



## **Detroit River Hawk Watch 2016 Season Summary**

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Migrating broad-winged hawks in September. Detroit River Hawk Watch.

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## ABSTRACT

The 2016 count was the 34th consecutive season of monitoring diurnal raptor and turkey vulture migration at the mouth of the Detroit River, and the 19th year of consistent coverage at Lake Erie Metropark. There were 635.5 hours of data collection with counts conducted on 89 days between 1 September and 30 November. A total of 65,398 raptors and turkey vultures of fifteen species were counted. We compared this season's counts of individuals for each species to the respective long-term average (LTA) for each species since 1998. Only merlins (*Falco columbarius*) were counted within a 15 percent deviation from the LTA, which we considered to be the 'approximately average' zone. The total number of individuals counted for all other species that we observed this season was at least 15 percent less than the respective LTA, which we considered to be 'below average'. The species that were counted in below average numbers were turkey vulture (*Cathartes aura*), bald eagle (*Haliaeetus leucocephalis*), northern harrier (*Circus cyaneus*), sharp-shinned hawk (*Accipiter striatus*), red-shouldered hawk (*Buteo lineatus*), broad-winged hawk (*Buteo platypterus*), red-tailed hawk (*Buteo jamaicensis*), golden eagle (*Aquila chrysaetos*), American kestrel (*Falco sparverius*), peregrine falcon (*Falco peregrinus*), Cooper's hawk (*Accipiter cooperii*), northern goshawk (*Accipiter gentilis*), rough-legged hawk (*Buteo lagopus*), and osprey (*Pandion haliaetus*). Unlike the previous seven seasons, no Swainson's hawks were counted this season.

## METHODS

An hourly count of migrating diurnal raptors and turkey vultures was conducted each day between 1 September and 30 November 2016 with a total of 635.5 hours of coverage at the Lake Erie Metropark Boat Launch (LEMP; N 42.0792, W 83.1937). Observations began at 07:00 EST and ended at 15:00 EST, but was delayed a maximum of two hours due to declining day length during the latter part of the season.

All counting was conducted by one to a maximum of three observers who scanned the skies with 8 to 12X magnification binoculars. Spotting scopes with 20 to 60X magnification were used only to identify previously sighted raptors. Raptors were determined to be migrating if they were observed crossing, without returning, an imaginary line originating at the observer and running to the northwest and southeast.

Steady rain, exceptionally strong winds, and/or heavy fog caused the daily count to be abbreviated or cancelled. From the count site, wind direction (N, NNE, NE, etc.) and wind speed (km/hr), relative humidity (%), barometric pressure (inches Hg), and temperature (°C) were collected at the beginning of each hour with a Kestrel 3500® Pocket Weather Meter. Cloud cover (%), visibility (km), and precipitation ('no rain,' 'light rain,' etc.) were also recorded.

Counters attempted to estimate birds exiting kettles in a stream-like fashion during periods of large migration volume. Results are reported as percent deviation in relation to LEMP's long-term averages (LTA) since 1998, when consistent coverage began at

LEMP. If the deviation between this year's total count of a given species was within  $\pm$  15% of the LTA, we considered that species to have been counted in 'approximately average' numbers. If the deviation was more than 15% below the LTA, we considered that species to have been counted in 'below average' numbers. If the deviation was more than 15% above the LTA, we considered that species to have been counted in 'above average' numbers.

## MONTHLY REPORTS

### SEPTEMBER

#### *Days 1 to 10*

Average temperature was 25.2°, with a high of 35 and a low of 15. During this period the two most common wind directions were east (12/79, i.e., 12 readings out of 79 total during this period) and west (12/79). Barometric pressure was generally low, with only 8 of 23 readings above 30 inches. A total of 1,253 raptors and turkey vultures, consisting of 10 species, were counted this period. These were turkey vulture, osprey, bald eagle, northern harrier, sharp-shinned hawk, Cooper's hawk, broad-winged hawk, red-tailed hawk, American kestrel, and merlin. On 4 September, when the easterly winds were less than 11 km/h and the barometric pressure was around 30.26 inches all day, more raptors and turkey vultures (303) were counted than on any other day this period. The sharp-shinned hawk was the most numerous species (487 total) to migrate past the count site in this period, with over 100 documented on three separate days. Though last year 50 osprey were counted in this period, only 5 were counted this year. On 4 September, the most bald eagles (10) on a single day this season were counted, in a tie with 20 September. On 10 September, the most merlins (3) on a single day this season, in a tie with two other days (9 October and 15 October), were counted.

#### *Days 11 to 20*

Average temperature was 23°, with a high of 30.3 and a low of 15.8. The two most common wind directions were southerly (11/76) and southeasterly (11/76). Barometric pressure was relatively high this period, with all readings above 30 inches, and 54 of 76 readings above 30.15. A total of 12,087 raptors and turkey vultures, consisting of ten species, were counted this period. On 10 September, when winds always had a westerly and/or northerly component less than 11 km/h and the barometric pressure was steadily around 29.83—and despite overcast conditions with an occasional drizzle—more raptors and turkey vultures (6,965) were counted than on any other day this period. The broad-winged hawk was the most numerous species this period, with 10,244 counted. However, this total is considerably lower than previous years; presumably, the peak periods of broad-winged hawk migration coincided with southerly winds that pushed the birds out of our visible range to the north. Sharp-shinned hawks were the second most numerous species, with 1,115 counted. More American kestrels (308) and merlins (10) were counted in this systematically chosen ten-day period than in any other this season. The most American kestrels counted on a single day this season (57) occurred on 19 September. On 20 September, the most bald eagles were counted on a single day this season (10), in a tie with 4 September.



Migrating adult bald eagle. Detroit River Hawk Watch.

### *Days 21 to 30*

Average temperature was 21.5°, with a high of 31.7 and a low of 13. The two most common wind directions were southeasterly (13/70) and easterly (11/70). Barometric pressure had a wide range, from 29.78 to 30.31 inches, with 52 of 70 readings above 30.0. A total of 9,255 raptors and turkey vultures, consisting of 12 species, were counted this period, and our first peregrine falcon and red-shouldered hawk of the year were counted. On 24 September, when winds always had an easterly and/or northerly component, with speeds occasionally over 12 km/hr—and when barometric pressure raised from 30.26 to 30.31 by mid-day, before falling to 30.25 by the end of the count—more raptors and turkey vultures (5,782) were counted than on any other day this period. The broad-winged hawk was also, like the previous period, the most numerous species this period, with 6,830 counted, though this is still far less than a usual year during this time period. Turkey vultures were the second most numerous species (973) this period. On 23 September, more than 100 turkey vultures migrated past on a single day for the first time this season. Sharp-shinned hawks were spotted in large numbers again in this period, with 848 individuals counted. On 21 September, more sharp-shinned hawks (322) were counted than on any other day this season.

## OCTOBER

### *Days 1 to 10*

Average temperature was 17.8°, with a low of 6.8 and a high of 24.8. The two most common wind directions were southeasterly (22/85) and west-northwesterly (11/85). Barometric pressure was high, with a range of 30.05 to 30.52 inches, and 59 of 85 readings above 30.15. A total of 15,003 raptors and turkey vultures, consisting of 12 species, were counted this period. The most

numerous count of the season (6,975) occurred on 10 October when the most turkey vultures of the season (6,773) were counted. On this big day for migration, winds were always easterly and/or northerly, sometimes strong (more than 12 km/h), and barometric pressure dropped from 30.5 to 30.45. On 9 October, three merlins were counted, which tied with two other days (9 September and 15 October) as the most numerous day of the season for this species. Our last broad-winged hawks of the season were counted during this period, on 10 October. Of the 28 peregrine falcons that we counted this season, 21 were counted in this period. On 10 October, greater than 111 red-tailed hawks were counted on a single day for the first time this season.

#### *Days 11 to 20*

Average temperature was 17.8°, with a low of 6.6 and a high of 27.7. The two most common wind directions were southerly (15/71) and southeasterly (16/71). Barometric pressure was variable and evenly spread, with a range of 29.64 to 30.43 inches and 39 of 70 readings above 30.15. A total of 9,275 raptors and turkey vultures, consisting of 11 species, were counted this period. On 13 October, when light winds (less than 11 km/h) were northwesterly and barometric pressure raised from 30.24 to 30.3, more raptors and turkey vultures (3,271) were counted than on any other day this period. On 14 October, the first golden eagles of the season were counted. On 15 October, the most merlins were counted (3) on a single day this season, in a tie with two other days (10 September and 9 October).

#### *Days 21 to 31*

Average temperature was 11.1°, with a low of 4.1 and a high of 22.7. The two most common wind directions were northwesterly (34/78) and southeasterly (12/78). Barometric pressure ranged from 29.92 to 30.5 inches, with 37 of 78 readings above 30.15. A total of 15,232 raptors and turkey vultures (the most numerous during any systematically chosen ten-day period this season), consisting of ten species, were counted this period. On 24 October, when the sometimes-strong winds (more than 12 km/hr) had a westerly component and barometric pressure raised from 30.23 to 30.32, more raptors and turkey vultures were counted (4,878) than on any other day this period. On 28 and 31 October, the first rough-legged hawk and northern goshawk of the season, respectively, was counted. On 23 October, the last osprey of the season was counted, and on 29 October the last peregrine falcon of the season was counted.

### NOVEMBER

#### *Days 1 to 10*

Average temperature was 13.6°, with a low of 7.5 and a high of 19.7. Three wind directions, southeasterly, southwesterly, and north-northwesterly each had 11 of the 68 total readings. Barometric pressure ranged from 29.94 to 30.48 inches, with 53 of 68 readings above 30.15. A total of 3,190 raptors and turkey vultures, consisting of 12 species, were counted this period. On 3 November, when the light winds (less than 11 km/h) were northwesterly and barometric pressure was variable around 30.20 inches, more raptors and turkey vultures (1,275) were counted than on any other day this period. On 4 November, we counted the most rough-legged hawks (5), Cooper's hawks (13), and golden eagles (14) on a single day this season. On 3

November, the most red-tailed hawks (361) were counted on a single day this season. On 5 November, the last American kestrel of the season was counted. This was the last period of the season that over 100 turkey vultures (233) were counted on a single day.

#### *Days 11 to 20*

Average temperature was 9.2°, with a low of 0.7 and a high of 19.7. The two most common wind directions were westerly (16/64) and southwesterly (13/64). Barometric pressure ranged from 29.88 to 30.52, and was usually relatively low, as only 26 of 64 readings were above 30.15. A total of only 507 raptors and turkey vultures, consisting of 11 species, were counted this period. On 12 November, when the westerly winds were light (less than 11 km/hr) and barometric pressure dropped from 30.5 to 30.37, more raptors and turkey vultures (180) were counted than on any other day this period. The last rough-legged hawk of the season was counted on 18 November, and the last northern goshawk on 16 November. Our last day of more than 100 red-tailed hawks (114) on a single day this season occurred on 12 November.

#### *Days 21 to 30*

Average temperature was 6.7°, with a low of -0.7 and a high of, during the last measurement of the season, 14.4. The two most common wind directions were northwesterly (15/57) and southwesterly (12/57). Barometric pressure ranged from 29.55 to 30.42 inches, with 35 of 58 readings above 30.15. A total of only 84 raptors and turkey vultures, consisting of nine species, were counted this period. On 21 November, when there were very strong winds (up to 20+ km/hr) with a northwesterly component and a steady barometric pressure around 30.23, more raptors and turkey vultures (32) were counted than on any other day this period. The following species were counted at least once in this last period: merlin, golden eagle, red-tailed hawk, red-shouldered hawk, Cooper's hawk, sharp-shinned hawk, northern harrier, bald eagle, and turkey vulture.

## **SPECIES ACCOUNTS**

### TURKEY VULTURE

Turkey vultures migrated past the count site in below average numbers this season. A total of 38,528 individuals were counted between 2 September and 22 November, which is 23% less than the LTA (Table 1). About 75% of the migrating individuals were counted between 7 October and 24 October. Our highest count on a single day occurred on 10 October, when we counted 6,773 turkey vultures.

### OSPREY

Ospreys migrated past the count site in below average numbers this season. A total of 23 individuals were counted between 4 September and 23 October, which is 83% less than the LTA (Table 1). We counted just under half of this season's ospreys between 20 September and 24 September. Our highest count on a single day this season occurred on 20 September, when we counted six ospreys.

### BALD EAGLE

Bald eagles migrated past the count site in below average numbers this season. A total of 141 individuals were counted between 4 September and 30 November, which is 20% less than the LTA (Table 1). There was a steady, intermittent trickle of this species throughout the season with about half the birds counted in October. Our highest count on a single day (10) occurred on 4 September and 20 September.

### NORTHERN HARRIER

Northern harriers migrated past the count site in below average numbers this season. A total of 377 individuals were counted between 1 September and 30 November, which is 20% less than the LTA (Table 1). About 75% of all of the individuals had been counted by October 15, with a general decline in daily numbers of this species for the rest of the season. Our highest count on a single day this season (28) occurred on 19 September.



Northern harrier migrating low over Lake Erie Metropark's boat launch.  
Detroit River Hawk Watch.

### SHARP-SHINNED HAWK

Sharp-shinned hawks migrated past the count site in below average numbers this season. A total of 4,456 individuals were counted between 1 September and 30 November, which is 30% less than the LTA (Table 1). About 92% of all of the individuals were counted between 4 September and 21 October, though a somewhat steady flow of this species continued until 13 November, after which less than five individuals were counted daily for the rest of the season. Our highest count on a single day this season (322) occurred on 22 September.

### COOPER'S HAWK

Cooper's hawks migrated past the count site in below average numbers this season. A total of 169 individuals were counted between 1 September and 30 November, which is 67% less than the LTA (Table 1). This species was counted in small numbers regularly throughout the entire season. Our highest count on a single day this season (13) occurred on 4 November.

### NORTHERN GOSHAWK

Northern goshawks migrated past the count site in below average numbers this season. A total of four individuals were counted between 31 October and 16 November, which is 81% less than the LTA (Table 1). All counted birds were juveniles. On 31 October, we counted two separate individuals, which was our highest count on a single day this season.

### RED-SHOULDERED HAWK

Red-shouldered hawks migrated past the count site in below average numbers this season. A total of 448 individuals were counted between 24 September and 22 November, which is 32% less than the LTA (Table 1). About 75% of all individuals were counted between 20 October and 4 November. Our highest count on a single day this season (58) occurred on 4 November.

### BROAD-WINGED HAWK

Broad-winged hawks migrated past the count site in below average numbers this season. A total of 17,529 individuals were counted between 2 September and 10 October, which is 75% less than the LTA (Table 1). Only from 12 September to 25 September did we have daily counts above 100 individuals, and during this time, in which 97% of this season's broad-winged hawks were counted, we had three days with above 2,000 individuals. Our highest count on a single day this season (6,655) occurred on 20 September.

### RED-TAILED HAWK

Red-tailed hawks migrated past the count site in below average numbers this season. A total of 2,917 individuals were counted between 1 September and 26 November, which is 39% less than the LTA (Table 1). Our first day with more than 100 red-tailed hawks counted was on 10 October, and our last was on 12 November. During this time period, 86% of the individuals were counted. Our highest count on a single day this season (361) occurred on 3 November.

### ROUGH-LEGGED HAWK

Rough-legged hawks migrated past the count site in below average numbers this season. A total of 19 individuals were counted between 28 October and 18 November, which is 49% less than the LTA (Table 1). We were able to identify 3 dark morphs and 9 light morphs. Our highest count on a single day this season (5) occurred on 4 November.

### GOLDEN EAGLE

Golden eagles migrated past the count site in below average numbers this season. A total of 77 individuals were counted between 14 October and 27 November, which is 25% less than the LTA (Table 1). About 67% of the individuals were counted between 28 October and 6 November. Our highest count on a single day this season (14) occurred on 4 November.

### AMERICAN KESTREL

American kestrels migrated past the count site in below average numbers this season. A total of 551 individuals were counted between 1 September and 5 November, which is 41% less than the LTA (Table 1). Between 9 September and 24 September, 75% of the individuals were counted. Our highest count on a single day this season (57) occurred on 19 September.



## MERLIN

Merlins migrated past the count site in approximately average numbers this season. A total of 41 individuals were counted between 4 September and 29 November, which is 12% less than the LTA (Table 1). Between 4 September and 21 October, 90% of individuals were counted. Our highest count on a single day this season (3) occurred on 10 September, 9 September, and 15 September. A non-migratory merlin was seen throughout most of the season around the count site. Such an extended stopover period for this species was unusual. Effort was made to monitor the location of this local merlin when possible to avoid counting it as a migrant. At times, the behavior of the local merlin easily fit behavior that would validate its inclusion in the count as a new bird. However, in any case of doubt, our procedure was to consider the merlin as local.

## PEREGRINE FALCON

Peregrine falcons migrated past the count site in below average numbers this season. A total of 28 individuals were counted between 22 September and 29 October, which is 33% less than the LTA (Table 1). Between 1 October and 9 October, 75% of all individuals were counted. Our highest count on a single day this season (5) occurred on 5 and 6 October.

## **MIGRATORY NON-RAPTOR HIGHLIGHTS**

In this section, we report the non-raptor species that were recorded at the count site, which appeared to be migratory. When possible, we have provided an estimate for the number of migrants of a given species, though doing so was not possible for some species, such as Canada geese (*Branta canadensis*) in which there were migrants and local birds that were not possible to differentiate.

## WATERFOWL, GREBES, LOONS, AND SHOREBIRDS

Common loons (*Gavia immer*) were spotted in every month of the count, with as many as 13 individuals counted in one day. A group of five American wigeons (*Anas americana*) were spotted on both 10 September and 26 September. Eleven blue-winged teal (*Anas discors*) were seen on 20 September. Canada geese were observed throughout the whole season, as were mallards (*Anas platyrhynchos*), mute swans (*Cygnus olor*), and wood ducks (*Aix sponsa*). Relatively large groups (20+ individuals) of pied-billed grebes (*Podilymbus podiceps*) were seen between 26 September and 4 October. Four buffleheads (*Bucephala albeola*) were spotted on 22 October, as well as six on 26 and 30 November. Our first snow goose (*Chen caerulescens*), a solitary bird, was spotted on 29 October, and a flock of five were spotted on 28 November. The first tundra swans (*Cygnus columbianus*) (15) were spotted on 30 October, and throughout November as many as 31 more were spotted flying over Lake Erie. A single common goldeneye (*Bucephala clangula*) was counted on 2 November and 28 November, while 30 were counted on 29 November. A horned grebe (*Podiceps auritus*) was spotted on 8 November. Four northern shovelers (*Anas clypeata*) were sighted on 17 November. At least two ruddy ducks (*Oxyura jamaicensis*) were near the count site between 18 November and 20 November, while three were spotted on 29 November. A lesser scaup (*Aythya affinis*) was spotted on 18 November and two gadwall (*Anas strepera*) on 20 November. At least four common mergansers (*Mergus*

*merganser*) were near the count site between 23 November and 25 November. Several greater yellowlegs (*Tringa melanoleuca*) were spotted on 17 September, and killdeer (*Charadrius vociferus*) were spotted flying overhead on several occasions in September and October.

### GULLS, TERNS, AND JAEGERS

At least two Caspian terns (*Hydroprogne caspia*) were seen hunting at the count site between 6 September and 4 October, and Forster's terns (*Terna forsteri*) were seen during the same approximate period. A juvenile jaeger (*Stercorarius sp.*) was spotted on 20 September which is a very rare occurrence in the lower Great Lakes. Bonaparte's gulls (*Chroicocephalus philadelphia*) made their first appearance on 26 October, and up to 150 on any given day were seen hunting near the count site for the rest of the season. Two common terns (*Sterna hirundo*) were spotted on 1 November. One great black-backed gull (*Larus marinus*) was seen on 8 November, and three on 28 November.

### CRANES AND HERONS

Great blue herons (*Ardea herodias*) began to be seen in relatively big groups in November, as 14 were seen on the 17<sup>th</sup>, 21 on the 21<sup>st</sup> and 10 on the 25<sup>th</sup>. Sandhill cranes (*Grus canadensis*) were spotted throughout October and November, with as many as 88 individuals counted. Several great egrets (*Ardea alba*) were seen flying overhead in the beginning of November.

### CORVIDS

Between 16 September and 30 November, at least 37,101 American crows (*Corvus brachyrhynchos*) were counted, with a daily peak of about 10,000 on 31 October. Peak migration (in which crows regularly flew overhead daily by the hundreds) took place between 21 October and 11 November. Between 18 September and 3 November, at least 54,741 blue jays (*Cyanocitta cristata*) were counted, with a daily maximum of about 11,750 on 30 September.

### ICTERIDS

At least 22,000 red-winged blackbirds (*Agelaius phoeniceus*) were counted between 13 September and 16 November. A daily maximum was 5,530 on 23 October. Rusty blackbirds (*Euphagus carolinus*) were seen from 28 September to 28 October, and at least 570 individuals were counted. Common grackles (*Quiscalus quiscula*) were seen migrating between 9 October and 22 October.

### SWIFTS AND SWALLOWS

On 4 September, we spotted a barn swallow (*Hirundo rustica*), though this species was not spotted again for the rest of the season. Tree swallows (*Tachycineta bicolor*) were seen at the site until 27 October. Northern rough-winged swallows (*Stelgidopteryx serripennis*) and a purple martin (*Progne subis*) were common early in September.

### SPARROWS AND FINCHES

White-throated sparrows (*Zonotrichia albicollis*) and dark-eyed juncos (*Junco hyemalis*) were spotted at the count site for the first time this season on 14 October, and were regularly seen or heard until the end of the season. House finches (*Haemorhous mexicanus*) were spotted migrating in small flocks from 19 October to 29 October. A Lincoln's sparrow (*Melospiza*

*lincolnii*) was seen on 5 November from around the count site. American tree sparrows (*Spizella arborea*) were spotted for the first time this season on 11 November. American goldfinches (*Spinus tristis*) were spotted throughout the entire season, though in November appeared to be migrating in small flocks.

#### OTHER OSCINES

American robins (*Turdus migratorius*) were spotted around the count site throughout the season, though from 7 October to 10 November they appeared to be migrating in greater numbers. A single northern mockingbird (*Mimus polyglottos*) was seen migrating on 8 October. A hermit thrush (*Catharus guttatus*) was heard calling near the count site for the first time this season on 14 October. On 17 October, our first ruby-crowned kinglets (*Regulus calendula*) and brown creepers (*Certhia americana*) appeared. On 23 October, our first red-breasted nuthatch (*Sitta canadensis*) of the season was heard calling. At least 50 horned larks (*Eremophila alpestris*) migrated past the count site between 29 October and 27 November. Our first winter wren (*Troglodytes hiemalis*) of the season was detected on 2 November. An American pipit (*Anthus rubescens*) flew directly overhead on 5 November. About 100 snow buntings (*Plectrophenax nivalis*) migrated past the count site on 25 November.

#### OTHER AVIAN NON-PASSERINES

A common nighthawk (*Chordeiles minor*) was spotted flying over the count site on 4 September. As many as 176 American white pelicans (*Pelecanus erythrorhynchos*) were counted between 5 September and 20 November. Ruby-throated hummingbirds (*Archilochus colubris*) were spotted migrating past the site between 10 September and 21 September. Double-crested cormorants (*Phalacrocorax auritus*) were sometimes counted in the hundreds between the beginning of September and the end of October, though by the last few weeks of the season only a single bird was occasionally counted.

#### BUTTERFLIES

The only butterfly that migrated past the site in large numbers was the monarch (*Danaus plexippus*). At least 648 monarchs migrated past the site between 4 September and 18 November, with a maximum of 127 on 19 September.

#### **ACKNOWLEDGMENTS**

We would not be able to tell the story of this spectacular raptor (and non-raptor) migration without a wonderful team of dedicated volunteers. Listed alphabetically by last name, our official volunteers this season were Rosemary Brady, John Elliot, Raburn Howland, Frank Kitakis, Patrick Mulawa, Don Sherwood, and last, but definitely not least, Andrew Sturgess. Andrew was present nearly every day of the count, and provided great ‘instant replay’ opportunities by way of the pictures that he took of tough-to-identify raptors, as did regular weekend guest Mark Hainen. Rosemary also helped count raptors on most days, and her snack supplies were much appreciated energy sources for both us humans and the group of ducks that often showed up when she did. We thank Natalie Cypher who, on Mondays and Tuesdays, was the primary counter. We appreciate the efforts of the Detroit River Hawk Watch Advisory Committee, including Rosemary Brady, Dave Ewert, Joe Hemming, Raburn Howland, Jerry

Jourdan, and Will Weber. In addition to serving on this committee, Jerry Jourdan has done a great job maintaining the Detroit River Hawk Watch website (<http://www.drhawkwatch.org/>). The hard work and support of Joann Van Aken, Executive Director of the International Wildlife Refuge Alliance, is much appreciated. We also are thankful for the funds provided by the DTE Energy Foundation. Monetary gifts by visitors to our site also help to make the Detroit River Hawk Watch a success. Without our team, whose interest and enthusiasm inspire us, the story of the annual raptor migration at Lake Erie Metropark would be lost natural history at one of North America's most important migration corridors. We appreciate our 'readers,' whose interest in and support of raptor conservation helps to ensure that this wonderful story continues.

**Table 1.** Seasonal totals from 1998 to 2016 at Lake Erie Metropark Boat Launch, with species count averages from 1998 to 2016 and the percent deviation of species counts in 2016 from the previous 18-year mean. Seasonal record high counts for each species are bolded. See Table 2 for a key explaining species codes.

	Hours	TV	OS	BE	NH	SS	CH	NG	RS	BW	SW
1998	451	19,743	135	111	807	4,968	378	17	517	63,689	5
1999	481	17,559	58	69	556	6,534	299	23	556	45,711	8
2000	510	29,421	133	83	138	7,132	408	<b>49</b>	875	57,585	5
2001	526	28,237	213	115	757	<b>14,715</b>	693	46	858	19,386	3
2002	562	42,644	<b>238</b>	185	696	7,307	572	22	962	91,499	3
2003	545	54,975	234	147	<b>1,005</b>	10,643	709	28	533	84,085	12
2004	479	36,893	201	118	214	5,027	461	<b>49</b>	869	27,381	0
2005	456	29,699	218	116	291	5,623	432	18	299	56,229	8
2006	476	51,722	196	162	616	7,013	628	7	1,019	50,718	8
2007	599	62,882	195	211	818	9,909	724	6	<b>1,026</b>	69,574	2
2008	465	35,173	140	141	149	3,593	294	10	185	36,216	0
2009	519	54,989	46	118	169	3,259	335	24	615	20,016	4
2010	565	<b>122,325</b>	63	220	465	6,504	<b>834</b>	21	488	79,572	5
2011	592	52,745	85	235	278	5,331	763	26	487	<b>195,858</b>	5
2012	619	43,285	70	222	248	3,590	468	18	450	40,923	4
2013	643	69,723	71	350	234	3,230	460	3	532	49,629	5
2014	628	69,768	56	<b>354</b>	423	4,627	472	9	804	184,860	4
2015	648	73,601	81	219	632	5,540	250	5	763	72,461	1
2016	636	38,528	23	142	377	4,456	169	4	448	17,529	0
<b>Average</b>	547	49,153	129	175	467	6,263	492	20	647	66,470	4
<b>'16 Mean% Dev.</b>	17	-23	-83	-20	-20	-30	-67	-81	-32	-75	-

**Table 1 Ctd.**

	RT	RL	GE	AK	ML	PG	UNK	TOTAL
1998	3,782	17	33	1,046	<b>95</b>	52	86	95,481
1999	3,504	76	<b>208</b>	664	30	49	47	75,951
2000	5,754	55	188	790	34	24	37	102,711
2001	8,153	55	120	1,026	50	48	45	74,520
2002	6,565	63	79	<b>2,277</b>	64	52	15	153,240
2003	5,789	31	60	2,128	72	<b>82</b>	0	160,533
2004	6,155	<b>101</b>	79	470	38	20	0	78,076
2005	2,619	30	45	1,018	55	37	0	96,737
2006	6,025	27	124	1,314	40	38	0	119,657
2007	<b>9,406</b>	29	124	1,275	41	67	8	156,297
2008	2,507	18	89	404	19	23	0	78,961
2009	2,474	13	117	441	39	35	14	82,708
2010	3,207	29	76	675	52	40	18	214,594
2011	4,100	19	167	664	21	21	<b>169</b>	260,974
2012	2,986	14	51	531	38	30	182	93,110
2013	3,473	43	69	681	53	46	112	128,714
2014	4,616	34	129	563	46	51	115	<b>266,931</b>
2015	4,830	23	100	816	48	37	102	159,509
2016	2,917	19	77	551	41	28	89	65,398
<b>Average</b>	4,677	37	102	912	46	41	55	129,690
<b>'16 Mean % Dev.</b>	-39	-49	-25	-41	-12	-33	69	-51

**Table 2.** Species codes used in Table 1.

**TV:** turkey vulture (*Cathartes aura*)

**OS:** osprey (*Pandion haliaetus*)

**BE:** bald eagle (*Haliaeetus leucocephalis*)

**NH:** northern harrier (*Circus cyaneus*)

**SS:** sharp-shinned hawk (*Accipiter striatus*)

**CH:** Cooper's hawk (*Accipiter cooperii*)

**NG:** northern goshawk (*Accipiter gentilis*)

**RS:** red-shouldered hawk (*Buteo lineatus*)

**BW:** broad-winged hawk (*Buteo platypterus*)

**SW:** Swainson's hawk (*Buteo swainsoni*)

**RT:** red-tailed hawk (*Buteo jamaicensis*)

**RL:** rough-legged hawk (*Buteo lagopus*)

**GE:** golden eagle (*Aquila chrysaetos*)

**AK:** American kestrel (*Falco sparverius*)

**ML:** merlin (*Falco columbarius*)

**PG:** peregrine falcon (*Falco peregrinus*)

**UNK:** unknown raptor species