

Wintering Raptor Survey 2020-21 Summary

Thanks everyone for your great reporting in 2020-21. At least 86 volunteers devoted more than 1000 hours to driving 7 survey routes throughout Boulder County. Overall, numbers of observed raptors were just slightly higher than 2019-20 numbers (0.658/km versus 0.640/km). However, variation was extreme. It was a strong year for Rabbit North and East County, where prairie dog numbers seemed to remain relatively high; and a disappointing year for Rabbit South and South County, where a combination of plague and lethal control reduced prairie dog numbers in several areas.

Table 1. 2020-21 Summary by Survey Route.

Route	Distance	Trips	Mean Raptors/ trip	Annual Change
Boulder Reservoir	19 km	24	14.78	- 3.4 %
East County	30 km	41	18.84	+ 14.6 %
Lykins Gulch	3 km	22	2.88	+ 183.0 %
Rabbit North	23 km	30	20.49	+ 25.7 %
Rabbit South	18 km	45	13.49	- 25.4 %
South County	32 km	26	6.93	- 30.6 %
Stearns Lake	20 km	16	18.10	+ 11.2 %

Table 2. Survey Route Detail.

Route	RT	FH	RL	NH	BE	GE	AK	MR	PF	SS	CH	GHO	Total
Boulder Res.	8.13	0.87		0.33	1.67	0.50	0.87		0.08				14.78
East County	11.2	0.27	0.19	0.27	1.32	0.34	4.19		0.21		0.15	0.12	18.84
Lykins Gulch	1.87	0.23		0.09	0.14	0.23	0.14						2.88
North Rabbit	9.76	2.17	0.07	0.50	3.60	1.17	2.77	0.03			0.03	0.03	20.49
South Rabbit	7.38	0.93	0.02	0.20	1.71	0.82	1.07	0.02	0.01	0.02	0.04	0.02	13.49
South County	4.42	0.04		0.08	0.77	0.08	1.42		0.08				6.93
Stearns Lake	10.44	0.18	0.06	0.18	1.68		3.25		0.44	0.06	0.06	0.06	18.10

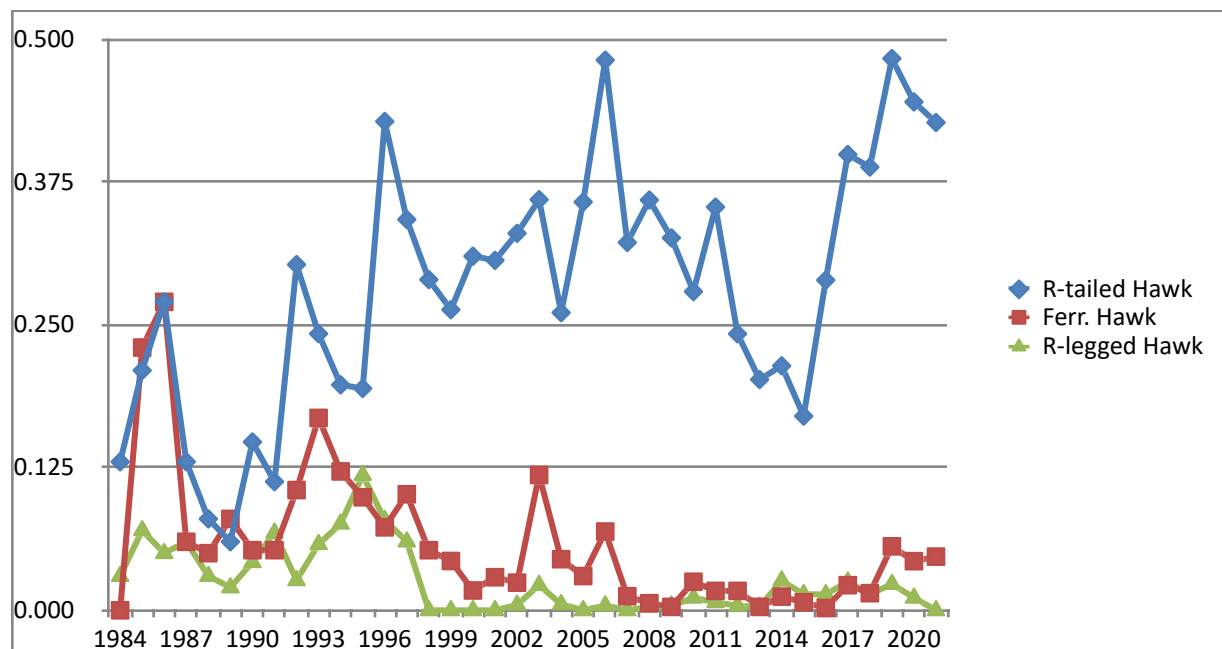
Note: Due to space considerations, this summary table omits some categories, such as "UB" (unidentified buteo), but these are included in the total in the last column. Two Turkey Vulture observations in November were not included in the total, since they are not technically "wintering raptors."

For those of us driving South Rabbit, this change was most apparent around Lagerman Reservoir, where we saw fewer than half as many Bald Eagles as we saw last year. Only two Golden Eagles were seen along the South County survey route during 26 trips, continuing a seven-year trend of disappearing goldens along this route (partly related to reconfiguration of the giant microwave tower on the hill above Marshall). In contrast, North Rabbit reported 10-year highs of Ferruginous Hawks (2.13) and Bald Eagles (3.6) per survey.

Boulder Reservoir Survey Route

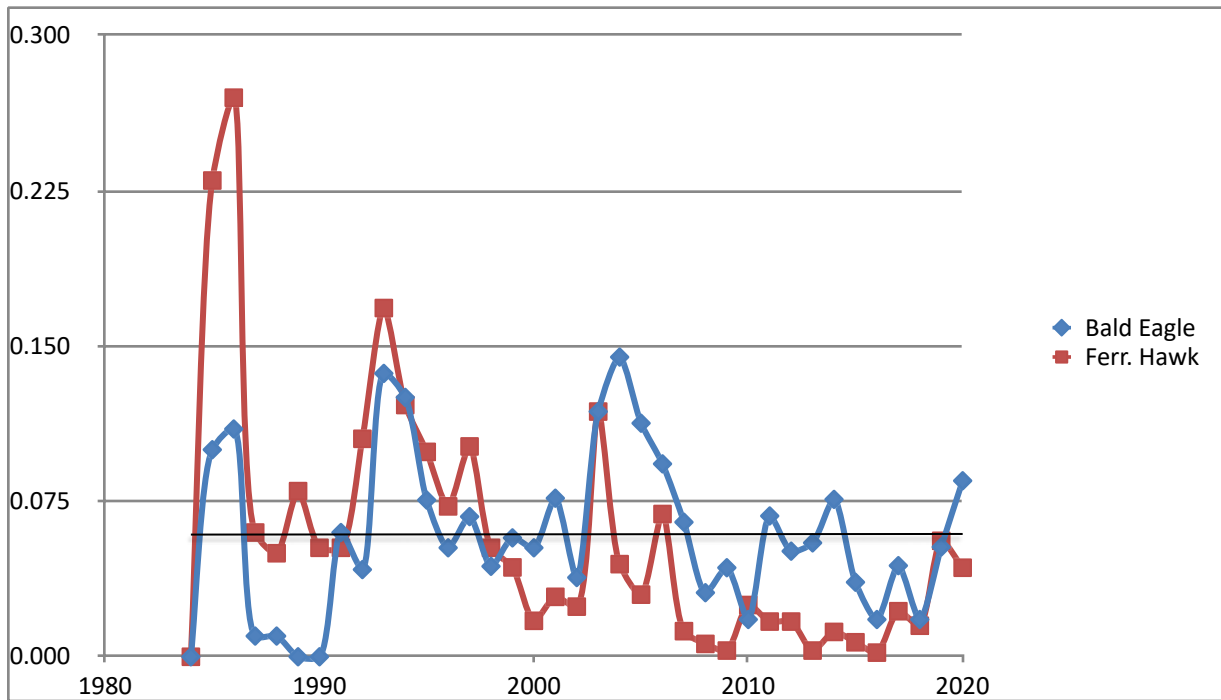
We've been driving this route since 1983-4, so it tends to reveal long-term trends better than any other route. You'll note, below, that among the buteos, Red-tailed Hawks remain near their 40-year peak of 0.48/km, Ferruginous Hawks have edged up slightly during the past two years to around 0.004/km, and Rough-legged Hawks continue their long-term decline.

Figure 1. Boulder Reservoir Survey Route Mean Buteos/km.



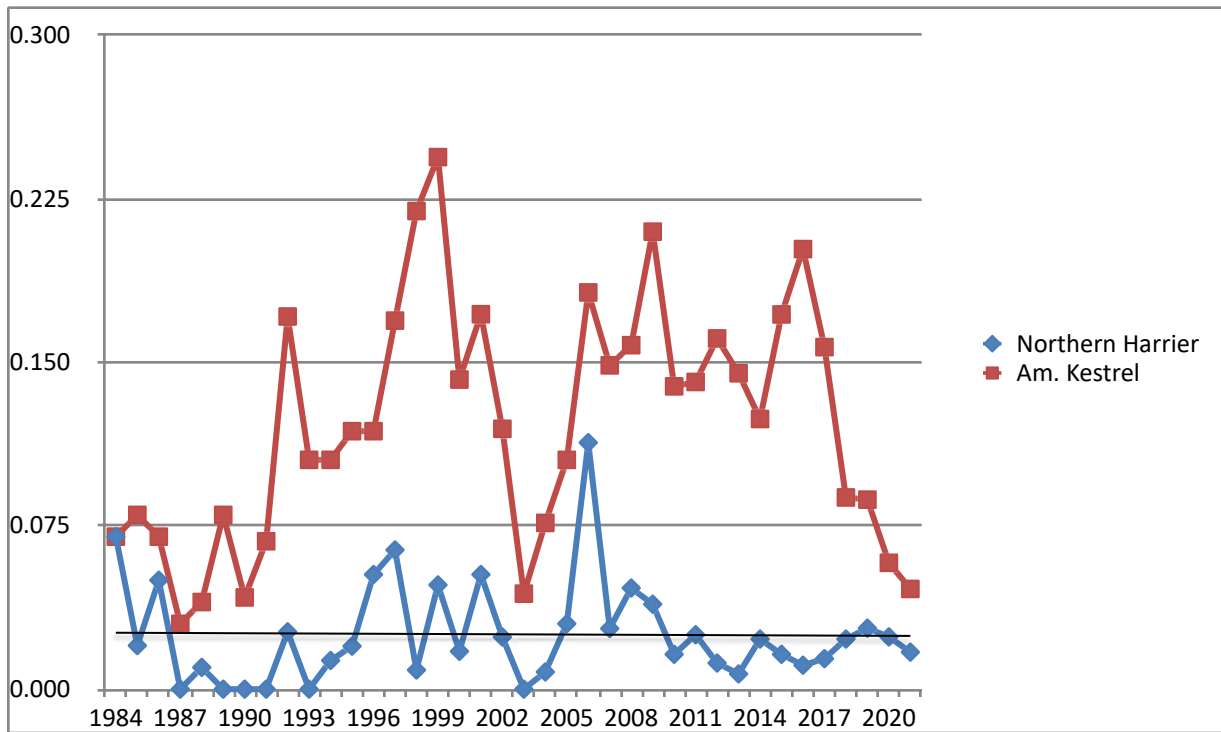
Here's my favorite graph of all, showing the relationship of Bald Eagle numbers to Ferruginous Hawk numbers. Both species prey on prairie dogs, and Bald Eagles follow Ferruginous Hawks around, waiting to snatch prairie dogs from them (a behavior known as kleptoparasitism). Years of peak prairie dog numbers show up clearly on this graph. I'm hoping to finally get some countywide prairie dog population numbers from the various agencies this year so we can finally graph the absolute relationships between prairie dog populations and numbers of prairie dog-dependent raptors over time.

Figure 2. Boulder Reservoir Survey Route Mean Bald Eagles and Ferruginous Hawks/km.



Since Northern Harriers and American Kestrels tend to prey on small rodents and insects, their population cycles are strikingly different from those of the eagles and buteos. However, annual numbers do tend to coincide for these two species, probably reaching their highest points during years when cyclical meadow vole populations peak.

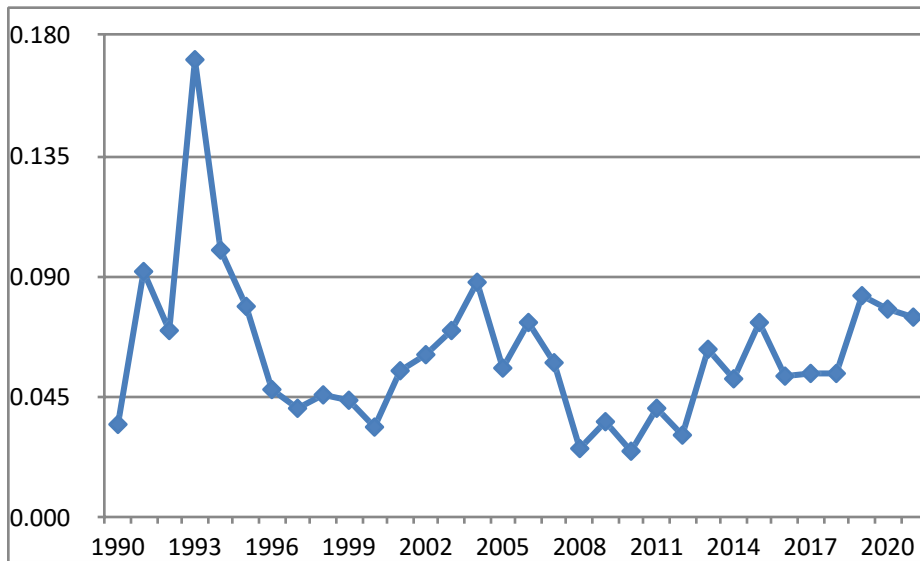
Figure 3. Northern Harriers and American Kestrels/km, All Routes.



Eagles

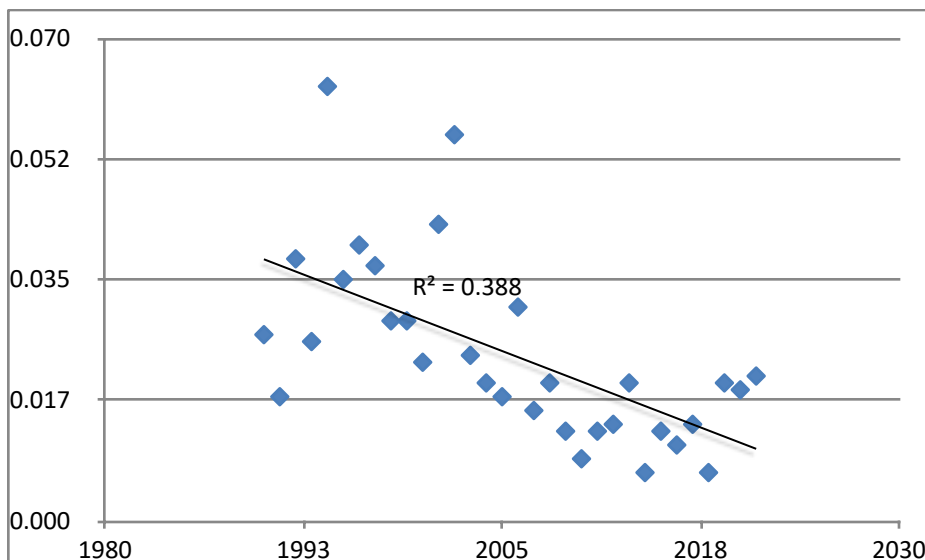
We began doing our wintering raptor surveys during the mid-1980s, when numbers of wintering Bald Eagles reached previously unrecorded highs on the plains of Boulder County. While current numbers are less than half those observed in 1990, you'll note that numbers appear to have stabilized and may be edging back up slightly. This trend may reflect establishment of more nesting pairs within the county since 2010 and recovery of prairie dog populations in some areas hardest hit by the plague between 2008-12.

Figure 4. Mean Bald Eagles/km, All Routes.



The same cannot be said for wintering Golden Eagles. This species is suffering from a triple whammy: decreasing numbers of large prairie dog colonies, total elimination of white-tailed jackrabbits, and fragmentation of prairie hunting areas by trees and houses. We've documented a statistically significant decline in numbers of Golden Eagles wintering on the plains of Boulder County since 1990.

Figure 5. Mean Golden Eagles/km, all Routes.

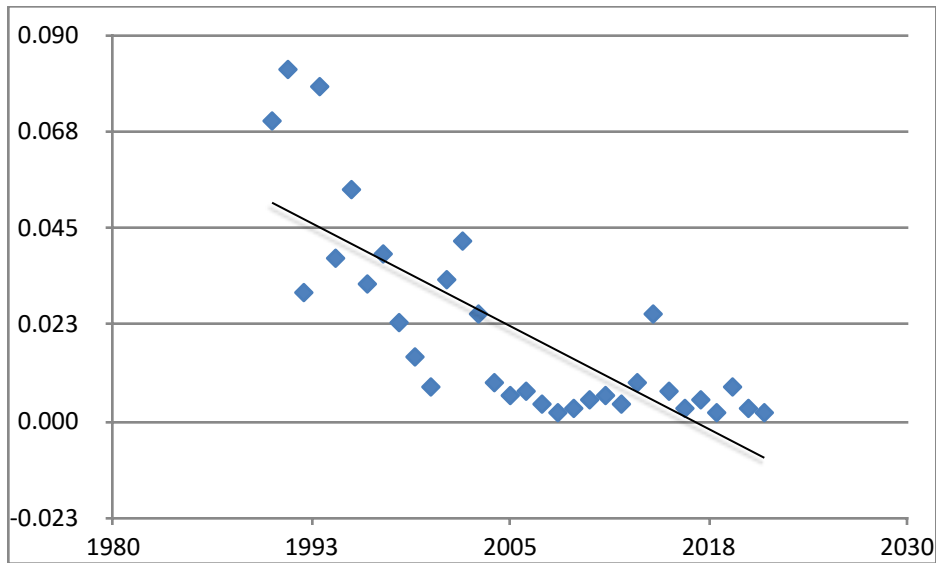


Rough-legged, Ferruginous, and Red-tailed Hawks

Rough-legged Hawks have experienced a much more precipitous decline. Recent studies indicate that warming global temperatures are enabling wintering Rough-legs to remain farther to the north as large

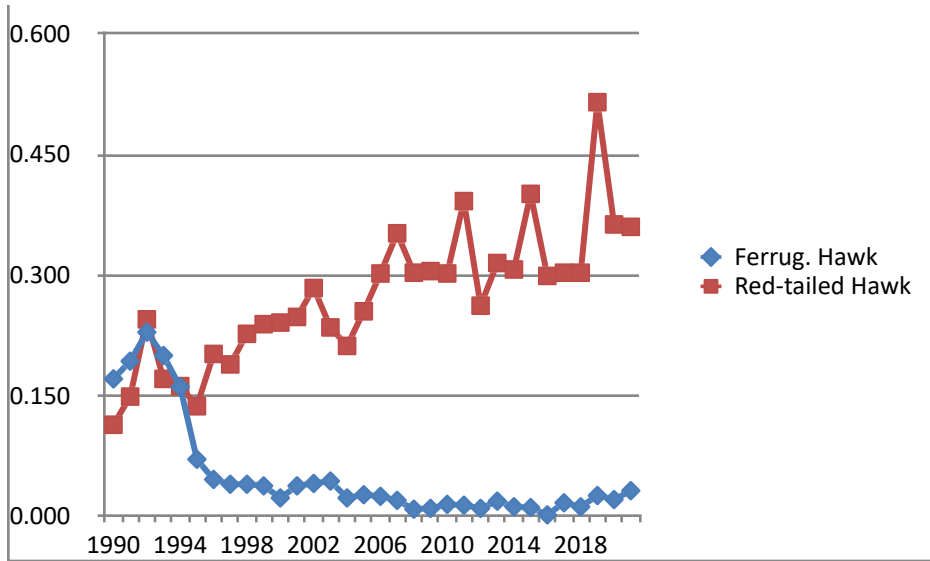
areas of the northern plains remain free of snow throughout much of the winter. Here in Boulder County, fragmentation of native grasslands and marshes may discourage these open country hawks from sticking around.

Figure 6. Rough-legged Hawks/km, all Routes.



Meanwhile, Red-tailed Hawks, the ultimate habitat generalists, continue to lead blissful lives in Boulder County. While countywide numbers leveled off during the past three years, they remain at almost triple the numbers we observed when we began these surveys during the 1980s. The graph below speaks for itself. We're losing our native shortgrass prairies throughout the plains of Boulder County, and many native grassland specialists are disappearing. However, there is the slightest glimmer of hope when you look at the recent uptick in numbers of Ferruginous Hawks. Let's hope we find many more this coming season (Hint: take a drive up to Rabbit Mountain on a cold, calm morning).

Figure 7. Ferruginous and Red-tailed Hawks/km, all Routes.



Thanks again for your great work.

Steve