

6.6. AN OVERVIEW OF HAWK MIGRATION STUDIES BY SOUTHEASTERN MICHIGAN RAPTOR RESEARCH AT THE DETROIT RIVER MOUTH

Paul Cypher, Southeastern Michigan Raptor Research, Brownstown, Michigan

Introduction

Analyzing trends from population samples of migrant birds of prey can provide researchers with insight into the overall health of the environment. The geography of the eastern Great Lakes combined with the migratory preferences of North American birds of prey provide hawk watches at the Detroit River mouth (specifically Southeastern Michigan Raptor Research and Holiday Beach Migration Observatory) a remarkable opportunity to monitor the overall health of the environment on a continental scale. This paper addresses only Southeastern Michigan Raptor Research (SMRR).

Thermals (rising columns of warm air) are utilized by many raptor species during migration. Thermals do not form over water, causing many southbound migrants to circumnavigate the Great Lakes. Birds moving south through Ontario find their progress blocked by Lake Erie and Lake Ontario. They are forced to cross the Detroit River to continue their migration (Cypher 2004). Recognizing this, a series of hawk watches were established at the river mouth. SMRR (originally the Lake Erie Metropark Hawkwatch) started in 1983 under the management of Tim Smart. During the first few seasons, a solid understanding of the impact of wind and bird flight lines was gained.

Unfortunately, qualified volunteer counters were limited, resulting in days without coverage and thus limited data. However, by 1992 coverage by qualified volunteer personnel was consistent for the majority of the season. In 1998, SMRR obtained 501(c)3 non-profit status and hired its first full-time counter using funds from a Michigan Department of Natural Resources Non-game Wildlife Fund Grant in 2000. Funding continued from 2001 to the present with support from DTE Energy.

Methods

The count season established by SMRR begins on September 1 and concludes November 30. Weather conditions, specifically wind speed and direction, determine which count site is used. During days with non-north winds, the Boat Launch of Lake Erie Metropark (LEMP) is used (Figure 1). The majority of the season's hours (>75%) are logged here. A secondary count site, the Headquarters of Pointe Mouillee State Game Area, is used when winds contain a strong north component (Figure 1). Under extreme circumstances, both count sites are staffed simultaneously. A professional counter, with one or more volunteers, staffs the count site every day, from approximately 7 AM to 5 PM EST (adjusted to length of daylight). Each hour, all migrants are identified to species (with ages in some cases), counted, and recorded along with weather data and flight details. All data is entered into the Hawk Migration Association of North America's (HMANA) Raptors Online database at <http://www.hawkcount.org>. This database is used by over 100 hawk watches in the United States, Mexico, and Canada, allowing researchers to download count information (copyrighted by respective count sites/organizations) as an Excel spreadsheet. In addition, data is posted on the SMRR website (<http://www/smrr>).

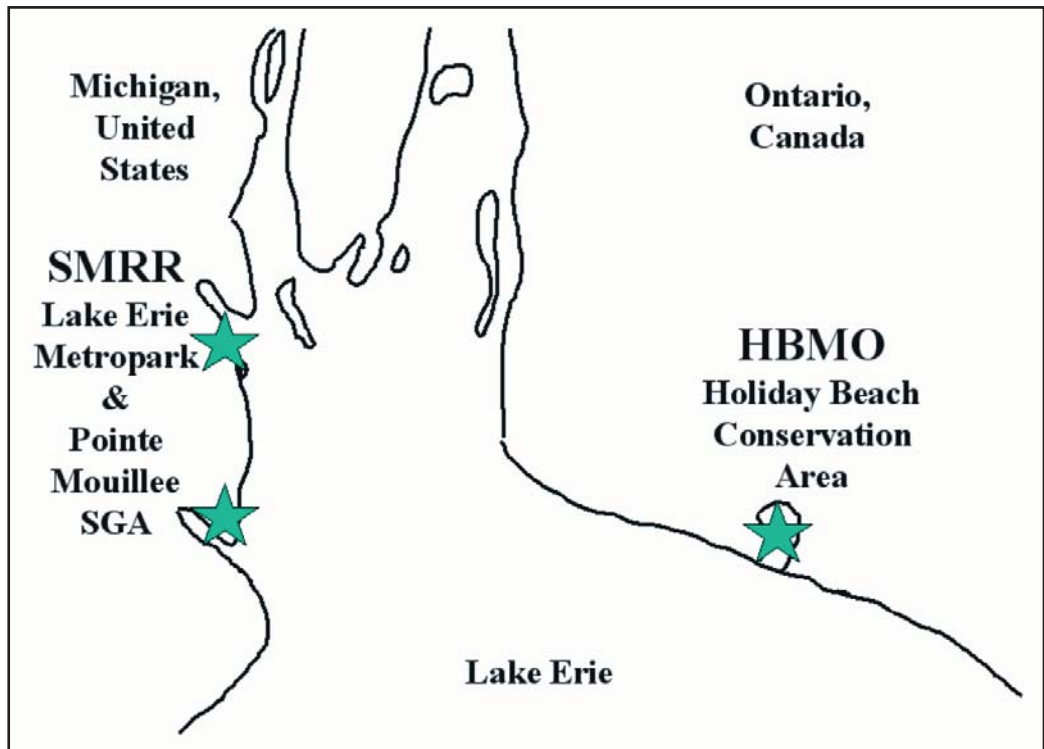


Figure 1. Count site locations for SMRR and Holiday Beach Migration Observatory (HBMO).

net) in journal format for the public.

Results

From 1983 to 2003, over 3 million birds representing 23 species have been recorded during over 8,000 hours of observation. However, the opening years of the count were not fully staffed, nor were count protocols consistent. Thus, data interpretation begins with the 1992 season. The 12-year average (1992-2003) of the 16 species regularly recorded is shown in Table 1 (Cypher 2004). Recognizing that long-term trends become more accurate over time, care needs to be taken when interpreting the data from “only” 12 seasons. Nevertheless, several species show significant trends.

Peregrine falcons, osprey, and bald eagles increased significantly during the 12-year count period (Figure 2; SMRR). Hawk watches throughout the Central Continental Flyway have noted this increase as well (Berardi 2004). While osprey and bald eagles spend considerable time in the study area, only individuals that appear to be migrating are counted. (Count protocols prevent the inclusion of transient and nesting birds.) Hawk watches throughout the Central Continental Flyway have noted an increase in osprey and bald eagles as well (Berardi 2004).

There has been a significant increase in turkey vulture numbers (Figure 3; SMRR). Most hawk watches (all but one) throughout the Central Continental Flyway recorded increases as well (Berardi 2004). There has also been an upward trend in red-shouldered hawk numbers (Figure 4; SMRR). While the trend is encouraging, the percentage of immature birds for 2001, 2002, and 2003 was 20%, 11%, and 21% respectively. Recruitment for this species is very poor.

Table 1. SMRR Season Averages (1992 - 2003).

Species	Average number
Turkey Vulture (<i>Cathartes aura</i>)	32,160
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	170
Sharp-shinned Hawk (<i>Accipiter striatus</i>)	9,449
Northern Goshawk (<i>Accipiter gentilis</i>)	34
Broad-winged Hawk (<i>Buteo platypterus</i>)	183,895
Red-tailed Hawk (<i>Buteo jamaicensis</i>)	7,414
Golden Eagle (<i>Aquila chrysaetos</i>)	111
Merlin (<i>Falco columbarius</i>)	50
Osprey (<i>Pandion haliaetus</i>)	140
Northern Harrier (<i>Circus cyaneus</i>)	802
Cooper's Hawk (<i>Accipiter cooperii</i>)	619
Red-shouldered Hawk (<i>Buteo lineatus</i>)	792
Swainson's Hawk (<i>Buteo swainsoni</i>)	8
Rough-legged Hawk (<i>Buteo lagopus</i>)	71
American Kestrel (<i>Falco spawerius</i>)	1,739
Peregrine Falcon (<i>Falco peregrinus</i>)	51

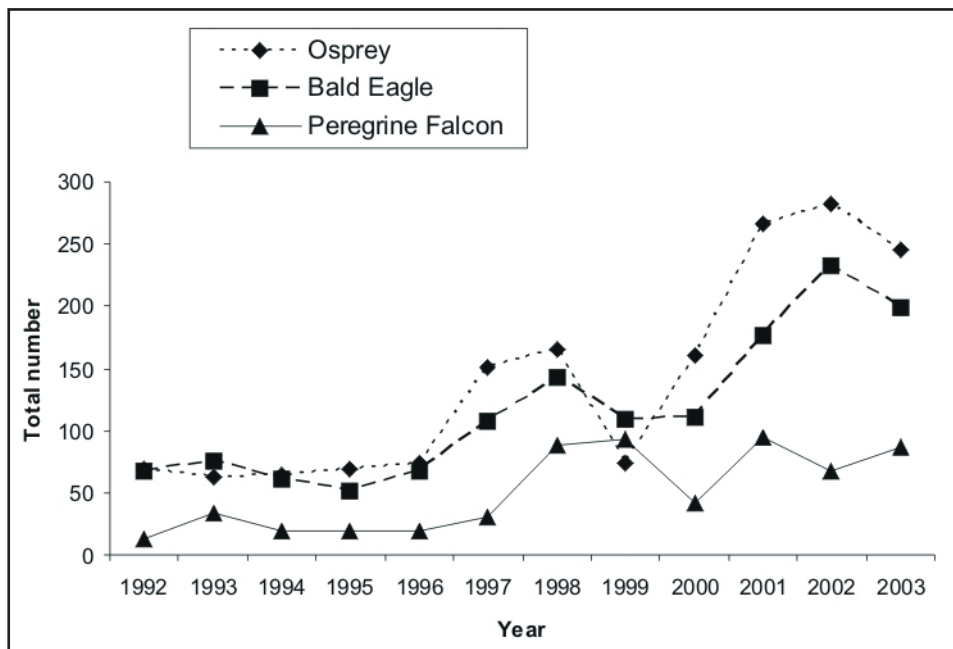


Figure 2. Changes in numbers of osprey, bald eagles and peregrine falcons observed by SMRR (1992-2003).

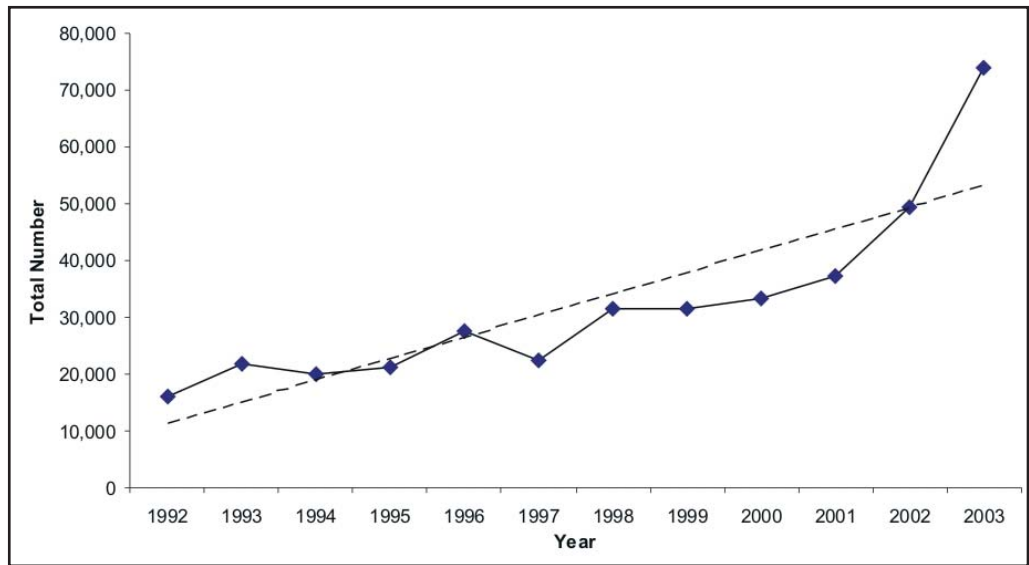


Figure 3. Changes in numbers of turkey vultures observed by SMRR (1992-2003).

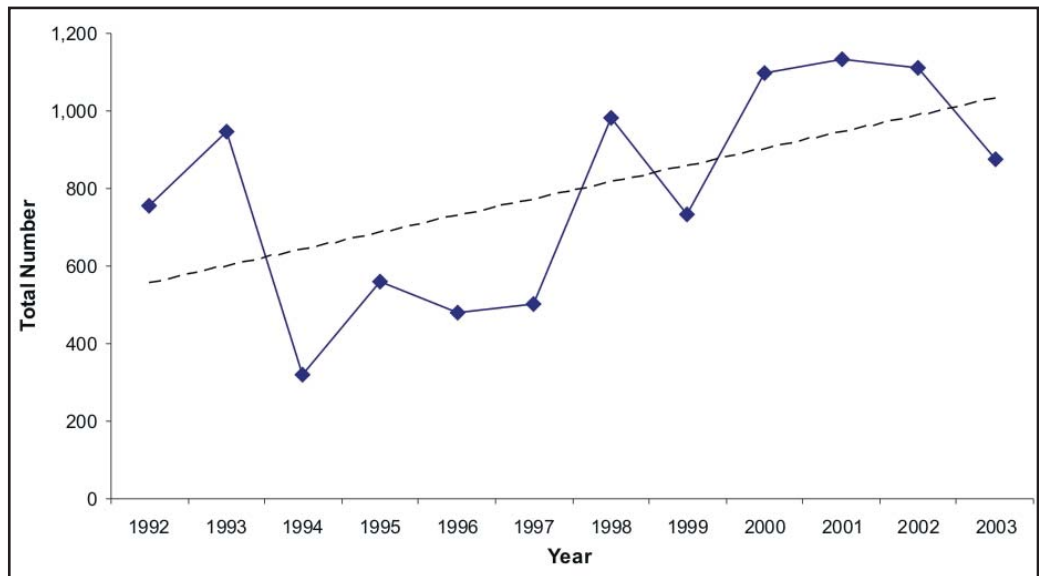


Figure 4. Changes in numbers of red-shouldered hawks observed by SMRR (1992-2003).

Conclusions and Recommendations

Unfortunately, hawk migration studies can't identify factors that increase or decrease a given raptor population. However, once trends are established, further studies can be developed to pinpoint possible problems. Thus, a continuation of counting, combined with an expansion of banding programs, would yield valuable information. Planned improvements to the existing program include more funding for paid staff (counters and banders) and more public outreach. In addition, despite the limited size of the database, preliminary research efforts in eastern Canada might explain some trends that have already been noted, such as the red-shouldered hawk adult/immature ratios.

References

- Berardi, V. (2004). "Fall 2003 Central Continental Flyway Report." *HMANA Hawk Migration Studies*, 23(1).
- Cypher, P. (2004). *Southeastern Michigan Raptor Research*, <<http://www.smrr.net>>.
- Hawk Migration Association of North America Raptors Online Project*, <<http://www.hawkcount.org>> (2004).