Pintail | $\stackrel{\mathbf{B}}{\mathbf{Y}}$ | 1 6 |  |  |  | ${ }_{14}^{2}$ | $\begin{array}{r} 4 \\ 18 \end{array}$ | $\begin{array}{r} 2 \\ 11 \end{array}$ |  | 3 17 |  | 4 29 |  |  |  | 6 | 17 101 |
| Wood Duck | B | 3 17 |  |  |  |  | 1 6 |  |  |  |  |  | $\begin{array}{r} 4 \\ 27 \end{array}$ | $\begin{aligned} & 12 \\ & 95 \end{aligned}$ |  | 16 88 | 112 233 |
| Redhead | B <br> $\mathbf{Y}$ | 17 116 | $\begin{aligned} & 149 \\ & 980 \end{aligned}$ | $\begin{array}{r} 19 \\ 113 \end{array}$ | $\begin{aligned} & 14 \\ & 86 \end{aligned}$ |  | 6 |  |  |  |  |  |  |  | 8 54 | $\begin{array}{r} 18 \\ 122 \end{array}$ | 226 1,477 |
| Canvasback | B $\mathbf{Y}$ | 2 12 | $\begin{array}{r} 72 \\ 465 \end{array}$ |  |  |  |  |  |  |  |  |  |  |  |  | 6 39 | 80 516 |
| Bufflehead | $\xrightarrow{\mathbf{B}}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ruddy Duck | $\stackrel{\text { B }}{\mathbf{Y}}$ | $\begin{array}{r} 31 \\ 254 \end{array}$ | 12 | 2 | 7 4 |  |  |  |  |  |  | 2 11 |  |  | $\begin{array}{r} 4 \\ 33 \end{array}$ | $\begin{array}{r} 14 \\ 115 \end{array}$ | 62 487 |
| H. Merganser | B $\mathbf{Y}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Goldeneye | $\mathbf{B}$ $\mathbf{Y}$ |  |  |  |  |  |  |  | . |  |  |  |  | - |  |  |  |
| Unidentified | $\xrightarrow{\text { B }}$ | 3 18 | 4 25 |  |  |  |  |  |  |  |  |  |  |  | 1 | 1 6 | 9 55 |
| TOTAL | B $\mathbf{Y}$ | $\begin{aligned} & 101 \\ & 703 \end{aligned}$ | $\begin{array}{r} 266 \\ 1,703 \end{array}$ | $\begin{array}{r} 76 \\ 485 \end{array}$ | $\begin{aligned} & 118 \\ & 799 \end{aligned}$ | 24 | $\begin{aligned} & 17 \\ & 86 \end{aligned}$ | $\begin{array}{r} 9 \\ 57 \end{array}$ | $\begin{array}{r} 20 \\ 107 \end{array}$ | $\begin{array}{r} 31 \\ 189 \end{array}$ | 9 64 | $\begin{array}{r} 53 \\ 310 \end{array}$ | $\begin{array}{r} 30 \\ 185 \end{array}$ | $\begin{array}{r} 25 \\ 176 \end{array}$ | $\begin{array}{r} 37 \\ 245 \end{array}$ | $\begin{array}{r} 70 \\ 461 \end{array}$ | $\begin{array}{r} 865 \\ 5,594 \end{array}$ |

## Fall Migrations

The magnitude of the fall flight of waterfowl through oregon is measured by bi-weekly counts at nine concentration areas. Most of the areas are censused from the ground but frequent aerial counts are made on several federal refuges. Results are presented in Tables 7 through 15.

1. Southeastern Oregon

The size of the migration flights of ducks through southeastern Oregon was approximately 30 percent greater than in 1966 but far below populations recorded during peak years of 1958 to 1960. Flights arrived on normal dates in September and October and remained until midNovember when cold weather set in and the southward migration was continued.

The buildup of northern migrant geese also occurred on normal dates in october with the peak numbers occurring in early November. Snow geese did not move out until extreme cold weather set in late in the month.

## 2. Northeastern Oregon

The first large movement of mallards to the Columbia Basin wintering area in northeastern Oregon came during early November, and by the middle of the month had reached peak numbers. A gradual decline followed throughout the remainder of the winter.

Lesser Canada geese arrived in large numbers in October and reached a peak wintering population late in the month. After the peak was attained a gradual decline also took place for the remaining winter months.

## 3. Western Oregon

Waterfowl populations in western Oregon continued a gradual increase until mid-November when peak numbers were reached. Heavy rains in early December which caused some flooding of farmland, created a great deal of new winter habitat. The birds moved from the refuges and concentration areas to these new ponds and provided some of the finest hunting in western Oregon since 1959.
Table 7
Waterfowl populations
October 5, $\begin{gathered}\text { Sauvie Island } \\ \text { through March } 4,1968\end{gathered}$

| Date | $\begin{gathered} \text { Whist- } \\ \text { l1ng } \\ \text { Swan } \\ \hline \end{gathered}$ | Canada Goose | Lesser <br> Canada | $\begin{gathered} \text { Cackiing } \\ \text { Cooge } \end{gathered}$ | Mal lard | Pintat1 | Widgeon | $\begin{aligned} & \text { G.W. } \\ & \text { Teal } \end{aligned}$ | Shoveler | $\begin{gathered} \text { *Diving } \\ \text { bueks } \end{gathered}$ | **Other Waterfow 1 | Coot | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Oct. 5 | - | 32 | 1,576 | - | 10 | 3,121 | 1,110 | 5 | 25 | - | 4,215 | - | 10,094 |
| Oct. 13 | - | - | 1,221 | - | 3.974 | 2,250 | 2,670 | 4,415 | 5 | 76 | 3,600 | 9 | 18,220 |
| Oct. 19 | - | 42 | 1,642 | - | 5,810 | 14,730 | 10,440 | 5,000 | 18 | - | 61 | - | 37,743 |
| Oct. 27 | - | 975 | 275 | - | 14,385 | 14,305 | 2,604 | 4,000 | - | - | 1 | 25 | 36,570 |
| Nov. 2 | 38 | 15 | 3.483 | 27 | 9,247 | 15,680 | 9,000 | 2,325 | - | 216 | 20 | 28 | 40,079 |
| Nov. 8 | 8 | 930 | 2,785 | 100 | 25,068 | 17,865 | 21,976 | 5,420 | 1 | 197 | 9 | 91 | 74,450 |
| Nov. 16 | 7 | 451 | 1,820 | 11 | 44,848 | 23,916 | 17,632 | 4,970 | 2 | 26 | 6 | 261 | 93,950 |
| Nov. 24 | 161 | 51 | 1,435 | 38 | 24,267 | 38,186 | 14,935 | 4,328 | 30 | 14 | 7 | 53 | 83,505 |
| Dec. 2 | 218 | 162 | 1,962 | - | 17,037 | 24,330 | 11,953 | 5,645 | 2 | 25 | 33 | 301 | 61,668 |
| Dec. 6 | 71 | 555 | 1,116 | 10 | 16,234 | 17,835 | 13,500 | 4,859 | 11 | 54 | - | 235 | 54,480 |
| Dec. 14 | 134 | 609 | 2,262 | 21 | 19.239 | 21,411 | 14,402 | 4,079 | 43 | 85 | - | 343 | 63,228 |
| Dec. 28 | 389 | 548 | 2,727 | 38 | 15,218 | 13,516 | 11,362 | 5,700 | - | 156 | 147 | 240 | 50,041 |
| Jan. 9 | 632 | 768 | 2,447 | 20 | 18,664 | 26,549 | 13,438 | 4,561 | 38 | 684 | 1 | 194 | 67,996 |
| Jan. 19 | 827 | 1,014 | 2,202 | 29 | 12,786 | 19,895 | 29,409 | 2,718 | 79 | 119 | - | 281 | 69,359 |
| Feb. 2 | 655 | 620 | 650 | - | 4,784 | 6,150 | 22,065 | 280 | 22 | 223 | 10 | 402 | 35,861 |
| Mar. 4 | 12 | 1,116 | 2,174 | 184 | 7,645 | 265 | 6,058 | 922 | 97 | 5 | 45 | 1,041 | 19,564 |
| * Peak of 50 canvasbacks on Oct. 13; 100 scaups and 46 butfleheads on Nov. 2; 23 ring-necks on Dec. 2; 1 goldeneye Dec. 14; 160 ruddy ducks on Feb . 6; and 614 American mergansers on Jan. 9. <br> Peak of 3,650 white-fronted geese on oct. 5; 147 snow geese on Dec. 28; 550 blue-winged teal on uct. 5 ; and 10 wo |  |  |  |  |  |  |  |  |  |  |  |  |  |

Table 8 WATERFOWL PUPULATIONS


| Date | Swan | $\begin{array}{r} \text { Canada } \\ \text { Goose } \\ \hline \end{array}$ | Snow Goose | Mallard | Gadwall | Widgeon | Pintail | $\begin{aligned} & \text { G.W. } \\ & \text { Teal } \end{aligned}$ | Shoveler | Redhead | Canvasback | Ruddy Duck | *Other <br> Species | Coot | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Aug. 24 | 41 | 4,500 | - | 29,000 | 15,200 | 16,400 | 68,500 | 600 | 3,600 | 1,000 | 400 | 500 | 5,200 | 47,300 | 192,241 |
| Sept. 1 | 46 | 4,500 | - | 30,000 | 16,000 | 17,000 | 70,000 | 1,000 | 4.000 | 1,500 | 500 | 650 | 5,600 | 60,000 | 210,796 |
| Sept. 8 | 45 | 5,300 | - | 27,800 | 10,700 | 22,800 | 65,800 | 4,000 | 10,700 | 1,800 | 650 | 500 | 9,750 | 54,600 | 214,445 |
| Sept. 15 | 45 | 5,300 | - | 30,000 | 11,000 | 25,000 | 80,000 | 5,000 | 11,000 | 2,500 | 600 | 600 | 9,950 | 60,000 | 240,995 |
| Sept. 21 | 45 | 5,500 | 100 | 22,300 | 8,900 | 32,500 | 23,300 | y,900 | 15,900 | 2,300 | 1,300 | 3,500 | 3,100 | 63,000 | 191,645 |
| Sept. 29 | 46 | 6,000 | 100 | 25,000 | 9,000 | 35,000 | 25,000 | 10,000 | 16,000 | 3,000 | 1,500 | 2,000 | 3,300 | 70,000 | 205,946 |
| Oct. 6 | 46 | 5,100 | 4,800 | 22,000 | 13,100 | 43,600 | 15,900 | 16,300 | 3,400 | 2,300 | 3,000 | 3,600 | 3,000 | 112,800 | 248,946 |
| Oct. 11 | 46 | 6,000 | 10,000 | 20,000 | 20,000 | 45,000 | 10,000 | 18,000 | 3,000 | 5,000 | 4,000 | 1,000 | 3,200 | 100,000 | 245,246 |
| Oct. 20 | 46 | 6,500 | 9,100 | 19,700 | 43,000 | 79,000 | 9,600 | 17.300 | 7,100 | 2,500 | 12,800 | 800 | 3,300 | 109,000 | 319,746 |
| Oct. 30 | 700 | 8,000 | 13,400 | 15,300 | 39,000 | 92,800 | 5,900 | 4,900 | 4,600 | 2,200 | 11,000 | 900 | 2,700 | 87,000 | 288,400 |
| Nov . 4 | 5.045 | 8,000 | 10,000 | 15,000 | 35,000 | 80,000 | 6,000 | 5,000 | 4,000 | 2,000 | y,000 | 500 | 4,900 | 80,000 | 264,445 |
| Nov + 11 | 8,045 | 7,200 | 5,000 | 9,000 | 25,000 | 60,000 | 3,000 | 4,000 | 3.000 | 3,000 | y,000 | 400 | 4,900 | 65,000 | 206,545 |
| Nov. 21 | 12,915 | 6,900 | 1,900 | 15,600 | 11,000 | 17,000 | 0,000 | 4.800 | 4,100 | 700 | 9.000 | 400 | 2,500 | 43,000 | 136,915 |
| Nov. 24 | 13,045 | 7,100 | 1,500 | 10,000 | 5,000 | 10,000 | 3,000 | 4,000 | 4,000 | 500 | 9,000 | 200 | 2,100 | 25,000 | 94,445 |
| Dec. 1 | 5,045 | 8,000 | - | 5,000 | 2,000 | 3,500 | 1,500 | 1.000 | 1,000 | 100 | 2,000 | 150 | 1,350 | 6,000 | 30,645 |
| Dec. 6 | 7,000 | 7,320 | - | 7,000 | 1,000 | 1,950 | 500 | U30 | 100 | 400 | 450 | 150 | 1,000 | 2,400 | 30,120 |
| Dec. 13 | 395 | 6,200 | - | 5,000 | 400 | 1,650 | 300 | 250 | 50 | - | 100 | 150 | 550 | 700 | 1),745 |


neched ducks on 0ct. 11; 2,000 buffleheads and 200 hooded mergansers on Nov. $4 ; 300$ wood ducks and boo goldeneyes on Nov. 11; and 600 common mergansers on Nov. 21.
Table 9
Columbia River from The Dalles Dam to Mouth of John Day Fiver
October 10,1967 through January 23,1968

| Date |  | Canada Goose | Mallard | Pintail | Widgeon | Canvas back | Scaup | *Other Waterfow 1 | Coot | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Oct. | 10 | 1,246 | 292 | 235 | 352 | - | 3 | 97 | 172 | 2,397 |
| Oct. |  | 1,490 | 192 | 811 | 385 | - | 51 | 80 | 216 | 3,225 |
| Oct. |  | 3,999 | 808 | $4 y 2$ | 781 | - | 33 | 19 | 214 | 6,346 |
| Oct. |  | 2,175 | 200 | 695 | 475 | - | - | 31 | 270 | 3,846 |
| Nov. |  | 3,141 | 120 | 140 | 825 | 10 | 194 | 12 | 200 | 4,642 |
| Nov. |  | 4,420 | 858 | 210 | 1,206 | 2 | 296 | 71 | 250 | 7,313 |
| Nov. |  | 2,403 | 1,774 | 806 | 845 | 3 | 290 | 27 | 131 | 6,279 |
| Nov. |  | 2,830 | 1,571 | 645 | 2,352 | 2 | 179 | 37 | 120 | 7,736 |
| Dec. |  | 2,727 | 1,388 | 514 | 2,435 | 6 | 240 | 12 | 101 | 7,423 |
| Dec. |  | 4,201 | 3,560 | 400 | 2,689 | 1 | 210 | 74 | 102 | 11,237 |
| Dec. |  | 426 | 1, 372 | 52 | 878 | 5 | 32 | 12 | 163 | 2,940 |
| Dec. |  | 3,526 | 1,965 | 33 | 1,314 | 11 | 279 | 153 | 77 | '7,358 |
| Jan. |  | 1,094 | 1,166 | 24 | 1,499 | 21 | 61 | 87 | 99 | 4,051 |
| Jan. |  | 1,529 | 1,271 | 52 | 1,963 | 16 | 83 | 94 | 79 | 5,087 |
| Jan. |  | 2,089 | 587 | 38 | 1,549 | $1 \%$ | 34 | 54 | 70 | 4,438 |
| Jan. | 23 | 329 | 21 | 1 | 72 | 14 | 434 | 128 | 57 | 1,056 |

[^6]Tab
WATERFOWL POPULATIONS

| $\left.\begin{gathered} -7 \\ -1 \\ 0 \\ 0 \\ H \end{gathered} \right\rvert\,$ | $\begin{aligned} & \text { n } \\ & \text { M } \\ & - \\ & \end{aligned}$ | $$ | $\begin{gathered} a \\ 0 \\ \underset{\sim}{\sim} \\ \text { N } \end{gathered}$ | $\begin{aligned} & \text { 붕 } \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \text { B } \\ & 0 \\ & N \\ & \vdots \end{aligned}$ | $\begin{aligned} & n \\ & \infty \\ & 0 \\ & n \\ & n \end{aligned}$ | $\begin{aligned} & \text { T } \\ & 0 \\ & N \\ & \infty \\ & \infty \\ & \infty \end{aligned}$ | $\vec{H}$ $\underset{N}{N}$ N | $\begin{aligned} & \text { Ü } \\ & 0 \\ & 0 \\ & \text { N } \\ & \text { - } \end{aligned}$ | $$ | $\begin{aligned} & n \\ & \infty \\ & \infty \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \text { n } \\ & \text { à } \\ & \text { n } \\ & \end{aligned}$ | $\begin{aligned} & \infty \\ & \underset{\sim}{\infty} \\ & \underset{\sim}{-} \end{aligned}$ | $\begin{aligned} & \underset{N}{2} \\ & \underset{\sim}{2} \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \hat{0} \\ & 0 \\ & 0 \\ & - \\ & \hline \end{aligned}$ | $\begin{aligned} & -1 \\ & N \\ & 0 \\ & 0 \\ & N \end{aligned}$ | $$ | N్ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | N | $8$ | $\begin{aligned} & N \\ & \underset{\sim}{N} \\ & \infty \end{aligned}$ | $\begin{aligned} & n \\ & \vec{~} \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & n \\ & 0 \\ & \underset{0}{-} \\ & \text { n} \end{aligned}$ | $$ | $\begin{aligned} & \infty \\ & \infty \\ & \sim \\ & \cdots \\ & -1 \end{aligned}$ | $\begin{aligned} & \ddagger \\ & \infty \\ & \infty \\ & \sim \end{aligned}$ | $\begin{aligned} & \tilde{N} \\ & \text { N } \\ & \text { N } \end{aligned}$ | $\begin{aligned} & \text { a } \\ & \infty \\ & \infty \\ & \infty \end{aligned}$ | $\begin{aligned} & \circ \\ & \infty \\ & \infty \end{aligned}$ | $\stackrel{\infty}{\sim}$ | $\cdots$ | － | $\stackrel{\infty}{-1}$ | $\cdots$ | $\begin{aligned} & \underset{\sim}{*} \\ & \underset{\sim}{n} \end{aligned}$ | $\begin{aligned} & \text { 은 } \end{aligned}$ | $\xrightarrow{\circ}$ |
|  | $\begin{aligned} & 0 \\ & \text { a } \\ & 0 \\ & 0 \\ & \hline \end{aligned}$ | $$ | $\begin{aligned} & 0 \\ & \underset{\sim}{1} \\ & \infty \\ & \underset{\sim}{1} \end{aligned}$ | $\begin{aligned} & \stackrel{\rightharpoonup}{n} \\ & \text { N } \\ & \stackrel{\rightharpoonup}{\mathrm{N}} \end{aligned}$ | $\begin{aligned} & \text { On } \\ & \text { N゙ } \\ & \text { م̀ } \end{aligned}$ | $\begin{aligned} & \text { n } \\ & \underset{\sim}{n} \\ & \text { in } \end{aligned}$ | $\begin{aligned} & 8 \\ & 0 \\ & \text { i } \\ & \text { in } \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & \text { in } \end{aligned}$ | $\begin{aligned} & \text { in } \\ & \text { N } \\ & \text { o } \end{aligned}$ | $\begin{aligned} & \mathrm{O} \\ & 0 \\ & -1 \\ & 0 \\ & \mathbf{N} \end{aligned}$ | $$ | $\begin{aligned} & \text { N } \\ & \text { N } \\ & \text { O- } \end{aligned}$ | $\begin{aligned} & \circ \\ & \hline \end{aligned}$ | $\begin{aligned} & \circ \\ & \text { in } \\ & \text { N } \end{aligned}$ | $\underset{\sim}{\text { N }}$ | $\begin{aligned} & 0 \\ & -1 \\ & \text { N } \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \stackrel{i n}{1} \\ & \infty \\ & \sim \end{aligned}$ |  | － |
|  | $\begin{aligned} & \infty \\ & \stackrel{N}{2} \\ & \sim \end{aligned}$ | － | $\begin{gathered} \text { N } \\ \text { O} \\ \end{gathered}$ | $\begin{aligned} & \text { a } \\ & \underset{i}{2} \end{aligned}$ | $\begin{aligned} & n \\ & 0 \\ & \text { N } \end{aligned}$ | 1 | 1 | $\xrightarrow{-1}$ | $\bigcirc$ | 1 | 1 | $\pm$ | 1 | m | $\xrightarrow{-1}$ | $\stackrel{\sim}{2}$ | $\begin{aligned} & \infty \\ & \underset{\sim}{\ddagger} \end{aligned}$ | $\underset{\sim}{\wedge}$ | $\cdots$ |
|  | $\infty$ | $\stackrel{7}{7}$ | 악 | in | N | 1 | $\begin{aligned} & 0 \\ & \text { O } \end{aligned}$ | $\underset{\text { - }}{\mathbf{7}}$ | $$ | $\begin{aligned} & N \\ & \infty \\ & \infty \end{aligned}$ | $\stackrel{N}{N}$ | $\xrightarrow{2}$ | $\stackrel{\text { N }}{\sim}$ | $\stackrel{\text { ¢ }}{\sim}$ | $\stackrel{\infty}{\underset{\sim}{N}}$ | $\underset{\sim}{-1}$ | $\begin{aligned} & n \\ & \underset{\sim}{n} \end{aligned}$ | $\begin{gathered} N \\ \stackrel{N}{\mathrm{e}} \end{gathered}$ | $\stackrel{-1}{\mathrm{~N}}$ |
|  | 1 | 1 | 1 | $\begin{aligned} & 0 \\ & \underset{N}{N} \end{aligned}$ | \％ | $m$ | $\begin{aligned} & \text { n } \\ & \text { N } \end{aligned}$ | $\begin{gathered} N \\ 0 \\ 0-1 \end{gathered}$ | 2 | n | in | \＃ | $\cdots$ | \％ | $\underset{-1}{-7}$ | $N$ | $\begin{aligned} & \pi \\ & 0 \end{aligned}$ | $\vec{n}$ | $\begin{aligned} & \infty \\ & \stackrel{\rightharpoonup}{*} \end{aligned}$ |
| $\begin{gathered} \mathbf{5} \\ \frac{1}{\mathbf{8}} \\ \mathbf{\Phi} \end{gathered}$ | $\begin{aligned} & \infty \\ & \stackrel{0}{n} \\ & \hline \end{aligned}$ | $\cdots$ | $\underset{\sim}{\underset{7}{*}}$ | $\stackrel{\sim}{*}$ | $\stackrel{n}{0}$ | N | N | in | $n$ | $\bigcirc$ | 1 | $\rightarrow$ | 1 | 1 | － | $\stackrel{+}{+}$ | $\infty$ | $\xrightarrow{8}$ | 8 |
|  | $\pm$ | $\cdots$ | $$ | $\begin{aligned} & 0 \\ & H \\ & -1 \\ & -1 \end{aligned}$ | $\underset{\sim}{i}$ | N | O | $\underset{\sim}{n}$ | -i | H | $\begin{aligned} & \circ \\ & \hline \text { in } \end{aligned}$ | $\stackrel{n}{n}$ | 1 | 1 | $\stackrel{\sim}{*}$ | $\begin{aligned} & \circ \\ & \text { in } \end{aligned}$ | 1 | $8$ | $\stackrel{0}{0}$ |
| $\begin{aligned} & \stackrel{\rightharpoonup}{t} \\ & \stackrel{\rightharpoonup}{4} \\ & \stackrel{y}{4} \\ & \stackrel{\rightharpoonup}{4} \end{aligned}$ | $$ | $\stackrel{1 n}{n}$ | $\begin{aligned} & \text { N } \\ & \text { N } \\ & \text { N- } \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\underset{\sim}{n}$ | $\vec{n}$ | $\begin{aligned} & \dot{8} \\ & \underset{\sim}{\mathbf{O}} \end{aligned}$ | $\begin{aligned} & \circ \\ & \underset{\sim}{1} \\ & -i \end{aligned}$ | $\begin{aligned} & \text { 응 } \\ & \mathrm{N} \\ & \text {-i } \end{aligned}$ | $\begin{aligned} & \text { NㅜN } \end{aligned}$ | $\begin{aligned} & 8 \\ & 0 \\ & -1 \end{aligned}$ | $\hat{\sim}$ | 1 | 1 | $\begin{aligned} & \stackrel{\circ}{6} \\ & \text { hon } \end{aligned}$ | $\begin{aligned} & \text { O } \\ & \text { N } \end{aligned}$ | $\begin{aligned} & \text { İ } \\ & \text { in } \end{aligned}$ | N N N ＋ | $\stackrel{n}{n}$ |
|  | $\begin{aligned} & 0 \\ & \\ & \underset{\sim}{n} \end{aligned}$ | n | $$ | $\begin{gathered} \infty \\ \stackrel{\circ}{\circ} \end{gathered}$ | $\begin{aligned} & \text { no } \\ & \hline- \end{aligned}$ | 앙 | $\stackrel{n}{-1}$ | $\stackrel{n}{\sim}$ | $\begin{aligned} & \text { O } \\ & \text { N } \end{aligned}$ | $\cdots$ | $\begin{aligned} & \text { N } \\ & \text { é } \end{aligned}$ | $\begin{aligned} & 9 \\ & 0 \end{aligned}$ | $\begin{aligned} & 9 \\ & 0 \\ & -1 \\ & -1 \end{aligned}$ | n | $\begin{aligned} & \text { \& } \\ & \text { N } \\ & \text { N } \end{aligned}$ | $\begin{aligned} & \text { N } \end{aligned}$ | $\begin{aligned} & \text { N } \\ & \text { N } \end{aligned}$ |  | 0 0 $=$ |
| $\begin{array}{ll}  & 0 \\ 0 & 0 \\ 0 & 0 \\ 0 & 0 \\ \text { in } \end{array}$ | $\stackrel{\text { N }}{ }$ | $\stackrel{\text { N }}{ }$ | 1 | $\begin{aligned} & \text { O } \\ & \text { N } \\ & \text { N } \end{aligned}$ | $\begin{aligned} & \text { O} \\ & \text { n } \\ & \hline \end{aligned}$ | $\begin{aligned} & 8 \\ & 0 \\ & 0 \\ & 0 \\ & -1 \end{aligned}$ | $\begin{aligned} & 8 \\ & 0 \\ & 0 \\ & 0 \\ & \end{aligned}$ | $\begin{aligned} & 8 \\ & 8 \\ & 0 \\ & \text { N } \\ & \underset{N}{n} \end{aligned}$ | $\begin{aligned} & 8 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 8 \\ & 8 \\ & 0 \\ & \text { n } \\ & \end{aligned}$ | O 0 0 0 0 | $\begin{aligned} & \circ \\ & \text { ㅇ } \\ & \text { ㅇ } \end{aligned}$ | $\begin{aligned} & 8 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | $N$ | － | $\begin{aligned} & 8 \\ & 0 \\ & 0 \\ & \text { 8 } \end{aligned}$ | $\begin{aligned} & 8 \\ & 8 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 8 \\ & 8 \\ & \text { in } \\ & \underset{\sim}{n} \end{aligned}$ | ¢ |
|  | 1 | $\stackrel{\sim}{\sim}$ | ${ }_{0}^{n}$ | $\begin{aligned} & \text { O } \\ & \text { 霛 } \end{aligned}$ | $\begin{aligned} & \infty \\ & n \\ & n \end{aligned}$ | $\begin{aligned} & \text { 우 } \\ & \text { M } \end{aligned}$ | $\begin{aligned} & \stackrel{i}{n} \\ & \text { N } \end{aligned}$ | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | $\stackrel{2}{7}$ | 1 | 1 | － |
| $\begin{array}{ll} 0 & 0 \\ 8 & 0 \\ 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{array}$ | $\begin{aligned} & 0 \\ & 00 \\ & \text { n } \end{aligned}$ | $\hat{\AA}$ | $\stackrel{-1}{8}$ | $\stackrel{\mathrm{N}}{\mathrm{~N}}$ | $\begin{aligned} & \boldsymbol{N} \\ & \boldsymbol{\theta} \end{aligned}$ | $\underset{A}{A}$ | $\begin{aligned} & \infty \\ & N \\ & N \end{aligned}$ | $\underset{\infty}{\infty}$ | $\begin{aligned} & \infty \\ & \underset{\infty}{\infty} \end{aligned}$ | $\stackrel{N}{N}$ | $\underset{\sim}{N}$ | $\begin{aligned} & -1 \\ & 0 \\ & \end{aligned}$ | $\begin{aligned} & \overrightarrow{-1} \\ & \overrightarrow{7} \\ & \overrightarrow{-1} \end{aligned}$ | $\begin{aligned} & 8 \\ & 0 \\ & \\ & \hline- \end{aligned}$ | $\begin{aligned} & \text { n } \\ & \text { n } \\ & - \end{aligned}$ | $\underset{\substack{\mathrm{A}}}{\substack{\text { a }}}$ | à | $\begin{aligned} & \mathrm{O} \\ & \mathbb{N} \end{aligned}$ | ¢ |
|  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | か | $\begin{gathered} \mathrm{H} \\ \text { O } \end{gathered}$ | $\begin{aligned} & \stackrel{a}{N} \\ & \underset{\sim}{\circ} \end{aligned}$ | $\begin{aligned} & \infty \\ & \alpha \\ & \alpha \end{aligned}$ | $\begin{aligned} & \stackrel{\infty}{0} \\ & \stackrel{-}{-1} \end{aligned}$ | $\begin{aligned} & \infty \\ & \infty \\ & \infty \\ & \infty \end{aligned}$ | $\underset{\sim}{\sim}$ | $\underset{\sim}{\Omega}$ | in | 1 | $\stackrel{\sim}{n}$ |
|  | N | － | $\xrightarrow{7}$ | ${ }_{N}^{n}$ | ＊ | N | $\underset{\sim}{\infty}$ | $\stackrel{\sim}{0}$ | $\bigcirc$ | $\underset{\sim}{n}$ | N | 아ํ | $\bullet$ | $\cdots$ | N | $\cdots$ | $\cdots$ | N | $\stackrel{N}{N}$ |
| $\begin{gathered} 0 \\ 0 \\ 0 \\ 0 \end{gathered}$ | $\begin{aligned} & \dot{\varphi} \\ & \frac{3}{4} \end{aligned}$ | $\begin{aligned} & \dot{0} \\ & 0 \\ & 0 \\ & \text { in } \end{aligned}$ | $\begin{aligned} & \dot{+} \\ & \dot{0} \\ & \dot{0} \end{aligned}$ | $\begin{aligned} & \stackrel{\rightharpoonup}{0} \\ & 0 \\ & 0 \\ & \text { in } \end{aligned}$ | $\stackrel{\dot{0}}{\stackrel{0}{0}}$ | $\begin{aligned} & \dot{+} \\ & \stackrel{0}{0} \end{aligned}$ | $\begin{aligned} & \stackrel{4}{\circ} \\ & \stackrel{\circ}{\circ} \end{aligned}$ | $\begin{aligned} & \text { ن. } \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \dot{b} \\ & 0 \\ & \hline \mathbf{~} \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & z \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & 2 \end{aligned}$ | $\dot{0}$ | $\begin{aligned} & \dot{8} \\ & \dot{\theta} \end{aligned}$ | $\stackrel{\circ}{0}$ | $\dot{8}$ | $\dot{0}$ | $\dot{\dot{H}}$ | $\begin{aligned} & \dot{H} \\ & \underset{2}{\boldsymbol{N}} \end{aligned}$ |  |

[^7] 10 ring－necked ducke and 45 common mergansers on Mar． 13.
＊＊Peak of 1,375 cinnamon teal on Aug． 24 ；and 11 shovelers
Table 11
October 10, 1967 through January 11, 1968

| Date | $\begin{array}{r} \text { Canada } \\ \text { Goose } \\ \hline \end{array}$ | Mallard | Pintail | Widgeon | G. W. Teal | *Other and Unidentified | Coot | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| oct. 10 | 1,270 | 3,050 | - | - | - | - | - | 4,320 |
| Oct. 17 | 3,500 | 4,000 | 800 | 1,000 | 1,000 | 1,457 | 75 | 11,832 |
| Oct. 25 | 9,000 | 3,000 | 500 | 500 | - | 50 | 400 | 13,450 |
| Nov. 1 | 12,000 | 5,000 | - | 500 | 200 | 260 | 200 | 18,160 |
| Nov. 8 | 12,000 | 18,000 | 600 | 2,000 | 600 | 240 | 100 | 33,540 |
| Nov. 14 | 6,000 | 30,000 | 2,500 | 7,500 | 1,000 | 304 | 100 | 47,404 |
| Nov. 22 | 7,500 | 20,000 | 2,000 | 5,000 | 4,000 | 1,350 | 25 | 39,875 |
| Dec. 6 | 6,000 | 14,000 | 500 | 3,000 | 1,000 | 202 | - | 24,702 |
| Dec. 13 | 13,000 | 25,000 | 1,000 | 3,000 | 1,000 | 410 | 50 | 43,460 |
| Dec. 20 | 225 | 10,000 | 500 | 3,000 | 500 | 725 | - | 14,950 |
| Dec. 27 | 1,000 | 20,000 | 1,000 | 5,000 | 1,000 | 1,000 | 100 | 29,100 |
| Jan. 3 | 7,200 | 35,000 | 1,000 | 3,000 | 500 | 75 | 50 | 46,825 |
| Jan. 11 | 8,500 | 18,000 | 800 | 3,000 | 500 | - | - | 30,800 |
| *Peak of 200 white-fronted geese, 1,000 lesser scaups, and 200 ruddy ducks on $0 c t$ 50 snow geese on October 25; 30 whistling swans on Nov. $1 ; 150$ gadwalls on Nov. 1,000 shovelers on Nov. 22; 100 common goldeneyes on Dec. 20; 150 canvasbacks and ring-necked ducks on Dec. 27. |  |  |  |  |  |  |  |  |

Table 12
SNOILVIndOd TMON甘GLVM
October 10, 1967 through January 11, 1968

| Date |  | Canada Goose | Mallard |  | Pintail | Widgeon | G. W. Teal | *Other and Unidentified | coot | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Oct. | 10 | 355 | 115 |  | - | - | - | 1,185 | - | 1,655 |
| Oct. |  | 275 | 300 |  | 1.500 | 3,000 | 1,500 | 499 | - | 7,074 |
| Oct. |  | 1,700 | 300 |  | 800 | 300 | - | 160 | 100 | 3,360 |
| Nov. | 1 | 3,000 | 1,000 |  | 2,500 | 3,000 | - | 375 | 200 | 10,075 |
| Nov. | 8 | 3,500 | 4,500 |  | 1,000 | 4,000 | 100 | 70 | - | 13,170 |
| Nov. |  | 10,000 | 4,500 |  | 3,000 | 6,000 | 200 | 107 | 50 | 23,857 |
| Nov. |  | 10,000 | 7,000 |  | 1,000 | 3,000 | 500 | 125 | 25 | 21,650 |
| Dec. | 6 | 1,000 | 4,000 |  | 1,000 | 3,000 | 200 | 50 | - | 9,250 |
| Dec. |  | 17,000 | 3,000 | 1 | 1,000 | 3,000 | 200 | 131 | 25 | 24,356 |
| Dec. |  | 100 | 3,000 |  | 1,000 | 2,000 | 300 | 225 | 50 | 6,675 |
| Dec. |  | 4,000 | 3,000 |  | 1,000 | 3,000 | - | - | 20 | 11,020 |
| Jan. |  | 150 | 4,000 |  | 500 | 1,400 | 100 | 50 | 100 | 6,300 |
| Jan. |  | 2,000 | 5,000 |  | 500 | 2,000 | - | - | - | 9,500 |
| * Peak of 100 gadwalls and 300 lesser scaups on Oct. 17; 100 white-fronted geese on Oct. 25 |  |  |  |  |  |  |  |  |  |  |
| 100 buffleheads, 125 ruddy ducks, 50 ring-necked ducks, 5 redheads, 20 canvasbacks and |  |  |  |  |  |  |  |  |  |  |
| 15 whistling swans on Nov. 1; 50 snow geese on Nov. 14; 25 shovelers and 25 common |  |  |  |  |  |  |  |  |  |  |

Table 13
WATEKFOWL POPULATIONS
William L. Finley National
October 23, 1967 through January

| Date | Canada Goose | Ma11ard | Pintail | Widgeon | G.W.Teal | Wood Duck | *Other \& Unidentified | Coot | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Oct. 23 | 50 | 140 | - | 20 | - | 100 | - | - | 310 |
| Nov. 7 | - | 100 | - | - | 50 | 100 | - | - | 250 |
| Dec. 8 | 9,100 | 5,200 | 2,800 | 5,250 | 2,250 | 200 | - | - | 24,800 |
| Dec. 15 | 7,920 | 4,170 | 2,600 | 5,000 | 2,170 | 200 | - | 300 | 22,360 |
| Dec. 27 | 4,000 | 3,800 | 1,500 | 7,300 | 2,575 | 200 | 275 | 670 | 20,320 |
| Jan. 3 | 7,900 | 3,750 | 4,000 | 2,650 | 500 | 200 | 90 | 300 | 19,390 |
| Jan. 19 | 4,150 | 1,720 | 2,500 | 1,335 | 1,100 | 150 | - | 300 | 11,255 |


|  |  |  | Basket er 23, | Table <br> RFOWL PO lough N 67 throu | ATIONS <br> onal Kefuge January 19, |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Canada Goose | Mallard | Pintail | Widgeon | G. W. Teal | *Other \& Unidentified | Coot | Total |
| Oct. 23 | 850 | 400 | - | 100 | - | - | - | 1,250 |
| Oct. 31 | 1,900 | 2,300 | 1,200 | 1,000 | 200 | 120 | 20 | 6,740 |
| Nov. 7 | 2,500 | 800 | 25 | 400 | - | 2 | - | 3,727 |
| Dec. 8 | 2,480 | 4,300 | 5,400 | 700 | 5,500 | - | - | 18,380 |
| Dec. 15 | 5,925 | 1,700 | 2,300 | 4,000 | 1,200 | 46 | 50 | 15,221 |
| Dec. 27 | 8,040 | 2,200 | 3,500 | 6,000 | 4,300 | 3 | - | 24,043 |
| Jan. 4 | 2,950 | 4,050 | 2,700 | 2,000 | 1,000 | 10 | 50 | 10,760 |
| Jan. 19 | 7,265 | 850 | - | 4,300 | 2,500 | 8 | - | 14,923 |

[^8]Table 15

|  | WATERFOWL POPULATIONSAnkeny National RefugeOctober 25, 1967 through January 19, 1968 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Mallard | Pintail | Widgeon | G. W. Teal | Total |
| Oct. 25 | - | - | - | - | 0 |
| Nov. 7 | - | - | - | - | 0 |
| Dec. 8 | 100 | - | - | 200 | 300 |
| Dec. 15 | - | - | - | - | 0 |
| Dec. 27 | 1,200 | 1,100 | - | 200 | 2,500 |
| Jan. 3 | 1,530 | 1,500 | 1,500 | 170 | 4,700 |
| Jan. 19 | 200 | 500 | - | - | 700 |



## Banding

Waterfowl banding operations were conducted at six sites by the Game Commission and at three sites by the Bureau of Sport Fisheries and Wildife. Banding was carried on primarily during the preseason and postseason periods to mark samples of the predominant species for determination of hunting mortality, distribution, and migration patterns.

A total of 6,244 ducks, 296 geese, and 276 coots was banded in the state. All ducks and coots banded at Summer Lake, Sauvie Island, Denman Area, Malheur Refuge, and Warner Valley were taken by means of baited traps. Molting geese and goslings were captured by drive-trapping while a cannon net was used to capture wood ducks in Benton County. Some female wood ducks and hooded mergansers were captured in nest boxes in other areas. The number and species of waterfowl banded at each site is tabulated in Table 16.

Recoveries from these bandings and bandings of previous years are shown in Table 17. Oregon-banded waterfowl were recovered in 16 states, 4 Canadian provinces or districts, and in Mexico.

Oregon waterfow 1 hunters reported recovering 1,061 banded waterfowl during the 1967 season. The total included 898 ducks from 21 states or provinces, 161 geese from 14 states or provinces, 1 black brant, and 1 coot. The returns by state or area of banding are given in Table 18.

A summary of direct band recoveries from 1967 preseason bandings is presented in Table 19.

Direct recovery rates of mallards banded at Summer Lake and on the Denman Management Area were relatively high, while recovery rates from Sauvie Island and the Malheur Refuge were quite low. Bands are collected from hunters at the Summer Lake checking station which accounts to some extent for the high reporting rate. At Sauvie Island, where bands are also collected, the banded sample was not large enough to obtain an accurate rate of recovery. All returns from bandings at the Denman Area and Malheur Refuge, however, were by hunter initiative. Practically all recoveries from the Denman bandings were made in the Rogue Valley, strongly indicating a non-migratory race of mallards.

Table 16
May 1, $\begin{gathered}\text { WATERFOWL BANDING } \\ 1967 \\ \text { through April } \\ 30,1968\end{gathered}$

| Species | BANDING STATION |  |  |  |  |  |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { Sauvie } \\ & \text { Isiand } \end{aligned}$ | Summer Lake | Jackson County | $\begin{aligned} & \text { "Denton } \\ & \text { County. } \end{aligned}$ | *Maltedr Refuge | $\begin{gathered} \text { S. Lake } \\ \text { County } \end{gathered}$ | $\begin{aligned} & \text { Klamath } \\ & \text { County } \end{aligned}$ | $\begin{aligned} & \text { Unionk } \\ & \text { County } \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { Malheur } \\ & \text { County } \end{aligned}$ |  |
| Mallard | 560 | 625 | 143 | 4 | 646 | 13 | - | - | - | 1,991 |
| Gadwall | - | 9 | - | - | 107 | - | - | - | - | 116 |
| American Widgeon | 336 | 79 | - | - | 256 | - | - | - | - | 671 |
| European Widgeon | - | - | - | - | 1 | - | - | - | - | 1 |
| G. W. Teal | 25 | 11 | - | - | 9 | - | - | - | - | 45 |
| B. W./Cinn. Teal | 3 | 10 | - | - | 11 | - | - | - | - | 24 |
| Shoveler | 1 | - | - | - | 2 | - | - | - | - | 3 |
| Pintail | 1,534 | 164 | 5 | - | 985 | 18 | - | - | - | 2,706 |
| Wood Duck | 3 | - | 297 | 304 | 2 | - | 10 | - | - | 616 |
| Redhead | - | - | - | - | 59 | - | - | - | - | 59 |
| Lesser Scaup | 1 | - | - | - | - | - | - | - | - | 1 |
| Greater Scaup | 1 | - | - | - | - | - | - | - | - | 1 |
| Ring-necked Duck | - | - | - | - | 1 | - | - | - | - | 1 |
| Bufflehead | 7 | - | - | - | - | - | - | - | - | 7 |
| Hooded Merganser | - | - | - | - | - | - | 2 | - | - | 2 |
| TOTAL DUCKS | 2,471 | 898 | 445 | 308 | 2,079 | 31 | 12 | - | - | 6,244 |
| Canada Goose | - | - | 25 | - | 185 | 8 | - | 6 | 72 | 296 |
| Coot | 1 | 32 | - | - | 243 | - | - | - | - | 276 |
| total WATERFOWL | 2,472 | 930 | 470 | 308 | 2,507 | 39 | 12 | 6 | 72 | 6,816 |


*Banded by Bureau of Sport Fisheries and Wildiffe
RECOVEHY OF Table $\begin{gathered}\text { TREGON-BANDED WATERFOWL }\end{gathered}$

| Species | State of Recovery |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Oregon | Calif. | Wash. | Idaho | Mont. | Nevada | Alaska | *0ther States | B. C. | Alta. | Sask. | Mexico | Total |
| Canada Goose | 37 | 36 | 1 | 1 | 1 | 1 |  | 2 |  | 3 | 1 |  | 83 |
| Mallard | 377 | 156 | 65 | 15 | 5 |  | 2 | 5 | 16 | 6 | 1 |  | 648 |
| Gadwall | 3 | 7 | 1 | 1 | 1 | 5 |  | 1 |  |  |  |  | 19 |
| American Widgeon | 46 | 9 | 18 |  |  |  | 1 | 2 | 6 |  |  |  | 82 |
| Green-Winged Teal | 3 | 3 |  |  |  |  |  |  |  |  |  |  | 6 |
| B.W./Cinn. Teal |  |  |  |  |  |  |  | 1 |  |  |  |  | 1 |
| Pintail | 141 | 129 | 29 | 1 |  | 1 | 2 | 6 | 1 | 1 | 1 | 2 | 314 |
| Wood Duck | 21 | 34 | 2 |  |  |  |  |  | 1 |  |  |  | 58 |
| Redhead | 1 | 1 |  |  |  |  |  | 1 |  |  | 1 | 2 | 7 |
| Lesser Scaup | 2 | 1 |  |  |  |  |  |  |  |  |  |  | 3 |
| Common Goldeneye |  | 1 |  |  |  |  |  |  |  |  |  |  | 1 |
| Coot | 1 | 6 |  |  |  |  |  |  |  |  |  |  | 7 |
| totals | 632 | 383 | 116 | 19 | 7 | 7 | 5 | 18 | 24 | 10 | 4 | 4 | 1,229 |
| *Utah - 1 mallard, 3 pintails, 1 Canada goose South Dakota - 1 mallard |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Arizona - 1 gadwall, 1 cinnamon teal Texas - 2 pintails, 1 redhead |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Wyoming - 1 Canada goose Louisiana - 1 pintail |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Colorado - 1 mallard New York - 1 widgeon |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Minnesota - 1 mallard McKenzie Territory - 1 widgeon |  |  |  |  |  |  |  |  |  |  |  |  |  |

Table 18
BANDED WATERFOWL RECOVERED IN OREGON

| State or Province Where Banded | Ducks | Geese | Brant |
| :---: | :---: | :---: | :---: |
| Oregon | 594 | 37 | - |
| Washington | 101 | 29 | - |
| California | 73 | 23 | - |
| Idaho | 29 | 2 | - |
| Nevada | 6 | 1 | - |
| Utah | 4 | 1 | - |
| Montana | 5 | 4 | - |
| Kansas | 2 | - | - |
| Colorado | 6 | - | - |
| Wyoming | 1 | 1 | - |
| Texas | 1 | - | - |
| Nebraska | 1 | - | - |
| Illinois | 1 | - | - |
| Iowa | 1 | - | - |
| Tennessee | 1 | - | - |
| Minnesota | 1 | - | - |
| Alaska | 12 | 53 | 1 |
| Alberta | 40 | 1 | - |
| British Columbia | 8 | 2 | - |
| Saskatchewan | 6 | 2 | - |
| McKenzie District | 5 | 3 | - |
| U.S.S.R. | - | 2 | - |
| TOTALS | 898 | 161 | 1 |
|  |  |  |  |

$$
\text { Table } 19
$$

DIRECT RETURNS FROM PRESEASON BANDED WATERFOWL Oregon 1967

| Species | $\begin{gathered} \text { Banding } \\ \text { Area } \\ \hline \end{gathered}$ | Number Banded |  |  | Direct Returns |  |  | \% Direct Returns |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | AD. | IM. | TOTAL | AD . | IM. | TOTAL | AD. | IM. | TOTAL |
| Mallard | Sauvie Island | 56 | 46 | 102 | 6 | 5 | 11 | 10.7 | 10.9 | 10.8 |
|  | Summer Lake | 79 | 246 | 325 | 14 | 65 | 79 | 17.7 | 26.4 | 24.3 |
|  | Denman Mgt. Area | 11 | 132 | 143 | 3 | 28 | 31 | 27.3 | 21.2 | 21.7 |
|  | Malheur Refuge | 337 | 186 | 523 | 24 | 17 | 41 | 7.1 | 9.1 | 7.8 |
|  | Warner Valley | 8 | 5 | 13 | 0 | 1 | 1 | 0.0 | 20.0 | 7.7 |
|  | Finley Refuge | 0 | 4 | 4 | - | 2 | 2 | - | 50.0 | 50.0 |
| Total Mallards |  | 491 | 619 | 1,110 | 47 | 118 | 165 | 9.6 | 19.1 | 14.9 |
| Gadwall | Malheur Refuge | 1 | 106 | 107 | 0 | 17 | 17 | 0.0 | 16.0 | 15.9 |
| American Widgeon | Sauvie Island Malheur Refuge | $\begin{array}{r} 0 \\ 82 \end{array}$ | $\begin{array}{r} 6 \\ 63 \end{array}$ | $\begin{array}{r} 6 \\ 145 \end{array}$ | $\overline{7}$ | 3 4 | 3 11 | $8 . \overline{5}$ | $\begin{array}{r} 50.0 \\ 6.3 \end{array}$ | $\begin{array}{r} 50.0 \\ 7.6 \end{array}$ |
| Total American Widgeons |  | 82 | 69 | 151 | 7 | 7 | 14 | 8.5 | 10.1 | 9.3 |
| G. W. Teal | Sauvie Island | 0 | 3 | 3 | - | 0 | 0 | - | 0.0 | 0.0 |
|  | Summer Lake | 1 | 6 | 7 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 |
|  | Malheur Refuge | 5 | 2 | 7 | 0 | 1 | 1 | 0.0 | 50.0 | 14.3 |
| Total G. W. Teal |  | 6 | 11 | 17 | 0 | 1 | 1 | 0.0 | 9.1 | 5.9 |
| B.W./Cinnamon Teal | Sauvie Island | 0 | 3 | 3 | - | 0 | 0 | - | 0.0 | 0.0 |
|  | Summer Lake | 0 | 10 | 10 | - | 1 | 1 | - | 10.0 | 10.0 |
|  | Malheur Refuge | 0 | 9 | 9 | - | 0 | 0 | - | 0.0 | 0.0 |
| Total B. W./Cinnamon Teal |  | 0 | 22 | 22 | - | 1 | 1 | - | 4.5 | 4.5 |

Table 19
DIRECT RETURNS FROM PRESEASON BANDED WATERFOWL

| Species | Banding Area | Number Banded |  |  | Direct Returns |  |  | \% Direct Returns |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | AD. | IM. | TOTAL | AD. | IM. | TOTAL | AD. | IM. | TOTAL |
| Shoveler | Sauvie Island | 0 | 1 | 1 | - | 0 | 0 | - | 0.0 | 0.0 |
|  | Malheur Refuge | 0 | 2 | 2 | - | 0 | 0 | - | 0.0 | 0.0 |
| Total Shovelers |  | 0 | 3 | 3 | - | 0 | 0 | - | 0.0 | 0.0 |
| Pintail | Sauvie Island | 521 | 490 | 1,011 | 30 | 49 | 79 | 5.8 | 10.0 | 7.8 |
|  | Summer Lake | 71 | 47 | 118 | 4 | 4 | 8 | 5.6 | 8.5 | 6.8 |
|  | Denman Mgt. Area | 2 | 3 | 5 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 |
|  | Malheur Refuge | 276 | 215 | 491 | 7 | 19 | 26 | 2.5 | 8.8 | 5.3 |
|  | Warner Valley | 17 | 1 | 18 | 1 | 0 | 1 | 5.9 | 0.0 | 5.6 |
| Total Pintails |  | 887 | 756 | 1,643 | 42 | 72 | 114 | 4.7 | 9.5 | 6.9 |
| Wood Duck | Sauvie Is land | 0 | 3 | 3 | - | 0 | 0 | - | 0.0 | 0.0 |
|  | Jackson County | 83 | 214 | 297 | 4 | 17 | 21 | 4.8 | 7.9 | 7.1 |
|  | Klamath County | 10 | 0 | 10 | 0 | - | 0 | 0.0 | - | 0.0 |
|  | Malheur County | 1 | 0 | 1 | 0 | - | 0 | 0.0 | - | 0.0 |
|  | Benton County | 107 | 183 | 290 | 8 | 24 | 32 | 7.5 | 13.1 | 11.0 |
| Total Wood Ducks |  | 201 | 400 | 601 | 12 | 41 | 53 | 6.0 | 10.3 | 8.8 |
| Redhead | Malheur Refuge | 8 | 51 | 59 | 2 | 1 | 3 | 25.0 | 2.0 | 5.1 |
| Lesser Scaup | Sauvie Is land | 1 | 0 | 1 | 0 | - | 0 | 0.0 | - | 0.0 |
| Ring-necked Duck | Malheur Refuge | 1 | 0 | 1 | 0 | - | 0 | 0.0 | - | 0.0 |

Table 19
DIRECT RETURNS FROM PRESEASON BANDED WATERFOWL Oregon 1967
(continued)

| Species | $\begin{gathered} \text { Banding } \\ \text { Area } \\ \hline \end{gathered}$ | Number Banded |  |  | Direct Returns |  |  | \% Direct Returns |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | AD. | IM. | TOTAL | AD. | IM. | TOTAL | AD. | IM. | TOTAL |
| Hooded Merganser | - Klamath County | 2 | 0 | 2 | 0 | - | 0 | 0.0 | - | 0.0 |
|  | Benton County | 1 | 0 | 1 | 0 | - | 0 | 0.0 | - | 0.0 |
| Total Hooded | Mergansers | 3 | 0 | 3 | 0 | - | 0 | 0.0 | - | 0.0 |
| Canada Goose | Malheur Refuge | 56 | 120 | 176 | 9 | 22 | 31 | 16.1 | 18.3 | 17.6 |
|  | Drew's Reservoir | 6 | 2 | 8 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 |
|  | Malheur County | 49 | 23 | 72 | 2 | 1 | 3 | 4.1 | 4.3 | 4.2 |
|  | Jackson County | 6 | 19 | 25 | 0 | 2 | 2 | 0.0 | 10.5 | 8.0 |
|  | Ladd Marsh | 0 | 6 | 6 | - | 2 | 2 |  | 33.3 | 33.3 |
| Total Canada Geese |  | 117 | 170 | 287 | 11 | 27 | 38 | 9.4 | 15.9 | 13.2 |
| Coot | Sauvie Island | 1 | 0 | 1 | 0 | - | 0 | 0.0 | - | 0.0 |
|  | Summer Lake | 6 | 23 | 32 | 0 | 1 | 1 | 0.0 | 4.3 | 3.1 |
|  | Malheur Refuge | 71 | 151 | 222 | 1 | 4 | 5 | 1.4 | 2.6 | 2.3 |
| Total Coots |  | 78 | 174 | 255 | 1 | 5 | 6 | 1.3 | 2.9 | 2.4 |

## Hunting Season

The 90-day waterfowl season opened on October 10 and terminated January 7 except in the Columbia Basin Counties of Baker, Gilliam, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, and Wasco, where the season was extended to January 17 on ducks and coots.

The bag limit on ducks remained the same as in 1966 with 5 birds per day and 10 in possession, except in the nine Basin counties where the bag and possession limits were raised to 6 and 12 respectively. Only two canvasbacks were allowed daily or in possession.

Goose limits remained the same as in previous years. Six geese were permitted daily or in possession providing three or more were snow geese. One Ross' goose could be part of the daily bag or possession limit.

## Harvest

A substantial increase in the size of the fall flights of waterfowl through Oregon provided for the most successful hunting season since 1959. Duck hunting remained good on migrants through mid-November and on wintering birds until the end of the season. Goose hunting remained good throughout the season on both migrant and wintering flocks.

Results of the annual random mail survey indicate that hunting success was up nearly 20 percent from the previous year, with 536,305 ducks and 51,562 geese taken compared withe 435,995 ducks amd 54,615 geese bagged in 1966. The number of waterfowl hunters also increased from 49,790 in 1966 to 50,825. Daily success also improved with hunters averaging 1.56 ducks and 0.42 geese per day. See Table 20. A breakdown of hunting pressure by geographical location is presented for ducks and geese in Tables 21 and 22.

Very few hunters took advantage of the extended season and larger bag limits in the Columbia Basin counties. Success remained low due to the lack of hunting sites, low population of wintering birds, and relatively mild weather.

Hunting success and hunting pressure also increased over the previous season on the five public hunting areas. Summaries of the results are presented in Tables 23 and 24.

Age classification of 846 snow geese checked in hunters' bags
at Summer Lake between October 14 and 27 showed 470 adults to 376 birds of the year; a harvest rate of five adults to each four young. This is only an indication of a poor production year on the Arctic breeding grounds and not a true age ratio.

## Winter Inventory

The annual mid-winter waterfowl survey was conducted during the first week in January and revealed a total of 286,190 ducks, 64,070 geese, 7,748 swans, and 44,509 coots wintering in Oregon. See Table 25.

A substantial increase from 1967 was recorded in the number of mallards, widgeons, pintails, geese, and swans, but a decided decrease noted in shovelers, teal, and brant.

Overall, the waterfowl population was up 14.1 percent, with ducks showing an increase of 13.2 percent, geese up 29.5 percent, swans up 32.4 percent, and no change recorded in the total number of coots.

## Black Brant

Very little interest is shown in hunting brant due to the relatively few migrants, low wintering population, and the presence of brant during the season at only four sites (Tillamook, Netarts, Yaquina, and Coos Bays).

During the 90-day season, which extended from November 21 through February 18 , only 18 hunters were checked. They had killed 10 brant in 71 hours of hunting.

## Snipe

Trends in snipe densities are measured in western and southern Oregon each spring in conjunction with the upland game bird census. Results obtained are presented in Table 26, with the average densities of the previous four years included for comparison.

In northeastern and southeastern oregon, where $20-m i l e$ pheasant corw count samples traverse snipe habitat, the number of snipe seen or heard is also recorded. On the 280 miles of comparable samples, 260 snipe were seen or heard as compared with 245 in 1966. (Table 27.)

Table 20
WATERFOWL HARVEST

|  | 1967 | 1966 | 1965 |
| :--- | :---: | :---: | :---: |
| Size of Sample | 14,248 | 14,687 | 14,827 |
| Number of waterfowl hunters | $* 50,825$ | 14,790 | 44,470 |
| Percent of license holders |  |  |  |
| hunting waterfowl | $14.6 \%$ | $14.5 \%$ | $13.6 \%$ |
| Average times afield | 7.04 | 6.66 | 6.53 |
| Ducks killed per day | 1.56 | 0.42 | 0.17 |

[^9]
Table 2
1967 DUCK KILL

| Area | No. Hunters | Days Hunted | Ki11 | Percent Kill by Area |
| :---: | :---: | :---: | :---: | :---: |
| Willamette Valley | 12,393 | 91,238 | 113,773 | 21.2 |
| Columbia River | 8,392 | 67,450 | 134,313 | 25.1 |
| North Coast | 1,261 | 10,464 | 14,539 | 2.7 |
| NORTHWEST | 22,046 | 169,152 | 262,625 | 49.0 |
| South Coast | 1,431 | 11,564 | 18,942 | 3.5 |
| Umpqua-Rogue | 1,819 | 12,908 | 19,232 | 3.6 |
| SOUTHWEST | 3,250 | 24,472 | 38,174 | 7.1 |
| Hood River-Wasco | 752 | 4,083 | 5,709 | 1.1 |
| Crook-Deschutes-Jefferson | 2,474 | 14,204 | 22,377 | 4.1 |
| Klamath | 8,149 | 55,642 | 93,768 | 17.5 |
| CENTRAL | 11,375 | 73,929 | 121,854 | 22.7 |
| Columbia Basin | 3,032 | 24,887 | 29,199 | 5.4 |
| Upper John Day | 388 | 1,858 | 3,048 | 0.6 |
| Snake River | 1,964 | 13,911 | 23,829 | 4.5 |
| NORTHEAST | 5,384 | 40,656 | 56,076 | 10.5 |
| Malheur | 2,474 | 15,011 | 24,772 | 4.6 |
| Harney | 1,043 | 5,721 | 12,386 | 2.3 |
| Lake | 3,201 | 14,326 | 20,418 | 3.8 |
| SOUTHEAST | 6,718 | 35,058 | 57,576 | 10.7 |
| STATE TOTALS | 48,773 | 343,267 | 536,305 | 100.0 |

Table 22
1967 GOOSE KILL

| Area | No. Hunters | Days Hunted | Kill | $\begin{gathered} \text { Percent Kill } \\ \text { by Area } \\ \hline \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: |
| Willamette Valley | 4,361 | 23,969 | 8,680 | 16.8 |
| Columbia River | 2,132 | 17,899 | 4,685 | 9.1 |
| North Coast | 218 | 707 | 247 | 0.5 |
| NORTHWEST | 6,711 | 42,575 | 13,612 | 26.4 |
| South Coast | 267 | 1.391 | 271 | 0.5 |
| Umpqua-Rogue | 145 | 1,122 | 296 | 0.6 |
| SOUTHWEST | 412 | 2,513 | 567 | 1.1 |
| Wasco-Hood River | 533 | 2,487 | 1,060 | 2.1 |
| Crook-Deschutes-Jefferson | 944 | 5,877 | 3,354 | 6.5 |
| Klamath | 5.427 | 29,993 | 10,899 | 21.1 |
| CENTRAL | 6,904 | 38,357 | 15,313 | 29.7 |
| Columbia Basin | 2,471 | 12,290 | 4,192 | 8.1 |
| Upper John Day | 218 | 902 | 320 | 0.6 |
| Snake River | 533 | 2,561 | 740 | 1.5 |
| NORTHEAST | 3,222 | 15,753 | 5,252 | 10.2 |
| Malheur | 1,017 | 3,999 | 1,307 | 2.5 |
| Harney | 1,114 | 5,023 | 5,080 | 9.9 |
| Lake | 3,078 | 13,119 | 10,431 | 20.2 |
| SOUTHEAST | 5,209 | 22,141 | 16,818 | 32.6 |
| STATE TOTALS | 22,458 | 121,339 | 51,562 | 100.0 |

Table 23
SUMMARY OF SHOOTING GROUNDS SUCCESS

| Area | Days of Season | Hunter Days | HARVEST |  |  |  |  | $\frac{\text { Success }}{1967}$ | $\frac{\text { Ratio }}{1966}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Ducks | Geese | Coots | Snipe | Total |  |  |
| Summer Lake | 69 | 6,254 | 7,587 | 2,120 | 370 | 24 | 10,101 | 1.62 | 2.27 |
| Sauvie Island | 46 | 11,726 | 23,962 | 366 | 97 | 16 | 24,441 | 2.08 | 1.67 |
| Government Island | 15 | 212 | 581 | 4 | 0 | 5 | 590 | 2.78 | 3.78 |
| Warner Valley | 41 | 218 | 298 | 95 | 0 | 0 | 393 | 1.80 | 1.91 |
| Camas Swale | 17 | 271 | 490 | 0 | 10 | 0 | 500 | 1.85 | 1. 12 |
| TOTALS |  | 18,681 | 32,918 | 2,585 | 477 | 45 | 36,025 | 1.93 | 1.91 |


Table 24
SPECIES TAKEN ON PUBLIC SHOOTING GROUNDS 1967 and 1966 Seasons

| Species | $\frac{\text { Summer }}{1967}$ | $\begin{array}{r} \text { Lake } \\ \hline 1966 \\ \hline \end{array}$ | Sauvie Island |  | Government Island |  | Warner Valley |  | $\begin{array}{cr} \text { Camas Swale } \\ \hline 1967 & 1966 \end{array}$ |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1967 | 1966 | 1967 | 1966 | 1967 | 1966 |  |  | 1967 | 1966 |
| Mallard | 2,345 | 2,255 | 9,339 | 5,646 | 63 | 42 | 117 | 308 | 235 | 95 | 12,100 | 8,346 |
| Am. Widgeon | 1,607 | 1,257 | 5,293 | 5,012 | 266 | 468 | 29 | 20 | 33 | 50 | 7,228 | 6,807 |
| Eur. Widgeon | 1 | - | 1 | - | - | - | - | - | - | - | 2 | - |
| G. W. Teal | 407 | 394 | 3,799 | 3,253 | 169 | 249 | 3 | 9 | 95 | 67 | 4,473 | 3,972 |
| Pintail | 1,483 | 1,397 | 4,545 | 2,866 | 48 | 64 | 99 | 87 | 87 | 43 | 6,262 | 4,457 |
| Shoveler | 599 | 581 | 454 | 220 | 16 | 1 | 6 | - | 32 | 32 | 1,107 | 834 |
| Gadwall | 607 | 396 | 115 | 59 | 7 | 5 | 12 | 2 | 4 | - | 745 | 462 |
| Cinn. Teal | 31 | 40 | - | - | - | - | - | - | - | - | 31 | 40 |
| B. W. Teal | - | - | 2 | 2 | - | - | - | - | - | - | 2 | 2 |
| Wood Duck | 15 | 4 | 37 | 20 | - | - | 1 | - | 1 | - | 54 | 24 |
| Ruddy Duck | 64 | 52 | 37 | 40 | - | - | 2 | - | - | - | 103 | 92 |
| Goldeneye | 21 | 37 | 6 | 9 | 1 | - | 2 | - | - | - | 30 | 46 |
| Bufflehead | 118 | 156 | 51 | 20 | - | - | 1 | - | - | - | 170 | 176 |
| R. N. Duck | 13 | 9 | 81 | 20 | 1 | - | 1 | - | - | - | 96 | 29 |
| Lesser Scaup | 46 | 67 | 95 | 91 | - | - | - | - | 3 | - | 144 | 158 |
| Greater Scaup | 1 | 8 | - | - | - | - | - | - | - | - | 1 | 8 |
| Canvasback | 31 | 137 | 43 | 49 | - | 1 | 1 | 4 | - | - | 75 | 191 |
| Redhead | 187 | 201 | 6 | 2 | - | - | 17 | - | - | - | 210 | 203 |
| Hooded Merg. | 1 | 2 | 19 | 23 | - | - | 1 | - | - | 1 | 21 | 26 |
| Common Merg. | 7 | 8 | 21 | 22 | 8 | - | - | - | - | - | 36 | 30 |
| W. W. Scoter | 1 | - | - | 2 | - | - | - | - | - | - | 1 | 2 |
| Surf Scoter | - | 1 | - | 1 | - | - | - | - | - | - | - | 2 |
| Scoter (Unid.) | - | - | 14 | 3 | 1 | - | - | - | - | - | 15 | 3 |
| Old Squaw | 1 | - | - | 1 | - | - | - | - | - | - | 1 | 1 |
| Hybrid | - | - | 1 | 1 | 1 | - | - | - | - | - | 2 | 1 |
| Unid. | - | - | 3 | - | - | - | - | - | - | - | 3 | - |
| TOTAL DUCKS | 7,587 | 7,062 | 23.962 | 17,362 | 581 | 830 | 292 | 430 | 490 | 288 | 32,912 | 25,912 |

$$
\text { Table } 24
$$

SPECIES TAKEN ON PUBLIC SHOOTING GROUNDS 1967 and 1966 Seasons (continued)

| Species | Summer Lake |  | Sauvie Island |  | Government Island |  | Warner Valley |  | Camas Swale |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1967 | 1966 | 1967 | 1966 | 1967 | 1966 | 1967 | 1966 | 1967 | 1966 | 1967 | 1966 |
| Snow Goose | 1,714 | 8,323 | 10 | 6 | - | - | 32 | 44 | - | - | 1,756 | 8,373 |
| Canada Goose | 200 | 163 | 214 | 80 | 2 | - | 43 | 65 | - | - | 459 | 308 |
| Lesser Canada | 4 | 2 | 109 | 146 | 2 | 1 | 2 |  | - | - | 117 | 149 |
| Cackler | 57 | 65 | 25 | 76 | - | 1 | 9 | 12 | - | 6 | 91 | 160 |
| Whitefront | 131 | 75 | 8 | 6 | - | _ | 7 | 13 | - | - | 146 | 94 |
| Ross' Goose | 12 | 8 | - | - | - | - | 2 | - | - | - | 14 | 8 |
| Blue Goose | 1 | - | - | - | - | - | - | - | - | - | 1 | - |
| Hybrid | 1 | - | - | - | - | - | - | - | _ | - | 1 | - |
| Black Brant | - | 1 | - | - | - | - | - | - | - | - | - | 1 |
| TOTAL GEESE | 2,120 | 8,637 | 366 | 314 | 4 | 2 | 95 | 134 | - | 6 | 2,585 | 9,093 |
| coot | 370 | 305 | 97 | 79 | - | 8 | 2 | - | 10 | 10 | 479 | 402 |
| Snipe | 24 | 5 | 16 | - | 5 | - | - | - | - | - | 45 | 5 |

Table 25
WINTER INVENTORY TRENDS IN OREGON

| Species | 1968 | 1967 | 1966 | 1965 | 1964 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Mallard | 111,112 | 103,253 | 211,992 | 229,350 | 168,795 |
| Gadwall | 1,198 | 1,222 | 1,050 | 566 | 2,686 |
| Am. Widgeon | 61,490 | 38,263 | 63,674 | 72,255 | 45,544 |
| Eur. Widgeon | - | - | - | - | 3 |
| G. W. Teal | 14,990 | 19,166 | 7,276 | 8,317 | 8,390 |
| B.W./Cinn. Teal | 1 | 1 | 1 | - | 25 |
| Shoveler | 3,585 | 9,040 | 1,020 | 370 | 1,014 |
| Pintail | 54,719 | 40,103 | 77,901 | 53,557 | 83,091 |
| Wood Duck | 899 | 113 | 67 | 57 | 60 |
| Redhead | 56 | 109 | 328 | 143 | 174 |
| Canvasback | 3,844 | 2,439 | 2,712 | 2,509 | 4,676 |
| Scaup | 9,060 | 5,925 | 4,144 | 6,635 | 19,033 |
| Ring-necked Duck | 530 | 1,032 | 2,542 | 1,403 | 1.471 |
| Harlequin | 10 | 11 | 14 | 11 | 17 |
| Goldeneye | 2,316 | 1,648 | 1,501 | 1,201 | 3,639 |
| Bufflehead | 1,980 | 4,786 | 3,853 | 3,670 | 2,707 |
| Ruddy Duck | 11,295 | 8,689 | 7,764 | 8,381 | 4,634 |
| Merganser | 3,831 | 3,469 | 2,467 | 1,431 | 3,316 |
| Scoter | 713 | 1,253 | 817 | 946 | 627 |
| Unid. Ducks | 4,561 | 12,231 | 28,440 | 5,796 | 12,726 |
| TOTAL DUCKS | 286,190 | 252,753 | 417,563 | 396,598 | 362,628 |
| Coot | 44,509 | 44,844 | 44,391 | 80,828 | 53,300 |
| Snow Goose | 202 | 18 | 57 | 427 | 3 |
| Cackling Goose | 5,403 | 826 | 4,435 | 930 | 1,948 |
| White-fronted Goose | 2 | - | 4 | 16 | 1 |
| Canada Goose | 57,598 | 47,104 | 63,543 | 37,623 | 47,689 |
| Black Brant | 865 | 1,523 | 798 | 1,325 | 1,626 |
| total geese | 64,070 | 49,471 | 68,837 | 40,321 | 51,267 |
| Swan | 7,748 | 5,853 | 4,389 | 4,265 | 6,873 |
| TOTAL WATERFOWL | 402,517 | 352,921 | 535,180 | 522,012 | 474,068 |
| Percent change from previous year | +14.1\% | -34.1\% | +2.5\% | +10.1\% | -18.0\% |

Table 26
SNIPE CENSUS
(Western Oregon)

| Region | 1968 | $\frac{\text { Birds }}{1967}$ | $\frac{\text { per } 100}{1966}$ | $\begin{array}{r} \text { Acres } \\ \hline 1965 \end{array}$ | 1964 | 1968 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | No. Birds | Acres |
|  |  |  |  |  |  | Observed | Censused |
| Northwest | 6.83 | 6.40 | 9.49 | 5.15 | 5.10 | 198 | 2,898 |
| Southwest | 0.33 | 2.00 | 0.17 | 0.30 | 0.17 | 2 | 600 |

Table 27
SNIPE CENSUS
(Eastern Oregon)

| County | No. Samples | Mileage | Snipe |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1968 | 1967 | 1966 |
| Grant | 1 | 20 | 10 | - | - |
| Baker | 5 | 100 | 156 | 166 | 46 |
| Union | 4 | 80 | 29 | 28 | 20 |
| Wallowa | 3 | 60 | 32 | 13 | 28 |
| Lake | 1 | 20 | 30 | 22 | 21 |
| Harney | 1 | 20 | 13 | 16 | 21 |
| TOTALS | 15 | 300 | 270 | 245 | 136 |




During the 1967-68 trapping season only 752 residents obtained licenses to trap as compared with a record high of 2,681 licenses issued for the $1946-47$ season. A steady decline in raw fur prices since the period immediately following world war II has resulted in fewer trappers afield each succeeding year.

Seventeen species of animals in oregon produce fur of commercial value. However, because of the low prices offered for most skins, trappers generally directed their efforts toward taking the more valuable or numerous fur animals--beaver, otter, wildcat, and muskrat. These four furbearers commanded relatively high prices, were fairly plentiful, and provided most of the trapper's income.

The other 13 species were lightly trapped and were generally taken accidentally in sets made for the more valuable species. A slight increase in value of long-haired furs, such as produced by wildcats, raccoons, and foxes, was brought about by greater usage of trim on women's garments and export to foreign markets.

## BEAVER AND OTTER

The beaver and otter season extended from November 15, 1967 through February 15, 1968 in all counties except Grant, Lake, Malheur, and Harney. A November 1 opening was authorized for these four counties to permit trapping of the high country before winter weather set in and made trapping difficult.

During the season trappers purchased 11,700 beaver seals at $\$ 1.00$ each. They reported using 8,780 on beaver and submitted the balance for refund.

The catch of beaver, otter, and other fur-producing species is presented by county in Table 1.

## Census

A census of 12 one-mile samples on 12 streams in Douglas County indicate a significant increase in beaver populations. One hundred nine slides, 21 dams, and 41 dens were tallied as compared with 83 slides, 15 dams, and 32 dens in 1967 and 69 slides, 7 dams, and 27 dens in 1966.

## Damage

During the year 238 complaints of beaver damage were received and acted upon. Some dead-trapping and live-trapping was conducted by Commission personnel to remove nuisance animals, but most of the complainants remedied their own problem through use of kill permits or the use of repellents. Many deferred action until the open season and engaged a private trapper.

Table 2 shows the number and disposition of beaver complaints by region during the last three years.

Table
1967-68 FUR CATCH

| County | No. <br> Trappers <br> Reporta | Beaver | Otter | Mink | Muskrat | Raccoon | Marten | Skunk | Civet Cat | Yeasel | Opossum | Badger | $\begin{gathered} \text { Gray } \\ \text { Fox } \end{gathered}$ | $\begin{aligned} & \text { Red } \\ & \text { Fox } \end{aligned}$ | Wildsat | Coyote | Nutria |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Baker | 14 | 102 | - | 21 | 257 | 6 | - | - | - | - | - | 1 | - | - | 14 | 3 | - |
| Benton | 25 | 364 | - | 2 | 35 | 50 | - | 9 | 3 | - | 1 | - | 16 | 34 | 2 | 1 | 188 |
| Clackamas | 29 | 366 | 24 | 29 | 156 | 49 | - | - | - | 2 | 32 | - | 12 | 16 | 3 | 3 | 172 |
| Clatsop | 49 | 471 | 31 | 146 | 1,252 | 149 | - | 3 | - | 20 | 41 | - | - | - | 8 | 10 | 2 |
| Columbıa | 27 | 337 | 3 | 23 | 430 | 16 | - | 15 | - | 1 | 7 | - | 3 | 1 | 2 | 1 | 41 |
| Coos | 34 | 629 | 28 | 22 | 285 | 32 | - | 7 | 5 | - | - | - | - | - | 8 | 7 | - |
| Crook | 4 | 26 | - | 2 | 71 | - | - | - | $\cdots$ | - | - | - | - | - | 29 | 3 | - |
| Curry | 9 | 61 | 7 | 3 | 67 | 9 | - | 1 | - | - | - | - | - | - | - | - | - |
| Deschutes | 19 | 27 | 6 | 54 | 159 | 8 | 24 | - | - | - | - | 2 | 1 | - | 30 | 14 | - |
| Douglas | 45 | 803 | 19 | 16 | 103 | 38 | - | 4 | 1 | - | - | - | 2 | - | 8 | 3 | - |
| Gilliam | 1 | 29 | 1 | 8 | 24 | 5 | - | - | - | - | - | - | - | - | - | - | - |
| Grant | 20 | 77 | - | 35 | 457 | 12 | - | - | 1 | - | - | 1 | - | - | 24 | 2 | - |
| Harney | 9 | 110 | - | 11 | 3,711 | 6 | - | 2 | 1 | - | - | - | - | - | 54 | 9 | - |
| Hood River | 5 | 61 | 1 | 15 | 51 | 16 | - | 3 | 2 | - | - | - | - | - | 5 | 2 | - |
| Jackson | 25 | 89 | 1 | 19 | 448 | 71 | - | 19 | 1 | - | - | - | 5 | 1 | 28 | 45 | - |
| Jefferson | 3 | 26 | - | - | - | - | - | - | - | - | - | - | - | - | 5 | - | - |
| Josephine | 16 | 63 | 10 | 14 | 588 | 49 | - | - | 1 | - | - | - | 5 | - | 12 | 3 | - |
| Klamath | 40 | 197 | 28 | 76 | 15,653 | 60 | 5 | - | 10 | - | - | 4 | 1 | - | 48 | 25 | - |
| Lake | 6 | 145 | - | 12 | 47 | 10 | - | - | - | - | - | - | - | - | 11 | 6 | - |
| Lane | 105 | 1,705 | 38 | 91 | 712 | 238 | - | 22 | 127 | - | 1 | - | 21 | 9 | 76 | 12 | 677 |
| Lincoln | 31 | 479 | 24 | 36 | 309 | 136 | - | - | 15 | - | - | - | - | - | 60 | 9 | 4 |
| Linn | 27 | 453 | 11 | 17 | 78 | 125 | - | 2 | 1 | - | - | - | 20 | 11 | 9 | 3 | 359 |
| Malheur | 17 | 114 | - | 4 | 2,768 | 23 | - | - | 1 | - | - | 7 | - | - | 63 | 21 | - |
| Marion | 23 | 538 | 3 | 29 | 58 | 96 | - | 27 | 2 | 2 | 40 | - | 14 | 19 | 4 | 10 | 423 |
| Morrow | 4 | 62 | - | 10 | 86 | - | - | - | - | - | - | - | - | - | 9 | 4 | - |
| Multnomah | 26 | 137 | - | 1 | 859 | 18 | - | 1 | - | 5 | 19 | - | 2 | 2 | 1 | - | 13 |
| Polk | 12 | 246 | 2 | 8 | 48 | 62 | - | 3 | - | 5 | - | - | 2 | 19 | 3 | 10 | 281 |
| Sherman | 1 | 12 | 3 | 16 | - | 5 | - | - | - | - | - | - | - | - | - | - | - |
| Tillamook | 25 | 155 | 25 | 58 | 209 | 76 | - | - | 2 | - | 3 | - | - | - | 23 | 27 | 2 |
| Umatilla | 10 | 181 | - | 19 | 714 | 9 | - | 1 | - | - | - | - | - | - | 11 | 1 | - |
| Union | 13 | 55 | - | 11 | 291 | 13 | - | 1 | - | - | - | - | - | - | - | - | - |
| Wallowa | 21 | 99 | 9 | 49 | 634 | 73 | - | - | 3 | - | - | 1 | - | - | 90 | 23 | - |
| Wasco | 4 | 77 | - | 53 | 4 | 5 | - | - | - | - | - | - | - | - | 5 | - | - |
| Washington | 22 | 271 | 2 | 5 | 251 | 91 | - | 2 | 4 | 1 | 85 | - | 11 | 7 | 21 | 24 | 347 |
| Wheeler | 2 | 49 | - | 3 | - | 1 | - | - | - | - | - | - | - | - | 5 | - | - |
| Yamhill | 17 | 164 | 6 | 17 | 74 | 42 | - | 4 | - | - | 52 | - | 7 | 2 | 3 | 1 | 540 |
| TOTALS | 740 | 8,780 | 282 | 935 | 30,909 | 1,599 | 29 | 126 | 180 | 31 | 286 | 16 | 122 | 121 | 674 | 282 | 3,049 |

Table 2
BEAVER COMPLAINT DISPOSITION

| Region | Complaints |  |  | Beaver <br> Dead-Trapped |  |  | Beaver Live-Trapped and Transplanted |  |  | Kill Permits Issued |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1967 | 1966 | 1965 | 1967 | 1266 | 1965 | 1967 | 1966 | 1965 | 1967 | 1966 | 1965 |
| Northwest | 99 | 96 | 68 | 4 | 3 | 0 | 1 | 6 | 2 | 35 | 56 | 18 |
| Southwest | 49 | 34 | 24 | 0 | 2 | 0 | 0 | 0 | 0 | 14 | 20 | 10 |
| Central | 19 | 21 | 8 | 4 | 10 | 1 | 3 | 3 | 0 | 3 | 6 | 2 |
| Northeast | 49 | 56 | 62 | 39 | 58 | 55 | 5 | 13 | 0 | 3 | 2 | 1 |
| Southeast | 22 | 15 | 14 | 16 | 11 | 1 | 5 | 6 | $\bigcirc$ | 0 | 0 | 0 |
| TOTALS | 238 | 210 | 176 | 63 | 47 | 57 | 14 | 28 | 2 | 55 | 83 | 31 |



## OTHER FURBEARERS

Reports from 741 of the 752 licensed fur trappers show that they caught 47,424 of 17 species whose pelts at current market prices were valued at $\$ 165,362.97$. Some additional trapping took place by children under 14 years of age who are not required to obtain a license or file a report of fur taken.

The fur market remained good on bobcats and fair on coyotes, which stimulated some effort in taking of these and other longhaired fur species.

Nutria and opposum, two illegally introduced species, continued to increase and spread through western oregon. Fur prices remained too low to stimulate trapping effort toward these undesirable animals, or encourage pelting of those accidentally taken in sets made for more valuable species.

## Fur Values

Fur values for the 1967-68 season remained low and approximated prices paid to trappers during the $1966-67$ season. Beaver and wildcat pelts brought slightly higher prices while the market slumped further on mink, muskrat, marten, and coyote skins.

The average prices paid for all fur animals, as compiled from the trapper's report cards, are presented in Table 3.

Table 3
average pelt prices

| Species | $1967-68$ | $1966-67$ | $1965-66$ | $1964-65$ | $1963-64$ |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Mink | $\$ .41$ | $\$ 5.62$ | $\$ 7.33$ | 7.64 | $\$ .31$ |
| Muskrat | .65 | .85 | 1.24 | .98 | 1.11 |
| Marten | 5.98 | 6.07 | 6.40 | 9.42 | 6.83 |
| Otter | 19.30 | 19.57 | 24.48 | 21.71 | 20.89 |
| Beaver | 13.30 | 11.60 | 11.90 | 7.94 | 10.55 |
| Wildcat | 14.53 | 8.92 | 14.08 | 5.78 | 5.25 |
| Coyote | 2.86 | 3.15 | 6.42 | 4.37 | 3.08 |
| Badger | 1.81 | 2.05 | 3.01 | 1.47 | 1.88 |
| Raccoon | 2.01 | 1.85 | 2.31 | 1.45 | 1.62 |
| Gray Fox | 1.50 | 1.30 | 1.83 | 1.16 | .70 |
| Red Fox | 3.67 | 3.07 | 3.97 | 1.51 | 3.34 |
| Skunk | .56 | 1.07 | 1.10 | .86 | .72 |
| Civet Cat | 1.26 | 1.31 | 1.71 | 1.44 | 1.13 |
| Weasel | .19 | .55 | .41 | .49 | .25 |
| Opossum | .63 | .45 | .47 | .30 | .39 |
| Ring-tailed Cat | 1.50 | 1.25 | 1.50 | 1.25 |  |
| Nutria | .94 | 1.15 | 2.00 | 1.22 | 1.26 |

## Muskrats (Summer Lake)

The annual muskrat census was conducted on January 14 and resulted in the recording of 288 active houses on the sample area as compared with 368 in 1968 and 1,342 in 1959. Because of the continued low population, no trapping was authorized for the fourth consecutive year.

Results of the census and subsequent harvests for the last ten years are presented in Table 4.

Table 4
SUMMER LAKE MUSKRAT CENSUS AND HARVEST

| Year | Number of Houses | Muskrats Harvested | No. of Trap Nights | Av. Sets | No. per | Trap Catch |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1959 | 1,342 | 1,543 | 3,344 |  | 2. 1 |  |
| 1960 | 1,228 | 1,602 | 3,920 |  | 2.4 |  |
| 1961 | 568 | 0 | - |  | - |  |
| 1962 | 588 | 550 | 1,238 |  | 2.2 |  |
| 1963 | 627 | 438 | 972 |  | 2.2 |  |
| 1964 | 712 | 417 | 1,271 |  | 3.0 |  |
| 1965 | 325 | 0 | - |  | - |  |
| 1966 | 68 | 0 | - |  | - |  |
| 1967 | 368 | 0 | - |  | - |  |
| 1968 | 288 | 0 | - |  | - |  |
| TOTALS | 6,113 | 4,550 | 10,745 |  | 2.4 |  |



## PREDATORS

The control of predatory animals in Oregon is a cooperative effort participated in by federal, state, county, and private agencies. The program is administered by the Division of Wildlife Services of the Bureau of Sport Fisheries and Wildiffe and operates on funds supplied by the various agencies. The Game Commission is required by statute to appropriate $\$ 40,000$ annually for this control program.

Forty-five government hunters were employed in the 28 counties which appropriated funds to the program. Clatsop, Tillamook, Multnomah, Polk, Jackson, Hood River, and Lake Counties did not provide funds and therefore did not have the service of a hunter available.

An intensive control program was continued on deer winter and fawning ranges in Baker, Deschutes, Crook, Harney, Jackson, Jefferson, Klamath, Lake, and Malheur Counties; bighorn sheep plants on Hart Mountain, steens Mountain, and the Owyhee Rims; antelope kidding areas in Deschutes, Harney, Lake, and Malheur Counties; and turkey ranges in Wasco and Wallowa Counties.

A measurement of the trends in predator populations is obtained through a comparison of the number of animals observed on big game sample routes each year. Coyote populations remain high throughout the state, while bobcat numbers are steadily decreasing due, in part, to intensive trapping pressure. The number of predators observed during the past two years is shown in Table 5, with the number of coyotes seen also expressed in animals per thousand miles of travel.

Table 5
PREDATOR POPULATIONS

| Region | Miles of Census | Coyotes | Bobcats | Foxes | Coyotes per <br> 1,000 Miles |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Northwest | 2,400 | 46 | 9 | 8 | 19.2 | 18.6 |
| Southwest | 2,094 | 15 | 3 | 7 | 7.2 | 3.9 |
| Central | 789 | 10 | 0 | 0 | 12.7 | 10.8 |
| Northeast | 1,319 | 25 | 0 | 0 | 19.0 | 23.6 |
| Southeast | 2,302 | 20 | 0 | 0 | 8.7 | 8.8 |
| TOTAL | 8,904 | 116 | 12 | 15 | 13.0 | 13.3 |



The habitat improvement program is designed to provide food, water, and cover for game where such requirements are lacking. Initially, the effort was concentrated on private land improvements for upland game but increased emphasis is being placed on big game range rehabilitation projects. Current developments include cover plantings; herbaceous and browse seedings; cisterns for upland game; water holes, springs, and cisterns for big game, nesting sites for waterfowl; and fencing to protect installations and natural habitat.

A total of $\$ 1,593,089.68$ has been expended since 1953 when the program was initiated. Table 1 summarizes all work to date.

## Cover Plantings

Block plantings of trees and shrubs totaled 24 acres on 7 sites in the Columbia Basin and 3 acres on 3 sites in Union County. Replacements were planted on 5 sites in the Columbia Basin and 25 sites in Umatilla County. Of the 39,183 trees and shrubs planted, 17,375 were used in new developments and the remainder were replacements. Table 2 displays plantings by county.

Block plantings were made in Morrow and Umatilla Counties as shown in Table 3 .

Plant survival in northeastern Oregon was poor due to a combination of drought, below-normal temperatures, and drying winds. Survival averaged 25 percent in Union County and 50 percent in Umatilla County. No maintenance or evaluation checks were made in Sherman County but will be conducted during the next segment.

Weed control with Simazine-80 and 2,4-D amine was completed on 29 sites in Umatilla and Morrow Counties and 22 sites in Union and Baker Counties. Early spraying was unsatisfactory due to a
Table

lack of moisture but rains resulted in good control during June. Thistles were sprayed on the natural gas right-of-way crossing the Dursham tract adjoining Camas Swale with satisfactory results. A11 rose hedges at Fern Ridge were rotovated to control grass growth and to conserve moisture.

Eight new cooperative habitat development agreements were signed with landowners. These agreements provide hunting access to 40,846 acres of land. Table 4 summarizes the long-term agreements now in effect.

Annual agreements for the planting of Sudan grass in rye grass fields were signed with 11 cooperators in the Willamette valley. This program resulted in the planting of 201 acres of Sudan and the opening of 9,203 acres to waterfowl and upland game hunting.




Table 3
SITES AND ACRES OF NEW BLOCK SHRUB AND TREE PLANTINGS

|  | Number <br> of Sites | Acres | Number <br> of Plants |
| :--- | :---: | ---: | ---: |
| County | 7 | 24 | 4,200 |
| Morrow | 3 | 3 | 3,475 |
| Union | 10 | 27 | 7,675 |

Table 4
TEN-YEAR AGREEMENTS WITH PRIVATE LANDOWNERS

| County | New | Agreements | Sites | Completed* | Acres Newly Opened to Hunting |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Agreements | In Effect | 67-68 | Total |  |
| Baker |  | 3 |  | 6 |  |
| Benton |  | 1 |  |  |  |
| Crook |  | 8 |  | 11 |  |
| Deschutes |  | 2 |  | 3 |  |
| Gilliam |  | 19 |  | 46 |  |
| Grant | 2 | 4 | 7 | 26 | 19,000 |
| Jefferson |  | 3 |  | 36 |  |
| Klamath |  | 7 |  |  |  |
| Lane |  | 1 |  |  |  |
| Morrow | 4 | 60 | 2 | 153 | 10,846 |
| Polk |  | 1 |  | 18 |  |
| Sherman |  | 46 |  | 216 |  |
| Umatilla | 1 | 105 | 4 | 428 | 10,000 |
| Union | 1 | 24 | 16 | 57 | 1,000 |
| Wasco |  | 6 |  | 19 |  |
| TOTALS | 8 | 290 | 29 | 1,019 | 40,846 |

## Herbaceous and Browse Seedings

Many of the herbaceous and browse seedings were made in cooperation with other agencies or private landowners. Cooperative agreements or Memorandums of Understanding to accomplish such work are in effect with the following: U. S. Forest Service, U. S. Bureau of Land Management, U. S. Bureau of Reclamation, U. S. Army Engineers, Oregon State Highway Commission, Oregon state Board of Forestry, Deschutes County, Weyerhaeuser Timber Company, Crown Zellerbach, and Pacific Power and Light Company.

Seedings were completed on 123 sites totaling 6,373 acres during the past year. Food and cover plantings for small game totaled 818 acres on 70 sites, while big game plantings accounted for the remainder. Tables 5 and 6 summarize the information by counties. Results are discussed by region.

Table 5
HERBACEOUS SEEDINGS FOR SMALL GAME

| County | Area | Sites | Acres | Species Planted |
| :---: | :---: | :---: | :---: | :---: |
| Douglas | Plat "I" Dam | 1 | 30 | Smartweed |
| Douglas | Tiller Dist., Umpqua F. | 1 | 50 | Grass |
| Grant | John Day | 7 | 10 | Wheat |
| Lane | Dursham Tract | 7 | 17 | Grain, Sudan, Clover |
|  | Fern Ridge Reservoir | 18 | 298 | Grain, corn, Sudan |
|  | Florence Sand Dunes | 3 | 140 | Grain,grass, legumes |
|  | Rye Grass Fields | 5 | 52 | Sudan |
| Linn | Rye Grass Fields | 23 | 139 | Sudan |
| Ma1heur | Patch \& Porter Islands | 2 | 62 | Grain, sweet clover |
| Polk | Rye Grass Fields | 3 | 20 | Sudan |
| TOTALS |  | 70 | 818 |  |




## Small Game Seedings

Northwest Region
The most extensive plantings were made at Fern Ridge Reservoir where share croppers seeded 136 acres of Sudan grass and 19 acres of corn. An additional 92 acres of Sudan, 7 acres of barley, 14 acres of corn, 20 acres of wheat, 4 acres of smartweed, and 6 acres of millet were seeded by Game Commission personnel. Eleven cooperators in Lane, Linn, and Polk Counties seeded 201 acres of Sudan grass in conjunction with rye grass plantings on 32 sites. The Forest Service and Bureau of Land Management cooperated in seeding 140 acres to grain, grasses, and legumes in the sand dunes area south of Florence. These seedings are used by waterfowl, pheasants, and deer. Six acres of Sudan and 11 acres of clover and barley were seeded on the Dursham tract adjacent to Camas Swale for use by upland game, waterfowl, and deer.

Utilization of the Fern Ridge Reservoir food crops was excellent. Waterfowl consumed all the available food with over 15,000 ducks being observed at one time in the corn and Sudan fields. Grain plantings on the sand dunes near Florence did not mature last year.

## Southwest Region

Thirty acres along the margin of the reservoir created by plat "I" Dam east of Sutherlin were planted to smartweed, using both seed and transplants. Perennial grasses were seeded on 50 acres of skid roads and landings near Abbott Butte in cooperation with the Umpqua Forest. The primary purpose is to furnish food for a proposed transplant of wild turkeys but deer also should benefit. It is too early to evaluate the results of these plantings.

Northeast Region
Perennial grasses were seeded on 16 shrub planting sites in Morrow, Umatilla, and Union Counties to provide nesting cover for upland game.

Ten acres of winter wheat were planted at seven locations along the John Day River in Grant County for use by upland game. Severe drought resulted in failure except for isolated areas near the river where subsoil moisture was available.

Southeast Region
Approximately 62 acres on Patch and Porter Islands in the Snake

River north of Ontario were seeded to wheat, barley, rye, and sweet clover for upland game and waterfowl use. Utilization was very good.

## Big Game Seedings

The 5,555 acres of herbaceous and browse species planted last year represented the greatest effort to date toward rehabilitating big game ranges. Plantings on 21 of the 53 sites were made in cooperation with the Forest Service and Bureau of Land Management.

Many of the smaller seedings were made for trial purposes to determine species adaptability and planting techniques for application on a broader scale. A discussion of the individual plantings and results, where evaluated, follows:

## Northwest Region

Clatsop and Tillamook Counties:
Roadsides, skid trails, and landings on newly logged areas in the Coast kange were seeded by sportsmen who have made this an annual project. A total of 200 acres was planted with 600 pounds of bird's-foot trefoil and 200 pounds of burnet.

Clatsop and Columbia Counties:
Forty acres of Crown-Zellerbach land disturbed by logging and the construction of a power line were seeded to big trefoil and Dutch white clover. The Beaverton Chapter of the Izaak Walton League assisted in applying the seed. Objectives of the project were to test the value of palatable legumes in alleviating big game damage to Douglas fir and to determine their effectiveness in retarding brush growth.

Lane County:
A five-acre trial on Rock Creek involved rotovating, fertilizing with 300 pounds of 16-20-0 per acre, and seeding to orchard grass, Dutch white clover, and big trefoil. The cambium of several large alders was injected with 2,4,5-T to determine if the procedure will be effective in killing the trees.

Thirty acres on the North Fork of the Siuslaw were cleared with a brush beater for trial purposes. Fertilizer was applied at the rate of 300 pounds of $16-20-0$ per acre and 10 acres were subsequently rotovated and seeded to orchard grass, big trefoil, and Dutch white clover.

Both the Rock Creek and North Fork trials have been used extensively by elk.

Fertilizer trials were conducted on Holland Meadows and Rigdon Meadows to measure the response of native vegetation following the application of 16-20-0. The trials involved $1 / 2$ and 12 acres, respectively.

Lincoln County:

A trial on Pitchfork Ridge on the Alsea River involved clearing 30 acres with a bulldozer and chain saw, fertilizing with 180 pounds of 16-20-0 per acre, and seeding to orchard grass, bird'sfoot trefoil, Dutch white clover, and subterranean clover. Alders in the vicinity were also treated with $2,4,5,-T$ in an experiment similar to the one at Rock Creek.

Tillamook County:

Thirty acres on Bear Ridge on the Nestucca River were fertilized and seeded from the air, using 166 pounds of $16-20-0$ per acre and a mixture of orchard grass and legumes. Four pellet transects were established to measure results following treatment. The information is presented in Table 7 .

Table 7
BEAR RIDGE PELLET GROUP TRANSECTS

| Year |  <br> Fertilized | Fertilized | No |
| :---: | :---: | :---: | :---: |
| No. of Transects | 1 | 1 | Treatment* |
| 1968 | 43 | 7 | 2 |

*Average of two transects recorded on control area.


Coos County:
Twelve acres of disturbed sites on newly logged areas were seeded to big trefoil.

Curry County:
Five acres of disturbed sites on newly logged areas were seeded to big trefoil.

Douglas County:
Bird's-foot trefoil, subterranean clover, and Dutch white clover were seeded by helicopter on 200 acres of clear-cuts in cooperation with the Glide District of the Umpqua Forest. Ten acres of experimental plots involving legumes and fertilizer in conjunction with Douglas fir plantings were made in cooperation with the Glide District.

Bird's-foot trefoil and clovers also were seeded by hand and power spreader on 70 acres of disturbed logging sites administered by the Bureau of Land Management and the Diamond Lake District of the Umpqua Forest.

Twenty acres of clear-cut land on the Fish Creek Desert, from which the slash had been piled and burned by the forest Service, were planted to bitterbrush at the rate of a pound per acre. Trial plantings of bitterbrush were made on 10 other sites.

Approximately 20 acres of dense willow, serviceberry, and whitethorn were flattened with a crawler tractor and blade to expose the soil and promote forage production. Forest Service cooperation on the project involved burning of the excess debris and falling 8 acres of madrone on the adjacent slope to provide winter food and encourage subsequent sprouting.

Josephine County:
A trial planting of $4 \frac{1}{2}$ acres was made at Briggs valley in cooperation with the Siskiyou Forest. The area was summer fallowed and then seeded to test the adaptability of the following species: timothy, orchard grass, Harding grass, cereal wheat and rye, alfalfa, lana vetch, subterranean clover, Dutch white clover, and bird's-foot trefoil.

An additional seven acres was summer fallowed during June in preparation for fall seeding.

## Central Region

## Crook County:

A four wing saltbush seeding trial was established on the BLM's 1,800-acre Dagus spray project near the South Fork of the Crooked River. The 100-acre trial was drilled at three intervals: 25 acres in late spring (May 1967); 25 acres in winter (November 1967); and 50 acres in early spring (April 1968). Sainfoin was included in the winter and early spring drillings. An inspection on July 3, 1968 revealed no saltbush from the winter or late spring seedings but a density of one plant per 25 feet of row drilled in early spring. Scattered Sainfoin plants were found in the winter seeding.

Another saltbush trial of 166 acres at Steens-Y on Camp Creek was seeded from one to three weeks later than at Dagus. Wheatgrasses, nomad alfalfa, and Sainfoin were included with the saltbush. Later inspection failed to locate any saltbush or alfalfa and only scattered stands of Sainfoin. A fair density of the wheatgrasses resulted from winter seeding. A one-half-acre trial at Rabbit Valley and another at Prineville Reservoir involving saltbush seed from Utah, Colorado, Nevada, and the Alvord Desert in Harney County resulted in no success.

Approximately 50 acres at Prineville Reservoir were seeded to alfalfa and crested wheatgrass but low moisture supplies resulted in poor success.

Five acres within four exclosures on the Crooked River National Grasslands were spring seeded to saltbush, Sainfoin, nomad alfalfa, and wheatgrasses. No results were apparent at the time of this report.

Bitterbrush seed was furnished the Ochoco Forest for broadcast seeding with grasses on disturbed logging sites. A total of 340 acres on four timber sales was seeded at the rate of one pound per acre. An inspection in July 1968 revealed fair to good stands on all sites where soil was well disturbed by logging, where the recommended seeding rate was followed, and where the sites were not re-logged to remove cull timber after seeding. The indications thus far are that the practice should be continued.

Two trial areas of two acres each were seeded to wedge-leaf Ceanothus at the rate of two pounds per acre. The sites, one on Pine Creek and the second on Lost Creek, were disturbed by logging. A later inspection revealed few plants on Lost Creek due to relogging for culls after seeding, but numerous plants were evident on the Pine Creek trial. A reliable source of seed is needed to
expand the planting of this species.
Evaluation of the Camp Creek chaining project was continued with the annual reading of pellet transects in June. The drilling of bitterbrush on 1,000 acres of the Barnes pasture in January and February 1967 resulted in excellent emergence of this species and deer continue to be attracted in large numbers, although mild weather conditions during the winter of 1967-68 resulted in lighter use than previously. Less than half as many pellet groups were counted on the 10 transects in June compared with 1967, but the density far exceeded that recorded on the control plots. Table 8 summarizes the information for the past four years.

Table 8
CAMP CREEK PELLET GROUP TRANSECTS

|  | Deer Pellet Groups |  |
| :--- | :---: | :---: |
| Year | Chained Area | Control Area |
| No. of Transects | 10 | 10 |
| 1965 |  | 105 |
| 1966 | 816 | 351 |
| 1967 | 690 | 153 |
| 1968 | 326 | 124 |



## Deschutes County:

Saltbush, Sainfoin, and intermediate and pubescent wheatgrass seed was furnished the Forest Service for drilling on 10 miles of natural gas pipe line right-of-way on the Fort Rock District. The area has not been inspected but a 1965 seeding of nomad alfalfa and wheatgrasses in the same vicinity resulted in a fair stand.

The 200-acre plainview burn, which was sprayed and seeded to nomad alfalfa and wheatgrasses in 1966, continued to exhibit a fair to good stand the second growing season. Favorable results from a 15-acre trial seeding made in 1966 on Tumalo Reservoir near the plainview burn indicate a good potential for seeding approximately 800 acres remaining on the old reservoir site.

## Jefferson County:

Thirty acres near Ashwood were drilled to wheatgrasses, Sainfoin, nomad alfalfa, bitterbrush, and saltbush in November 1967. The purpose of this trial was to test plant adaptability on sites cleared of juniper since the Jefferson County ACP office approves cost sharing for such practices. All species except saltbush showed good emergence in April. A later inspection revealed some losses due to drought but an acceptable stand of all species, including saltbush, appears possible.

Klamath County:
Five hundred acres of the Fox Lake burn on the Pokegama blacktailed deer winter range were seeded in September and october 1967 to nomad alfalfa, Sainfoin, and pubescent, intermediate, and Siberian wheatgrasses. Purpose of the seeding was to increase late winter and early spring forage. An inspection in June 1968 revealed a good initial stand of all species drilled.

The Goodlow chaining project, involving 1,400 acres of dense juniper located near Willow Valley Reservoir, represented the most ambitious winter range revegetation effort attempted to date. Double chaining was completed during the fall and winter of 1967 with seed being applied from the air between chainings. The species planted were Sainfoin, nomad alfalfa, yellow sweet clover, bitterbrush, Russian wild rye, and intermediate, pubescent, and crested wheatgrasses. In addition, bitterbrush and saltbush were hand-broadcast in root holes of chained junipers. Initial emergence of the grasses, Sainfoin, alfalfa, sweet clover, and bitterbrush appeared good.

Seven one-tenth-acre pellet group transects, the measure trends of deer use on the area, were established in June 1966 and have been recorded each year since. Deer use has increased subsequent to treatment, as shown in Table 9.

Table 9
GOODLOW PELLET GROUP TRANSECTS

|  | Deer Pellet Groups |  |  |
| :---: | :---: | :---: | :---: |
| Transect Number | 1966 | 1967 | 1968 |
| $1 *$ | 19 | 77 | 71 |
| 2 | 58 | 54 | 54 |
| 3 | 33 | 37 | 57 |
| 4 | 16 | 20 | 58 |
| 5 | 38 | 37 | 83 |
| 6 | 32 | 51 | 70 |
| 7 | 43 | 68 | 31 |
|  |  | 34 | 49 |

*Transect located within the 10-acre trial area established in 1966.

A four-mile strip of gas line right-of-way on Windy Ridge was inspected in June 1968. The area was seeded in the fall of 1964 to bitterbrush, nomad alfalfa; and crested, Siberian, and beardless wheatgrasses. Although the seeding has been grazed heavily each spring, some of each species were found. The bitterbrush was browsed, but healthy, and the grasses and alfalfa appeared to be gaining in vigor.


## Wasco County:

Five hundred ninety pounds of bitterbrush seed were furnished the BLM for aerial broadcast with grasses on 600 acres of the Schoolmarm burn. Seeding was done in the fall and emergence, particularly of grasses, has been excellent.

## Northeast Region

## Baker County:

Approximately 1,140 acres in the Keating area were seeded in cooperation with the BLM. The Bureau furnished grass seed and equipment for 1,000 acres planted to bitterbrush, saltbush, squawapple, Sainfoin, and crested wheatgrass. Forty acres of browse were seeded with the Hanson drill and 100 acres of raised mounds or biscuits were seeded to browse and Sainfoin by habitat personnel.

## Southeast Region

## Harney County:

Approximately 27 acres near Doe Spring were seeded with a rangeland drill in October 1967. One pound of bitterbrush and two pounds of saltbush seed per acre were applied.

A 250-acre seeding was made on the east side of the steens north of the Alvord ranch. Seeding was done in strips of browse alternating with grass and legumes. The following rates per acre were applied: Crested wheatgrass, 5\#; nomad alfalfa, $\frac{1}{2} \#$; Sainfoin, 2\#; bitterbrush, 1\#; and saltbush, 2\#. Crested wheatgrass seed was furnished by the BLM which also plowed and drilled 70 acres and fenced the 320-acre field.

About 250 acres of the Sheep Mountain burn north of Wagontire Mountain were seeded at the rate of one pound per acre each for bitterbrush, saltbush, and nomad alfalfa and two pounds for Sainfoin. The BLM applied the seed.

Eighty acres of the BLM horse pasture north and east of Burns were seeded by air on March 20 and 21 at the following rates per acre: Crested wheatgrass, 4\#; Sainfoin, 2\#; alfalfa, 1\#; and saltbush, 2\#. Cattle were grazed on the area heavily after seeding as an experiment to determine the practicability of this treatment.

Two mountain mahogany thinning projects were completed to stimulate seedling establishment. The first was located on Sundown Ridge on the Snow Mountain District of the Ochoco Forest and consisted of a strip 10 feet wide by $3 / 4-$ mile long which was bulldozed in November 1967. The second project was completed in May 1968, and consisted of a 20 -foot by 1.4 -mile strip on the ridge between Rattlesnake and Cow Creeks north of Harney.

## Small Game Water Developments

Fifteen of the 50 fiber glass cisterns planned for the Northeast Region were installed. The cultivation season started a month earlier than usual, preventing installation of the remaining 35 . Thirty-five tanks were fabricated at the Pendleton shop.

One unused 350-gallon unit was removed from the Crooked River National Grasslands and stored for future use.

Five cisterns were installed in southern Lake County by the BLM. The Commission contributed $\$ 410.00$ for materials. Two units were salvaged from the Coglan Hills and reinstalled near Picture Rock Pass north of Summer Lake. Fences around the three cisterns on Silver Lake Rim were repaired.

Table 10 displays the program to date.


Table 10
SMALL GAME CISTERNS

|  | Number <br> Installed | Number <br> Removed | Totalin <br> Operation |
| :--- | :---: | :---: | :---: |
| County |  |  | 2 |
| Baker |  |  | 1 |
| Crook |  |  | 2 |
| Deschutes |  | 1 | 32 |
| Gilliam |  | 12 |  |
| Grant |  | 8 | 44 |
| Harney |  |  | 31 |
| Jefferson | 7 |  | 141 |
| Lake |  |  | 158 |
| Morrow | 5 | 219 |  |
| Sherman |  | 3 | 5 |
| Umatilla |  |  | 655 |
| Wasco |  |  |  |
| TOTALS | 22 |  |  |

## Big Game Water Developments

Materials were supplied the Deschutes Forest for installation of three 500-gallon cisterns on the Crescent District. Materials were also supplied the BLM for installation of two similar units on Horse Ridge. The four cisterns planned for the Ochoco Forest were not installed due to lack of funds for installation by the Forest Service. Two water holes planned for the Deschutes Forest were not constructed but are included in the next segment.

Materials were supplied the BLM for installation of four cisterns in southern Harney County and to the Forest Service for installation of four cisterns on the Snow Mountain District. Seven cisterns previously installed on the Snow Mountain District were maintained.

Four springs were developed in southern Harney County under cooperative agreement with the BLM. The state contributed \$947 while the BLM paid the balance of $\$ 1,969$. Six springs were developed in cooperation with the BLM in southern Lake County with the state contributing $\$ 2,161$ and the BLM, \$4,948.

Big game water developments are summarized in Table 11.

Table 11
BIG GAME WATER DEVELOPMENTS

| County | Number Installed | Type | Cooperator | Total in* Operation |
| :---: | :---: | :---: | :---: | :---: |
| Deschutes | 5 | Cisterns | $\begin{aligned} & 3-F S \\ & 2-B L M \end{aligned}$ | 56 |
| Harney | 8 | Cisterns | $\begin{aligned} & 4-\operatorname{FS} \\ & 4-\text { BLM } \end{aligned}$ | 47 |
|  | 4 | Springs | BLM |  |
| Jefferson |  |  |  | 3 |
| Lake | 6 | Springs | BLM | 39 |
| TOTALS | 23 |  |  | 145 |

*Includes developed water holes.

Waterfowl Nesting Sites

Placement of wood duck nest boxes continued with 548 installed during the year. The average life is five years so continual replacement is necessary. Most boxes are placed in western oregon with a few installed east of the cascades. The nest box program has become popular with organized sportsmen, Scout troops, and other civic groups, and such organizations constructed 233 of the total boxes installed.

Table 12 summarizes the wood duck nest box program to date.


Table 12
WOOD DUCK NEST BOXES

|  | Number <br> Installed | Total Installed |
| :--- | :---: | :---: |
| County |  |  |
| to Date |  |  |

A random check of 373 boxes in the willamette valley revealed 58 percent use by ducks in the mid-valley area and 60 percent use on Sauvie Island. Nest destruction and other losses were much higher on Sauvie Island with only 32 percent of the nests hatching successfully compared with 68 percent success for the mid-valley boxes.

Two goose nesting islands were constructed by the BLM in Rock Creek Reservoir in Malheur County. The Game Commission supplied straw mulch for erosion control and 10 pounds of yellow sweet clover seed.

No goose nesting platforms were constructed on Antelope Flats Reservoir in Crook County or Hiatt Lake in Jackson County as
planned. Minor repairs were made on five existing platforms at Prineville Reservoir.

At Fern Ridge Reservoir, 1,173 yards of low dike were constructed with a dozer to impound winter runoff. Two half-acre nesting ponds were constructed in the reed canary grass area. Ten of the existing ponds were cleared and mowed, then filled by pumping in early September to attract waterfowl.

Four hundred yards of dike were constructed on the Dursham tract. Two half-acre nesting ponds were built and two existing ponds were enlarged.

## Fencing

Fencing is necessary to protect upland game shrub and food plantings and cisterns from livestock. Construction for this purpose included 400 rods at Fern Ridge and the Dursham tract in Lane County, 1,575 rods in Morrow County, 16 rods in Grant County, and 96 rods in Umatilla County. Five stiles were constructed to facilitate access to fenced areas in Umatilla County.

Fences are used around reseeded big game ranges as protection from grazing. This work included 1,360 rods on the Pokegama area in Klamath County, 33 rods near Ashwood in Jefferson County, 217 rods on the Keating range in Baker County, and 465 rods constructed in cooperation with the Malheur Ranger District in Grant County. Three cattle guards were installed in the Pokegama fence.

Two fences were constructed on Long Creek and Fivemile Creek near Bly in Klamath County to exclude livestock from low elevation winter range. This fencing totaled 1,664 rods. Four cattle guards were installed in cooperation with the Forest Service and Weyerhaeuser Timber Company. Table 13 summarizes the fencing program.

Minor repairs were performed on fences at Prineville Reservoir, Pokegama, and Crooked River National Grasslands. Approximately 480 rods of fence around shrub plantings and cisterns in Umatilla and Morrow Counties were maintained.

Table 13
FENCES

| County | Rods Constructed |  | Purpose |
| :---: | :---: | :---: | :---: |
|  | Big Game | Small Game |  |
| Baker | 217 |  | Keating area reseeding |
| Grant | 465 (FS) | 16 | Food plots <br> Trial seedings |
| Jefferson | 33 |  | Demonstration trial |
| Klamath | $\begin{aligned} & 1,360 \\ & 1,664 \end{aligned}$ |  | Pokegama seeding <br> Bly area winter range |
| Lane |  | 400 | Fern Ridge and Dursham tract seedings |
| Morrow |  | 1,575 | Shrub plantings |
| Umatilla |  | $\begin{aligned} & 56 \\ & 40 \end{aligned}$ | Shrub plantings Cisterns |
| TOTALS | 3,739 | 2,087 |  |




Wildife Lands in Management Areas

Seventeen land acquisition and development projects have been initiated since 1942. Most projects have received federal assistance through the Pittman-Robertson Act and Public Law 537.

Three of the project areas are being developed primarily for big game, five for waterfowl, three for upland game, and the remainder for a combination of waterfowl and upland game use. Project areas total 109,773 acres of which 62,242 acres have been purchased to date, while 26,496 acres are controlled under lease or agreement. The remainder remains in private ownership, making it difficult to exercise efficient control and management.

The only land purchases and exchanges completed during the period from July 1, 1967 through June 30,1968 involved the Kenneth Denman Area. Acquisitions included 28 acres purchased from the Highway Department and 276 acres around the Hoover Ponds secured in exchange for 172 acres of desert top suitable for industrial development. These negotiations added 132 acres to the project. Expenditures for all land purchased to date total $\$ 3,062,845$ while land leases cost $\$ 2,660$ annually.

ORS 496.340 specifies that certain real properties, exclusive of improvements, administered by the Game Commission are subject to county taxes. These include most of the project areas listed with the exception of military lands. Taxes and assessments during the year totaled $\$ 74,174.85$.

Table 1 summarizes the status of land management projects, followed by a detailed account of activities on the respective areas.
Table 1
WILDLIFE LANDS
(To July 1, 1968 )

| Area | $\begin{aligned} & \text { Date } \\ & \text { Initiated } \end{aligned}$ | $\frac{\text { Project Area }}{\text { Acres }}$ | $\begin{aligned} & \text { Purchased } \\ & \text { to Date } \\ & \hline \end{aligned}$ | Cost | Lease or $\mathrm{Ag}_{g}$ <br> Acres | $\frac{\text { zreement }}{\text { Annual }}$ | $1967-68$ <br> Taxes \& Assessments |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bridge Creek | 1962 | 15,375 | 7,311 \$ | 143,713 | - | - | \$ 3,525.57 |
| Camas Swale | 1942 | 2,700 | 2,522 | 100,000 | - | - | 7,373.42 |
| Kenneth Denman | 1953 | 2,044 | 427 | 131,304 | 1,865/1 | - | 2,486.49 |
| Fern Ridge | 1949 | 3,972 | - | - | $3,936 \% 1$ | - | 185.94 |
| Fort Stevens | 1950 | 1,447 | - | - | 1,447\% | - | - |
| Government Island | 1949 | 2,565 | 2,093 | 158,878 | 12 | - | 5,213.77 |
| Henderson Marsh | 1960 | 700 | - | - | 700 | - |  |
| Klamath | 1949 | 7,656 | 5,614 | 479,800 | 2,410 | - | 2,383.58 |
| Ladd Marsh | 1949 | 3,747 | 2,224 | 336,780 | - | - | 4,663.96 |
| McNary | 1953 | 100 | - | - | 100 | - | - |
| Prineville Res. | 1962 | 3,360 | - | - | 3,360 | - | - |
| Sauvie Island | 1946 | 12,129 | 7,578 | 877,337 | 3,495 | \$1,500 | 31,980.63 |
| Snake Riv. Is lands | 1959 | 219 | 219 |  |  | - | - |
| Summer Lake | 1944 | 17,400 | 11,865 | 244,000 | $\begin{aligned} & 1,505 / 3 \\ & 3,963 / 3 \end{aligned}$ | $1,150$ | 4,687.28 |
| Wenaha | 1953 | 17,719 | 9,290 | 201,758 | 1,285/4 | 10 | 3,715.13 |
| White River | 1953 | 17,016 | 14,104 | 339,275 | , 88014 | - | 7,819.62 |
| E. E. Wilson | 1950 | 1,625 | 85 | 50,000 | 1,473-1 | - |  |
| TOTALS |  | 109,773 | 62,242 \$3 | 062,845 | 26,496 | \$2,660 | \$74,035.39 |
| 71 Conveyed by U.S.A. to State with restrictions under Public Law 537. |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| /3 Executive order reserving land for wildife use. |  |  |  |  |  |  |  |
| $\angle 4$ Management agreement with B.L.M. making lands available primarily for wildife use. |  |  |  |  |  |  |  |

## SAUVIE ISLAND

In 1947, the Game Commission began acquiring the northern half of Sauvie Island to preserve and develop wintering grounds for waterfowl and provide an area for public hunting. The project encompasses 12,129 acres, of which 11,073 acres have been purchased or placed under long-term lease from the State Land Board. No additional land was acquired during the year.

## Development and Maintenance

A $1^{\prime}{ }^{\prime} \mathrm{x} 18^{\prime}$ metal seed storage building was installed at headquarters to replace the Rentenaar granary destroyed by flooding.

Three new windows were installed in the headquarters residence and the flood-damage interior of the East Side checking station was repaired. Other minor building repairs were accomplished where necessary.

Sixty yards of $12^{\prime \prime}$ riprap material was placed to repair a washedout section of asphalt facing on the northeast corner of the Columbia Drainage District dike. The Browning Lake earth dam was reinforced and other minor repairs made to dams and dikes on the project.

Poles were placed to supply power at two pumping sites. Additional work at one of the sites included enlarging 100 yards of ditch, installing a control gate, two $20^{\prime} x 8^{\prime \prime}$ corrugated flow pipes, an anti-seep ring, and construction of an earth dam at the south end of Footbridge Lake. The replacement for a water control gate damage in shipment was installed at the McNary pump station. A 12' $x 1^{\prime}$ culvert and a control gate were installed in the Graf Lake outlet to hold pumped water. Maintenance work on various ditches and channels included the removal of cottonwood trees and willows for a distance of one-half mile along the west bank of Catfish Slough and along the North Rentenaar and Browning Lake drainage ditches. Approximately 600 feet of ditch were deepend with a dragline to improve drainage.

A crossing was constructed across the Number 1 Lake drainage ditch, utilizing two sections of corrugated $20^{\prime \prime} \mathrm{x} 12^{\prime \prime}$ asphalt. pipe.

An electric outlet was placed at the Reeder Tract for pumping and power tool use.

Six hundred and fifty rods of fence were replaced along the Columbia Drainage District dike near Mudhen Lake and 50 rods were rebuilt between the Johnson and Hunt tracts. Other small sections of fence replacement or repair was accomplished on Oak Island, the Steelman residence, and Lost Prairie field.

Number 2 floating bridge across Pete's Slough was replaced and stationary bridges were repaired or rebuilt at the following locations: West Unit Slough, Footbridge Lake ditch, lateral ditch to Graf Lake, Pope Lake ditch, Mudhen ditch, Big Martin ditch, and the Crane Lake-Willowhole ditch.

The Walton Beach access and parking area was developed. This work included the installation of two comfort stations, construction of a $21^{\prime} \mathrm{x} 3,000^{\prime}$ graveled parking area, construction of 10 wooden stairways over the dike, and fencing to control parking and stairway use.

The following acreages of food crops were planted and left standing for waterfowl and upland game use: Corn, 106 acres; buckwheat, 180 acres; millet, 50 acres; spring barley, 40 acres; and fall barley, 60 acres. No planting was done on Government Island due to prolonged flooding during the spring freshet.

## SUMMER LAKE

Acquisition of the Summer Lake Management Area was initiated in 1944 to develop waterfowl habitat and provide an area for public hunting. The area now controlled totals 17,321 acres, including 11,865 acres purchased, 1,505 acres leased, and 3,963 acres of public land withdrawn for wildlife use. No additional land was acquired during the year.

## Development and Maintenance

Enclosed back porches were constructed on Residences 2 and 3 and the kitchens, dining rooms, and hallways of Residences 3 and 4 were tiled. A $4^{\prime} \times 4^{\prime} \times 5^{\prime}$ cement box was poured around the outlet valves at the domestic water tank. Building repair and maintenance included replacing the floor in the checking station and painting the exteriors of garage, checking station, two residences, and the domestic water tank.

A dike was built below the artesian well on the Turner tract to create a one-acre lake, and approximately 10 acres below the dike were leveled for wildife food crop plantings. Nine dams were
constructed on the west side of Ana River to control the run-off of alkali into the lower river. Considerable maintenance was required to replace and repair sections of dike eroded by wind, water, and muskrat activity. Canals and ditches were cleaned and culverts replaced where needed.

Three hundred acres were seeded to wheat, barley, and rye and 86 acres to wheatgrass. The hay produced on 73 acres of alfalfa was bartered for $\$ 2,500$ worth of seed, fertilizer, and chemicals.

## KLAMATH

The Klamath Management Area was established in 1949 for waterfowl management and public hunting purposes. To date, 2,761 acres have been purchased and an additional 2,410 acres are under longterm lease. No further additions were made during the year.

## Development and Maintenance

A three-bedroom headquarters residence was constructed under contract. Building maintenance included replacement of the Largent residence furnace, re-roofing two storage buildings and a pumphouse, finishing a new office in the George tract residence, removing numerous old buildings on the Largent tract, and painting the Largent tract residence and pumphouse.

One-half mile of the river front dike on the Largent tract was riprapped with 750 tons of material. Dikes on the Gregory and DeLameter tracts were reinforced or rebuilt.

Ditch cleaning and/or deepening included one-half mile on the DeLameter-Largent boundary line, three-fourths mile across the south end of the J. C. Hooper tract, seven-eighths mile along the railroad, and five-eighths mile of the main canal on the Largent tract. Five culverts, three 12-foot corrugated pipes, one 280foot smooth pipe, six Model 51 Armco control gates, and one Waterman screw gate were installed to regulate water.

Three-fourths mile of access road was constructed across the south end of the J. C. Hooper tract and approximately six miles of other roads were graded and repaired.

One-fourth mile of fence was constructed and three-fourths mile rebuilt. Two 16 -foot galvanized gates and one cattle guard were installed.

Six parking areas were constructed along the Miller Island road and
five foot bridges and a 45-foot floating bridge were installed to facilitate access.

Three hundred and fifty-seven acres of wheat and barley and four acres of tall wheatgrass were seeded. An additional 67 acres were summer fallowed. Fertilizer was applied to 700 acres and irrigation was carried out on 582 acres of food crops.

## CAMAS SWALE

The Camas Swale project was authorized in 1942 to provide a wintering area for waterfowl and public hunting. Of the 2,700 acres proposed for acquisition, 2,522 acres have been purchased to date. No additional land was acquired during the year.

## Development and Maintenance

A five-stall machine storage shed, $60^{\prime} x 28^{\prime}$, was constructed. One stall was converted for use as an office.

Two ponds totaling three acres were constructed on the Dursham tract to hold surface run-off water. All ten ponds on the area were cleaned and flooded for use by waterfowl.

A road was constructed to Pump \#1 and two culverts were installed in the machine shed access road.

Three-fourths mile of boundary fence was replaced and one-half mile was constructed in cooperation with an adjoining landowner.

Three hundred ten acres of wildife food crops were planted for waterfowl use, including 300 acres of Sudan grass and 10 acres of corn. An additional 15 acres of unutilized corn was left standing for use during this segment. All dams and dikes were sprayed to control weeds and 30 acres were rotovated five times to eradicate morning-glory.


## LADD MARSH

The Ladd Marsh project was initiated in 1959 for development as a nesting and resting area for waterfowl and to provide public hunting. To date, 2,252 of the 2,935 acres have been acquired. No land was purchased during the past year.

## Development and Maintenance

The Boothman barn and two antiquated buildings on the Harley Counsell tract were razed. Building maintenance included reroofing the lean-to on the peebler barn, replacing the submersible pump in the Boothman residence well, rewiring Residence 4-11 and rebuilding the back porch housing the water supply, and replumbing the H. Counsell house water system.

Spoil banks were leveled around two ponds on the Boothman tract. A $50^{\prime} \mathrm{x} 150^{\prime}$ pond was excavated on the west Boothman tract, a $75^{\prime} x 75^{\prime}$ pond was excavated on the peebler tract, and four ponds were created in the refuge area by removing the four-inch tule root mass.

Drainage ditches were dug to drain two seep areas on the $H$. Counsell tract, an irrigation ditch was re-located on the Semonis tract, and three culverts were installed to provide equipment crossings.

Five foot bridges were installed on the Boothman and Brogoitti tracts to facilitate access.

Fifty rods of rail fence were constructed to establish wildife cover, 250 rods of boundary fence were replaced, and 40 rods of old fencing were removed. Two fence stiles were installed.

A total of 3,000 shrubs was replaced on 19 planting sites. Willow and matrimony vine cuttings were established in a nursery for later transplanting.

Herbaceous plantings included 120 acres of fall wheat and barley, $2 \frac{1}{2}$ acres of spring barley, 7 acres of Tetra petkus rye, and miscellaneous plots of Japanese millet, sunflower, tall wheatgrass, Kentucky bluegrass, lana vetch, blue wildrye, orchard grass, and fawn fescue.

## BRIDGE CREEK

The Bridge Creek project was initiated in 1962 and 7,300 acres of the proposed 15,375 have been acquired to date. Development of winter range for elk and mule deer is the primary objective. No additional land was acquired during the year.

## Development and Maintenance

The roof on the headquarters cabin was replaced.
Two springs were developed and two stock watering tanks were installed at each spring. One spring box was replaced and one pond enlarged. All ponds and springs were maintained as needed.

A fence protecing the new seeding on the Martin tract was rebuilt and $1 \frac{1}{4}$ miles of fence south of Bridge Creek was replaced. The 32 miles of boundary and pasture fences were maintained.

Two toilets and a garbage pit were constructed on the Hilbert tract.

A trial planting of 5,000 ponderosa pine seedlings was made.
Eighty acres on the Martin tract were seeded to orchard grass and Rhizoma alfalfa.

## WENAHA

The Wenaha project was initiated in 1953 to provide winter range for deer and elk. Considerable hunting has been provided since development began. Approximately 10,510 of the proposed 17,652 acres have been acquired to date. No additional purchases were made during the past year.

## Development and Maintenance

The roof of the colpitts barn was repaired and elk feed racks at the Cummings barn were rebuilt.

Three miles of fence were repaired and 47 miles were maintained.
Thirty acres of alfalfa were harrowed to control weeds and 107 acres were fertilized.

## KENNETH DENMAN

Title to 1,895 acres of the Camp White military reservation was acquired in 1954, representing a major portion of the 1,920-acre Denman Management Area. Primary purposes are to provide upland game habitat and public hunting opportunities. Some waterfowl habitat has been developed. Acquisitions during the year included 28 acres purchased from the Highway Department and 276 acres around the Hoover Ponds which were acquired in trade for 172 acres of desert top suitable for industrial development. The purchase and exchange added 132 acres to the project.

## Development and Maintenance

Building maintenance included replacing the septic tank drain field at the headquarters residence and painting the exteriors of the barn, house, shop, and carport.

Three dikes were built to flood a total of 11 acres. Water controls and ditches were constructed to flood areas in the Military Slough and below Whetstone Pond No. 2. All ditches were cleaned and maintained.

A fence totaling 1,110 feet in length was constructed around a diked field on the Hall tract. Seven stiles were installed and 14 miles of fence were maintained.

Russian olive, cascara, and weeping willow were planted for trial. All wildife cover plots were cultivated and fertilized.

Herbaceous seedings included 19 acres of wheat and rye, 10 acres of spring barley, 9 acres of Sudan, 18 acres of Sudan and buckwheat, 6 acres of millet, $1 \frac{1}{2}$ acres of milo, and 1 acre of perennial grasses.


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E. E.WILSON
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The E. E. Wilson Area includes approximately 1,600 acres of land obtained under conditional title through the General Services Administration. In addition to its main function as a game farm, the area is also used for juvenile hunting, dog training, and field trials.

Game Bird Production
Bird production in 1967 totaled 21,613 pheasants, 948 chukar partridge, 138 Hungarian partridge, 562 bamboo partridge, 70 Kalij pheasants, and 30 Chilean tinamous. Details of game farm operations are presented in the Small Game section.

## Construction and Maintenance

1. Twenty pens for displaying show birds were constructed.
2. All buildings were maintained as necessary.

## Farming and Habitat Development

1. Approximately 26 acres of corn and 44 acres of Sudan grass were planted in 18 plots and left standing for winter use by upland game and waterfowl. Farming was done through agreements with adjacent landowners. Utilization of food crops was estimated to be 85 percent.
2. Noxious weeds were sprayed in compliance with county law and the brush was sprayed along the shoulders of nearly all streets on the area.
3. Through agreement with two adjacent landowners, we received 10 percent of the wheat raised on the area. Sixteen tons of grain were obtained from this source and an additional 39 tons purchased.
4. Boy Scouts poured and completed another round guzzler in the north end of the area and cleaned, widened and sprayed the trails leading to all of the guzzlers on the area.

## Recreational and Educational Use

1. Juvenile hunters utilized the area four days while juveniles and accompanying adults hunted an additional four days. A total of 290 hunters bagged 107 pheasants and 23 quail for an average success of .37 birds per hunter.
2. Approximately 200 persons used the area for training their dogs while another 200 people participated in field trials for the different breeds of dogs. Permits were issued for 11 field trials covering 21 days.
3. Through an agreement with the field dog clubs an attempt is being made to re-establish the bobwhite quail on the area. The clubs purchased 1,000 eggs, but due to heavy losses caused by ulcerative enteritis, only 310 birds were available for release prior to the March trials.
4. The Wilson Area is heavily used as an outdoor laboratory by several departments at Oregon State University.

Studies are currently being conducted on brush rabbits, ground squirrels, skunks, mice, and owls.

The Department of Farm Crops is also using the area to study control measures for blackberries and Canada thistles and to check the value of various soil sterilants.

## WHITE RIVER

The White River project was initiated in 1953 to provide winter range for a migratory herd of black-tailed deer and to alleviate damage on winter wheat. Merriam's turkeys were released in 1961 and have become established on the area. Approximately 14,000 of the proposed 17,000 acres have been acquired to date. No additional land was purchased during the past year.

## Development and Maintenance

All buildings, water developments, ditches, roads, and bridges were maintained.

Two miles of big game fence were constructed. Three miles of stock fence were relocated along the north side of the Kennedy tract.

The two miles of big game fence right-of-way were seeded to a grass mixture. Hunter's Prairie was plowed and prepared but not seeded due to dry weather. Fertilizer was applied to 710 acres of hay and pasture land. All fields under water were irrigated.

SUMMARY OF 1967-68 GAME INVENTORIES




[^0]:    * Fawn-doe ratios refer to the previous year's production as of December 31 .

[^1]:    Anything less than 0.1 deer per mile is indicated by (-).

[^2]:    *Precipitation for 12 -month period ending June 30 of named year. **Inclement weather precluded completion of count.

[^3]:    * Spikes legal since 1957.
    **Sample of kill (58 unclassified)
    $\angle 1$ October 12 windstorm.

[^4]:    Elk report card issued with each tag.
    /2 General mail survey of licensed hunters for information on all hunting.
    /3 Mail survey of persons who reported hunting elk in 1966 general mail survey. $\angle 4$ Mail survey of persons receiving 1967 antlerless elk permits.
    $\angle 5$ Mail survey of 1967 nonresident elk hunters.

[^5]:    * Based on 22,810 birds liberated and kept as breeders.
    ** Includes 342 birds sold for dog trials and experimental purposes.

[^6]:    * Peak of 86 white-fronted geese on 0ct. 10; 11 snow geese on Oct. 23; 4 whistling swan on $\overbrace{0}^{5}$
     *

[^7]:    Peak of 143 ruddy ducka and 31 scaup on $0 c t .18 ; 175$ redheads and 146 canvasbacks on $0 c t$ ． $26 ; 262$ butfleheads on Nov． $15 ;$ and
    10 ring－necked ducke and 45 common mergansers on Mar． 13 ．

[^8]:    * Peak of 100 white-fronted geese, 10 ruddy ducks and 10 hooded mergansers on 0ct. 31; 6 snow geese, 20 ring-necked ducks, 10 canvasbacks and 10 lesser scaups on Dec. 15 ; and 8 whistling swans on Jan. 4.

[^9]:    *Duck hunters - 48,774
    Goose hunters - 22,562

