MICHIGAN DEPARTMENT OF CONSERVATION
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Waterfowl Breeding Grounds Surveys in Michigan, 1960

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This report is a summary of the results of the 1960 waterfowl breeding ground surveys in Michigan. Game biologists of the Michigan Department of Conservation have carried on these surveys for 12 consecutive years. The primary reason for these surveys is to evaluate waterfowl production within the state.

Sampling Methods

In most cases conventional census methods, with a boat or canoe over established routes, were used. The sample check areas have remained fairly constant. Early in the season these areas are surveyed to determine breeding pairs, and then run again later in the season to measure the number and size of broods. Comparisions are then made of this data with that of previous years. The sample check areas are representative of the better types of habitat in the various parts of the state.

Weather and Water Conditions

Although most of the winter was not extremely severe, it was an unusally long one, since both November and March were months with below-normal temperatures. March, 1960, was the coldest March on record at most points in the southern part of the state and the coldest March since 1926 in the Upper Peninsula. Mean temperatures averaged 8-12 degrees below normal in the southern part of the state and 5-8 degrees below normal in the Upper Peninsula.

Heavy snowstorms in the latter part of March occurred in parts of the Lower Peninsula and throughout the Upper Peninsula. A sudden thaw, near the end of the month, produced floods in the southern part of the state, because the snow and ice present had a water content of 2 to over 3 inches, and practically melted away in three days' time. Flood peaks, although the highest in recent years, were considerably below record heights.

Unusual weather also occurred in April and May, particularly in the Upper Peninsula. Heavy rains and snows caused record floods. Most of this heavy precipitation occurred in the last week in April and the first week in May. For the 18-day period April 23 to May 10, total rainfall in the Upper Peninsula exceeded 10 inches at some points and was generally above 7 inches. Old-timers described the weather as the worst first week of May weather ever experienced.

Breeding Pair Surveys

The potential breeding population compared to previous years follows:

Year	Lineal miles censused	Potential breeders per lineal mile
1950	81.0	7.91
1951	120.0	8.18
1952	82.0	7.13
1953	95.5	12.75
1954	93.5	12.31
1955	111.2	11.00
1956	110.5	11.48
1957	135.4	9.30
1958	121.0	15.00
1959	135.0	13.46
1960	124.4	13.26

The potential breeding population of 1960 was slightly below that of last year, but continued to remain above the past 10 years' average.

Species composition of the potential breeding population follows:

Species	1959	1960
Mallard	25.9%	29.4%
Black Duck	22.7%	26.8%
Blue-winged Teal	32.8%	29.2%
Wood Duck	4.8%	5.0%
Ring-necked Duck	5.6%	7.1%
Mergansers	0.7%	1.2%
Goldeneye	1.0%	0.1%
Unidentified	6.5%	1.2%

Brood Surveys

Brood survey comparisons follow:

Year	Broods per lineal mile	Hens and young per lineal mile	Bachelor ducks per lineal mile	Average size of broods observed
1950	.34	2.32	5.50	5.87
1951	.35	2.20	3.31	5.76
1952	.70	3.92	3.21	4.60
1953	.51	3.63	4.32	6.10
1954	.20	1.67	4.60	6.24
1955	.64	4.65	5.09	6.28
1956	.53	3.67	4.40	5.86
1957	.38	2.30	4.80	5.10
1958	.31	2.18	6.50	5.97
1959	.66	4.00	12.58	5.06
1960	.33	2.48	14.49	6.50

The average number of broods seen per lineal mile was considerably below that of 1959. Brood size was the highest on record for the past 10 years. However, since the number of bachelor birds was also the highest on record, there may have been considerable nest desertion or destruction.

Discussion

The unusually cold weather in March slowed up the spring migration considerably. The late spring delayed nesting so that incubation was starting when the heavy rains and snows of April and May came. The heavy precipitation caused water levels to rise rapidly on the inland and Great Lakes marshes and resulted in above-normal nest destruction.

Since the numbers of breeding birds were similar to last year, we believe this nest destruction caused the increase in the number of bachelor birds noted. The detrimental effects of the weather were somewhat overcome by the increased brood sizes. It may be that some of the pools created by the heavy spring rains presented the birds with new areas for nesting. This is a slim possibility, however, since the water areas for nesting are not a limiting factor in this state.

Wood Duck Surveys

Potential breeding wood ducks were counted during regular census trips. It should be understood that the observations made on the wood ducks are obtained in conjunction with observations on other species. No special study areas are set up for wood ducks and the areas censused do not contain very much of what is considered to be ideal wood duck habitat. The results of these counts follow:

Year	Lineal miles censused	Potential wood duck breeders per lineal mile
1950	81.0	.17
1951	120.0	.32
1952	82.0	.21
1953	95.5	.85
1954	93.5	.58
1955	111.2	.70
1956	110.5	.28
1957	135.4	.46
1958	121.0	.33
1959	135.0	.65
1960	124.4	.66

The number of potential breeding wood ducks seen per lineal mile of census route was slightly higher than in 1959 and considerably above the 10-year average. Higher counts were recorded in two previous years, 1953 and 1955. Wood ducks made up 5% of the local nesting species which is comparable to the 10-year average.

We have checked the use by wood ducks of nest boxes constructed for them in several areas of the state. These checks have almost been discontinued becuase we don't feel they are worth-while. The most recent data follows:

Area	Year	No. Boxes Checked	% Used
Swan Creek Wildlife Experiment Station (Allegan County)	1958	39	14.7
	1959	39	7.7
Grass Lake Flooding (Benzie County)	1959	26	0
	1960	25	0
Pittsford Game Area (Hillsdale County)	1959	21	55.0
	1960	No data available	

As stated in earlier reports, most of our nest box check areas are in timber flooded by man-made impoundments. Marked changes have occurred in many of these impoundments. Since most of the dead timber is down, these areas seem to be less attractive for nesting. We do not use the wood duck nest box survey data as an index of nesting populations.

Conclusions:

Although the potential breeding population of 1960 was similar to past years in our study areas, the late migration and subsequent inclement weather during the nesting season hurt Michigan's waterfowl production. With the exception of the increased brood size, our data indicates that waterfowl production in 1960 was poorer than in 1959 and below the average of the past 10 years. However, number of broods noted per lineal mile is similar to the count made in 5 of the past 10 years.

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