Animal Biology

Effects of biotic and abiotic stressors on asymmetries and head size in two sympatric lizard species

Ajša Alagić[1,*], Miha Krofel[2], Marko Lazić[3] and Anamarija Žagar[4,5,***]**

[1] Department of Forest Ecology, Slovenian Forestry Institute, Večna pot 2, 1000 Ljubljana, Slovenia

[2] Department of Forestry, Biotehnical Faculty, University of Ljubljana, Večna pot 83, 1000 Ljubljana, Slovenia

[3] Zoological Research Museum Alexander Koenig (ZFMK), Adenauerallee 160, 53113 Bonn, Germany

[4] National Institute of Biology (NIB), Department of Organisms and Ecosystems Research, Večna pot 111, 1000 Ljubljana, Slovenia

[5] CIBIO Research Centre in Biodiversity and Genetic Resources, InBIO, University of Porto, Rua Padre Armando Quintas, No 7, 4485-661 Vairao, Portugal

Submitted: November 5, 2020. Final revision received: July 2, 2021. Accepted: July 23, 2021

*) ORCID: 0000-0003-1117-0737

**) Corresponding author; e-mail: anamarija.zagar@nib.si

***) ORCID: 0000-0003-2165-417X

Supplementary material

Table S1.

Results from ANOVA testing for the presence of directional (DA) and fluctuating asymmetries (FA) in the number of supraciliar granules and head shape of lizards from all sampled populations. Significant effects are marked in bold.

	SCGN			Head shape asymmetry		
	df	*F*	*p*	df	*F*	*p*
Individual	327	5.50	**<0.001**	334	4.91	**<0.02**
Side	1	3.60	0.58	1	50.12	**<0.02**
Individual : side	293	8.12	**<0.001**	334	1.12	**<0.02**
Measurement error	616			670		

Abbreviations: df, degrees of freedom; *F*, *F*-test value;*p*, *p* value, SCGN, the number of supraciliar granules.

Table S2.

Background dataset used in the analysis.

Individual label	Species	Sex	SVL	Population	Image	Individual	Type
A_IHOR_M_01	IHOR	M	50.3	ALLOTOPIC	1	1	natur
A_IHOR_M_02	IHOR	M	57.4	ALLOTOPIC	1	2	natur
A_IHOR_M_03	IHOR	M	54.2	ALLOTOPIC	1	3	natur
A_IHOR_M_06	IHOR	M	56.6	ALLOTOPIC	1	4	natur
A_IHOR_M_08	IHOR	M	55.8	ALLOTOPIC	1	5	natur
A_IHOR_M_09	IHOR	M	55.2	ALLOTOPIC	1	6	natur
A_IHOR_M_10	IHOR	M	51.1	ALLOTOPIC	1	7	natur
A_IHOR_M_11	IHOR	M	61.1	ALLOTOPIC	1	8	natur
A_IHOR_M_12	IHOR	M	52.9	ALLOTOPIC	1	9	natur
A_IHOR_M_13	IHOR	M	51.2	ALLOTOPIC	1	10	natur
A_IHOR_M_14	IHOR	M	56.6	ALLOTOPIC	1	11	natur
A_IHOR_M_15	IHOR	M	53.2	ALLOTOPIC	1	12	natur
A_IHOR_M_17	IHOR	M	49.7	SYNTOPIC	1	13	natur
A_IHOR_M_18	IHOR	M	53.7	SYNTOPIC	1	14	natur
A_IHOR_M_19	IHOR	M	51.9	SYNTOPIC	1	15	natur
A_IHOR_M_20	IHOR	M	49	SYNTOPIC	1	16	natur
A_IHOR_M_21	IHOR	M	52.4	SYNTOPIC	1	17	natur
A_IHOR_M_22	IHOR	M	48.8	SYNTOPIC	1	18	natur
A_IHOR_M_23	IHOR	M	51	ALLOTOPIC	1	19	natur
A_IHOR_M_24	IHOR	M	56.6	ALLOTOPIC	1	20	natur
A_IHOR_M_26	IHOR	M	55	ALLOTOPIC	1	21	natur

A_IHOR_M_27	IHOR	M	51.5	ALLOTOPIC	1	22	natur
A_IHOR_M_28	IHOR	M	48.5	ALLOTOPIC	1	23	natur
A_IHOR_M_29	IHOR	M	58.2	ALLOTOPIC	1	24	natur
A_IHOR_M_30	IHOR	M	59.8	ALLOTOPIC	1	25	natur
A_IHOR_M_31	IHOR	M	53.5	SYNTOPIC	1	26	natur
A_IHOR_M_32	IHOR	M	49.7	SYNTOPIC	1	27	natur
A_IHOR_M_33	IHOR	M	53.2	ALLOTOPIC	1	28	natur
A_IHOR_M_35	IHOR	M	60.4	ALLOTOPIC	1	29	natur
A_PMUR_M_02	PMUR	M	47.9	SYNTOPIC	1	30	natur
A_PMUR_M_03	PMUR	M	51.1	ALLOTOPIC	1	31	urban
A_PMUR_M_05	PMUR	M	49	ALLOTOPIC	1	32	urban
A_PMUR_M_06	PMUR	M	56.5	ALLOTOPIC	1	33	urban
A_PMUR_M_07	PMUR	M	54.9	ALLOTOPIC	1	34	urban
A_PMUR_M_13	PMUR	M	56.8	ALLOTOPIC	1	35	natur
A_PMUR_M_14	PMUR	M	62	ALLOTOPIC	1	36	natur
A_PMUR_M_16	PMUR	M	52.2	ALLOTOPIC	1	37	natur
A_PMUR_M_19	PMUR	M	59.4	ALLOTOPIC	1	38	natur
A_PMUR_M_22	PMUR	M	61.6	ALLOTOPIC	1	39	natur
A_PMUR_M_23	PMUR	M	62.4	ALLOTOPIC	1	40	natur
A_PMUR_M_24	PMUR	M	56	ALLOTOPIC	1	41	natur
A_PMUR_M_25	PMUR	M	50.8	SYNTOPIC	1	42	natur
A_PMUR_M_26	PMUR	M	55.1	SYNTOPIC	1	43	natur
A_PMUR_M_27	PMUR	M	47.5	SYNTOPIC	1	44	natur
A_PMUR_M_29	PMUR	M	55.6	ALLOTOPIC	1	45	natur

A_PMUR_M_30	PMUR	M	55.2	ALLOTOPIC	1	46	natur
A_PMUR_M_31	PMUR	M	50.7	ALLOTOPIC	1	47	natur
C_IHOR_M_01	IHOR	M	47.2	ALLOTOPIC	1	48	natur
C_IHOR_M_02	IHOR	M	58.3	ALLOTOPIC	1	49	natur
C_IHOR_M_03	IHOR	M	58.4	ALLOTOPIC	1	50	natur
C_IHOR_M_04	IHOR	M	49.1	ALLOTOPIC	1	51	natur
C_IHOR_M_05	IHOR	M	47.4	ALLOTOPIC	1	52	natur
C_IHOR_M_07	IHOR	M	52.6	ALLOTOPIC	1	53	natur
C_IHOR_M_09	IHOR	M	54.2	ALLOTOPIC	1	54	natur
C_IHOR_M_10	IHOR	M	48.8	SYNTOPIC	1	55	natur
C_IHOR_M_11	IHOR	M	51	ALLOTOPIC	1	56	natur
C_IHOR_M_13	IHOR	M	57.1	ALLOTOPIC	1	57	natur
C_IHOR_M_14	IHOR	M	53.9	ALLOTOPIC	1	58	natur
C_PMUR_M_02	PMUR	M	59.1	ALLOTOPIC	1	59	natur
C_PMUR_M_03	PMUR	M	55.4	ALLOTOPIC	1	60	natur
C_PMUR_M_05	PMUR	M	53.4	ALLOTOPIC	1	61	natur
C_PMUR_M_09	PMUR	M	57.4	ALLOTOPIC	1	62	natur
C_PMUR_M_10	PMUR	M	59.8	ALLOTOPIC	1	63	natur
C_PMUR_M_11	PMUR	M	51.1	ALLOTOPIC	1	64	natur
IHOR-01	IHOR	M	52.3	SYNTOPIC	1	65	natur
IHOR-03	IHOR	M	51	ALLOTOPIC	1	66	natur
IHOR-05	IHOR	M	49.8	SYNTOPIC	1	67	natur
IHOR-06	IHOR	M	46.9	SYNTOPIC	1	68	natur
IHOR-07	IHOR	M	53	SYNTOPIC	1	69	natur

M_IHOR_F_04	IHOR	F	62.2	ALLOTOPIC	1	74	natur
M_IHOR_F_05	IHOR	F	59	ALLOTOPIC	1	75	natur
M_IHOR_F_07	IHOR	F	61.6	ALLOTOPIC	1	76	natur
M_IHOR_F_08	IHOR	F	61.3	ALLOTOPIC	1	77	natur
M_IHOR_F_10	IHOR	F	61.1	ALLOTOPIC	1	78	natur
M_IHOR_F_12	IHOR	F	55.1	ALLOTOPIC	1	79	natur
M_IHOR_F_24	IHOR	F	60.7	ALLOTOPIC	1	81	natur
M_IHOR_F_25	IHOR	F	55.3	ALLOTOPIC	1	82	natur
M_IHOR_F_26	IHOR	F	48.9	ALLOTOPIC	1	83	natur
M_IHOR_F_27	IHOR	F	56.5	ALLOTOPIC	1	84	natur
M_IHOR_F_28	IHOR	F	51.4	ALLOTOPIC	1	85	natur
M_IHOR_F_29	IHOR	F	56.3	ALLOTOPIC	1	86	natur
M_IHOR_M_23	IHOR	M	48.8	ALLOTOPIC	1	108	natur
M_IHOR_M_26	IHOR	M	53.3	ALLOTOPIC	1	110	natur
M_IHOR_M_29	IHOR	M	54.6	ALLOTOPIC	1	111	natur
M_PMUR_F_02	PMUR	F	51.7	SYNTOPIC	1	113	natur
M_PMUR_F_08	PMUR	F	62	ALLOTOPIC	1	119	natur
M_PMUR_F_09	PMUR	F	61.9	ALLOTOPIC	1	120	natur
M_PMUR_F_10	PMUR	F	68	ALLOTOPIC	1	121	natur
M_PMUR_F_11	PMUR	F	58	ALLOTOPIC	1	122	natur
M_PMUR_F_12	PMUR	F	56.6	ALLOTOPIC	1	123	natur
M_PMUR_F_13	PMUR	F	68.5	ALLOTOPIC	1	124	natur
M_PMUR_F_14	PMUR	F	59.2	ALLOTOPIC	1	125	natur
M_PMUR_F_15	PMUR	F	60.5	ALLOTOPIC	1	126	natur

M_PMUR_F_16	PMUR	F	59.9	ALLOTOPIC	1	127	natur
M_PMUR_F_17	PMUR	F	61	ALLOTOPIC	1	128	natur
M_PMUR_F_18	PMUR	F	59.4	ALLOTOPIC	1	129	natur
M_PMUR_F_19	PMUR	F	58	ALLOTOPIC	1	130	natur
M_PMUR_F_20	PMUR	F	50.2	SYNTOPIC	1	131	natur
M_PMUR_F_21	PMUR	F	52.1	SYNTOPIC	1	132	natur
M_PMUR_F_25	PMUR	F	55.6	ALLOTOPIC	1	133	natur
M_PMUR_F_29	PMUR	F	54	ALLOTOPIC	1	134	natur
W_IHOR_F_01	IHOR	F	56.4	SYNTOPIC	1	135	natur
W_IHOR_F_03	IHOR	F	62	ALLOTOPIC	1	136	natur
W_IHOR_F_04	IHOR	F	58.3	ALLOTOPIC	1	137	natur
W_IHOR_F_05	IHOR	F	55.7	ALLOTOPIC	1	138	natur
W_IHOR_F_06	IHOR	F	55.6	ALLOTOPIC	1	139	natur
W_IHOR_F_07	IHOR	F	66.7	ALLOTOPIC	1	140	natur
W_IHOR_F_08	IHOR	F	54.9	ALLOTOPIC	1	141	natur
W_IHOR_F_09	IHOR	F	54.1	ALLOTOPIC	1	142	natur
W_IHOR_F_10	IHOR	F	59.3	ALLOTOPIC	1	143	natur
W_IHOR_F_11	IHOR	F	59.9	ALLOTOPIC	1	144	natur
W_IHOR_F_13	IHOR	F	61.4	ALLOTOPIC	1	145	natur
W_IHOR_F_14	IHOR	F	50.5	ALLOTOPIC	1	146	natur
W_IHOR_M_01	IHOR	M	50.6	SYNTOPIC	1	147	natur
W_IHOR_M_04	IHOR	M	55.3	ALLOTOPIC	1	149	natur
W_IHOR_M_07	IHOR	M	53.6	ALLOTOPIC	1	152	natur
W_IHOR_M_09	IHOR	M	46.9	ALLOTOPIC	1	153	natur

W_IHOR_M_11	IHOR	M	56.1	ALLOTOPIC	1	154	natur
W_IHOR_M_12	IHOR	M	47.5	ALLOTOPIC	1	155	natur
W_PMUR_F_02	PMUR	F	57.6	SYNTOPIC	1	156	natur
W_PMUR_F_03	PMUR	F	54.7	ALLOTOPIC	1	157	natur
W_PMUR_F_04	PMUR	F	58.6	ALLOTOPIC	1	158	natur
W_PMUR_F_05	PMUR	F	51.8	ALLOTOPIC	1	159	natur
W_PMUR_F_06	PMUR	F	52.8	ALLOTOPIC	1	160	natur
W_PMUR_F_07	PMUR	F	60.9	ALLOTOPIC	1	161	natur
W_PMUR_F_08	PMUR	F	56.9	ALLOTOPIC	1	162	natur
W_PMUR_F_10	PMUR	F	54.7	ALLOTOPIC	1	163	natur
W_PMUR_F_11	PMUR	F	51.1	ALLOTOPIC	1	164	natur
W_PMUR_F_12	PMUR	F	59.3	ALLOTOPIC	1	165	natur
W_PMUR_F_13	PMUR	F	48.8	ALLOTOPIC	1	166	natur
W_PMUR_F_14	PMUR	F	50.7	ALLOTOPIC	1	167	natur
W_PMUR_F_15	PMUR	F	50	ALLOTOPIC	1	168	natur
W_PMUR_F_16	PMUR	F	59.1	ALLOTOPIC	1	169	natur
W_PMUR_M_01	PMUR	M	59.2	SYNTOPIC	1	170	natur
W_PMUR_M_02	PMUR	M	49.5	SYNTOPIC	1	171	natur
W_PMUR_M_04	PMUR	M	56.5	ALLOTOPIC	1	172	natur
W_PMUR_M_06	PMUR	M	47.2	ALLOTOPIC	1	174	natur
1	PMUR	M	52.3	ALLOTOPIC	1	175	natur
10	IHOR	M	59	ALLOTOPIC	1	176	natur
11	IHOR	M	53.8	ALLOTOPIC	1	177	natur
12	PMUR	M	58.2	ALLOTOPIC	1	178	natur

13	PMUR	M	54	ALLOTOPIC	1	179	natur
14	PMUR	M	50	ALLOTOPIC	1	180	natur
15	PMUR	M	60.1	ALLOTOPIC	1	181	natur
16	PMUR	M	51.9	ALLOTOPIC	1	182	natur
17	PMUR	M	58.1	ALLOTOPIC	1	183	natur
18	PMUR	M	52.3	ALLOTOPIC	1	184	natur
19	PMUR	M	56.1	ALLOTOPIC	1	185	natur
2	IHOR	M	54.7	ALLOTOPIC	1	186	natur
20	IHOR	F	60.4	ALLOTOPIC	1	187	natur
21	IHOR	F	58.9	ALLOTOPIC	1	188	natur
24	IHOR	F	66.1	ALLOTOPIC	1	189	natur
25	PMUR	M	57.6	ALLOTOPIC	1	190	natur
26	IHOR	F	57.6	ALLOTOPIC	1	191	natur
27	PMUR	M	59.5	ALLOTOPIC	1	192	natur
28	IHOR	F	58.5	ALLOTOPIC	1	193	natur
3	IHOR	M	51.8	ALLOTOPIC	1	194	natur
30	IHOR	F	61.7	ALLOTOPIC	1	195	natur
31	IHOR	F	51.1	ALLOTOPIC	1	196	natur
32	IHOR	F	59.3	ALLOTOPIC	1	197	natur
33	IHOR	F	64	ALLOTOPIC	1	198	natur
35	IHOR	F	66.1	ALLOTOPIC	1	199	natur
38	PMUR	M	52.9	ALLOTOPIC	1	200	natur
39	IHOR	F	61.3	ALLOTOPIC	1	201	natur
4	IHOR	M	54.6	ALLOTOPIC	1	202	natur

40	PMUR	M	60.8	ALLOTOPIC	1	203	natur
41	PMUR	M	57.4	ALLOTOPIC	1	204	natur
42	IHOR	F	61.3	ALLOTOPIC	1	205	natur
43	PMUR	M	48.1	ALLOTOPIC	1	206	natur
44	IHOR	F	57.4	ALLOTOPIC	1	207	natur
47	PMUR	F	56.7	ALLOTOPIC	1	208	natur
48	PMUR	F	63.6	ALLOTOPIC	1	209	natur
49	PMUR	F	61.6	ALLOTOPIC	1	210	natur
5	IHOR	M	53.9	ALLOTOPIC	1	211	natur
50	PMUR	F	55.1	ALLOTOPIC	1	212	natur
51	PMUR	F	60.2	ALLOTOPIC	1	213	natur
52	IHOR	F	58	ALLOTOPIC	1	214	natur
53	IHOR	F	60.3	ALLOTOPIC	1	215	natur
55	PMUR	F	60.2	ALLOTOPIC	1	216	natur
56	PMUR	F	60.8	ALLOTOPIC	1	217	natur
57	IHOR	F	61.4	ALLOTOPIC	1	218	natur
58	IHOR	F	54.6	ALLOTOPIC	1	219	natur
59	PMUR	F	59.9	ALLOTOPIC	1	220	natur
6	IHOR	M	53.9	ALLOTOPIC	1	221	natur
60	PMUR	F	57.8	ALLOTOPIC	1	222	natur
61	PMUR	F	61.1	ALLOTOPIC	1	223	natur
62	PMUR	F	57.3	ALLOTOPIC	1	224	natur
63	PMUR	F	60.8	ALLOTOPIC	1	225	natur
64	PMUR	F	58.3	ALLOTOPIC	1	226	natur

65	IHOR	F	56	ALLOTOPIC	1	227	natur
66	PMUR	F	60	ALLOTOPIC	1	228	natur
69	PMUR	M	54.9	ALLOTOPIC	1	229	natur
7	IHOR	M	52.1	ALLOTOPIC	1	230	natur
70	PMUR	F	62.4	ALLOTOPIC	1	231	natur
71	PMUR	F	56.3	ALLOTOPIC	1	232	natur
73	PMUR	F	54.9	ALLOTOPIC	1	233	natur
74	PMUR	F	58.6	ALLOTOPIC	1	234	natur
75	PMUR	F	60.8	ALLOTOPIC	1	235	natur
78	PMUR	M	58.9	ALLOTOPIC	1	236	natur
79	PMUR	M	57.4	ALLOTOPIC	1	237	natur
81	IHOR	M	58.4	ALLOTOPIC	1	238	natur
82	IHOR	M	54.1	ALLOTOPIC	1	239	natur
83	PMUR	F	58.8	ALLOTOPIC	1	240	natur
84	PMUR	F	56.3	ALLOTOPIC	1	241	natur
85	PMUR	F	53.3	ALLOTOPIC	1	242	natur
88	PMUR	F	56.7	ALLOTOPIC	1	243	natur
90	PMUR	F	55	ALLOTOPIC	1	244	natur
91	PMUR	F	59.1	ALLOTOPIC	1	245	natur
92	PMUR	F	49.5	ALLOTOPIC	1	246	natur
93	PMUR	F	53.8	ALLOTOPIC	1	247	natur
94	PMUR	F	53.9	ALLOTOPIC	1	248	natur
96	PMUR	F	55.9	ALLOTOPIC	1	249	natur
97	PMUR	F	59.9	ALLOTOPIC	1	250	natur

A	IHOR	F	55.5	ALLOTOPIC	1	251	natur
A10	IHOR	F	61.2	ALLOTOPIC	1	252	natur
A2	IHOR	F	64.1	ALLOTOPIC	1	253	natur
A3	IHOR	F	60.3	ALLOTOPIC	1	254	natur
A4	IHOR	F	61.4	ALLOTOPIC	1	255	natur
A6	IHOR	F	52.5	ALLOTOPIC	1	256	natur
A8	IHOR	F	58.6	ALLOTOPIC	1	257	natur
A9	IHOR	F	53.8	ALLOTOPIC	1	258	natur
B	IHOR	F	62.2	ALLOTOPIC	1	259	natur
B1	IHOR	F	57.5	ALLOTOPIC	1	260	natur
B2	IHOR	F	58.1	ALLOTOPIC	1	261	natur
B3	IHOR	F	57.2	ALLOTOPIC	1	262	natur
B4	IHOR	F	63.6	ALLOTOPIC	1	263	natur
B5	IHOR	F	55.6	ALLOTOPIC	1	264	natur
B6	IHOR	F	58.4	ALLOTOPIC	1	265	natur
IHOR_1526	IHOR	M	52.18	ALLOTOPIC	1	290	natur
IHOR_1527	IHOR	M	47.73	ALLOTOPIC	1	291	natur
IHOR_1528	IHOR	M	57.14	ALLOTOPIC	1	292	natur
IHOR_1529	IHOR	M	61.79	ALLOTOPIC	1	293	natur
IHOR_1530	IHOR	M	48.05	ALLOTOPIC	1	294	natur
IHOR_1531	IHOR	M	47.49	ALLOTOPIC	1	295	natur
IHOR_1532	IHOR	M	58.17	ALLOTOPIC	1	296	natur
IHOR_1533	IHOR	M	53.74	ALLOTOPIC	1	297	natur
IHOR_1535	IHOR	M	56.26	ALLOTOPIC	1	298	natur

IHOR_1536	IHOR	M	48.55	ALLOTOPIC	1	299	natur
IHOR_1538	IHOR	M	59.96	ALLOTOPIC	1	301	natur
IHOR_F1	IHOR	F	48.88	SYNTOPIC	1	320	natur
IHOR_F11	IHOR	F	60.37	ALLOTOPIC	1	321	natur
IHOR_F13	IHOR	F	58.78	ALLOTOPIC	1	322	natur
IHOR_F14	IHOR	F	61.34	ALLOTOPIC	1	323	natur
IHOR_F19	IHOR	F	53.27	ALLOTOPIC	1	324	natur
IHOR_F2	IHOR	F	53.66	SYNTOPIC	1	325	natur
IHOR_F4	IHOR	F	54.7	SYNTOPIC	1	326	natur
IHOR_F5	IHOR	F	57.52	SYNTOPIC	1	327	natur
IHOR_F9	IHOR	F	56.95	ALLOTOPIC	1	328	natur
KZID_IHOR1501	IHOR	M	54.22	SYNTOPIC	1	333	natur
KZID_IHOR1502	IHOR	M	47.53	SYNTOPIC	1	334	natur
KZID_IHOR1503	IHOR	M	49.6	SYNTOPIC	1	335	natur
KZID_IHOR1505	IHOR	M	53.34	SYNTOPIC	1	337	natur
KZID_IHOR1506	IHOR	M	53.94	SYNTOPIC	1	338	natur
KZID_IHOR1507	IHOR	M	50.24	SYNTOPIC	1	339	natur
KZID_PMUR1501	PMUR	F	58.63	SYNTOPIC	1	340	natur
KZID_PMUR1502	PMUR	F	49.94	SYNTOPIC	1	341	natur
KZID_PMUR1503	PMUR	M	50.25	SYNTOPIC	1	342	natur
KZID_PMUR1504	PMUR	M	58.76	SYNTOPIC	1	343	natur
KZID_PMUR1505	PMUR	M	56.49	SYNTOPIC	1	344	natur
PMUR_1544	PMUR	M	59.76	ALLOTOPIC	1	366	natur
PMUR_1545	PMUR	M	58.17	ALLOTOPIC	1	367	natur

PMUR_1546	PMUR	M	54.93	ALLOTOPIC	1	368	natur
PMUR_1547	PMUR	M	55.44	ALLOTOPIC	1	369	natur
PMUR_1548	PMUR	M	51.04	ALLOTOPIC	1	370	natur
PMUR_1549	PMUR	M	61.57	ALLOTOPIC	1	371	natur
PMUR_1550	PMUR	M	58.39	ALLOTOPIC	1	372	natur
PMUR_1551	PMUR	M	55.96	ALLOTOPIC	1	373	natur
PMUR_1552	PMUR	M	59.72	ALLOTOPIC	1	374	natur
PMUR_F16	PMUR	F	59.49	ALLOTOPIC	1	388	natur
PMUR_F17	PMUR	F	61.16	ALLOTOPIC	1	389	natur
PMUR_F18	PMUR	F	55.26	ALLOTOPIC	1	390	natur
PMUR_F19	PMUR	F	60.95	ALLOTOPIC	1	391	natur
PMUR_F20	PMUR	F	59.56	ALLOTOPIC	1	392	natur
PMUR_F21	PMUR	F	59.96	ALLOTOPIC	1	393	natur
PMUR_F22	PMUR	F	50.55	ALLOTOPIC	1	394	natur
PMUR_F23	PMUR	F	57.69	ALLOTOPIC	1	395	natur
PMUR_F24	PMUR	F	62.24	ALLOTOPIC	1	396	natur
A_IHOR_M_01	IHOR	M	50.3	ALLOTOPIC	2	1	natur
A_IHOR_M_02	IHOR	M	57.4	ALLOTOPIC	2	2	natur
A_IHOR_M_03	IHOR	M	54.2	ALLOTOPIC	2	3	natur
A_IHOR_M_06	IHOR	M	56.6	ALLOTOPIC	2	4	natur
A_IHOR_M_08	IHOR	M	55.8	ALLOTOPIC	2	5	natur
A_IHOR_M_09	IHOR	M	55.2	ALLOTOPIC	2	6	natur
A_IHOR_M_10	IHOR	M	51.1	ALLOTOPIC	2	7	natur
A_IHOR_M_11	IHOR	M	61.1	ALLOTOPIC	2	8	natur

A_IHOR_M_12	IHOR	M	52.9	ALLOTOPIC	2	9	natur
A_IHOR_M_13	IHOR	M	51.2	ALLOTOPIC	2	10	natur
A_IHOR_M_14	IHOR	M	56.6	ALLOTOPIC	2	11	natur
A_IHOR_M_15	IHOR	M	53.2	ALLOTOPIC	2	12	natur
A_IHOR_M_17	IHOR	M	49.7	SYNTOPIC	2	13	natur
A_IHOR_M_18	IHOR	M	53.7	SYNTOPIC	2	14	natur
A_IHOR_M_19	IHOR	M	51.9	SYNTOPIC	2	15	natur
A_IHOR_M_20	IHOR	M	49	SYNTOPIC	2	16	natur
A_IHOR_M_21	IHOR	M	52.4	SYNTOPIC	2	17	natur
A_IHOR_M_22	IHOR	M	48.8	SYNTOPIC	2	18	natur
A_IHOR_M_23	IHOR	M	51	ALLOTOPIC	2	19	natur
A_IHOR_M_24	IHOR	M	56.6	ALLOTOPIC	2	20	natur
A_IHOR_M_26	IHOR	M	55	ALLOTOPIC	2	21	natur
A_IHOR_M_27	IHOR	M	51.5	ALLOTOPIC	2	22	natur
A_IHOR_M_28	IHOR	M	48.5	ALLOTOPIC	2	23	natur
A_IHOR_M_29	IHOR	M	58.2	ALLOTOPIC	2	24	natur
A_IHOR_M_30	IHOR	M	59.8	ALLOTOPIC	2	25	natur
A_IHOR_M_31	IHOR	M	53.5	SYNTOPIC	2	26	natur
A_IHOR_M_32	IHOR	M	49.7	SYNTOPIC	2	27	natur
A_IHOR_M_33	IHOR	M	53.2	ALLOTOPIC	2	28	natur
A_IHOR_M_35	IHOR	M	60.4	ALLOTOPIC	2	29	natur
A_PMUR_M_02	PMUR	M	47.9	SYNTOPIC	2	30	natur
A_PMUR_M_03	PMUR	M	51.1	ALLOTOPIC	2	31	urban
A_PMUR_M_05	PMUR	M	49	ALLOTOPIC	2	32	urban

A_PMUR_M_06	PMUR	M	56.5	ALLOTOPIC	2	33	urban
A_PMUR_M_07	PMUR	M	54.9	ALLOTOPIC	2	34	urban
A_PMUR_M_13	PMUR	M	56.8	ALLOTOPIC	2	35	natur
A_PMUR_M_14	PMUR	M	62	ALLOTOPIC	2	36	natur
A_PMUR_M_16	PMUR	M	52.2	ALLOTOPIC	2	37	natur
A_PMUR_M_19	PMUR	M	59.4	ALLOTOPIC	2	38	natur
A_PMUR_M_22	PMUR	M	61.6	ALLOTOPIC	2	39	natur
A_PMUR_M_23	PMUR	M	62.4	ALLOTOPIC	2	40	natur
A_PMUR_M_24	PMUR	M	56	ALLOTOPIC	2	41	natur
A_PMUR_M_25	PMUR	M	50.8	SYNTOPIC	2	42	natur
A_PMUR_M_26	PMUR	M	55.1	SYNTOPIC	2	43	natur
A_PMUR_M_27	PMUR	M	47.5	SYNTOPIC	2	44	natur
A_PMUR_M_29	PMUR	M	55.6	ALLOTOPIC	2	45	natur
A_PMUR_M_30	PMUR	M	55.2	ALLOTOPIC	2	46	natur
A_PMUR_M_31	PMUR	M	50.7	ALLOTOPIC	2	47	natur
C_IHOR_M_01	IHOR	M	47.2	ALLOTOPIC	2	48	natur
C_IHOR_M_02	IHOR	M	58.3	ALLOTOPIC	2	49	natur
C_IHOR_M_03	IHOR	M	58.4	ALLOTOPIC	2	50	natur
C_IHOR_M_04	IHOR	M	49.1	ALLOTOPIC	2	51	natur
C_IHOR_M_05	IHOR	M	47.4	ALLOTOPIC	2	52	natur
C_IHOR_M_07	IHOR	M	52.6	ALLOTOPIC	2	53	natur
C_IHOR_M_09	IHOR	M	54.2	ALLOTOPIC	2	54	natur
C_IHOR_M_10	IHOR	M	48.8	SYNTOPIC	2	55	natur
C_IHOR_M_11	IHOR	M	51	ALLOTOPIC	2	56	natur

C_IHOR_M_13	IHOR	M	57.1	ALLOTOPIC	2	57	natur
C_IHOR_M_14	IHOR	M	53.9	ALLOTOPIC	2	58	natur
C_PMUR_M_02	PMUR	M	59.1	ALLOTOPIC	2	59	natur
C_PMUR_M_03	PMUR	M	55.4	ALLOTOPIC	2	60	natur
C_PMUR_M_05	PMUR	M	53.4	ALLOTOPIC	2	61	natur
C_PMUR_M_09	PMUR	M	57.4	ALLOTOPIC	2	62	natur
C_PMUR_M_10	PMUR	M	59.8	ALLOTOPIC	2	63	natur
C_PMUR_M_11	PMUR	M	51.1	ALLOTOPIC	2	64	natur
IHOR-01	IHOR	M	52.3	SYNTOPIC	2	65	natur
IHOR-03	IHOR	M	51	ALLOTOPIC	2	66	natur
IHOR-05	IHOR	M	49.8	SYNTOPIC	2	67	natur
IHOR-06	IHOR	M	46.9	SYNTOPIC	2	68	natur
IHOR-07	IHOR	M	53	SYNTOPIC	2	69	natur
M_IHOR_F_04	IHOR	F	62.2	ALLOTOPIC	2	74	natur
M_IHOR_F_05	IHOR	F	59	ALLOTOPIC	2	75	natur
M_IHOR_F_07	IHOR	F	61.6	ALLOTOPIC	2	76	natur
M_IHOR_F_08	IHOR	F	61.3	ALLOTOPIC	2	77	natur
M_IHOR_F_10	IHOR	F	61.1	ALLOTOPIC	2	78	natur
M_IHOR_F_12	IHOR	F	55.1	ALLOTOPIC	2	79	natur
M_IHOR_F_24	IHOR	F	60.7	ALLOTOPIC	2	81	natur
M_IHOR_F_25	IHOR	F	55.3	ALLOTOPIC	2	82	natur
M_IHOR_F_26	IHOR	F	48.9	ALLOTOPIC	2	83	natur
M_IHOR_F_27	IHOR	F	56.5	ALLOTOPIC	2	84	natur
M_IHOR_F_28	IHOR	F	51.4	ALLOTOPIC	2	85	natur

M_IHOR_F_29	IHOR	F	56.3	ALLOTOPIC	2	86	natur
M_IHOR_M_23	IHOR	M	48.8	ALLOTOPIC	2	108	natur
M_IHOR_M_26	IHOR	M	53.3	ALLOTOPIC	2	110	natur
M_IHOR_M_29	IHOR	M	54.6	ALLOTOPIC	2	111	natur
M_PMUR_F_02	PMUR	F	51.7	SYNTOPIC	2	113	natur
M_PMUR_F_08	PMUR	F	62	ALLOTOPIC	2	119	natur
M_PMUR_F_09	PMUR	F	61.9	ALLOTOPIC	2	120	natur
M_PMUR_F_10	PMUR	F	68	ALLOTOPIC	2	121	natur
M_PMUR_F_11	PMUR	F	58	ALLOTOPIC	2	122	natur
M_PMUR_F_12	PMUR	F	56.6	ALLOTOPIC	2	123	natur
M_PMUR_F_13	PMUR	F	68.5	ALLOTOPIC	2	124	natur
M_PMUR_F_14	PMUR	F	59.2	ALLOTOPIC	2	125	natur
M_PMUR_F_15	PMUR	F	60.5	ALLOTOPIC	2	126	natur
M_PMUR_F_16	PMUR	F	59.9	ALLOTOPIC	2	127	natur
M_PMUR_F_17	PMUR	F	61	ALLOTOPIC	2	128	natur
M_PMUR_F_18	PMUR	F	59.4	ALLOTOPIC	2	129	natur
M_PMUR_F_19	PMUR	F	58	ALLOTOPIC	2	130	natur
M_PMUR_F_20	PMUR	F	50.2	SYNTOPIC	2	131	natur
M_PMUR_F_21	PMUR	F	52.1	SYNTOPIC	2	132	natur
M_PMUR_F_25	PMUR	F	55.6	ALLOTOPIC	2	133	natur
M_PMUR_F_29	PMUR	F	54	ALLOTOPIC	2	134	natur
W_IHOR_F_01	IHOR	F	56.4	SYNTOPIC	2	135	natur
W_IHOR_F_03	IHOR	F	62	ALLOTOPIC	2	136	natur
W_IHOR_F_04	IHOR	F	58.3	ALLOTOPIC	2	137	natur

W_IHOR_F_05	IHOR	F	55.7	ALLOTOPIC	2	138	natur
W_IHOR_F_06	IHOR	F	55.6	ALLOTOPIC	2	139	natur
W_IHOR_F_07	IHOR	F	66.7	ALLOTOPIC	2	140	natur
W_IHOR_F_08	IHOR	F	54.9	ALLOTOPIC	2	141	natur
W_IHOR_F_09	IHOR	F	54.1	ALLOTOPIC	2	142	natur
W_IHOR_F_10	IHOR	F	59.3	ALLOTOPIC	2	143	natur
W_IHOR_F_11	IHOR	F	59.9	ALLOTOPIC	2	144	natur
W_IHOR_F_13	IHOR	F	61.4	ALLOTOPIC	2	145	natur
W_IHOR_F_14	IHOR	F	50.5	ALLOTOPIC	2	146	natur
W_IHOR_M_01	IHOR	M	50.6	SYNTOPIC	2	147	natur
W_IHOR_M_04	IHOR	M	55.3	ALLOTOPIC	2	149	natur
W_IHOR_M_07	IHOR	M	53.6	ALLOTOPIC	2	152	natur
W_IHOR_M_09	IHOR	M	46.9	ALLOTOPIC	2	153	natur
W_IHOR_M_11	IHOR	M	56.1	ALLOTOPIC	2	154	natur
W_IHOR_M_12	IHOR	M	47.5	ALLOTOPIC	2	155	natur
W_PMUR_F_02	PMUR	F	57.6	SYNTOPIC	2	156	natur
W_PMUR_F_03	PMUR	F	54.7	ALLOTOPIC	2	157	natur
W_PMUR_F_04	PMUR	F	58.6	ALLOTOPIC	2	158	natur
W_PMUR_F_05	PMUR	F	51.8	ALLOTOPIC	2	159	natur
W_PMUR_F_06	PMUR	F	52.8	ALLOTOPIC	2	160	natur
W_PMUR_F_07	PMUR	F	60.9	ALLOTOPIC	2	161	natur
W_PMUR_F_08	PMUR	F	56.9	ALLOTOPIC	2	162	natur
W_PMUR_F_10	PMUR	F	54.7	ALLOTOPIC	2	163	natur
W_PMUR_F_11	PMUR	F	51.1	ALLOTOPIC	2	164	natur

W_PMUR_F_12	PMUR	F	59.3	ALLOTOPIC	2	165	natur
W_PMUR_F_13	PMUR	F	48.8	ALLOTOPIC	2	166	natur
W_PMUR_F_14	PMUR	F	50.7	ALLOTOPIC	2	167	natur
W_PMUR_F_15	PMUR	F	50	ALLOTOPIC	2	168	natur
W_PMUR_F_16	PMUR	F	59.1	ALLOTOPIC	2	169	natur
W_PMUR_M_01	PMUR	M	59.2	SYNTOPIC	2	170	natur
W_PMUR_M_02	PMUR	M	49.5	SYNTOPIC	2	171	natur
W_PMUR_M_04	PMUR	M	56.5	ALLOTOPIC	2	172	natur
W_PMUR_M_06	PMUR	M	47.2	ALLOTOPIC	2	174	natur
1	PMUR	M	52.3	ALLOTOPIC	2	175	natur
10	IHOR	M	59	ALLOTOPIC	2	176	natur
11	IHOR	M	53.8	ALLOTOPIC	2	177	natur
12	PMUR	M	58.2	ALLOTOPIC	2	178	natur
13	PMUR	M	54	ALLOTOPIC	2	179	natur
14	PMUR	M	50	ALLOTOPIC	2	180	natur
15	PMUR	M	60.1	ALLOTOPIC	2	181	natur
16	PMUR	M	51.9	ALLOTOPIC	2	182	natur
17	PMUR	M	58.1	ALLOTOPIC	2	183	natur
18	PMUR	M	52.3	ALLOTOPIC	2	184	natur
19	PMUR	M	56.1	ALLOTOPIC	2	185	natur
2	IHOR	M	54.7	ALLOTOPIC	2	186	natur
20	IHOR	F	60.4	ALLOTOPIC	2	187	natur
21	IHOR	F	58.9	ALLOTOPIC	2	188	natur
24	IHOR	F	66.1	ALLOTOPIC	2	189	natur

25	PMUR	M	57.6	ALLOTOPIC	2	190	natur
26	IHOR	F	57.6	ALLOTOPIC	2	191	natur
27	PMUR	M	59.5	ALLOTOPIC	2	192	natur
28	IHOR	F	58.5	ALLOTOPIC	2	193	natur
3	IHOR	M	51.8	ALLOTOPIC	2	194	natur
30	IHOR	F	61.7	ALLOTOPIC	2	195	natur
31	IHOR	F	51.1	ALLOTOPIC	2	196	natur
32	IHOR	F	59.3	ALLOTOPIC	2	197	natur
33	IHOR	F	64	ALLOTOPIC	2	198	natur
35	IHOR	F	66.1	ALLOTOPIC	2	199	natur
38	PMUR	M	52.9	ALLOTOPIC	2	200	natur
39	IHOR	F	61.3	ALLOTOPIC	2	201	natur
4	IHOR	M	54.6	ALLOTOPIC	2	202	natur
40	PMUR	M	60.8	ALLOTOPIC	2	203	natur
41	PMUR	M	57.4	ALLOTOPIC	2	204	natur
42	IHOR	F	61.3	ALLOTOPIC	2	205	natur
43	PMUR	M	48.1	ALLOTOPIC	2	206	natur
44	IHOR	F	57.4	ALLOTOPIC	2	207	natur
47	PMUR	F	56.7	ALLOTOPIC	2	208	natur
48	PMUR	F	63.6	ALLOTOPIC	2	209	natur
49	PMUR	F	61.6	ALLOTOPIC	2	210	natur
5	IHOR	M	53.9	ALLOTOPIC	2	211	natur
50	PMUR	F	55.1	ALLOTOPIC	2	212	natur
51	PMUR	F	60.2	ALLOTOPIC	2	213	natur

52	IHOR	F	58	ALLOTOPIC	2	214	natur
53	IHOR	F	60.3	ALLOTOPIC	2	215	natur
55	PMUR	F	60.2	ALLOTOPIC	2	216	natur
56	PMUR	F	60.8	ALLOTOPIC	2	217	natur
57	IHOR	F	61.4	ALLOTOPIC	2	218	natur
58	IHOR	F	54.6	ALLOTOPIC	2	219	natur
59	PMUR	F	59.9	ALLOTOPIC	2	220	natur
6	IHOR	M	53.9	ALLOTOPIC	2	221	natur
60	PMUR	F	57.8	ALLOTOPIC	2	222	natur
61	PMUR	F	61.1	ALLOTOPIC	2	223	natur
62	PMUR	F	57.3	ALLOTOPIC	2	224	natur
63	PMUR	F	60.8	ALLOTOPIC	2	225	natur
64	PMUR	F	58.3	ALLOTOPIC	2	226	natur
65	IHOR	F	56	ALLOTOPIC	2	227	natur
66	PMUR	F	60	ALLOTOPIC	2	228	natur
69	PMUR	M	54.9	ALLOTOPIC	2	229	natur
7	IHOR	M	52.1	ALLOTOPIC	2	230	natur
70	PMUR	F	62.4	ALLOTOPIC	2	231	natur
71	PMUR	F	56.3	ALLOTOPIC	2	232	natur
73	PMUR	F	54.9	ALLOTOPIC	2	233	natur
74	PMUR	F	58.6	ALLOTOPIC	2	234	natur
75	PMUR	F	60.8	ALLOTOPIC	2	235	natur
78	PMUR	M	58.9	ALLOTOPIC	2	236	natur
79	PMUR	M	57.4	ALLOTOPIC	2	237	natur

81	IHOR	M	58.4	ALLOTOPIC	2	238	natur
82	IHOR	M	54.1	ALLOTOPIC	2	239	natur
83	PMUR	F	58.8	ALLOTOPIC	2	240	natur
84	PMUR	F	56.3	ALLOTOPIC	2	241	natur
85	PMUR	F	53.3	ALLOTOPIC	2	242	natur
88	PMUR	F	56.7	ALLOTOPIC	2	243	natur
90	PMUR	F	55	ALLOTOPIC	2	244	natur
91	PMUR	F	59.1	ALLOTOPIC	2	245	natur
92	PMUR	F	49.5	ALLOTOPIC	2	246	natur
93	PMUR	F	53.8	ALLOTOPIC	2	247	natur
94	PMUR	F	53.9	ALLOTOPIC	2	248	natur
96	PMUR	F	55.9	ALLOTOPIC	2	249	natur
97	PMUR	F	59.9	ALLOTOPIC	2	250	natur
A	IHOR	F	55.5	ALLOTOPIC	2	251	natur
A10	IHOR	F	61.2	ALLOTOPIC	2	252	natur
A2	IHOR	F	64.1	ALLOTOPIC	2	253	natur
A3	IHOR	F	60.3	ALLOTOPIC	2	254	natur
A4	IHOR	F	61.4	ALLOTOPIC	2	255	natur
A6	IHOR	F	52.5	ALLOTOPIC	2	256	natur
A8	IHOR	F	58.6	ALLOTOPIC	2	257	natur
A9	IHOR	F	53.8	ALLOTOPIC	2	258	natur
B	IHOR	F	62.2	ALLOTOPIC	2	259	natur
B1	IHOR	F	57.5	ALLOTOPIC	2	260	natur
B2	IHOR	F	58.1	ALLOTOPIC	2	261	natur

B3	IHOR	F	57.2	ALLOTOPIC	2	262	natur
B4	IHOR	F	63.6	ALLOTOPIC	2	263	natur
B5	IHOR	F	55.6	ALLOTOPIC	2	264	natur
B6	IHOR	F	58.4	ALLOTOPIC	2	265	natur
IHOR_1526	IHOR	M	52.18	ALLOTOPIC	2	290	natur
IHOR_1527	IHOR	M	47.73	ALLOTOPIC	2	291	natur
IHOR_1528	IHOR	M	57.14	ALLOTOPIC	2	292	natur
IHOR_1529	IHOR	M	61.79	ALLOTOPIC	2	293	natur
IHOR_1530	IHOR	M	48.05	ALLOTOPIC	2	294	natur
IHOR_1531	IHOR	M	47.49	ALLOTOPIC	2	295	natur
IHOR_1532	IHOR	M	58.17	ALLOTOPIC	2	296	natur
IHOR_1533	IHOR	M	53.74	ALLOTOPIC	2	297	natur
IHOR_1535	IHOR	M	56.26	ALLOTOPIC	2	298	natur
IHOR_1536	IHOR	M	48.55	ALLOTOPIC	2	299	natur
IHOR_1538	IHOR	M	59.96	ALLOTOPIC	2	301	natur
IHOR_F1	IHOR	F	48.88	SYNTOPIC	2	320	natur
IHOR_F11	IHOR	F	60.37	ALLOTOPIC	2	321	natur
IHOR_F13	IHOR	F	58.78	ALLOTOPIC	2	322	natur
IHOR_F14	IHOR	F	61.34	ALLOTOPIC	2	323	natur
IHOR_F19	IHOR	F	53.27	ALLOTOPIC	2	324	natur
IHOR_F2	IHOR	F	53.66	SYNTOPIC	2	325	natur
IHOR_F4	IHOR	F	54.7	SYNTOPIC	2	326	natur
IHOR_F5	IHOR	F	57.52	SYNTOPIC	2	327	natur
IHOR_F9	IHOR	F	56.95	ALLOTOPIC	2	328	natur

KZID_IHOR1501	IHOR	M	54.22	SYNTOPIC	2	333	natur
KZID_IHOR1502	IHOR	M	47.53	SYNTOPIC	2	334	natur
KZID_IHOR1503	IHOR	M	49.6	SYNTOPIC	2	335	natur
KZID_IHOR1505	IHOR	M	53.34	SYNTOPIC	2	337	natur
KZID_IHOR1506	IHOR	M	53.94	SYNTOPIC	2	338	natur
KZID_IHOR1507	IHOR	M	50.24	SYNTOPIC	2	339	natur
KZID_PMUR1501	PMUR	F	58.63	SYNTOPIC	2	340	natur
KZID_PMUR1502	PMUR	F	49.94	SYNTOPIC	2	341	natur
KZID_PMUR1503	PMUR	M	50.25	SYNTOPIC	2	342	natur
KZID_PMUR1504	PMUR	M	58.76	SYNTOPIC	2	343	natur
KZID_PMUR1505	PMUR	M	56.49	SYNTOPIC	2	344	natur
PMUR_1544	PMUR	M	59.76	ALLOTOPIC	2	366	natur
PMUR_1545	PMUR	M	58.17	ALLOTOPIC	2	367	natur
PMUR_1546	PMUR	M	54.93	ALLOTOPIC	2	368	natur
PMUR_1547	PMUR	M	55.44	ALLOTOPIC	2	369	natur
PMUR_1548	PMUR	M	51.04	ALLOTOPIC	2	370	natur
PMUR_1549	PMUR	M	61.57	ALLOTOPIC	2	371	natur
PMUR_1550	PMUR	M	58.39	ALLOTOPIC	2	372	natur
PMUR_1551	PMUR	M	55.96	ALLOTOPIC	2	373	natur
PMUR_1552	PMUR	M	59.72	ALLOTOPIC	2	374	natur
PMUR_F16	PMUR	F	59.49	ALLOTOPIC	2	388	natur
PMUR_F17	PMUR	F	61.16	ALLOTOPIC	2	389	natur
PMUR_F18	PMUR	F	55.26	ALLOTOPIC	2	390	natur
PMUR_F19	PMUR	F	60.95	ALLOTOPIC	2	391	natur

PMUR_F20	PMUR	F	59.56	ALLOTOPIC	2	392	natur
PMUR_F21	PMUR	F	59.96	ALLOTOPIC	2	393	natur
PMUR_F22	PMUR	F	50.55	ALLOTOPIC	2	394	natur
PMUR_F23	PMUR	F	57.69	ALLOTOPIC	2	395	natur
PMUR_F24	PMUR	F	62.24	ALLOTOPIC	2	396	natur

Abbreviations: IHOR = *Iberolacerta horvathi*, PMUR = *Podarcis muralis*, M = male, F = female, SVL = snout to vent length (cm), natur = natural habitat, urban = urb