

2020 Nest Box Study

Brad Andres 11/02/2020 :

Low Numbers but High Productivity for Bluebirds in 2020



Despite the pandemic, we were able to continue our regular monitoring of nest boxes at Elk Meadow and Alderfer/Three Sisters Jefferson County Open Space Parks in 2020. However, most nest box visits were completed by individuals or very small groups. With some reduction in the number of boxes, we are now monitoring 32 boxes in Elk Meadow and 18 boxes in Alderfer/Three Sisters. We made 10-12 visits to each park between April and mid-August to check the progress of boxes, spending a total of 40.3 survey hours at Elk Meadow and 18.5 hours at Alderfer/Three Sisters. We appreciate the assistance of Linda Bollinger, Heather Johnson, Barbara Klaus, and Melissa Leasia. Rachel's grandkids (Declan, Hazel, Leah and Tobin Roach) tagged along on two visits. 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 2021 please contact Rachel Hutchison (treasurer@evergreenaudubon.org) or Brad Andres (president@evergreenaudubon.org).

Nests built by Mountain and Western Bluebirds were significantly lower than the average year between 2009/2011 and 2019, ranging from -13% to -80% (Table 1). Occupancy by Tree Swallows was up at Elk Meadow (44%) and down at Aldefer/Threes Sisters (-37%). At both sites combined, seven nest boxes were occupied by House Wrens, two by Violet-green Swallows, and one each by a Mountain Chickadee and Pygmy Nuthatch. Only 50% of the 18 nest boxes at Aldefer/Three Sisters were occupied by a bluebird or swallow. Late snows, which were absent in 2020, do not appear to be the reason for decreases in occupancy. Nest box occupancy by bluebirds at Elk Meadow, however, was slightly higher than the last three years.

Despite the lower numbers of nesting bluebirds, their productivity was substantially higher than the average of past years (Table 1). The productivity of Tree Swallows, in contrast, was somewhat lower at Elk Meadow

(-11%). Loss of eggs or chicks for bluebirds was about the same between life-history stages, whereas Tree Swallows lost more than twice as many chicks (35%) as eggs (15%). Because swallows nest later, higher temperatures and lower precipitation in July may have negatively affected swallow productivity.

We hope the up-turn in nest box occupancy is a signal of recovery of bluebird populations in Elk Meadow and Aldefer/Three Sisters. We hope to more thoroughly explore the effects of weather on occupancy and productivity in the future.

Table 1. Breeding success of birds using nest boxes in 2020 and average success in Elk Meadow (2009-2019) and Alderfer/Three Sisters (2011-2019) Open Space Parks, Evergreen, Colorado. Some nest boxes where eggs were laid were destroyed before outcomes could be determined.

	Bluebirds		Swallows		House Wren
	Mountain	Western	Tree	Violet-green	
Elk Meadow					
Nests with eggs in 2020	11	5	14	1	2
Average nests with eggs	15	8	10	-	-
Successful nests in 2020	11	5	13	1	2
Clutch size in 2020	5.7	5.2	5.2	3.0	6.5
% hatched of eggs laid in 2020	92	100	85	75	77
Average % hatched of eggs laid	76	87	78	-	-
% fledged of eggs laid in 2020	87	100	55	75	77
Chicks fledged/pair in 2020	5.0	5.2	2.9	3.0	5.0
Average chicks fledged/pair	3.2	3.7	3.2	-	-
Young produced in 2020	55	26	40	3	10
Average young produced	56	47	36	-	-
<u>Alderfer/Three Sisters</u>					
Nests with eggs in 2020	1	5	3	1	5
Average nests with eggs	5	6	5	-	-
Successful nests in 2020	1	5	3	0	5
Clutch size in 2020	6.0	4.8	5.3	4.0	5.0
% hatched of eggs laid in 2020	100	92	87	0	93
Average % hatched of eggs laid	64	79	84	-	-
% fledged of eggs laid in 2020	100	87	87	0	74
Chicks fledged/pair in 2020	6.0	4.2	4.7	0	4.6
Average chicks fledged/pair				-	-
Young produced in 2020	6	21	14	0	23
Average young produced				-	-

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