

Table S1. Sampling information of different populations of striped hamster

Pop	Sites	Longitude	Latitude	Elevation(m)	Samples
N1	New Barag Right Banner, Hulun Buir	116.85°E	48.81°N	552	3
N2	East Ujimqin Banner, Xilin Gol	116.59°E	45.60°N	916	17
N3	Qog UI, Xilin Gol	115.92°E	44.18°N	947	24
N4	Baiyin Siler, Xilin Gol	116.78°E	44.08°N	1215	1
W2	Abag Banner, Xilin Gol	114.97°E	44.03°N	1144	62
W4	West Ujimqin Banner, Xilin Gol	116.73°E	44.59°N	968	111
W5	Horqin Left Middle Banner, Tongliao	121.55°E	44.27°N	203	4

Table S2. Characteristics of 7 microsatellite loci of striped hamster

Loci	Primer Sequence (5'→3')	Allele Size (bp)	Genbank ID
CHM93	F: TCTGTGTGTCTGTGAATGCG R: GGATGTAAGATGGCTCCGAA	276	FJ426316
CHM108	F: CAATGGCTGCTAAGAGAGGG R: GTTCTTTCCCACTCACAATTTTCCTTC	276	FJ426318
CHM120	F: GATAGGAGGGAGCAAAAGGG R: CCTGAGAGCCTCAGAGCAGT	242	FJ426320
CHM124	F: CAGATGCCCAAACCTCTCTCC R: GTTCTTGTCACCCCATGGACTACA	284	FJ426321
CHM140	F: GCAGCTGGTTTTGAGCTACC R: GTTCTTTGTTTGATCACTGGAACCCA	250	FJ426323
CHM147	F: CATCTGGGCTTTCAATGGAT R: GCTCCCTAAATAACCCCCAA	241	FJ426324
SSR29	F: CAGGGAAATGATGATACC R: TCAGCAGCACTCAGAAGG	357	EF530613

Table S3. Eleven flea species and nineteen gamasid mite species detected in this study

No.	Flea species	Gamasid Mite Species
1	<i>Citellophilus tesquorum</i>	<i>Eulaclaps novus</i>
2	<i>Neopsylla bidentatiformis</i>	<i>Eulaclaps cricetuli</i>
3	<i>Neopsylla pleskei</i>	<i>Haemogamasus kusumotoi</i>
4	<i>Frontopsylla luculenta</i>	<i>Haemogamasus mandschuricus</i>
5	<i>Rhadinopsylla dives</i>	<i>Haemogamasus kitanoi</i>
6	<i>Stenoponia formozovi</i>	<i>Hirstionyssus transiliensis neimongkuensis</i>
7	<i>Amphipsylla longispina</i>	<i>Haemolalaps glasgowi</i>
8	<i>Amphipsylla primaris</i>	<i>Haemolalaps semidestertus</i>
9	<i>Ophthalmopsylla kukuschkini</i>	<i>Hypoaspis miles</i>
10	<i>Nosopsylla laeviceps</i>	<i>Hypoaspis pavlovski</i>
11	<i>Unident_flea</i> ^a	<i>Hypoaspis lubrica</i>
12	/	<i>Macrocheles decoloratus</i>
13	/	<i>Macrocheles matrius</i>

14	/	<i>Poecilochirus necrophori</i>
15	/	<i>Poecilochirus davydovae</i>
16	/	<i>Parasitus</i> sp.1 ^b
17	/	<i>Parasitus</i> sp.2 ^b
18	/	<i>Parasitus</i> sp.3 ^b
19	/	<i>Unident_gamasid_mite</i> ^a

^a impossible to determine its taxonomic classification due to specimen damage;

^b Undetermined species of the genus *Parasitus*

Table S4. Results from maximum likelihood codon-based models of selection using EasTyCodeml.

Model	np	Ln L	Parameter estimates	Model compared	LRT P-value
M3	164	-2014	$p_0 = 0.583, p_1 = 0.274, p_2 = 0.143,$ $\omega_0 = 0.063, \omega_1 = 0.794, \omega_2 = 2.145$	M0 vs. M3	$P < 0.0001$
M0	160	-2164	$\omega_0 = 0.436$		
M2a	163	-2014	$p_0 = 0.596, p_1 = 0.328, p_2 = 0.077,$ $\omega_0 = 0.069, \omega_1 = 1, \omega_2 = 3.081$	M1a vs. M2a	$P < 0.0001$
M1a	161	-2027	$p_0 = 0.613, p_1 = 0.387,$ $\omega_0 = 0.062, \omega_1 = 1$		
M8	163	-2012	$p_0 = 0.87, p_1 = 0.130, p_2 = 0.214,$ $q = 0.441, \omega = 2.215$	M7 vs. M8	$P < 0.0001$
M7	161	-2023	$p = 0.064, q = 0.080$		
M8a	162	-2020	$p_0 = 0.732, p_1 = 0.268, p_2 = 0.390,$ $q = 2.177, \omega = 1$	M8a vs. M8	$P < 0.0001$

Abbreviation: ω = selection parameter; p_n = proportion of sites that fall into the ω_n site class; p, q = shape parameters of the β function (for models M7 and M8).