SUPPLEMENTAL INFORMATION

VARIATION IN SEASONAL DETECTION PROBABILITY AND SITE ABUNDANCE OF POPULATIONS OF *ANEIDES AENEUS* AND *A. CARYAENSIS* IN NORTH CAROLINA, USA

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TABLE S1. Candidate Green Salamander (*Aneides aeneus*) and Hickory Nut Gorge Green Salamander (*Aneides caryaensis*) detection probability models for 2016 in North Carolina, USA, ranked by quasi-likelihood Akaike information criterion corrected for sample size (QAICc) and adjusted for overdispersion by chat = 1.63. Naïve or null model is indicated by (.), and λ represents average abundance models. nPars represents the number of parameters included in the model. Symbol W_i represents the model weight, and W_c represents the cumulative weight.

Model	nPars	QAICc	ΔQAICc	W_i	W_c
λ(.)p(Season + Air Temp)	6	517.89	0	0.41	0.41
λ(.)p(Season + Air RH + Air Temp)	7	519.2	1.31	0.21	0.63
λ(.)p(Season + Air RH + Air Temp + Season x Air RH)	9	519.47	1.58	0.19	0.82
λ(.)p(Season + Air Temp + Air Temp^2)	7	520.93	3.04	0.09	0.91
λ(.)p(Season + Air Temp + Season x Air Temp)	8	522.03	4.14	0.05	0.96
λ(.)p(Season + Air RH + Air Temp + Air Temp^2 + Season x Air RH)	10	523.2	5.31	0.03	0.99
λ(.)p(Season)	5	526.28	8.39	0.01	0.99
λ(.)p(Season + Air RH + Season x Air RH)	8	527.33	9.44	0	1
λ(.)p(Season + Air RH)	6	528.67	10.78	0	1
λ(.)p(Days Dry)	4	562.3	44.41	0	1
λ(.)p(Air RH)	4	564.67	46.78	0	1
λ(.)p(sqrt(Air RH))	4	566.39	48.5	0	1

$\lambda(.)p(\text{Air Temp} + \text{Air Temp}^2)$	5	569.61	51.72	0	1
$\lambda(.)p(.)$	3	569.99	52.1	0	1
$\lambda(.)p(\text{Start Time})$	4	571.19	53.3	0	1
$\lambda(.)p(\text{Air Temp})$	4	571.3	53.41	0	1
$\lambda(.)p(\text{JDate})$	4	571.68	53.79	0	1
$\lambda(.)p(\text{JDate} + \text{JDate}^2)$	5	648.55	130.66	0	1

TABLE S2. Candidate Green Salamander (*Aneides aeneus*) and Hickory Nut Gorge Green Salamander (*Aneides caryaensis*) detection probability models for 2017 in North Carolina, USA, ranked by quasi-likelihood Akaike information criterion corrected for sample size (QAICc) and adjusted for overdispersion by chat=1.39. Naïve or null model is indicated by (.), and λ represents average abundance models. nPars represents the number of parameters included in the model. Symbol W_i represents the model weight, and W_c represents the cumulative weight.

Model	nPars	QAICc	ΔQAICc	W_i	W_c
λ(.)p(Season + Air RH + Air Temp + Air Temp^2 + Season x Air RH)	10	623.43	0	0.41	0.41
λ(.)p(Season + Air RH + Season x Air RH)	8	623.94	0.52	0.32	0.73
λ(.)p(Season + Air RH + Air Temp + Season x Air RH)	9	624.79	1.37	0.21	0.94
λ(.)p(Season + Air Temp + Air Temp^2)	7	627.81	4.38	0.05	0.99
λ(.)p(Season + Air Temp)	6	632.07	8.64	0.01	0.99
λ(.)p(Season + Air Temp + Season x Air Temp)	8	633.1	9.68	0	1
λ(.)p(Season + Air RH + Air Temp)	7	634.1	10.67	0	1
λ(.)p(Season)	5	635.21	11.79	0	1
λ(.)p(Season + Air RH)	6	635.96	12.53	0	1
λ(.)p(JDate)	4	641.06	17.64	0	1

$\lambda(.)p(\text{Air Temp} + \text{Air Temp}^2)$	5	645.46	22.03	0	1
$\lambda(.)p(\text{sqrt}(\text{Air RH}))$	4	651.12	27.69	0	1
$\lambda(.)p(\text{Air RH})$	4	651.16	27.73	0	1
$\lambda(.)p(\text{Start Time})$	4	651.75	28.32	0	1
$\lambda(.)p(.)$	3	651.95	28.52	0	1
$\lambda(.)p(\text{Air Temp})$	4	653.92	30.5	0	1
$\lambda(.)p(\text{Days Dry})$	4	654.22	30.8	0	1
$\lambda(.)p(\text{JDate} + \text{JDate}^2)$	5	750	126.57	0	1

TABLE S3. Candidate Green Salamander (*Aneides aeneus*) and Hickory Nut Gorge Green Salamander (*Aneides caryaensis*) abundance models (λ) and best performing detection probability model (Season + Air Temp) for 2016 in North Carolina, USA, ranked by quasi-likelihood Akaike information criterion corrected for sample size (QAICc). nPars represents the number of parameters included in the model. Symbol W_i represents the model weight, and W_c represents the cumulative weight.

Model	nPars	QAICc	ΔQAICc	W_i	W_c
λ(Nest Rock)	7	471.41	0	0.33	0.33
λ(Eastness + Nest Rock)	8	472.53	1.12	0.19	0.52
λ(Rock Area + Nest Rock)	8	472.85	1.44	0.16	0.69
λ(Eastness + Nest Rock + Eastness x Nest Rock)	9	473.48	2.07	0.12	0.80
λ(Northness + Nest Rock)	8	473.59	2.18	0.11	0.92
λ(Mean DBH + Nest Rock)	8	474.38	2.96	0.08	0.99
λ(Number Crevices + Nest Rock)	11	479.03	7.62	0.01	1
λ(Mean DBH + Rock Area)	8	499.45	28.03	0	1
λ(Eastness + Rock Area)	8	507.34	35.93	0	1
λ(Rock Area)	7	510.32	38.91	0	1
λ(Mean DBH + Number Crevices)	11	510.92	39.51	0	1
λ(Rock Area + Number Crevices)	11	513.75	42.33	0	1
λ(Number Crevices)	10	514.51	43.1	0	1
λ(Eastness + Number Crevices)	11	516.33	44.92	0	1
λ(Eastness)	7	517.38	45.97	0	1

$\lambda(.)$	6	517.89	46.48	0	1
λ(Mean DBH)	7	519.44	48.02	0	1
λ(Canopy Height)	7	520.58	49.17	0	1
λ(Stem Count)	7	520.63	49.22	0	1
λ(Northness)	7	520.67	49.26	0	1
λ(Canopy Cover 30 m)	7	520.67	49.26	0	1
λ(Spatial Area)	8	522.13	50.72	0	1
λ(Elevation)	7	681.95	210.54	0	1
λ(Elevation + Elevation^2)	8	684.92	213.51	0	1

TABLE S4. Candidate Green Salamander (*Aneides aeneus*) and Hickory Nut Gorge Green Salamander (*Aneides caryaensis*) abundance models (λ) and best performing detection probability model (Season + Air RH + Air Temp + Air Temp^2 + Season x Air RH) for 2017 in North Carolina, USA, ranked by quasi-likelihood Akaike information criterion corrected for sample size (QAICc). nPars represents the number of parameters included in the model. Symbol W_i represents the model weight, and W_c represents the cumulative weight.

Model	nPars	QAICc	ΔQAICc	W_i	W_c
λ(Eastness + Nest Rock + Eastness x Nest Rock)	13	566.92	0	0.31	0.31
λ(Rock Area + Nest Rock)	12	567.76	0.84	0.2	0.51
λ(Nest Rock)	11	568.04	1.12	0.18	0.69
λ(Eastness + Nest Rock)	12	568.19	1.28	0.16	0.85
λ(Mean DBH + Nest Rock)	12	569.55	2.63	0.08	0.94
λ(Northness + Nest Rock)	12	570.28	3.36	0.06	0.99
λ(Number Crevices + Nest Rock)	15	575.01	8.09	0.01	1
λ(Eastness + Rock Area)	12	609.04	42.13	0	1
λ(Mean DBH + Rock Area)	12	609.78	42.86	0	1
λ(Rock Area)	11	611.27	44.35	0	1
λ(Rock Area + Number Crevices)	15	613.44	46.52	0	1
λ(Number Crevices)	14	618.79	51.88	0	1
λ(Mean DBH + Number Crevices)	15	620.21	53.29	0	1
λ(Eastness + Number Crevices)	15	620.74	53.82	0	1

λ(Eastness)	11	622.18	55.26	0	1
λ(.)	10	623.43	56.51	0	1
λ(Canopy Height)	11	625.91	58.99	0	1
λ(Spatial Area)	12	625.92	59.01	0	1
λ(Stem Count)	11	625.96	59.04	0	1
λ(Canopy Cover 30 m)	11	626.14	59.23	0	1
λ(Northness)	11	626.38	59.46	0	1
λ(Mean DBH)	11	626.47	59.55	0	1
λ(Elevation)	11	780.47	213.55	0	1
λ(Elevation + Elevation^2)	12	783.73	216.81	0	1

TABLE S5. Summary of continuous Green Salamander (*Aneides aeneus*) and Hickory Nut Gorge Green Salamander (*Aneides caryaensis*) site covariates collected in the field or derived from a GIS, all sites pooled (n = 57), 2016–2017, in North Carolina, USA. Both aspect terms are presented in a scale of -1 to 1, where 1 = due east or due north. DBH = diameter at breast height.

Covariate	Min	Max	Mean ± SD
Elevation (m)	514.20	1024.43	845 ± 334.22
Rock Area (m²)	0.9	100	16.83 ± 25.11
Canopy Cover (%) within 30 m	41.33	98.00	89.56 ± 9.47
Canopy Height (m) within 30 m	4.38	37.5	19.54 ± 8.66
Stem Count within 5 m	2	17	8.6 ± 4.05
Stem Mean DBH (cm) within 5 m	14.6	46.08	23.15 ± 7.45
Eastness	-1	1	-0.18 ± 0.70
Northness	-1	0.96	-0.22 ± 0.66