

Appendix 1

Supplementary tables and figure from “Snag density and stand age, but not stand size, explain occupancy and reproduction of an imperiled cavity nester in early successional forest” in *Avian Conservation & Ecology*.

Table A1.1. Comparison of all single-season occupancy models used to determine the relationship between Southeastern American Kestrel occupancy and environmental covariates based on point counts conducted in Ocala National Forest, Florida, USA, April to June 2018-2019. We compared models using log-likelihood (LL), Akaike’s Information Criterion corrected for small sample sizes (AICc), and AICc weights. We also report the number of parameters (K) and model differences (Δ AICc). All models also contain the natural log of the amount of habitat surveyed during the point count within 200 m as an occupancy covariate and survey date as a detection covariate. Large (Lg) snag density is snags ≥ 25 cm dbh. Habitat is the amount of early successional sand pine scrub ≤ 15 years old within 5 km of the point count.

	Model	K	LL	AICc	Δ AICc	Weight
1	Stand Age ² × Snag Density	8	-123.20	263.9	0.00	0.386
2	Stand Age ² × Lg Snag Density	8	-123.89	265.3	1.39	0.193
3	Stand Age ² × Snag Density + Habitat5km	9	-123.05	266.0	2.09	0.135
4	Stand Age ² × Lg Snag Density + Habitat5km	9	-123.69	267.3	3.37	0.071
5	Stand Age ² + Lg Snag Density	7	-126.07	267.3	3.39	0.071
6	Stand Age ² × Habitat5km + Lg Snag Density	9	-123.90	267.7	3.81	0.058
7	Stand Age ² + Habitat5km + Lg Snag Density	8	-125.96	269.4	5.53	0.024
8	Stand Age ² + Snag Density	7	-127.57	270.3	6.39	0.016
9	Stand Age ² × Habitat5km + Snag Density	9	-125.27	270.4	6.53	0.015
10	Lg Snag Density	5	-130.38	271.4	7.46	0.009
11	Stand Age ² × Habitat5km	8	-127.14	271.8	7.88	0.007
12	Stand Age ² + Habitat5km + Snag Density	8	-127.46	272.4	8.51	0.005
13	Habitat5km + Lg Snag Density	6	-130.37	273.6	9.70	0.003
14	Stand Age ² + Habitat5km	7	-129.55	274.3	10.34	0.002
15	Stand Age ²	6	-130.76	274.4	10.47	0.002
16	Snag Density	5	-132.03	274.7	10.76	0.002
17	Habitat5km + Snag Density	6	-132.02	276.9	12.99	0.001
18	Null	2	-139.90	283.9	20.01	0.000
19	Habitat5km	5	-137.23	285.1	21.16	0.000

Table A1.2. Comparison of all generalized linear models used to determine the relationship between Southeastern American Kestrel nest daily survival rate and environmental covariates. The top model best predicts the probability that a nest will survive each day. We compared models using log-likelihood (LL), Akaike’s Information Criterion corrected for small sample sizes (AICc), and AICc weights. We also report the number of parameters (K) and model differences (Δ AICc). Date is the incubation initiation date. Habitat is the amount of early successional sand pine scrub ≤ 15 years old within 5 km of the nest. Nests were located in Ocala National Forest, Florida, USA, and monitored from March to August, 2018–2019.

	Model	K	LL	AICc	Δ AICc	Weight
1	Stand Age + Snag Density + Date	4	-74.98	158.1	0.00	0.169
2	Snag Density + Date	3	-76.11	158.3	0.20	0.152
3	Stand Age + Snag Density + Habitat5km + Date	5	-74.13	158.5	0.39	0.139
4	Habitat5km + Snag Density + Date	4	-75.48	159.1	1.00	0.102
5	Stand Age x Snag Density + Date	5	-74.96	160.1	2.04	0.061
6	Habitat5km + Date	3	-77.13	160.4	2.25	0.055
7	Stand Age x Habitat5km + Snag Density + Date	6	-74.09	160.5	2.41	0.051
8	Stand Age x Snag Density + Habitat5km + Date	6	-74.11	160.5	2.43	0.050
9	Date	2	-78.30	160.6	2.54	0.047
10	Stand Age + Habitat5km + Date	4	-76.38	160.9	2.82	0.041
11	Stand Age + Date	3	-77.88	161.9	3.75	0.026
12	Lg Snag Density + Habitat5km + Date	4	-77.06	162.3	4.17	0.021
13	Lg Snag Density + Date	3	-78.18	162.5	4.35	0.019
14	Stand Age + Lg Snag Density + Habitat5km + Date	5	-76.13	162.5	4.39	0.019
15	Stand Age x Habitat5km + Date	5	-76.38	163.0	4.89	0.015
16	Stand Age + Lg Snag Density + Date	4	-77.52	163.2	5.09	0.013
17	Stand Age x Lg Snag Density + Habitat5km + Date	6	-75.97	164.3	6.15	0.008
18	Stand Age x Habitat5km + Lg Snag Density + Date	6	-76.12	164.6	6.45	0.007
19	Stand Age x Lg Snag Density	5	-77.52	165.3	7.17	0.005
20	Null	1	-83.28	168.6	10.47	0.001

Table A1.3. Comparison of all generalized linear models used to determine the relationship between Southeastern American Kestrel nest productivity and environmental covariates. We compared models using log-likelihood (LL), Akaike’s Information Criterion corrected for small sample sizes (AICc), and AICc weights. We also report the number of parameters (K) and model differences (Δ AICc). Date is the incubation initiation date. Large (Lg) snag density is snags ≥ 25 cm dbh. Habitat is the amount of early successional sand pine scrub ≤ 15 years old within 5 km of the nest. Nests were located in Ocala National Forest, Florida, USA, and monitored from March to August, 2018–2019.

	Model	K	LL	AICc	Δ AICc	Weight
1	Date	2	-86.99	178.2	0.00	0.256
2	Null	1	-88.65	179.4	1.17	0.143
3	Habitat5km + Date	3	-86.77	180.0	1.80	0.104
4	Snag Density + Date	3	-86.91	180.3	2.08	0.091
5	Lg Snag Density + Date	3	-86.91	180.3	2.09	0.090
6	Stand Age + Date	3	-86.98	180.4	2.23	0.084
7	Habitat5km + Lg Snag Density + Date	4	-86.70	182.2	3.99	0.035
8	Habitat5km + Snag Density + Date	4	-86.72	182.2	4.03	0.034
9	Stand Age + Habitat5km + Date	4	-86.77	182.3	4.13	0.033
10	Stand Age + Snag Density + Date	4	-86.90	182.6	4.39	0.029
11	Stand Age + Lg Snag Density + Date	4	-86.90	182.6	4.40	0.028
12	Stand Age x Habitat5km + Date	5	-86.11	183.4	5.24	0.019
13	Stand Age + Lg Snag Density + Habitat5km + Date	5	-86.69	184.6	6.40	0.010
14	Stand Age + Snag Density + Habitat5km + Date	5	-86.71	184.6	6.44	0.010
15	Stand Age x Lg Snag Density + Date	5	-86.90	185.0	6.81	0.009
16	Stand Age x Snag Density + Date	5	-86.90	185.0	6.82	0.008
17	Stand Age x Habitat5km + Snag Density + Date	6	-86.08	185.9	7.71	0.005
18	Stand Age x Habitat5km + Lg Snag Density + Date	6	-86.11	186.0	7.76	0.005
19	Stand Age x Lg Snag Density + Habitat5km + Date	6	-86.62	187.0	8.80	0.003
20	Stand Age x Snag Density + Habitat5km + Date	6	-86.71	187.2	8.96	0.003

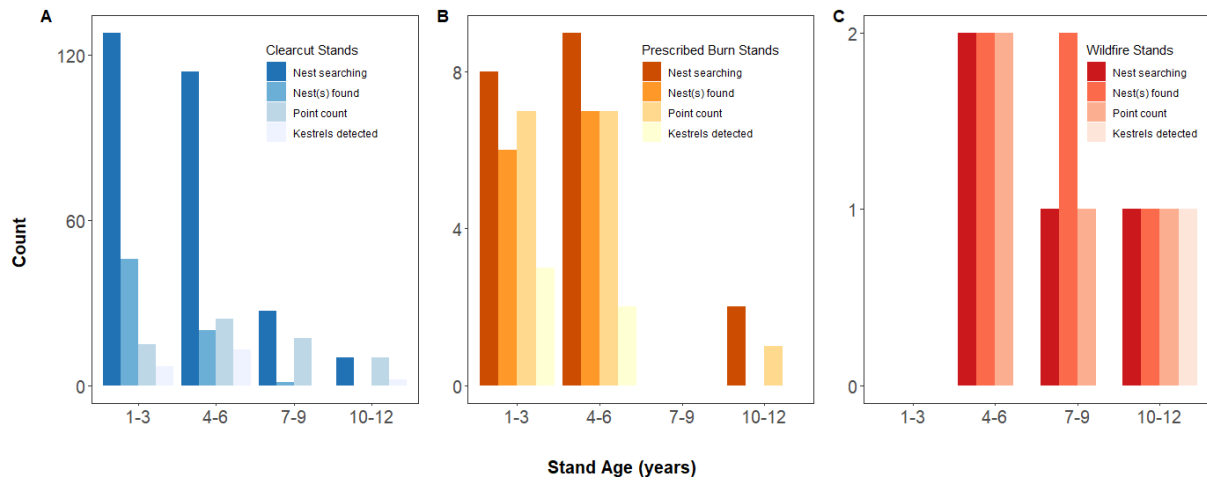


Fig. A1.1. Comparison of counts of stands where nest searching occurred, nests found, stands with point counts, and stands with kestrels detected, grouped by stand age and treatment: A) clearcut, B) prescribed burn (preceded by clearcut), and C) wildfire. All point count and nest searching surveys were conducted during the 2018–2019 breeding seasons in Ocala National Forest, Florida, USA. Stand age is defined as the number of years since the stand was cut or burned. No kestrels were detected in stands >10 years old.