



RUFFED GROUSE AND AMERICAN WOODCOCK STATUS IN MICHIGAN, 1998

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Ruffed grouse (*Bonasa umbellus*) and American woodcock (*Scolopax minor*) are popular game birds that are pursued by over 125,000 Michigan hunters annually. Since each hunter spends an average of 7 to 8 days hunting grouse and woodcock each year, this adds up to over a million days of recreation in Michigan annually. Non-hunters also place a high value on grouse and woodcock. Many people enjoy listening to or watching drumming male grouse and the peculiar courtship displays of woodcock.

The Michigan Department of Natural Resources (DNR) utilizes several surveys to monitor ruffed grouse and woodcock populations. Two valuable indicators of grouse and woodcock status come from hunter cooperators and spring breeding surveys. Cooperator surveys are based on a sample of hunters who record numbers of hours hunted and ruffed grouse and woodcock flushed each day. The data obtained from cooperating hunters is summarized as grouse or woodcock flushed per hour of hunting. While the final estimates of hunting effort and harvest come from a mail survey of randomly selected hunters, cooperator grouse and woodcock flush rates provide an early indicator of harvest and population changes.

DNR personnel or volunteers conduct spring breeding surveys along roadside routes. Listening stops are located along each route and are kept consistent from year to year. The number of ruffed grouse or woodcock heard during a fixed time interval is recorded at each stop. Because the timing of breeding and habitat preferences differ for the two species, two separate surveys are conducted. The DNR coordinates the ruffed grouse survey, while the United States Fish and Wildlife Service (USFWS) coordinates the national woodcock survey. Data for both surveys are summarized as the number of woodcock or grouse heard per survey route.

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REVIEW OF RECENT HUNTING SEASONS

Hunter records were available from 133 cooperators whose accumulated hunting effort in 1997 exceeded 5000 hours (Table 1). The number of ruffed grouse flushed per hour in Zones 1 (Upper Peninsula) and 2 (Northern Lower Peninsula) was higher in 1997 than in 1996. Grouse flushed per hour in Zone 3 (Southern Lower Peninsula) was nearly the same in 1996 and 1997. Grouse flush rates were highest in Zone 1, followed by Zones 2 and 3. Ruffed grouse flush rates in Zones 1 and 2 were slightly below the flush rates observed during the last peak year (1988) in the population cycle (Fig. 1). Flush rates in Zone 3 have been relatively stable since 1994. Comparisons of flush rates among two-week periods showed little change over the course of the season in all hunting zones (Table 2).

The number of woodcock flushed per hour was lower in 1997 than in 1996. Woodcock flush rates were highest in Zone 2, followed by Zones 1 and 3 (Fig. 2). Woodcock flush rates have declined since 1988 in Zones 1 and 2, but have been relatively stable in Zone 3. Changes in woodcock flush rates over the course of the season differed among hunting Zones. Flush rates began to decline during the October 16 through October 31 period in Zones 1 and 2, but a decline was not evident until November in Zone 3 (Table 2). Seasonal changes in woodcock flush rates are most likely a result of changes in woodcock distribution and abundance associated with southward fall migrations.

SPRING BREEDING SURVEYS

RUFFED GROUSE

Ruffed grouse drumming counts were conducted along 141 survey routes this spring. The last year when a statewide drumming survey was conducted was 1995, which provided data from 115 routes run in both years. Statewide, the number of drumming grouse heard increased significantly from 9.8 grouse per route in 1995 to 12.7 grouse per route in 1998 (paired $t = 3.6$, $P < 0.01$). The statewide increase in grouse was a result of increased ruffed grouse abundance in Zones 1 and 2. Grouse abundance in Zone 3 has been relatively stable since 1990, compared to cyclic abundance in Zones 1 and 2 (Fig. 3). Ruffed grouse drumming surveys were conducted in 1997 in Zone 1. Grouse abundance in the Upper Peninsula was greater in 1998 than in 1997 (paired $t = 2.4$, $P = 0.02$).

The period from 1992 through 1994 brackets the low in grouse abundance for most of the Wildlife Division Management Units (Fig. 4). The largest increases in grouse abundance since these low years occurred in the Upper Peninsula Management Units. Grouse abundance in the South Central Management Unit was down, although the number of routes completed each year was low in the southern three Management Units. Because variability can be high among routes, population trends in these units may not accurately reflect grouse abundance. Hunters should also note that increased abundance of animals at a regional scale does not insure the same trend locally. For example, while grouse abundance increased in 1998 on 31 of 47 drumming routes in the Western U.P. Management Unit, numbers were down on the remaining 16 routes.

AMERICAN WOODCOCK

Results of woodcock breeding surveys is based on preliminary analysis of data from 89 survey routes (Bruggink 1998). While the breeding woodcock index showed an increase for the entire central region, Michigan was the only individual state in the region that demonstrated a statistically significant increase in the index this spring. Woodcock abundance in Michigan increased 28.7% in 1998 compared to abundance in 1997. The increase this year is in contrast to a long-term decline of 1.3% per year in Michigan's woodcock population since 1968.

1998 Grouse and Woodcock Hunting Forecast

The combination of increased spring breeding indices for ruffed grouse and woodcock and favorable nesting conditions provide good reasons for optimism about the coming hunting season. Dry conditions over much of Michigan during the brood-rearing period has caused some concern over the possibility of reduced chick survival; however, drought during the spring and summer of 1988 did not adversely affect ruffed grouse (Urbain 1988). We anticipate that ruffed grouse and woodcock hunters will experience increased flush rates and harvest in 1998 compared to success during the 1997 season. Provided that brood rearing conditions continue to be favorable, it is likely that Michigan hunters will take in excess of one-half million grouse and one-quarter million woodcock this fall. While good numbers can be found in all parts of Michigan, the highest densities of ruffed grouse and woodcock are located in the northern two-thirds of the state.

Acknowledgements

We thank all of the cooperators who kept and provided grouse and woodcock hunting records. Many DNR employees and volunteers conducted spring breeding surveys. Pete Squibb, Gina Karasek, and Stephanie Hogle reviewed an earlier draft of this report and provided helpful comments.

Literature Cited

- Bruggink, J.G. 1998. American woodcock harvest and breeding population status, 1998. U.S. Fish and Wildlife Service, Laurel, MD. 14pp.
- Urbain, J.W. 1988. Review of the 1987 grouse and woodcock season with prospects for 1988. Michigan Dept. Nat. Resour., Wildlife Division Report 3087. 10pp.

Table 1. Ruffed grouse and American woodcock hunting effort and flush rates (birds flushed/hour) from Michigan cooperator hunting records, 1988-97.

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Number of Cooperators Reporting	200	157	171	157	183	176	193	176	149	133
Total Hunting Hours	8,007	7,010	5,649	5,618	6,750	6,171	7,739	5,745	5,293	5,352
Average Hours Each Cooperator Hunted	40.0	44.0	33.0	36.0	37.0	35.0	40.1	32.6	35.5	40.2

Ruffed Grouse Flushed per Hunting Hour

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Zone 1 Upper Peninsula	2.5	2.2	1.6	1.5	1.2	0.6	1.0	1.6	1.8	2.4
Zone 2 Northern Lower Peninsula	2.1	2.1	1.8	1.5	1.2	1.1	1.3	1.5	1.5	1.9
Zone 3 Southern Lower Peninsula	2.4	2.0	1.5	1.1	1.0	1.0	1.4	1.3	1.3	1.2
State Average	2.3	2.1	1.7	1.4	1.1	0.9	1.2	1.5	1.5	2.0

Woodcock Flushed per Hunting Hour

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Zone 1 Upper Peninsula	1.9	1.4	1.3	1.6	1.4	1.3	1.5	1.4	1.1	1.2
Zone 2 Northern Lower Peninsula	2.0	1.7	1.8	1.8	1.5	1.6	1.3	1.7	1.7	1.5
Zone 3 Southern Lower Peninsula	0.6	0.9	0.7	0.7	0.7	0.9	0.9	0.7	0.9	0.9
State Average	1.6	1.4	1.4	1.5	1.3	1.4	1.3	1.5	1.3	1.2

Table 2. Ruffed grouse and American woodcock flush rates (birds flushed/hour) in Michigan by hunting zone and two-week interval for the period 1988-98. Data are from cooperator hunting records.

Interval	Birds Flushed per Hour (Average 1988-98)					
	Zone 1		Zone 2		Zone 3	
	Grouse	Woodcock	Grouse	Woodcock	Grouse	Woodcock
Sep. 15 - 30	1.5	1.5	1.7	2.1	1.3	1.3
Oct. 1 - 15	1.8	1.7	1.6	2.2	1.4	1.2
Oct. 16 - 31	1.8	0.9	1.5	1.4	1.4	1.2
Nov. 1 - 14	1.6	0.3	1.7	0.4	1.6	0.6
Dec. 1 - 15	SC ^a	SC ^a	1.5	SC ^a	1.5	SC ^a
Dec. 16 - Jan. 1	SC ^a	SC ^a	1.6	SC ^a	1.5	SC ^a

^aSC = Season Closed during this interval

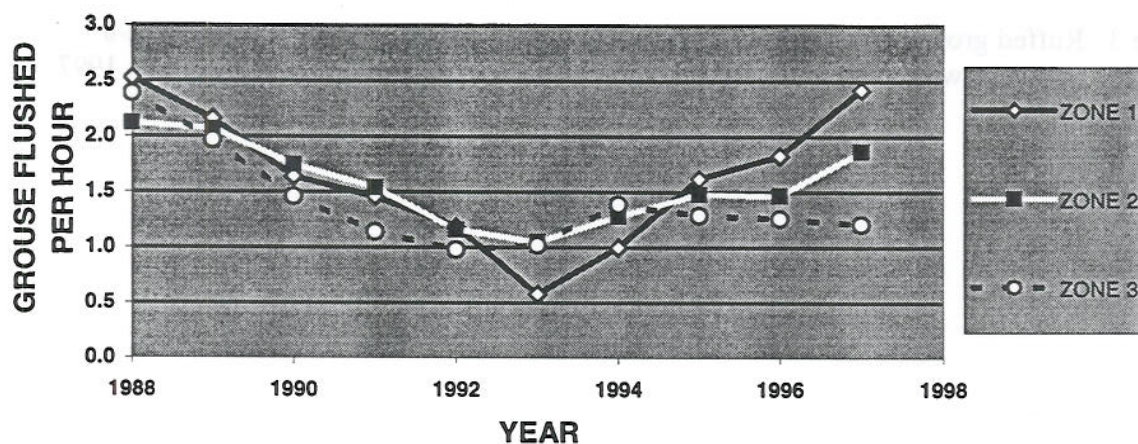


Figure 1. Ruffed grouse flush rates reported by cooperating hunters, 1988-97.

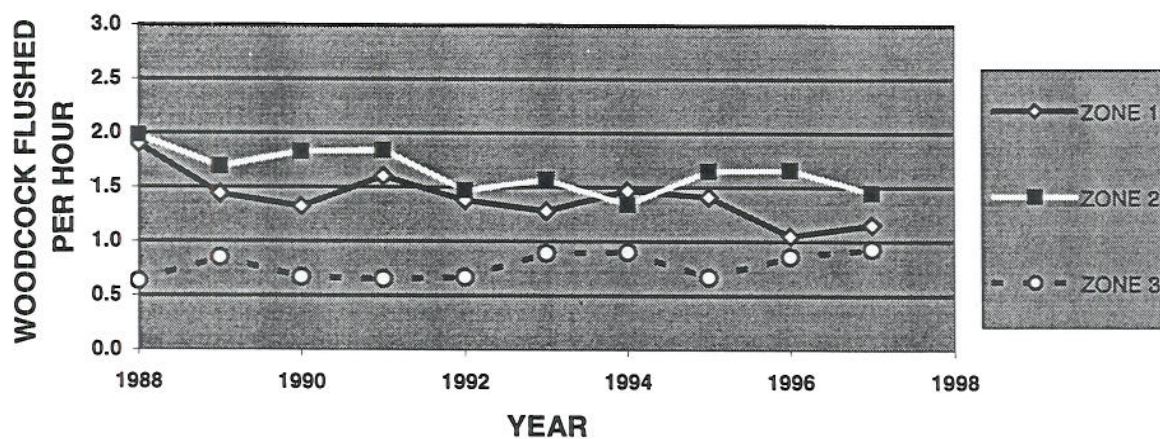


Figure 2. American woodcock flush rates reported by cooperating hunters, 1988-97.

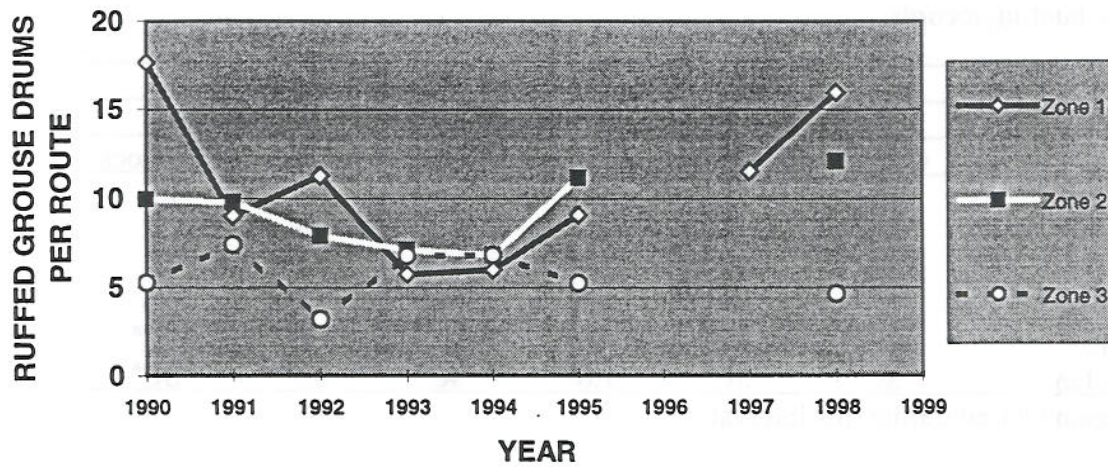


Figure 3. Ruffed grouse breeding population index (drums/route) in Michigan, 1990-98. Drumming surveys were not conducted in 1996 and were conducted only in Zone 1 in 1997.

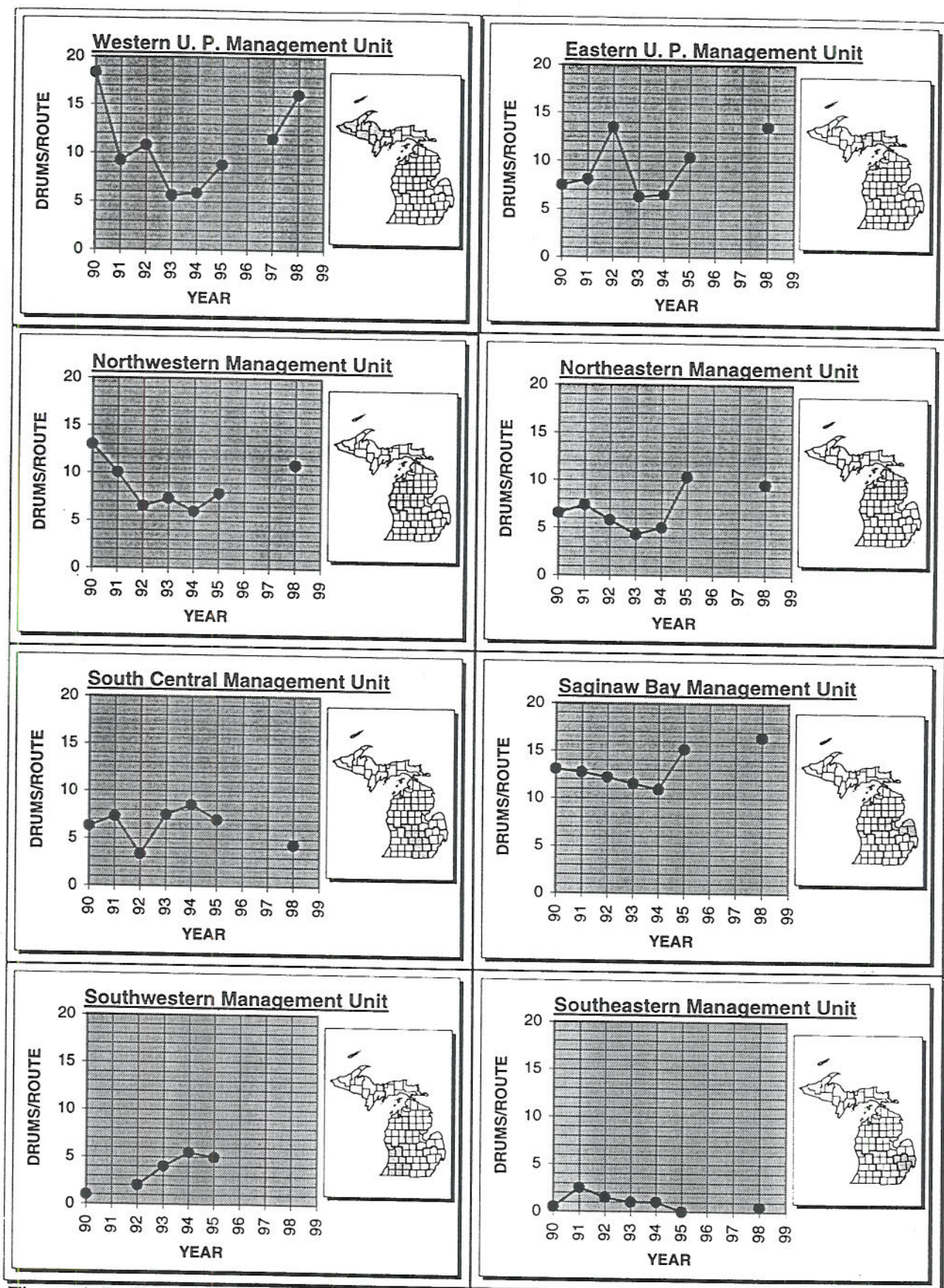


Figure 4. Ruffed grouse breeding population indices (drums/route) for Michigan DNR's Wildlife Division Management Units, 1990-98.

Figure 1. Comparison of the results of the two methods. The results of the two methods are compared for the four different cases. The results of the two methods are compared for the four different cases. The results of the two methods are compared for the four different cases.

