Ecography

E6588
Chisholm, C., Lindo, Z. and Gonzalez, A. 2010. Metacommunity diversity depends on connectivity and patch arrangement in heterogeneous habitat networks. – Ecography 33: xxx–xxx.

Supplementary material

Table S1. List of microarthropod morpho-type species collected from moss landscapes.

Major group	Minor group	Morpho-species identity
Order Araneae	Order Araneae	Araneae sp. 1
		Araneae sp. 2
Subclass Acari	Order Mesostigmata	Parazercon sp.
		Zerconidae sp.
		Veigaiidae sp.1
		Veigaiidae sp. 2
		Uropodidae sp. 1
		Uropodidae sp. 2
	Suborder Endeostigmata	*Nanorchestes* sp.
	Suborder Prostigmata	Bdellidae spp.
		Eupodidae spp.
		Rhagidiidae spp.
		Tydeidae spp.
		Trombellidae sp.
		Tarsonimidae sp.
	Suborder Oribatida	*Eniochthonius crosbyi* (Ewing, 1909)
		Eobrachychthonius latior (Berlese, 1910)
		Brachychthnoiidae spp. (6 spp.)
		Phthiracarus boresetosus Jacot, 1930
		Heminothrus longisetosus Willmann, 1925
		Camisia lapponica (Trägårdh, 1910)
		Platynothrus peltifer (C.L. Koch, 1839)
		Nanhermannia sp.
		Epidamaeus nr *fortispinosus* Hammer 1967
		Ceratoppia q. arctica Hammer, 1955
		Tectocepheus velatus (Michael, 1880)
		Oppiella nova (Oudemans, 1902)
		Oppiidae spp. (2 spp.)
		Quadroppia quadricarinata (Michael, 1885)
		Suctobelbella spp. (5 spp.)
		Autogneta longilamellata (Michael, 1885)
		Banksinoma l. canadensis Fujikawa, 1979
		Scheloribates nr *pallidulus* (C.L. Koch, 1841)
		Protoribates sp.
		Neogymnobates nr *luteus* (Hammer, 1955)
	Cohort Astigmatina	Astigmata sp. 1
		Astigmata sp. 2

Subclass Collembola	Order Arthropleona	Isotomidae sp. 1
		Isotomidae sp. 2
		Isotomidae sp. 3
		Folsomia spp. (3 spp.)
		Entomobryidae sp. 1
		Entomobryidae sp. 2
		Hypogasturidae sp.
	Order Symphypleona	Sminthurididae sp.
Class Insecta	Order Diptera	Diptera sp. (immature)
	Order Coleoptera	Coleoptera sp. (immature)
	Superfamily Aphidoidea	Aphididae sp.
	Order Isopoda	Oniscidae sp.

Table S2. Abundance and biomass. Results of repeated measures multivariate analysis of variance 666 (RM-MANOVA) for treatment effects of landscape network arrangement and habitat quality on species abundance and biomass measures for microarthropods inhabiting moss landscapes after 14 weeks following fragmentation. Repeated measures analysis of variance (RM-ANOVA) on total species abundance and biomass standardized by island fragment negative controls also given. Individual habitat patches within landscapes are used as repeated measures.

	Abundance			Standardized abundance		
Source of variation $_{(DF)}$	Wilk's λ	F	p	MS	F	p
Arrangement $_{(2, 27)}$	0.182	4.935	**<0.001**	107153.6	1.777	0.188
Habitat quality $_{(2, 27)}$	0.034	16.274	**<0.001**	34428.7	0.571	0.572
Arrangement × Habitat quality $_{(4, 27)}$	0.076	3.550	**<0.001**	25024.2	0.415	0.796
Patch $_{(3, 81)}$	0.109	4.550	**0.009**	4418.0	1.400	0.249
Patch × Arrangement $_{(6, 81)}$	0.023	3.128	**0.004**	6379.8	2.022	0.072
Patch × Habitat quality $_{(6, 81)}$	0.020	3.349	**0.003**	1263.2	0.400	0.877
Patch × Arrangement × Habitat quality $_{(12, 81)}$	0.002	2.439	**0.001**	2149.3	0.681	0.765

	Biomass			Standardized biomass		
Source of variation $_{(DF)}$	Wilk's λ	F	p	MS	F	p
Arrangement $_{(2, 27)}$	0.205	4.427	**<0.001**	3804.1	14.515	**<0.001**
Habitat quality $_{(2, 27)}$	0.067	10.467	**<0.001**	5132.3	19.583	**<0.001**
Arrangement × Habitat quality $_{(4, 27)}$	0.104	2.963	**<0.001**	3626.3	13.837	**<0.001**
Patch $_{(3, 81)}$	0.072	7.112	**0.002**	1769.9	16.679	**<0.001**
Patch × Arrangement $_{(6, 81)}$	0.006	6.866	**<0.001**	1201.4	11.322	**<0.001**
Patch × Habitat quality $_{(6, 81)}$	0.037	2.321	**0.024**	1985.0	18.707	**<0.001**
Patch × Arrangement × Habitat quality $_{(12, 81)}$	0.001	2.737	**<0.001**	1264.6	11.918	**<0.001**

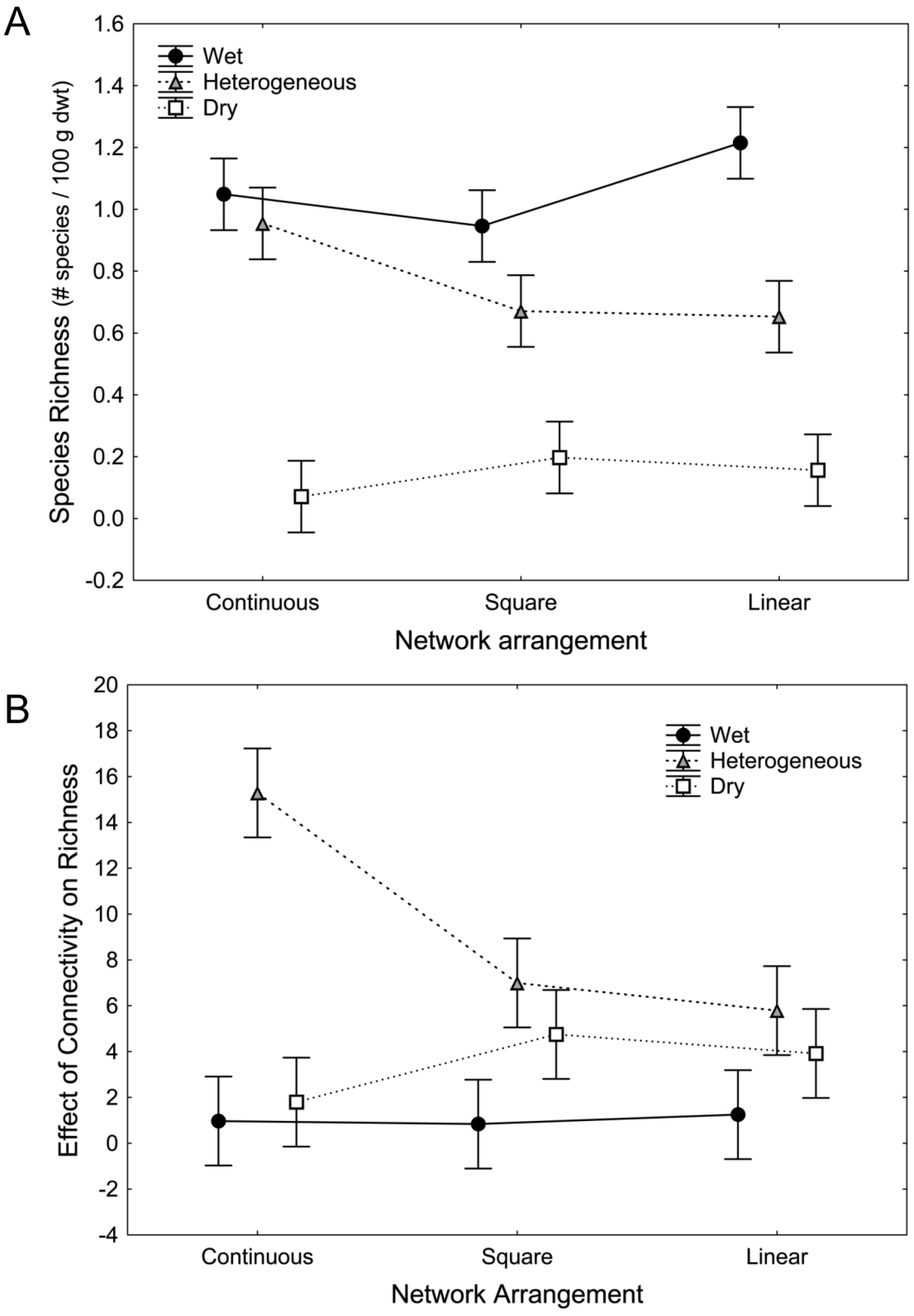

Figure S1. (A) Landscape-level patterns of species richness for microarthropods ingreenhouse moss systems (no. species/100 g dry weight moss substrate) differing in habitat patch quality (wet, heterogeneous, dry landscapes) and network arrangement (continuous, square, linear). (B) Landscape-level patterns demonstrating the absolute effect of connectivity on species richness. Data are a standardized measure based on "island" fragments with zero network connectivity. Values are means ± two standard errors.

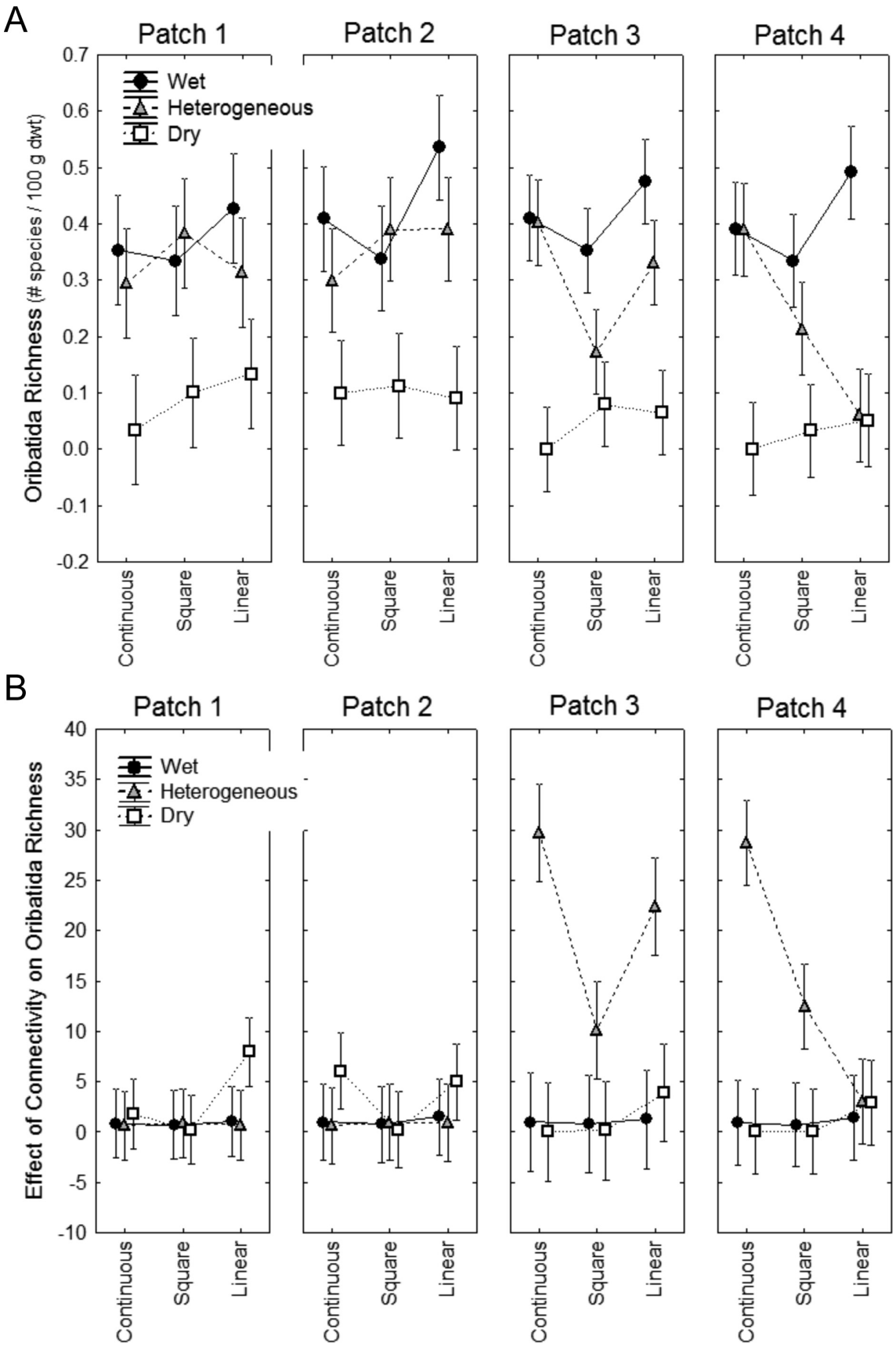

Figure S2. (A) Patch-level patterns of species richness for oribatid mites in greenhouse moss systems (no. species/100 g dry weight moss substrate) differing in habitat patch quality (wet, heterogeneous, dry landscapes) and network arrangement (continuous, square, linear). (B) Patch-level patterns demonstrating the absolute effect of connectivity on oribatid mite species richness. Habitat patch quality treatments (wet, heterogeneous, dry) are designated at the landscape-level. Patches 1–4 were good quality "wet" patches in wet landscapes, patches 1–4 were poor quality "dry" patches in dry landscapes. In heterogeneous landscapes, patches 1 and 2 were good quality "wet" patches while patches 3 and 4 were poor quality "dry" patches. Values are means ± two standard errors.

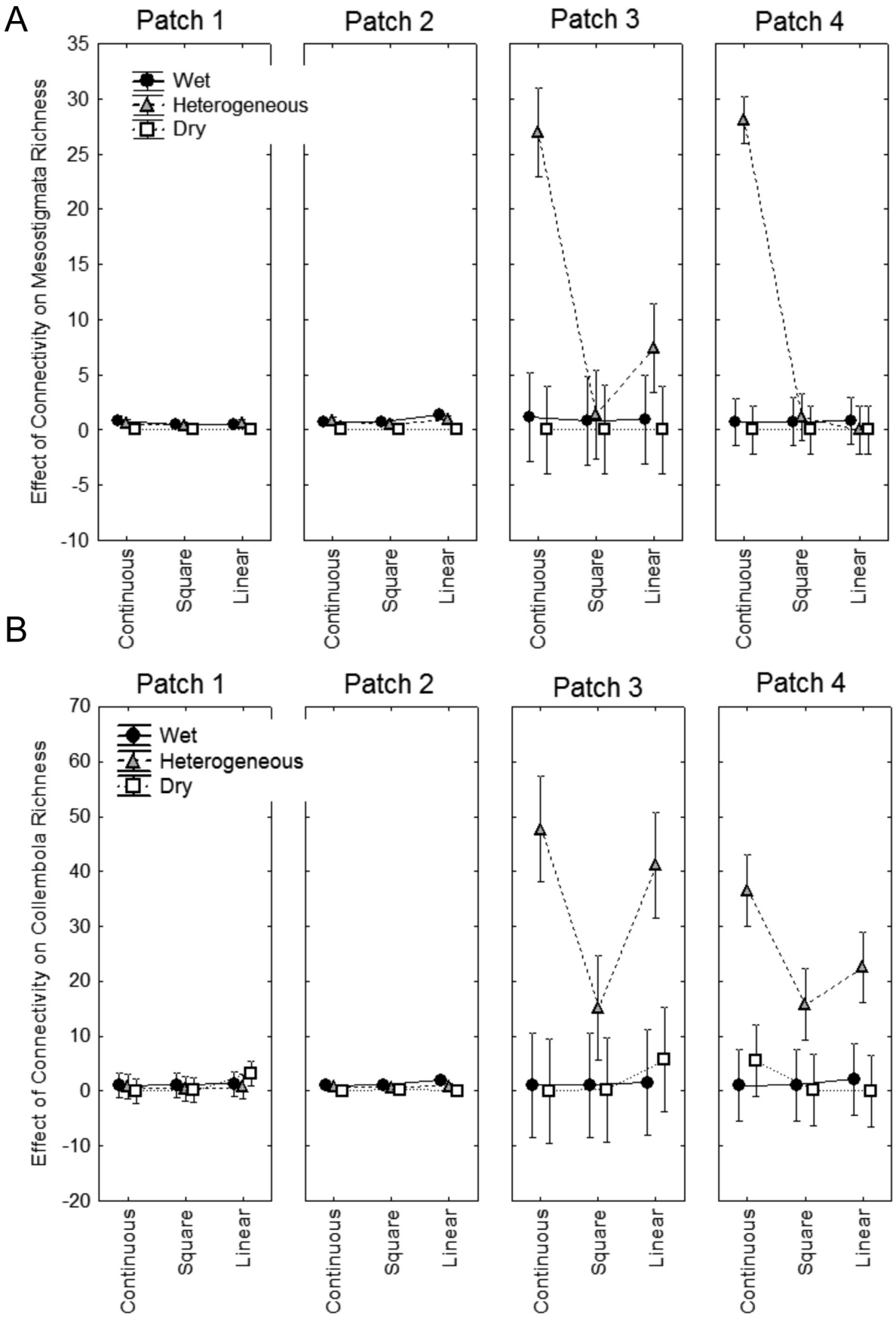

Figure S3. Effect of connectivity on species richness of (A) predators (Mesostigmata) and (B) their prey (Collembola) in greenhouse moss systems differing in habitat patch quality (wet, heterogeneous, dry landscapes) and network arrangement (continuous, square, linear). Habitat patch quality treatments (wet, heterogeneous, dry) are designated at the landscape-level. Patches 1–4 were good quality "wet" patches in wet landscapes, patches 1–4 were poor quality "dry" patches in dry landscapes. In heterogeneous landscapes, patches 1 and 2 were good quality "wet" patches while patches 3 and 4 were poor quality "dry" patches. Values are means ± two standard errors.