

WMC
(NOT FOR PUBLICATION)

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

University of Maine

Orono, Maine

QUARTERLY REPORT

July-September, 1953

Cooperating Agencies

Maine Department of Inland Fisheries and Game
Wildlife Management Institute
University of Maine
United States Fish and Wildlife Service

Unit Personnel

Leader - Howard L. Mendall
Assistant Leader - Malcolm W. Coulter
University Representative - Robert I. Ashman
Faculty Collaborator - Horace F. Quick
Graduate Assistants - Claude Z. Westfall
 Robert B. Weeden
 Richard E. Marquardt
Graduate Student - David C. O'Meara
Clerk - Maxine L. Horne

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

Quarterly Report

July-September, 1953

RESEARCH PROJECTS

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

(NOTE: Preliminary findings for 1953 on this project were given in the last quarterly report. During the current quarter, the work was concluded. The present discussion, although containing some repetition from the last report, constitutes the complete seasonal report.)

The results of the 1953 waterfowl breeding studies in Maine are summarized in this report. Each year this work is conducted by the personnel of the Maine Cooperative Wildlife Research Unit under the supervision of the writer. He was assisted by Malcolm W. Coulter. Other members of the Unit staff who participated in the study were Claude Z. Westfall and David C. O'Meara. During the nest hunting activities John M. Dudley of Calais was employed as field assistant. Considerable additional data for this report were supplied by J. William Peppard, waterfowl project leader of the Maine Department of Inland Fisheries and Game; appreciation is herewith expressed for his cooperation.

Coverage and Techniques

Previous reports of this series have described Maine's waterfowl breeding habitat, and also the methods used in conducting the study. Coverage and techniques in 1953 were practically the same as in previous years, so the data are comparable.

Breeding Populations - 1953

The overall waterfowl population at the start of the nesting season showed a slight, but not serious, decrease in 1953. This followed six consecutive years of an increase. The black duck - most important species in Maine - again registered a slight increase, but this was offset by losses among other species. Decreases were recorded for both the ring-necked duck and the wood duck.

The American goldeneye and the two teal showed little change from last year, although their numbers are not sufficiently high on the census areas to permit accurate measurement. Apparently the teal reversed their trend of a year ago - with an increase in 1953 for the green-wing and a decrease for the blue-wing.

The status of the initial population of the six species of breeding ducks is as follows:

<u>Species</u>	<u>Status in 1953</u>
<u>Measured on Census Areas:</u>	
Black Duck	9% increase
Ring-necked Duck	8% decrease
Wood Duck	31% decrease
<u>Estimated:</u>	
Green-winged Teal	Slight increase
American Goldeneye	No change
Blue-winged Teal	Slight decrease

General Breeding Conditions

For the most part the 1953 breeding season was less favorable than that of a year ago. The spring break-up of ice occurred at very early dates on all rivers and streams and on most of the lakes as well. Late March and the first two weeks of April produced temperatures that were considerably above average. This period was followed by nearly three weeks of cool, wet weather. A few instances of very early breeding by black ducks was noted, but on the whole, nesting for all species occurred only slightly earlier than in an average year.

Heavy rains in late April and again in mid-May caused more nest losses, particularly among the black duck, than was the case a year ago. Breeding ducks in eastern and central Maine were most seriously affected by the floods. Such losses were evident, in part, among nests that were being kept under observation. They were even more apparent from the brood study when a number of very late hatches of black ducks were recorded. Ring-necked ducks and teal (nesting later than blacks) did not appear to be greatly affected by the floods.

Following the heavy precipitation of April and May, very little rainfall occurred during late spring and most of the summer. Water levels dropped very rapidly in June and July. This resulted in a deficiency in rearing cover in many of the marshes, thus having a further adverse effect on the season's productivity.

Nesting Success

A total of 91 nests was found during the nesting study. Aside from one nest of the American goldeneye, all were of three species: ring-necked duck, black duck, and wood duck. Eggs from one ring-neck were collected for hatching in an incubator. All other nests were kept under observation until hatched or destroyed.

From the sample of 90 nests, hatching success for all species was 60 per cent. This is substantially lower than a year ago, and lower than the long-term average. Success dropped off sharply for the black duck, being

only 52 per cent as compared with 64 per cent in 1952. Ring-necks and wood ducks likewise were less successful in nesting this year.

Flood losses, as a source of nest loss, have already been mentioned. As was the case in 1952, principal losses from predation were by the raccoon and mink. Also, as in 1952, crows were only a minor factor.

The Brood Season

As would be expected with the increased nest losses that resulted in more re-nesting, the brood sizes at hatching were smaller than a year ago. Rearing conditions were not as favorable as usual this year, and data on subsequent age classes of ducklings were progressively lower.

There were 134 records of complete broods in 1953 available for comparison. These were broken down as follows: Class I - 42 broods, Class II - 62 broods, Class III - 30 broods. The average of Class I broods was 7.1, only a little lower than the 7.4 figure of a year ago. Of much greater concern was the big difference between the two years in the Class III broods - those approaching the flying age. In 1952 the figure was a record high of 6.1 while this year it dropped to only 4.9. The number of Class III broods that was tabulated was practically the same in both years.

Summary and Conclusions

1. The population of breeding waterfowl in Maine at the start of the 1953 nesting season was a little lower than a year ago. The black duck was increased, but these gains were offset by losses to the ring-necked duck and the wood duck.

2. Breeding conditions were not as good this year as in 1952, largely because of a very wet spring and a very dry summer. The water was too high for optimum nesting conditions but dropped rapidly until it was too low for good rearing success.

3. Nesting success was appreciably below that of a year ago. Broods likewise were smaller in size in 1953, especially those approaching flying age.

4. Although no serious decline in the numbers of breeding waterfowl in Maine was indicated for 1953, it is likely that overall productivity was appreciably less than in 1952.

Table 1

Waterfowl Census Data - Number of Breeding Pairs

Study Area	Black Duck Pairs		Ring-neck Pairs		Wood Duck Pairs	
	1952	1953	1952	1953	1952	1953
St. John River, Van Buren	9	10	--	--	--	--
Portage Lake	5	4	17	18	3	4
Meduxnekeag Stream, Hodgdon	4	5	---	--	2	3
Musquash Stream, Grand Lake Stream	11	20	9	13	--	--
Pocamoonshine-Crawford Lakes	40	45	80	55	11	4
St. Croix River, Baring	10	12	--	--	5	3
Moosehorn Refuge, Calais	31	31	9	4	--	--
Pennamaquan River, Pembroke	5	5	12	18	--	--
Mattanawcook Lake, Lincoln	3	1	4	6	--	--
Penobscot R., Lincoln-Enfield	15	16	---	--	10	7
Pushaw Stream, Orono-Old Town	4	6	--	---	3	3
Davis-Holbrook Thorofare, Eddington	5	5	4	4	--	--
Corinna Stream, Corinna	8	7	10	14	9	4
Goose River, Belfast-Swanville	11	8	15	12	--	---
Snake Pond, Brooksville	--	---	2	5	--	---
Boyden Lake, Perry	--	---	---	---	2	1
Ruffingham Meadow, Searsmont	--	---	---	---	10	8
Scammon Marsh, Eastbrook	--	---	--	--	6	5
Totals	161	175	162	149	61	42

MISCELLANEOUS STUDIES

Waterfowl Banding

Assignment: Malcolm W. Coulter, Assistant Leader

The annual Unit waterfowl banding program was conducted between July 9 and September 14 under Coulter's supervision. A special allotment from the Research Branch of the Fish and Wildlife Service, in addition to the assignment for several weeks of two game management agents by the Branch of Game Management, permitted expansion of this activity.

Merton Radway, refuge manager of the Moosehorn National Wildlife Refuge provided part of the bait and made available to the Unit storage facilities and special labor when needed. J. William Peppard, State waterfowl biologist, assisted during the first week of banding in eastern Maine. Those who actively carried out the actual banding included game management agents W. B. White and Clarence Brookes, graduate assistants Claude Z. Westfall and Robert B. Weeden and graduate student David C. O'Meara.

A total of 1529 ducks was banded. This represents an increase of about 300 birds over any previous banding season in Maine. The complete breakdown is as follows:

WATERFOWL BANDED - JULY 9-SEPTEMBER 14, 1953

Species	Adult		Immature		Age or Sex Undetermined	Species Total
	Male	Female	Male	Female		
Black Duck	21	44	470	471	4	1010
Wood Duck	102	15	189	172		478
B.W. Teal	12	2	6	10		30
Mallard	1	2	3	4		10
Ring-neck				1		1
Totals	136	63	668	658	4	1529

Banding commenced at the Penobscot River stations on July 9 which was 22 days earlier than during any previous year. Each year it has become increasingly apparent that early banding might be especially productive in view of the relatively high resident breeding population along the river and its tributaries. Half-grown young black ducks and wood ducks readily enter conventional traps. During July, 360 birds were thus banded; about 26 per cent of these were flightless. In view of the current need for more banding on the breeding grounds in this region, it seems likely that further efforts to expand the July banding would be well worthwhile. Even among those birds that were flying, the condition of the wings of many indicated that the power of flight had been attained only recently. Undoubtedly, most of these birds were reared either on the river or in areas closely adjacent.

The importance of pre-baiting was again clearly demonstrated on two occasions. At Magurrewock Marsh on the Moosehorn National Wildlife Refuge

a flock of 150-200 birds concentrated during late July. They fed extensively upon natural food on the exposed flats of the temporarily drained marsh. Corn placed in the area was untouched for several weeks. A similar situation occurred later in the season at the wild rice beds on the Penobscot River near Costigan, Maine. By contrast, at the other stations on the river where pre-baiting began prior to the existence of large amounts of natural foods, the bait was taken regularly and birds continued to feed on corn even after the natural foods became available.

Snapping Turtle-Waterfowl Relationships

Assignment: Malcolm W. Coulter, Assistant Leader

This is a seasonal project under Coulter's supervision and has been discussed in detail in previous quarterly reports. An additional 44 specimens were collected during the waterfowl brood season. Graduate student David O'Meara trapped 11 turtles at Corinna Stream. Coulter, assisted by State game biologist Richard Parks, trapped 25 specimens at Scammon State Game Management Refuge. Eight turtles were taken on the Penobscot River by personnel operating banding traps.

Weights of the specimens ranged from 3 to 40 pounds. Those taken from the Penobscot River were noticeably smaller than collections from the marsh areas. Detailed laboratory examinations will be conducted this winter.

COOPERATION AND EDUCATIONAL WORK

Unit personnel continued to provide technical advisory service to the State Pittman-Robertson program. In addition, a series of bobcat stomachs are currently being analyzed by Westfall for several of the State regional biologists.

The usual service was rendered to the State game wardens and to the general public in identification of specimens and in autopsies.

Quick conducted the regular undergraduate wildlife courses and the wildlife seminar.

PERSONNEL CHANGES

Two new graduate assistants reported to the Unit during the quarter as follows:

Robert B. Weeden began his assistantship in July. He was graduated in June from the University of Massachusetts, majoring in wildlife. He has been assigned to the woodcock project for his thesis topic.

Richard E. Marquardt reported to the Unit in September. He majored in wildlife at Oregon State College where he was graduated in June. During the summer he served as student aide on the Moosehorn National Wildlife Refuge in eastern Maine.

Respectfully submitted,

Howard L. Mendall

Howard L. Mendall, Leader
Maine Cooperative Wildlife
Research Unit

University of Maine
Orono, Maine
December 5, 1953

(NOT FOR PUBLICATION)

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

University of Maine

Orono, Maine

QUARTERLY REPORT

October-December, 1953

Cooperating Agencies

Maine Department of Inland Fisheries and Game
Wildlife Management Institute
University of Maine
United States Fish and Wildlife Service

Unit Personnel

Leader - Howard L. Mendall
Assistant Leader - Malcolm W. Coulter
University Representative - Robert I. Ashman
Faculty Collaborator - Horace F. Quick
Graduate Assistants - Claude Z. Westfall
Robert B. Weeden
Richard E. Marquardt
Graduate Student - David C. O'Meara
Clerk - Maxine L. Horne

NOT FOR PUBLICATION

These quarterly reports are usually statements of progress. The data presented often are incomplete and the conclusions reached may not be final. Consequently, permission to publish any of the information contained herein is withheld pending special permission from the Research Unit.

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

Quarterly Report
October-December, 1953

RESEARCH PROJECTS

ECOLOGY OF THE FISHER

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

Assignment: Malcolm W. Coulter, Assistant Leader

During the quarter there was little opportunity to obtain very much data on the fisher project. However, four additional specimens were received, one in October, two in November, and one in December. Several locality records were noted from reports of track or sign by personnel of the Unit and the Department of Inland Fisheries and Game.

For the past three or four years a definite trend for fisher to extend their range south and east in Maine has been noted. As explained in previous quarterly reports, there has been some suspicion that fisher were present in the relatively large tract of spruce-fir, northern hardwoods forest east of the Penobscot River. Their presence in this area was definitely established when trappers caught a 6 1/2 pound female fisher in a mink trap in Cooper, Washington County, Maine. The range of the fisher now extends across the entire northern portion of the State from New Hampshire to southwestern New Brunswick. By contrast, fisher were considered common in only a few scattered areas in northwestern Maine in 1940 and no records south or east of the northwestern highland area were noted.

During December, Coulter made a field trip to the vicinity of Caucomagog Lake (T7-R15) Piscataquis County. From observations made on this trip it appeared that the travel and hunting habits of fisher were similar to those observed in January and February in other areas during previous years. At this season fisher appear to use regular routes of travel. Instances of more than two animals together are not the rule, except during late winter. More extensive field work on this project is planned for February and March.

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

During the quarter the entire Unit staff participated in the annual waterfowl bag checks, conducted jointly with State Pittman-Robertson personnel. Mendall's annual report on this phase of the waterfowl project is reproduced in full, as follows:

The 1953 Waterfowl Hunting Season in Maine

By

Howard L. Mendall

After having selected a split season for six consecutive years, Maine duck hunters asked for, and were granted, a straight season in 1953. The dates were October 9 to December 7. During the season personnel of the Maine Cooperative Wildlife Research Unit again joined with the Federal Aid Division of the State Department of Inland Fisheries and Game in conducting bag check studies among duck hunters. Unit personnel were under the supervision of the writer and the State biologists were under the direction of J. William Peppard, waterfowl project leader. The following men participated: for the Unit - Malcolm Coulter, John Dudley, Richard Marquardt, David O'Meara, Horace Quick, Robert Weeden, Claude Westfall, and the writer; for the State - George Aiken, Chester Banasiak, Harold Blanchard, Henry Carson, W. Russell DeGarmo, Francis Dunn, Nathan Fellows, Kenneth Hodgdon, Dana Holmes, W. Sidney Howe, John Hunt, John Maasen, Richard Parks, Stephen Powell, Howard Spencer, and J. William Peppard.

All important waterfowl areas of the State were sampled. Although the number of hunters contacted was less than a year ago this was largely because efforts were made to cover western and central Maine more adequately this year, with a corresponding decrease in coverage in Merrymeeting Bay. It is believed that the present degree of regional sampling is reasonably satisfactory according to the varied types of hunting that prevail throughout Maine. A total of 2205 hunters was contacted this year and 2917 ducks were examined.

Waterfowl Populations

There did not appear to be any marked scarcity of waterfowl as a whole present in the State during the fall, although it is quite likely that a slight decrease did occur. A determination of populations throughout migration, by aerial censuses, has been available in recent years. In 1953 reduced State budgets made such surveys impossible. The data from limited ground checks at selected areas are not adequate to permit strong conclusions. It is probable, however, that a substantial decrease occurred in the number of blue-winged teal. This was apparent not only during the hunting season (which would be expected with a later opening) but prior to the shooting season as well. Black ducks, also, appeared to have been a little less numerous this year. They increased in northern and central Maine but decreased in eastern and western Maine and probably in Merrymeeting Bay as well. By contrast, Canada geese apparently showed a further increase over their high numbers of a year ago. With other species little over-all change could be detected although there were obvious regional changes.

Hunting Success

An analysis of all available data confirmed the opinion of most hunters that the 1953 season was an unusually poor one. It was not as disappointing as in 1950 but, except for that one year, was the poorest season for quite some

time as far as duck hunting was concerned. Goose hunting, on the other hand, was the best in the memories of veteran Merrymeeting Bay gunners. The geese came early and remained longer than usual. Goose hunting in Maine, however, is a restricted sport, and is largely confined to Merrymeeting Bay.

The combined hunting success for all areas was 2.1 birds per man-day of hunting, a decided drop from the past two years (a total of 2205 hunters checked had shot 2917 birds in 1397 man-days of hunting). Success varied considerably by areas. It was highest at Merrymeeting Bay (2.6); it was lowest at inland Washington and Aroostook counties, and the southwestern Maine coast (1.6 each), and on the central Maine coast (1.2). Other sections of the State ranged between these extremes.

Resident birds followed the pattern of recent years which seemingly has now become a trend. They had generally left the breeding marshes of northern and eastern Maine well in advance of the hunting season, even by mid-September in many instances. As a result gunners in these localities found few birds to shoot. In some sections of north-central and central Maine, and in Merrymeeting Bay, relatively good shooting prevailed for the first few days of the season, but this did not last. Elsewhere it was generally poor.

Again, as has happened so often in the last decade, the entire hunting season was marked by unseasonably mild, sunny, calm weather. Even at the close of the season all rivers and large lakes, as well as many ponds and streams, were still free of ice entirely to the northern Maine border. Many goldeneyes and quite a number of black ducks, scaup, and buffleheads were still present in northern and western Maine at that time.

Aside from the goose shooting, and the duck hunting during the first few days of the season in scattered localities, the best hunting in 1953 occurred in central Maine during the first half of November. Although this shooting was largely on goldeneyes, a few black ducks, green-winged teal, and scaup were obtained also.

Coastal shooting was particularly disappointing. From the Penobscot estuary west it was almost a complete failure. Even on the east coast, which often produces excellent late season gunning, it was a very poor season.

In the opinion of most wardens and biologists hunting pressure at the start of the season was the heaviest ever observed. This dropped off sharply, however, after the first few days. Over the season as a whole, it is probable that there was considerably less hunting than in the two previous years.

Crippling Loss

Data compiled on crippling loss was based on 2666 birds bagged; for these 585 others were lost. This is approximately 22 per cent and is the lowest figure obtained in 7 years of conducting bag checks. It is the one encouraging aspect of this year's hunting season. It is becoming increasingly obvious that in a poor year, hunters make more effort to retrieve the birds they drop. Thus the burden for further reducing a loss that is largely unnecessary appears to rest squarely on the gunner himself. The 1953 figures show that many cripples can be retrieved if hunters will make the effort. Crippling loss varied by localities from 15 per cent to 39 percent.

Effect of Sunset Shooting

In 1953, for the first time in a number of years, the length of the shooting day was extended to permit hunting until sunset. Quite a few conservationists and sportsmen were opposed to this in the belief that the birds might suffer unduly - both as to ducks bagged and as to cripples lost. Because of this, all personnel conducting bag checks were instructed to make a special study of the effects of the last hour of shooting. The tabulated results of the sample taken indicated that less than 10 per cent of the birds bagged and the cripples lost had occurred in the hour preceeding sunset. In addition the biologists reported unanimously that they could observe no undue effects from the late shooting. Waterfowl, especially the wary black duck, quickly learn the hour that shooting stops in a heavily hunted marsh. Regardless of what that hour may be, they govern their evening flights accordingly. Thus the extra time became merely another hour of the shooting day, and certainly far less important than the first hour of the day. The fact that the over-all crippling loss for 1953 was actually the lowest recorded in 7 years would constitute, in itself, strong evidence against any adverse effects from the sunset closing.

Bag Composition

The kill by species of the birds checked in the hunters' bag is presented in table 1. The sea ducks (eiders, old squaws, and scoters) are not included in the study.

Table 1 - Kill by Species - 1953
(Exclusive of Sea Ducks)

Species	No. of Birds Checked	Per Cent
Black Duck	1205	41.3
Green-winged Teal	365	12.5
Goldeneye	318	10.9
Wood Duck	200	6.9
Bufflehead	182	6.2
Blue-winged Teal	175	6.0
Ring-necked Duck	88	3.0
Mergansers (3 species)	81	2.8
Canada Goose	73	2.5
Greater Scaup	46	1.6
Mallard	44	1.5
Pintail	29	1.0
Ruddy	22	.8
Lesser Scaup	13	.4
Baldpate	5	.2
Mallard X Black Hybrid	2	.1
Redhead	1	.0
Shoveller	1	.0
Unidentified (*)	67	2.3
Totals	2917	100.0

(*) Chiefly birds which were plucked and dressed when examined.

The foregoing table reveals some rather significant figures. The proportion of black ducks was the lowest in 7 years of bag checks and signifies the poor hunting season. The 1951 figure of 59 per cent, and 54 per cent for last year, is a decided contrast from this year's figure. Green-winged teal were shot in a greater proportion this year and regained second place in the bag - the position they have usually held.

Striking changes were shown for the goldeneye and the blue-winged teal. The former rose from 3 per cent a year ago to 11 per cent this year. It is likely that the November shooting inland was the principal cause, as well as the absence of black ducks on the western Maine coast. The big drop of the blue-winged teal (15 per cent to 6 per cent) is probably due largely to a decrease in the species rather than the later opening date. Fewer blue-wings were present in Maine in September than a year ago. As a matter of fact, this year's kill of blue-wings is probably much more typical than that of 1952. Last year this species showed a very unusual abundance.

Apparently more buffleheads were killed in 1953 than in any year since these studies have been conducted. The presence of these less desirable ducks in the bag attests to the poor quality of the coastal gunning. Among other species there were few changes from 1952.

Sex and Age Ratios

Approximately 35 per cent of all birds checked were sexed and aged. These data are presented in table 2. It has been pointed out in previous reports that such information has to be analyzed over a period of several years to be of much significance. It may be stated at this time, however, that the 1953 data do not indicate any very serious biological problems in connection with the kill. To be sure, a very high proportion of male wood ducks, particularly adults, were taken but a larger sample might have shown a more balanced ratio.

Table 2 - Sex and Age Ratios - 1953
(Leading Species Only)

Species	Ad. ♂	Ad. ♀	Im. ♂	Im. ♀	Ratio Ad.-Im.	Percentage Ratio Males-Females
Black Duck	88	55	142	140	1:2.0	54:46
Green-winged Teal	5	5	43	42	1:8.5	50:50
Goldeneye	27	28	44	46	1:1.6	49:51
Wood Duck	43	15	38	31	1:1.2	64:36
Bufflehead	29	16	15	22	1:0.8	54:46
Ring-necked Duck	7	8	16	23	1:2.6	43:57
Blue-winged Teal	5	2	8	12	1:2.9	48:52
Total of 20 species	222	150	326	339	1:1.8	53:47

Time of the Hunting Season

The dates selected for the 1953 hunting season represented a compromise attempt to satisfy the extreme interests of the hunters and to get away from the split seasons that had prevailed from 1947 through 1952. Northern and eastern inland gunners wanted an October 1 opening. Coastal hunters wanted the season to run at least to December 15. The 60-day season chosen cut about a week off the wishes of each of these two groups.

In view of the widespread disappointment that followed, it might seem logical to return automatically to the split season for 1954. Unfortunately a decision is not that simple. It is doubtful if a good hunting season would have prevailed this past year regardless of dates, for neither the birds nor the weather would have cooperated. Most marshes of northern and eastern Maine were largely devoid of ducks by the end of September, and an October 1 opening would not have been much better for the gunners than was October 9. As far as the coast was concerned it was not until the week of December 14 that anything approaching winter weather set in and this was short lived. The week of the 20th again produced unseasonably warm, calm weather.

Therefore, the annual controversy of a split versus a straight season is still unsettled. It is now even more complicated by the early November shooting in central Maine, which - although primarily on diving ducks - would not have been available under a split season this year. But there are so many variables in setting proper seasons that there is a big element of chance, no matter what dates are selected. The times of the migratory flights cannot be predicted in advance. Perhaps an even bigger gamble is in connection with the weather. Good hunting depends much more on the weather than on opening date, closing date, or number of shooting days. There is no question but that a great many more ducks were killed in Maine during the short season of 1948 (when favorable hunting weather prevailed) than in the 60-day season just completed. Yet waterfowl populations were very similar in these two years.

In looking toward 1954 the writer makes the following recommendations; they are based on the assumption that October 1 will be the earliest date at which shooting will be permitted:

1. If there is any reduction in number of shooting days from the current 60-day season, it would seem to the best interests of the largest number of hunters to return to the split season. In this case the first season should open October 1, with the second season to close about December 15.

2. If the 1954 season is between 60 and 65 days, there appears to be considerable evidence supporting either a split season or a straight season. If the split season is selected the dates should be the same as given above. If a straight season is chosen, a similar decision would be called for as was the case this year. Establishing the season midway between October 1 and December 15 is theoretically fair. Considering the long term averages of both waterfowl flights and weather records for Maine, such a straight season should be very satisfactory. But in the past few years conditions have been far from this average. Local birds are moving earlier, yet the flight birds have been arriving later. Unseasonably warm autumns have been the rule. It may be a mistake to consider this short-term, recent trend, over the long-term averages. But on the chance that conditions of recent years will prevail again in 1954, a split season appears to offer a better chance for at least some good shooting over a wider area of the State. Therefore, a split season is recommended.

3. If the 1954 season should run more than 65 days, a straight season ought to satisfy the desires of practically all hunters. Such a season could open early in October and close at some time after December 10, depending on the exact number of days allowed.

Conclusions

1. Populations of waterfowl in Maine during the fall of 1953 probably were not greatly changed from those of a year ago, although it is likely that a slight decrease occurred.

2. Duck hunting in 1953 was extremely disappointing. It was nearly as poor a hunting season as that of 1950.

3. Goose hunting in Merrymeeting Bay apparently was the best that it has been for many years.

4. Black ducks lead all species in the bag by a wide margin, but nevertheless a smaller proportion was taken than at any time in the past 7 years.

5. The green-winged teal and the goldeneye, in that order, followed the black duck in the bag composition. All other species were taken in considerably lower proportions.

6. Crippling loss was reduced to the lowest point in 7 years.

7. There appeared to be no undesirable effects whatsoever as a result of the sunset closing which was granted to hunters this year.

8. The poor hunting of 1953 can be attributed to two factors: (1) a departure, in September, of local birds from northern and eastern Maine; (2) unseasonably mild, calm weather that prevailed throughout the entire hunting season.

MISCELLANEOUS STUDIES

Bobcat Food Habits

(Conducted by Graduate Assistant Westfall)

During the quarter Westfall analyzed 44 bobcat digestive tracts as part of the requirements for a problems course in techniques for studies of mammalian food habits. Advantage was taken of the collection of bobcat stomachs which had been submitted to the Unit with requests for analysis by the Regional Biologists of the Department of Inland Fisheries and Game. They were collected from hunters and trappers from October to March, 1951 to 1953, in western and northern Maine.

Forty-four digestive tracts were available, of which eight contained no food items. Among the remaining 36 specimens the large intestine was also present in 22 instances.

Food materials were washed and screened. The resulting mass was examined with a binocular scope to aid in picking out bone fragments, hair, and other remains. Much of the food remains consisted of hairs. It was impossible to examine all hairs in detail, but several samples were taken from each specimen. These samples were cleaned and mounted on slides for detailed study with a compound microscope.

The identification of hair required frequent reference to known samples and to keys prepared by other workers. It was found that an improvised microprojector, using a compound microscope and a 35 mm. projector (as described in Progressive Fish-Culturist 15 (4):162) was effective for detailed study of hair structures.

The results of the analysis are presented in table 1.

It is evident that white-tail deer, snowshoe hare and small mammals were the foods most often eaten. These results are similar to those published by other workers in Massachusetts and in Vermont.

Of special interest is the high occurrence of deer in this series of specimens. Without detailed field studies it is impossible to state what proportion of this material represents predation. Cases of known predation as well as instances of bobcats feeding on deer that died from other causes have been recorded. Very likely the deer eaten by this series of specimens represents both predation and carrion, but laboratory studies alone cannot determine the importance of each.

Another point of interest is the comparatively low incidence of porcupine, especially in specimens from the more northern areas. It has become increasingly obvious during the course of other field studies that the porcupine has decreased noticeably in northern and northwestern Maine.

Table 1. - Frequency and Percentage Frequency of Occurrence
of Items in 36 Gastro-Intestinal Tracts
of the Bobcat, Lynx rufus

Common Name	Scientific Name	Number Specimens	Frequency per cent of occurrence
<u>Animal</u>			
White-tailed deer	<u>Odocoileus virginianus</u>	15	41.7
Snowshoe hare	<u>Lepus americanus</u>	12	33.3
Deer mouse	<u>Peromyscus</u> sp.	5	13.9
Ruffed grouse	<u>Bonasa umbellus</u>	4	11.1
Red squirrel	<u>Sciurus hudsonicus</u>	4	11.1
Field mouse	<u>Microtus</u> sp.	3	8.3
Porcupine	<u>Erethizon dorsatum</u>	3	8.3
Skunk	<u>Mephitis</u> sp.	2	5.5
Long tail shrew	<u>Sorex</u> sp.	1	2.8
Unidentified bird		1	2.8
Bird feather (probably Passeriformes)		1	2.8
Unidentified hair		1	2.8
Unidentified mouse		1	2.8
<u>Plant</u>			
Seed	<u>Prunus</u> sp.	1	2.8
<u>Miscellaneous</u>			
Woody material (trap debris)		17	47.2

COOPERATION AND EDUCATIONAL WORK

The regular service was rendered to the State game wardens and to the general public in identification of specimens, autopsies, and other laboratory determinations. Such services were unusually numerous during the quarter.

Unit personnel continued to provide technical advisory service to the State Pittman-Robertson program.

Quick conducted the regular undergraduate wildlife courses and the wildlife seminar.

Respectfully submitted,

Howard L. Mendall

Howard L. Mendall Leader
Maine Cooperative Wildlife
Research Unit

University of Maine
Orono, Maine
February 2, 1954

File copy
Return to

MAINE COOPERATIVE WILDLIFE
RESEARCH UNIT
UNIVERSITY OF MAINE
ORONO, MAINE

(NOT FOR PUBLICATION)

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

University of Maine

Orono, Maine

QUARTERLY REPORT

January-March, 1953

Cooperating Agencies

Maine Department of Inland Fisheries and Game
Wildlife Management Institute
University of Maine
United States Fish and Wildlife Service

Unit Personnel

Leader - Howard L. Mendall
Assistant Leader - Malcolm W. Coulter
University Representative - Prof. Robert I. Ashman
Faculty Collaborator - Prof. Horace Quick
Graduate Assistant - Claude Z. Westfall
Graduate Student - David C. O'Meara
Clerk - Maxine L. Horne

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

Quarterly Report

January-March, 1953

RESEARCH PROJECTS

RUFFED GROUSE MANAGEMENT

Sub-project: Cover requirements and populations

Objectives: To determine preferred cover types and population densities.

Assignment: Howard L. Mendall, Leader

The seasonal grouse studies on winter cover preferences and populations were continued throughout the quarter. The trend mentioned in the last report continued all through the winter. Although the data have not been tabulated completely as yet it is obvious that utilization of hardwood covers by the birds will run the highest of any winter since this study was initiated. Open covers, and also those on rather exposed slopes were still being used even in mid-winter. This is almost certainly a direct result of the extremely mild winter that prevailed from November through March. Temperatures were considerably above average, and snowfall (except for the first half of March in northern Maine only) was much less than average. Considerable rain and sleet occurred throughout the winter but did not result in severe icing for any prolonged periods of time.

During the field work no evidence at all was obtained of grouse mortality other than occasional predation; this was less than noted in most winters.

WOODCOCK RESEARCH

Sub-project: Breeding populations and territories

Objectives: To study in detail the behavior of woodcock on the breeding grounds, as related to populations and productivity.

Assignment: Claude Z. Westfall, Graduate Assistant

Westfall began preparations for intensive field work this coming spring. In addition to a review of literature, the following was accomplished:

1. A study area was selected approximately 17 miles from the campus in Greenbush, Penobscot County. Progress has been made in becoming acquainted with the area and the surrounding country.

2. Through the courtesy of the Soil Conservation Service, aerial photographs have been obtained. A detailed cover map will be prepared in the field with the aid of the aerial pictures.

3. Arrangements were made for the construction of traps patterned after those designed and used by Dr. William Sheldon in Massachusetts.

4. Several woodcock mounts were prepared for use as decoys in connection with the proposed trapping and banding work.

5. Colored leg bands were obtained for marking trapped birds in addition to the regular Fish and Wildlife Service leg bands.

6. Arrangements have been made with several undergraduate students to assist in trapping woodcock and for other jobs on the study area.

Westfall made frequent trips during the last 10 days of the quarter to observe the first migrants, which arrived in central Maine very early this spring. Work during the next quarter will include trapping and banding, detailed observation of individual birds, periodic censuses of the entire study area and preparation of a type map. A trip to Sheldon's Massachusetts study area is planned for the very first of April to become familiar with trapping techniques.

ECOLOGY OF THE FISHER

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

Assignment: Malcolm W. Coulter, Assistant Leader

During the quarter seven specimens were examined in the laboratory, two field trips were made to the Russell Pond study area, and much additional information was submitted by State Pittman-Robertson personnel and by game wardens. Henry Carson, Francis Dunn, John Hunt, and Howard Spencer, Jr., Regional Biologists for the Maine Department of Inland Fisheries and Game, assisted by helping to obtain specimens, or by submitting detailed field observations. William Fitzpatrick of the Research Section of the Department of Inland Fisheries and Game assisted during one field trip, and Myron Smart, trapper-guide for the Department assisted on the other.

An arrangement was made to obtain unskinned specimens from the warden division. At present there is no open season for fisher, but each winter several animals are taken accidentally in traps set for other animals, primarily bobcat. The law requires that they be turned in to the Department of Inland Fisheries and Game. Under the present arrangement these animals are now sent to the Unit by the wardens for skinning and preparation of the pelts. The system seems to be working to the mutual advantage of each organization. The wardens are relieved of the task of preparing the pelts and the Unit, by obtaining complete animals instead of carcasses, is able to obtain much more data.

Three of the seven specimens examined during the quarter were males ranging in weight from 7 pounds 11 ounces to 13 pounds 13 ounces. The four females varied from 3 pounds 13 ounces to 5 pounds 7 ounces.

One female taken on February 28 contained what appeared to be three embryos. The swellings in the uterine tubes measured as large as 7.0 x 8.3 mm. One is being cleared and the others are being processed for more detailed histological examination. The fisher breeds in the spring and a period of delayed implantation follows. When development is resumed is not known.

During the February trip to Russell Pond in northern Somerset County, the study area was enlarged by spotting a new 4 mile trail leading due south from the base camp. With the present system of access trails it is possible to work in an area of about 40 square miles that includes several types of forest growths. The new trail includes sections of mature spruce that seem to be heavily used by fisher.

These trips involved approximately 70 miles of snowshoeing by two men. Thirty-five to forty miles of this travel was spent actually tracking fisher. Sketch maps were kept in the field to plot individual tracks throughout the area and to record dens, beds, and kills.

Data gathered from these field trips are summarized as follows:

Food Habits:

A total of 83 scats was collected during the winter. In some instances a series of several scats was collected for one animal. The material has been stored for future examination.

Two kills were noted, one of ruffed grouse, the other of a song bird. In another instance a fisher attempted to catch a mouse. Two observations where fisher had fed on deer carrion were made.

Henry Carson reported tracking a fisher that had trailed a porcupine into an abandoned lumber camp; he found a song bird kill, also.

Hunting Habits:

As has been the case during previous years, evidence showed that much hunting was conducted in dense spruce-fir thickets. Some activity around dead trees, hollow stubs and upturned roots was also noted. In general most hunting activity appears to be conducted where squirrel or rabbit sign is abundant. It is not uncommon to find instances where fisher have climbed large trees, especially dead birches presumably in search of squirrels.

Dens:

Several dens were located. With one exception these were ground dens. In one instance a fisher "holed up" in a large, dead yellow birch. However, the track was very fresh and it is possible that this animal had sought refuge when disturbed by the observers. It appears, from observations to date, that individual dens may be used rather regularly, but never for very long periods at a time.

An especially interesting observation of a tree den was made by Francis Dunn, Regional Biologist for the Department of Inland Fisheries and Game.

Extract from Quarterly Report
of MCWRU, January - March, 1953

in southern Arcostock County. This den was in a maple stub about 25 feet from the ground. The animal entered and left the den by jumping to adjoining trees. Jumps between trees up to 9 feet apart were recorded. The distance between the den tree and the tree by which the fisher came to the ground was about 29 feet in one instance.

Forms:

Several excellent observations of beds or forms used by fisher were made. Although noted on previous trips, data collected in March seemed to give more conclusive evidence of the use of forms. Apparently fisher stop for periods in forms instead of using dens. Most of these were located on warm exposures and there are some indications that they may be used during the daylight hours.

These forms are usually well worn depressions, 8 to 12 inches deep in the snow located in "blowdowns" or close to small conifers. However, many of them are situated so that they are exposed to the sun.

Winter Movements:

Fisher continued to use many of the same lines of travel followed in previous years. However, during late March a very decided change in travel patterns was evident. The March trip this year was later than in any previous season. Many instances of two or more animals traveling together or in the same trail at close intervals were found, in spite of the fact that generally these animals are quite solitary. In addition, instead of pursuing rather direct lines of movement, the animals traveled in many small circuits. In some sections the density of tracks was so great as to hamper continued tracking of any individual animal. This change in behavior and travel is likely associated with the breeding season.

General:

The lack of snow over many portions of north-central and eastern Maine prevented rechecks of areas where it is believed that fisher have recently become established. Apparently the fisher is continuing to extend its range south and east in the State. Contacts with trappers, woodsmen, wardens and other technical field men along with observations by Unit personnel indicate that a good fisher population is rather generally distributed over northern and northwestern Maine. There seems to be no question that present populations are higher than at any time for the past twenty years.

MISCELLANEOUS STUDIES

Black Duck Mortality

In mid-January, 28 dead or sick black ducks were found at the mouth of the Passagassawukeag River in Waldo County, within a very restricted area and in a relatively short period of time. ^{start} Compared with waterfowl disease losses in many parts of the country this is not a large number, but it represents an unusual situation in Maine. Previously, winter losses among ducks in this State have been observed only in connection with very severe and prolonged cold spells.

First evidence of trouble was noted by clam diggers in Belfast Bay who observed both dead black ducks and birds so sick as to permit capture by hand. State biologists Harry Lang and Dana Holmes were notified. They initiated a search for specimens and reported the situation to the State waterfowl project leader, J. William Peppard, and also to the Unit staff. Peppard, Coulter, and Mendall spent several days making a complete investigation in the field, searching for additional specimens, and attempting to ascertain the cause.

Between the 15th and 22nd of January a total of 28 ducks was obtained - 15 were dead and 13 were alive. Twenty-one of these were found on three consecutive days. One of the living birds was killed in the laboratory for test purposes, but the remaining 12 all recovered. When they were picked up the living birds showed varying degrees of paralysis, many being absolutely helpless. Yet recovery was extremely rapid when given unlimited amounts of fresh drinking water which they consumed avidly.

The dead birds, except for a few found awash at high tide, were all above the high water line under driftwood, logs or in burrows. The same was true of most of the living ones. Evidently the ducks, when stricken by illness, had sought dry, sheltered places of concealment. A few had been partly consumed by foxes and Norway rats.

Careful autopsies were performed in the Animal Pathology laboratories at the University of Maine and at the Patuxent Research Refuge in Laurel, Maryland. It was apparent that some quick acting toxin was responsible since all the dead birds were in excellent physical condition with good supplies of subcutaneous and internal fat. Many of the symptoms of botulism were present, a tentative diagnosis that was further supported by inoculating a laboratory mouse with serum from two of the sick birds; the mouse died following paralysis.

All but two of the birds were found within 300 yards of the openings of an industrial waste pipe and the municipal sewer, both of which discharge directly onto the mud flats, near the mouth of the Passagassawukeag River - a small tributary of Belfast Bay. Because of this, poison tests of samples from dead birds were run by the Chemistry Department of the Agricultural Experiment Station at the University. The tests were negative. In addition, the Unit was offered the services of the State Toxicology Laboratory in Augusta in the event a further outbreak of trouble occurred.

Recovery of the sick birds was complete. They were kept for nearly 3 weeks, then released at a point west of Belfast Harbor. For nearly a month biologist Lang made periodic checks of the entire section of the coast from Stockton Springs to Northport. No further evidence of sickness was noted.

From inquiry of people who had observed the ducks in Belfast Harbor in early winter it appeared that for several weeks approximately 35 black ducks had been regularly feeding around the outlets of the industrial plant and the municipal sewer. It is likely that the entire flock was stricken. Twenty-eight were actually accounted for and the remaining 7 could easily have been carried away by foxes, rats, or on one of the high tides. It appears that most, if not all of the birds affected, were stricken at about the same time. The source of the disease would appear

Substantiated

from a poultry processing plant,

End

25

to be one of the waste pipe outlets, most likely the sewer. A careful check of the industrial plant failed to disclose anything in its waste that would appear detrimental in any way to the ducks. It is significant that golden-eyes, buffleheads, and herring gulls in the immediate vicinity were not affected; these birds fed at the mouth of the river, also, but had never been seen very close to the waste pipe outlets as had been the case with the black ducks.

The interest shown in the entire episode was surprising and the large number of individuals and agencies who so freely offered their services and facilities in cooperating to ascertain the cause of the "epidemic" was very gratifying.

COOPERATION AND EDUCATIONAL WORK

The regular technical advice was given by Unit personnel to the State Department of Inland Fisheries and Game. Numerous conferences, both at Orono and Augusta, were held.

Several speaking engagements were given by Unit staff members during the quarter.

Quick conducted the undergraduate wildlife courses and the seminar, and served as technical supervisor for part of the State Pittman-Robertson program.

Ashman, Coulter, and Mendall attended the annual Unit Leader's Meeting and the North American Wildlife Conference in Washington, D. C. Quick also attended the latter, and delivered a paper based on his Arctic surveys.

Respectfully submitted,

Howard L. Mendall
Howard L. Mendall, Leader
Maine Cooperative Wildlife
Research Unit

University of Maine
Orono, Maine
April 10, 1953

(NOT FOR PUBLICATION)

file copy

Return to



MAINE COOPERATIVE WILDLIFE
RESEARCH UNIT
UNIVERSITY OF MAINE
ORONO, MAINE

(NOT FOR PUBLICATION)

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

University of Maine

Orono, Maine

QUARTERLY REPORT

April-June, 1953

Cooperating Agencies

Maine Department of Inland Fisheries and Game
Wildlife Management Institute
University of Maine
United States Fish and Wildlife Service

Unit Personnel

Leader - Howard L. Mendall
Assistant Leader - Malcolm W. Coulter
University Representative - Prof. Robert I. Ashman
Faculty Collaborator - Prof. Horace Quick
Graduate Assistant - Claude Z. Westfall
Graduate Student - David C. O'Meara
Clerk - Maxine L. Horne

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

Quarterly Report

April-June, 1953

RESEARCH PROJECTS

WOODCOCK RESEARCH

Sub-project: Breeding populations and territories

Objectives: To study in detail the behavior of woodcock on the breeding grounds, as related to populations and productivity.

Assignment: Claude Z. Westfall, Graduate Assistant

During the quarter Westfall conducted intensive field investigations in connection with his thesis. An abstract of his seasonal report is as follows:

The period of April 5-8 was spent in Massachusetts with Dr. William G. Sheldon (Massachusetts Cooperative Wildlife Research Unit) to obtain information on his woodcock studies and trapping techniques. Several evenings were spent in the field observing methods used in setting traps. Mist nets, portable phonograph, and drift fences were also used and discussed. One afternoon was spent visiting different types of singing grounds and woodcock cover. A dog was taken on these trips and several flushes were recorded.

Field work on the study area at Greenbush was started immediately upon returning from Massachusetts. The activities of all birds observed were recorded. Complete census runs were also made periodically throughout the breeding season. Five voluntary cooperators helped to locate singing grounds and aided in the trapping program.

The Study Area

The study area is located in the town of Greenbush, Penobscot County, approximately 18 miles north of the campus. Many logging and farm roads still exist on the area with an excellent road running the entire length making it accessible either by automobile or on foot.

The area follows along a low, narrow ridge for three and a half miles. For two to three hundred yards on each side of the road, an extensive stand of pure conifers borders the area, thus giving an isolated strip of excellent woodcock habitat. Being considerably removed from other woodcock covers, it lends itself well to a behavior study.

Abandoned farm land and blueberry fields make up the open portions. Throughout there are many grassy fields containing scattered young-growth hardwoods, mainly alder, willow, and aspen. Some old-growth pine is present also.

Singing Grounds

During the spring of 1953, twenty-seven singing grounds were located on the study area. Only those singing grounds being used consistently were marked.

Performing males were first located by Westfall, at which time temporary stakes were erected next to the road. On following evenings, volunteer students were stationed before the singing period to determine the exact landing spots of the birds. These areas were then marked with white stakes bearing aluminum numbers for future reference.

All of the singing grounds marked were in use during all or part of the breeding period. It is believed that a few of these, however, were abandoned by males not definitely established earlier in the season.

Census Counts

Singing ground censuses were made from April 1 through June 6. These were made by counting the number of peenting birds on the three and a half mile strip of road.

A relatively heavy concentration of breeding woodcock was observed. Complete censuses revealed a total population of 22 birds. Woodcock arrived very early in central Maine this year and were first observed at the study area on March 26. The last singing bird was heard June 6. During the preceeding two weeks, all birds had been singing irregularly.

Trapping and Banding

Trapping and banding operations were begun April 10 and terminated June 3. During this period, 34 adult male woodcock were captured. Twenty-three of these were banded, marked, and released. The remaining 11 birds included nine recaptures and two losses. Methods of capture were as follows: "blind" traps - 18; traps with decoys - 12; hand nets - 2; throw nets - 2.

Seven of the repeats were taken on the site where first captured, whereas the other two were taken on different sites. One of these birds shifted 4 tenths of a mile while the other one had moved 6 tenths of a mile. Both had shifted to sites previously occupied by other male birds; the latter must also have moved or lost their areas through competition with other males.

One male was captured three times at the same site - April 18, April 27, and May 2. This bird is thought to have been the one occupying the territory each night during observations. Supporting the banding data is the fact that on several occasions colored spirals were seen on its legs.

In marking birds, colored spiral celluloid leg bands were used, in addition to the standard Fish and Wildlife Service aluminum bands. It was found that red and white (or yellow) were the best colors. Other colors tended to fuse together or, under certain conditions, reflect additional colors. In marking, the maximum combinations of white and red were used for identifying individual birds. However, marking by this method proved to be unsatisfactory for the most part. Because of the activities of the birds,

color combinations could be made out only at very close distances. When the birds were crouching or standing in grass, the spirals could not be seen.

Sub-project: Woodcock Census Studies

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

Assignment: Howard L. Mendall, Leader

During the spring of 1953, as in previous years, Mendall served as coordinator of the woodcock census studies that were conducted in the New England States and New York.

This year a number of marked changes in the census technique were initiated by the Washington office of the Fish and Wildlife Service. Instead of determining total counts of singing woodcock along each census route, a sample was to be obtained. Principal reasons for the changes were to standardize the data, to permit better statistical analysis, and to eliminate as many as possible of the errors that are bound to be present in a technique based primarily upon sound.

In the new system of tabulating the data the population index is to be taken as the number of woodcock heard per stop per route.

Unfortunately there will be no basis for comparison until next year. However, in order not to lose an entire season of population data, censuses were conducted on a few routes by the old technique, as well as the new. On 15 areas in Maine, Massachusetts, and New York, a total of 266 singing woodcock was recorded. On these same areas there were 262 birds in 1952. Thus based on this very small sample, little change in the status of breeding woodcock was evident. A slight increase in Maine was offset by a slight decrease in Massachusetts, with practically no change in New York.

It was very gratifying to note the willingness shown by the cooperators in using the new technique. In many instances considerable revision in census routes was necessitated in order to meet the length requirements. An examination of the data sheets indicated a minimum of irregularities in spite of the fact that it is obvious the directions need slight clarification in several respects before another year.

A special study was conducted by the Unit to determine the loss of potential data by using the new method. Censuses were run on 14 of the central and eastern Maine areas by both the old and the new techniques. Assistance in this study was given to the Unit by personnel of the Moosehorn Refuge under Merton Radway, by State Biologists Peppard and Fitzpatrick, and by John M. Dudley of Calais.

On most of these test areas, censuses were run by each method on the same night. It was found that on all the areas combined 65 per cent of the potential census data could be obtained by the sampling method. Considerable

variation was noted, however, ranging all the way from a low of 30 per cent to a high of 89 per cent. In general, those areas that are largely in open, rather level country, and having a minimum of disturbing noises (i.e. traffic, dogs, frogs), showed the highest proportional count by the new technique. By contrast, on routes having a maximum of hills and ridges the percentage was very low. Even in open country the presence of knolls cuts down noticeably on the distance woodcock calls can be heard. In establishing new census routes this point should be taken into consideration.

In spite of the loss, in volume, of data by use of the new method, it would appear from the 1953 studies that this loss is more than offset by increased accuracy as well as by results that are much more standardized and can be more easily compared - route by route. Moreover, the quantitative loss is not as great as it would appear; it is partly made up by the fact that census takers can cover slightly longer routes in an evening by the new technique.

As a final point of interest mention may be made relative to the recording of ground calls versus flight songs. From the statistical standpoint, it is desirable to utilize only ground calls but physical conditions sometimes render this impossible. This year the census takers indicated that on 59 per cent of their routes all data consisted of ground calls only.

The planning and organization within the various states of the cooperator areas in 1953 was as follows: Maine, by Mendall, assisted by Kenneth Hodgdon and J. William Peppard of the Maine Department of Inland Fisheries and Game, and Malcolm Coulter of the Unit; New Hampshire, by Hilbert Siegler and Fred Scott of the New Hampshire Fish and Game Department; Vermont, by Roger Seamans of the Vermont Fish and Game Service, with Ralph Minns, U. S. Fish and Wildlife Service, handling the Highgate and Swanton areas; Massachusetts, by William Sheldon, Massachusetts Cooperative Wildlife Research Unit, assisted by Russell Norris, U. S. Fish and Wildlife Service, on the Newburyport area; Connecticut, by Mason S. Beldon, Connecticut Board of Fisheries and Game; New York, by Charles P. Brown, New York Conservation Department.

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

Mendall conducted the regular waterfowl productivity study from mid-April through June. He was assisted by Coulter and the graduate students; also by John M. Dudley of Calais who was employed for a week during the height of nest hunting activities. Additional data have been furnished by J. William Peppard, waterfowl project leader of the Maine Department of Inland Fisheries and Game.

Coverage and techniques were the same as in previous years so the data are comparable. A count of pairs and territorial males was made on the regular study areas prior to and during the early part of the breeding season. A nesting study was made to determine nesting success. Since the beginning of the hatching period brood checks have been conducted.

Breeding Populations

The overall waterfowl population at the start of the nesting season showed a slight, but not serious, decrease in 1953. This followed six consecutive years of an increase. The black duck - most important species in Maine - again registered a slight increase, but this was offset by losses among other species. Decreases were recorded for both the ring-necked duck and the wood duck.

The American goldeneye and the two teal showed little change from last year, although their numbers are not sufficiently high on the census areas to permit accurate measurement. Apparently the teal reversed their trend of a year ago - with an increase in 1953 for the green-wing and a decrease for the blue-wing.

The status of the initial population of the six species of breeding ducks is as follows:

Species

Status in 1953

Measured on census areas:

Black Duck	9% increase
Ring-necked Duck	8% decrease
Wood Duck	31% decrease

Estimated:

Green-winged Teal	Slight increase
American Goldeneye	No change
Blue-winged Teal	Slight decrease

General Breeding Conditions

To date the 1953 breeding season has been a little less favorable than that of a year ago. The break-up of ice occurred at remarkably early dates on all rivers and streams and on most of the lakes as well. Late March and the first two weeks of April produced temperatures that were considerably above average. This period was followed by nearly three weeks of cool, wet weather. A few instances of very early breeding by black ducks was noted, but on the whole, nesting for all species occurred at nearly average dates.

Heavy rains in late April and again in mid-May caused more nest losses, particularly among the black duck, than was the case a year ago. Breeding ducks in eastern and central Maine were most seriously affected by the floods.

Nesting Study

A total of 91 nests was found during the nesting study. All but one of these were of three species: ring-necked duck, black duck, and wood duck. These nests are being re-checked at intervals until hatched or destroyed.

The Brood Season

At this writing, data on broods are inconclusive. So far brood sizes are slightly under those of an average year. Rearing conditions in most of the breeding areas are not as satisfactory as in 1952. In spite of high water levels during April and May, very little rain fell during the six-week period following May 24. By the last of June water levels were very low and there was thus some deficiency in rearing cover in many marshes. Moreover, with considerable re-nesting by black ducks, the resulting broods from successful nests could be expected to fall below average size.

Respectfully submitted,

Howard L. Mendall

Howard L. Mendall, Leader
Maine Cooperative Wildlife
Research Unit

University of Maine
Orono, Maine
July 29, 1953

(NOT FOR PUBLICATION)

122 copy

Return to



MAINE COOPERATIVE WILDLIFE
RESEARCH UNIT
UNIVERSITY OF MAINE
ORONO, MAINE

(NOT FOR PUBLICATION)

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

University of Maine

Orono, Maine

QUARTERLY REPORT

July-September, 1953

Cooperating Agencies

Maine Department of Inland Fisheries and Game
Wildlife Management Institute
University of Maine
United States Fish and Wildlife Service

Unit Personnel

Leader - Howard L. Mendall
Assistant Leader - Malcolm W. Coulter
University Representative - Robert I. Ashman
Faculty Collaborator - Horace F. Quick
Graduate Assistants - Claude Z. Westfall
 Robert B. Weeden
 Richard E. Marquardt
Graduate Student - David C. O'Meara
Clerk - Maxine L. Horne

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

Quarterly Report

July-September, 1953

RESEARCH PROJECTS

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

(NOTE: Preliminary findings for 1953 on this project were given in the last quarterly report. During the current quarter, the work was concluded. The present discussion, although containing some repetition from the last report, constitutes the complete seasonal report.)

The results of the 1953 waterfowl breeding studies in Maine are summarized in this report. Each year this work is conducted by the personnel of the Maine Cooperative Wildlife Research Unit under the supervision of the writer. He was assisted by Malcolm W. Coulter. Other members of the Unit staff who participated in the study were Claude Z. Westfall and David C. O'Meara. During the nest hunting activities John M. Dudley of Calais was employed as field assistant. Considerable additional data for this report were supplied by J. William Peppard, waterfowl project leader of the Maine Department of Inland Fisheries and Game; appreciation is herewith expressed for his cooperation.

Coverage and Techniques

Previous reports of this series have described Maine's waterfowl breeding habitat, and also the methods used in conducting the study. Coverage and techniques in 1953 were practically the same as in previous years, so the data are comparable.

Breeding Populations - 1953

The overall waterfowl population at the start of the nesting season showed a slight, but not serious, decrease in 1953. This followed six consecutive years of an increase. The black duck - most important species in Maine - again registered a slight increase, but this was offset by losses among other species. Decreases were recorded for both the ring-necked duck and the wood duck.

The American goldeneye and the two teal showed little change from last year, although their numbers are not sufficiently high on the census areas to permit accurate measurement. Apparently the teal reversed their trend of a year ago - with an increase in 1953 for the green-wing and a decrease for the blue-wing.

The status of the initial population of the six species of breeding ducks is as follows:

<u>Species</u>	<u>Status in 1953</u>
----------------	-----------------------

Measured on Census Areas:

Black Duck	9% increase
Ring-necked Duck	8% decrease
Wood Duck	31% decrease

Estimated:

Green-winged Teal	Slight increase
American Goldeneye	No change
Blue-winged Teal	Slight decrease

General Breeding Conditions

For the most part the 1953 breeding season was less favorable than that of a year ago. The spring break-up of ice occurred at very early dates on all rivers and streams and on most of the lakes as well. Late March and the first two weeks of April produced temperatures that were considerably above average. This period was followed by nearly three weeks of cool, wet weather. A few instances of very early breeding by black ducks was noted, but on the whole, nesting for all species occurred only slightly earlier than in an average year.

Heavy rains in late April and again in mid-May caused more nest losses, particularly among the black duck, than was the case a year ago. Breeding ducks in eastern and central Maine were most seriously affected by the floods. Such losses were evident, in part, among nests that were being kept under observation. They were even more apparent from the brood study when a number of very late hatches of black ducks were recorded. Ring-necked ducks and teal (nesting later than blacks) did not appear to be greatly affected by the floods.

Following the heavy precipitation of April and May, very little rainfall occurred during late spring and most of the summer. Water levels dropped very rapidly in June and July. This resulted in a deficiency in rearing cover in many of the marshes, thus having a further adverse effect on the season's productivity.

Nesting Success

A total of 91 nests was found during the nesting study. Aside from one nest of the American goldeneye, all were of three species: ring-necked duck, black duck, and wood duck. Eggs from one ring-neck were collected for hatching in an incubator. All other nests were kept under observation until hatched or destroyed.

From the sample of 90 nests, hatching success for all species was 60 per cent. This is substantially lower than a year ago, and lower than the long-term average. Success dropped off sharply for the black duck, being

only 52 per cent as compared with 64 per cent in 1952. Ring-necks and wood ducks likewise were less successful in nesting this year.

Flood losses, as a source of nest loss, have already been mentioned. As was the case in 1952, principal losses from predation were by the raccoon and mink. Also, as in 1952, crows were only a minor factor.

The Brood Season

As would be expected with the increased nest losses that resulted in more re-nesting, the brood sizes at hatching were smaller than a year ago. Rearing conditions were not as favorable as usual this year, and data on subsequent age classes of ducklings were progressively lower.

There were 134 records of complete broods in 1953 available for comparison. These were broken down as follows: Class I - 42 broods, Class II - 62 broods, Class III - 30 broods. The average of Class I broods was 7.1, only a little lower than the 7.4 figure of a year ago. Of much greater concern was the big difference between the two years in the Class III broods - those approaching the flying age. In 1952 the figure was a record high of 6.1 while this year it dropped to only 4.9. The number of Class III broods that was tabulated was practically the same in both years.

Summary and Conclusions

1. The population of breeding waterfowl in Maine at the start of the 1953 nesting season was a little lower than a year ago. The black duck was increased, but these gains were offset by losses to the ring-necked duck and the wood duck.

2. Breeding conditions were not as good this year as in 1952, largely because of a very wet spring and a very dry summer. The water was too high for optimum nesting conditions but dropped rapidly until it was too low for good rearing success.

3. Nesting success was appreciably below that of a year ago. Broods likewise were smaller in size in 1953, especially those approaching flying age.

4. Although no serious decline in the numbers of breeding waterfowl in Maine was indicated for 1953, it is likely that overall productivity was appreciably less than in 1952.

Table 1

Waterfowl Census Data - Number of Breeding Pairs

Study Area	Black Duck Pairs		Ring-neck Pairs		Wood Duck Pairs	
	1952	1953	1952	1953	1952	1953
St. John River, Van Buren	9	10	---	---	---	---
Portage Lake	5	4	17	18	3	4
Meduxnekeag Stream, Hodgdon	4	5	---	---	2	3
Musquash Stream, Grand Lake Stream	11	20	9	13	--	--
Pocamoonshine-Crawford Lakes	40	45	80	55	11	4
St. Croix River, Baring	10	12	--	--	5	3
Moosehorn Refuge, Calais	31	31	9	4	---	---
Pennamaquan River, Pembroke	5	5	12	18	--	--
Mattanawcook Lake, Lincoln	3	1	4	6	---	---
Penobscot R., Lincoln-Enfield	15	16	---	---	10	7
Pushaw Stream, Orono-Old Town	4	6	--	--	3	3
Davis-Holbrook Thorofare, Eddington	5	5	4	4	---	---
Corinna Stream, Corinna	8	7	10	14	9	4
Goose River, Belfast-Swanville	11	8	15	12	--	--
Snake Pond, Brooksville	---	---	2	5	---	---
Boyden Lake, Perry	---	---	---	---	2	1
Ruffingham Meadow, Searsmont	---	---	---	---	10	8
Scammon Marsh, Eastbrook	---	---	---	---	6	5
Totals	161	175	162	149	61	42

MISCELLANEOUS STUDIES

Waterfowl Banding

Assignment: Malcolm W. Coulter, Assistant Leader

The annual Unit waterfowl banding program was conducted between July 9 and September 14 under Coulter's supervision. A special allotment from the Research Branch of the Fish and Wildlife Service, in addition to the assignment for several weeks of two game management agents by the Branch of Game Management, permitted expansion of this activity.

Merton Radway, refuge manager of the Moosehorn National Wildlife Refuge provided part of the bait and made available to the Unit storage facilities and special labor when needed. J. William Peppard, State waterfowl biologist, assisted during the first week of banding in eastern Maine. Those who actively carried out the actual banding included game management agents W. B. White and Clarence Brookes, graduate assistants Claude Z. Westfall and Robert B. Weeden and graduate student David C. O'Meara.

A total of 1529 ducks was banded. This represents an increase of about 300 birds over any previous banding season in Maine. The complete breakdown is as follows:

WATERFOWL BANDED - JULY 9-SEPTEMBER 14, 1953

Species	Adult		Immature		Age or Sex Undetermined	Species Total
	Male	Female	Male	Female		
Black Duck	21	44	470	471	4	1010
Wood Duck	102	15	189	172		478
B.W. Teal	12	2	6	10		30
Mallard	1	2	3	4		10
Ring-neck				1		1
Totals	136	63	668	658	4	1529

Banding commenced at the Penobscot River stations on July 9 which was 22 days earlier than during any previous year. Each year it has become increasingly apparent that early banding might be especially productive in view of the relatively high resident breeding population along the river and its tributaries. Half-grown young black ducks and wood ducks readily enter conventional traps. During July, 360 birds were thus banded; about 26 per cent of these were flightless. In view of the current need for more banding on the breeding grounds in this region, it seems likely that further efforts to expand the July banding would be well worthwhile. Even among those birds that were flying, the condition of the wings of many indicated that the power of flight had been attained only recently. Undoubtedly, most of these birds were reared either on the river or in areas closely adjacent.

The importance of pre-baiting was again clearly demonstrated on two occasions. At Magurrewock Marsh on the Moosehorn National Wildlife Refuge

a flock of 150-200 birds concentrated during late July. They fed extensively upon natural food on the exposed flats of the temporarily drained marsh. Corn placed in the area was untouched for several weeks. A similar situation occurred later in the season at the wild rice beds on the Penobscot River near Costigan, Maine. By contrast, at the other stations on the river where pre-baiting began prior to the existence of large amounts of natural foods, the bait was taken regularly and birds continued to feed on corn even after the natural foods became available.

Snapping Turtle-Waterfowl Relationships

Assignment: Malcolm W. Coulter, Assistant Leader

This is a seasonal project under Coulter's supervision and has been discussed in detail in previous quarterly reports. An additional 44 specimens were collected during the waterfowl brood season. Graduate student David O'Meara trapped 11 turtles at Corinna Stream. Coulter, assisted by State game biologist Richard Parks, trapped 25 specimens at Scammon State Game Management Refuge. Eight turtles were taken on the Penobscot River by personnel operating banding traps.

Weights of the specimens ranged from 3 to 40 pounds. Those taken from the Penobscot River were noticeably smaller than collections from the marsh areas. Detailed laboratory examinations will be conducted this winter.

COOPERATION AND EDUCATIONAL WORK

Unit personnel continued to provide technical advisory service to the State Pittman-Robertson program. In addition, a series of bobcat stomachs are currently being analyzed by Westfall for several of the State regional biologists.

The usual service was rendered to the State game wardens and to the general public in identification of specimens and in autopsies.

Quick conducted the regular undergraduate wildlife courses and the wildlife seminar.

PERSONNEL CHANGES

Two new graduate assistants reported to the Unit during the quarter as follows:

Robert B. Weeden began his assistantship in July. He was graduated in June from the University of Massachusetts, majoring in wildlife. He has been assigned to the woodcock project for his thesis topic.

Richard E. Marquardt reported to the Unit in September. He majored in wildlife at Oregon State College where he was graduated in June. During the summer he served as student aide on the Moosehorn National Wildlife Refuge in eastern Maine.

Respectfully submitted,

Howard L. Mendall

Howard L. Mendall, Leader
Maine Cooperative Wildlife
Research Unit

University of Maine
Orono, Maine
December 5, 1953

(NOT FOR PUBLICATION)

Return to

MAINE COOPERATIVE WILDLIFE
RESEARCH UNIT
UNIVERSITY OF MAINE
ORONO, MAINE

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

University of Maine

Orono, Maine

QUARTERLY REPORT

October-December, 1953

Cooperating Agencies

Maine Department of Inland Fisheries and Game
Wildlife Management Institute
University of Maine
United States Fish and Wildlife Service

Unit Personnel

Leader - Howard L. Mendall
Assistant Leader - Malcolm W. Coulter
University Representative - Robert I. Ashman
Faculty Collaborator - Horace F. Quick
Graduate Assistants - Claude Z. Westfall
Robert B. Weeden
Richard E. Marquardt
Graduate Student - David C. O'Meara
Clerk - Maxine L. Horne

NOT FOR PUBLICATION

These quarterly reports are usually statements of progress. The data presented often are incomplete and the conclusions reached may not be final. Consequently, permission to publish any of the information contained herein is withheld pending special permission from the Research Unit.

MAINE COOPERATIVE WILDLIFE RESEARCH UNIT

Quarterly Report
October-December, 1953

RESEARCH PROJECTS

ECOLOGY OF THE FISHER

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

Assignment: Malcolm W. Coulter, Assistant Leader

During the quarter there was little opportunity to obtain very much data on the fisher project. However, four additional specimens were received, one in October, two in November, and one in December. Several locality records were noted from reports of track or sign by personnel of the Unit and the Department of Inland Fisheries and Game.

For the past three or four years a definite trend for fisher to extend their range south and east in Maine has been noted. As explained in previous quarterly reports, there has been some suspicion that fisher were present in the relatively large tract of spruce-fir, northern hardwoods forest east of the Penobscot River. Their presence in this area was definitely established when trappers caught a 6 1/2 pound female fisher in a mink trap in Cooper, Washington County, Maine. The range of the fisher now extends across the entire northern portion of the State from New Hampshire to southwestern New Brunswick. By contrast, fisher were considered common in only a few scattered areas in northwestern Maine in 1940 and no records south or east of the northwestern highland area were noted.

During December, Coulter made a field trip to the vicinity of Caucomagog Lake (T7-R15) Piscataquis County. From observations made on this trip it appeared that the travel and hunting habits of fisher were similar to those observed in January and February in other areas during previous years. At this season fisher appear to use regular routes of travel. Instances of more than two animals together are not the rule, except during late winter. More extensive field work on this project is planned for February and March.

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

During the quarter the entire Unit staff participated in the annual waterfowl bag checks, conducted jointly with State Pittman-Robertson personnel. Mendall's annual report on this phase of the waterfowl project is reproduced in full, as follows:

The 1953 Waterfowl Hunting Season in Maine

By

Howard L. Mendall

After having selected a split season for six consecutive years, Maine duck hunters asked for, and were granted, a straight season in 1953. The dates were October 9 to December 7. During the season personnel of the Maine Cooperative Wildlife Research Unit again joined with the Federal Aid Division of the State Department of Inland Fisheries and Game in conducting bag check studies among duck hunters. Unit personnel were under the supervision of the writer and the State biologists were under the direction of J. William Peppard, waterfowl project leader. The following men participated: for the Unit - Malcolm Coulter, John Dudley, Richard Marquardt, David O'Meara, Horace Quick, Robert Weeden, Claude Westfall, and the writer; for the State - George Aiken, Chester Banasiak, Harold Blanchard, Henry Carson, W. Russell DeGarmo, Francis Dunn, Nathan Fellows, Kenneth Hodgdon, Dana Holmes, W. Sidney Howe, John Hunt, John Maasen, Richard Parks, Stephen Powell, Howard Spencer, and J. William Peppard.

All important waterfowl areas of the State were sampled. Although the number of hunters contacted was less than a year ago this was largely because efforts were made to cover western and central Maine more adequately this year, with a corresponding decrease in coverage in Merrymeeting Bay. It is believed that the present degree of regional sampling is reasonably satisfactory according to the varied types of hunting that prevail throughout Maine. A total of 2205 hunters was contacted this year and 2917 ducks were examined.

Waterfowl Populations

There did not appear to be any marked scarcity of waterfowl as a whole present in the State during the fall, although it is quite likely that a slight decrease did occur. A determination of populations throughout migration, by aerial censuses, has been available in recent years. In 1953 reduced State budgets made such surveys impossible. The data from limited ground checks at selected areas are not adequate to permit strong conclusions. It is probable, however, that a substantial decrease occurred in the number of blue-winged teal. This was apparent not only during the hunting season (which would be expected with a later opening) but prior to the shooting season as well. Black ducks, also, appeared to have been a little less numerous this year. They increased in northern and central Maine but decreased in eastern and western Maine and probably in Merrymeeting Bay as well. By contrast, Canada geese apparently showed a further increase over their high numbers of a year ago. With other species little over-all change could be detected although there were obvious regional changes.

Hunting Success

An analysis of all available data confirmed the opinion of most hunters that the 1953 season was an unusually poor one. It was not as disappointing as in 1950 but, except for that one year, was the poorest season for quite some

time as far as duck hunting was concerned. Goose hunting, on the other hand, was the best in the memories of veteran Merrymeeting Bay gunners. The geese came early and remained longer than usual. Goose hunting in Maine, however, is a restricted sport, and is largely confined to Merrymeeting Bay.

The combined hunting success for all areas was 2.1 birds per man-day of hunting, a decided drop from the past two years (a total of 2205 hunters checked had shot 2917 birds in 1397 man-days of hunting). Success varied considerably by areas. It was highest at Merrymeeting Bay (2.6); it was lowest at inland Washington and Aroostook counties, and the southwestern Maine coast (1.6 each), and on the central Maine coast (1.2). Other sections of the State ranged between these extremes.

Resident birds followed the pattern of recent years which seemingly has now become a trend. They had generally left the breeding marshes of northern and eastern Maine well in advance of the hunting season, even by mid-September in many instances. As a result gunners in these localities found few birds to shoot. In some sections of north-central and central Maine, and in Merrymeeting Bay, relatively good shooting prevailed for the first few days of the season, but this did not last. Elsewhere it was generally poor.

Again, as has happened so often in the last decade, the entire hunting season was marked by unseasonably mild, sunny, calm weather. Even at the close of the season all rivers and large lakes, as well as many ponds and streams, were still free of ice entirely to the northern Maine border. Many goldeneyes and quite a number of black ducks, scaup, and buffleheads were still present in northern and western Maine at that time.

Aside from the goose shooting, and the duck hunting during the first few days of the season in scattered localities, the best hunting in 1953 occurred in central Maine during the first half of November. Although this shooting was largely on goldeneyes, a few black ducks, green-winged teal, and scaup were obtained also.

Coastal shooting was particularly disappointing. From the Penobscot estuary west it was almost a complete failure. Even on the east coast, which often produces excellent late season gunning, it was a very poor season.

In the opinion of most wardens and biologists hunting pressure at the start of the season was the heaviest ever observed. This dropped off sharply, however, after the first few days. Over the season as a whole, it is probable that there was considerably less hunting than in the two previous years.

Crippling Loss

Data compiled on crippling loss was based on 2666 birds bagged; for these 585 others were lost. This is approximately 22 per cent and is the lowest figure obtained in 7 years of conducting bag checks. It is the one encouraging aspect of this year's hunting season. It is becoming increasingly obvious that in a poor year, hunters make more effort to retrieve the birds they drop. Thus the burden for further reducing a loss that is largely unnecessary appears to rest squarely on the gunner himself. The 1953 figures show that many cripples can be retrieved if hunters will make the effort. Crippling loss varied by localities from 15 per cent to 39 percent.

Effect of Sunset Shooting

In 1953, for the first time in a number of years, the length of the shooting day was extended to permit hunting until sunset. Quite a few conservationists and sportsmen were opposed to this in the belief that the birds might suffer unduly - both as to ducks bagged and as to cripples lost. Because of this, all personnel conducting bag checks were instructed to make a special study of the effects of the last hour of shooting. The tabulated results of the sample taken indicated that less than 10 per cent of the birds bagged and the cripples lost had occurred in the hour preceeding sunset. In addition the biologists reported unanimously that they could observe no undue effects from the late shooting. Waterfowl, especially the wary black duck, quickly learn the hour that shooting stops in a heavily hunted marsh. Regardless of what that hour may be, they govern their evening flights accordingly. Thus the extra time became merely another hour of the shooting day, and certainly far less important than the first hour of the day. The fact that the over-all crippling loss for 1953 was actually the lowest recorded in 7 years would constitute, in itself, strong evidence against any adverse effects from the sunset closing.

Bag Composition

The kill by species of the birds checked in the hunters' bag is presented in table 1. The sea ducks (eiders, old squaws, and scoters) are not included in the study.

Table 1 - Kill by Species - 1953
(Exclusive of Sea Ducks)

Species	No. of Birds Checked	Per Cent
Black Duck	1205	41.3
Green-winged Teal	365	12.5
Goldeneye	318	10.9
Wood Duck	200	6.9
Bufflehead	182	6.2
Blue-winged Teal	175	6.0
Ring-necked Duck	88	3.0
Mergansers (3 species)	81	2.8
Canada Goose	73	2.5
Greater Scaup	46	1.6
Mallard	44	1.5
Pintail	29	1.0
Ruddy	22	.8
Lesser Scaup	13	.4
Baldpate	5	.2
Mallard X Black Hybrid	2	.1
Redhead	1	---
Shoveller	1	---
Unidentified (*)	67	2.3
Totals	2917	100.0

(*) Chiefly birds which were plucked and dressed when examined.

The foregoing table reveals some rather significant figures. The proportion of black ducks was the lowest in 7 years of bag checks and signifies the poor hunting season. The 1951 figure of 59 per cent, and 54 per cent for last year, is a decided contrast from this year's figure. Green-winged teal were shot in a greater proportion this year and regained second place in the bag - the position they have usually held.

Striking changes were shown for the goldeneye and the blue-winged teal. The former rose from 3 per cent a year ago to 11 per cent this year. It is likely that the November shooting inland was the principal cause, as well as the absence of black ducks on the western Maine coast. The big drop of the blue-winged teal (15 per cent to 6 per cent) is probably due largely to a decrease in the species rather than the later opening date. Fewer blue-wings were present in Maine in September than a year ago. As a matter of fact, this year's kill of blue-wings is probably much more typical than that of 1952. Last year this species showed a very unusual abundance.

Apparently more buffleheads were killed in 1953 than in any year since these studies have been conducted. The presence of these less desirable ducks in the bag attests to the poor quality of the coastal gunning. Among other species there were few changes from 1952.

Sex and Age Ratios

Approximately 35 per cent of all birds checked were sexed and aged. These data are presented in table 2. It has been pointed out in previous reports that such information has to be analyzed over a period of several years to be of much significance. It may be stated at this time, however, that the 1953 data do not indicate any very serious biological problems in connection with the kill. To be sure, a very high proportion of male wood ducks, particularly adults, were taken but a larger sample might have shown a more balanced ratio.

Table 2 - Sex and Age Ratios - 1953
(Leading Species Only)

Species	Ad. ♂	Ad. ♀	Im. ♂	Im. ♀	Ratio	Percentage Ratio
					Ad.-Im.	Males-Females
Black Duck	88	55	142	140	1:2.0	54:46
Green-winged Teal	5	5	43	42	1:8.5	50:50
Goldeneye	27	28	44	46	1:1.6	49:51
Wood Duck	43	15	38	31	1:1.2	64:36
Bufflehead	29	16	15	22	1:0.8	54:46
Ring-necked Duck	7	8	16	23	1:2.6	43:57
Blue-winged Teal	5	2	8	12	1:2.9	48:52
Total of 20 species	222	150	326	339	1:1.8	53:47

Time of the Hunting Season

The dates selected for the 1953 hunting season represented a compromise attempt to satisfy the extreme interests of the hunters and to get away from the split seasons that had prevailed from 1947 through 1952. Northern and eastern inland gunners wanted an October 1 opening. Coastal hunters wanted the season to run at least to December 15. The 60-day season chosen cut about a week off the wishes of each of these two groups.

In view of the widespread disappointment that followed, it might seem logical to return automatically to the split season for 1954. Unfortunately a decision is not that simple. It is doubtful if a good hunting season would have prevailed this past year regardless of dates, for neither the birds nor the weather would have cooperated. Most marshes of northern and eastern Maine were largely devoid of ducks by the end of September, and an October 1 opening would not have been much better for the gunners than was October 9. As far as the coast was concerned it was not until the week of December 14 that anything approaching winter weather set in and this was short lived. The week of the 20th again produced unseasonably warm, calm weather.

Therefore, the annual controversy of a split versus a straight season is still unsettled. It is now even more complicated by the early November shooting in central Maine, which - although primarily on diving ducks - would not have been available under a split season this year. But there are so many variables in setting proper seasons that there is a big element of chance, no matter what dates are selected. The times of the migratory flights cannot be predicted in advance. Perhaps an even bigger gamble is in connection with the weather. Good hunting depends much more on the weather than on opening date, closing date, or number of shooting days. There is no question but that a great many more ducks were killed in Maine during the short season of 1948 (when favorable hunting weather prevailed) than in the 60-day season just completed. Yet waterfowl populations were very similar in these two years.

In looking toward 1954 the writer makes the following recommendations; they are based on the assumption that October 1 will be the earliest date at which shooting will be permitted:

1. If there is any reduction in number of shooting days from the current 60-day season, it would seem to the best interests of the largest number of hunters to return to the split season. In this case the first season should open October 1, with the second season to close about December 15.

2. If the 1954 season is between 60 and 65 days, there appears to be considerable evidence supporting either a split season or a straight season. If the split season is selected the dates should be the same as given above. If a straight season is chosen, a similar decision would be called for as was the case this year. Establishing the season midway between October 1 and December 15 is theoretically fair. Considering the long term averages of both waterfowl flights and weather records for Maine, such a straight season should be very satisfactory. But in the past few years conditions have been far from this average. Local birds are moving earlier, yet the flight birds have been arriving later. Unseasonably warm autumns have been the rule. It may be a mistake to consider this short-term, recent trend, over the long-term averages. But on the chance that conditions of recent years will prevail again in 1954, a split season appears to offer a better chance for at least some good shooting over a wider area of the State. Therefore, a split season is recommended.

3. If the 1954 season should run more than 65 days, a straight season ought to satisfy the desires of practically all hunters. Such a season could open early in October and close at some time after December 10, depending on the exact number of days allowed.

Conclusions

1. Populations of waterfowl in Maine during the fall of 1953 probably were not greatly changed from those of a year ago, although it is likely that a slight decrease occurred.

2. Duck hunting in 1953 was extremely disappointing. It was nearly as poor a hunting season as that of 1950.

3. Goose hunting in Merrymeeting Bay apparently was the best that it has been for many years.

4. Black ducks lead all species in the bag by a wide margin, but nevertheless a smaller proportion was taken than at any time in the past 7 years.

5. The green-winged teal and the goldeneye, in that order, followed the black duck in the bag composition. All other species were taken in considerably lower proportions.

6. Crippling loss was reduced to the lowest point in 7 years.

7. There appeared to be no undesirable effects whatsoever as a result of the sunset closing which was granted to hunters this year.

8. The poor hunting of 1953 can be attributed to two factors: (1) a departure, in September, of local birds from northern and eastern Maine; (2) unseasonably mild, calm weather that prevailed throughout the entire hunting season.

MISCELLANEOUS STUDIES

Bobcat Food Habits

(Conducted by Graduate Assistant Westfall)

During the quarter Westfall analyzed 44 bobcat digestive tracts as part of the requirements for a problems course in techniques for studies of mammalian food habits. Advantage was taken of the collection of bobcat stomachs which had been submitted to the Unit with requests for analysis by the Regional Biologists of the Department of Inland Fisheries and Game. They were collected from hunters and trappers from October to March, 1951 to 1953, in western and northern Maine.

Forty-four digestive tracts were available, of which eight contained no food items. Among the remaining 36 specimens the large intestine was also present in 22 instances.

Food materials were washed and screened. The resulting mass was examined with a binocular scope to aid in picking out bone fragments, hair, and other remains. Much of the food remains consisted of hairs. It was impossible to examine all hairs in detail, but several samples were taken from each specimen. These samples were cleaned and mounted on slides for detailed study with a compound microscope.

The identification of hair required frequent reference to known samples and to keys prepared by other workers. It was found that an improvised microprojector, using a compound microscope and a 35 mm. projector (as described in Progressive Fish-Culturist 15 (4):162) was effective for detailed study of hair structures.

The results of the analysis are presented in table 1.

It is evident that white-tail deer, snowshoe hare and small mammals were the foods most often eaten. These results are similar to those published by other workers in Massachusetts and in Vermont.

Of special interest is the high occurrence of deer in this series of specimens. Without detailed field studies it is impossible to state what proportion of this material represents predation. Cases of known predation as well as instances of bobcats feeding on deer that died from other causes have been recorded. Very likely the deer eaten by this series of specimens represents both predation and carrion, but laboratory studies alone cannot determine the importance of each.

Another point of interest is the comparatively low incidence of porcupine, especially in specimens from the more northern areas. It has become increasingly obvious during the course of other field studies that the porcupine has decreased noticeably in northern and northwestern Maine.

Table 1. - Frequency and Percentage Frequency of Occurrence
of Items in 36 Gastro-Intestinal Tracts
of the Bobcat, Lynx rufus

Common Name	Scientific Name	Number Specimens	Frequency per cent of occurrence
<u>Animal</u>			
White-tailed deer	<u>Odocoileus virginianus</u>	15	41.7
Snowshoe hare	<u>Lepus americanus</u>	12	33.3
Deer mouse	<u>Peromyscus</u> sp.	5	13.9
Ruffed grouse	<u>Bonasa umbellus</u>	4	11.1
Red squirrel	<u>Sciurus hudsonicus</u>	4	11.1
Field mouse	<u>Microtus</u> sp.	3	8.3
Porcupine	<u>Erethizon dorsatum</u>	3	8.3
Skunk	<u>Mephitis</u> sp.	2	5.5
Long tail shrew	<u>Sorex</u> sp.	1	2.8
Unidentified bird		1	2.8
Bird feather (probably Passeriformes)		1	2.8
Unidentified hair		1	2.8
Unidentified mouse		1	2.8
<u>Plant</u>			
Seed	<u>Prunus</u> sp.	1	2.8
<u>Miscellaneous</u>			
Woody material (trap debris)		17	47.2

COOPERATION AND EDUCATIONAL WORK

The regular service was rendered to the State game wardens and to the general public in identification of specimens, autopsies, and other laboratory determinations. Such services were unusually numerous during the quarter.

Unit personnel continued to provide technical advisory service to the State Pittman-Robertson program.

Quick conducted the regular undergraduate wildlife courses and the wildlife seminar.

Respectfully submitted,

Howard L. Mendall

Howard L. Mendall Leader
Maine Cooperative Wildlife
Research Unit

University of Maine
Orono, Maine
February 2, 1954