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Kadowaki, K., Leschen, R. A. B. and Beggs, J. R. 2011. Competition–colonization dynamics of spore-feeding beetles on the long-lived bracket fungi *Ganoderma* in New Zealand native forest. – Oikos 120: 776–786.

Appendix 1

We used larval density for estimating population parameters. Logically, larval density can be decreased not only by competition but also by departures from the patch for pupation. If most of the extinction events of larval populations occurred because of the generation gaps, then our estimates may not reflect the effects of competition, but we believe the case to be very unlikely. Although the egg-to-pupa development time of *Zearagytodes maculifer* is about four weeks (Kadowaki et al. 2011), beetles tended to breed repeatedly within the patch in overlapping generations as long as a patch was continually suitable. Furthermore, larval populations are not directly affected by the density-dependent emigration that could potentially occur in adult populations. Therefore, larval density can be used as an advantageous indicator of patch-level populations for modelling local dynamics, even though several crucial ecological factors were not included in the models (e.g. the age structure of populations and recruitment of adults).

Appendix 2

Parameter estimates of the six fitted models of local spore-feeding beetle dynamics. See Table 1 for model formulae, and Table 2 for the key results.

Zearagytodes maculifer

Model	Parameter	Coefficient	SE	t	p	Residual deviance	DF	AIC	ΔAIC
1	r_z	0.289	0.14	2.068	0.04	298.12	160	568.98	4.11
	$r_z\alpha_{zh1}$	–0.175	0.061	–2.870	0.005				
	$r_z\alpha_{zh2}$	–0.059	0.419	–0.1410	0.888				
2	r_z	0.812	0.26	3.131	0.002	291.35	160	565.24	0.37
	$r_z\alpha_{zh1}$	–0.765	0.255	–3.003	0.003				
	$r_z\alpha_{zh2}$	0.101	0.447	0.225	0.822				
3	r_z	0.418	0.181	2.314	0.022	295.81	160	567.72	2.85
	$r_z\alpha_{zh1}$	–0.011	0.004	–2.947	0.004				
	$r_z\alpha_{zh2}$	–0.002	0.048	–0.034	0.973				
4	r_z	0.235	0.141	1.672	0.097	288.6	158	567.69	2.82
	$r_z\alpha_{zh1}$	–0.036	0.088	–0.415	0.679				
	$r_z\alpha_{zh2}$	0.268	0.49	0.547	0.585				
	$r_z\beta_{zh1}$	–0.001	0.0006	–1.684	0.094				
	$r_z\beta_{zh2}$	–0.044	0.035	–1.228	0.221				
5	r_z	0.232	0.14	1.663	0.098	287.14	159	564.87	0.0
	$r_z\alpha_{zh1}$	–0.147	0.061	–2.398	0.018				
	$r_z\alpha_{zh2}$	–0.022	0.413	–0.053	0.958				
	$r_z\beta_{zz}$	–0.002	0.0009	–2.465	0.015				
6	r_z	0.341	0.145	2.357	0.012	293.8	158	570.6	5.73
	$r_z\alpha_{zh1}$	–0.321	0.122	–2.630	0.009				
	$r_z\alpha_{zh2}$	–0.682	1.35	–0.507	0.613				
	$r_z\beta_{h1h1}$	0.000062	0.00044	1.422	0.157				
	$r_z\beta_{h2h2}$	0.00396	0.0081	0.491	0.624				

Holopsis sp. 1

Model	Parameter	Coefficient	SE	t	p	Residual deviance	DF	AIC	ΔAIC
1	r_{h1}	0.131	0.107	1.22	0.227	348.97	65	312.19	4.55
	$r_{h1}\alpha_{h1z}$	–0.609	0.676	–0.901	0.371				
	$r_{h1}\alpha_{h2z}$	–0.506	0.714	–0.708	0.481				
2	r_{h1}	1.596	0.72	2.217	0.03	326.41	65	307.64	0.0
	$r_{h1}\alpha_{h1z}$	–1.218	0.601	–2.027	0.047				
	$r_{h1}\alpha_{h2z}$	–0.349	0.808	–0.432	0.667				
3	r_{h1}	0.467	0.319	1.463	0.148	345.42	65	311.49	3.85
	$r_{h1}\alpha_{h1z}$	–0.039	0.048	–0.814	0.419				
	$r_{h1}\alpha_{h2z}$	–0.086	0.083	–1.039	0.302				

4	r_{h1}	0.229	0.158	1.445	0.153	342.91	63	315	7.36
	$r_{h1}\alpha_{h1z}$	–0.987	0.769	–1.283	0.204				
	$r_{h1}\alpha_{h2z}$	–0.503	0.747	–0.674	0.503				
	$r_{h1}\beta_{h1z}$	0.0011	0.0011	1.012	0.315				
	$r_{h1}\beta_{h1h2}$	–0.00012	0.005	–0.023	0.982				
5	r_{h1}	0.322	0.215	1.495	0.14	343.37	64	313.09	5.45
	$r_{h1}\alpha_{h1z}$	–0.781	0.696	–1.121	0.266				
	$r_{h1}\alpha_{h2z}$	–0.546	0.715	–0.764	0.448				
	$r_{h1}\beta_{h1h1}$	0.000076	0.000074	1.022	0.311				
6	r_{h1}	0.141	0.109	1.294	0.2	341.57	63	314.73	7.09
	$r_{h1}\alpha_{h1z}$	–1.926	1.316	–1.463	0.148				
	$r_{h1}\alpha_{h2z}$	0.089	2.398	0.037	0.97				
	$r_{h1}\beta_{zz}$	0.006	0.005	1.164	0.249				
	$r_{h1}\beta_{h2h2}$	–0.0032	0.014	–0.227	0.822				

Holopsis sp. 2

Model	Parameter	Coefficient	SE	t	p	Residual deviance	DF	AIC	ΔAIC
1	r_{h2}	–0.440	0.439	–1.002	0.323	121.02	34	156.85	11.56
	$r_{h2}\alpha_{h2z}$	–0.764	0.731	–1.045	0.304				
	$r_{h2}\alpha_{h2h1}$	0.085	0.114	0.744	0.462				
2	r_{h2}	1.829	0.925	1.978	0.056	90.131	34	145.94	0.65
	$r_{h2}\alpha_{h2z}$	–2.898	0.807	–3.592	0.001				
	$r_{h2}\alpha_{h2h1}$	0.118	0.45	0.262	0.795				
3	r_{h2}	–0.678	0.579	–1.171	0.25	120.08	34	156.56	11.27
	$r_{h2}\alpha_{h2z}$	–0.056	0.069	–0.810	0.424				
	$r_{h2}\alpha_{h2h1}$	0.0059	0.0068	0.862	0.395				
4	r_{h2}	–0.677	0.372	–1.818	0.078	79.47	32	145.29	0.0
	$r_{h2}\alpha_{h2z}$	0.291	0.703	0.414	0.682				
	$r_{h2}\alpha_{h2h1}$	0.714	0.241	2.961	0.006				
	$r_{h2}\beta_{h2z}$	–0.127	0.044	–2.890	0.007				
	$r_{h2}\beta_{h2h1}$	–0.013	0.007	–2.037	0 .050				
5	r_{h2}	–0.981	0.437	–2.247	0.031	95.7	33	150.16	4.87
	$r_{h2}\alpha_{h2z}$	–0.235	0.684	–0.344	0.733				
	$r_{h2}\alpha_{h2h1}$	0.144	0.105	1.367	0.181				
	$r_{h2}\beta_{h2h2}$	–0.0101	0.003	–2.955	0.006				
6	r_{h2}	–0.146	0.48	–0.305	0.762	108.18	32	156.7	11.41
	$r_{h2}\alpha_{h2z}$	–328.000	148	–2.218	0.034				
	$r_{h2}\alpha_{h2h1}$	0.065	0.273	0.236	0.815				
	$r_{h2}\beta_{zz}$	0.012	0.006	1.949	0.06				
	$r_{h2}\beta_{h1h1}$	0.0000057	0.000079	0.072	0.943				