

Observations of Roosting Northern Harriers, Bald Eagles, and Short-eared Owls within Wetlands Surrounding Boulder Reservoir during Winter, 2021-22

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We monitored potentially roosting Northern Harriers, Bald Eagles, and Short-eared Owls in wetlands near the western and northern shores of Boulder Reservoir from 1 December, 2021 - 2 March, 2022. Volunteers visited fixed observation points overlooking the Dry Creek, Little Dry Creek, and Coot Lake wetlands at least once monthly around dusk, mapping locations of perching Northern Harriers, Bald Eagles, and Short-eared Owls. The purpose of this ongoing study is to determine where winter roosts occur and how they might be better protected from disturbance.

Methods

Teams of 1-3 volunteers visited assigned observation points west of the reservoir (Figure 1) or west of Coot Lake (Figure 2) approximately once monthly from 40 minutes before sunset to 30 minutes after sunset. Eight observers devoted approximately 51 hours to this effort. They mapped sighting locations of perching Northern Harriers, Bald Eagles, and Short-eared Owls, and recorded numbers of each species seen within the monitored drainage. Observation times were as follows:

- Coot Lake: 12 visits; 15 hours, 55 min.
- Dry Creek: 12 visits; 18 hours, 40 min.
- Little Dry Creek; 8 visits; 12 hours, 45 min.

Figure 1. Boulder Reservoir western shore wintering raptor observation points.

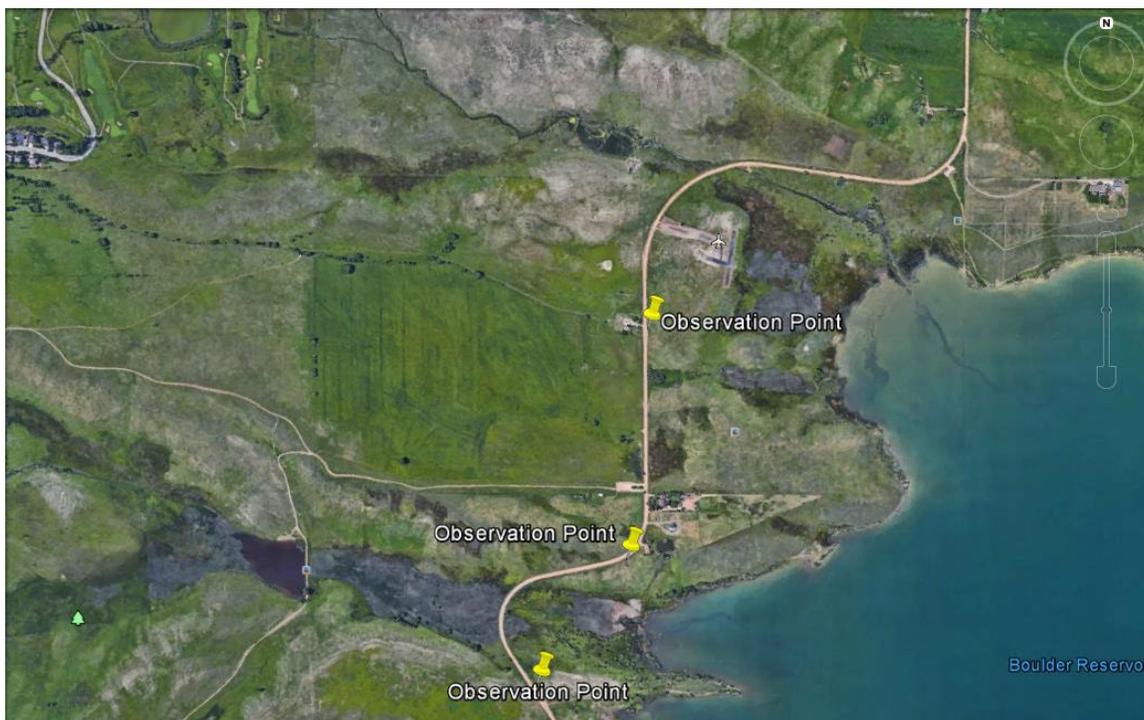


Figure 2. Coot Lake wintering raptor observation points.



Results and Discussion

Ground-roosting Northern Harriers were seen repeatedly in the Dry Creek drainage and occasionally within the Little Dry Creek drainage. Two adult Bald Eagles were observed perching on and bringing food to the Osprey nesting platform west of the green house opposite the Eagle Trailhead. Perching Bald Eagles were also seen north of Boulder Reservoir. No Short-eared Owls were seen within any of the three monitored wetlands.

Coot Lake

We observed no Northern Harriers, Bald Eagles or Short-eared Owls perching in or flying over the Coot Lake wetlands during 12 visits to the area. All the raptors observed perching within or flying over the wetlands were identified as Red-tailed Hawks.

Table 1. Numbers of raptors observed from Coot Lake observation points.

NH: Northern Harrier A: Adult
 BE: Bald Eagle AM: Adult male
 GE: Golden Eagle AF/J: Adult female or juvenile
 RT: Red-tailed Hawk J: Juvenile
 GH: Great Horned Owl

Date	Times	NH (AM)	NH (AF/J)	BE (A)	BE (J)	GE	FH	RT	GH	Reporter
4 December	1550-1710									Smith
4 December	1600-1710							1		Reimer
11 December	1645-1740									Smith
20 December	1540-1650									Smith
27 December	1615-1725							1		Smith
11 January	1620-1735							1		Smith
22 January	1622-1725									Smith
24 January	1625-1730							2		Smith
15 February	1650-1800									Smith
17 February	1640-1800									Smith
20 February	1708-1812									Reimer
27 February	1700-1825									Smith
Mean/visit		0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	

Dry Creek

We observed a total of at least four Northern Harriers (one adult male, one adult female, and two juveniles) within this wetland complex during the course of 2021-22 observations (Table 2, Figure 3). The highest number observed during any one visit was three. During three separate observations, we saw several individuals flying into a suspected ground-roost within the expansive cattail marsh north of the Anthill and east of the aeromodeling runways (Figure 3). This is the approximate location where Northern Harriers roosted during the winters of 2019-20 and 2020-21 (Jones 2021b).

We observed a pair of adult Bald Eagles flying into and perching on an Osprey nest platform near the reservoir west shore, 0.6 km east of the Eagle Trailhead, on 9, 16, and 23 January; and on 27 February. While we have no historic records of Bald Eagles nesting successfully near Boulder Reservoir, a pair did construct a nest on another Osprey nesting platform 1 km NNW of this location in 2015 before being displaced by nesting Ospreys (Jones 2021a).

Table 2. Numbers of raptors observed from Dry Creek observation point.

NH: Northern Harrier A: Adult
 BE: Bald Eagle AM: Adult male
 GE: Golden Eagle AF/J: Adult female or juvenile
 RT: Red-tailed Hawk J: Juvenile
 GH: Great Horned Owl

Date	Times	NH (AM)	NH (AF/J)	NH (U)	BE (A)	BE (J)	GE	RT	GH	Reporter
1 December	1545-1710									Brainerd
12 December	1540-1655			2						Brainerd
18 December	1530-1700	1	1	2						Rabourn
19 December	1532-1700			3						Brainerd
9 January	1610-1720				2	1		5		Brainerd
16 January	1600-1730			3	2	1		3	1	Brainerd
18 January	1545-1730	1	2							Rabourn
23 January	1600-1740	1	2		2			5	1	Brainerd
30 January	1615-1750		2		1					Brainerd
20 February	1640-1820			1				6		Brainerd
27 February	1645-1815	1	2		2			5	1	Brainerd
1 March	1630-1810	1	2							Rabourn
Mean/visit		0.43	0.92	0.92	0.75	0.17	0.00	2.00	0.25	

Little Dry Creek

We observed one adult male and one adult female or juvenile Northern Harrier flying over or foraging within the Little Dry Creek wetland complex on 22 December and 22 February, and a single adult female or juvenile harrier flying over the area on 10 and 23 January and 2 March. We observed no perching or potential roosting behavior on Boulder Parks and Recreation property within the Little Dry Creek wetland complex.

We observed no Bald Eagles or Short-eared Owls flying over or perching within this wetland complex.

Table 3. Numbers of raptors observed from Little Dry Creek observation points.

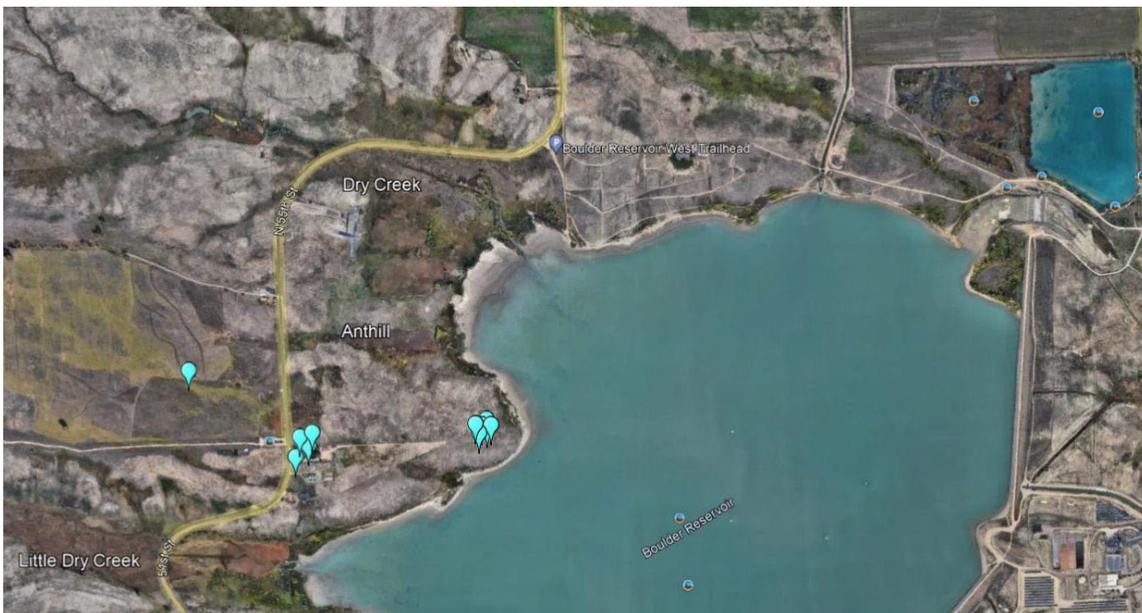
NH: Northern Harrier A: Adult
 BE: Bald Eagle AM: Adult male
 GE: Golden Eagle AF/J: Adult female or juvenile
 RT: Red-tailed Hawk J: Juvenile
 GH: Great Horned Owl

Date	Times	NH (AM)	NH (AF/J)	BE	GE	FE	RT	GH	Reporter
1 Dec	1545-1710								Kasynski
22 Dec	1530-1715	1	1						Kasynski
10 Jan	1600-1700		1						Angulo and Brandt
23 Jan	1610-1710		1					1	Angulo, Brandt, Toohey
23 Jan	1000-1200		1						Kasynski
14 Feb	1645-1805								Angulo and Kasynski
22 Feb	1530-1715	1	1						Kasynski
2 March	1545-1715		1						Kasynski
Mean/visit		0.25	0.75	0.00	0.00	0.00	0.00	0.13	

Figure 3. Northern Harrier December 2021-February 2022 perching locations. Each icon represents one Northern Harrier perched during a single observation.



Figure 4. Bald Eagle December 2021-February 2022 perching locations. Each icon represents one Bald Eagle perched during a single observation.



Disturbances

On 20 February, 2022, an observer monitoring the Dry Creek wetland area reported a model airplane cruising low over the cattail marsh "well after dusk." Here is the complete text of her description:

"Someone was flying a model airplane well after dusk. It was cruising all over the cattail marsh and may have interfered with the Harriers trying to get into their roost. The plane was not lit up, at least I could not see any lights from my vantage point at the mailbox. I do not know if the gate to the airport was locked or not. The man with the plane had a white pickup truck at the airport building and I think this is the same white pickup that has been there quite often on Sunday evenings.

"This man walked to the southern end of the runway and his plane took off using the short east-west runway. Where he stood was very close to where I have often watched Harriers land near the southern end of the runway before they go to roost...Quite often they land on a small mound of dirt near the end of the runway, perch there for 10-15 minutes, then fly over the marsh before landing in the tall vegetation of the marsh area. I was disappointed to see the man so close to their little dirt mound."

The observer reported seeing only a single Northern Harrier flying into the suspected roost area that evening, after she had seen 2-3 Harriers fly in during previous visits on 16, 23, and 30 January. During a subsequent visit on 27 February, she once again saw three Harriers descend into the suspected roost area.

On 30 January, the same observer saw two ultra-lights flying "very low" over the Dry Creek valley from north to south, apparently flushing a Red-tailed Hawk off its perch.

At Coot Lake, Red-tailed Hawks were apparently flushed off their perches atop telephone poles by hikers and joggers on two occasions.

Summary

It appears that one group of Northern Harriers, comprising 3-4 individuals, overnight-roosted within the Dry Creek wetland north of the Anthill from early December through February. While volunteers have difficulty discriminating adult females from juveniles in low light conditions, most volunteers reported seeing one adult male and 1-3 adult females or juveniles in this group.

The Dry Creek roosting site lies within 100 m of a 2019 nest that fledged four young in July (Jones 2019), within 200 m of a 2020 nest that fledged five young in July (Jones 2020), and within 300 m of a nest that failed in 2021 (Jones 2021). Since the 2021 nest within this wetland failed, the two juveniles using this winter roost site in 2021-22 more likely came off the 2021 nest within the Little Dry Creek wetlands, which fledged three young in July.

During the 1980s and 1990s, volunteers reported seeing as many as 15 Northern Harriers night-roosting during winter in wetlands to the west of Boulder Reservoir (Boulder County Audubon Society 1978-2015). Since we initiated our winter roosting study in 2016, the highest number observed during a single observation has been 10 (Table 4). It's likely that the number of Northern Harriers winter-roosting at the reservoir results from productivity of summer nests in the area and the availability of prey species, especially meadow voles, in winter.

Though we observed no evidence of overnight roosting by Bald Eagles, at least two adults and two juveniles perched sporadically within the study area, primarily on telephone poles and in trees surrounding the green house across N. 53rd St. from the Eagle Trailhead parking area and on the Osprey nest platform 300 m east of the green house. Although we saw the adult pair perching and consuming fish on this nest platform throughout January and February, we observed no nesting behaviors.

Table 4 . Maximum numbers of Northern Harriers observed flying over or it into wetlands west of Boulder Reservoir within 30 minutes of sunset during a single observation.

Winter	Dry Creek	Little Dry Creek
2016-17	3	3
2017-18	2	1
2018-19	5	2
2019-20	5	5
2020-21	5	3
2021-22	3	0

Table 5. Maximum numbers of Bald Eagles observed perching in or on the periphery of wetlands.

Winter	Coot Lake	Dry Creek	Little Dry Creek
2016-17	None	None	None
2017-18	None	2 adults	None
2018-19	None	None	2 adults, 1 juvenile
2019-20	None	2 adults, 1 juvenile	1 adult, 3 juveniles
2020-21	2 adults, 2 juveniles	None	None
2021-22	None	2 adults, 2 juveniles	None

We observed no Short-eared Owls within the study area between 1 December 2021 and 2 March, 2022. Short-eared Owls are considered rare in Boulder County in winter (Boulder County Audubon Society 1978-2015), and while Henderson (1908) reported a single historical nest in Boulder County, he did not specify its location. Data from Colorado Breeding Bird Atlas II indicate that widely scattered nesting populations have declined in number throughout eastern Colorado during the past three decades (Wickersham 2017). We photographed a Short-eared Owl flying over the Little Dry Creek wetland on 10 September 2016 and observed one flying over the Dry Creek wetland on 26 December 2016 (Jones 2017).

Observers reporting: Jane Angulo, Rose Brainerd, Barbara Brandt, Steve Jones, George Kasynski, Gary Rabourn, Tina Reimer, Rich Smith, and Darin Toohey.

Literature Cited

Boulder County Audubon Society, 1979-2015. Monthly wildlife inventories. www.boulderaudubon.org

Henderson, J. 2008. An annotated list of the birds of Boulder County, Colorado. The University of Colorado Studies 6:220-242.

Jones, Stephen. 2017. Observations of roosting Northern Harriers, Bald Eagles, and Short-eared Owls around Boulder Reservoir during winter 2016-17. Unpublished report for Boulder Parks and Recreation Department, 3198 Broadway, Boulder CO 80304.

Jones, Stephen. 2018. Boulder Reservoir 2018 breeding bird survey. Unpublished report for Boulder Parks and Recreation Department, 3198 Broadway, Boulder CO 80304.

Jones, Stephen. 2018c. Observations of roosting Northern Harriers, Bald Eagles, and Short-eared Owls around Boulder Reservoir during winter 2017-18. Unpublished report for Boulder Parks and Recreation Department, 3198 Broadway, Boulder CO 80304.

Jones, Stephen. 2019. Boulder Reservoir 2019 birds of special concern monitoring summary. Unpublished report for Boulder Parks and Recreation Department, 3198 Broadway, Boulder CO 80304.

Jones, Stephen. 2019b. Observations of roosting Northern Harriers, Bald Eagles, and Short-eared Owls around Boulder Reservoir during winter 2018-19. Unpublished report for Boulder Parks and Recreation Department, 3198 Broadway, Boulder CO 80304.

Jones, Stephen. 2020. Boulder Reservoir 2020 birds of special concern monitoring summary. Unpublished report for Boulder Parks and Recreation Department, 3198 Broadway, Boulder CO 80304.

Jones, Stephen. 2020b. Observations of roosting Northern Harriers, Bald Eagles, and Short-eared Owls around Boulder Reservoir during winter 2019-20. Unpublished report for Boulder Parks and Recreation Department, 3198 Broadway, Boulder CO 80304.

Jones, Stephen. 2021. Boulder Reservoir 2021 birds of special concern monitoring summary. Unpublished report for Boulder Parks and Recreation Department, 3198 Broadway, Boulder CO 80304.

Jones, Stephen. 2021b. Observations of roosting Northern Harriers, Bald Eagles, and Short-eared Owls around Boulder Reservoir during winter 2020-21. Unpublished report for Boulder Parks and Recreation Department, 3198 Broadway, Boulder CO 80304.

Wickersham, Lynn. 2017. Colorado breeding bird atlas II. Colorado Bird Atlas Partnership, Denver.