

Garabedian, J. E., Moorman, C. E., Peterson, M. N. and Kilgo, J. C. 2019. Neighboring group density is more important than forest stand age to a threatened social woodpecker population. – Wildlife Biology 2019: wlb.00574

Appendix 1

Table A1. Summary of generalized additive mixed model output for red-cockaded woodpecker fledgling production on the Savannah River Site, SC, between 1985 and 2017. Colons denote interaction terms.

Model terms				
<u>(a) Parametric terms</u>	β	<u>SE</u>	<u>t-value</u>	<u>p-value</u>
(Intercept)	1.76	0.072	24.2	< 0.001
<u>(b) Smoothed terms</u>	<u>EDF^a</u>	<u>Ref DF^b</u>	<u>F-value</u>	<u>p-value</u>
Year ^c	15.0	15.0	1.9	0.021
Group size in year <i>t</i>	2.5	3.3	35.6	< 0.001
Sum neighboring group size < 800 m in year <i>t</i>	1.0	1.0	34.6	< 0.001
Sum active clusters < 800 m in Year <i>t</i> -1	1.0	1.1	8.5	0.003
Average forest stand age < 800 m	1.0	1.0	0.4	0.501
Average forest stand age < 800 m : Group size in year <i>t</i>	8.3	35.0	0.9	0.005
Average forest stand age < 800 m : Sum neighboring group size < 800 in year <i>t</i>	5.6	116.0	0.1	0.018
Average forest stand age < 800 m : Sum active groups < 800 in year <i>t</i> -1	16.5	53.0	2.9	< 0.001

^a EDF = effective degrees of freedom; reflects the amount of smoothing applied to a covariate, where larger values indicate greater smoothing. Values of 1.0 indicate a linear effect.

^b Ref DF = the reference degrees of freedom used for hypothesis tests

^c The degrees of freedom for the smoothed term Year was fixed at 16

Table A2. Summary of generalized additive mixed model output for red-cockaded woodpecker group size on the Savannah River Site, SC, between 1985 and 2017. Colons denote interaction terms.

Model terms				
<u>(a) Parametric terms</u>	<u>β</u>	<u>SE</u>	<u>t-value</u>	<u>p-value</u>
(Intercept)	2.54	0.07	34.4	< 0.001
<u>(a) Smooth terms</u>	<u>EDF^a</u>	<u>Ref DF^b</u>	<u>F-value</u>	<u>p-value</u>
Year ^c	15.0	15.0	7.8	< 0.001
Fledgling production in year t-1	3.1	3.9	27.2	< 0.001
Sum neighboring group size < 800 m in year t	3.8	4.6	3.1	0.008
Sum active clusters < 800 m in year t-1	2.0	2.6	8.6	< 0.001
Average forest stand age < 800 m	7.7	8.6	1.1	0.221
Average forest stand age < 800 m : Fledgling production in year t-1	2.5	4.7	1.9	0.072
Average forest stand age < 800 m : Sum neighboring group size < 800 in year t	0.77	66.0	0.025	0.351
Average forest stand age < 800 m : Sum active groups < 800 in year t-1	5.4	9.7	1.6	0.655

^a EDF = effective degrees of freedom; reflects the amount of smoothing applied to a covariate, where larger values indicate greater smoothing.

^b Ref DF = the reference degrees of freedom used for hypothesis tests

^c The degrees of freedom for the smoothed term Year was fixed at 16

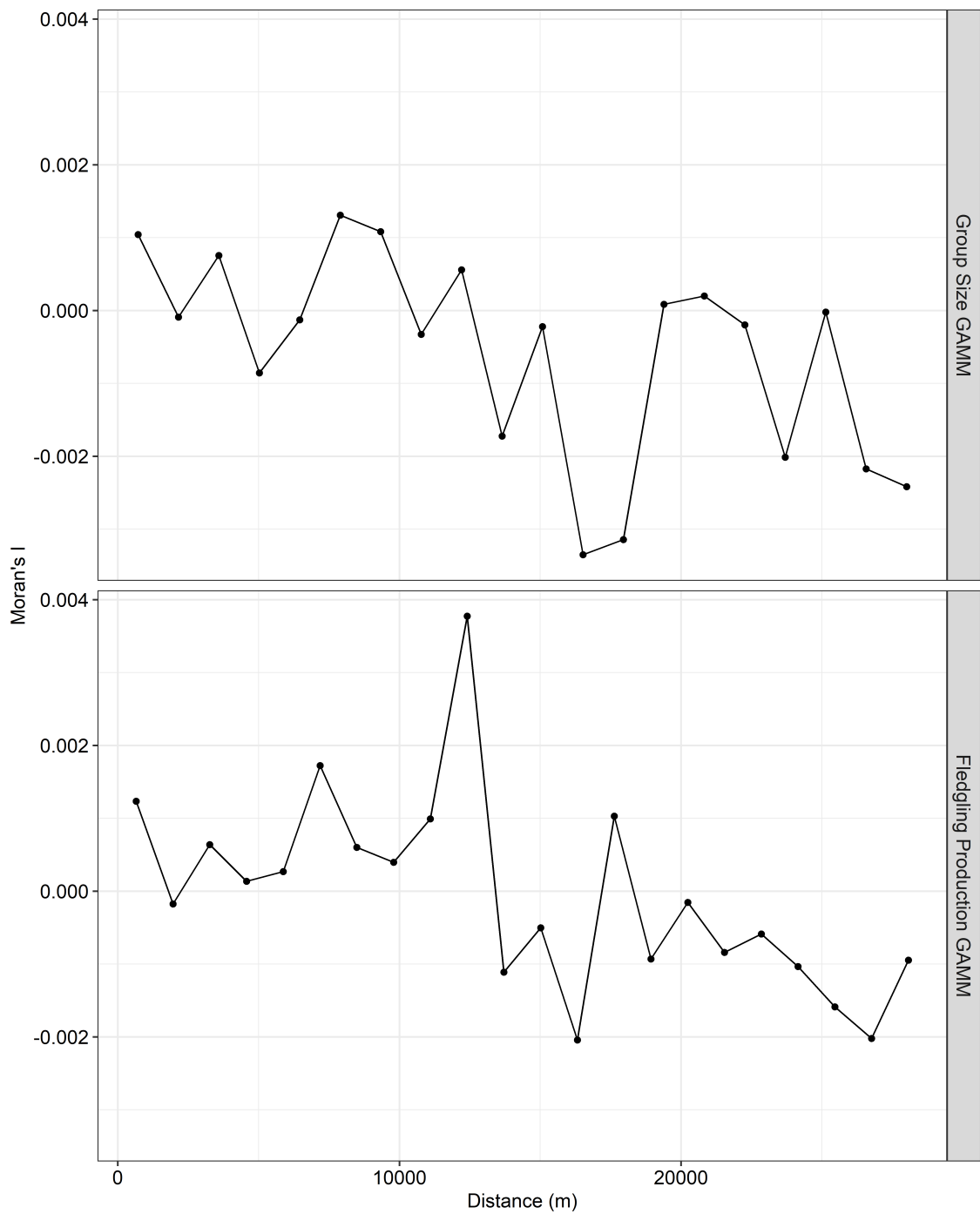


Figure A1. Moran I estimates assessing spatial autocorrelation in fledgling production and group size generalized additive mixed model (GAMM) residuals at 22 distance bands between 500 and 20000 meters.