

Ecography

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Supplementary material

Appendix 1. Results of generalized linear mixed models of beetle abundances within the Hope River Forest Fragmentation Project. For each of six species, six models were compared using AICc: Two patch-matrix models (one with generic habitat type [forest, grassland, edge], patch attributes, and landscape attributes; one with generic habitat type and patch attributes), a continuum model (containing site-level environmental attributes), and three hybrid models (environmental attributes with patch, landscape, or both attributes). Models within 4 AICc points of the top models are considered supported and highlight with bold text. For instances where models did not converge, results of a reduced mixed model (containing site-level averages or sums) are provided in the text. Pseudo r^2 values were not calculable for the generalist herbivore because the intercept-only model did not converge.

Species	Habitat affinity	Trophic level	Model	Pseudo r^2	K	AICc (Δ)	AIC cWt	LL
<i>Mecodema rugiceps</i> ; Carabidae	Forest-specialist	Carnivore						
			Continuum- Landscape	0.12	24	248.65(0)	0.97	-120.23
			Continuum	0.08	18	257.54(8.89)	0.01	-126.81
			Continuum-Patch	0.08	20	257.91(9.25)	0.01	-125.64

			Continuum-Patch-Landscape	0.09	24	258.85(10.2)	0.01	-125.33
			Patch-matrix-Landscape	0.05	18	265.14(16.49)	0	-129.62
			Patch-matrix (no landscape)	0.02	12	272.84(24.19)	0	-134.27
			Intercept		4	277.37(28.72)		-137.11
<i>Ctenognathus helmsi</i> ; Carabidae	Grassland-specialist	Carnivore						
			Continuum-Landscape	0.16	24	223.15(0)	0.95	-107.48
			Continuum	0.13	18	229.24(6.09)	0.05	-111.65
			Patch-matrix-Landscape	0.07	12	244.94(21.79)	0	-119.52
			Patch-matrix (no landscape)	0.05	18	248.94(25.79)	0	-122.28

			Intercept		4	260.47(37.32)	0	-128.63
			Continuum-Patch- Landscape	Did not converge				
			Continuum-Patch	Did not converge				
<i>Mecyclothorax rotundicollis</i> ; Carabidae	Generalist	Carnivore						
			Continuum	0.10	18	245.44(0)	0.36	-119.77
			Continuum-Patch	0.10	20	245.71(0.27)	0.32	-119.55
			Continuum-Patch- Landscape	0.10	24	247.05(1.61)	0.16	-119.47
			Continuum- Landscape	0.10	24	247.05(1.61)	0.16	-119.47
			Patch-matrix (no landscape)	0.05	12	255.94(10.50)	0	-125.78
			Intercept		4	269.17(23.74)	0	-133.02

			Patch-matrix-Landscape	-0.12	18	275.34(29.9)		-134.69
<i>Sericospilus advena</i> ; Scarabaeidae	Generalist	Herbivore						
			Continuum-Landscape	-	24	288.40(0)	1	-130.21
			Patch-matrix (no landscape)	-	12	311.04(42.49)	0	-153.37
			Continuum-Patch-Landscape	Did not converge				
			Continuum-Patch	Did not converge				
			Continuum	Did not converge				
			Patch-matrix-Landscape	Did not converge				
			Intercept	Did not converge				
<i>Sericospilus</i>	Forest-specialist	Herbivore						

<i>aenealis</i> ; Scarabaeidae								
			Continuum-Patch	0.11	20	344.11(0)	1	-168.77
			Continuum-Landscape	0.05	24	367.05(22.95)	0	-179.47
			Intercept		4	380.57(36.47)	0	-188.72
			Continuum	-0.18	18	449.74(105.63)	0	-221.88
			Patch-matrix- Landscape	-0.23	18	472.04(127.93)	0	-233.06
			Continuum-Patch- Landscape	Did not converge				
			Patch-matrix (no landscape)	Did not converge				
<i>Pyronota</i> sp.; Scarabaeidae	Grassland-specialist	Herbivore						
			Continuum-Patch- Landscape	0.06	24	883.45(0)	0.69	-437.65

			Continuum- Landscape	0.06	24	885.05(1.6)	0.31	-438.44
			Patch-matrix	0.05	12	897.74(14.29)	0	-446.72
			Continuum	0.05	18	898.84(15.39)	0	-446.46
			Patch-matrix- Landscape	0.04	18	900.44(16.99)	0	-447.23
			Continuum-Patch	0.04	20	906.01(22.55)		-449.72
			Intercept		4	938.47(55.02)	0	-467.65

Appendix 1. Results of generalized linear mixed models of beetle abundances within the Wog Wog fragmentation experiment. For each of six species, three models were compared using AICc: 1) A patch-matrix model (sample location: *Eucalyptus* forest fragment, uncleared continuous *Eucalyptus* forest, pine plantation), a continuum model (containing environmental attributes), and a hybrid model (sample location and environmental attributes). Models within 4 AICc points of the top models are considered supported and highlight with bold text. Note: codes are provided for species that have yet to be assigned formal taxonomic identities.

Species	Habitat affinity	Trophic level	Model	Pseudo r^2	K	AICc (Δ)	AICcWt	LL
COL131; Staphylinidae	<i>Eucalyptus</i> forest-specialist	Carnivore						
			Continuum	0.25	18	273.04(0)	0.77	-116.49
			Hybrid	0.25	19	275.48(2.44)	0.23	-116.47
			Patch-matrix	0.08	5	296.00(22.95)	0	-142.83
			Intercept		3	315.36(42.32)	0	-154.61
COL411; Staphylinidae	<i>Eucalyptus</i> forest-specialist	Carnivore						
			Hybrid	0.23	13	145.14(0)	0.87	-58.52

			Patch- matrix	0.08	5	150.25(5.11)	0.07	-69.96
			Continuum	0.02	12	150.65(5.51)	0.06	-62.43
			Intercept		3	157.76(12.62)	0.00	-75.82
<i>Aleochara</i> sp. (COL041); Staphylinidae	Generalist	Carnivore						
			Continuum	0.09	18	1379.57(0)	0.54	-669.78
			Hybrid	0.09	19	1379.87(0.30)	0.46	-668.66
			Patch- matrix	0.01	5	1458.12(78.56)	0	-723.90
			Intercept		3	1471.56(91.99)	0	-732.71
<i>Mandalotus</i> sp. (COL118); Curculionidae	<i>Eucalyptus</i> forest-specialist	Herbivore						
			Hybrid	0.12	19	526.35(0)	0.54	-241.90

			Continuum	0.11	18	526.67(0.31)	0.46	-243.30
			Patch- matrix	0.04	5	537.30(10.95)	0	-263.48
			Intercept		3	552.90(26.55)	0	-273.39
COL125; Curculionidae	Generalist	Xylem feeder						
			Continuum	0.23	21	511.15(0)	0.53	-231.78
			Hybrid	0.24	22	511.36(0.21)	0.47	-230.60
			Intercept		3	609.13(97.97)	0	-301.50
			Patch- matrix	0.005	5	610.59(99.43)	0	-300.13
<i>Nargomorphus globulus</i> ; Leiodidae	Generalist	Detritus feeder						
			Continuum	0.14	18	2074.93(0)	0.76	- 1017.43
			Hybrid	0.14	19	2077.19(2.26)	0.24	-

								1017.32
			Patch- matrix	0.003	5	2364.54(289.61)	0	- 1177.10
			Intercept		3	2367.41(292.47)	0	- 1180.64