

Town of Superior Raptor Monitoring 2022-23 Summary



Bald Eagle defending its meal at Hodgson-Harris Reservoir. Photo by Jean Folsom

Sponsored by the
Open Space Advisory Committee

Introduction:

The fifth full session of the Town of Superior's raptor monitoring program saw continued strong volunteer participation, which allowed us to document effects and recovery from the Marshall Fire across the whole town. The program, sponsored by the Open Space Advisory Committee, has several goals: determining what species of birds of prey are present in Superior, learning what areas raptors use at different times of the year, monitoring any nesting activity, working to prevent unnecessary disturbance to raptors, identifying habitats to protect, and providing relevant education to the Town's residents.

In 2022-23, 25 volunteer observers, mostly Superior residents, monitored 13 general locations regularly between early winter and late summer. In over 460 observation reports representing 125 hours in the field, they identified 10 species of birds of prey, including eagles, falcons, hawks, and owls. Some of these species use open spaces in Superior only intermittently, for hunting or migration. However, monitors determined that five species nested in or adjacent to Superior in 2023; 10 nests were located and all of them produced fledglings. The nesting species were Great Horned Owl, Red-tailed Hawk, Swainson's Hawk, Cooper's Hawk, and American Kestrel. Most of these are known for being able to adapt to living near humans and to reproduce successfully in a suburban environment.

Methods and Results:

Volunteer observers received orientation training, monitored designated areas regularly between early winter and late summer, and submitted observation reports to the project coordinator. If courtship activity or a nest was discovered, volunteers increased their observation frequency at that site. They identified the following species of raptors (with observed seasonal and area usage info in parentheses.)

Cooper's Hawk (year-round resident and nester; found in areas with large or dense trees)

Swainson's Hawk (summer visitor and nester; hunts in open areas)

Red-tailed Hawk (year-round resident and nester; found in areas with very large trees bordering open space)

Bald Eagle (year-round visitor; hunts in prairie dog colonies and large ponds)

Golden Eagle (winter visitor; hunts in open areas especially near prairie dog colonies)

Osprey (migrant and intermittent summer visitor to Hodgson-Harris Reservoir)

American Kestrel (year-round resident and nester; found in open areas with patches of trees)

Merlin (winter visitor; hunts in open areas with patches of trees)

Prairie Falcon (year-round visitor; hunts in open areas)

Great Horned Owl (year-round resident and nester; nests and roosts in very large trees, hunts in open areas and residential neighborhoods)

Seen in one or more of 2018-2022, but not in 2023:

Northern Harrier

Sharp-shinned Hawk

Broad-winged Hawk

Ferruginous Hawk

Barn Owl

Burrowing Owl

Eastern Screech-Owl

Peregrine Falcon

The following areas received regular monitoring:

Rock Creek riparian corridor (Autrey Park) – nesting Great Horned Owls; hunting Red-tailed Hawks, Bald Eagles, and American Kestrels.

Rock Creek riparian corridor (Community Park) - nesting and hunting Great Horned Owls and American Kestrels; hunting Cooper’s Hawks, Red-tailed Hawks, Swainson’s Hawks, and Bald Eagles.

Eldorado Circle area – nesting and hunting Cooper’s Hawks; hunting Red-tailed Hawks; roosting Great Horned Owls.

Coalton trailhead area - nesting and hunting Great Horned Owls; hunting Red-tailed Hawks, Bald Eagles, and American Kestrels.

Coal Creek riparian corridor (Original Town) – nesting and hunting Swainson’s Hawks; hunting Cooper’s Hawks, Red-tailed Hawks, Bald Eagles, and American Kestrels.

Mayhoffer-Singletree / Oerman-Roche area including Ochsner open space - nesting and hunting Great Horned Owls; hunting American Kestrels.

Purple Park / Heartstrong Park area - hunting Cooper’s Hawks, Red-tailed Hawks, Bald Eagles, and Great Horned Owls.

Meadowbrook / Riverbend area - hunting Cooper’s Hawks, Red-tailed Hawks, Bald Eagles, and Great Horned Owls.

Bowes Pond Natural Area - hunting Cooper’s Hawks, Red-tailed Hawks, Bald Eagles, American Kestrels, and Great Horned Owls.

Hodgson-Harris Reservoir - hunting Cooper’s Hawks, Red-tailed Hawks, Swainson’s Hawks, Bald Eagles, Golden Eagles, Osprey, Merlins, and American Kestrels.

Southwest Superior – hunting Cooper’s Hawks, Red-tailed Hawks, and American Kestrels.

Coyote Ridge – nesting and hunting American Kestrels; hunting Red-tailed Hawks and Bald Eagles.

76th St. / Sagamore - nesting and hunting Red-tailed Hawks; hunting Swainson’s Hawks and Red-tailed Hawks.

We recorded a lower diversity of species in most of these areas compared to previous years. Correspondingly, the town-wide total of 10 species is lower than the 12-14 found in the previous three years.

All of the species that were observed to attempt nesting had at least one successful nest, as shown in Table 1.

Table 1 – Nest numbers and fledgling production in Superior

Species	Number of Observed Nests			Number of Observed Fledglings		
	2019-21 max/min/avg	2022	2023	2019-21 max/min/avg	2022	2023
Great Horned Owl	4 / 3 / 3.3	4	4	10 / 6 / 8.6	9	11
Red-tailed Hawk	3 / 1 / 2.3	2	1	8 / 3 / 4.7	2	2
Cooper’s Hawk	5 / 3 / 3.6	2	1	17 / 5 / 9.7	3	3
American Kestrel	3 / 1 / 2.3	2	3	9 / 1 / 5.0	4	11
Swainson’s Hawk	0 / 0 / 0.0	0	1	0 / 0 / 0.0	0	3

Although three American Kestrel nests are shown in Table 1, none was directly observed. Their presence was inferred based on territorial and courtship behavior in the spring, followed by the appearance of fledglings in the same area about ten weeks later.

Note that differences in the number of observed nests per year may be due to changes in monitoring coverage and frequency in some areas. However, the new Swainson's Hawk nest in 2023 appears to represent a return of this species after at least five years with no observed nests.

Highly Pathogenic Avian Influenza (HPAI) affected many wild birds in Colorado during the winter of 2022-23 [1]. While volunteer monitors observed numerous dead waterfowl and several dead birds of prey in Superior, none of these birds was tested for HPAI so we cannot be certain whether it caused their mortality. Fledgling production for some raptor species in Superior increased in 2023 while others declined so effects of HPAI on reproductive success are not clear.

Recovery from the Marshall Fire:

The Marshall Fire, which swept through open spaces and neighborhoods on December 30, 2021, caused significant short term habitat changes in the Rock Creek and Coal Creek riparian corridors. Presumably due to the loss of trees and shrubs, no raptor nests were observed along Coal Creek or in Original Town in the 2022 breeding season.

However, grasslands and shrublands in Boulder County are resilient to fire and are already regenerating. In 2023, we observed better than average nesting success among species that prefer open country.

American Kestrels, small falcons that hunt in fields and prairies, produced multiple offspring from at least two nests around Community Park. Although no nests were detected in the Coal Creek corridor, we did observe hunting kestrels and a possible pair in the vicinity of the Oerman-Roche trailhead, which is now fully revegetated.

Swainson's Hawks are found exclusively in open landscapes, often away from human activity. While there were reports of this species breeding in southwest Superior a decade ago, most of the town is now too built-up to support nesting. Thus, it was a surprise to find a breeding pair in Original Town this summer [Figure 1.] Apparently the unbuilt open lots and nearby grasslands compensated for the nearby reconstruction activity.

A pair of Great Horned Owls returned to the fire-impacted Coal Creek corridor just west of Original Town and raised four fledglings, an unusually large brood.

Nevertheless, the impacts of the fire will affect our birds of prey for decades, as many Plains Cottonwood trees, which provide critical nest sites, were damaged or killed.



*Figure 1 – Adult Swainson's Hawk feeding its recent fledgling.
Photo by Peter Ruprecht*

Species Spotlight – American Kestrel:

The smallest bird of prey in our area is also one of the most charismatic. American Kestrels choose prominent perches in or near meadows or prairies, so they are easy to spot year-round in parks and open space throughout Superior. If their bold orange, black, and white plumage isn't eye-catching enough, they also draw attention with their buoyant flight and shrill calls. These mini falcons can be seen frequently on the tall light posts around Community Park.



Figure 2 – Adult male American Kestrel. Photo by Ivo and Hana Orel

Kestrels are primarily perch hunters: they sit quietly in a spot with a good view of the ground and then swoop down when prey appears. In areas without trees, they can create a hunting perch literally out of thin air by hovering fifty feet above the ground for up to a minute at a time. Kestrels take small prey including grasshoppers, mice, voles, snakes, and songbirds. On sunny winter days, watch for them dropping repeatedly from a weed stalk to nab grasshopper nymphs that become active during warm spells.

Their courtship routine in March or April can be very dramatic. Males show off their territories with steep U-shaped dives while calling *killy-killy-killy*. They repeat this display over potential nests sites; their mate will inspect each one thoroughly before choosing where to lay her eggs.

American Kestrels do not build nests but lay their eggs exclusively in cavities. Historically, they would have chosen knotholes or woodpecker holes in mature cottonwood trees. With the decline in the number of mature or dead trees in our area they now find crevices in buildings or use human-provided nest boxes. Kestrels have large broods, with as many as four or five eggs. Both parents work tirelessly to feed the growing nestlings, which fledge about a month after hatching.

While American Kestrels are still common in Superior, they have suffered a steady population decline across much of the U.S., losing about half of their numbers in the last 60 years. The causes of the downtrend are not certain, but may include a decrease in the availability of nest cavities, changes in land use, increased predation by other raptors, and exposure to rodenticides and agricultural pesticides.



Figure 3 – Newly-fledged kestrel calling for food. Photo by Mike Schrag

Recommendations:

Based on monitors' observations, we make several recommendations to help ensure that raptors can continue to survive in Superior.

- *Preserve large trees, especially Plains Cottonwoods.* Since 2019, all 10 observed Red-tailed Hawk nests and 17 out of 18 Great Horned Owl nests were in mature Plains Cottonwood trees, which have strong horizontal branches near their tops that can support the substantial nests needed by large raptors. American Kestrels also frequently nest in hollow knotholes in mature cottonwoods. Since so many mature trees have been removed due to construction projects or damaged by fire, it is especially important to conserve those that remain. Ideally, new Plains Cottonwoods should be planted as replacements for lost or removed older trees.
- *Retain dead and dying trees, especially in natural open spaces.* Many raptor species preferentially use bare branches as hunting perches and for territorial and courtship displays. Hollow limbs and trunks are also important for cavity-nesting species.
- *Evaluate existing artificial nest boxes and platforms and relocate if necessary.* Several nest boxes (for American Kestrels and Eastern Screech-Owls) and platforms (for Great Horned Owls) have been installed in parks and open spaces. Not all of these structures have attracted nesting raptors. If a box or platform is not used for three years, it may need to be moved to a better spot.
- *Develop a vigorous public education campaign to discourage the use of all rodenticides outdoors.* Many of the parent raptors were observed delivering small rodents to their nestlings. A rodent that has ingested poison but not yet died can pass the toxins on to a raptor that eats it. These secondary poisonings are a significant cause of death among many raptor species [2] and also affect bobcats and coyotes [3].
- *Provide education to residents prior to courtship and nesting season.* Some raptors may become aggressive toward any perceived intruder in their territory, including humans and pets. Sensitive human behavior can help to minimize aggressive interactions.

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For more information about the raptor monitoring program, or to volunteer as a monitor, please contact OSAC@superiorcolorado.gov.

References:

[1] <https://cpw.state.co.us/learn/Pages/Avian-Influenza.aspx>

[2] <https://www.allaboutbirds.org/news/raptors-and-rat-poison/>

[3] <https://pubmed.ncbi.nlm.nih.gov/25707484/> ; <https://www.nps.gov/samo/learn/news/bobcat-and-mountain-lion-found-dead-from-anticoagulant-rodenticide-poisoning.htm>

NOTE: All photos in this document were taken with high-magnification telephoto lenses to minimize disturbance to the raptors.



Photo: Jeff Krause



Photo: Mike Schrag



Photo: Peter Ruprecht



Photo: Sandy Hardy Reigel



Photo: Sandy Hardy Reigel