

# **Fall Raptor Migration at Holiday Beach Conservation Area, Amherstburg, Ontario**

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## **Background**

Fall migrating birds have used the north shore of Lake Erie since the Wisconsin Glacier retreated. More recently casual observers have recorded large numbers of hawks at Holiday Beach Conservation Area (HBCA) east of Amherstburg, Ontario, Canada and nearby sites since the 1950s. More systematic observations began in the 1970s, when evidence indicated that hawks and other birds were experiencing dramatic population declines. Over two million raptors have been counted at this site during the past over 40 years.

Since 1974, from September through November, qualified volunteer observers, members of Holiday Beach Migration Observatory (HBMO), have worked enthusiastically (600 hours seasonal average) toward a goal of identifying and recording all migrant raptors passing the count site. The information collected is analyzed locally in cooperation with Hawk Migration Association of North America (HMANA) (Chartier and Stimac, 2002). HMANA was organized to help standardize count procedures and identification, and to educate the public.

Birds of prey can be indicators of ecosystem health because of their terminal position in the food web. Since a number of contaminants biomagnify through food webs, avian predators are usually the first wild species to show ill effects, such as failure to reproduce, egg shell thinning and nesting failure, or death through poisoning. Heavy metals and chlorine-based pesticides such as DDT, aldrin, dieldrin, and heptachlor have been implicated in causing such wildlife impacts. Trends in raptor numbers over time can indicate build up or removal of such toxins, the condition of the landscapes they live in, or other impacts to be investigated.

As the raptors move south from their eastern Canadian breeding areas, the north shores of Lakes Erie and Ontario become migration barriers due to the fact that large bodies of water do not create updrafts of warming air upon which the birds depend for gliding and soaring. Therefore, the best “lift” is over land areas. The birds are forced to follow the Lake Erie shoreline westward and are funneled into a narrow migration avenue with Lakes St. Clair and Huron boarding to the north. The birds are able to cross the Big Creek marsh west of the count site and cross the Detroit River on their flight southwestward. After crossing the Detroit River, the majority of these birds are recounted by Detroit River Hawk Watch located at Lake Erie Metropark and Point Mouillee.

Each fall at HBCA, observers tally between 600,000 and 750,000 migrant birds from ducks to warblers with an average of 75,000 of these being hawks. HBCA has received the status of an Important Bird Area (IBA) because of the large numbers of fall migrants that use this region for their trek southward. Birds in the area generally start flying at sunrise and continue throughout the day. The biggest factor influencing whether a bird is counted or not is wind direction. North

component winds (NNW, NW, N, NE, NNE) force the birds to follow more closely to the north shore of the lake and therefore within range of being counted. South component winds tend to move the birds more north of the count site out of range of viewing and therefore are not counted. Consequently, there may be large variations in total numbers within a species from year to year, however, over a long period these differences are minimal. Analysis of population trends must take into account this wind-influencing factor.

## **Status and Trends**

The Raptor Population Index (RPI) is a partnership between four leading hawk watch and migration research organizations: the Hawk Migration Association of North America (HMANA), Hawk Mountain Sanctuary (HMS), HawkWatch International (HWI), and Bird Studies Canada (BSC).

Accurate knowledge of population status and change is fundamental for bird conservation. Lack of reliable information on populations of many raptors forms a conspicuous gap in North American bird monitoring. The vision of the RPI partners is to contribute to effective conservation of migratory raptors through continent-wide long-term monitoring of raptor migration, scientifically sound assessments of population status, and public outreach and education. RPI analyzes count data from monitoring sites across the country in a standardized way and identifies recent (10-year), 20-year, and long-term (life of site) trends in migrants counted. See <http://rpi-project.org/2016/> for results of the most recent analysis for all sites, and for detailed methodology.

The data below come from the 2016 RPI analysis for the HBCA. Results are for 10 years (2006-2016, 'recent') and the life of the site (1979-2016, 'long-term').

### Species with increasing counts:

Counts of the following species are increasing over the long-term at the HBCA based on RPI results: Bald Eagle, Golden Eagle, Merlin, Peregrine Falcon, and Turkey Vulture. Bald Eagle are the only species with recent increasing counts (2006-2016).

### Species with decreasing counts:

RPI analyses indicate long-term declines in counts of migrating American Kestrels, Sharp-shinned Hawk, Northern Goshawk, Broad-winged Hawk, Red-shouldered Hawk, Red-tailed Hawk, and Rough-legged Hawk.

Also concerning were recent declines for 9 of the 15 species at the HBCA, including American Kestrel, Golden Eagle, Cooper's Hawk, Osprey, Peregrine Falcon, Sharp-shinned Hawk, Red-tailed Hawk, Northern Harrier, and Northern Goshawk.

Figure 1. Trends in major raptor species as measured by Detroit River Hawk Watch. Heading for each plot includes: estimated trend slope of line (negative values indicating declines and positive value indicating increases); 95% credible intervals for the trend estimate; and posterior probability (i.e., probability an event will happen after all evidence or background information has been taken into account) of that trend (weight of support for the trend—a value greater than or equal to 0.95 indicated a strongly supported trend, greater than equal to 0.9 a supported trend, less than 0.9 indicates the trend is not well supported (no trend)), 1991-2016 (<http://rpi-project.org/2016/>).

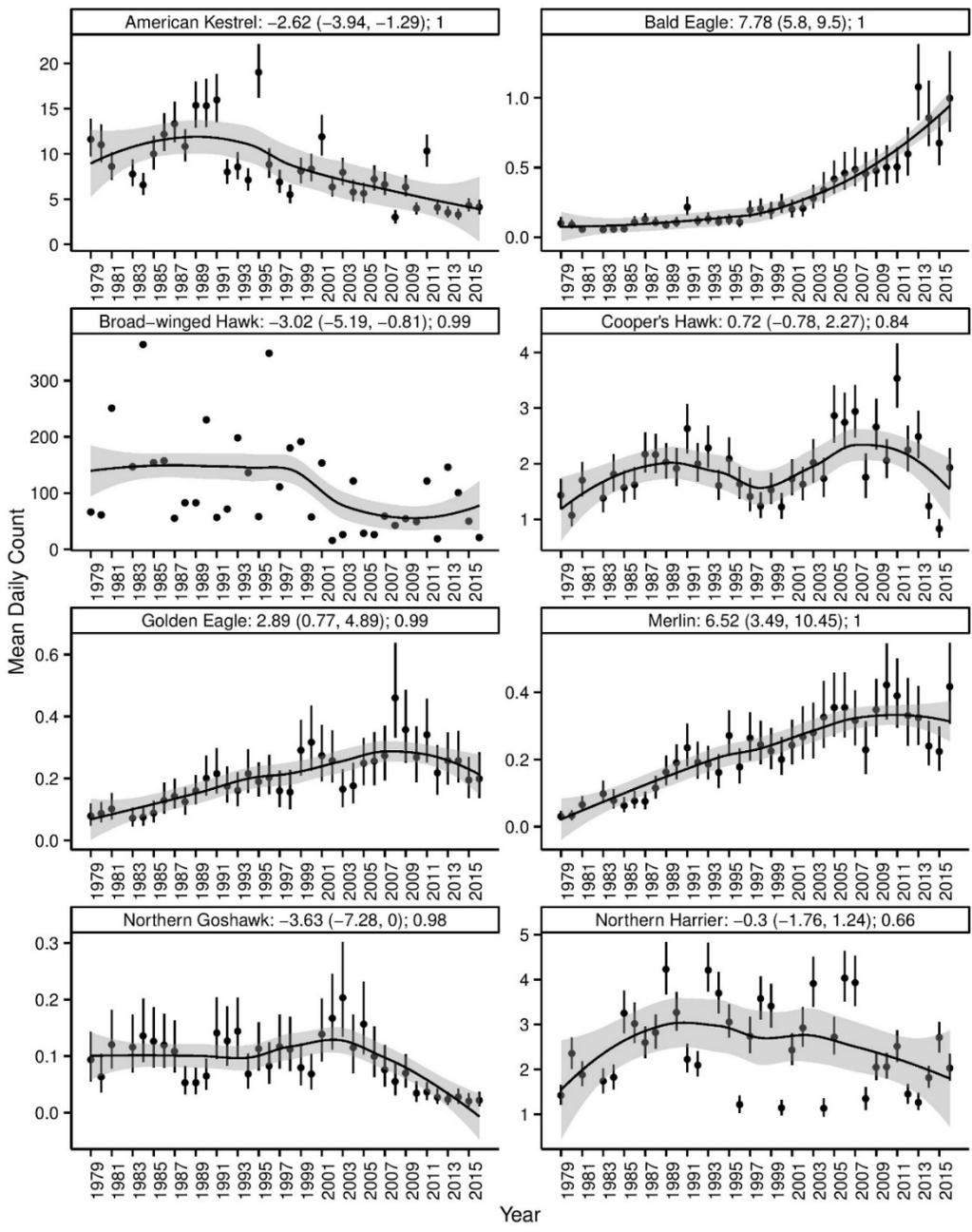
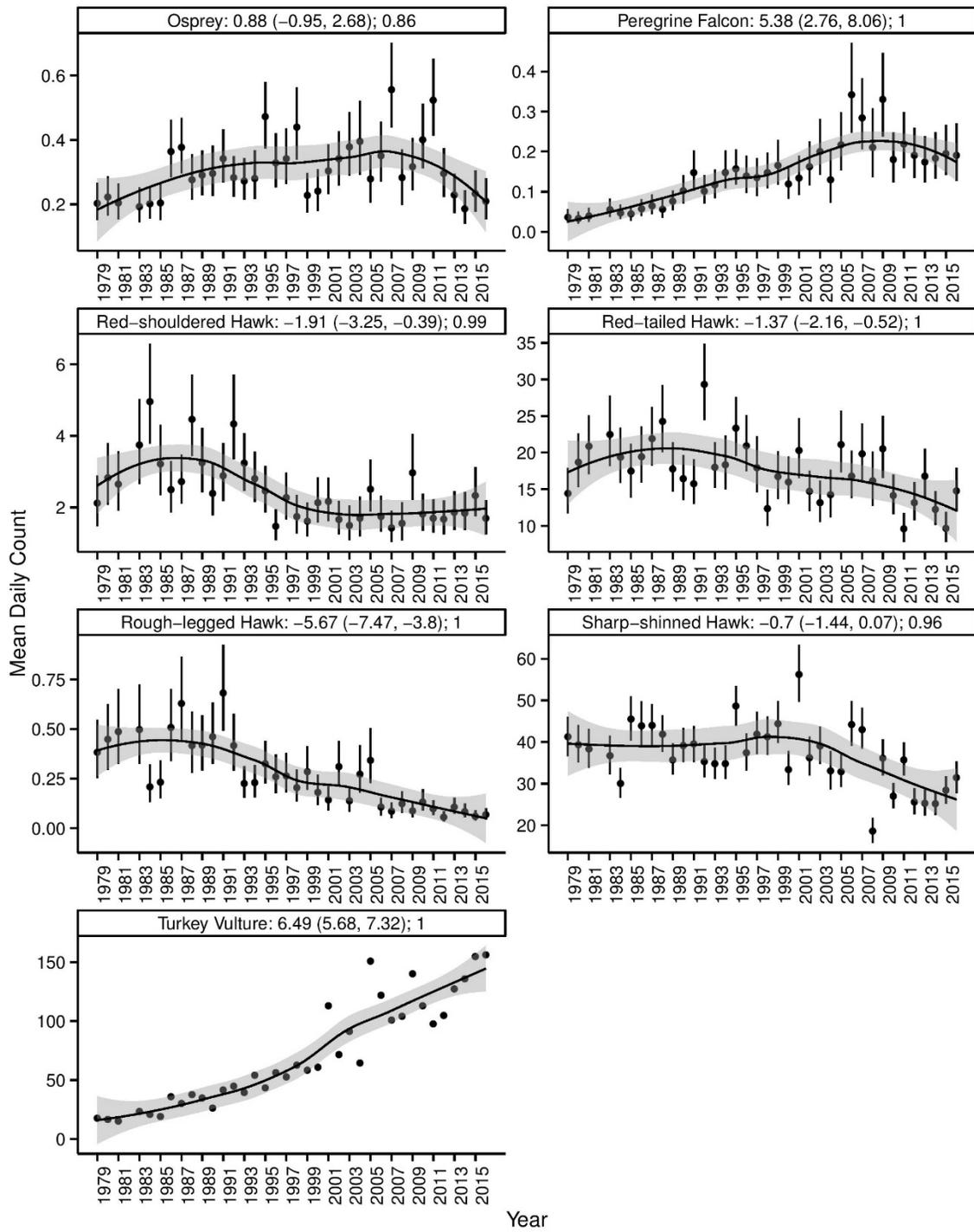


Figure 1. Continued.



## **Management Next Steps**

Reaching long-term goals of sustainable raptor populations will require increasing the amount of foraging and nesting habitats conserved and restored for a number of species. For example, management of Red-shouldered Hawks requires conservation and restoration of habitats such as damp woods, river bottomlands, and swamps with tall trees where they can nest 6-18 m above the ground. Efforts to decrease threats to raptor species (and other wildlife), including habitat loss and alteration, contaminants, electrocution, vehicle and structure collisions, and direct persecution, will contribute towards these goals.

While long-term monitoring such as that at the HBCA will not identify the drivers of declines and increases, they are essential to understanding the effectiveness of management efforts and policies designed to benefit raptors and other wildlife. Without the continuity of such efforts, any changes to trends will go unnoticed—both conservation successes and new or continued declines. Continued priority must be placed on recruitment of volunteers, as well as consistent funding for paid staff (counters and banders) and greater public outreach. Findings from this monitoring effort should steer focused research elsewhere to understand if recent declines indicate actual population decline, a shift in migration paths, or a shift in the proportion of populations that migrate.

## **References**

Chartier, A. and D. Stimac. 2002. Hawks of Holiday Beach: A Guide to their Identification, Occurrence, and Habits at Holiday Beach Conservation Area, Ontario, Canada, 2<sup>nd</sup> Edition. pp. 3-8.

## **Links for more information**

Holiday Beach Migration Observatory (HBMO): <http://www.hbmo.org>  
The Raptor Population Index: <http://rpi-project.org/2016/>