

Bluebird Monitoring 2019

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Poor Nest Box Productivity for Bluebirds Again in 2019



We continued our regular monitoring of nest boxes at Elk Meadow and Alderfer/Three Sisters Jefferson County Open Space Parks in 2019. With some reduction in the number of boxes, we are now monitoring 32 boxes in Elk Meadow and 20 boxes in Alderfer/Three Sisters. We made 9-10 visits to each park between April and early-August to check the progress of boxes, spending a total of 35.7 survey hours at Elk Meadow and 21.1 hours at Alderfer/Three Sisters. We appreciate the assistance of Nicole Hutchison, Xander

Hutchison, Heather Johnson, Iris Jones, Sybil Jones, Jan Kerr, Barbara Klaus, Melissa Leasia, Connor Leppert, Dan Leppert, Declan Roach, Hazel, Roach, Tobin Roach, and Dwight Souder. Thanks to Jefferson County Open Space for their continued partnership with the nest box monitoring. If you would like to participate in nest box monitoring efforts in 2020 please contact [Rachel Hutchison](#) or [Brad Andres](#).

For the fourth year in a row, productivity of Mountain and Western Bluebirds in 2019 was below average, and the productivity of Tree Swallows was slightly above average (Table 1). In Elk Meadow, 43% fewer Mountain Bluebirds and 64% fewer Western Bluebirds completed nests and laid eggs in 2019 compared to an average previous year. In Alderfer/Three Sisters, 82% fewer Mountain Bluebirds and 33% fewer Western Bluebirds completed nests and laid eggs in 2019 than in an average year in the past. Loss of eggs (those that did not hatch) and loss of chicks differed between sites; chick loss was generally greater than egg loss in Alderfer/Three Sisters, whereas egg loss exceeded or was similar to chick loss in Elk Meadow. This lack of nest initiation and egg-laying in bluebirds resulted in a 57% reduction in the number of Mountain Bluebird chicks produced and a 52% reduction in production of Western Bluebirds for both parks combined.

In contrast, Tree Swallows laid eggs in nests 51% above the average of previous years in Elk Meadow but was 18% below the average in Alderfer/Three Sisters (Table 1). Tree Swallow production was 28% higher than the average in Elk Meadow and 37% higher than the average in Alderfer/Three Sisters. For Mountain and Western Bluebirds and Tree Swallows combined, only 88 total young were produced in Elk Meadow, compared to an average of 139

young, and only 34 young were produced in Alderfer/Three Sisters, compared to an average of 57 young. One pair of Pygmy Nuthatches fledged nine young in Elk Meadow, and one pair of Mountain Chickadees fledged five young in Alderfer/Three Sisters.

The cold, wet spring and early summer may have affected the nesting of bluebirds and chick provisioning of bluebirds. Later nesting of Tree Swallows may have buffered some of the weather effects. We plan to conduct a more thorough analysis of the effects of weather on nest initiation and productivity in the next few years. The overall decline in nest initiation and productivity of bluebirds at both sites is concerning.

-Brad Andres and Rachel Hutchison

	Bluebirds		Swallows		House Wren
	Mountain	Western	Tree	Violet-green	
Elk Meadow					
Nests with eggs in 2019	9	3	14	1	1
Average nests with eggs	16	8	9		
Successful nests in 2019	7	3	12	1	1
Clutch size in 2019	5.1	5.7	5.1	3.0	6.0
% hatched of eggs laid in 2019	86	88	85	75	100
Average % hatched of eggs laid	75	87	77		
% fledged of eggs laid in 2019	86	77	72	75	100
Chicks fledged/pair in 2019	4.43	4.33	3.67	3.00	6.00
Average chicks fledged/pair	3.17	3.71	3.16		
Young produced in 2019	31	13	44	3	6
Average young produced	57	48	34		
Alderfer/Three Sisters					
Nests with eggs in 2019	1	4	4	-	1
Average nests with eggs	6	6	5		
Successful nests in 2019	0	4	4	-	1
Clutch size in 2019	4.0	3.5	4.3	-	5.0
% hatched of eggs laid in 2019	0	93	77	-	83
Average % hatched of eggs laid	72	77	85		
% fledged of eggs laid in 2019	0	57	41	-	83
Chicks fledged/pair in 2019	0.00	2.00	1.75	-	5.00
Average chicks fledged/pair	3.30	3.14	2.59		
Young produced in 2019	0	8	7	-	5
Average young produced	22	22	13		

Table 1. Breeding success of birds using nest boxes in 2019 and average success in Elk Meadow (2009-2018) and Alderfer/Three Sisters (2011-2018) Open Space Parks, Evergreen, Colorado. Some nest boxes where eggs were laid were destroyed before outcomes could be determined.