

INDICATOR: FALL RAPTOR MIGRATION OVER LAKE ERIE METROPARK

Background

The geography of the eastern Great Lakes, combined with the migratory preferences of North American birds of prey, provide unique opportunities to monitor the status and trends of raptor populations at the mouth of the Detroit River. The Detroit River is at the intersection of the Atlantic and Mississippi Flyways making it a unique area to survey migrating birds, especially raptors. As the raptors move south from their eastern Canadian breeding grounds, they are blocked by the north shore of Lakes Erie and Ontario. Thermals (rising columns of warm air) do not form over water so the birds are forced in one of two directions: east around Lake Ontario or west around Lake Erie. Those that move west follow the north shore of Lake Erie, until they reach the mouth of the Detroit River. Turning back is not an option so the birds fly over a 6-km (4-mile) span of water to southeast Michigan, specifically near Lake Erie Metropark and Pointe Mouillee State Game Area. They lose altitude as they cross, making it easier for them to be observed (Figure 1). Volunteer monitoring programs such as Southeastern Michigan Raptor Research (SMRR) and Holiday Beach Migration Observatory (HBMO) have proven invaluable in monitoring fall raptor migrations. Hawk watches are conducted yearly during the months of September, October, and November at specific places where



Figure 1. Red-tailed hawk (*Buteo jamaicensis*) (Photo credit: Donald Metzner).

raptors avoid the expansive lakes. A total of 23 raptor species have been observed (16 regularly occurring species).

Status and Trends

The early seasons of hawk migration studies by SMRR were exploratory and the hours and count locations were not consistent. However, by 1991 they were more standardized, thus trend analysis begins with the 1992 season. All 16 regularly occurring species have increased since 1992 (though more detailed analysis to test for

statistical significance is needed). Figure 2 illustrates a general upward trend of the red-shouldered hawk sightings (SMRR). While the trend is encouraging, the percentage of immature birds for 2001, 2002, and 2003 was 20%, 11%, and 21%, respectively (SMRR). These percentages of immature birds are low compared to other monitoring areas. The cause or causes of this lower than expected recruitment is unknown and likely requires research on their nesting grounds.

Figure 3 shows a significant increase in turkey vulture numbers (SMRR). In recent years this species has continuously broken records with every season that passes. In 2004, the count was 63% above the 10-year average with a high of 12,131 vultures seen in one day (Figure 4). Most hawk watches (all but one) throughout the Central Continental Flyway recorded increases as well (Berardi 2004).

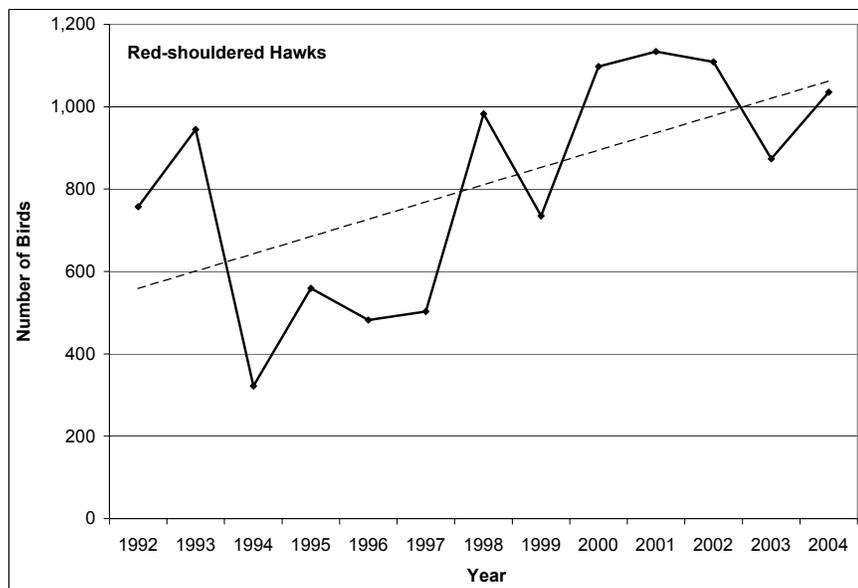


Figure 2. Red-shouldered hawk trend (1992-2004).

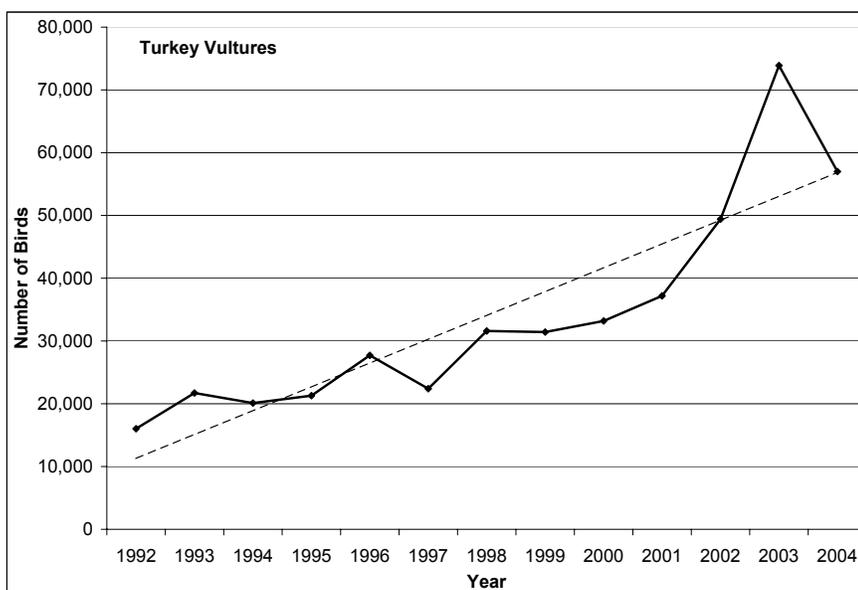


Figure 3. Turkey vulture trend (1992-2004).

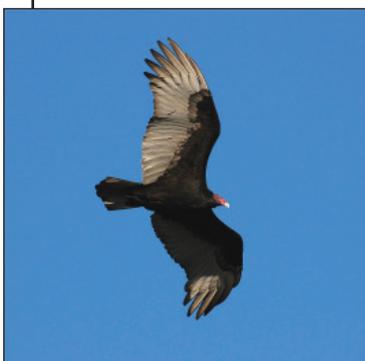


Figure 4. Turkey vulture (*Cathartes aura*) (Photo credit: Donald Metzner).

Figure 5 shows the substantial increases of peregrine falcons, ospreys, and bald eagles during the 13-year period on record (SMRR). Hawk watches throughout the Central Continental Flyway have noted this increase as well (Berardi 2004). Ospreys and bald eagles will spend considerable time in the study area; however, only migrating birds are counted because count protocols prevent the inclusion of nonmigrating and nesting birds. In 2004, ospreys and bald eagles were 65% and 69%, respectively, above their 10-year averages. In 2004, only 36 peregrine falcons were observed – this was 36% below the 10-year average.

The red-tailed hawk has shown a very stable population size since 1992 (Figure 6). Counts have fluctuated up and down, with no clear increasing or decreasing trend.

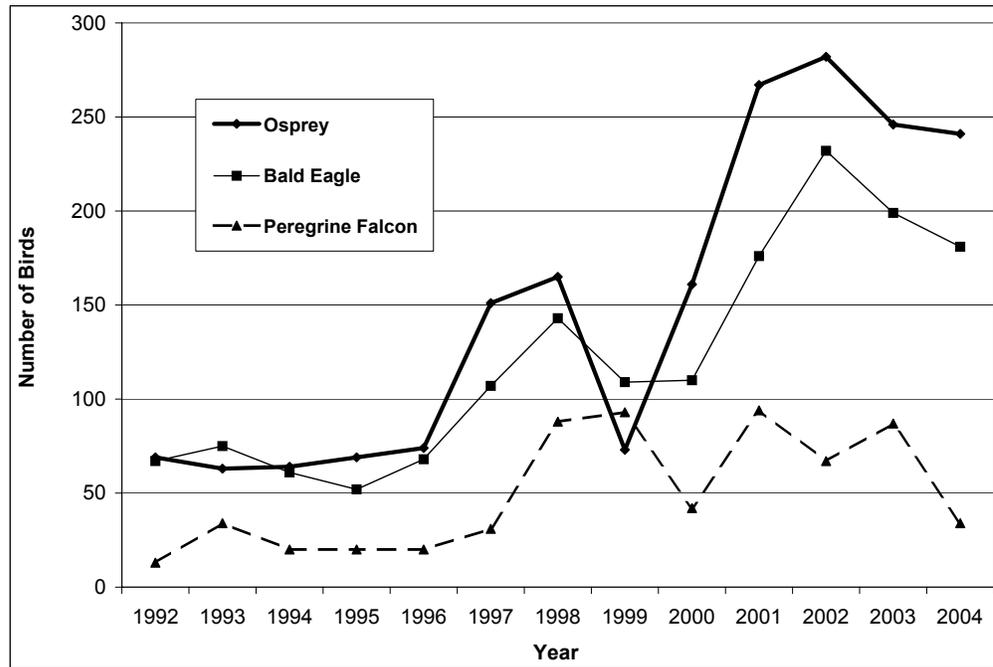


Figure 5. Osprey, bald eagle, and peregrine falcon trends (1992-2004).

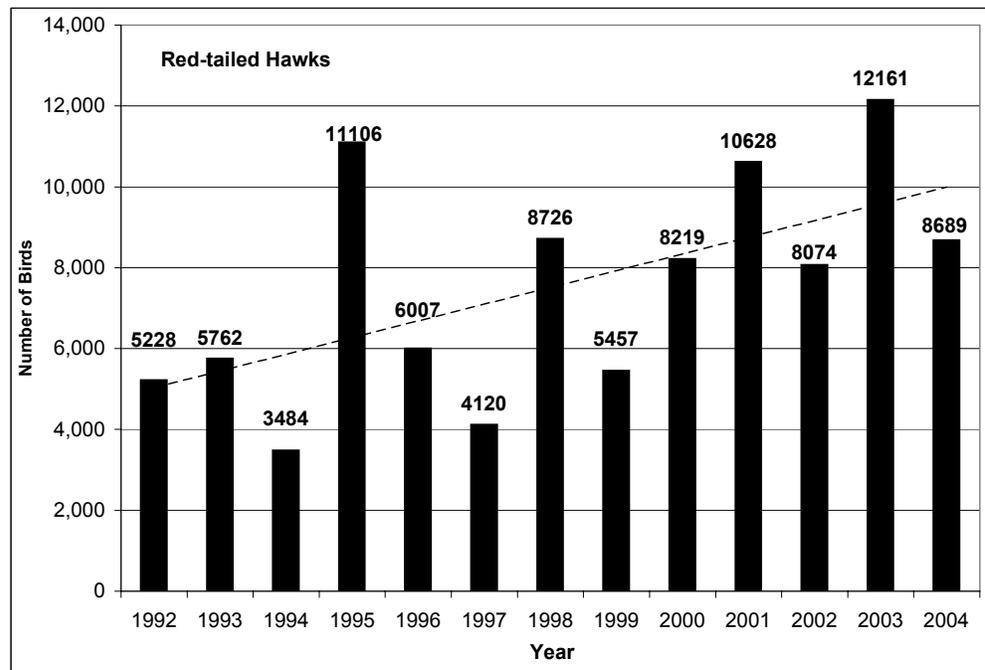


Figure 6. Red-tailed hawk trend (1992-2004).

Management Next Steps

Management for sustainable populations or healthy population sizes of these species must come from maintaining habitat for them in their breeding and wintering areas. This must be done and assessed specifically for each species because, although their populations are monitored altogether at these count sites, each species has unique habitat requirements, reproductive rates and sensitivities to environmental stressors. Management of the habitat in which these species spend the most time should include responding to issues involving habitat fragmentation, contaminants (both in habitat areas and adjacent lands), invasive species, and other disturbances both in the breeding and wintering areas.

Research/Monitoring Needs

Consistent SMRR monitoring should continue during fall migration. As at Holiday Beach Migration Observatory, improvements to the already existing program would include continued recruitment of volunteers, more funding to secure counters and banders, and more public outreach. Despite the “limited” size of the database, preliminary research efforts in eastern Canada might explain some trends that have already been noted (in particular, the red-shouldered hawk adult/immature ratios). Studies should be done to determine which raptor species are nesting in southeast Michigan, including identification of nest locations. More research needs to be undertaken to determine what environmental factors may be contributing to fluctuations in observed numbers. Input of data from all of the hawk watches across North America will aid in statistically defensible population indices so that we have knowledge of the health of these species both for their protection and for their contribution to our understanding of the many ecosystems they represent. This is currently being done by the Raptor Population Index – a project undertaken through a partnership between HMANA, Hawk Mountain Sanctuary, and HawkWatch International, and this research should continue.

References

Berardi, V. 2004. Fall 2003 Central continental flyway report. *HMANA Hawk Migration Studies* Vol. 29: No. 1.

[SMRR] Southeastern Michigan Raptor Research. 2005. Hawk migration studies by Southeastern Michigan Raptor Research at the Detroit River (Unpublished).

Fergus, C. 2004. Pennsylvania Game Commission. *Wildlife Notes*. <http://www.pgc.state.pa.us/pgc/cwp/view.asp?a=458&q=150468>

Links for More Information

Southeastern Michigan Raptor Research: <http://www.smrr.net/>

Holiday Beach Migration Observatory: <http://www.hbmo.org>

The Hawk Migration Association of North America (HMANA): www.hmana.org

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