

Greenlaw Mountain Hawk Watch Season Report - Fall 2021

Our thirteenth season of fall observations and data collection has been completed. A total of six single day high counts and season high counts were broken, including a record high season total of over 9000 birds of prey and vultures. While we counted record high numbers of some species, we also recorded near record low numbers of other species. Volunteer participation was stronger than ever. As always, migrating raptors were observed in close, up high, out on the horizon and on occasion, moving below the watch.

Data was collected on forty days between August 25 and November 5 with a total of 274 observation hours logged. Forty-eight volunteer observers (another record high) contributed a total of 476 hours of their time. The total number of migrating hawks counted for the season was 9080 (a season record). A total of fourteen raptor species were observed migrating past the site (species accounts can be found later in the report).

Count Protocols

As in previous seasons, most of this year's counts were conducted on days considered to have favorable winds and lacked significant precipitation. Hawks moving roughly east to west, or on occasion north to south, were considered migrants. The presence of resident raptors required some species to be watched more closely during certain portions of the season in order to ensure accuracy of our counts. Partial and full-year residents near the site included Bald Eagle, Broad-winged Hawk, Red-tailed Hawk, American Kestrel, Merlin, Osprey, Sharp-shinned Hawk, Northern Goshawk and Turkey Vulture. Eagles and vultures are typically the most difficult to monitor as the daily movements of these resident birds can be great. The official counter used 10x binoculars and 25x wide angle spotting scope for scanning and/or identification.

A Quick Look at the Season

August

Our observation season begins late in the month, so there is only a brief window of opportunity to observe migrant raptors. The number of observation hours recorded was average. These observations produced very modest counts of migrants. None of our regularly occurring species were observed in significant numbers. Resident raptors observed near the watch included Turkey Vulture, Osprey, Bald Eagle, Sharp-shinned Hawk, Northern Goshawk, Broad-winged Hawk, Merlin and American Kestrel. Some of these residents interacted with migrants passing overhead.

Total number of migrant raptors: 77 (12-year average 118)

Observation hours: 23 (12-year average 23.88).
Observation days: 4 (12-year average 4).

September

The first week of the month brought fair to poor conditions and very modest flights. On the 11th, moderate west winds produced our first triple digit flight of Broad-wings. Two days later, west to west-northwest winds produced a total of 1383 hawks. Broad-wings moved throughout the day fighting a stiff head-wind. Late afternoon was very productive as wind speeds lowered and the Broad-wings became more organized. The largest stream of hawks observed on this day contained roughly 250 individuals. This and other large groups passed directly overhead.

The big push of Broad-wings occurred the next day, September 14. North-northwest to northwest winds produced a record-breaking flight of 5032 hawks. This movement began soon after counting started and continued through the afternoon with the last groups being observed around 6PM. The largest stream of the day contained approximately 400 hawks. Only two volunteers were present to assist the Official Counter and witness this major push of Broad-wings.

The next strong movement of hawks occurred on the 16th, when 612 were counted. The largest group of Broad-wings seen on this day contained 75 individuals. Sharp-shinned Hawks were recorded in very good numbers with a total of 63 counted. The last triple digit count of Broad-wings occurred on the 19th, when 127 were counted. A strong movement of American Kestrel also occurred, producing 38 birds.

Counts were conducted on the 20th. A southerly flow dominated the next week as a weather system moved in, becoming stationary. Counts on the 27th and 28th were very modest. North winds on the 29th produced a fair number of birds, including the first strong push of Turkey Vultures. The following day produced another movement of vultures. Counts for other species were light.

Resident Merlin and American Kestrel remained in the vicinity of the hawk watch into the 3rd and 4th weeks of the month, which is significantly later than the first years of observations at Greenlaw Mountain. The reason for this is not known. Two possibilities are changes in weather and/or prey base.

Total number of migrant raptors: 7912 (12-year average 3545)
Observation hours: 109 (12-year average 116.7)
Observation days: 14 (12-year average 17.25)

October

Weak weather systems and warm periods produced poor to at best, fair conditions into the third week of the month. Daily counts were modest as mornings were often

quite damp and afternoon showers occurred repeatedly. Both tend to hamper raptor movement, robbing them of necessary lift (unless wind speeds are relatively high, which they were not) and potentially cutting off their flight path.

On the 18th, damp conditions continued, but were offset a bit by northwest winds. Raptor counts overall were pretty modest. However, a single day record for Turkey Vulture was set when 150 were counted. Modest numbers of hawks were recorded in the following days. A good movement of vultures occurred on the 23rd. Unfortunately, the air was quite still and few other soaring birds were observed.

The 26th brought the first and only good push of Red-tailed Hawks as at least sixty moved past the site. A good movement of vultures and harrier also occurred on this day. A few Merlin arrived as well. Surprisingly, this movement occurred on east to east-northeast winds ahead of a deep low-pressure system approaching from the south.

Total number of migrant raptors: 1013 (12-year average 834)
Observation hours: 126.25 (12-year average 116.4)
Observation days: 19 (12-year average 18)

November

Relatively mild air and weak cold fronts dominated the first two weeks of the month. Counts were conducted on the 3rd, 4th and 5th. A good number of Bald Eagles moved on the 3rd and a couple late groups of Turkey Vultures arrived on the 4th. Quite good conditions developed on the 5th. Unfortunately, very few birds of prey moved.

With few birds moving, no strong cold fronts in sight and our efforts being on par with previous seasons, the season came to an end.

Total number of migrant raptors: 78 (12-year average 80.25)
Observation hours: 15.75 (12-year average 23.54)
Observation days: 3 (12-year average 4.66)

Non-raptors

This year, movements of “songbirds” appeared to be far from the norm. During a typical year, migrant warblers and vireos are fairly abundant on the flanks of the mountain and can appear at the watch site. Relatively few of these birds were seen in August and September. October was quiet as well. Migrating “winter finches”, robins and “blackbirds” are often spotted in abundance. Movements of these birds were, at best, light with only one significant push of migrants noted this fall.

Waterfowl were quite deferent. Strong movements of Double-crested Cormorant were observed on several occasions (September and October). Significant

movements of Canada Geese were also observed.

Analysis of Flight Trends

Yearly flights are strongly influenced by weather. The number of birds counted in fall migration can directly reflect the weather's effect on wintering birds, spring migration, breeding success, as well as its effect on daily flights during the fall months. Unfavourable wind conditions occurring during migration can cause raptors to move across a broader geographical area and at lower altitudes. When this occurs, detectability can be reduced. Deviation from 'normal' weather during the breeding season can strongly affect reproductive success and the number of immature birds counted during migration. Human influences such as habitat degradation or loss can also impact flight trends. Typically, these trends can only be detected through long-term monitoring.

Extreme weather seems to be becoming the norm. Wet breeding seasons, post tropical events, droughts and major rain events have occurred repeatedly in recent years. Climatologists tell us that this will likely continue and increase in severity. Raptor populations could be adversely affected.

The 2021 season count totals for individual species showed high numbers for several species and low numbers for several others, with a few near their norm. The Bald Eagle and Turkey Vulture populations seem to be doing quite well. Counts for both species continue to increase. Unfortunately, Sharp-shinned Hawk numbers remain near record low.

Declining populations of songbirds and insects could be responsible, at least in part, for declining populations of Sharp-shinned Hawks and American Kestrel (see threats below). A recent study showed that 52% of the world's birds of prey are in decline.

The value of this project and its ability to detect trends increases significantly with the addition of each season's data. Maintaining a consistent effort is extremely important. Minimizing bias is also of high importance.

Threats

Human caused threats to raptors include pesticide use, habitat destruction, invasive species (including so-called "house cats"), and collisions with structures and/or their support lines, as well as power-lines. Extreme weather and other aspects of climate change represents an increasing threat.

Various studies are documenting major reductions and/or shifts of insect populations. Many birds of prey feed heavily on insects. Those that do not, often

feed on insect eating bird species.

“Modern” farming methods greatly contribute to climate change and kill large numbers of insects placing more stress on bird populations including birds of prey. One of the contributors to climate change is the tilling of soil. This practice allows large quantities of carbon to escape into the atmosphere. Application of pesticides kill beneficial insects as well as those considered to be “pests”. These impacts ripple through ecosystems, directly and/or indirectly affecting birds of prey.

Changes to agricultural practices could increase insect and songbird populations, as well as sequester carbon. Small birds of prey such as American Kestrel and Sharp-shinned Hawk were once common on farms throughout North America. Alternatives to the ecologically expensive farming practices currently dominating North American food production do exist.

Birds of prey benefit from healthy ecosystems, which are in increasingly short supply. Climate change is considered to be the greatest threat to birds and biodiversity as a whole.

Species Accounts

Black Vulture

Earliest Observation: None

Latest Observation: None

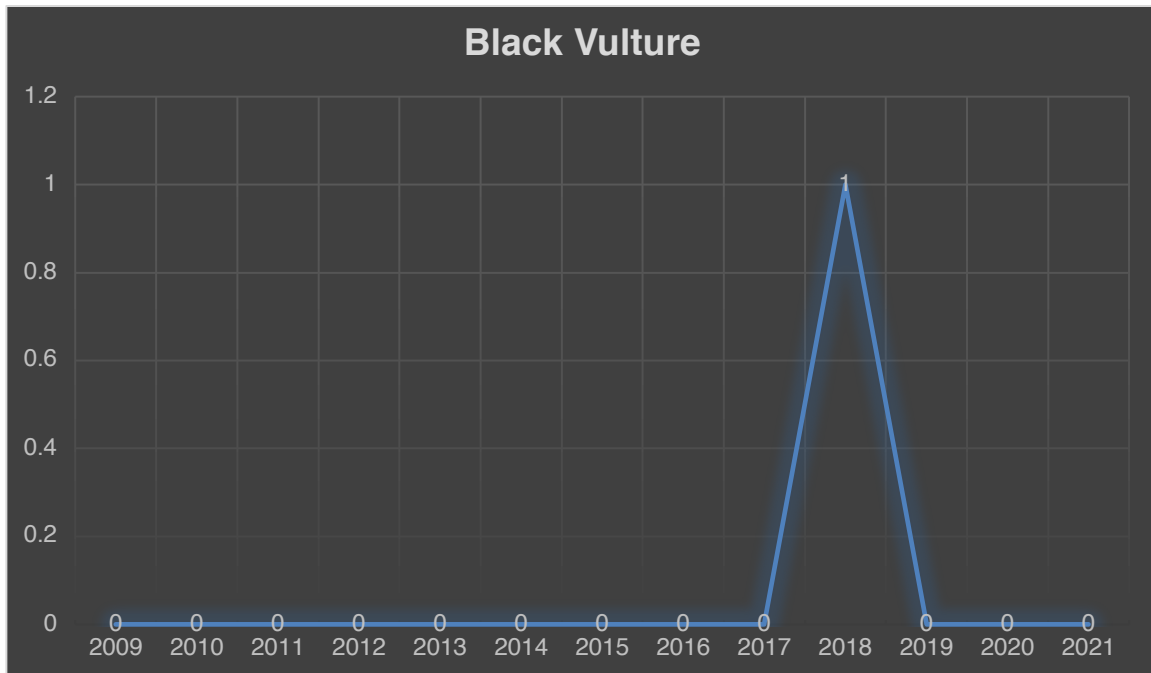
Single Day High Count: None

Peak: None

Season Total 0

Twelve-year average: <1

Black Vultures continue to be rare in NB.



Turkey Vulture

Earliest Observation*: September 19

Latest Observation: November 4

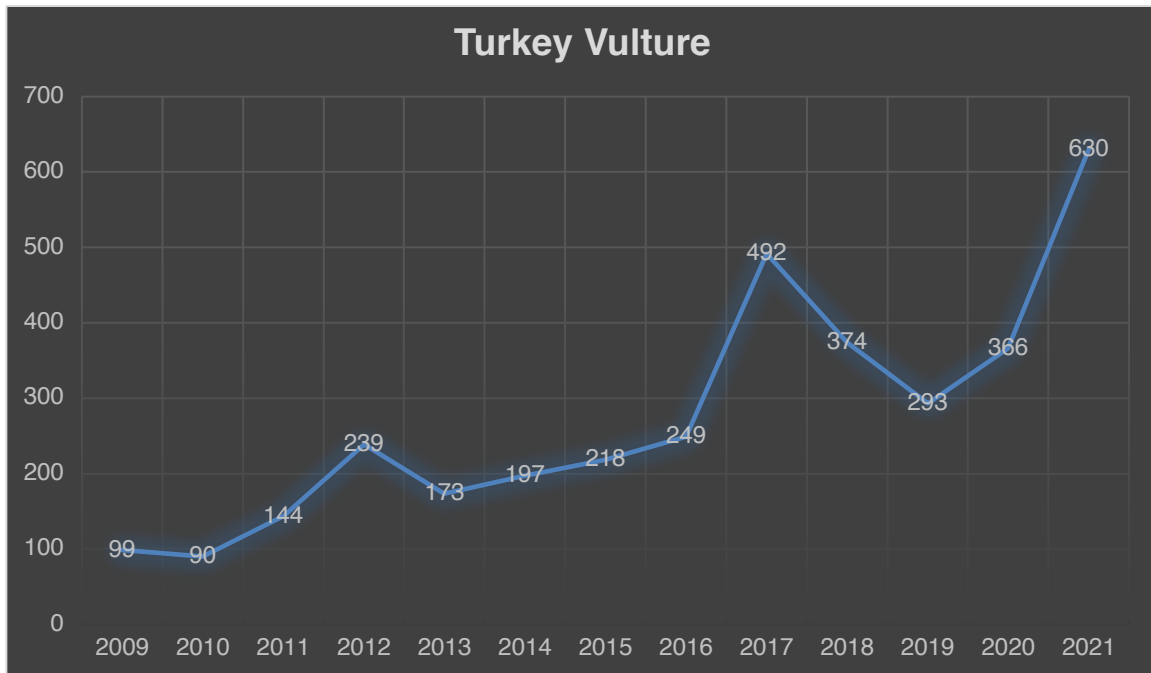
Single Day High Count: 150** (October 18)

Peak: October

Season Total: 630**

Twelve-year average: 245

Our data show a very clear upward trend. A warming climate and abundant food sources are likely responsible for increasing populations in NB, as well as counts at Greenlaw Mountain. Single day and season high counts were recorded this season.



Osprey

Earliest Observation: August 25

Latest Observation: October 20

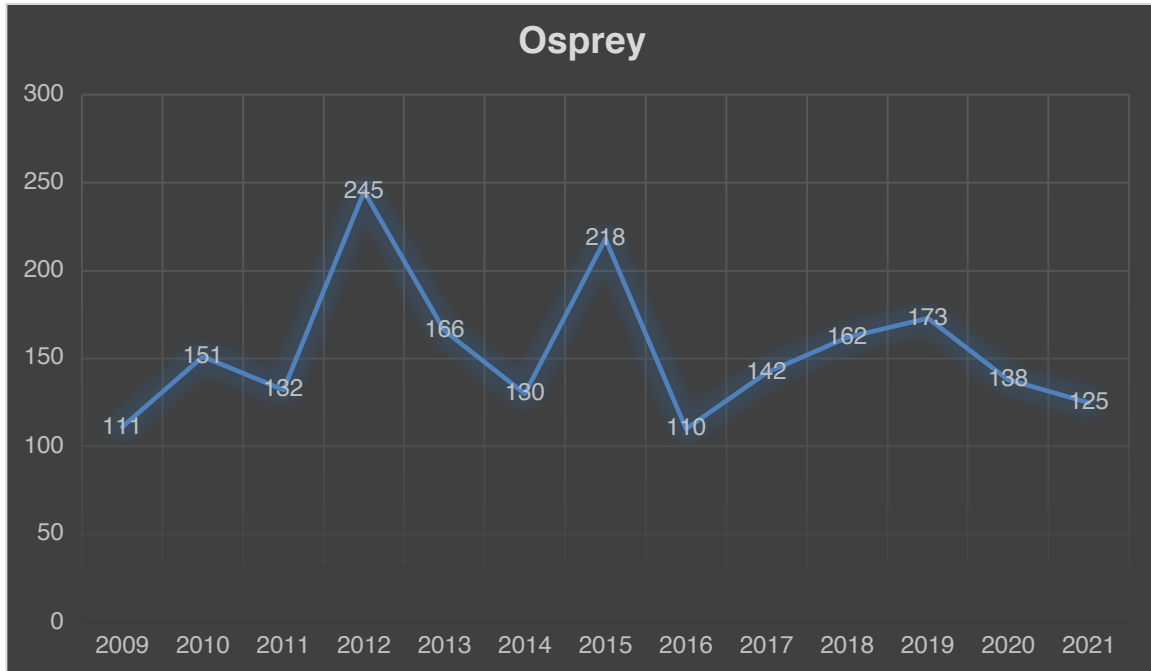
Single Day High Count: 12 (September 11 and 20)

Peak: September

Season Total: 125

Twelve-year average: 149

Migration counts in New England suggest declining numbers. Our data are not showing a clear trend.



Bald Eagle

Earliest Observation: August 27

Latest Observation: November 5

Single Day High Count: 24 (September 11)

Peak: The heaviest period of movement occurred in early to mid-September. However, strong movements were observed during September, October and November.

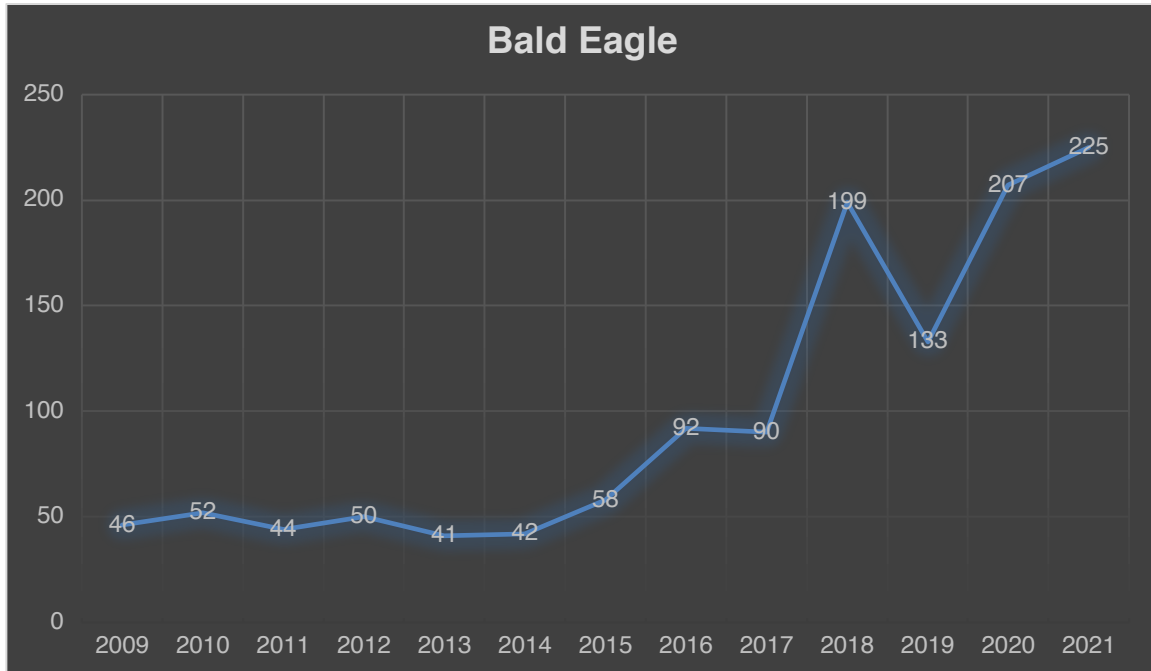
Season Total: 225**

Twelve-year average: 88

2016-20 average: 144

A record high season count on the heels of a 2020 record high. Bald Eagle populations appear to be doing well.

Note - For many years, we were intentionally overcautious while counting Bald Eagles. Only high-flying birds moving east to west were deemed migrants. We now have a better handle on their movements, which is allowing our counts to be more representative of the actual number of eagles passing the site. The spike occurring in 2016 represents the change in counting. Even so, our most recent data suggest a very strong rise in numbers.



Northern Harrier

Earliest Observation: August 28

Latest Observation: October 26

Single Day High Count: 8 (September 29 and October 26)

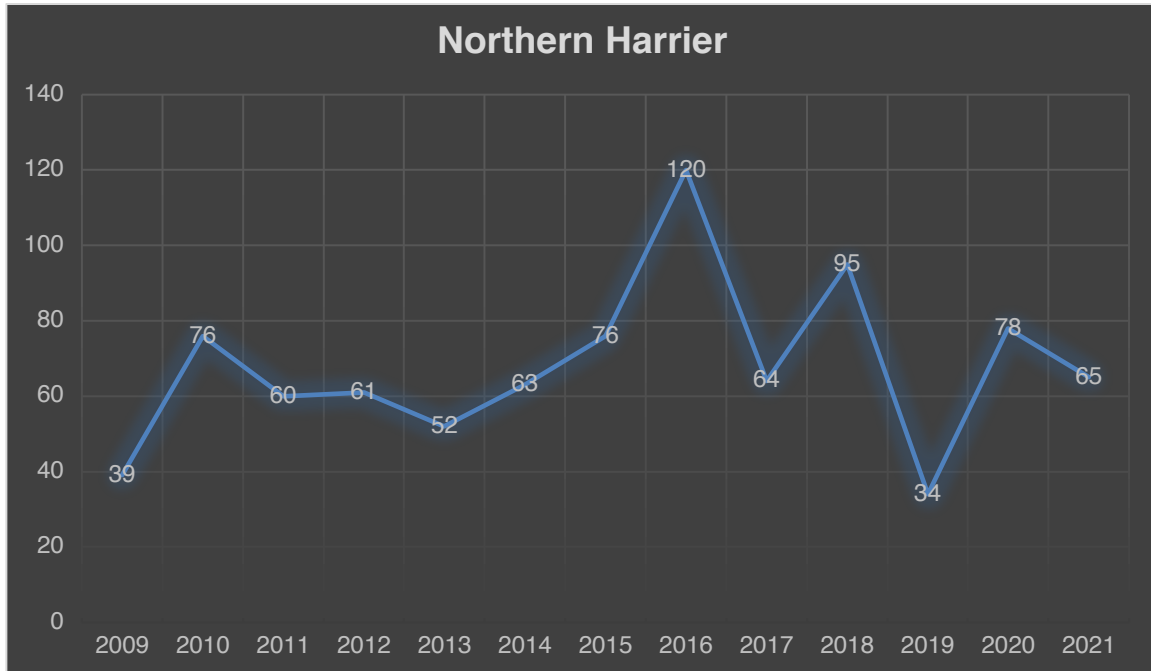
Peak: September/October

Season Total: 65

Twelve-year average: 68

Our counts have major highs and lows. Even so, the population appears stable.

Northern Harriers are ground nesters. As such, they are likely more susceptible to human disturbance. Ground nesters can also be more susceptible to moist conditions resulting from above average rainfall or major rain events.



Sharp-shinned Hawk

Earliest Observation: August 27

Latest Observation: November 5

Single Day High Count: 63 (September 16)

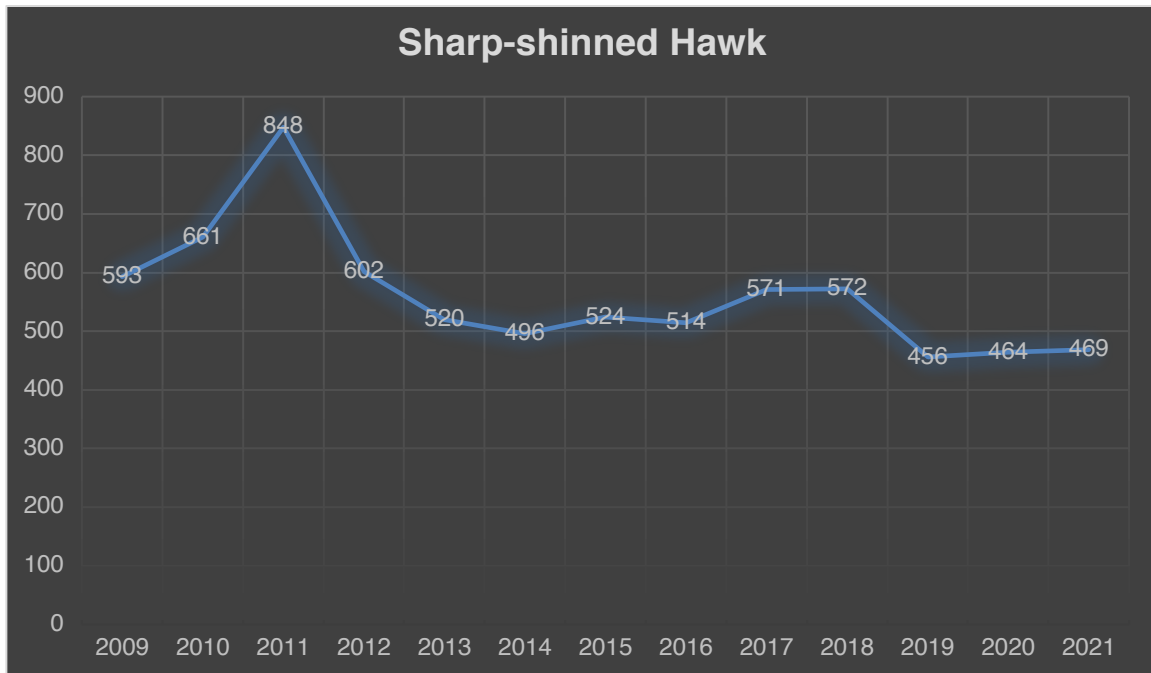
Peak: September/October

Season Total: 469

Twelve-year average: 571

Like the 2020 count, this year's numbers hang near the record low set in 2019. The overall trend at our site is clearly downward. Counts from New England are documenting similar declines.

Sharp-shins prey mostly on songbirds, many of which are being reported in diminishing numbers throughout Eastern North America. These small hawks also take insects on the wing.



Cooper's Hawk

Earliest Observation: September 1

Latest Observation: October 26

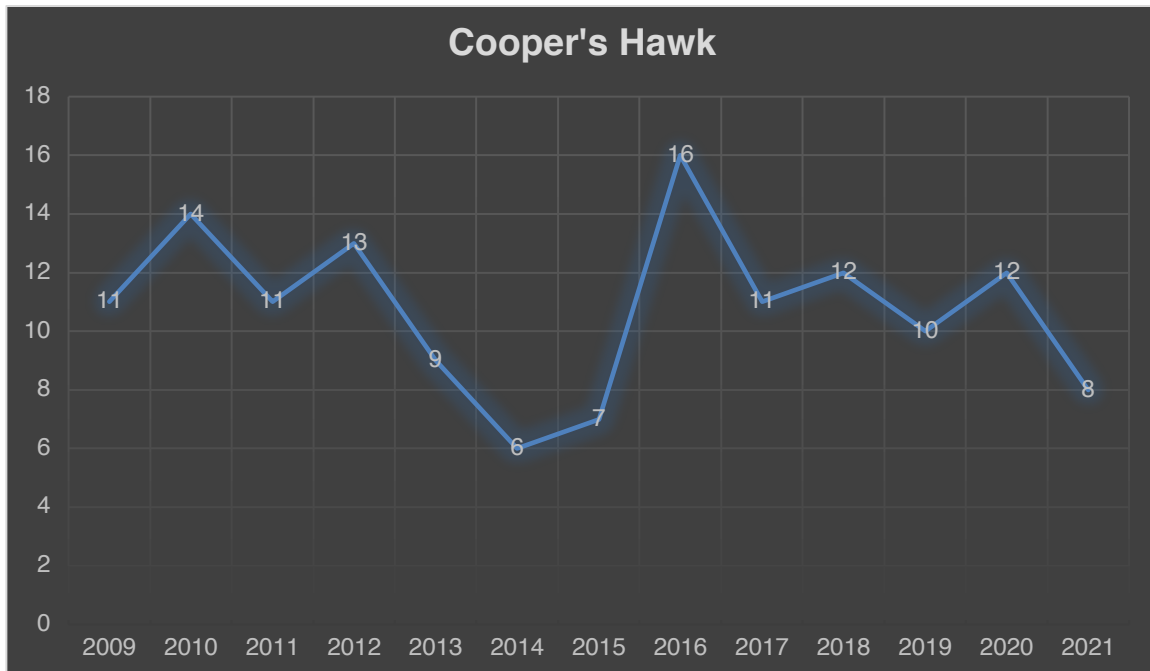
Single Day High: 2 (October 2 and 12)

Peak: October

Season Total:

Eleven-year average: 8

Counts appear to suggest that this small population might be stable.



Northern Goshawk

Earliest Observation: September 14

Latest Observation: November 5

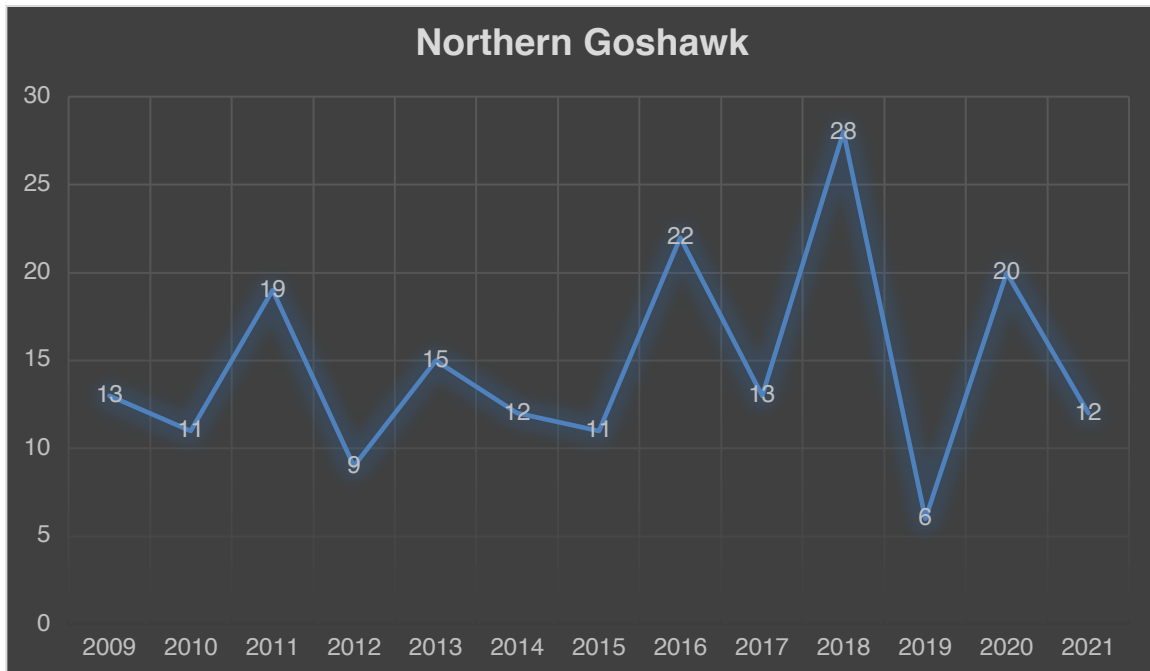
Single Day High Count: 2 (October 20)

Peak: October

Season Total: 12

Twelve-year average: 15

Significant fluctuations in our annual counts are evident. Even so, the long-term numbers appear stable. This species is a partial migrant (some birds winter in NB, while others leave).



Red-shouldered Hawk

Earliest Observation: August 27

Latest Observation: October 19

Single Day High Count: 2 (September 1)

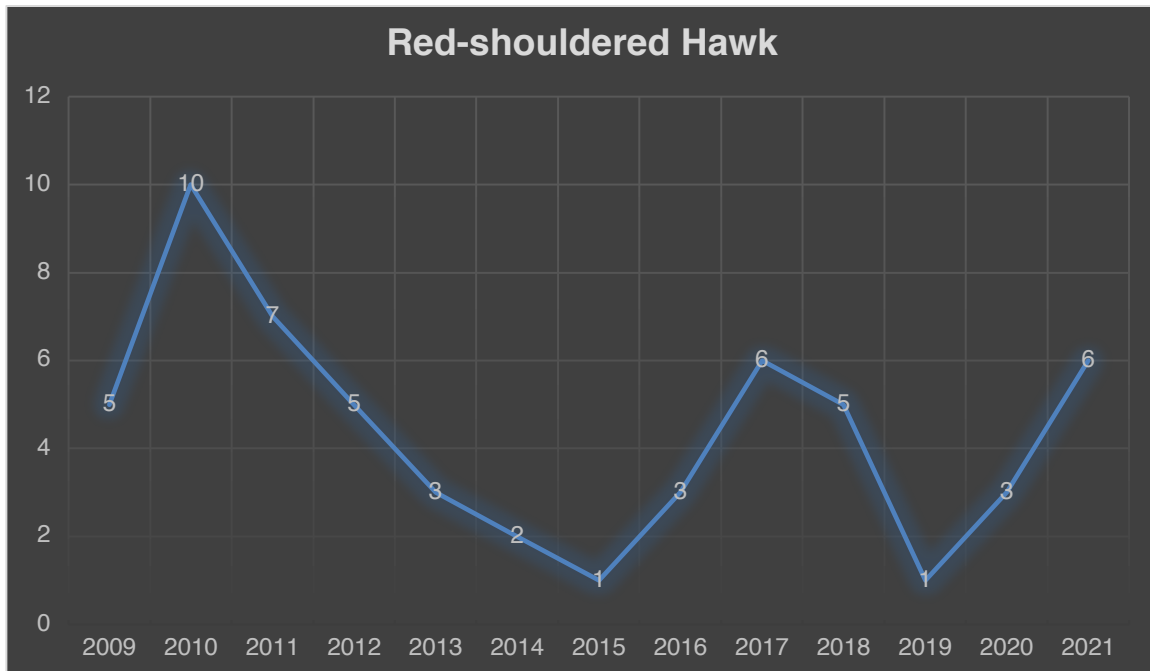
Peak: September

Season Total: 6

Twelve-year average: 4

We usually see this species during late season. Like last year, we observed several birds in early season suggesting a good year for the species. Unfortunately, late season movers were not detected. It is worth noting here that the sample size of this species makes them difficult to monitor.

The Red-shouldered Hawk in NB is at its northeastern limit. With a warming climate, we might expect to see increasing numbers of this buteo. Our data have yet to indicate such a change.



Broad-winged Hawk

Earliest Observation: August 25

Latest Observation: October 6

Single Day High Count: 4930 (September 14)

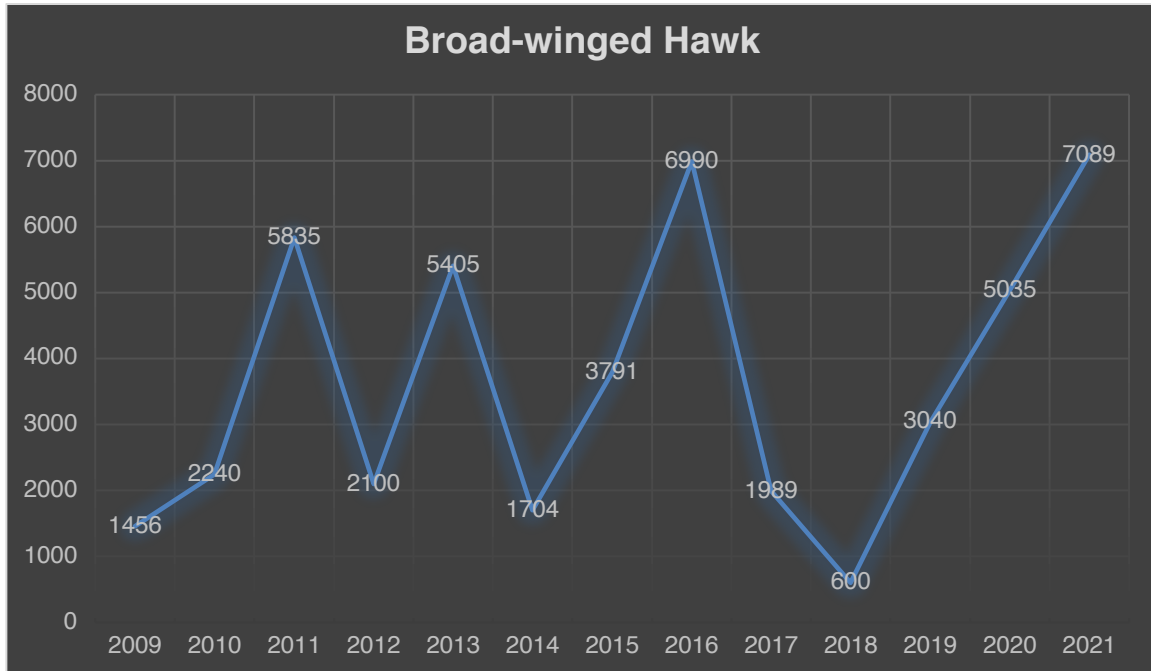
Peak: Mid-September

Season Total: 7089

Twelve-year average: 3349

Even though a record number was recorded this season, our data suggest a downward trend for this forest bird. Counts from New England hawk watches indicate a similar trend.

Habitat loss likely represents the greatest threat to the Broad-winged Hawk. Declining populations of amphibians, insects and birds could be responsible for additional stresses.



Red-tailed Hawk

Earliest Observation: August 27

Latest Observation: November 5

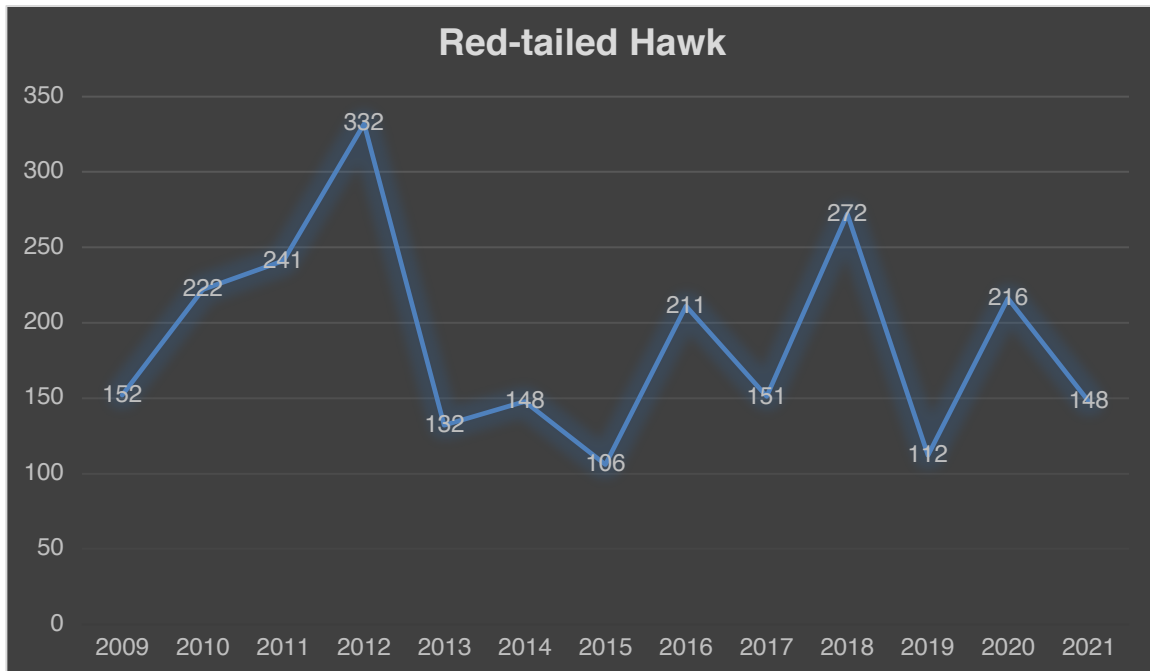
Single Day High Count: 60 (October 26)

Peak: Late October

Season Total: 148

Twelve-year average 191

Red-tailed Hawks are thought to be “short stopping”, which tends to result in fewer individuals being counted at fall hawk watches (some of the birds might move after the last day of our count season). This species is also considered to be very adaptable, allowing them to do well in a quickly changing world.



Swainson's Hawk

Earliest Observation: None

Latest Observation: None

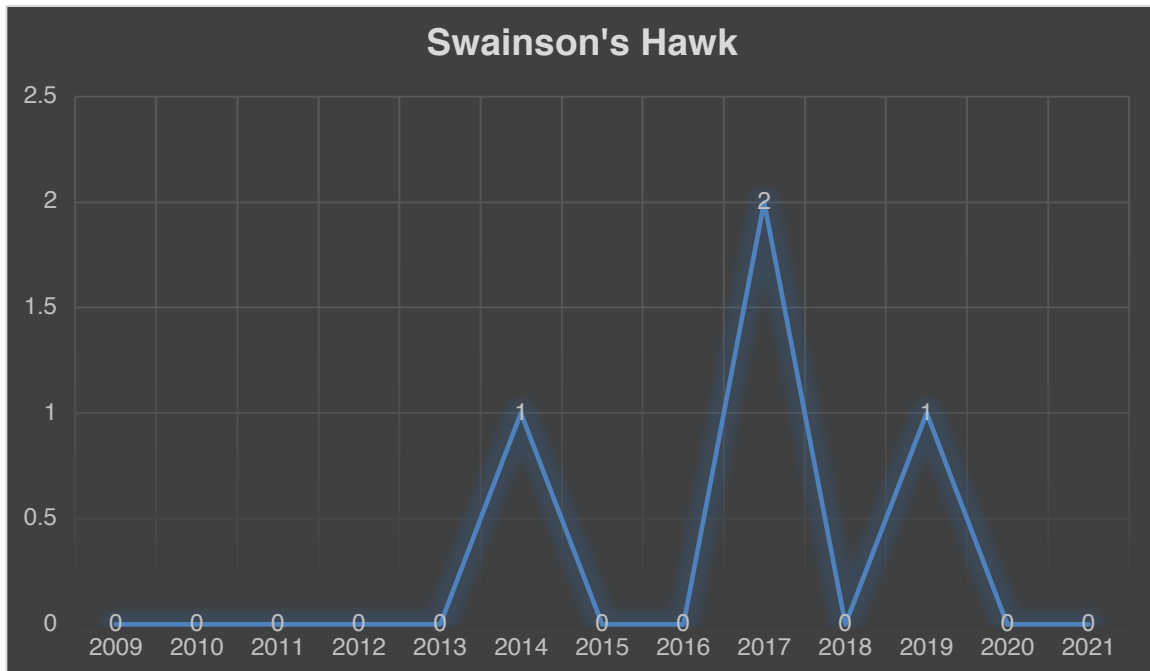
Single Day High Count: 0

Peak: None

Season Total: 0

Ten-year average: <1 (records in 2014, 2017 and 2019)

Swainson's Hawk are rare in Eastern North America. We have been quite lucky, documenting several individuals since 2009. A distant bird appearing to be a Swainson's was observed this season. Unfortunately, it could not be positively identified.



Rough-legged Hawk

Earliest Record: None

Latest Record: None

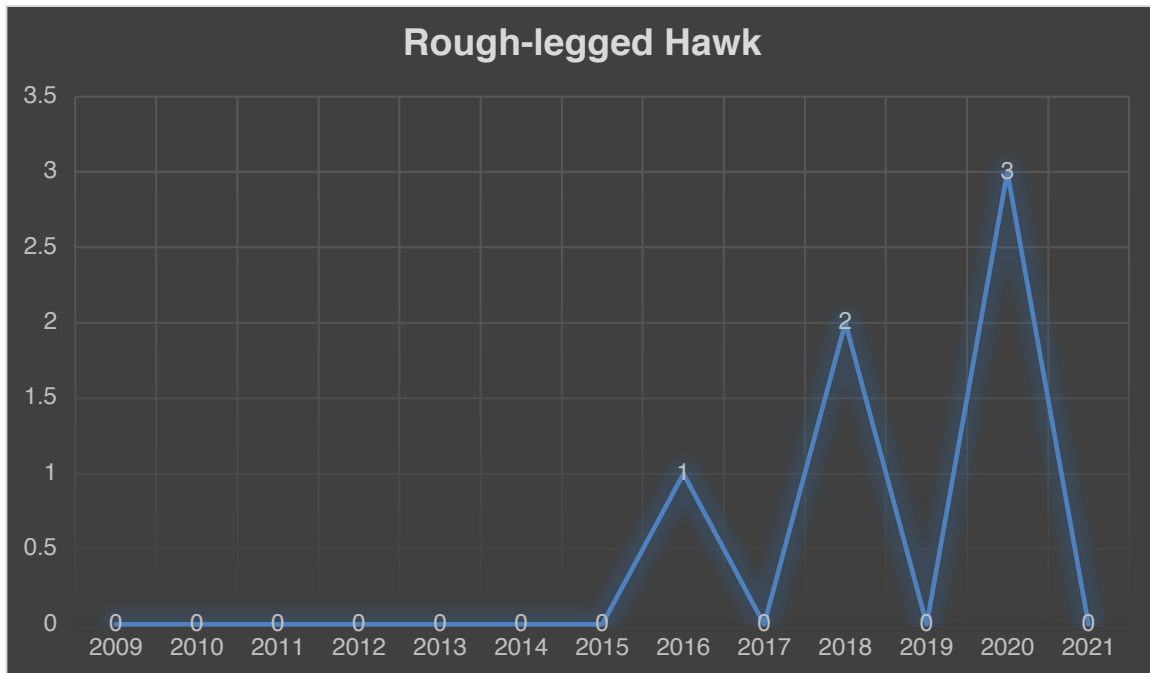
Single Day High Count: 0

Peak: None

Season Total: 0

Ten-year average: <1

Rough-legged Hawk sightings are increasingly uncommon at most Northeastern Hawk Watches. The declining numbers are likely due to greater numbers of Rough-legged Hawks wintering north of the US border or short stopping. Such changes in behaviour are likely due to a changing climate.



Golden Eagle

Earliest Observation: September 20

Latest Observation: September 20

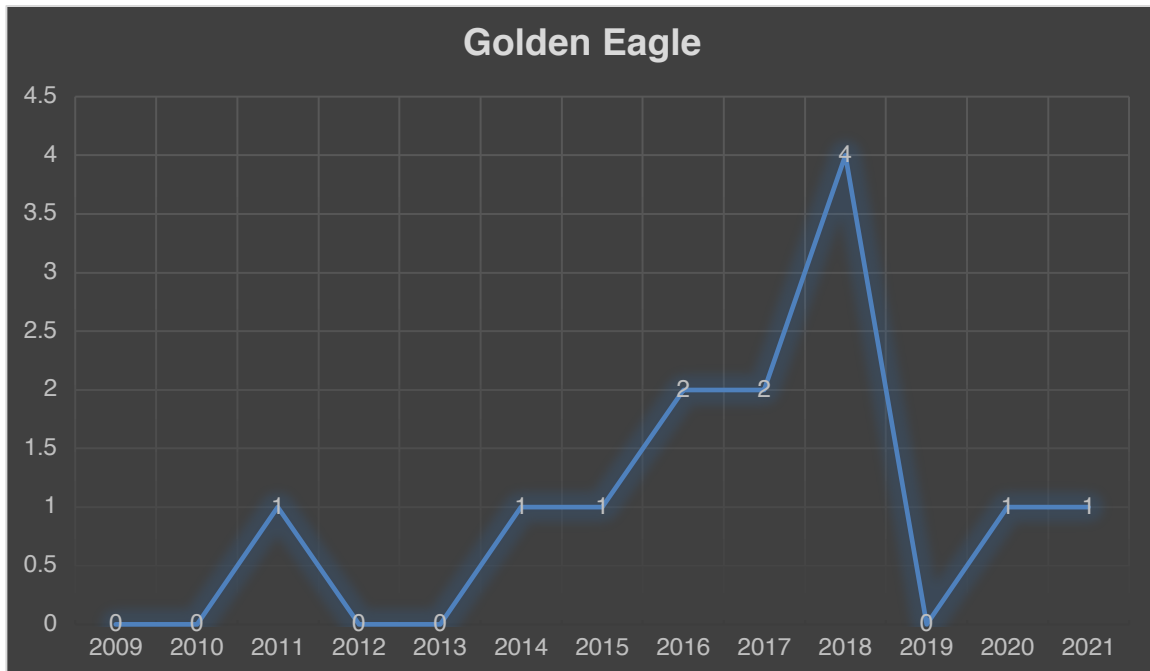
Single Day High Count: 1

Peak: Since we only recorded a single individual, no peak was detected. The species is known for being a late season mover throughout Eastern North America.

Season total: 1

Twelve-year average: 1

Golden Eagles passing Greenlaw Mountain are thought to be part of the Gaspé population.



American Kestrel

Earliest Observation: August 28

Latest Observation: October 26

Single Day High Count: 38 (September 19)

Peak: September – mid-September

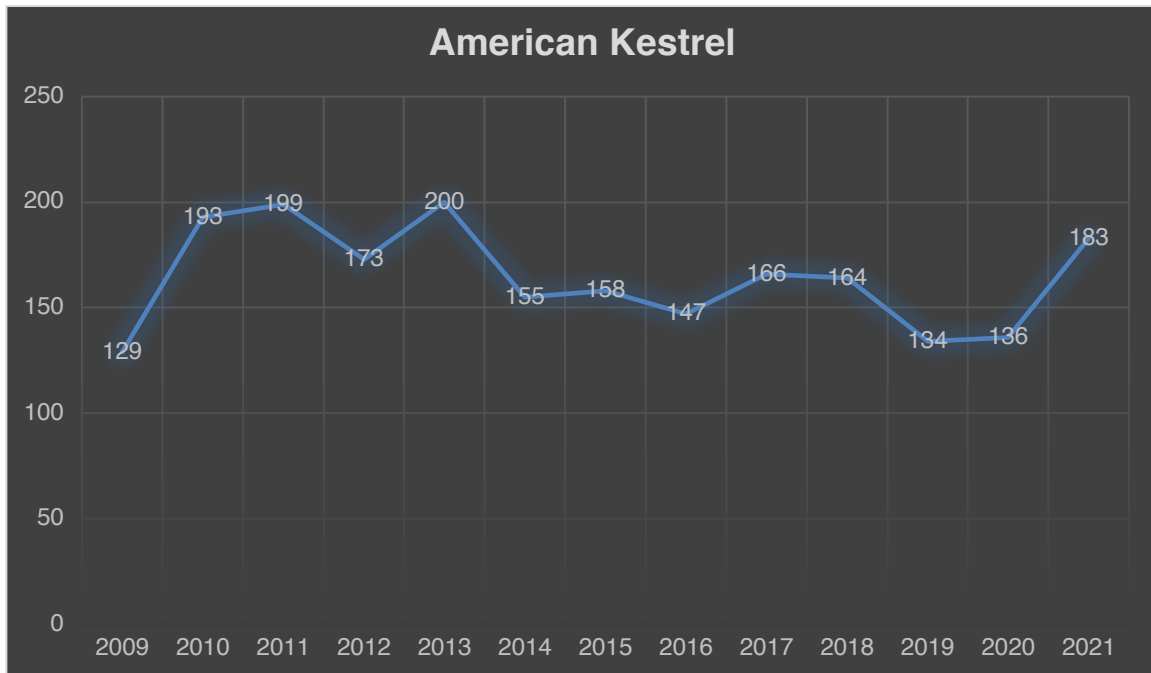
Season Total: 183

Twelve-year average: 163

This year we counted an above average number of this species, which was nice to see after documenting a general decline for many years.

Declines of American Kestrel are well documented. The causes of the decline are likely complex. However, many other aerial insectivores are in decline, which suggests a loss of their prey base. Loss of nest cavities could be contributing to the decline.

This species will occupy nest boxes. Information on construction and placement is available online.



Merlin

Earliest Observation: September 1

Latest Observation: October 26

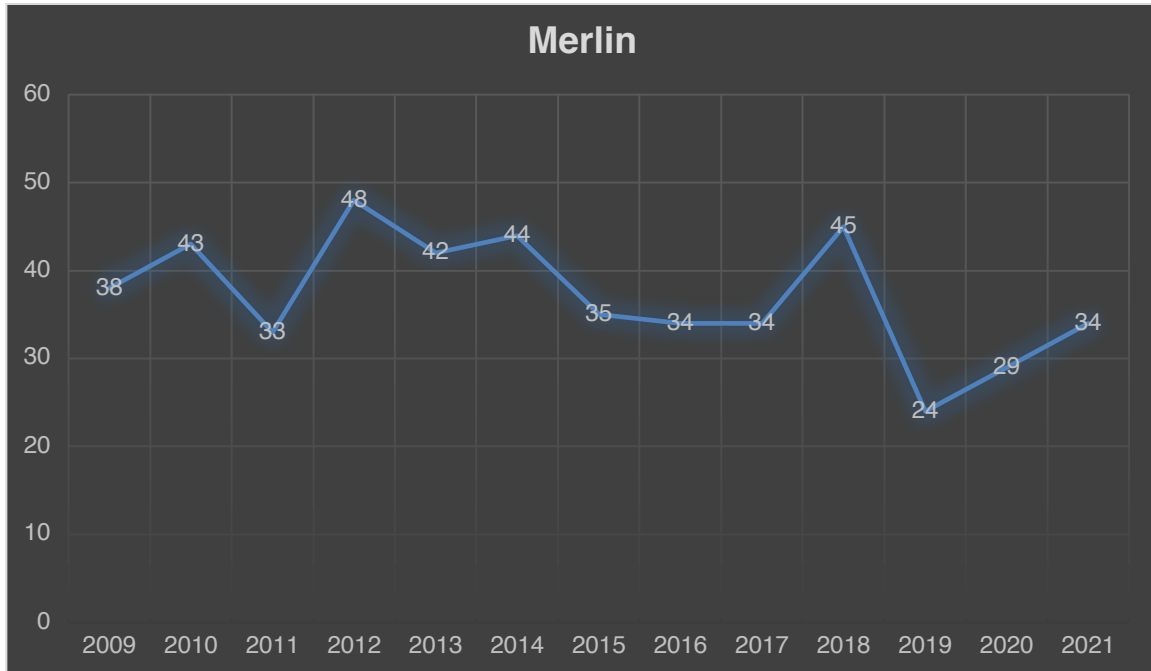
Single Day High Count: 5 (October 4 and 26)

Peak: October

Season Total: 34

Twelve-year average: 36

Our counts are suggesting a decline.



Peregrine Falcon

Earliest Observation: August 27

Latest Observation: October 19

Single Day High Count: 2 (September 28 and October 4)

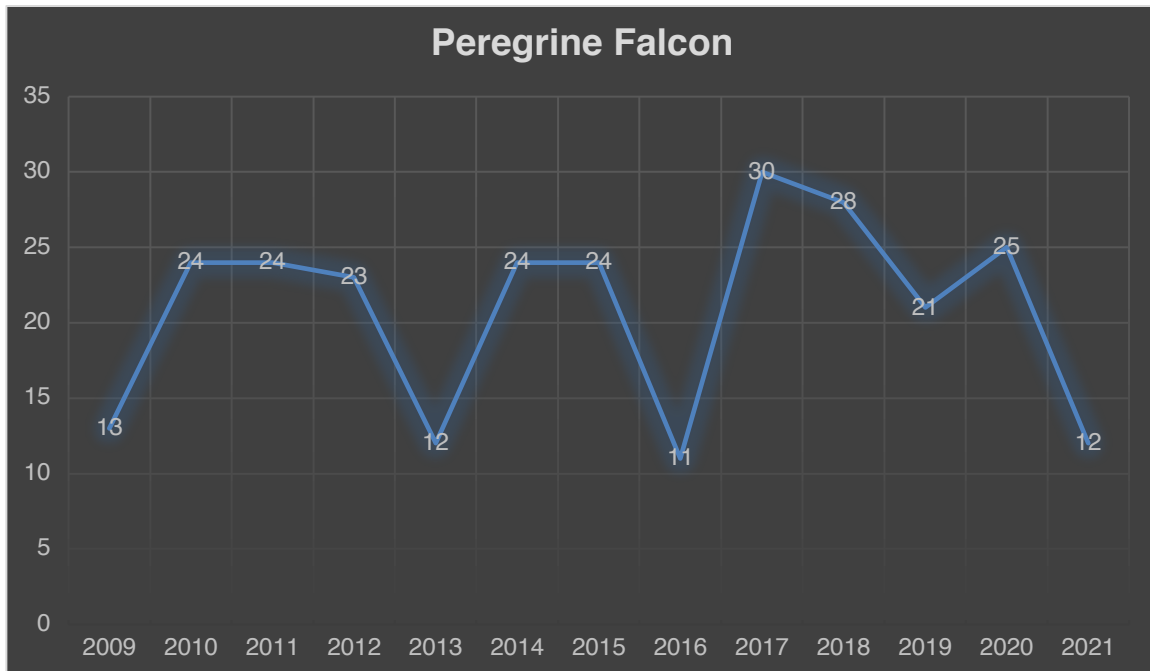
Peak: Late September - Early October

Season Total: 12

Twelve-year average: 22

Our counts of Peregrines have some ups and downs. However, long-term numbers appear stable.

The species seems to be doing well in its recovery from pesticides and persecution.



Unidentified Accipiter

Season Total: 6

Unidentified Buteo

Season Total: 4

Unidentified Falcon

Season Total: 8

Unidentified Eagle

Season Total: 1

Unidentified Raptor

Season Total: 54

Migrating Raptor Combined Season Total: 9080**

* Earliest and latest observations, as well as totals refer only to hawks counted as migrants.

** A record high or low count.

Non-raptors

Movement of non-raptors appeared to be far from the norm. Normally, warblers and

vireos are fairly abundant on the flanks of the mountain and can appear at the watch site. Relatively few of these birds were seen in August and September of this year. Philadelphia Vireo, a species that occurs regularly on the mountain during the month of September was never seen. The same was true for a number of warbler species (similar observations were noted at other Charlotte County locations). October was quiet as well. Migrating “winter finches”, robins and “blackbirds” are often observed in abundance. Only light movements were noted this year.

Birds of particular interest observed at the hawk watch, but not actively migrating include Northern Shrike, and Black-backed Woodpecker. Both tend to be annual, especially Northern Shrike.

Personal Notes

For me, few things compare with the sight of hawks streaming across the sky. This largely unnoticed spectacle of nature occurs right over our heads. On September 14 of this year, we recorded a record setting flight of over 5000 birds of prey in a single day. We managed to document this flight, despite only having myself and two volunteers at the site. Imagine how many hawks we would have counted with more eyes.

To put the magnitude of this flight into perspective, it might help to look at data from one of North America’s most well-known hawk watch sites, Hawk Mountain Pennsylvania. They are far south of our site, nearly 900 kilometres, receiving hawks from a far greater geographic area, yet their 2021 counts of Broad-wings were only slightly higher than ours (8227 vs our 7089). Last year, we counted more Broad-wings than they (3978 vs our 5035). These numbers and others, show the quality of our site.

No doubt, the Greenlaw Mountain Hawk Watch produces some impressive numbers. “Our” hawks move out of a very small landmass, smaller than any North American watch site, yet our numbers often rival those recorded in more southern regions. With such impressive numbers being recorded, I am often surprised that we don’t see every birder in the province showing up.

I hope to see all of you on the mountain next year and thank you for your help!

Special thanks to all the volunteers including: Bex Goreham, Pam Watters, Phil Riebel, Laraine Townsend, Mike Bamford, Hank Scarth, Hugh Scarth, Bruce and Pam Henderson, Samuel Perfect, Lauren Stead, Ian Stead, Jim Russel, David Putt, Joanne Savage, Maria Recchia, Anna Tran, Heather Dyble, Freya Clark, Ed Hurley, Tim Miller, Cathy and Isabelle Simon, Frank and Karen McDermott, Fern McCavour, Susan Belfry, Matt and Craig Brown, Jane Fullerton, Warren Quin, Brian Comeu, Rachel Fullerton Quin, Andrew Toner, Brenda and Brian Bradley, Nancy Perry, Paul and Ann Patterson, Garret Jenkins, Meg Scheid, Mike Cawley, Steve Gillis, Irene Wrightman, and several people that came to the site, signed the visitor log, but

names couldn't be read. Thank you all!

We also thank the landowners who have granted permission for volunteers and the Official Counter to cross their land to reach the summit. As well, we thank Mr. Tom Beckerton for allowing us to locate the watch on his property.

Additional thanks to committee members Hank and Carolyn Scarth, Jim Wilson, Joanne Savage, Ray Riddel, Don MacPhail and Lori McGovern.

Support for this year's counts came from the **New Brunswick Wildlife Trust Fund** (NBWTF), private donors and our volunteers. I would also like to recognize the Peskotomukati First Nation for their interest in raptor conservation.

The NBWTF receives its money from the sale of hunting, trapping and fishing licenses as well as conservation license plates. Please consider supporting projects like the Greenlaw Mountain Hawk Watch through the purchase of conservation plates. Thank you!

Todd Watts
Project Co-ordinator and Official Counter
Greenlaw Mountain Hawk Watch
Saint John Naturalists' Club
buteobuz@gmail.com
506 321-2125