

OIK-07249

Juette, T., Garant, D., Jameson, J. W. and Réale, D. 2020. The island syndrome hypothesis is only partially validated in two rodent species in an inland-island system. – Oikos doi: [10.1111/oik.07249](https://doi.org/10.1111/oik.07249)

1 Appendix 1

2 Models included in the model averaging procedure for habitat type effects on individual traits in
 3 deer mice.

Parameter	Model	df	LogLik	AICc	Δ AICc	Weight
Neck-handling aggression	<i>Habitat</i>	5	-404.79	819.76	0.00	0.86
	(Null model)	4	-408.31	824.74	4.97	0.07
	<i>Habitat + Sex</i>	6	-406.25	824.75	4.99	0.07
Tail-handling aggression	<i>Age</i>	6	-500.97	1014.28	0.00	0.18
	<i>Age + Year</i>	7	-500.07	1014.6	0.32	0.15
	(Null model)	4	-503.35	1014.87	0.59	0.14
	<i>Year</i>	5	-502.33	1014.9	0.61	0.13
	<i>Habitat + Age + Year</i>	8	-500.22	1017.04	2.75	0.05
	<i>Habitat + Age</i>	7	-501.32	1017.09	2.81	0.04
	<i>Habitat + Year</i>	6	-502.48	1017.31	3.03	0.04
	<i>Age + Sex</i>	7	-501.49	1017.43	3.15	0.04
	<i>Habitat + Age + Year + Habitat</i> \times <i>Age</i>	10	-498.31	1017.53	3.25	0.04
	<i>Habitat</i>	5	-503.67	1017.59	3.3	0.03
	<i>Habitat + Age + Habitat</i> \times <i>Age</i>	9	-499.5	1017.74	3.45	0.03
	<i>Age + Sex + Year</i>	8	-500.64	1017.86	3.58	0.03
	<i>Sex</i>	5	-503.85	1017.94	3.66	0.03
	<i>Sex + Year</i>	6	-502.88	1018.1	3.82	0.03
	<i>Age + Sex + Age</i> \times <i>Sex</i>	9	-500.04	1018.82	4.54	0.02
	<i>Age + Sex + Year + Age</i> \times <i>Sex</i>	10	-499.02	1018.95	4.66	0.02
Exploration score	<i>Habitat + Age + Sex + Year + Date + Habitat</i> \times <i>Age + Habitat</i> \times <i>Sex + Age</i> \times <i>Sex</i>	17	-2812.87	5661.47	0.00	0.86
	<i>Habitat + Age + Sex + Year + Habitat</i> \times <i>Age + Habitat</i> \times <i>Sex + Age</i> \times <i>Sex</i>	16	-2815.79	5665.11	3.64	0.14
Body mass	<i>Habitat + Age + Sex + Year + Date + Habitat</i> \times <i>Sex + Age</i> \times <i>Sex</i>	15	-922.99	1877.28	0.00	0.55
	<i>Habitat + Age + Sex + Year + Date + Habitat</i> \times <i>Age + Habitat</i> \times <i>Sex + Age</i> \times <i>Sex</i>	17	-921.51	1878.7	1.42	0.27
	<i>Habitat + Age + Sex + Year + Date + Habitat</i> \times <i>Sex</i>	13	-926.95	1880.88	3.60	0.09
	<i>Habitat + Age + Sex + Year + Date + Age</i> \times <i>Sex</i>	14	-925.90	1880.94	3.66	0.09
Tail length	<i>Habitat + Age + Sex + Year + Habitat</i> \times <i>Age + Habitat</i> \times <i>Sex + Age</i> \times <i>Sex</i>	14	-978.28	1986.07	0.00	0.81
	<i>Habitat + Age + Sex + Year + Habitat</i> \times <i>Age + Age</i> \times <i>Sex</i>	13	-980.86	1989.02	2.95	0.19
Foot length	(Null model)	3	-358.12	722.33	0.00	0.76
	<i>Habitat</i>	4	-358.60	725.35	3.02	0.17
	<i>Sex</i>	4	-359.50	727.14	4.81	0.07

4 Appendix 2. Final estimates obtained from the model averaging procedure type effects on individual
 5 for habitat traits in deer mice.

Parameter	Terms	Estimate	Z-value	2.50% CI	97.5% CI	Importance	
Neck-handling aggression	Intercept	1.23	9.68	0.98	1.48		
	Habitat (<i>Mainland</i>)	0.42	3.43	0.18	0.65	0.93	
	Sex (<i>Male</i>)	0.03	0.37	-0.14	0.20	0.07	
Tail-handling aggression	Intercept	3.44	10.65	2.81	4.08		
	Habitat (<i>Mainland</i>)	0.08	0.272	-0.53	0.70	0.23	
	Age (<i>Juvenile</i>)	-1.02	1.83	-2.11	0.08	0.60	
		(<i>Subadult</i>)	0.02	0.06	-0.59	0.63	
	Sex (<i>Male</i>)	-0.03	0.13	-0.51	0.45	0.16	
	Year (<i>2015</i>)	0.47	1.63	-0.10	1.04	0.49	
	Habitat (<i>ML</i>) × Age (<i>Juv.</i>)	-0.64	0.66	-2.57	1.28	0.07	
	Habitat (<i>ML</i>) × Age (<i>Sub.</i>)	0.45	0.82	-0.62	1.52		
	Age (<i>Juv.</i>) × Sex (<i>Male</i>)	-0.62	0.61	-2.61	1.37	0.04	
Age (<i>Sub.</i>) × Sex (<i>Male</i>)	-0.35	0.67	-1.36	0.67			
Exploration score	Intercept	289.52	5.26	181.54	397.51		
	Habitat (<i>Mainland</i>)	154.65	3.13	57.73	251.56	1.00	
	Age (<i>Juvenile</i>)	105.02	1.85	-6.35	216.39	1.00	
		(<i>Subadult</i>)	69.10	1.70	-10.46	148.65	
	Sex (<i>Male</i>)	18.03	0.59	-41.72	77.77	1.00	
	Year (<i>2014</i>)	82.90	1.80	-7.26	173.07	1.00	
		(<i>2015</i>)	134.83	3.05	48.08	221.59	
		(<i>2016</i>)	17.28	0.26	-111.94	146.49	
	Date	-1.34	1.37	-3.26	0.57	0.86	
	Habitat (<i>ML</i>) × Age (<i>Juv.</i>)	-129.64	1.90	-263.70	4.41	1.00	
	Habitat (<i>ML</i>) × Age (<i>Sub.</i>)	-19.88	0.37	-126.01	86.25		
	Habitat (<i>ML</i>) × Sex (<i>Male</i>)	-48.77	1.12	-134.38	36.84	1.00	
	Age (<i>Juv.</i>) × Sex (<i>Male</i>)	-49.23	0.75	-177.33	78.86	1.00	
Age (<i>Sub.</i>) × Sex (<i>Male</i>)	94.56	1.91	-2.57	191.68			
Body mass	Intercept	19.86	27.08	18.43	21.30		
	Habitat (<i>Mainland</i>)	-0.42	0.64	-1.71	0.87	1.00	
	Age (<i>Juvenile</i>)	-5.73	8.44	-7.06	-4.40	1.00	
		(<i>Subadult</i>)	-3.25	6.11	-4.29	-2.21	
	Sex (<i>Male</i>)	0.49	1.12	-0.37	1.34	1.00	
	Year (<i>2014</i>)	1.87	3.05	0.67	3.07	1.00	
		(<i>2015</i>)	-1.89	3.18	-3.05	-0.73	
		(<i>2016</i>)	1.31	1.50	-0.40	3.01	
	Date	-0.06	4.28	-0.08	-0.03	1.00	
	Habitat (<i>ML</i>) × Age (<i>Juv.</i>)	-0.04	0.05	-1.84	1.76	0.27	
	Habitat (<i>ML</i>) × Age (<i>Sub.</i>)	0.25	0.34	-1.19	1.68		
	Habitat (<i>ML</i>) × Sex (<i>Male</i>)	-1.33	2.27	-2.48	-0.18	0.91	
	Age (<i>Juv.</i>) × Sex (<i>Male</i>)	-1.76	2.04	-3.45	-0.07	0.91	
Age (<i>Sub.</i>) × Sex (<i>Male</i>)	-1.04	1.56	-2.35	0.27			
Tail length	Intercept	77.96	33.51	73.40	82.52		
	Habitat (<i>Mainland</i>)	-0.11	0.07	-3.29	3.06	1.00	
	Age (<i>Juvenile</i>)	-4.56	1.61	-10.11	0.99	1.00	

		<i>(Subadult)</i>	-2.67	1.62	-5.90	0.56	
	Sex	<i>(Male)</i>	-0.31	0.25	-2.71	2.08	1.00
	Year	<i>(2014)</i>	4.49	1.84	-0.29	9.26	1.00
		<i>(2015)</i>	1.46	0.62	-3.12	6.04	
	Habitat	<i>(ML) × Age (Juv.)</i>	-7.44	2.10	-14.39	-0.49	1.00
		<i>(ML) × Age (Sub.)</i>	-2.10	1.05	-6.04	1.84	1.00
		<i>(ML) × Sex (Male)</i>	-2.62	1.47	-6.11	0.87	0.81
		<i>Age (Juv.) × Sex (Male)</i>	-4.91	1.51	-11.29	1.48	1.00
		<i>Age (Sub.) × Sex (Male)</i>	-2.59	1.34	-6.37	1.19	1.00
Foot length	Intercept		15.14	156.31	14.95	15.33	
	Habitat	<i>(Mainland)</i>	-0.14	0.71	-0.51	0.24	0.17
	Sex	<i>(Male)</i>	-0.02	0.21	-0.21	0.17	0.07

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28 Appendix 3. Models included in the model averaging procedure for habitat type effects on
 29 individual traits in red-backed voles.

Parameter	Model	df	LogLik	AICc	Δ AICc	Weight
Neck-handling aggression	<i>Habitat</i>	5	-548.07	1106.28	0.00	0.19
	<i>Habitat + Age + Sex + Habitat×Sex + Age×Sex</i>	12	-540.88	1106.45	0.17	0.18
	<i>Habitat + Sex + Habitat×Sex</i>	7	-546.24	1106.72	0.45	0.15
	<i>Habitat + Age</i>	8	-545.34	1107.00	0.73	0.13
	<i>Habitat + Age + Sex + Habitat×Sex</i>	10	-543.94	1108.37	2.1	0.07
	<i>Habitat + Age + Sex + Habitat×Age + Habitat×Sex + Age×Sex</i>	14	-539.83	1108.59	2.32	0.06
	<i>Habitat + Age + Habitat×Age</i>	10	-544.24	1108.96	2.68	0.05
	(Null model)	4	-550.61	1109.30	3.03	0.04
	<i>Habitat + Age + Sex + Age×Sex</i>	11	-543.46	1109.49	3.22	0.04
	<i>Age</i>	7	-547.67	1109.59	3.32	0.04
	<i>Habitat + Sex</i>	6	-549.07	1110.32	4.05	0.03
<i>Habitat + Age + Sex + Habitat×Age + Habitat×Sex</i>	12	-542.97	1110.63	4.35	0.02	
Tail-handling aggression	<i>Habitat + Age + Habitat×Age</i>	10	-553.45	1127.58	0.00	0.39
	<i>Habitat + Age + + Year + Habitat×Age</i>	11	-553.38	1129.57	2.00	0.15
	<i>Habitat + Age</i>	8	-556.70	1129.83	2.25	0.13
	<i>Habitat + Age + + Sex + Habitat×Age</i>	11	-554.07	1130.94	3.37	0.07
	<i>Habitat + Age + + Sex + Habitat×Age + Habitat×Sex</i>	12	-553.00	1130.94	3.37	0.07
	<i>Habitat + Age + + Year</i>	9	-556.51	1131.56	3.99	0.05
	<i>Habitat + Age + + Sex + Habitat×Age + Age×Sex</i>	13	-552.32	1131.77	4.19	0.05
	<i>Habitat + Age + + Sex + Habitat×Sex</i>	10	-555.67	1132.02	4.44	0.04
<i>Habitat + Age + + Sex + Habitat×Age + Habitat×Sex + Age×Sex</i>	14	-551.44	1132.17	4.59	0.04	
Exploration score	<i>Habitat + Age + Sex + Year + Date + Habitat×Age + Habitat×Sex + Age×Sex</i>	16	-2379.31	4792.46	0.00	0.91
	<i>Habitat + Age + Sex + Year + Habitat×Age + Habitat×Sex + Age×Sex</i>	15	-2382.75	4797.12	4.66	0.09
Body mass	<i>Habitat + Age + Sex + Year + Date + Habitat×Age + Habitat×Sex + Age×Sex</i>	16	-1056.1	2145.71	0.00	0.39
	<i>Habitat + Age + Sex + Year + Date + Habitat×Age + Age×Sex</i>	15	-1057.41	2146.16	0.45	0.31
	<i>Habitat + Age + Sex + Year + Date + Habitat×Sex + Age×Sex</i>	14	-1059.28	2147.72	2.02	0.14
	<i>Habitat + Age + Sex + Year + Date + Age×Sex</i>	13	-1060.57	2148.15	2.45	0.12
	<i>Age + Sex + Year + Date + Age×Sex</i>	12	-1062.77	2150.39	4.69	0.04

Tail length	<i>Habitat + Age + Sex + Year +</i>	11	-757.52	1538.01	0	0.28
	<i>Habitat×Age + Age×Sex</i>					
	<i>Habitat + Age + Sex + Year +</i>	12	-756.48	1538.12	0.12	0.26
	<i>Habitat×Age + Habitat×Sex + Age×Sex</i>					
	<i>Habitat + Age + Sex + Year + Age×Sex</i>	10	-758.92	1538.65	0.65	0.2
	<i>Habitat + Age + Sex + Year +</i>	11	-757.86	1538.7	0.69	0.2
	<i>Habitat×Sex + Age×Sex</i>					
	<i>Age + Sex + Year + Age×Sex</i>	9	-761.12	1540.89	2.89	0.07
Foot length	<i>(Null model)</i>	3	-496.48	999.05	0	0.29
	<i>Age</i>	5	-494.92	1000.06	1.01	0.18
	<i>Sex</i>	4	-496.21	1000.57	1.51	0.14
	<i>Age + Sex + Age×Sex</i>	8	-492.61	1001.73	2.68	0.08
	<i>Habitat</i>	4	-497.05	1002.23	3.18	0.06
	<i>Age + Sex</i>	6	-495.04	1002.38	3.33	0.05
	<i>Year</i>	4	-497.19	1002.53	3.47	0.05
	<i>Habitat + Age</i>	6	-495.39	1003.08	4.03	0.04
	<i>Age + Year</i>	6	-495.45	1003.2	4.15	0.04
	<i>Habitat + Age + Habitat×Age</i>	8	-493.56	1003.63	4.57	0.03
	<i>Habitat + Sex</i>	5	-496.77	1003.76	4.71	0.03
	<i>Sex + Year</i>	5	-496.83	1003.87	4.82	0.03

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47 Appendix 4. Final estimates obtained from the model averaging procedure for habitat type effects on
 48 individual traits in red-backed voles.

Parameter	Terms	Estimate	Z-value	2.50% CI	97.5% CI	Importance
Neck-handling aggression	Intercept	1.73	15.75	1.51	1.94	
	Habitat (<i>Mainland</i>)	0.43	2.26	0.06	0.80	0.92
	Age (<i>Juvenile</i>)	0.34	0.60	-0.78	1.47	0.59
	(<i>Subadult</i>)	-0.17	1.26	-0.43	0.09	
	Sex (<i>Male</i>)	0.04	0.40	-0.16	0.24	0.54
	Habitat (<i>ML</i>) × Age (<i>Juv.</i>)	-0.64	1.63	-1.40	0.13	0.13
	Habitat (<i>ML</i>) × Age (<i>Sub.</i>)	0.12	0.53	-0.32	0.56	
	Habitat (<i>ML</i>) × Sex (<i>Male</i>)	-0.47	2.63	-0.83	-0.12	0.48
	Age (<i>Juv.</i>) × Sex (<i>Male</i>)	-1.13	2.68	-1.95	-0.30	0.28
Age (<i>Sub.</i>) × Sex (<i>Male</i>)	0.07	0.38	-0.30	0.45		
Tail-handling aggression	Intercept	5.02	17.28	4.45	5.58	
	Habitat (<i>Mainland</i>)	0.78	2.72	0.22	1.34	1.00
	Age (<i>Juvenile</i>)	-1.05	1.05	-3.01	0.91	1.00
	(<i>Subadult</i>)	-0.01	0.06	-0.38	0.36	
	Sex (<i>Male</i>)	0.18	0.99	-0.17	0.53	0.28
	Year (<i>2015</i>)	-0.27	1.27	-0.69	0.15	0.20
	Habitat (<i>ML</i>) × Age (<i>Juv.</i>)	-1.89	1.73	-4.03	0.25	0.78
	Habitat (<i>ML</i>) × Age (<i>Sub.</i>)	-0.51	1.31	-1.27	0.25	
	Habitat (<i>ML</i>) × Sex (<i>Male</i>)	-0.56	1.61	-1.24	0.12	0.16
	Age (<i>Juv.</i>) × Sex (<i>Male</i>)	0.43	0.24	-3.04	3.91	0.09
Age (<i>Sub.</i>) × Sex (<i>Male</i>)	0.27	0.77	-0.41	0.94		
Exploration score	Intercept	275.95	4.92	166.05	385.86	
	Habitat (<i>Mainland</i>)	61.74	1.06	-52.69	176.17	1.00
	Age (<i>Juvenile</i>)	160.56	1.41	-62.30	383.42	1.00
	(<i>Subadult</i>)	-39.90	0.77	-142.17	62.38	
	Sex (<i>Male</i>)	0.79	0.02	-65.37	66.95	1.00
	Year (<i>2015</i>)	35.90	1.14	-25.91	97.71	1.00
	Date	-1.77	1.64	-3.87	0.34	0.91
	Habitat (<i>ML</i>) × Age (<i>Juv.</i>)	-31.25	0.26	-266.18	203.69	1.00
	Habitat (<i>ML</i>) × Age (<i>Sub.</i>)	18.10	0.25	-122.17	158.37	
	Habitat (<i>ML</i>) × Sex (<i>Male</i>)	-20.65	0.35	-136.84	95.55	1.00
	Age (<i>Juv.</i>) × Sex (<i>Male</i>)	-192.46	1.60	-427.65	42.73	1.00
Age (<i>Sub.</i>) × Sex (<i>Male</i>)	82.36	1.33	-39.04	203.77		
Body mass	Intercept	29.01	34.85	27.38	30.65	
	Habitat (<i>Mainland</i>)	-1.46	1.79	-3.06	0.14	0.96
	Age (<i>Juvenile</i>)	-10.86	4.87	-15.23	-6.49	1.00
	(<i>Subadult</i>)	-9.10	9.15	-11.05	-7.15	
	Sex (<i>Male</i>)	-4.28	7.17	-5.45	-3.11	1.00
	Year (<i>2015</i>)	-2.43	4.81	-3.42	-1.44	1.00
	(<i>2016</i>)	-0.36	0.42	-2.05	1.33	
	Date	-0.08	5.26	-0.11	-0.05	
	Habitat (<i>ML</i>) × Age (<i>Juv.</i>)	1.43	0.65	-2.91	5.77	0.7
	Habitat (<i>ML</i>) × Age (<i>Sub.</i>)	-0.31	0.23	-2.95	2.32	
	Habitat (<i>ML</i>) × Sex (<i>Male</i>)	0.86	0.79	-1.29	3.02	0.53
Age (<i>Juv.</i>) × Sex (<i>Male</i>)	0.19	0.08	-4.42	4.79	1.00	

	Age (<i>Sub.</i>) × Sex (<i>Male</i>)	3.65	3.14	1.37	5.93	
Tail length	Intercept	34.54	42.23	32.94	36.14	
	Habitat (<i>Mainland</i>)	-1.46	1.22	-3.81	0.88	0.93
	Age (<i>Juvenile</i>)	-8.35	2.30	-15.46	-1.23	1.00
	(<i>Subadult</i>)	-5.02	5.40	-6.84	-3.20	
	Sex (<i>Male</i>)	-2.26	3.99	-3.37	-1.15	1.00
	Year (<i>2015</i>)	-1.89	3.33	-3.00	-0.78	1.00
	Habitat (<i>ML</i>) × Age (<i>Sub.</i>)	-0.84	0.64	-3.42	1.73	0.54
	Habitat (<i>ML</i>) × Sex (<i>Male</i>)	-0.39	0.37	-2.48	1.69	0.46
	Age (<i>Juv.</i>) × Sex (<i>Male</i>)	5.38	1.30	-2.70	13.46	1.00
Age (<i>Sub.</i>) × Sex (<i>Male</i>)	2.59	2.34	0.42	4.76		
Foot length	Intercept	13.43	89.12	13.13	13.73	
	Habitat (<i>Mainland</i>)	-0.10	0.49	-0.51	0.31	0.15
	Age (<i>Juvenile</i>)	-0.38	0.42	-2.16	1.40	0.41
	(<i>Subadult</i>)	-0.39	1.47	-0.91	0.13	
	Sex (<i>Male</i>)	-0.26	1.48	-0.61	0.09	0.32
	Year (<i>2015</i>)	-0.11	0.66	-0.45	0.23	0.11
	Habitat (<i>ML</i>) × Age (<i>Juv.</i>)	-0.94	0.62	-3.93	2.05	0.03
	Habitat (<i>ML</i>) × Age (<i>Sub.</i>)	-0.29	0.62	-1.19	0.62	
	Age (<i>Juv.</i>) × Sex (<i>Male</i>)	-0.64	0.42	-3.61	2.33	0.08
Age (<i>Sub.</i>) × Sex (<i>Male</i>)	0.56	1.40	-0.23	1.35		

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67 Appendix 5. Results for selection of isolation metrics for models about effects of island landscape
68 features on individual traits in deer mice.

Parameter	Isolation metric	df	Res. LogLik	AICc	Δ AICc
Neck-handling aggression	$S_i + S_i^2$	18	-263.42	566.18	0.00
	Area + Kernel + Area×Kernel	18	-265.09	569.51	3.33
Exploration score	Area + Kernel + Area×Kernel	20	-1690.40	3424.81	0.00
	$S_i + S_i^2$	19	-1699.62	3440.85	16.04
Body mass	Area + Kernel + Area×Kernel	19	-579.67	1200.79	0.00
	$S_i + S_i^2$	18	-583.82	1206.73	5.94
Tail length	$S_i + S_i^2$	16	-628.21	1291.52	0.00
	Area + Kernel + Area×Kernel	17	-629.86	1297.23	5.71

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89 Appendix 6. Models included in the model averaging procedure for island feature effects on
 90 individual traits in deer mice.

Parameter	Model	df	LogLik	AICc	Δ AICc	Weight
Neck-handling aggression	<i>(null model)</i>	4	-260.03	528.24	0.00	0.60
	S_i	5	-260.28	530.84	2.60	0.16
	<i>Year</i>	6	-259.65	531.69	3.46	0.11
	<i>Sex</i>	5	-261.10	532.48	4.24	0.07
	S_i^2	5	-261.42	533.12	4.88	0.05
Exploration score	<i>Area + Kernel + Age + Sex + Area×Kernel + Area×Age + Kernel×Age + Area×Sex + Kernel×Sex + Year + Date</i>	20	-1690.40	3424.81	0.00	0.78
	<i>Area + Kernel + Area×Kernel + Area×Age + Kernel×Age + Area×Sex + Kernel×Sex + Age + Sex + Year</i>	19	-1692.84	3427.29	2.48	0.22
Body mass	<i>Area + Kernel + Age + Year + Date + Area×Kernel + Area×Age + Area×Sex + Kernel×Age</i>	16	-581.86	1198.16	0.00	0.12
	<i>Area + Kernel + Age + Year + Date + Area×Age + Area×Sex + Kernel×Age</i>	15	-583.06	1198.27	0.10	0.12
	<i>Area + Kernel + Age + Year + Date + Area×Kernel + Area×Age + Kernel×Age + Kernel×Sex</i>	18	-579.65	1198.40	0.23	0.11
	<i>Area + Kernel + Age + Sex + Year + Date + Area×Kernel + Area×Age + Kernel×Age + Kernel×Sex</i>	17	-580.89	1198.53	0.37	0.10
	<i>Area + Kernel + Age + Sex + Year + Date + Area×Kernel + Area×Age + Kernel×Age</i>	17	-581.04	1198.83	0.67	0.09
	<i>Area + Kernel + Age + Sex + Year + Date + Area×Age + Kernel×Age</i>	16	-582.29	1199.02	0.86	0.08
	<i>Area + Kernel + Age + Sex + Year + Date + Area×Kernel + Area×Age + Area×Sex + Kernel×Age + Kernel×Sex</i>	19	-579.67	1200.79	2.62	0.03
	<i>Area + Kernel + Age + Sex + Year + Date + Area×Age + Area×Sex + Kernel×Age + Kernel×Sex</i>	18	-580.90	1200.90	2.74	0.03
	<i>Area + Kernel + Age + Sex + Year + Date + Area×Kernel + Area×Age + Area×Sex + Kernel×Age</i>	18	-580.95	1200.99	2.83	0.03
	<i>Area + Kernel + Age + Sex + Year + Date + Area×Age + Area×Sex + Kernel×Age</i>	17	-582.18	1201.11	2.95	0.03
	<i>Age + Year + Date</i>	9	-591.25	1201.28	3.12	0.03
	<i>Kernel + Age + Year + Date + Kernel×Age</i>	12	-588.22	1201.82	3.66	0.02
	<i>Kernel + Age + Sex + Year + Date + Kernel×Sex</i>	12	-588.36	1202.10	3.94	0.02

	<i>Kernel + Age + Year + Date</i>	10	-590.58	1202.11	3.95	0.02
	<i>Kernel + Age + Sex + Year + Date + Kernel×Age + Kernel×Sex</i>	14	-586.15	1202.17	4.01	0.02
	<i>Area + Age + Year + Date + Area×Age</i>	12	-588.46	1202.29	4.12	0.02
	<i>Area + Age + Year + Date</i>	10	-590.78	1202.53	4.37	0.01
	<i>Area + Kernel + Age + Year + Date + Area×Kernel + Area×Age</i>	14	-586.40	1202.67	4.50	0.01
	<i>Age + Sex + Year + Date</i>	10	-590.85	1202.67	4.51	0.01
	<i>Area + Kernel + Age + Year + Date + Area×Age</i>	13	-587.57	1202.75	4.59	0.01
	<i>Area + Kernel + Age + Year + Date + Area×Kernel + Kernel×Age</i>	14	-586.47	1202.80	4.64	0.01
	<i>Area + Kernel + Age + Year + Date + Kernel×Age</i>	13	-587.62	1202.85	4.69	0.01
	<i>Area + Kernel + Age + Year + Date + Area×Kernel</i>	12	-588.75	1202.88	4.72	0.01
	<i>Area + Kernel + Age + Sex + Year + Date + Area×Kernel + Kernel×Sex</i>	14	-586.54	1202.95	4.79	0.01
	<i>Area + Kernel + Age + Year + Date</i>	11	-589.92	1203.00	4.84	0.01
	<i>Area + Kernel + Age + Sex + Year + Date + Area×Kernel + Area×Age + Kernel×Sex</i>	16	-584.30	1203.03	4.87	0.01
	<i>Area + Kernel + Age + Sex + Year + Date + Kernel×Sex</i>	13	-587.72	1203.04	4.88	0.01
	<i>Kernel + Age + Sex + Year + Date + Kernel×Age</i>	13	-587.75	1203.11	4.95	0.01
	<i>Area + Kernel + Age + Sex + Year + Date + Area×Age + Kernel×Sex</i>	15	-585.49	1203.12	4.95	0.01
Tail length	<i>S_i + S_i² + Age + Sex + Year + S_i × Age + S_i × Sex + S_i² × Age</i>	15	-629.19	1291.11	0.00	0.23
	<i>S_i + S_i² + Age + Sex + Year + S_i × Age + S_i² × Age</i>	14	-630.38	1291.14	0.03	0.22
	<i>S_i + S_i² + Age + Year + S_i × Age + S_i² × Age</i>	13	-631.66	1291.36	0.25	0.20
	<i>S_i + S_i² + Age + Sex + Year + S_i × Age + S_i × Sex + S_i² × Age + S_i² × Sex</i>	16	-628.21	1291.52	0.41	0.19
	<i>S_i + S_i² + Age + Sex + Year + S_i × Age + S_i² × Age + S_i² × Sex</i>	15	-629.55	1291.83	0.72	0.16

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Parameter	Terms	Estimate	Z-value	2.50% CI	97.5% CI	Importance
Neck-handling aggression	Intercept	1.23	9.10	0.97	1.50	
	Si	-0.12	1.97	-0.25	-0.01	0.16
	Si ²	-0.06	1.16	-0.16	0.04	0.05
	Sex (Male)	0.08	0.77	-0.12	0.28	0.07
	Year (2015)	-0.24	1.71	-0.52	0.04	0.11
	Year (2016)	-0.48	1.55	-1.08	0.13	
Exploration score	Intercept	279.33	3.80	135.18	423.49	
	Area	73.43	1.64	-14.09	160.94	1.00
	Dispersal kernel	-10.74	0.25	-94.79	73.30	1.00
	Age (Juvenile)	-67.29	0.89	-215.89	81.32	1.00
	(Subadult)	113.63	3.56	51.02	176.24	
	Sex (Male)	39.29	1.51	-11.75	90.32	1.00
	Year (2014)	32.68	0.48	-99.86	165.21	1.00
	(2015)	81.56	1.21	-51.06	214.19	
	(2016)	-75.93	0.84	-252.30	100.45	
	Date	-0.66	0.48	-3.34	2.03	0.78
	Area × Dispersal Kernel	-88.11	1.52	-201.81	25.60	1.00
	Area × Age (Juv.)	-343.12	2.35	-628.91	-57.32	1.00
	Area × Age (Sub.)	13.64	0.36	-60.81	88.08	
	Area × Sex (Male)	-35.01	1.31	-87.22	17.21	1.00
	Disp. Kernel × Age (Juv.)	-210.09	1.77	-443.35	23.17	1.00
	Disp. Kernel × Age (Sub.)	19.17	0.62	-41.61	79.95	
Disp. Kernel × Sex (Male)	57.64	2.20	6.34	108.94	1.00	
Body mass	Intercept	22.51	18.69	20.15	24.87	
	Area	0.24	0.29	-1.41	1.89	0.88
	Dispersal kernel	0.95	1.12	-0.71	2.61	0.93
	Age (Juvenile)	-8.08	6.64	-10.46	-5.69	1.00
	(Subadult)	-3.89	8.23	-4.82	-2.97	
	Sex (Male)	0.48	1.25	-0.27	1.23	0.60
	Year (2014)	1.25	1.28	-0.66	3.15	1.00
	(2015)	-2.13	2.60	-3.74	-0.52	
	(2016)	1.77	1.53	-0.49	4.04	
	Date	-0.12	5.55	-0.16	-0.08	1.00
	Area × Dispersal Kernel	-0.55	0.43	-3.03	1.93	0.44
	Area × Age (Juv.)	-3.26	1.56	-7.36	0.85	0.80
	Area × Age (Sub.)	0.81	1.43	-0.30	1.91	
	Area × Sex (Male)	0.11	0.27	-0.68	0.89	0.12
	Disp. Kernel × Age (Juv.)	-3.28	1.92	-6.63	0.07	0.81
	Disp. Kernel × Age (Sub.)	-0.60	1.30	-1.50	0.30	
Disp. Kernel × Sex (Male)	-0.63	1.73	-1.35	0.08	0.35	
Tail length	Intercept	78.32	26.63	72.56	84.09	
	Si	0.63	0.45	-2.13	3.39	1.00
	Si ²	-0.48	0.57	-2.12	1.16	1.00
	Age (Juvenile)	20.30	2.34	3.26	37.34	1.00
	(Subadult)	-4.63	2.74	-7.94	-1.32	

Sex	(Male)	-1.04	0.84	-3.47	1.40	0.80
Year	(2014)	4.80	1.58	-1.15	10.74	1.00
	(2015)	1.87	0.67	-3.59	7.32	
$S_i \times$ Age	(Juv.)	-85.67	4.17	-125.91	-45.42	1.00
$S_i \times$ Age	(Sub.)	0.66	0.34	-3.11	4.43	
$S_i \times$ Sex	(Male)	0.44	0.33	-2.18	3.05	0.41
$S_i^2 \times$ Age	(Juv.)	-117.40	3.81	-177.84	-56.96	1.00
$S_i^2 \times$ Age	(Sub.)	1.27	0.86	-1.63	4.17	
$S_i^2 \times$ Sex	(Male)	0.51	0.61	-1.12	2.13	0.35

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125 Appendix 8. Results for selection of isolation metrics for models about effects of island landscape
 126 features, on individual traits in red-backed voles.

Parameter	Isolation metric	df	LogLik	AIC	Δ AIC
Neck-handling aggression	Area + Kernel + Area \times Kernel	20	-435.12	912.69	0.00
	$S_i + S_i^2$	19	-436.25	912.72	0.02
Tail-handling aggression	Area + Kernel + Area \times Kernel	18	-440.56	919.96	0.00
	$S_i + S_i^2$	17	-442.49	921.50	1.54

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150 Appendix 9. Models included in the model averaging procedure for island feature effects on
 151 individual traits in red-backed voles.

Parameter	Model	df	LogLik	AICc	Δ AICc	Weight
Neck-handling aggression	<i>(Null model)</i>	4	-423.48	855.06	0.00	0.58
	<i>Age</i>	7	-420.82	855.96	0.90	0.37
	<i>Sex</i>	5	-424.94	860.05	4.99	0.05
Tail-handling aggression	<i>(Null model)</i>	4	-440.16	888.48	0	0.17
	<i>Year</i>	5	-439.23	888.69	0.21	0.15
	<i>Sex</i>	6	-438.29	888.92	0.44	0.14
	<i>Sex + Year</i>	7	-437.61	889.66	1.18	0.09
	<i>Kernel + Age + Kernel×Age</i>	10	-434.41	889.7	1.23	0.09
	<i>Age</i>	7	-438.19	890.83	2.35	0.05
	<i>Kernel + Age + Year + Kernel×Age</i>	11	-433.94	890.95	2.48	0.05
	<i>Age + Year</i>	8	-437.34	891.26	2.78	0.04
	<i>Kernel + Age + Sex + Kernel×Age</i>	11	-434.23	891.53	3.05	0.04
	<i>Area</i>	5	-441.14	892.52	4.04	0.02
	<i>Age + Sex</i>	8	-438.01	892.59	4.11	0.02
	<i>Kernel</i>	5	-441.19	892.61	4.13	0.02
	<i>Kernel + Year</i>	6	-440.18	892.69	4.22	0.02
	<i>Area + Kernel</i>	6	-440.21	892.75	4.27	0.02
	<i>Area + Sex</i>	7	-439.24	892.93	4.45	0.02
	<i>Kernel + Age + Sex + Year + Kernel×Age</i>	12	-433.91	893.09	4.61	0.02
	<i>Kernel + Sex</i>	7	-439.35	893.14	4.67	0.02
<i>Age + Sex + Year</i>	9	-437.31	893.34	4.86	0.01	

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165 Appendix 10. Final estimates obtained from model averaging procedure for island landscape effects
 166 on individual traits in red-backed voles.

Parameter	Terms	Estimate	Z-value	2.50% CI	97.5% CI	Importance
Neck-handling aggression	Intercept	1.74	17.13	1.54	1.93	
	Age (<i>Juvenile</i>)	0.02	0.09	-0.38	0.41	0.37
	(<i>Subadult</i>)	-0.15	1.60	-0.33	0.03	
	Sex (<i>Male</i>)	0.03	0.31	-0.15	0.20	0.05
Tail-handling aggression	Intercept	5.02	15.08	4.37	5.68	
	Area	0.06	0.45	-0.21	0.34	0.06
	Dispersal kernel	-0.04	0.27	-0.32	0.24	0.25
	Age (<i>Juvenile</i>)	-0.45	0.28	-3.70	2.79	0.33
	(<i>Subadult</i>)	0.05	0.27	-0.30	0.40	
	Sex (<i>Male</i>)	0.24	1.41	-0.09	0.58	0.36
	Year (<i>2015</i>)	-0.43	1.61	-0.96	0.09	0.41
	Disp. Kernel × Age (Juv.)	0.62	0.21	-5.26	6.50	0.20
Disp. Kernel × Age (Sub.)	0.48	2.62	0.12	0.83		

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