Ecography

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Supplementary material

Table S1. Data on fleas in 19 regions.

Region	Sampling effort (number of hosts examined)	Number of flea species	Source
Nearctic			
California central (Monterey)	2306	19	Linsdale and Davis 1956
California southwestern (Ventura)	1547	17	Davis et al. 2002
Colorado (Larimer)	1503	24	Campos et al. 1985
Connecticut (Middlesex)	1526	12	Main 1983
Idaho (Bonneville)	3921	27	Allred 1968
Montana (Phillips)	1130	16	Holmes 2003
New Mexico (Santa Fe)	8764	30	Morlan 1955
Wisconsin (Kenosha)	492	10	Amin 1976
Wyoming (Park)	320	13	Anderson and Williams 1997
Palaearctic			
Adzharia, southern Caucasus	8407	20	Alania et al. 1964
Akmolinsk region, northern Kazakhstan	308	25	Mikulin 1959
Azerbaijan	2360	21	Kunitsky and Kunitskaya 1962
Mongolia, northwestern Khangay region	4306	39	Labunets 1967
Moscow region	8921	18	Darskaya et al. 1970
Moyynkum desert, southern Kazakhstan	45461	30	Popova 1968
Kyrgyzstan (northern Kyrgyz ridge)	5008	34	Shwartz et al. 1958
Novosibirsk region, southern Siberia	1938	28	Violovich 1969
Slovakia	9965	21	Stanko et al. 2002
Volga-Kama region, central Russia	33422	32	Nazarova 1981

Table S2. Results of Pagel's (1999) λ test (see text for details) for phylogenetic independence of abundance and host specificity (number of hosts exploited) in fleas parasitic on small mammals in 10 Palaearctic and nine Nearctic regions. LLHR is ratio of log likelihood obtained from the observed tree topology and log likelihood obtained from a tree without phylogenetic signal (when λ =0).

Scale	Region/continent	Abundance			Host specificity		
		Pagel's λ	LLHR	p	Pagel's λ	LLHR	p
Regional	California central	0.001	0.001	0.99	0.25	–0.76	0.38
	California southwest	0.17	–0.48	0.49	0.99	–0.48	0.48
	Colorado	0.001	0.001	0.99	0.28	–0.23	0.63
	Connecticut	0.001	0.001	0.99	0.001	0.001	0.99
	Idaho	0.001	0.001	0.99	0.001	0.001	0.99
	Montana	0.001	0.001	0.99	0.16	–0.22	0.64
	New Mexico	0.87	–3.95	0.05	0.11	–0.33	0.57
	Wisconsin	0.99	–2.26	0.13	0.99	–1.29	0.26
	Wyoming	0.99	–5.66	0.01	0.21	–0.42	0.52
	Adzharia	0.001	0.001	0.88	0.001	0.001	0.99
	Akmolinsk	0.21	–0.19	0.65	0.32	–0.57	0.45
	Azerbaijan	0.99	–10.31	0.001	0.001	0.001	0.99
	Mongolia	0.13	–1.38	0.24	0.001	0.001	0.99
	Moscow	0.86	–0.34	0.56	0.001	0.001	0.90
	Moyynkum	0.09	–0.21	0.65	0.82	–9.40	0.001
	Kyrgyzstan	0.02	0.00	0.95	0.75	–0.04	0.84
	Novosibirsk	0.31	–0.40	0.52	0.001	0.001	0.99
	Slovakia	0.001	0.001	0.99	0.001	0.001	0.99
	Volga-Kama	0.001	0.001	0.99	0.001	0.001	0.99
Continental	Nearctic	0.61	–14.68	0.0001	0.001	0.001	0.99
	Palaearctic	0.58	–8.31	0.004	0.15	–1.69	0.19

Table S3. Results of Blomberg et al.'s (2003)'s *K* test (see text for details) for phylogenetic independence of abundance and host specificity (number of hosts exploited) in fleas parasitic on small mammals in 10 Palaearctic and nine Nearctic regions. P-values are the quantiles of the observed phylogenetically independent contrast variance versus the null distribution, which are used to test for greater phylogenetic signal than expected (Kembel et al. 2009).

Scale	Region/continent	Abundance		Host specificity	
		Blomberg et al.'s *K*	p	Blomberg et al.'s *K*	p
Regional	California central	0.56	0.34	0.54	0.14
	California southwest	0.51	0.15	0.61	0.17
	Colorado	0.42	0.17	0.46	0.09
	Connecticut	0.40	0.76	0.46	0.37
	Idaho	0.37	0.07	0.38	0.06
	Montana	0.32	0.29	0.47	0.09
	New Mexico	0.43	0.13	0.40	0.06
	Wisconsin	0.82	0.15	0.92	0.15
	Wyoming	0.95	0.03	0.53	0.29
	Adzharia	0.47	0.31	0.17	0.99
	Akmolinsk	0.52	0.13	0.61	0.03
	Azerbaijan	0.84	0.009	0.43	0.43
	Mongolia	0.27	0.66	0.33	0.35
	Moscow	0.53	0.45	0.47	0.66
	Moyynkum	0.35	0.35	0.72	0.003
	Kyrgyzstan	0.37	0.2	0.45	0.09
	Novosibirsk	0.44	0.04	0.47	0.13
	Slovakia	0.40	0.42	0.37	0.60
	Volga-Kama	0.49	0.37	0.36	0.30
Continental	Nearctic	0.34	0.001	0.24	0.67
	Palaearctic	0.28	0.002	0.27	0.001

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