

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

Quarterly Report

January-March, 1956

RESEARCH PROJECTS

FUR ANIMAL RESEARCH

Ecology of the Fisher

Objectives: To obtain data on the distribution, habitat preferences and winter food habits of the fisher.

Assignment: Malcolm W. Coulter, Assistant Leader

Eight specimens taken accidentally in sets intended for other animals were examined during the quarter. These fisher were obtained through the cooperation of State game wardens and regional biologists. Several of these fisher are of special interest. Two females, taken during late February show evidence of possible embryo development - a condition not previously found in any of our specimens. There is little available evidence as to when implantation and embryo development is resumed in the fisher since the fertilized eggs are carried in the blastocyst stage for several months after mating.

One specimen was taken in the town of Sidney in the Kennebec Valley only 10 or 12 miles north of Augusta. This occurrence is at least 35 to 40 miles southwest of previously known recent records.

Several field trips were made to various parts of fisher range in the State. Additional data were gathered on distribution, abundance, winter habits and habitat. The remarkable expansion in range witnessed during the past 5 years appears to be continuing in all sections. In areas where fisher were occasionally found two or three years ago they are now rather common. The animals may be found in almost any sizeable tract of woodland in the northern and western three-quarters of the State including recently cut-over timberlands, abandoned farm lands, and predominantly hardwood forests as well as the coniferous forests.

During this study it has not been possible to devote the time necessary to specific areas to accurately determine the daily cruising radius of fisher. However, it has become apparent that daily movements are often influenced by availability of food. In several instances fisher have used areas much smaller than those commonly described for this animal during a 24 hour period or during a two or three day period. This has been especially noticeable where they were feeding on carrion.

As was mentioned in the last report, trapping pressure during the late autumn season, 1955, was very light. Few trappers took many fisher, but in one area where one man caught 11, evidence of the animals was still very abundant after the season. For part of this area, records of fisher abundance are available for a 6 year period.

Mention has been made in previous reports of the noticeable change in travel pattern beginning in late winter or early spring. This behavior was again very apparent this season beginning about mid-March. The resulting maze of tracks would lead one to believe that fisher were much more abundant than is actually the case.

Coincident with the fisher work, a small amount of information was gathered on the marten. This species has not made the spectacular comeback that is evident with fisher. Marten apparently occur in more or less isolated colonies scattered throughout the more remote parts of northern and northwestern Maine, principally in Aroostook County and in northern Somerset and Piscataquis counties. More marten were accidentally trapped this year (22 known) than has been the case for several years. However, half of these were taken by one trapper in one township. This, and seven or eight other townships in that area, have produced the bulk of known marten records in recent years.

Plans for next quarter:

Begin work on a manuscript on the status and distribution of fisher in Maine.

WATERFOWL RESEARCH

(a) Waterfowl Distribution and Management

Objectives: To obtain data on the abundance, distribution, and migration of waterfowl species in Maine; and to conduct research that will assist in the management of the important breeding species, especially the black duck and the ring-necked duck.

Assignment: Howard L. Mendall, Leader

Inactive during quarter, except for work on the manuscript of the ring-neck publication.

Plans for next quarter:

The annual spring breeding ground studies will be initiated during April.

(b) Resting and Homing Study

Objectives: To study resting behavior and the degree of migrational homing exhibited by the black duck and the ring-necked duck.

Assignment: Malcolm W. Coulter

This study is being initiated this spring on a preliminary basis. From information previously gained by Unit personnel during detailed

nesting and productivity studies, it is apparent that we lack a clear understanding of re-nesting and homing in the black duck and the ring-necked duck. Much of the present knowledge of these phases of waterfowl biology has been acquired through studies of western and mid-western species.

In 1955 some exploratory work was carried out in central Maine, primarily in an attempt to devise a practical nest trap suitable for local cover conditions. A few eggs removed from nests last year were incubator-hatched and the ducklings were used in a parasite study being conducted by David O'Meara of the Department of Animal Pathology. The ducklings were later banded and released. It is anticipated that this general procedure will be followed again this year.

Work this season will be concentrated on two areas. One is a small, isolated bog pond with limited nesting cover. This marsh has one definite advantage in that the entire area and the birds in it can be observed at fairly close range from one blind.

The second marsh is a relatively large sedge-meadow for which considerable data on plant composition, water levels, duck populations, nesting cover and productivity are available over a 10 year period. Although this area is larger than the first it, also, has several vantage points from which larger portions of the marsh may be carefully watched. In addition, a number of the ducklings, both naturally reared and captive reared, as well as adult breeding birds, were banded on this area in 1955 during former Graduate Assistant Marquardt's thesis studies.

(c) Waterfowl Banding

Objectives: To study the movements and migration routes of waterfowl in Maine.

Assignment: Malcolm W. Coulter, Assistant Leader

Returns during the past year were tabulated.

Plans for next quarter:

Arrangements will be completed for the summer program and banding will be started during late June if conditions warrant.

(d) Waterfowl Hunter Bag Checks

Objectives: To determine hunter success, crippling loss, and species, sex and age composition of the kill.

Assignment: Howard L. Mondall, Leader

Inactive during quarter.

Plans for next quarter: Inactive.

WOODCOCK RESEARCH

Woodcock Census Studies

Objectives: To conduct an annual census on the Unit's permanent census routes in Maine; and to correlate census results of cooperators in the northeastern states.

Assignment: Howard L. Mendall, Leader

Inactive during quarter.

Plans for next quarter:

The usual spring census will be conducted. Mendall again will serve as regional coordinator of all census studies in New England and New York.

UPLAND GAME BIRD RESEARCH

Ruffed Grouse Cover Requirements and Populations

Objectives: To determine preferred winter cover types and population densities.

Assignment: Howard L. Mendall, Leader

A heavy schedule of meetings, conferences, and other administrative duties resulted in curtailment of most of the contemplated winter grouse work. Only three field trips of brief duration were made during the winter period.

Marked shifts in cover usage by the birds between coniferous growths and hardwoods were readily apparent coinciding with the varied climatic conditions that prevailed. Early winter weather was very severe, followed by unusually mild conditions in mid-winter; this in turn was followed by a cold and stormy March which resulted in snow cover throughout most of Maine being at its greatest depth of the winter the latter part of the month. During March the tendency of grouse to seek thick covers, particularly those in lowland, was much more noticeable than is usually the case.

Insufficient data were obtained on population densities to permit comparison with findings of previous years.

Plans for next quarter: Inactive.

BIG GAME RESEARCH

Moose Studies in Norway

Objectives: To study the productivity and management of moose on a private forest of 80,000 acres in Romerike, Norway.

Assignment: Arne Krafft, Graduate Student

Krafft devoted most of the quarter to formal course work, a review of literature and to occasional field trips to big game wintering areas. Some progress was made in tabulating thesis material.

Plans for next quarter:

Complete formal course work and continue with thesis writing.

COOPERATION AND EDUCATIONAL WORK

Coulter and Mendall continued to furnish technical aid to the State Pittman-Robertson program.

Assistance was also given the warden service and the general public in arranging autopsies, identifying specimens and in providing technical assistance. An unusually large number of inquiries from the general public was handled during the quarter.

Coulter, Mendall, and Quick participated in the State Wardens' Training School during March. Several hours of instruction were given in waterfowl identification, identification of mammal remains, discussions of predation and predatory animals, and a review of the Unit organization and services available to the wardens.

Quick conducted the undergraduate courses in wildlife management and the wildlife seminar.

Several speaking engagements were met during the quarter by the Unit staff.

Ashman, Quick and Mendall attended the Unit Leaders' Meetings and North American Wildlife Conference at New Orleans, Louisiana. Quick delivered a paper at one of the technical sessions.

PUBLICATIONS

Coulter, Malcolm W.

The Fisher Comes Back. (Semi-popular article submitted to The Maine Forester, Univ. of Maine, Orono, Maine.)

Quick, Horace F.

Analysis of Marton Exploitation as Criteria of Management. (Paper delivered at 21st N. A. Wildl. Conf., New Orleans, La.)

Mendall, Howard L.

1956. Woodcock Census Studies in Northeastern United States - 1955. Special Scientific Report, Wildlife No. 31, U. S. Fish & Wildlife Service, pp. 17-23.

Wooden, Robert B.

1956. Cover Requirements of Brooding Woodcock in Central Maine.
Special Scientific Report, Wildlife No. 31, U. S. Fish &
Wildlife Service, pp. 41-42.

Respectfully submitted,

Howard L. Mendall

Howard L. Mendall, Leader
Maine Cooperative Wildlife
Research Unit

University of Maine
Orono, Maine
April 11, 1956

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

Quarterly Report

April-June, 1956

RESEARCH PROJECTS

FUR ANIMAL RESEARCH

Ecology of the Fisher

Objectives: To obtain data on the distribution, habitat preferences and winter food habits of the fisher.

Assignment: Malcolm W. Coulter, Assistant Leader

This project was largely inactive during the quarter except for the examination of occasional specimens that were killed accidentally and submitted to the Unit laboratory.

One new distributional record was noted by Howard L. Mendall who saw a fisher at close range in the town of Robbinston, Washington County. This represents the first report of a fisher in the coastal zone and also the **first record for Washington County.**

The fisher study has been divided into three main phases as follows:

1. Status and distribution
2. Habitat and food habits
3. Reproduction and population structure

Attempts to have a specialist work with the reproductive tracts and skeletal material were fulfilled when arrangements were made for a cooperative study with Dr. P. L. Wright of the Montana Unit. It is felt that because of Dr. Wright's experience and interest in mustelid anatomy and reproduction more knowledge can be gained than if the material were studied at Maine. Statements of the progress of this phase of work will appear at intervals in the Montana Unit reports.

Plans for next quarter: Inactive.

WATERFOWL RESEARCH

(a) Waterfowl Distribution and Management

Objectives: To obtain data on the abundance, distribution, and migration of waterfowl species in Maine; and to conduct research that will assist in the management of the important breeding species, especially the black duck and the ring-necked duck.

Assignment: Howard L. Mendall, Leader

The annual breeding ground productivity studies were initiated by Mendall in early April. He was assisted by Coulter throughout most of the

period. Assistance on special portions of the study was given by several of the State biologists and wardens; also by Arnold Davis of the Moosehorn National Wildlife Refuge and by John Dudley of Calais.

This is the 18th consecutive year of these investigations. Coverage and techniques were essentially the same as in previous years. No changes were made in the study areas used a year ago so data for 1955 and 1956 will be directly comparable.

As in past years the studies consist of 3 phases: (1) a count of pairs and territorial males prior to and during the early part of the breeding season; (2) a sample nesting study to determine nesting conditions and success; (3) brood counts commencing with the beginning of the hatching period.

Breeding Populations

In spite of a heavy spring migration through Maine this year, resident populations were not as satisfactory as a year ago. All species showed slight to moderate decreases except the wood duck which was virtually unchanged from its low point reached in 1955. Most serious decline was with the ring-necked duck which decreased more than it had gained last year. Although the loss in black ducks was so slight as to have little or no statistical significance, nevertheless this was the third consecutive year that a similar, slight decline has been recorded.

Teal and goldeneyes do not occur on the study areas in sufficient numbers to permit accurate measurement yet decreases were apparent in 1956. Throughout northern, eastern and central Maine the American goldeneye appears to be at its lowest point, as a breeding bird, in 18 years.

In summary, the status of the initial population of the six species of breeding game ducks is as follows:

<u>Species</u>	<u>Status in 1956</u>
(Measured on Census Areas)	
Wood Duck	4% increase
Black Duck	6% decrease
Ring-necked Duck	19% decrease
(Estimated)	
American Goldeneye	Slight decrease
Blue-winged Teal	Slight decrease
Green-winged Teal	Moderate decrease

General Breeding Conditions

From the standpoint of phenology and climatic conditions, the spring and early summer of 1956 have been retarded by nearly a month. Ice-out dates were exceptionally late, being the latest in about two decades on some areas. Temperatures have been generally below average for the entire period from March 1 through mid-July. On the other hand, precipitation has been near normal and has been well spaced so that there have been neither

floods nor droughts of any serious consequence. Moreover, the sub-normal temperatures, while slowing down the growing season, have prevented much evaporation with the result that water levels (except where adversely controlled by man) have remained more constant than usual.

In spite of the retarded phenology, the waterfowl nesting season is not proving nearly as late as had previously been expected. Although data on nesting peaks and hatching dates are still incomplete, it is apparent that these will not be far from a 16-year average for the region under study. Black ducks are hatching about 10 days later than in 1955 and only 3 or 4 days behind their long-term average. Ring-neck hatching dates likewise are about 10 days behind last year's schedule, and are actually two or three days earlier than their long-term average. However, in spite of these near normal hatching peaks, the nesting season is much more prolonged than usual. This is due to rather heavy initial nest losses and resultant re-nesting.

Nesting Success

During the nesting study a total of 57 nests were located. This is a much smaller sample than usual and is the result of decreased populations on several of the study areas, adverse weather conditions for nest hunting, and less available manpower.

At the close of the quarter, the nesting study was still far from complete while the brood season was in a very early stage. Therefore, no details of results to date will be presented at this time. In the next quarterly report, a complete summary of the season's studies will be given.

Plans for next quarter: Conclude the year's studies of the nesting and brood seasons.

(b) Renesting and Homing Study

Objectives: To study renesting behavior and the degree of migrational homing exhibited by the black duck and the ring-necked duck.

Assignment: Malcolm W. Coulter, Assistant Leader

Eleven nesting hens (5 black ducks and 6 ring-necked ducks) were trapped at their nests, banded, marked and released. Eggs from these nests were placed in an incubator for hatching in cooperation with the Department of Animal Pathology. The ducklings will be reared and released. During the rearing period they will be divided into groups, some of which will be exposed to black flies, for further study of blood parasites by David O'Meara, Assistant in Animal Pathology.

The number of hens trapped and marked was not as high as had been hoped for primarily because of unfavorable weather for nest hunting, together with lower densities of nesting birds on the marshes studied. At the end of the quarter one black duck renest was located. Based upon the behavior of some of the other marked birds, it is likely that they will renest soon.

Despite the small number of hens trapped, the quarter's activities were valuable from the standpoint of improving methods of study for future work.

Plans for next quarter: Continue observation of marked hens and search for renests.

(c) Waterfowl Banding

Objectives: To study the movements and migration routes of waterfowl in Maine.

Assignment: Malcolm W. Coulter, Assistant Leader

Inactive except for the banding of nest-trapped females.

Plans for next quarter: The regular summer and fall banding will be started on the Penobscot River.

(d) Waterfowl Hunter Bag Checks

Objectives: To determine hunter success, crippling loss, and species, sex and age composition of the kill.

Assignment: Howard L. Mendall, Leader

Inactive during quarter.

Plans for next quarter: Inactive.

WOODCOCK RESEARCH

Woodcock Census Studies

Objectives: To conduct an annual census on the Unit's permanent census routes in Maine; and to correlate census results of cooperators in the northeastern states.

Assignment: Howard L. Mendall, Leader

The usual spring census in Maine was conducted in cooperation with the Game Division of the State Department of Inland Fisheries and Game. In addition, Mendall served as regional coordinator of the census studies in the New England States and New York. An abstract of the complete report is as follows:

Geographical coverage throughout the region in 1956 was the best ever obtained. However, the total volume of data available for comparison was slightly less than in 1955. This was occasioned primarily because the Prescott Peninsula routes in Massachusetts were not included this year. This extensive area has been abandoned at the suggestion of William Sheldon who felt that cover conditions had changed adversely to such an extent that accurate census trends would not be obtained.

The following tabulations summarize the census studies:

1956 Summary by States - All Data

	Total Stops All Trips	Total Birds All Trips	Av. No. Birds Per Stop Per Trip
Maine	1571	974	0.62
New Hampshire	43	14	0.33
Vermont	208	141	0.68
Massachusetts	55	54	0.98
Connecticut	240	115	0.48
New York	360	279	0.78
Totals	2477	1577	0.64

Comparative Census Data by States, 1955 and 1956
(Only routes censused during both years)

State	Year	Total Stops All Trips	Total Birds All Trips	Av. No. Birds Per Stop Per Trip
Maine	1955	1393	1017	0.73
	1956	1400	890	0.64
New Hampshire	1955	12	9	0.75
	1956	12	4	0.33
Vermont	1955	186	135	0.81
	1956	186	126	0.67
Massachusetts	1955	72	76	1.06
	1956	55	54	0.98
Connecticut	1955	209	88	0.42
	1956	208	82	0.39
New York	1955	396	286	0.72
	1956	328	226	0.69
Totals	1955	2528	1611	0.72
	1956	2187	1381	0.63

The census results indicated a general reduction in woodcock populations this year in all states. Although the percentage of decrease was slightly less than that which occurred last year, this reduced population has occurred throughout the region for the second consecutive year.

Part of the decrease may have been more apparent than real. It was the opinion of most census takers that unusually adverse weather for checking occurred during the census period. This followed a retarded spring which found the birds very late in returning north. Thus, some of the cooperators who handled several routes were sometimes forced to census when optimum weather was not prevailing.

Population decreases were less noticeable in New York, Connecticut and Massachusetts than in the northern New England States. This might be expected in this greatly retarded spring where winter conditions still prevailed in many of the northern covers at normal nesting time. In this connection it is of interest to note the situation in Maine. Heavy decreases in population occurred on many of the routes in northern and central Maine; in the southern counties and in the coastal belt, woodcock were only slightly reduced from last year.

UPLAND GAME BIRD RESEARCH

Ruffed Grouse Cover Requirements and Populations

Objectives: To determine preferred winter cover types and population densities.

Assignment: Howard L. Mendall, Leader

Inactive during quarter.

Plans for next quarter: Inactive.

BIG GAME RESEARCH

Moose Studies in Norway

Objectives: To study the productivity and management of moose on a private forest of 80,000 acres in Romeriko, Norway.

Assignment: Arne Krafft, Graduate Student

During the quarter Krafft completed all formal course work. He made a few field inspection trips with State regional biologists, and also made considerable progress on the thesis write-up.

Plans for next quarter: Complete the writing of the thesis.

COOPERATION AND EDUCATIONAL WORK

Coulter and Mendall continued to furnish technical aid to the State Pittman-Robertson program.

Assistance was also given the warden service and the general public in arranging autopsies, identifying specimens and in providing technical assistance.

Quick conducted the undergraduate courses in wildlife management and the wildlife seminar.

PUBLICATIONS

Coulter, Malcolm W.

1956. The Fisher Comes Back. The Maine Forester, Annual Edition, 1956, Univ. of Maine, Orono, Maine, pp. 8-15, 30.

Mendall, Howard L.

1956. Waterfowl Breeding Ground Survey in Maine. Special Scientific Report, Wildlife No. 30, U. S. Fish & Wildlife Service and Dominion Wildlife Service, pp. 259-264.

O'Meara, David C.

1956. Blood Parasites of Some Maine Waterfowl. Jour. Wildl. Mgt., 20(2):207-209.

Westfall, Claude Z.

1956. Foods Eaten by Bobcats in Maine. Jour. Wildl. Mgt., 20(2):199-200.

Westfall, Claude Z. and Robert B. Wooden

1956. Plastic Neck Markers for Woodcock. Jour. Wildl. Mgt., 20(2):218-219.

Respectfully submitted,

Howard L. Mendall

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Orono, Maine
August 25, 1956

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

Quarterly Report

July-September, 1956

RESEARCH PROJECTS

FUR ANIMAL RESEARCH

Ecology of the Fisher

Objectives: To obtain data on the distribution, habitat preferences and winter food habits of the fisher.

Assignment: Malcolm W. Coulter, Assistant Leader

Inactive during quarter.

Plans for next quarter: Collection of carcasses and occasional field checks will be made during the trapping season.

WATERFOWL RESEARCH

(a) Waterfowl Distribution and Management

Objectives: To obtain data on the abundance, distribution, and migration of waterfowl species in Maine; and to conduct research that will assist in the management of the important breeding species, especially the black duck and the ring-necked duck.

Assignment: Howard L. Mendall, Leader

The annual breeding ground productivity studies, discussed in part in the last quarterly report, were concluded during the current quarter. Throughout much of the season's work Mendall was assisted by Coulter. During special phases of the study, particularly in nest hunting, assistance was also given by the following: John Dudley of Calais, Arnold Davis of the Moosehorn National Wildlife Refuge, State Game Warden Lawrence Caron, and Howard Spencer, Jr., State Waterfowl Project Leader; also by State Regional Biologists Henry Carson, Harold Blanchard, J. William Peppard and Dana Holmes. This assistance to the Unit is greatly appreciated.

As previously pointed out, the over-all initial breeding population was somewhat lower than a year ago on the study areas. A summary of the census findings is repeated at this time.

<u>Species</u> (Measured on Census Areas)	<u>Status in 1956</u>
Wood Duck	4% increase
Black Duck	6% decrease
Ring-necked Duck	19% decrease
(Estimated)	
American Goldeneye	Slight decrease
Blue-winged Teal	Slight decrease
Green-winged Teal	Moderate decrease

General Breeding Conditions

The cold, backward season that prevailed from March to July continued through to the very end of the summer. Hatching peaks, as based on final tabulations, were a little later than had been predicted in July. Peak of the black duck hatch was June 12; for wood ducks it was June 23, and for ring-necks it was July 5. These dates are much later than a year ago although they are considerable closer to average than was the general seasonal phenology; the latter was retarded by more than 3 weeks.

Rainfall was near normal during the first half of the breeding season but was generally deficient from mid-July on. No floods occurred this year but neither were there extended droughts of serious consequence, merely a gradual lowering of water levels throughout most of the State.

Nesting Success

During the nesting study a total of 57 nests were located, all being of the black duck and the ring-necked duck. The sample was considerably smaller than usual; this was the result of lowered breeding stock on some of the study areas that lend themselves best to nest hunting, as well as to less available manpower and adverse weather for nest hunting.

Fifty-six of the nests located were kept under observation until hatched or destroyed. A total of 30, or 53.6 per cent, were successful. This is far lower than the 73 per cent hatching success of last year; it is also considerably below the long term average. Little difference was noted in 1956 between the black duck and the ring-neck, although success of the latter was a little higher as is usually the case.

Flood losses this year were the lowest ever recorded but predation was much higher than usual. The mink and fox were the chief nest robbers, with the raccoon following closely. Fox predation was much more extensive than is generally the case and is attributed primarily to lowered water levels occurring after the nests had been established. By contrast, losses from crows and ravens were relatively light in 1956.

The Brood Season

Data from brood counts are given in table 1. Less than half as many broods were checked as in 1955. As was the case in the nesting study, lowered initial populations, less available manpower and adverse weather

contributed to this reduced sample; in addition nesting success was considerably below that of last year.

Based on the figures obtained, there is little difference in size of Class I broods between 1955 and 1956. However, Class III broods show an average loss of nearly 1/2 a bird in comparison with 1955. This fact was not apparent at the time of the July report (for regulation purposes); in fact at that time it appeared brood averages would run higher than a year ago. The subsequent reduction was due to a relatively large number of small, late-hatched broods that were obviously from re-nesting hens.

Table 1

Average Brood Sizes by Age Classes
(Complete Counts Only)

Species	Total Broods	Class I		Class II		Class III	
		Broods	Ave. Size	Broods	Ave. Size	Broods	Ave. Size
Black Duck	26	11	7.9	8	7.5	7	6.0
Ring-necked Duck	39	17	7.5	13	6.5	9	7.1
Wood Duck	6	1	9.0	2	5.0	3	5.7
American Goldeneye	6	--	--	4	9.3	2	5.0
Blue-winged Teal	4	1	9.0	--	--	3	6.0
American Merganser	1	--	--	1	5.0	--	--
Totals	82	30	7.8	28	6.9	24	6.3

Conclusions

1. Over-all waterfowl populations were slightly lower at the start of the 1956 nesting season than in 1955.

2. Phenological conditions were greatly retarded this year with sub-normal temperatures occurring on a statewide basis from March through September.

3. Nesting success was materially below the long-term average and far below that of 1955.

4. Brood rearing success was slightly lower than a year ago.

5. Considering all aspects of the 1956 breeding season, there is little doubt but that waterfowl productivity in northern, central, and eastern Maine was substantially lowered over that of 1955. Because of the retarded

breeding season, the full significance of this reduced productivity could not be ascertained at the time of the July regulations report.

Plans for next quarter: Fall migration data will be obtained in conjunction with the hunter bag check studies.

(b) Renesting and Homing Study

Objectives: To study renesting behavior and the degree of migrational homing exhibited by the black duck and the ring-necked duck.

Assignment: Malcolm W. Coulter, Assistant Leader

Predation and unstable water levels greatly hampered efforts to trace the renesting efforts of hens marked during the previous quarter. At least two additional black duck renests were suspected, but they were destroyed, apparently by avian predators, before the renests were located.

At Goose River, the behavior of marked ring-neck hens clearly indicated that renesting attempts were being made. However, at about the time that these nests were established, an industry using the watershed raised water levels by approximately 16 inches. The next day it was obvious that the hens were no longer interested in nests or nesting covers and presumably their renests had been flooded. One hen apparently made a third attempt to reneest and again was discouraged by another period of highly fluctuating water levels. Several detailed brood checks made later in the season failed to disclose any marked hens with broods.

At the Snake Pond area the reneest of the single marked female was located. This hen had been trapped, banded and marked on June 15 at which time her initial nest of 9 eggs had been incubated 2 to 3 days. The reneest, of 6 eggs had been incubated approximately 10 days when located on July 10 indicating a renesting interval of about 8 days.

As pointed out in the last quarterly report, the ducklings hatched from eggs taken at natural nests were divided into groups and reared by David C. O'Meara, Assistant in Animal Pathology. Part of the birds were reared in fly-proof pens; others were exposed at intervals to black flies by transporting a crate of birds to the vicinity of banding traps when both wild ducks and black flies were abundant.

Although the sample was small, O'Meara's findings are of considerable interest. It was concluded that although exposed ducklings readily contracted infections of Leucocytozoon, they were not adversely affected by the blood parasite. By contrast similar infections of Leucocytozoon were fatal to domestic ducks.

Plans for next quarter: Inactive.

(c) Waterfowl Banding

Objectives: To study the movements and migration routes of waterfowl in Maine.

Assignment: Malcolm W. Coulter, Assistant Leader

The summer banding program was conducted during the period July 8 and September 2. A special allotment from the Washington Office of the Fish and Wildlife Service permitted continuation of the stations along the Penobscot River. These stations now have been operated during 10 of the past 11 years. William E. Shoemaker, undergraduate student majoring in wildlife, was again hired full time during the banding period to assist Coulter.

The trapping activity was not as productive as during recent years primarily because of reduced summer populations of black ducks and wood ducks along the Penobscot River. A total of 648 birds was banded including 504 black ducks, 138 wood ducks and 6 mallards. This was less than half the number of birds tagged at the same stations last summer.

As has been the case during past seasons, July again was a productive banding period and resulted in the capture of a considerable number of flightless young. Several adults were also taken at that time most of which had been banded on the river during previous summers.

In addition to the regular banding, 41 hand-reared birds (22 black ducks and 19 ring-necked ducks), were banded and released at Unit study areas. These birds were reared in connection with the reneesting study.

Plans for next quarter: Inactive.

(d) Waterfowl Hunter Bag Checks

Objectives: To determine hunter success, crippling loss, and species, sex and age composition of the kill.

Assignment: Howard L. Mendall, Leader

Inactive during quarter.

Plans for next quarter: The regular fall bag check work will be conducted in cooperation with the State Department of Inland Fisheries and Game.

WOODCOCK RESEARCH

Woodcock Census Studies

Objectives: To conduct an annual census on the Unit's permanent census routes in Maine; and to correlate census results of cooperators in the northeastern states.

Assignment: Howard L. Mendall, Leader

Inactive during quarter.

Plans for next quarter: Inactive.

UPLAND GAME BIRD RESEARCH

Ruffed Grouse Cover Requirements and Populations

Objectives: To determine preferred winter cover types and population densities.

Assignment: Howard L. Mendall, Leader

Inactive during quarter.

Plans for next quarter: Inactive.

BIG GAME RESEARCH

Moose Studies in Norway

Objectives: To study the productivity and management of moose on a private forest of 80,000 acres in Romerike, Norway.

Assignment: Arne Krafft, Graduate Student

During the quarter Krafft completed his duties at the University of Maine. He was given the oral examination for the Master's degree; also the preliminary draft of his thesis was approved by the Graduate Committee. He will receive the Master's degree at the first Commencement following submission of the final thesis probably next spring. A summary of his findings will be presented in a later quarterly report.

Krafft has now returned to Norway to resume his duties as a district game manager.

COOPERATION AND EDUCATIONAL WORK

Coulter and Mendall continued to furnish technical aid to the State Pittman-Robertson program.

Assistance was also given the warden service and the general public in arranging autopsies, identifying specimens and in providing technical assistance.

PERSONNEL

A new Graduate Assistant, David Olson, reported to the Unit in September. He is a graduate of the University of Minnesota where he majored in wildlife. He has served in the U. S. Air Force and obtained considerable experience in aerial photography. He spent last summer at the Delta Waterfowl Research Station. He will be assigned to the waterfowl project for his thesis study.

Quick is on leave of absence for the fall semester and is studying forestry and wildlife practises in Scandanavia. While there he will spend some time with former graduate student Krafft. During his absence, the wildlife seminar is being conducted by Laman and Coulter.

PUBLICATIONS

Coulter, Malcolm W.

Food of Wood Ducks in Maine (Accepted for publication in Jour. Wildl. Mgt.).

Quick, Horace F.

1956. Effects of Exploitation on a Marten Population. Jour. Wildl. Mgt., 20(3):267-274.

Respectfully submitted,



Howard L. Mendall, Leader
Maine Cooperative Wildlife
Research Unit

University of Maine
Orono, Maine
November 20, 1956

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

Quarterly Report

October-December, 1956

RESEARCH PROJECTS

FUR ANIMAL RESEARCH

Ecology of the Fisher

Objectives: To obtain data on the distribution, habitat preferences and winter food habits of the fisher.

Assignment: Malcolm W. Coulter, Assistant Leader

Trapping pressure on fisher was very light during the November 15-December 15 season. Even fewer men than usual made any effort to take fisher this year; many of the animals that were caught were taken along trap lines for other animals, especially in sets designed for bobcats.

A complete tabulation of the fisher trapped is not yet available, but preliminary figures indicate that the total is much lower than for last season.

Only four carcasses were received for examination at the Unit laboratory. One from extreme northeastern Washington County represents the first known specimen from that area.

Trappers have expressed some interest in changing the law with respect to fisher to permit trapping on a State-wide basis. During the past two seasons it has been legal to take fisher only in a zone that included much of northern and northwestern Maine. The purpose of this zone, established on the basis of data collected during the fisher study, was to permit new populations of fisher to continue to expand. However, the animals are now present over much of the State and, in addition, trappers have shown little inclination to trap the animals. Thus, it does not appear that a closed zone is necessary at the present time. Furthermore, establishment of a zone boundary creates an administrative and law enforcement problem. The use of a closed zone is a useful tool that might again be needed if trapping pressure becomes very heavy or if fisher populations should decline; neither of these conditions is apparent at present.

Some progress was made in examining part of the food habits material collected during previous years.

Plans for next quarter: A limited number of field trips will be made. Considerable effort will be devoted to examination of food habits material on hand.

HABITAT RESEARCH

The Use of Aerial Photographs for Detailed Study of Marsh
Vegetation in Merrymeeting Bay

- Objectives: 1. To determine the value of various kinds of aerial photographs in studying marsh vegetation.
2. To analyze the vegetative associations in Merrymeeting Bay from the standpoint of waterfowl ecology.

Assignment: David P. Olson, Graduate Assistant

Considerable time was devoted to a review of the literature, conferences with specialists, and in preliminary examination of the available photographs, as well as the sites photographed. Based upon a review of the literature and preliminary study of photos available, a paper entitled "A Comparison of Pancromatic and Color Aerial Photography for Study of Marsh Vegetation" was prepared and submitted as partial fulfillment of requirements for formal courses in writing and in aerial photography.

This project involves one aspect of an overall study of Merrymeeting Bay being conducted by the Game Division, Department of Inland Fisheries and Game. Ektachrome air photos of the entire Bay (scale 1:7,820) and some Pancromatic photos are available for study. It is hoped that a limited number of other kinds of photos may be available later for comparative purposes.

Olson has been selected for this project because of his previous experience in photo interpretation with the Air Force and at Delta Waterfowl Research Station.

Plans for next quarter: Olson will continue his study of the aerial photographs and of the literature. Attention will also be devoted to further practice and study of special skills required for this type of work.

WATERFOWL RESEARCH

(a) Waterfowl Distribution and Management

Objectives: To obtain data on the abundance, distribution, and migration of waterfowl species in Maine; and to conduct research that will assist in the management of the important breeding species, especially the black duck and the ring-necked duck.

Assignment: Howard L. Mendall, Leader

Population data were gathered throughout the fall period. This information will be summarized under sub-project (d) - Waterfowl Hunter Bag Checks, in the next quarterly report.

Plans for next quarter: Inactive.

(b) Renesting and Homing Study

Objectives: To study renesting behavior and the degree of migrational homing exhibited by the black duck and the ring-necked duck.

Assignment: Malcolm W. Coulter, Assistant Leader

During the quarter arrangements were completed for expansion of this study. A cooperative agreement has been made with the Vermont Fish and Game Service for a joint study of renesting by the black duck on islands located in Lake Champlain, Vermont.

These islands are noted for their rather high density of nesting black ducks - densities of over one nest per acre have been recorded. It is believed that under these conditions it will be much more economical to gather sufficient renesting data on the black duck, under northeastern conditions, than is the case in most of the Maine marshes where nesting densities, in terms of potential nest cover, are low. The work in Maine will be continued at selected habitats of both black ducks and ring-necked ducks.

Personnel of the Vermont Fish and Game Service already devote considerable time to study of the Lake Champlain nesting covers each year and are particularly interested in some of the cover management possibilities on these islands. Field work on renesting will be conducted jointly. Facilities for hatching eggs removed from initial nests and for rearing ducklings are already present at the Sandbar State Refuge located near the proposed study islands and will be carried out by Vermont personnel. Provision has been made for joint publication of results within one year of termination of the study.

It is believed that the combined activities will be of mutual benefit and should result in a larger quantity of meaningful data in a shorter period of time.

(c) Waterfowl Banding

Objectives: To study the movements and migration routes of waterfowl in Maine.

Assignment: Malcolm W. Coulter, Assistant Leader

Inactive during quarter.

Plans for next quarter: Bring tabulation of returns up to date.

(d) Waterfowl Hunter Bag Checks

Objectives: To determine hunter success, crippling loss, and species, sex, and age composition of the kill.

Assignment: Howard L. Mendall, Leader

During the waterfowl hunting season the Unit staff conducted the annual bag checks in cooperation with personnel of the State Game Division. The data have not been completely tabulated as yet, but preliminary indications substantiate the viewpoint quite generally held by the hunters that it was a very poor season.

Although specific waterfowl censuses were not taken during the fall, the technicians obtained considerable data on relative numbers of birds throughout the migration period. At no time during the fall did the waterfowl population approach that of a year ago except in a few localities. The scarcity of ducks during the early part of the season undoubtedly was a direct reflection of the less favorable breeding season, as well as the unusual pattern of migration, likely influenced by weather conditions. Although several large concentrations of black ducks and goldeneyes appeared in November in east-central Maine, the flights were generally poorer than in 1955. Moreover, these concentrations remained, for the most part, well off-shore and afforded little gunning. The December build-up of wintering birds occurred slowly and, up to mid-December at least, were below the numbers of recent years.

Plans for next quarter: Completion of the bag check tabulations and preparation of the annual hunting season report.

WOODCOCK RESEARCH

Woodcock Census Studies

Objectives: To conduct an annual census on the Unit's permanent census routes in Maine; and to correlate census results of cooperators in the northeastern states.

Assignment: Howard L. Mendall, Leader

Inactive during quarter.

Plans for next quarter: Inactive.

UPLAND GAME BIRD RESEARCH

Ruffed Grouse Cover Requirements and Populations

Objectives: To determine preferred winter cover types and population densities.

Assignment: Howard L. Mendall, Leader

Inactive during quarter.

Plans for next quarter: The regular winter checks will be resumed, although to a more limited extent than in former years.

BIG GAME RESEARCH

Moose Studies in Norway

Objectives: To study the productivity and management of moose on a private forest of 80,000 acres in Romerike, Norway.

Assignment: Arne Krafft, Graduate Student

Krafft continued to work with his thesis draft.

Plans for next quarter: Continue work on thesis.

COOPERATION AND EDUCATIONAL WORK

Coulter and Mendall continued to furnish technical aid to the State Pittman-Robertson program.

Services and assistance was also given the general public in arranging for autopsies, identifying specimens, and in furnishing technical information about a variety of subjects.

PERSONNEL

Quick is on leave of absence for the fall semester. He is studying wildlife practices in Scandinavia and correspondence from him indicates that he has had an opportunity to study and observe many interesting conservation activities. During the quarter he spent several days with graduate student Krafft and devoted some time to assisting Krafft with the latter's thesis.

PUBLICATIONS

Coulter, Malcolm W. Age and Sex Determination in Waterfowl (Submitted by request for publication in Fish and Wildlife Service Banding Manual).

Respectfully submitted,

Howard L. Mendall

Howard L. Mendall, Leader
Maine Cooperative Wildlife
Research Unit

University of Maine
Orono, Maine
January 25, 1957