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RUFFED GROUSE AND AMERICAN WOODCOCK STATUS IN MICHIGAN, 2009



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ABSTRACT

Hunter cooperator surveys, spring breeding surveys, and mail harvest surveys are conducted each year to monitor ruffed grouse (*Bonasa umbellus*) and American woodcock (*Scolopax minor*) populations. Yearly data comparisons are described for hunter cooperator surveys (2007-2008), spring breeding surveys (2008-2009), and mail harvest surveys (2006-2007). Hunter records were available from 191 cooperators who reported hunting activities in 2008. The average number of ruffed grouse flushed per hour by cooperators in 2008 (2.1) was similar to the average number of birds flushed per hour in 2007 (2.0). The average number of woodcock flushed per hour statewide by cooperators was similar between 2008 (1.3) and 2007 (1.2). Significant changes in the Michigan woodcock index based on the singing-ground survey from 2008 to 2009 were not detected ($P>0.05$). Significant declines in the number of singing males also were not detected in Michigan and the Central Region during 1999-2009, but significant longer-term (1968-2009) declines were detected ($P<0.05$). Woodcock banders in Michigan spent approximately 1,600 hours afield in 2009 and banded 912 chicks. There were 83.4 chicks observed and 55.8 chicks banded per 100 hours of search time, compared to 93.9 observed and 76.0 banded in 2008. Due to budget constraints, the ruffed grouse drumming survey was not conducted statewide in 2009. However, 42 drumming routes were run in the Upper Peninsula and there was no difference ($P=0.6$) in the average number of drums heard per route between 2008 (18.9) and 2009 (18.0). An estimated 303,000 grouse were harvested in Michigan during 2007 which was not significantly different than the number harvested in 2006 (271,000).

INTRODUCTION

Ruffed grouse and American woodcock are forest game birds appreciated by many people. In 2007, about 89,000 hunters pursued grouse and 38,000 hunters pursued woodcock (Frawley 2008). In addition, the federal Harvest Information Program indicates that



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Michigan leads the nation in the number of active woodcock hunters and harvest (Cooper and Parker 2009). Non-hunters also value ruffed grouse and American woodcock. Bird watchers, hikers, bikers, campers, and others familiar with Michigan's woods know ruffed grouse well for the soft thumping beat of a drumming male and the surprising start of an explosive grouse flush. Bird watchers scour open areas on spring mornings and evenings to observe the woodcock's unique and entertaining courtship display. For these and many other reasons, ruffed grouse and American woodcock are a valuable Michigan wildlife resource.

The Department of Natural Resources (DNR) uses several surveys to monitor grouse and woodcock populations. Hunter cooperator surveys, spring breeding surveys, and harvest surveys contribute valuable management information each year. Grouse and woodcock spring surveys are conducted by DNR staff, biologists from other agencies, and volunteers. The hunter cooperator survey is possible through data collected by volunteer hunters and shared with the DNR. Harvest information is collected from a random sample of license buyers after the end of each hunting season. The results from the 2006 and 2007 hunting seasons and 2008 and 2009 breeding seasons are described in this report.

METHODS

2006-2007 Comparisons

Harvest Survey

Each year, questionnaires are sent to a randomly selected set of people who had purchased a small game hunting license during the previous hunting seasons. Detailed methods and results from the 2007 small game harvest survey are compiled in a separate report (Frawley 2008). Findings pertaining to ruffed grouse and woodcock have been summarized in the results section of this report.

2007-2008 Comparisons

Hunter Cooperator Surveys

Hunter Cooperator surveys rely on volunteer hunters that record numbers of hours hunted and ruffed grouse and woodcock flushed each day of hunting. Data obtained from cooperating hunters are summarized by county and by two-week intervals as the average number of grouse or woodcock flushed per hour of hunting. Hunting data were excluded from analyses when effort was <20 hours. Flush rates reported by cooperators provide an early indicator of harvest, but the final estimates of hunting effort and harvest come from a post-season mail survey of randomly selected hunters (e.g., Frawley 2008).

2008-2009 Comparisons

Spring Breeding Surveys

Department of Natural Resources personnel and volunteers conduct spring breeding surveys of ruffed grouse and woodcock along roadside routes. Each route has ten listening stops that are consistent from year to year. The number of ruffed grouse drums or

woodcock heard during a fixed time interval (four and two minutes, respectively) is recorded at each stop. Because timing of breeding and habitat preferences differ for the two species, separate surveys are conducted. The woodcock singing-ground survey is coordinated by the United States Fish and Wildlife Service (USFWS) in cooperation with the DNR. The grouse drumming survey is coordinated by the DNR. Ruffed grouse survey routes were established in locations of known grouse populations. Similarly, before 1968, woodcock routes were established in locations of known woodcock populations. However, beginning in 1968, the USFWS established woodcock routes within randomly-chosen 10-minute blocks (Cooper and Parker 2009). Data for both surveys are summarized as the number of woodcock or grouse heard per survey route.

In addition, volunteers band woodcock each spring to monitor recruitment and trends in survival. The data are summarized as the number of woodcock chicks observed and banded per 100 hours of effort.

RESULTS

2006-2007 Comparisons

Harvest Surveys

An estimated 303,000 grouse were harvested in Michigan during 2007 which was not significantly different than the number harvested in 2006 (271,000; Frawley 2008). Approximately 89,000 grouse hunters spent nearly 647,000 days grouse hunting in Michigan during the 2007 hunting season.

Approximately 38,000 hunters harvested about 113,000 woodcock and spent about 219,000 days afield in 2007 (Frawley 2008). The 2007 harvest was approximately 71% lower than the record harvest of 390,000 woodcock in 1976. However, there also were more hunters (126,000) spending more days afield (908,000) in 1976 than in 2007 (Figure 1). The average number of woodcock harvested per hunter day was higher in 2006 than in 1976 (Figure 2).

2007-2008 Comparisons

Hunter Cooperator Surveys

Hunter records were available from 191 cooperators who spent 5,999 hours afield in 2008 and 5,770 hours afield in 2007. The average number of ruffed grouse flushed per hour by cooperators in 2008 (2.1) was similar to the average number of birds flushed per hour in 2007 (2.0). In 2008, grouse flush rates were highest in Zone 2 (Northern Lower Peninsula; 2.2), followed by zones 1 (Upper Peninsula; 2.1), and 3 (Southern Lower Peninsula; 1.1), respectively (Figure 3 and Appendix A). The highest average flush rates reported by cooperators were during October 16-31 in Zone 1. The highest average flush rates in Zone 2 were during September 15-30 and during November 1-14 (Table 1).

The average number of woodcock flushed per hour statewide by cooperators was similar between 2008 (1.3) and 2007 (1.2). Woodcock flush rates were highest in Zone 2 (1.5),

followed by zones 3 (1.4) and 1 (0.9), respectively (Figure 4 and Appendix B). Average flush rates peaked during October 1-15 in all zones (Table 1).

2008-2009 Comparisons

Spring Breeding Surveys

Ruffed Grouse Drumming Survey

Due to personnel limitations, the ruffed grouse drumming survey was not conducted statewide in 2009. However, 42 drumming routes were run in the Upper Peninsula. In 2008, 50 drumming routes were run in the Upper Peninsula. A paired t-test was performed using data from the 42 routes run in both years. There was no difference ($P=0.6$) in the average number of drums heard per route between 2008 (18.9) and 2009 (18.0). Because routes were not conducted in Ontonagon and Gogebic counties in 2009, results do not represent those counties.

American Woodcock Singing Ground Survey

Results of Michigan woodcock singing-ground survey were based on preliminary analysis of data from 109 survey routes (Cooper and Parker 2009). No significant changes in the woodcock index for Michigan between 2008 and 2009 were detected ($P>0.05$). An average of 4.03 and 4.08 singing males were heard per route in 2008 and 2009, respectively. The 2009 Central Region index, consisting of information from Illinois, Indiana, Manitoba, Michigan, Minnesota, Ohio, Ontario, and Wisconsin, was not significantly different from 2008 ($n=405$, $P<0.05$). In the Central Region, there were an average of 2.55 and 2.61 singing males heard per route in 2008 and 2009, respectively (Cooper and Parker 2009). Significant declines in the number of singing males were not detected in Michigan and the Central Region during 1999-2009, but significant longer-term (1968-2009) declines were detected ($P<0.05$). In 2008, the Central Region had a significant decline in the 10-year trend, which was the first time since 2003 that the Central Region has shown a significant decline in the 10-year trend (Cooper et al. 2008). Michigan and the Central Region have experienced an average long-term decline of 1.2% and 1.1% per year, respectively, since 1968 ($P<0.05$; Cooper and Parker 2009).

Woodcock Banding Activities

Woodcock banders in Michigan spent approximately 1,600 hours afield in 2009 and banded 912 chicks. The average brood size observed was 3.0, compared to 3.1 in 2008. In 2009, there were 83.4 chicks observed and 55.8 chicks banded per 100 hours of search time, compared to 93.9 chicks observed and 76.0 chicks banded per 100 hours in 2008.

DISCUSSION

2009 Grouse Population Status and Hunting Forecast

Ruffed grouse have approximately ten-year cycles in abundance over much of Canada, Alaska, and the Great Lakes states of Wisconsin, Minnesota, and Michigan (Rusch et al. 1999). Biologists in Minnesota have conducted drumming surveys since 1949, and grouse

cycles have peaked near the end of each decade (Dexter 1999). In 2009, Minnesota experienced grouse drumming indices as high as counts during their last 3 peak years, including 1998 (Larson 2009; Figure 5). Michigan ruffed grouse harvest estimates appear to follow population cycles (Figures 3 and 6). This population cycle appears similar to the fluctuations observed in Wisconsin and Minnesota (Figure 5). Over the years many theories have been proposed to explain these cycles including diseases, weather, forest fires, sunspots, starvation, crowding, predators, genetic changes, and chance (Rusch 1989).

The most recent low in grouse abundance occurred during 2004-2005 for most of Michigan (Figures 3, 6, and 7). The most recent high in grouse abundance occurred between 1998 and 2000 in Zone 1 (Figures 3 and 7). Michigan appears to be approaching the peak in the grouse population cycle. If this is the case, 2010 and 2011 may be the next grouse population peak.

We expect hunters to see about the same number or a few more grouse this fall. With favorable annual production, hunters could take approximately 300,000 grouse in 2009. Hunters should note that increased or decreased abundance of animals at a regional scale does not ensure the same trend locally. Areas of good habitat will continue to provide the best grouse hunting opportunities. Grouse are most abundant in areas where dense young forest habitats (5-15 years old) are common (Association of Fish & Wildlife Agencies Resident Game Bird Working Group 2006). The best grouse cover is usually provided by dense aspen stands 6 to 15 years old or older stands with dense under stories of alder or hazel (Thompson and Dessecker 1997).

2009 Woodcock Population Status and Hunting Forecast

The long-term decline in the woodcock population index raises questions and concerns about available habitat and the effects of hunting. The declining availability of quality habitat is believed to be a primary cause for the decline in the population (Dessecker and Pursglove 2000). The USFWS has adjusted woodcock hunting season dates and reduced bag limits four times since 1968 in response to the general status of woodcock.

A North American Woodcock Conservation Plan was written to help guide woodcock management in each region of the continent within woodcock range. The document is available online at www.michigan.gov/dnr or www.timberdoodle.org. Professionals are also working on developing habitat initiatives where the plan will be used to guide the creation of quality habitat that will benefit woodcock as well as other species that have similar habitat requirements.

More woodcock are banded in Michigan than in any other state or Canada. In fact, Michigan banders have banded greater than 20,000 more woodcock than the next largest banding state (Maine) since 1981 (Mayhew and Luukkonen *in press*). Woodcock survival estimates based on Michigan woodcock banding data analyses is reported by Kremenz et al. (2003) and Mayhew and Luukkonen (*in press*).

Woodcock hunters may expect a season similar to last year. The USFWS framework allows for the woodcock hunting season to open no earlier than the Saturday closest to September 22 and to run for no more than 45 days. In 2009, the opening date is September 19 and hunters are projected to take up to 120,000 woodcock this fall. While good numbers of woodcock can be found in all parts of Michigan, the highest densities are located in the northern two-thirds of the state.

ACKNOWLEDGMENTS

We thank all the cooperators who provided grouse and woodcock hunting records and participated in banding woodcock. Steve Merchant and Adam Bump provided historical data for Minnesota and Wisconsin drumming counts. Many DNR employees and volunteers conducted spring breeding surveys and assisted in data entry. Theresa Riebow, Joseph Bauer, Ryan Soulard, and Jennifer Olson helped with the cooperator data. Artwork was drawn by Jennifer Kleitch. Brian Frawley, Pat Lederle, Dave Luukkonen, Russ Mason, Cheryl Nelson, and Doug Reeves, reviewed an earlier version of this report. Portions of this report were copied in whole or in part from previous status reports. Similar reports may be found at www.michigan.gov/dnr.

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Table 1. Average ruffed grouse and American woodcock flushes per hour^a, by two-week intervals, as reported by cooperating hunters in 2008.

Species and dates	Zone ^b		
	1	2	3
Ruffed grouse			
September 15–30	1.9	2.3	0.9
October 1–15	2.1	2.0	1.0
October 16–31	2.5	2.2	1.3
November 1–14	1.3	2.3	1.0
December 1–15	n/a	2.0	0.7
December 16–January 1	n/a	1.4	0.4
American woodcock			
September 15–30	0.7	1.7	1.8
October 1–15	1.2	2.2	2.3
October 16–31	0.7	1.3	1.4
November 1–14	0.2	0.4	0.8
December 1–15	n/a	0.0	0.0
December 16–January 1	n/a	0.0	0.0

^aDoes not include hunting data when effort was <20 hours.
^bSee Appendix A for boundaries of zones.

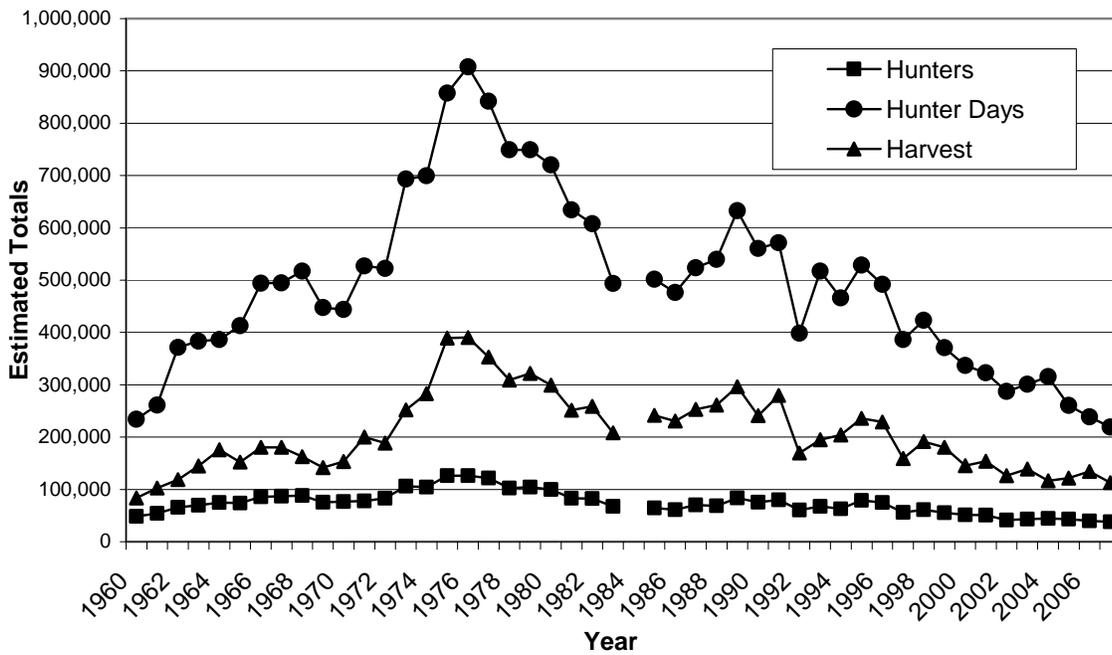


Figure 1. Mail survey estimates of the number of American woodcock hunters, hunter days, and harvest in Michigan, 1960-2007 (estimates not available for 1984).

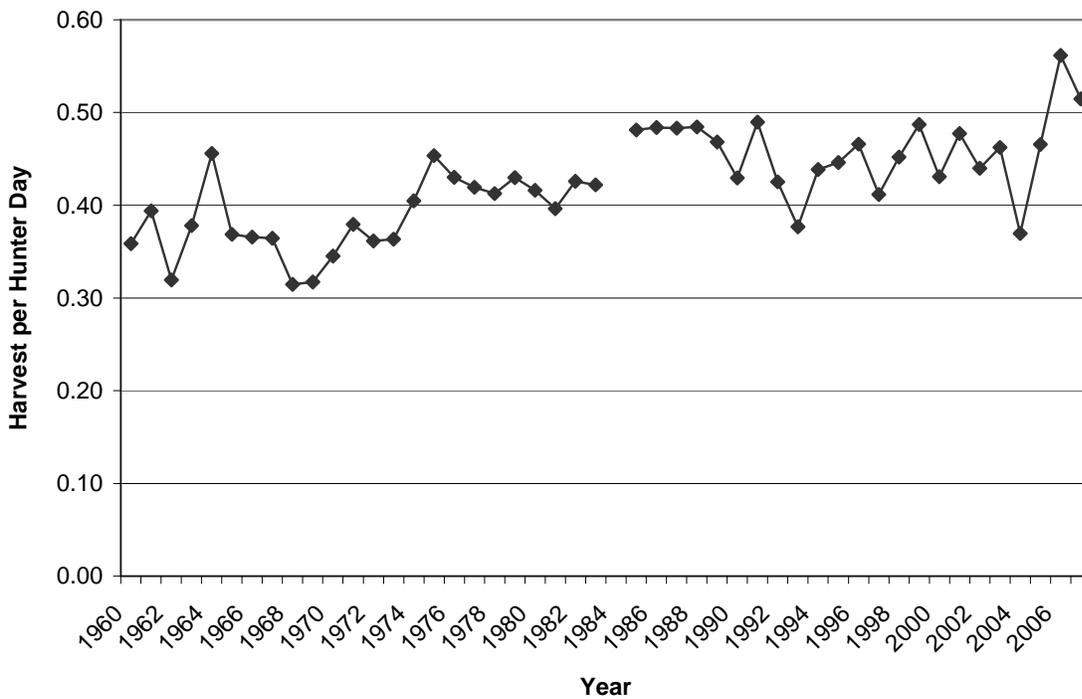


Figure 2. Mail survey estimates of woodcock harvest per hunter day in Michigan, 1960-2007 (estimates are not available for 1984).

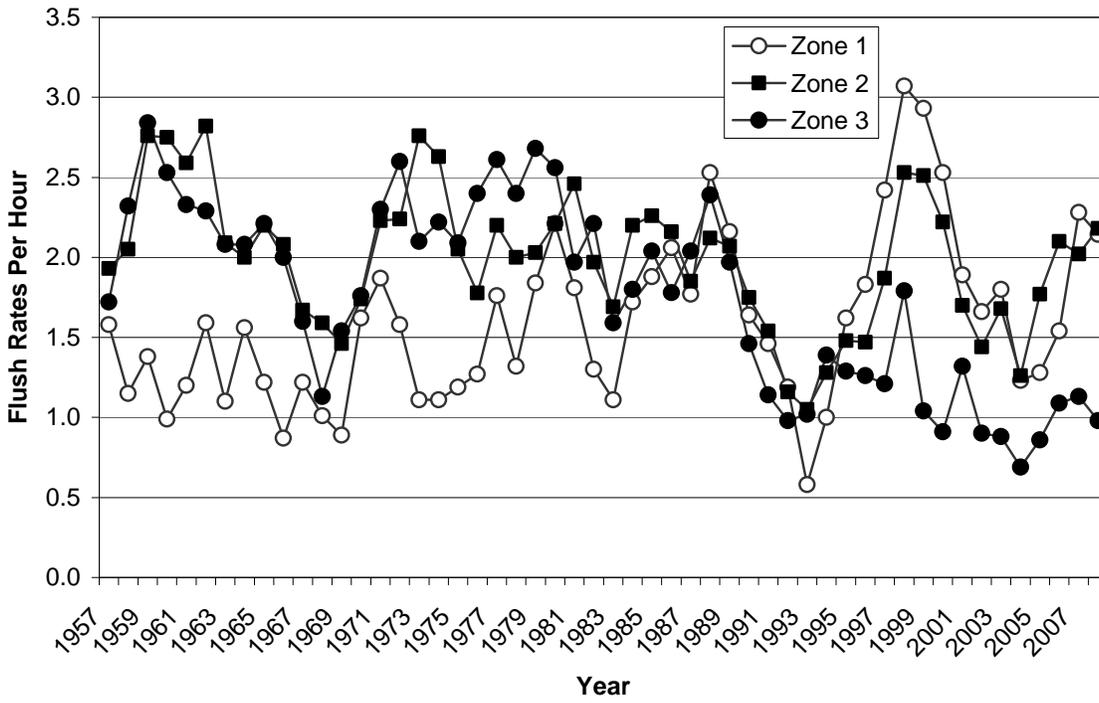


Figure 3. Ruffed grouse flush rates reported by cooperating hunters, 1957-2008.

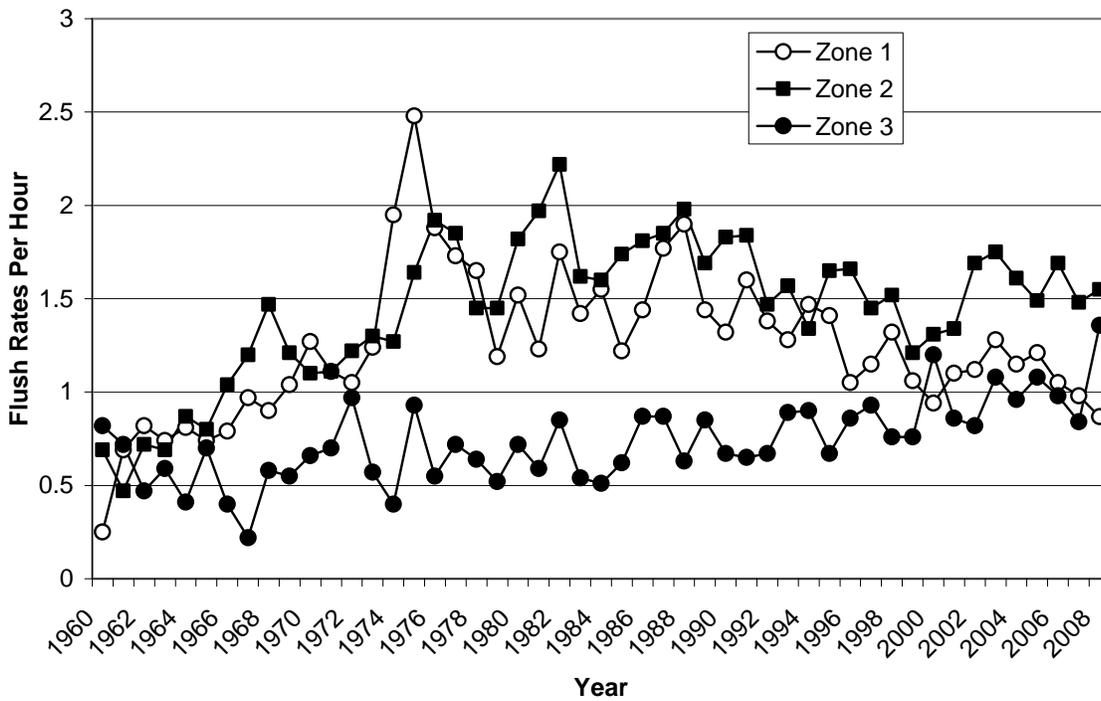


Figure 4. American woodcock flush rates reported by cooperating hunters, 1960-2008.

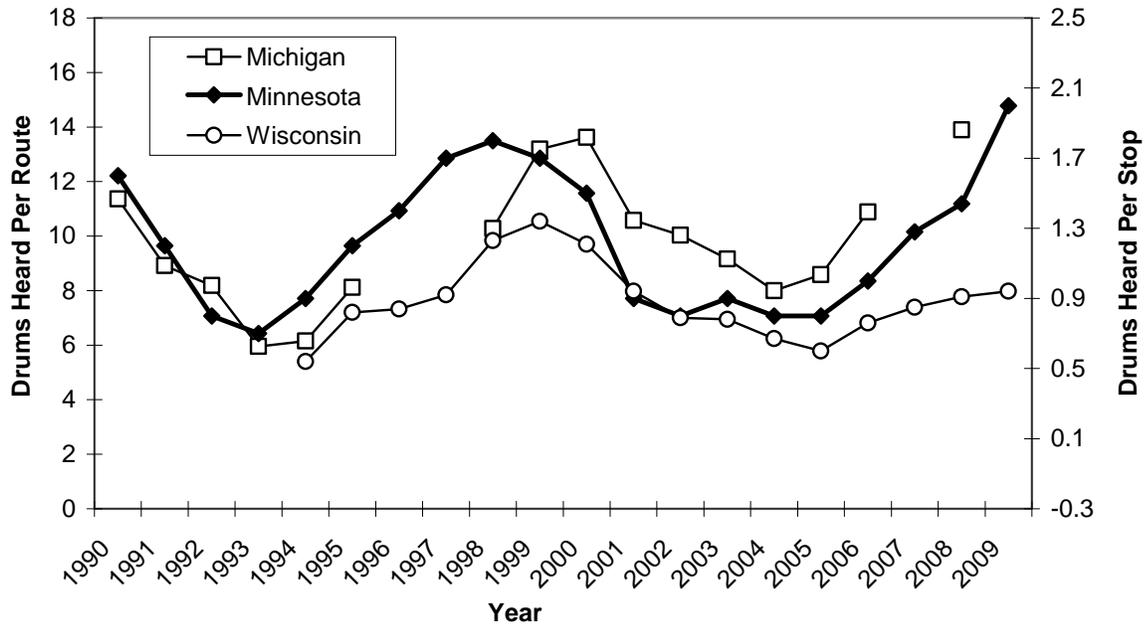


Figure 5. Ruffed grouse breeding population indices from Michigan (drums per route), Minnesota and Wisconsin (drums per stop), 1990-2009. Michigan statewide data is not available for 1996, 1997, 2007, and 2009.

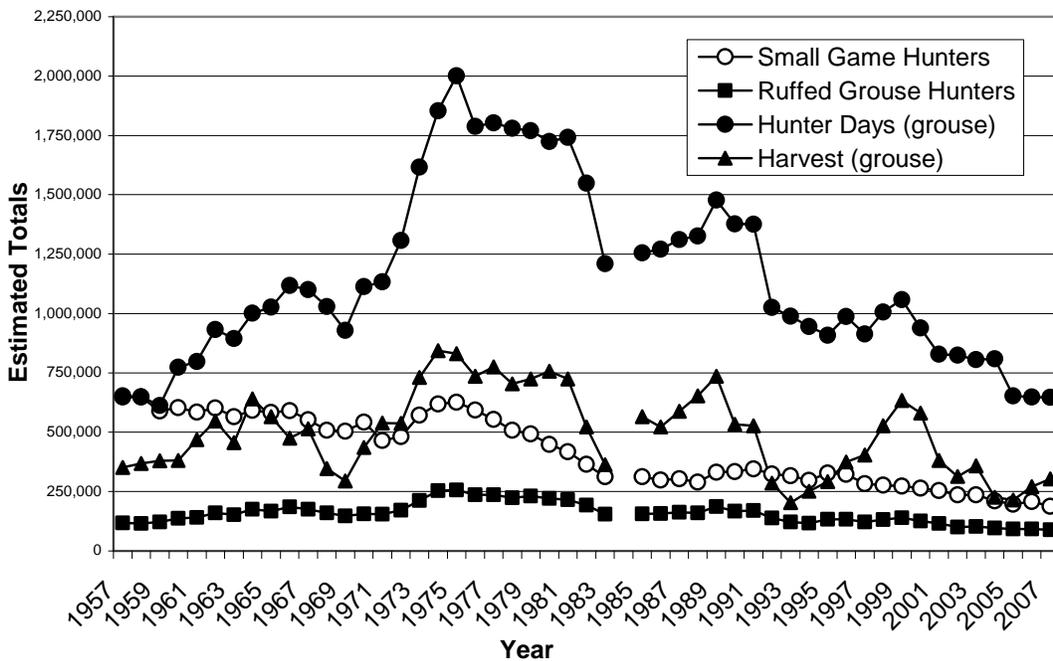


Figure 6. Mail survey estimates of the number of small game hunters and estimates of ruffed grouse hunters, harvest, and hunter days in Michigan, 1957-2007 (estimates are not available for 1984).

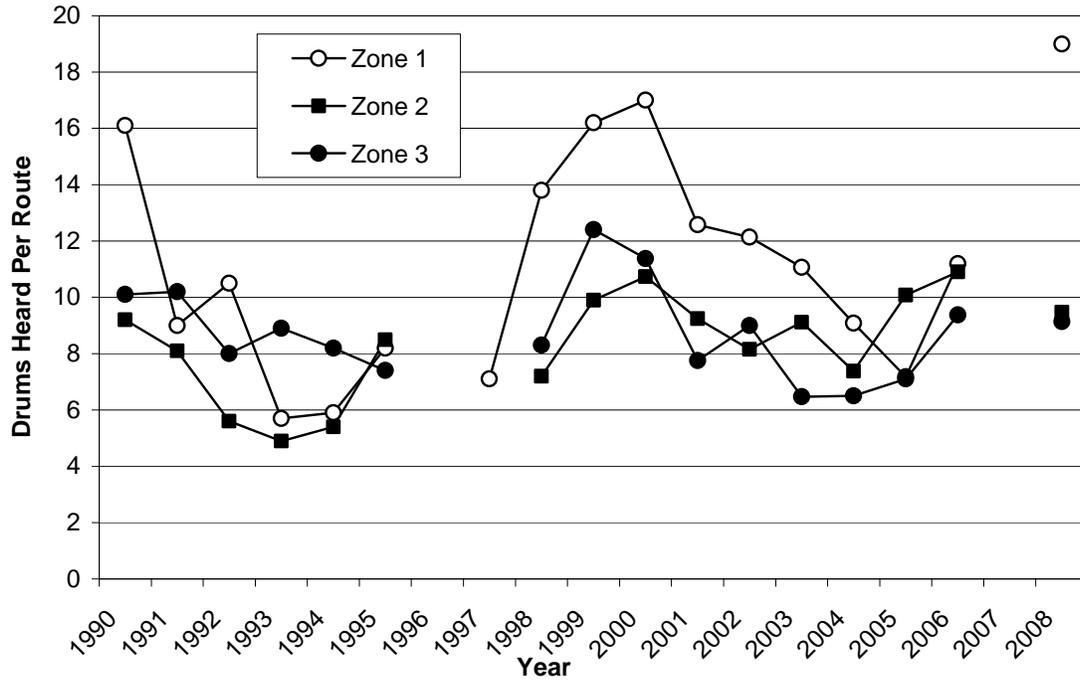
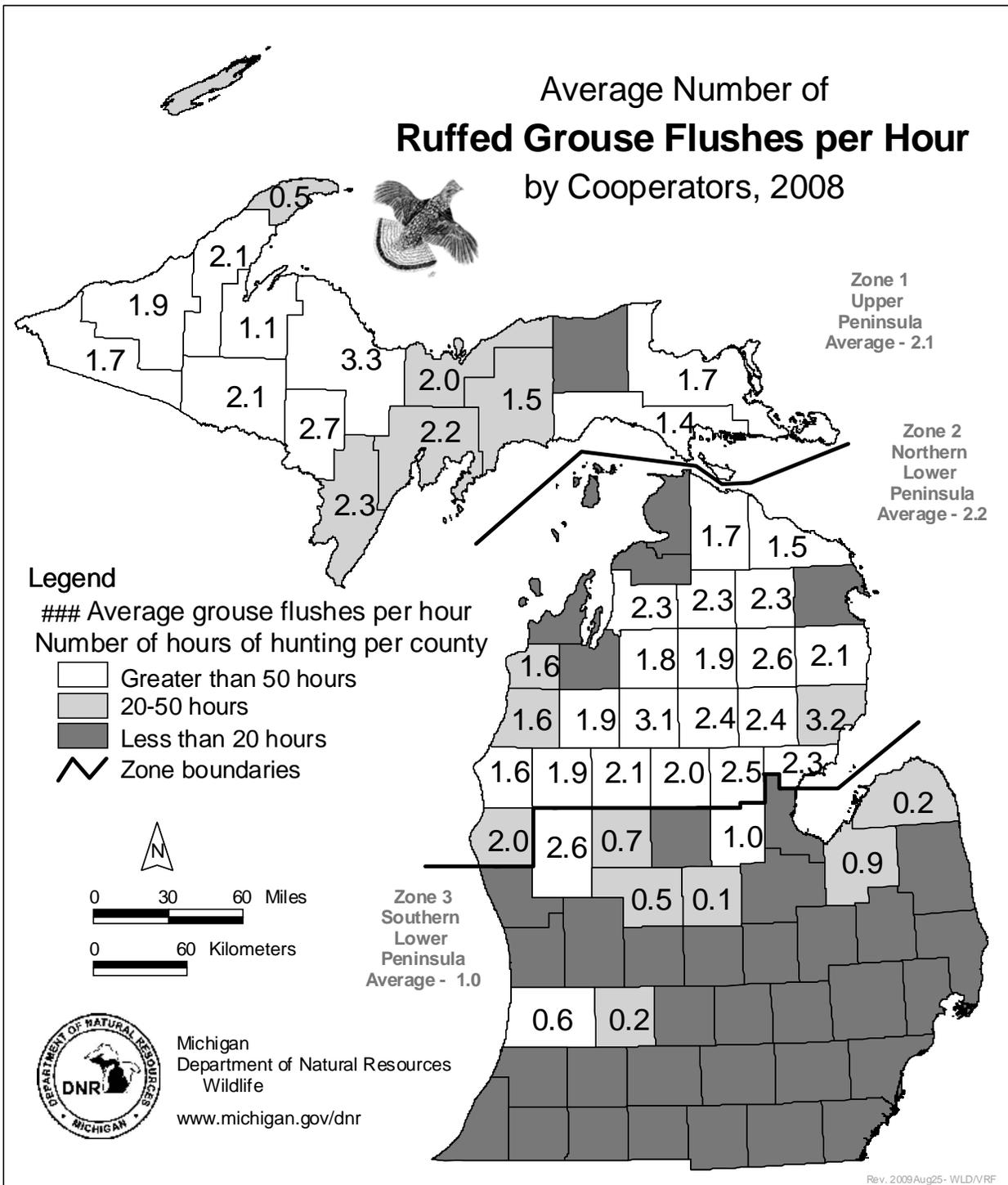
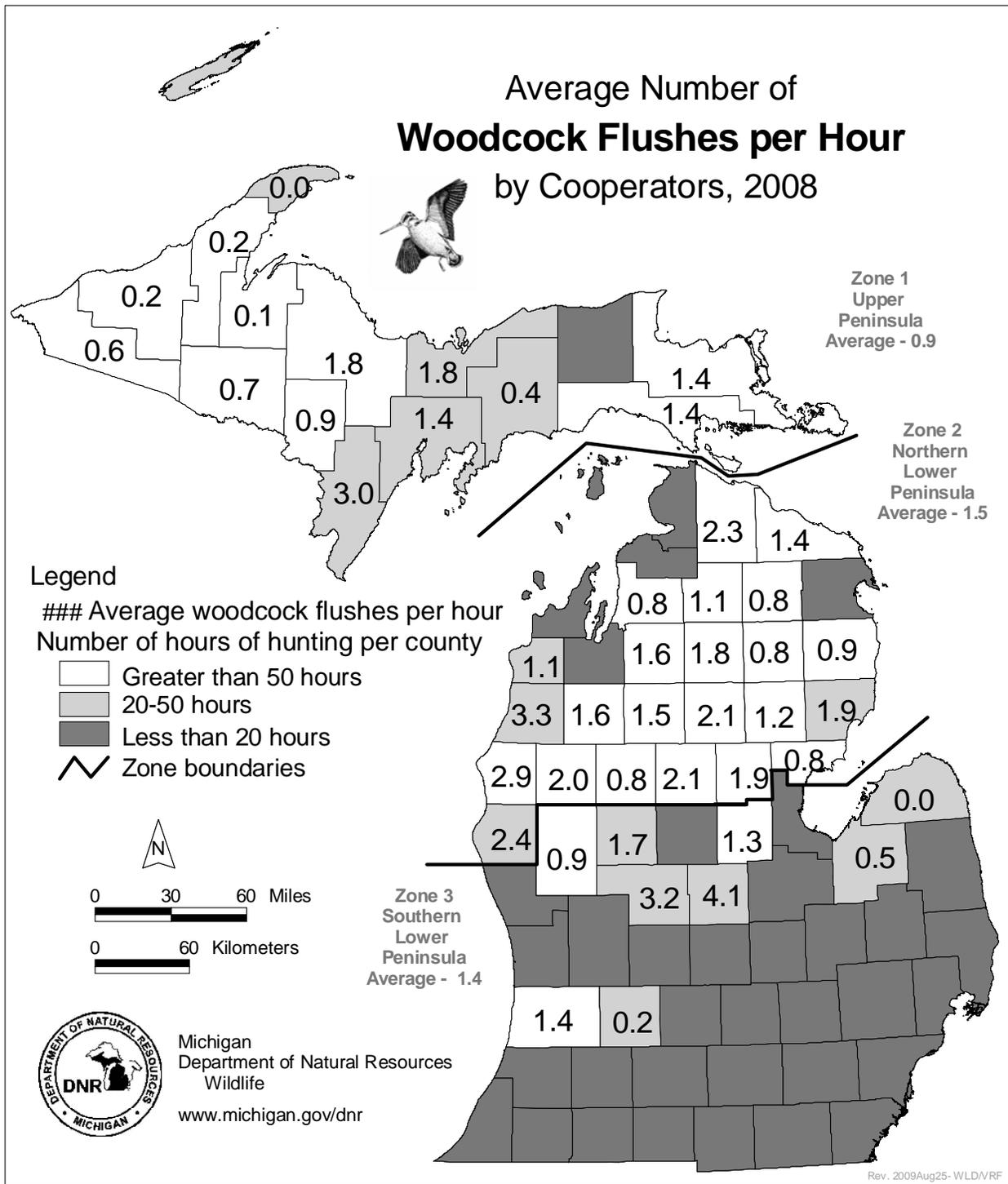


Figure 7. Ruffed grouse breeding population index (drums per route) in Michigan, 1990-2008. Drumming surveys were not conducted statewide in 1996, 2007, and 2009, and were conducted only in Zone 1 in 1997.



Appendix A. Average number of ruffed grouse flushed per hour by cooperators in 2008.



Appendix B. Average number of woodcock flushed per hour by cooperators in 2008.