Ecography

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Supplementary material

Table S1. DAR_{slope} (±SE) for butterflies (empty spaces indicate that the species was not present in sufficient number for analysis. For details on sampling procedure see Table 1.

Species	Habitat[a]		Mobility		Agricultural matrix[b]							Forest matrix[b]			
	Agr	For	Wing span[c]	Rank[d]	Be1 (2–13 ha)	Bo1 (2–13 ha)	K (0.1–5 ha)	O1 (0.5–10 ha)	O2 (1.5–16 ha)	P2 (0.4–5 ha)	P1 (0.1–3 ha)	Be2 (3–8 ha)	Bo2 (2–16 ha)	P3 (0.2–3 ha)	P4 (0.1–6 ha)
Family Hesperiidae															
Carterocephalus palaemon	G		25	3			–0.22±0.11								
C. silvicola		G	25	2										–2.54±0.81	
Erynnis tages	S	S	27	3			0.14±0.15					0.26±0.97	–1.32±1.65		
Hesperia comma	S	S	30.5	3	–2.16±0.71			–0.27±0.73	1.20±1.03			1.85±0.90			
Ochlodes sylvanus	G	S	30	4	–1.15±0.32	–1.20±0.81	–0.18±0.13	–0.31±0.36	–1.70±0.64	–0.93±0.41		–1.02±0.81	–0.74±0.70	–0.04±0.28	
Pyrgus malvae	G	S	23	3			0.15±0.11					1.60±0.69	–0.94±1.37	0.27±0.55	
Thymelicus acteon	S		24	4			0.00±0.21								
T. lineola	G	S	25	4	–0.08±0.46	–0.58±0.55	–0.20±0.37	0.03±0.25	–0.77±0.49	–0.17±0.43	0.07±0.21	–1.67±1.37	–0.28±0.70	0.79±0.53	–0.08±0.23
T. sylvestris	G		28	3			0.12±0.2								
Family Lycaenidae															
Aricia agestis	S		25	4			0.22±0.29								
A. artaxerxes	S	S	27.5	3	–0.64±0.77					–0.68±0.62			–1.33±1.49	–0.27±0.76	
Callophrys rubi	S	G	23	4			–0.13±0.2					–2.07±1.00	–0.57±1.80	–0.37±0.38	
Celastrina argiolus	G		27	5			0.15±0.35								
Cupido minimus	S		23	2			–0.11±0.55								
Hamaeris lucina	G		31	2			–0.15±0.22								
Lycaena hippothoe	S	S	30.5	3	0.20±0.35			0.30±0.60	–1.29±0.69	–0.23±0.75		–0.77±1.76		0.16±0.66	
L. phlaeas	S	S	26.5	4	–1.22±0.48	0.19±1.2	0.28±0.31	0.21±0.22	–0.21±0.38	0.67±0.62	–1.08±0.57	–0.32±0.66	–1.35±1.60	0.51±0.45	–0.50±0.62
L. virgaureae	S	S	27	4	0.60±0.50			1.00±0.96	–0.53±0.95	–0.44±0.46	–0.18±0.32	0.12±0.98	0.00±1.19	0.14±0.36	0.27±0.51

Plebejus argus	G		22.5	3			0.52±0.44								
P. idas	S	G	24.5	3				0.85±0.65	0.07±0.89			–1.68±1.00			
P. optilete	S	G	25.5	3										–1.25±0.64	0.31±0.55
Polyommatus amandus	S	S	31	4	0.04±0.46	–1.3±1.53		–0.26±0.93		–0.39±0.54	–0.33±0.46	–0.64±0.97	–0.30±0.77	–0.21±0.45	
P. coridon	S		33	4			0.38±0.22								
P. icarus	S	S	27.5	4	–0.62±0.38	0.02±0.45	0.31±0.09	–0.08±0.25	0.18±0.42	0.36±0.60		–2.39±0.88	–0.24±0.56	0.77±0.68	
P. semiargus	S	S	29	4	–0.80±0.69	–0.13±0.62		–1.04±0.86		–0.41±0.48	–0.43±0.58	–0.07±1.00	0.01±0.53	0.05±0.52	–2.77±0.72
Family Nymphalidae															
Aglais urticae	G	S	48	6	–0.43±0.41	–0.57±0.85	–0.09±0.12	–0.06±0.21	–0.83±0.63	–1.42±0.56	–0.30±0.55	–0.98±0.91	–2.36±0.93	0.22±0.49	
Aphantopus hyperantus	G	S	38.5	3	–0.29±0.29	–0.70±0.64	–0.20±0.20	0.13±0.15	–0.34±0.26	–0.96±0.26	0.04±0.35	–0.41±0.66	–0.21±0.40	0.22±0.20	0.18±0.17
Araschnia levana	G		33.5	5			–0.11±0.12	0.21±0.34	–1.80±0.41						
Argynnis adippe	S	S	53.5	4						–1.84±0.83		–1.41±1.10		0.52±0.36	
A. aglaja	S	S	51.5	3	0.34±0.70	–1.43±1.41	–1.10±0.85	–0.24±0.60	–0.63±0.69	–1.12±0.52		–0.83±0.55	–0.29±0.68	0.02±0.57	
A. paphia	S	G	62	4	–1.25±1.12		–0.20±0.17	–0.11±0.32	–0.26±0.41			–0.63±0.86	–0.06±1.10		
Boloria euphrosyne	S	G	36	3	–2.48±0.92							–0.31±0.67	–0.23±0.78		
B. selene	S	S	37.5	3	–0.16±0.59	1.02±0.99		0.37±0.56	–0.10±0.49	–1.06±1.17	–0.15±0.35	–0.54±0.97	–1.46±1.83	0.07±0.49	0.43±0.59
Brenthis ino	G	G	37	2	1.09±0.65	0.21±1.43		1.22±1.00		–0.92±0.52		–0.16±1.37	–0.32±0.61	0.17±0.58	
Coenonympha arcania	S	S	37	3	0.16±0.33	–0.98±0.68	–0.08±0.14					–0.27±0.63	–0.13±0.29		
C. glycerion	S	S	31	2						–0.07±0.37	0.20±0.55			0.96±0.54	–0.09±0.44
C. pamphilus	S	S	28	3	–0.15±0.19	0.39±0.38	0.07±0.08	0.07±0.16	0.00±0.35	–0.37±0.90		0.03±0.58	0.76±0.27	–0.83±0.78	
Erebia ligea		G	41	4								–1.75±1.21	–0.88±1.57	–2.27±0.54	
E. medusa	S		38	3			–0.37±0.51								
Inachis io	G	S	53.5	6	0.25±0.45	–1.58±1.18	–0.06±0.11	0.25±0.26	–0.05±0.59	–2.09±0.78	–0.07±0.37	–2.22±1.11	–0.11±1.53	0.22±0.63	
Issoria lathonia	G		45	5				–0.89±0.57							
Lasiommata maera	S	S	42.5	3	–2.78±0.99					–0.95±0.85		–0.07±0.81	–0.64±0.99	–0.76±0.30	
L. megera	S		42.5	4			0.11±0.26	–0.26±0.39							
L. petropolitana		G	38	3										–3.01±1.23	
Maniola jurtina	S	S	41.5	4	0.25±0.48	–0.40±1.36	0.21±0.07	0.22±0.16	–0.29±0.24			–1.79±1.64	0.57±0.68		

Melanargia galathea	G		47.5	3			0.15±0.16							
Melitaea athalia	S	G	35.5	3	–0.65±0.75	1.82±0.58						–1.55±0.59	–0.25±0.69	0.46±0.56
M. aurelia	S		30	3			–0.36±0.4							
Nymphalis antiopa	G	G	67.5	6	–0.38±0.83							–1.34±1.15		–1.35±0.90
Pararge aegeria	G		41.5	4			–0.30±0.13							
Polygonia c-album	G	G	46	6			0.01±0.28			–2.40±1.31		–1.61±1.19	0.66±0.82	–0.94±0.72
Vanessa atalanta	G	G	59.5	9		–1.41±1.48				0.38±0.50				0.11±0.41
V. cardui	G		54	8		0.68±0.91	–0.12±0.31							
Family Pieridae														
Anthocharis cardamines	G	G	39	4		0.08±1.40	–0.19±0.10	0.03±0.45		–0.03±0.51		–1.13±0.82		
Colias alfacarensis	S		43.5	4			1.38±0.93							
Gonepteryx rhamni	S	G	56	6	0.62±0.51	–0.68±1.73	–0.13±0.13	–0.76±0.35	–0.82±0.78	–1.69±0.63	–0.31±0.33	–1.17±0.52	–0.87±1.24	–0.20±0.42
P. brassicae	G	S	57	7	–0.60±0.33		0.07±0.10	–0.01±0.22	–1.71±0.52			–0.83±1.41		
P. napi	G	S	38.5	5	–0.57±0.25	–0.54±0.69	–0.22±0.06	0.02±0.16	–0.64±0.28	–0.10±0.30	0.45±0.34	0.16±0.58	–0.20±0.72	–0.42±0.19	–0.09±0.61
P. rapae	G	S	43.5	6	–0.95±0.52	–0.72±0.98	0.06±0.11	0.19±0.30				–0.92±1.40		
Pontia daplidice		S	41	6						0.58±0.93				

[a]Species were classified as specialists or generalist based on their ability to survive in the matrix, largely depending on the distribution of the larval food plants. In some cases, such as *Urtica* specialists (*Aglais urticae* and *Inachis io*), host plants may occur in forest habitats but these plants are never used as larval resources and *Urtica* specialists are therefore classified as grassland specialists in the forest matrix. These classification may also vary with latitude and the current classification is based on Swedish and Finnish circumstances. [b]Patch networks were classified based on the proportion of agricultural versus forest land within two kilometers from patches, or generally in the patch network. The specific classification varied slightly between studies, but in general networks with <35% agricultural land in the vicinity were classified as situated in a forest matrix wheras networks with at least 50% agricultural land in the vicinity were classified as situated in an agricultural matrix. In the Finnish data set, all patches were in separate patch networks, and patches were then classified to matrix separately. [c]Data (unit mm) from Roine (2000). [d]Mobility ranking according to Bink 1992. The mobility ranking is a subjective ranking into 9 categories (extremly sedentary/very sedentary/sedentary/moderatly sedentary/little sedentary/dispersers/migrating/good migrating/very good migrating) based on north European conditions. Study code: Be1, Bergman et al. 2004; Bo1 and Bo2, Bommarco et al. unpubl., Krauss et al. 2003a, b; Ö1, Öckinger and Smith 2006; Ö2, Öckinger et al. 2006; Be2, Bergman et al. 2008; P3 and P4, Pöyry 2007; P1 and P2, Pöyry et al. 2009b. (range of patch areas given above each column).