SUPPLEMENTARY MATERIALS – Detailed Results

Due to the limited sample size and the heterogeneous nature of the data, we preferred to be conservative, only trusting the results from the first partitions of both meta-analyses (see the main text of this study). However, we provide here the full meta-analyses, in order to increase the transparency of our study and also because these results can be useful as preliminary data that could guide future research. All references are provided in the Electronic Supplementary Material 1 (Appendix 1 – Datasets and references).

FIRST META-ANALYSIS: DIFFERENCES OF MEANS BETWEEN BODY AND AIR TEMPERATURE

Overall, the heterogeneity for the sample of the effect sizes of the 71 studied populations was highly significant for the fixed effect model (Q_H = 2333.37, P<0.00001). Furthermore, the 97.00% of the variability in effect sizes was intrinsic to the studies themselves (I^2 = 97.00%). Therefore, partition analysis is advised in order to split the effect sizes by the moderator that best explains the variability. The first partition split the effect sizes by 'season' (Sum of Squares Between segments or Q_B = 241.92, Logworth = 1.10), resulting in two subsets: (1) 'winter + summer', and (2) 'Other seasons" (which includes populations studied during spring and autumn, and populations for which data from various seasons were mixed in a common mean; Fig. A1).

The subset of 'winter + summer' included the 27 populations of lacertids which temperatures were studied for winter (1 population) or summer (26 populations), and was significantly heterogeneous for the fixed effect model (Q_H = 869.77, P<0.00001; I^2 = 97.02%). Therefore, we continued partitioning. The best moderator to split effect sizes of this subset was 'altitude' (Q_B = 106.54, Logworth = 0.99; Fig. A6), dividing the subset of lizards studied during winter or summer in two new subsets: (1) ‘low + mid altitude’ (< 1000 m asl), and (2) ‘high-altitude’ (> 1000 m asl; Fig. A2).

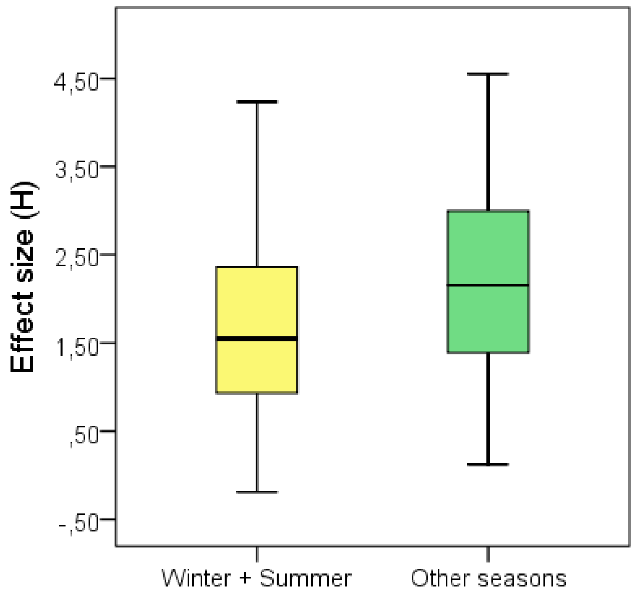

Figure A1 Boxplots of the effect size of the first meta-analysis (differences of means between body and air temperatures transformed in the Hedge’s H estimator) for the two main groups that arose from the first partition: (1) the lacertids studied during summer (n = 26) and winter (n = 1) on one side, and (2) the lacertids studied during the other seasons (spring, autumn, or mixing the data from different seasons in a common mean value for the population). Body temperatures were approximately 1 °C closer to air temperatures for the lacertids studied in summer (and winter) than for other seasons.

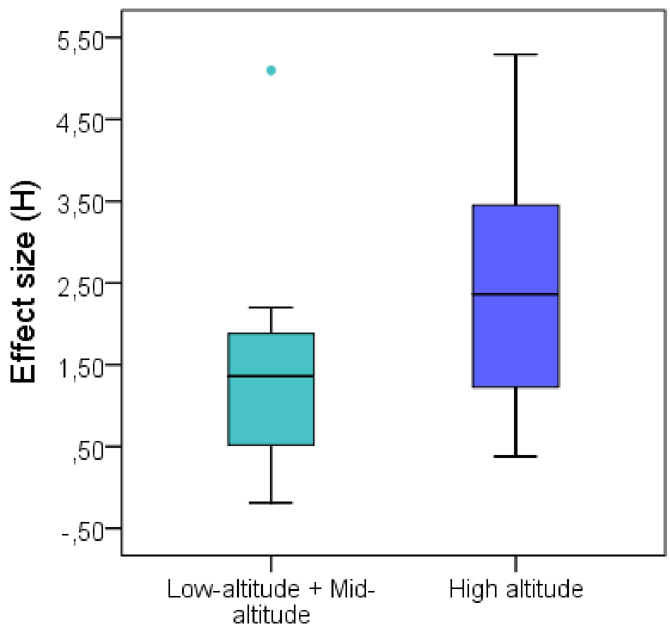

Figure A2 Boxplots of the effect size of the first meta-analysis (differences of means between body and air temperatures transformed in the Hedge’s H estimator) for the two groups that arose from the partition of the lacertids studied during summer and winter: (1) low-altitude + mid-altitude (< 1000 m asl), and (2) high-altitude (> 1000 m asl). Thus, for summer, mean body temperatures of lacertids living above 1000 m asl differed considerably more from air temperatures than these of lizards living below 1000 m asl.

The subset of 'low + mid altitude' contained 15 populations of lizards and was still heterogeneous under the fixed effect model (Q_H = 371.87, P<0.00001; I^2 = 96.24%), being next partition by 'preferred habitat' (Q_B = 150.70, Logworth = 1.03), with two new subsets: (1) 'rocky areas", (2) 'other habitats' (Fig. A6). The subset of the lacertids which preferred habitats are rocky areas, live at < 1000 m and were studied during winter or summer included 7 populations, and was still heterogeneous under the fixed effect model (Q_H = 78.61, P<0.00001; I^2 = 92.37%), being next partition by 'study habitat' (Q_B = 15.98, Logworth = 0.27; Fig. A6), with two new subsets: (1) 'rocky walls + rocky areas' (Final Group 1), and (2) 'sandy areas' (Final Group 2). The **Final Group 1** included 6 populations of lacertids which preferred habitats are rocky areas, live at < 1000 m and were studied during winter or summer in rocky habitats (Table A4).

Table A4 Final Group 1. Summary of the 6 populations of lacertids that were included in the Final Group 1 of the first meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the differences of means between T_b and T_a, particularly the Hedge's H). ID is the identification number of the study of which data for the meta-analysis were extracted (see Appendix 2). Var H is the variance of the effect size Hedge's H.

ID	Species	Study place	Season	Hedge's H	Var H
12	*Podarcis pityusensis*	Ibiza island (Spain)	Summer	2.20	0.064
53	*Podarcis lilfordi*	Colom islet (Menorca, Spain)	Summer	0.54	0.018
53	*Podarcis lilfordi*	Aire islet (Menorca, Spain)	Summer	0.30	0.024
57	*Scelarcis perspicillata*	Lithica (Menorca, Spain)	Summer	0.50	0.039
59	*Podarcis guadarramae*	Nava de Francia (Salamanca, Spain)	Summer	0.14	0.015
59	*Podarcis guadarramae*	Nava de Francia (Salamanca, Spain)	Winter	0.98	0.031

The Final Group 1 was still heterogeneous for the fixed effect model (Q_H = 62.62, P<0.00001; I^2 = 92.02%), but we stopped partitioning due to the small sample size. Thus, we integrated the effect sizes with the random effects model: 0.7479 (95% CI: 0.1405/1.3554). If we inspect the Final Group 1, we notice that the study of the population of *Podarcis pityusensis* (Pérez-Mellado and Salvador 1981) has a great influence in the heterogeneity of the group (Fig. A3), with an effect size of 2.20.

If we remove the population of *P. pityusensis*, the heterogeneity of the Final Group 1 is considerably reduced (Q_H = 16.92, P = 0.002; I^2 = 76.37%). In this case, the integrated effect size, considering the random effects model is 0.4787 (95% CI: 0.0960/0.8713).

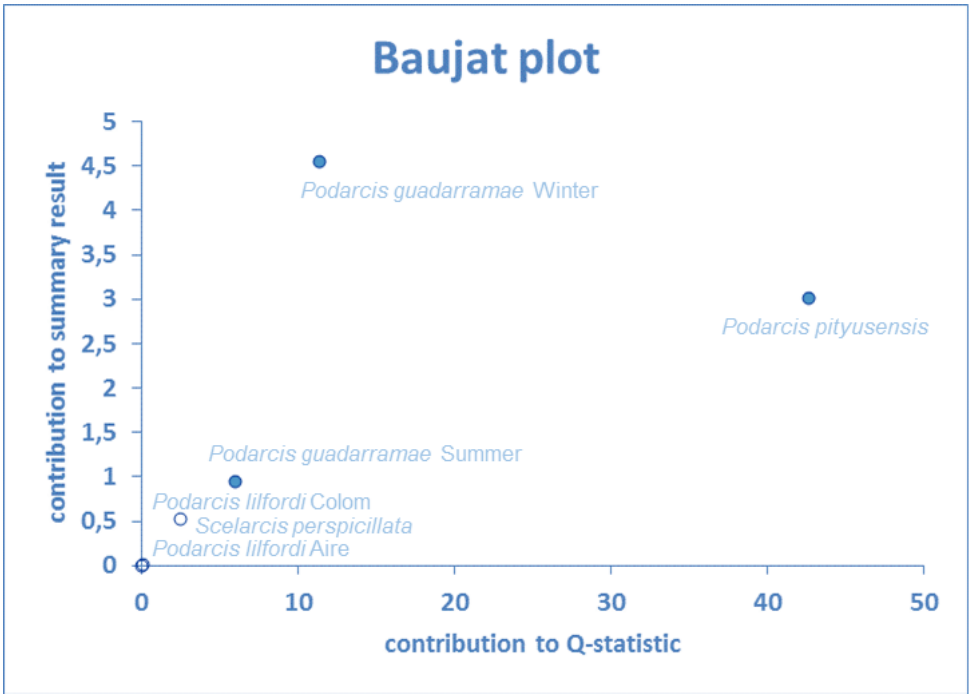

Figure A3 Baujat plot Final Group 1. In the Baujat plot (Baujat et al. 2002[1]) we can see the relationship between the contribution to the heterogeneity (x-axis) and the contribution to the global effect size of the group (y-axis) of each population of the Final Group 1. The population of *Podarcis pityusensis* greatly contributes to the heterogeneity of the group.

The second population that was greatly influencing the heterogeneity of Final Group 1 is *Podarcis guadarramae* during winter (Ortega and Pérez-Mellado 2016, Fig. A3), with an effect size of 0.98. If we remove this study from the Final Group 1, then the subset of effect sizes is homogeneous (Q_H = 5.56, P = 0.135), with an integrated effect size, considering the fixed effect model, of 0.3390 (95% CI: 0.1070/0.5710; see Fig. A4).

[1] Baujat, B. et al. 2002. A graphical method for exploring heterogeneity in meta‐analyses: application to a meta‐analysis of 65 trials. – Stat. Med. 21: 2641–2652.

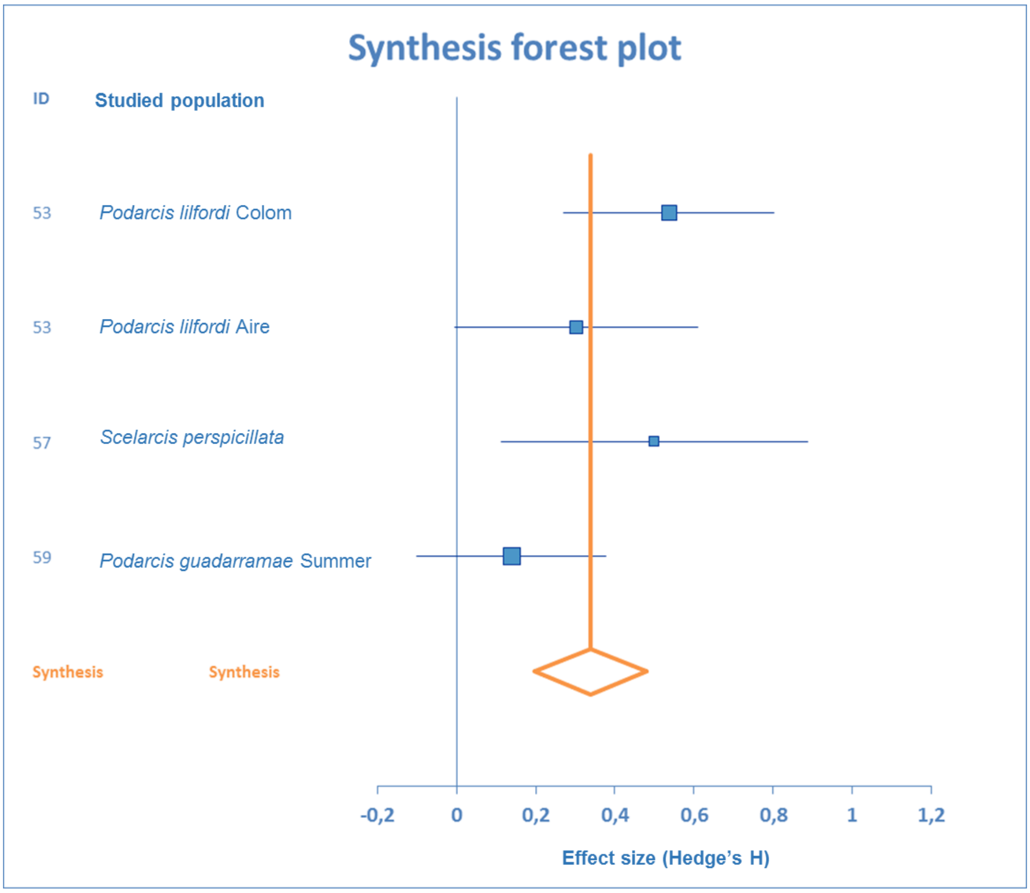

Figure A4 Synthesis forest plot of Final Group 1. The orange diamond is the integrated effect size (Hedge's H) of Final Group 1 under the fixed effect model for the meta-partition of the differences between means (T_b and T_a) as a proxy of thermoregulatory ability. The blue squares are the effect size of each population and the size of the square depicts the weight of each population in the meta-analysis.

Regarding the **Final Group 2**, it only included one population, the one of *Pedioplanis hubanensis* (Murray et al. 2014) studied near the Swakop River (Swakopmund, Namibia), with an effect size of 1.40.

Continuing with the subset of 'other habitats', which includes the lacertid lizards with other preferred habitats than rocky areas, that live at < 1000 m asl and were studied during summer, there were 8 populations. This subset was still heterogeneous for the fixed effect model (Q_H = 142.57, P<0.00001; I^2 = 95.09%), but none of the factors was able to explain the variability of its effect sizes, so we stopped partitioning here, being the **Final Group 3**, and we assess it in detail. The initial populations included in the Final Group 3 are shown in Table A5.

Table A5 Final Group 3. Summary of the 8 populations of lacertids that were included in the Final Group 3 of the first meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the differences of means between T_b and T_a, particularly the Hedge's H). ID is the identification number of the study of which data for the meta-analysis were extracted (see Appendix 2). Var H is the variance of the effect size Hedge's H.

ID	Species	Study place	Season	Hedge's H	Var H
15	*Acanthodactylus erythrurus*	Alicante (Spain)	Summer	-0.19	0.065
3	*Podarcis muralis*	Asturias (Spain)	Summer	1.17	0.020
58	*Podarcis siculus*	Menorca (Spain)	Summer	1.36	0.169
14	*Psammodromus algirus*	Soto de Viñuelas (Madrid, Spain)	Summer	1.55	0.046
19	*Acanthodactylus boskianus*	El-Omayed rocks (Egypt)	Summer	1.81	0.037
19	*Acanthodactylus boskianus*	El-Omayed dunes (Egypt)	Summer	1.95	0.019
24	*Podarcis melisellensis*	Lastovo (Croatia)	Summer	1.98	0.011
13	*Gallotia galloti eisentrauti*	Bajamar (Tenerife, Spain)	Summer	5.10	0.187

Here there are two populations which effect sizes clearly differs from the rest: (1) the population of *Acanthodactylus erythrurus* (Seva 1982), because its mean T_b is below the mean T_a, and (2) the population of *Gallotia galloti eisentrauti* (Báez 1985) because its effect size is excessively greater than the rest. If we remove these two populations from the Final Group 3, then the heterogeneity is greatly reduced (Q_H = 25.31, P = 0.00012; I^2 = 76.30%). As the heterogeneity was still significant, we integrated the effect size of Final Group 3 with the random effects model: 1.6711 (95% CI: 1.2687/2.0735).

Regarding the subset of 'high-altitude' lacertids, it included 12 populations and it was still heterogeneous under the fixed effect model (Q_H = 56.77, P<0.00001; I^2 = 94.71%), being next partition by 'body size' (Q_B = 173.57, Logworth = 1.80; Fig. A6), with two new subsets: (1) 'medium-sized' (60-75 mm mean SVL[2]), (2) 'small-sized' (< 60 mm mean SVL) lizards. The subset of the medium sized lacertids living at high elevations (> 1000 m) studied during summer[3] includes 4 populations, and was still heterogeneous under the fixed effect model (Q_H = 78.61, P<0.00001; I^2 = 92.37%), being next partition by 'study habitat' (Q_B = 27.75, Logworth = 0.48; Fig A6), with two new subsets: (1) 'generalist' (Final Group 4), and (2) 'rocky areas' (Final group 5).

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[2] Snout-vent lenght.

[3] Remember that the former subset is called 'winter + summer' but only on especies was studied in Winter, *Podarcis guadarramae*, so all the populations of this subset of high elevation were studied in summer.

The **Final Group 4** only included the population of *Podarcis muralis* (Martín-Vallejo 1990), which are medium sized lizards, generalists regarding habitat preferences, continental and studied in a forest area during summer, with an effect size of 0.38.

The **Final Group 5** included 3 populations and it was still heterogeneous under the fixed effect model (Q_H = 29.02, P<0.00001; I^2 = 93.10%), so we assessed it in detail. The populations included in the Final Group 5 are shown in Table A6.

Table A6 Final Group 5. Summary of the 3 populations of lacertids that were included in the Final Group 5 of the first meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the differences of means between T_b and T_a, particularly the Hedge's H). ID is the identification number of the study of which data for the meta-analysis were extracted (see Appendix 2). Var H is the variance of the effect size Hedge's H.

ID	Species	Study place	Season	Hedge's H	Var H
52	*Iberolacerta galani*	La Baña (León, Spain)	Summer	0.88	0.028
55	*Iberolacerta cyreni*	Central System (Spain)	Summer	2.29	0.085
56	*Iberolacerta monticola*	Serra da Estrela (Portugal)	Summer	2.30	0.079

The population of *Iberolacerta galani* (Ortega et al. 2016b) has a smaller effect size than the other two *Iberolacerta* populations. If we remove this study, then the Final Group 5 is homogeneous under the fixed effect model (Q_H = 0.00, P = 0.995). Then, the Final Group 5 would include the populations of *Iberolacerta cyreni* (Ortega et al. 2016c) and *Iberolacerta monticola* (Ortega et al. 2017), with an integrated effect size of 0.38.

Regarding the subset of 'small-sized' lacertids that inhabits high altitudes (> 1000 m) and were studied in summer[1], it included 8 populations and it was still heterogeneous under the fixed effect model (Q_H = 161.02, P<0.00001; I^2 = 95.65%), being next partition by 'preferred habitat' (Q_B = 92.15, Logworth = 1.50; Fig A6), with two new subsets: (1) 'generalist' (Final Group 6), and (2) 'rocky areas' (Final group 7).

The **Final Group 6** only included the population of *Podarcis bocagei* (Ortega et al. 2016b), a continental lacertid of small body size, living at high altitude (> 1000 m), generalist regarding habitat preferences, studied in rocky areas during summer.

The **Final Group 7** included 7 populations, all of them of the Pyrenean *Iberolacerta* populations, and it was still heterogeneous under the fixed effect model (Q_H = 68.83, P<0.00001; I^2 = 91.28%; Table A7), but no other factor was able to explain the variability of its effect sizes, so we integrated the effect size with the random effect model: 3.3093 (95% CI: 2.3794/4.2392).

Table A7 Final Group 7. Summary of the 7 populations of lacertids that were included in the Final Group 7 of the first meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the differences of means between T_b and T_a, particularly the Hedge's H). ID is the identification number of the study of which data for the meta-analysis were extracted (see Appendix 2). Var H is the variance of the effect size Hedge's H.

ID	Species	Study place	Season	Hedge's H	Var H
38	*Iberolacerta bonnali*	Pyrenees, Huesca (Spain	Summer	5.29	0.190
50	*Iberolacerta bonnali*	Pyrenees, Huesca (Spain)	Summer	4.23	0.145
54	*Iberolacerta aurelioi*	Comapedrosa sky slope (Andorra)	Summer	2.43	0.203
54	*Iberolacerta aurelioi*	Comapedrosa mountain ridge (Andorra)	Summer	1.17	0.136
62	*Iberolacerta aranica*	Pyrenees, Lleida (Spain)	Summer	3.72	0.038
62	*Iberolacerta bonnali*	Hautes-Pyrenees (France)	Summer	3.18	0.072
62	*Iberolacerta aurelioi*	Pyrenees, Lleida (Spain)	Summer	3.17	0.042

Regarding the subset of 'other seasons', it included 44 populations of lacertids and it was significantly heterogeneous for the fixed effect model (Q_H = 1221.68, P<0.00001; I^2 = 96.48%), so we continued the partition process. The best moderator to explain the variability of effect sizes was the 'insularity' (Q_B = 359.39, Logworth = 4.46; Fig A7), partitioning the subset in two subsets: (1) 'continental' lizards, and (2) 'insular' lizards.

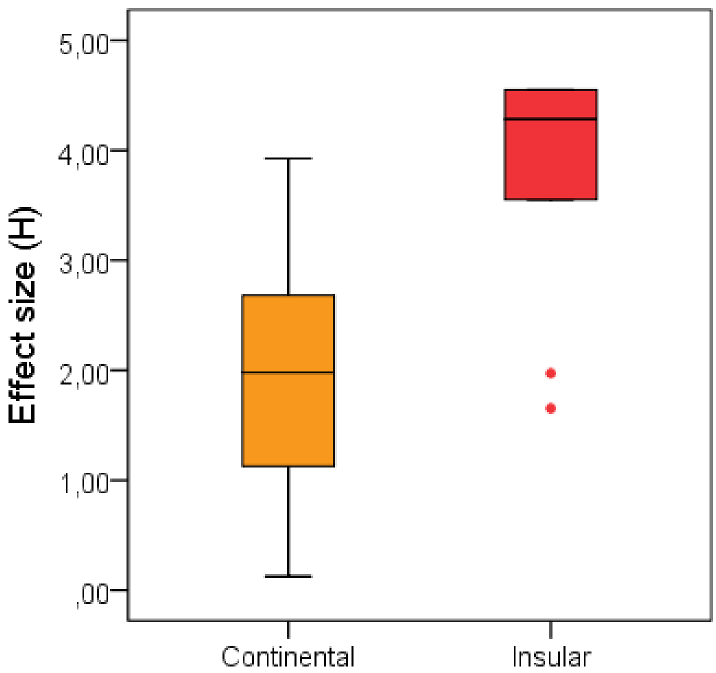

Figure A5 Boxplots of the effect size of the first meta-analysis (differences of means between body and air temperatures transformed in the Hedge's H estimator) for two groups that arise from the partition of the lacertids studied during other seasons (spring, autumn, and mixed results from different seasons in a common mean): (1) continental lizards, and (2) insular lizards. Mean body temperatures of continental lacertids were considerably closer to air temperatures than these of insular lacertids.

The subset of 'continental' lacertids includes 35 populations and was heterogeneous (Q_H = 622.66, P<0.00001; I^2 = 94.54%), and next partition results by 'climate'[4] (Q_B = 103.66, Logworth = 0.66; Fig. A7), with two new subsets: (1) "Csa + BWk", and (2) 'other climates' (Csb + Bsk `BWs + EB + Dfc).

The subset of "Csa + BWk" comprises 13 populations (experiencing Mediterranean and arid climates) and is heterogeneous (Q_H = 145.38, P<0.00001; I^2 = 91.82%), being next partition again by 'study habitat' (Q_B = 86.85, Logworth = 2.52; Fig A7), with two new subsets: (1) 'sandy areas + rocky areas' (Final Group 8), and (2) 'scrublands'.

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[4] The different climates are considered following the classification Köppen (Kottek et al. 2006):
Kottek, M., Grieser, J., Beck, C., Rudolf, B., & Rubel, F. (2006). World map of the Köppen-Geiger climate classification updated. Meteorologische Zeitschrift, 15(3), 259-263.

The subset of 'sandy areas + rocky areas" contains 7 lizard populations and it was homogeneous for the fixed effect model (Q_H = 12.50, P = 0.052; Table A8), so it makes the **Final Group 8** with an integrated effect size of 0.8430 (95% CI: 0.6362/1.0499).

Table A8 Final Group 8. Summary of the 7 populations of lacertids that were included in the Final Group 8 of the first meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the differences of means between T_b and T_a, particularly the Hedge's H). ID is the identification number of the study of which data for the meta-analysis were extracted (see Appendix 2). Var H is the variance of the effect size Hedge's H.

ID	Species	Study place	Season	Hedge's H	Var H
35	*Hellenolacerta graeca*	Stymphalia, Peloponnese (Greece)	Whole year	1.06	0.035
35	*Podarcis peloponnesiaca*	Stymphalia, Peloponnese (Greece)	Whole year	1.11	0.021
67	*Acanthodactylus longipes*	Tafilalt (Morocco)	Spring-Summer	1.18	0.308
67	*Acanthodactylus scutellatus*	Tafilalt (Morocco)	Spring-Summer	0.53	0.029
67	*Acanthodactylus boskianus*	Tafilalt (Morocco)	Spring-Summer	0.46	0.079
67	*Mesalina olivieri*	Tafilalt (Morocco)	Spring-Summer	0.35	0.127
67	*Mesalina guttulate*	Tafilalt (Morocco)	Spring-Summer	0.65	0.193

The subset 'scrublands' included 6 populations and it was still heterogeneous (Q_H = 46.03, P<0.00001; I^2 = 89.14%), being next partition by 'body size' (Q_B = 31.17, Logworth = 1.41; Fig A7), with two new subsets: (1) 'large-sized' lizards (> 75 mm mean SVL; Final Group 9), and (2) 'medium-sized' lizards (60-75 mm mean SVL; Final Group 10).

The subset of 'large-sized' lizards included 2 populations of *Psammodromus algirus* (Zamora-Camacho et al. 2015), studied at the highest elevations (2200 and 2500 m), and it was homogeneous for the fixed effect model (Q_H = 2.12, P = 0.150), being the **Final Group 9**, with an integrated effect size of 2.9413 (95% CI: 0.6262/5.2564).

The subset of 'medium-sized' lizards included 4 populations, also of *Psammodromus algirus* (Zamora-Camacho et al. 2015), studied at 300, 700, 1200, and 1700 m of altitude). This subset was still heterogeneous for the fixed effect model (Q_H = 12.74, P = 0.0052; I^2 = 76.47%; see Table A9). If we integrate the effect size of the 4 populations with the random effects model, it is 1.7971 (95% CI: 0.8601/2.7341).

If we remove the effect size of the population at 1700 m, the group of the remainder 3 populations is homogeneous for the fixed effect model (Q_H = 2.82, P = 0.242), with an integrated effect size of 1.5316 (0.9198/2.1434).

Table A9 Final Group 10. Summary of the 4 populations of lacertids that were initially included in the Final Group 10 of the first meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the differences of means between T_b and T_a, particularly the Hedge's H). ID is the identification number of the study of which data for the meta-analysis were extracted (see Appendix 2). Var H is the variance of the effect size Hedge's H.

ID	Species	Study place	Season	Hedge's H	Var H
68	*Psammodromus algirus*	Sierra Nevada (Spain) 300 m	Spring-Summer	1.61	0.039
68	*Psammodromus algirus*	Sierra Nevada (Spain) 700 m	Spring-Summer	1.79	0.089
68	*Psammodromus algirus*	Sierra Nevada (Spain) 1200 m	Spring-Summer	1.14	0.078
68	*Psammodromus algirus*	Sierra Nevada (Spain) 1700 m	Spring-Summer	2.91	0.172

Regarding the subset of 'other climates' (fresher and humid climates), it included 22 populations and it was heterogeneous for the fixed effect model (Q_H = 373.61, P<0.00001; I^2 = 94.38%), being next partition by 'season' (Q_B = 100.18, Logworth = 1.49; Fig. A7), again, with two new subsets: (1) 'other seasons' (spring, autumn, and mixed data for the whole annual season), and (2) 'spring-summer' (when data from spring and summer were mixed in a common mean; Final Group 13).

The subset of 'other seasons' included 20 populations of continental lacertids of fresh and humid climates studied in autumn, spring or during the whole activity season, and it was heterogeneous for the fixed effect model (Q_H = 268.39, P<0.00001; I^2 = 92.92%). Next partition was by 'study habitat' (Q_B = 159.94, Logworth = 3.35; Fig. A7), with two new subsets: (1) 'rocky areas' (Final Group 11), and 'other habitats' (sandy areas, unknown habitats, grasslands, and scrublands' (Final Group 12).

Table A10 Final Group 11. Summary of the 4 populations of lacertids of the Final Group 11 of the first meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the differences of means between T_b and T_a, particularly the Hedge's H). ID is the identification number of the study of which data for the meta-analysis were extracted (see Appendix 2). Var H is the variance of the effect size Hedge's H.

ID	Species	Study place	Season	Hedge's H	Var H
30	*Iberolacerta cyreni*	Guadarrama (Madrid, Spain)	Spring	2.30	0.012
51	*Iberolacerta galani*	La Baña (León, Spain)	Spring	1.10	0.089
59	*Podarcis guadarramae*	Nava de Francia (Salamanca, Spain)	Spring	0.12	0.030
59	*Podarcis guadarramae*	Nava de Francia (Salamanca, Spain)	Autumn	0.73	0.046

The **Final Group 11** included 4 populations of lacertids (Table A10) and it was still heterogeneous for the fixed effect model (Q_H = 129.34, P<0.00001; I^2 = 97.68%). No other factor was able to explain the variability of effect sizes, so we integrated the effect size of the Final Group 11 with the random effects model: 1.0679 (95% CI: -0.8393/2.9751).

The **Final Group 12** included 16 populations of lacertids (Table A11) and it is still heterogeneous for the fixed effect model (Q_H = 94.88, P<0.00001; I^2 = 84.18%). None of the studied factors could explain the heterogeneity of Final Group 12. One concern arises in this group: the mean temperatures of the populations than were reported for the whole activity period (that is, the mean of the temperatures measured throughout the whole annual activity period of the population) have the problem that they are mixing temperatures of different seasons, which, as we have shown in this study, is the main factor influencing the effect sizes. Therefore, those data must be taken with caution, since the seasonal influence is clearly masking the real effect size of each population for each season. We integrated the effect size with the random effects model: 2.2416 (95% CI: 2.0261/2.4569).

Table A11 Final Group 12. Summary of the 16 populations of lacertids of the Final Group 12 of the first meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the differences of means between T_b and T_a, particularly the Hedge's H). ID is the identification number of the study of which data for the meta-analysis were extracted (see Appendix 2). Var H is the variance of the effect size Hedge's H.

ID	Species	Study place	Season	Hedge's H	Var H
17	*Acanthodactylus erythrurus*	Ebro Delta (Tarragona, Spain)	Whole year	2.70	0.050
17	*Psammodromus algirus*	Ebro Delta (Tarragona, Spain)	Whole year	1.91	0.022
27	*Acanthodactylus erythrurus*	Espeja (Salamanca, Spain)	Whole year	2.67	0.134
27	*Psammodromus occidentalis*	Espeja (Salamanca, Spain)	Whole year	2.21	0.111
27	*Psammodromus algirus*	Espeja (Salamanca, Spain)	Whole year	2.03	0.125
31	*Heliobolus lugubris*	Kalahari (Botswana and South Africa)	Whole year	2.90	0.021
31	*Ichnotropis squamulose*	Kalahari (Botswana and South Africa)	Whole year	2.34	0.034
33	*Meroles suborbitalis*	Kalahari (Botswana and South Africa)	Whole year	1.98	0.005
33	*Nucras intertexta*	Kalahari (Botswana and South Africa)	Whole year	3.93	3.103
33	*Nucras tessellate*	Kalahari (Botswana and South Africa)	Whole year	2.30	0.057
33	*Pedioplanis lineoocellata*	Kalahari (Botswana and South Africa)	Whole year	1.88	0.004
33	*Pedioplanis namaquensis*	Kalahari (Botswana and South Africa)	Whole year	2.63	0.022
40	*Psammodromus edwardsianus*	El Prat de Llobregat (Barcelona, Spain)	Whole year	1.76	0.015
41	*Atlantolacerta andreanszkyi*	Morocco	Spring	2.94	0.077
42	*Lacerta agilis*	Pyreness (Girona, Spain)	Whole year	2.10	0.014
66	*Pedioplanis husabensis*	Swakop River (Swakopmund, Namibia)	Autumn	1.59	0.054

The **Final Group 13** included 2 populations: *Zootoca vivipara* (Herczeg et al., 2004) and *Iberolacerta martinezricai* (Arribas, 2013), and it was still heterogeneous for the fixed effect model (Q_H = 5.04, P = 0.025; I^2 = 80.16%). We integrated the effect sizes with the random effects model: 3.3486 (95% CI: -0.9382/7.6354).

Regarding the subset of 'insular' lacertids, studied during autumn or spring, or mixing data from different seasons (the whole year or spring-summer mixing), it included 9 populations and it was still heterogeneous for the fixed effect model (Q_H = 239.63, P<0.00001; I^2 = 96.66%), and next partition is by 'altitude' (Q_B = 58.72, Logworth = 0.74; Fig. A7), with two new subsets: (1) 'low-altitude' (< 400 m asl), and (2) 'high-altitude' (> 1000 m asl, Final Group 16).

The subset of 'low-altitude' included 7 populations and it was still heterogeneous for the fixed effect model (Q_H = 162.19, P<0.00001; I^2 = 96.30%), and next partition is by 'preferred habitat' (Q_B = 20.63, Logworth = 0.16; Fig. A7), with two new subsets: (1) 'rocky areas' (Final Group 14), and (2) 'open areas + generalist' (Final Group 15).

The **Final Group 14** included 2 populations, *Podarcis lilfordi* of Colom islet and of Aire islet during spring (Ortega et al., 2014), and it was still heterogeneous for the fixed effect model (Q_H = 76.64, P<0.00001), so we integrated its effect sizes with the random effects model: 3.1899 (95% CI: -12.3384/18.7182).

Table A12 Final Group 15. Summary of the 5 populations of lacertids of the Final Group 15 of the first meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the differences of means between T_b and T_a, particularly the Hedge's H). ID is the identification number of the study of which data for the meta-analysis were extracted (see Appendix 2). Var H is the variance of the effect size Hedge's H.

ID	Species	Study place	Season	Hedge's H	Var H
4	*Podarcis siculus*	Calvi, Corsica (France)	Spring	4.28	0.118
13	*Gallotia galloti eisentrauti*	Bajamar, Tenerife (Spain)	Spring	6.61	0.229
18	*Podarcis liolepis*	Columbretes Islands, Castellón (Spain)	Autumn	3.56	0.032
36	*Podarcis tiliguerta*	Calvi, Corsica (France)	Spring	3.55	0.051
58	*Podarcis siculus*	Menorca (Spain)	Spring	1.65	0.174

The **Final Group 15** included 5 populations (see Table A12) and it was still heterogeneous for the fixed effect model (Q_H = 64.93, P<0.00001, I^2 = 93.84%), so we integrated its effect sizes with the random effects model: 3.9013 (95% CI: 2.4394/5.3632).

The **Final Group 16** included 2 populations, *Archaeolacerta bedriagae* (Bauwens et al., 1990) and *Podarcis tiliguerta* (Van Damme et al., 1989) of Haut-Asco (Corsica, France), and it was still heterogeneous for the fixed effect model (Q_H = 18.71, P = 0.00002), so we integrated its effect sizes with the random effects model: 5.5799 (95% CI: -7.8739/19.0337).

Table A13 All the studies included in the first meta-partition. Full references of the studies are provided in the Electronic Supplementary Material 1.

Population	Study	Hedge's H	Var H
Acanthodactylus boskianus dunes	Darwish-Mahmoud 2003	1.949883	0.019493
Acanthodactylus boskianus rocks	Darwish-Mahmoud 2003	1.811989	0.037404
Acanthodactylus boskianus	Pérez-Mellado 1992	0.465174	0.079174
Acanthodactylus erythrurus	Seva 1982	-0.18827	0.064821
Acanthodactylus erythrurus	Carretero and Llorente 1995	2.700605	0.050275
Acanthodactylus erythrurus	Pollo and Pérez-Mellado 1989	2.674634	0.134235
Acanthodactylus longipes	Pérez-Mellado 1992	1.187031	0.308418
Acanthodactylus scutellatus	Pérez-Mellado 1992	0.531228	0.029191
Archaeolacerta bedriagae	Bauwens et al. 1990	6.66943	0.183955
Atlantolacerta andreanszkyi	Busack 1987	2.94407	0.077225
Gallotia galloti eisentrauti spring	Báez 1985	6.611987	0.22955
Gallotia galloti eisentrauti summer	Báez 1985	5.099098	0.186906
Heliobolus lugubris	Verwaijen and Van Damme 2007	2.898104	0.020891
Hellenolacerta graeca	Maragou et al. 1997	1.058777	0.035216
Iberolacerta aranica	Arribas 2010	3.718332	0.038495
Iberolacerta aurelioi 2500 m asl	Ortega et al. 2016g	2.427302	0.203342
Iberolacerta aurelioi 2700 m asl	Ortega et al. 2016g	1.173461	0.136546
Iberolacerta aurelioi	Arribas 2009	3.165878	0.04176
Iberolacerta bonnali	Martínez-Rica 1977	5.29314	0.189767
Iberolacerta bonnali	Ortega et al. 2016e	4.234453	0.145287
Iberolacerta bonnali	Arribas 2010	3.183656	0.0721
Iberolacerta cyreni	Martín and Salvador 1993	2.300838	0.012438
Iberolacerta cyreni	Ortega et al. 2016c	2.294746	0.084616
Iberolacerta galani	Ortega et al. 2016a	1.098521	0.089478
Iberolacerta galani	Ortega et al. 2016b	0.884923	0.027858
Iberolacerta martinezricai	Arribas 2013	3.05305	0.015469
Iberolacerta monticola	Ortega et al. 2017	2.297432	0.078672
Ichnotropis squamulose	Verwaijen and Van Damme 2007	2.341	0.033795
Lacerta agilis	Amat et al. 2003	2.097184	0.014264
Meroles suborbitalis	Huey and Pianka 1977	1.980048	0.005313
Mesalina guttulate	Pérez-Mellado 1992	0.652072	0.19359
Mesalina olivieri	Pérez-Mellado 1992	0.347915	0.127157
Nucras intertexta	Huey and Pianka 1977	3.926727	3.102808
Nucras tessellate	Huey and Pianka 1977	2.304314	0.056735
Pedioplanis husabensis summer	Murray et al. 2014	1.400759	0.041097
Pedioplanis husabensis autumn	Murray et al. 2014	1.594061	0.054324
Pedioplanis lineoocellata	Huey and Pianka 1977	1.879409	0.003823
Pedioplanis namaquensis	Huey and Pianka 1977	2.626253	0.021833
Podarcis bocagei	Ortega et al. 2016b	1.278276	0.034576
Podarcis guadarramae spring	Ortega and Pérez-Mellado 2016	0.123562	0.029916
Podarcis guadarramae summer	Ortega and Pérez-Mellado 2016	0.139048	0.014798
Podarcis guadarramae autumn	Ortega and Pérez-Mellado 2016	0.730669	0.04651
Podarcis guadarramae winter	Ortega and Pérez-Mellado 2016	0.979075	0.030771
Podarcis lilfordi brauni spring	Ortega et al. 2014	1.972162	0.02836
Podarcis lilfordi brauni summer	Ortega et al. 2014	0.537095	0.018349
Podarcis lilfordi lilfordi spring	Ortega et al. 2014	4.416393	0.049597
Podarcis lilfordi lilfordi summer	Ortega et al. 2014	0.303035	0.024469
Podarcis liolepis	Castilla and Bauwens 1991	3.561089	0.031958
Podarcis melisellensis	Huyghe et al. 2007	1.984808	0.011021
Podarcis muralis	Braña 1991	1.173561	0.020261
Podarcis muralis	Martín-Vallejo 1990	0.37842	0.025428
Podarcis peloponnesiaca	Maragou et al. 1997	1.11376	0.020676
Podarcis pityusensis	Pérez-Mellado and Salvador 1981	2.201485	0.063928

Podarcis Siculus	Van Damme et al. 1990	4.283692	0.118451
Podarcis siculus spring	Ortega et al. 2016f	1.653661	0.173728
Podarcis siculus summer	Ortega et al. 2016f	1.363755	0.169017
Podarcis tiliguerta 35 m asl	Van Damme et al. 1989	3.55128	0.051127
Podarcis tiliguerta 1775 m asl	Van Damme et al. 1989	4.550882	0.055825
Psammodromus algirus	Carrascal and Díaz 1989	1.548465	0.045981
Psammodromus algirus	Carretero and Llorente 1995	1.906306	0.021806
Psammodromus algirus	Pollo and Pérez-Mellado 1989	2.031139	0.125467
Psammodromus algirus 300 m asl	Zamora-Camacho et al. 2015	1.614261	0.039278
Psammodromus algirus 700 m asl	Zamora-Camacho et al. 2015	1.786516	0.08907
Psammodromus algirus 1200 m asl	Zamora-Camacho et al. 2015	1.142711	0.078313
Psammodromus algirus 1700 m asl	Zamora-Camacho et al. 2015	2.911218	0.172002
Psammodromus algirus 2200 m asl	Zamora-Camacho et al. 2015	2.688209	0.063392
Psammodromus algirus 2500 m asl	Zamora-Camacho et al. 2015	3.219476	0.069698
Psammodromus edwardsianus	Carretero and Llorente 1993	1.758195	0.015033
Psammodromus occidentalis	Pollo and Pérez-Mellado 1989	2.212411	0.110998
Scelarcis perspicillata	Ortega et al. 2016d	0.500112	0.038961
Zootoca vivipara	Herczeg et al. 2004	3.733736	0.076464

Figure A6 First tree of the first meta-partition. Summary tree of the meta-partition of the lacertids studied during winter and summer for the first meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the differences of means between T_b and T_a, particularly the Hedge's H). Within each partition, effect sizes are organized from left (smaller) to right (larger). The best moderator that explains the variability of each partition is reported into a green arrow, with its respective values of the between-class component of the sums of squares from the test of homogeneity (Q_B) and the Logworth (-log10(p-value)) of Q_B.

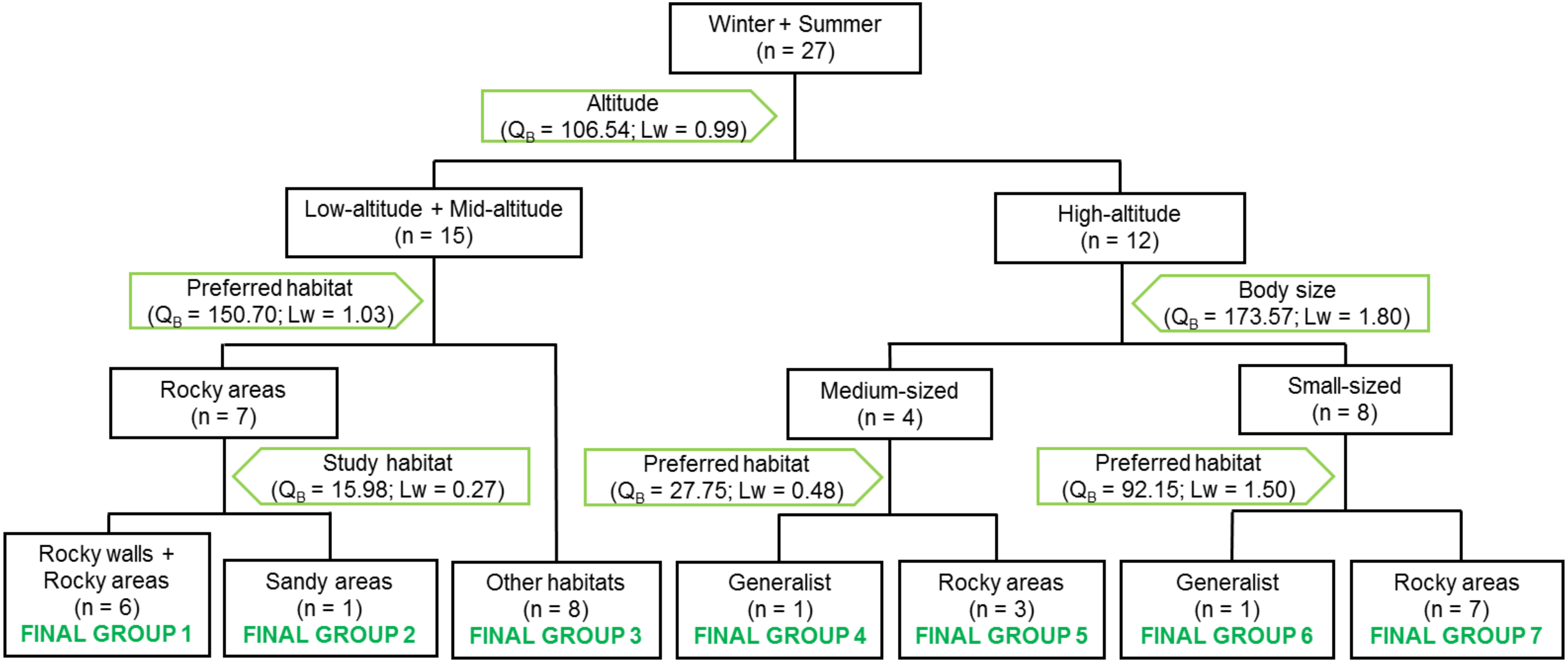
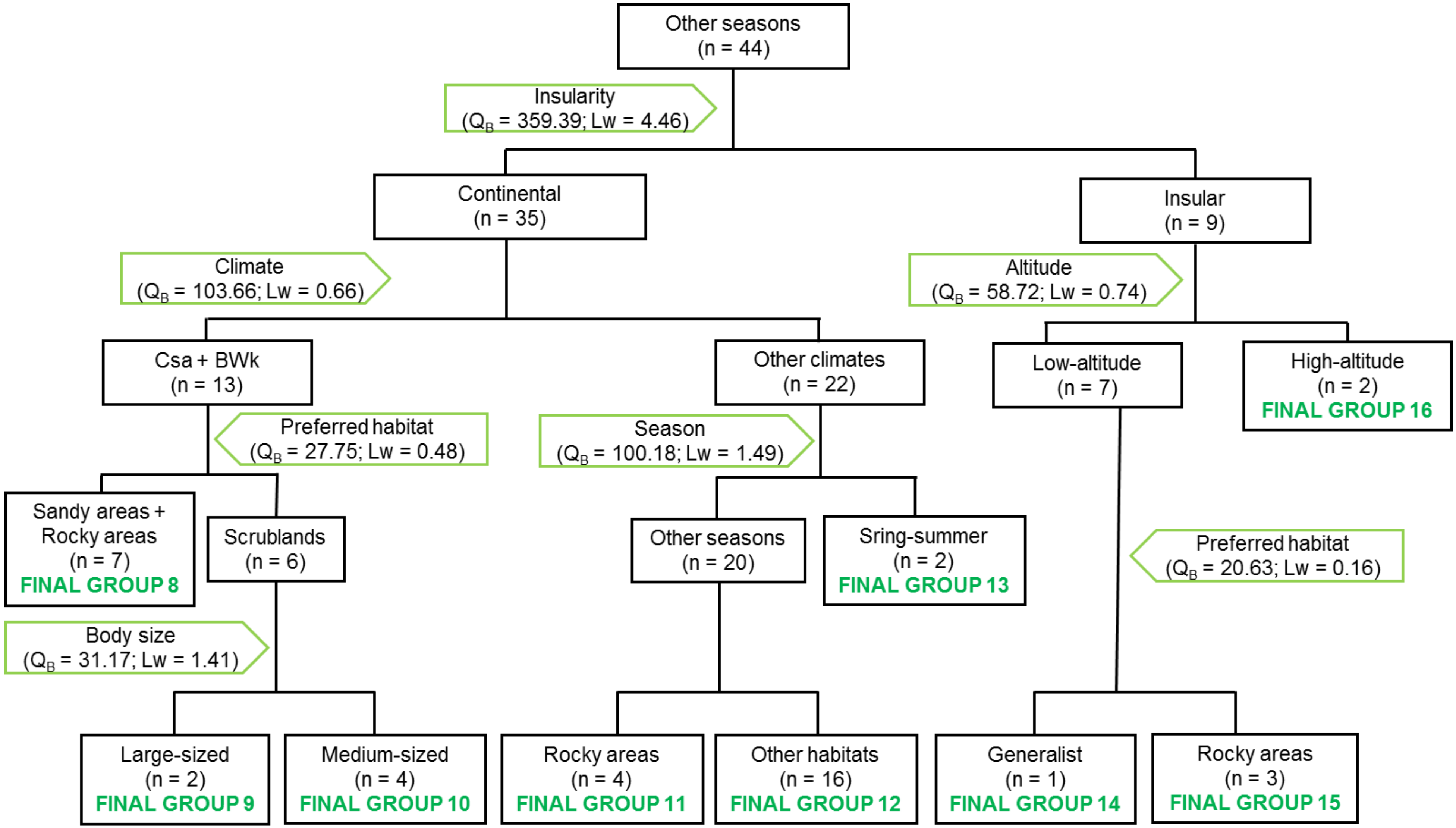


Figure A7 Second tree of the first meta-partition. Summary tree of the meta-partition of the lacertids studied during autumn and spring, or mixing temperatures for the whole activity season or for spring and summer for the first meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the differences of means between T_b and T_a, particularly the Hedge's H). Within each partition, effect sizes are organized from left (smaller) to right (larger). The best moderator that explains the variability of each partition is reported into a green arrow, with its respective values of the between-class component of the sums of squares from the test of homogeneity (Q_B) and the Logworth (-log10(p-value)) of Q_B.



<u>SECOND META-ANALYSIS</u>: CORRELATION BETWEEN BODY AND AIR TEMPERATURE

The heterogeneity of the whole set of effect sizes (n = 60 populations of lizards) was highly significant for the fixed effect model (Q_H = 803.36, P<0.00001, I^2 = 92.65%). The first partition was by the moderator 'altitude' (Q_B = 157.44, Logworth = 3.52; Fig. A10), resulting in two subsets: (1) 'high-altitude' (> 1000 m asl), and (2) 'low-altitude + mid-altitude' (< 1000 m asl; Fig. A8).

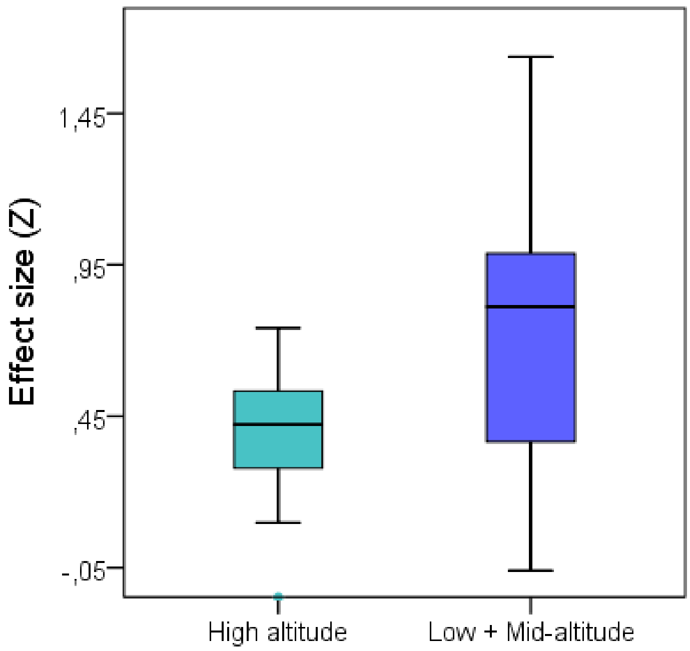


Figure A8 Boxplots of the effect size of the second meta-analysis (the coefficient of correlation between body and air temperatures transformed in the Fisher's Z estimator) for the two main groups that arise from the first partition: (1) the lacertids living at high-altitudes (> 1000 m asl, n = 27), and (2) the lacertids that inhabit at medium and low altitudes (< 1000 m asl, n = 33). Mean correlation between body and air temperatures was considerably lower for mountain lizards, suggesting greater extent of body temperature regulation for these populations.

The subset of 'high-altitude' included 27 populations of lizards and it was heterogeneous (Q_H = 81.74, P<0.00001, I^2 = 68.19%), being next partition by 'body size' (Q_B = 19.26, Logworth = 1.90; Fig. A10), with two new subsets: (1) 'medium-sized' lizards (< 60-75 mm mean SVL), and (2) 'small-sized + large-sized" lizards (< 60 or > 75 mm mean SVL).

The subset of ‘medium-sized’ lizards included 11 populations of lizards and it was still heterogeneous (Q_H = 29.47, P = 0.00105, I^2 = 66.07%), being next partition by ‘season’ (Q_B = 13.97, Logworth = 1.40; Fig. A10), with two new subsets: (1) ‘spring-summer’ (Final Group 1), and (2) ‘spring + summer’ (Final Group 2).

The subset of ‘spring-summer’ included 5 populations (*I. martinezricai* of Arribas 2013, *A. scutellatus* and *A. boskianus* of Pérez-Mellado 1992, and *P. algirus* of Zamora-Camacho et al. 2015 of 1200 and 1700 m) and it was heterogeneous (Q_H = 10.44, P = 0.03356, I^2 = 61.70%) so we integrated the effect sizes with the random effects model: 0.1283 (-0.1569/0.4135), being the **Final Group 1**.

The subset of ‘spring + summer’ included 6 populations (*P. muralis* of Martín-Vallejo 1990, *I. cyreni* of Martín & Salvador 1993, *I. galani* of spring and summer and *I cyreni* and *I. monticola* of Ortega et al. 2016a, 2016b, 2016c and 2017) and it was homogeneous (Q_H = 5.14, P = 0.39852, I^2 = 2.81%), so we integrated the effect sizes with the fixed effect model: 0.3818 (0.2682/0.4955), being **Final Group 2**.

The subset of ‘small + large’ lizards included 16 populations and it was still heterogeneous (Q_H = 32.95, P = 0.00476, I^2 = 54.48%), being next partition by ‘preferred habitat’ (Q_B = 14.38, Logworth = 1.33; Fig. A10), with two new subsets: (1) ‘rocky areas + scrublands’ (Final Group 3), and (2) ‘other habitats’ (grasslands, sandy areas, and generalist; Final Group 4).

The subset of ‘rocky areas + scrublands’ included 11 populations (*A. bedriagae* of Bauwens et al. 1990, *I. bonnali* of Martínez-Rica 1977, *I. bonnali* and *I. aurelioi* at 2500 and 2700 m of Ortega et al. 2016e and 2016g, *I. aranica*, *I. bonnali* and *I. aurelioi* of Arribas 2009 and 2010, *M. guttulata* of Pérez-Mellado 1992, and *P. algirus* of 2200 and 2500 m) and was homogeneous (Q_H = 17.22, P = 0.06969, I^2 = 41.92%), so we integrated the effect sizes with the fixed effect model: 0.4007 (0.3116/0.4899), being **Final Group 3.**

The subset of ‘other habitats’ included 5 populations (*A. andreanszkyi* of Busack 1987, *P. bocagei* of Ortega et al. 2016b, and *A. longipes, M. olivieri* and *M. guttulata* of Pérez-Mellado 1992) and it was also homogeneous (Q_H = 2.05, P = 0.72654, I^2 = %), so we integrated the effect sizes with the fixed effect model: 0.6394 (0.4105/0.8684), being **Final Group 4.**

The subset of ‘low-altitude + mid-altitude’ included 33 populations and it was heterogeneous (Q_H = 559.27, P<0.00001, I^2 = 94.28%). Here there was a clear outlier, the population of *Zootoca vivipara* of Herczeg et al. (2004), with an effect size of 2.1095 (Fig. A9). After removing this population, the subset was still heterogeneous (Q_H = 424.88, P<0.00001, I^2 = 92.70%), and next partition was by ‘season’ (Q_B = 122.33, Logworth = 1.87; Fig. A10), with two subsets: (1) ‘other seasons’ (including data from spring, summer, winter, when data from different seasons are mixed to compute the correlation coefficient, and from when the study dates are not provided in the publication), and (2) ‘summer’ (Final Group 8).

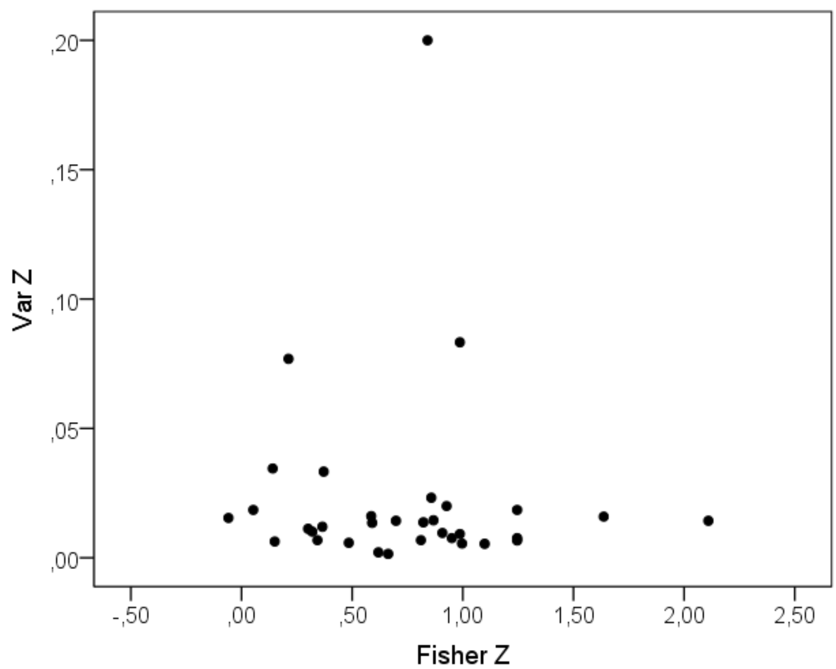


Figure A9 In this figure we can see the subset of 33 populations living at < 1000 m asl included in the second meta-analysis (on which the effect size is the correlation between body and air temperature). The outlier population is the one of *Zootoca vivípara* of Herczeg et al. 2004, living in Oulanka, Finland. We removed this population of the second meta-analysis.

The subset of ‘other seasons’ included 25 populations and it was heterogeneous (Q_H = 273.26, P<0.00001, I^2 = 91.22%), and next partition was by ‘insularity’ (Q_B = 68.31, Logworth = 2.18; Fig. A10), with two new subsets: (1) ‘insular’ lizards (Final Group 5), and (2) ‘continental’ lizards.

The **Final Group 5** is the subset of ‘insular’ lizards, which included 4 populations (Table A14) and was homogeneous (Q_H = 2.93, P = 0.40251), so we integrated the effect sizes with the fixed effect model: 1.2069 (1.0115/1.4400).

Table A14 Final Group 5. Summary of the 4 populations of lacertids of the Final Group 5 of the second meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the correlation between T_b and T_a, particularly the Fisher’s Z). ID is the identification number of the study of which data for the meta-analysis were extracted (see Appendix 2). Var Z is the variance of the effect size Fisher’s Z.

ID	Species	Study place	Season	Fisher’s Z	Var Z
4	*Podarcis siculus*	Calvi, Corsica (France)	Spring	0.053	0.018
18	*Podarcis liolepis*	Columbretes Islands, Castellón (Spain)	Autumn	0.150	0.006
36	*Podarcis tiliguerta*	Calvi, Corsica (France)	Spring	0.319	0.010
58	*Podarcis siculus*	Menorca (Spain)	Spring	0.212	0.077

The subset of ‘continental’ lizards included 21 populations and it was heterogeneous under the fixed effect model (Q_H = 201.62, P<0.00001, I^2 = 90.08%), being next partition by ‘study habitat’ (Q_B = 74.30, Logworth = 1.49; Fig. A10), with two new subsets: (1) ‘unknown + forest + scrublands’ (Final group 6), and (2) ‘sandy areas + rocky areas’ (Final group 7).

The **Final Group 6** included 12 populations (Table A15) and it was still heterogeneous for the fixed effect model (Q_H = 72.81, P<0.00001, I^2 = 84.89%). However, none of the moderators could explain the heterogeneity. Thus, we integrated the effect sizes with the random effect model: 0.4760 (95% CI: 0.3290/0.6231).

Table A15 Final Group 6. Summary of the 12 populations of lacertids of the Final Group 6 of the second meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the correlation between T_b and T_a, particularly the Fisher's Z). ID is the identification number of the study of which data for the meta-analysis were extracted (see Appendix 2). Var Z is the variance of the effect size Fisher's Z.

ID	Species	Study place	Season	Fisher's Z	Var Z
5	*Podarcis carbonelli*	Central System (Spain and Portugal)	Unknown	0.012	83.333
27	*Acanthodactylus erythrurus*	Espeja (Salamanca, Spain)	Whole year	0.033	30.030
27	*Psammodromus occidentalis*	Espeja (Salamanca, Spain)	Whole year	0.200	50.000
27	*Psammodromus algirus*	Espeja (Salamanca, Spain)	Whole year	0.014	68.965
31	*Heliobolus lugubris*	Kalahari (Botswana and South Africa)	Whole year	0.005	172.414
31	*Ichnotropis squamulosa*	Kalahari (Botswana and South Africa)	Whole year	0.011	89.286
33	*Meroles suborbitalis*	Kalahari (Botswana and South Africa)	Whole year	0.002	476.190
33	*Nucras tessellata*	Kalahari (Botswana and South Africa)	Whole year	0.007	147.059
33	*Pedioplanis lineoocellata*	Kalahari (Botswana and South Africa)	Whole year	0.001	666.667
33	*Pedioplanis namaquensis*	Kalahari (Botswana and South Africa)	Whole year	0.007	147.059
68	*Psammodromus algirus*	Sierra Nevada (Granada, Spain)	Spring-Summer	0.015	64.935
68	*Psammodromus algirus*	Sierra Nevada (Granada, Spain)	Spring-Summer	0.034	29.985

The **Final Group 7** included 9 populations (Table A16) and it was still heterogeneous (Q_H = 52.55, P<0.00001, I^2 = 84.78%), so we integrated the effect sizes with the random effects model: 0.9137 (95% CI: 0.7051/1.1224).

Table A16 Final Group 7. Summary of the 9 populations of lacertids of the Final Group 6 of the second meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the correlation between T_b and T_a, particularly the Fisher's Z). ID is the identification number of the study of which data for the meta-analysis were extracted (see Appendix 2). Var Z is the variance of the effect size Fisher's Z.

ID	Species	Study place	Season	Fisher's Z	Var Z
5	*Podarcis guadarramae*	Central System (Spain and Portugal)	Unknown	0.908	0.010
17	*Acanthodactylus erythrurus*	Ebro Delta (Tarragona, Spain)	Whole year	0.590	0.013
17	*Psammodromus algirus*	Ebro Delta (Tarragona, Spain)	Whole year	0.950	0.008
35	*Hellenolacerta graeca*	Stymphalia (Peloponnese, Greece)	Whole year	0.586	0.016
35	*Podarcis peloponnesiaca*	Stymphalia (Peloponnese, Greece)	Whole year	0.987	0.009
40	*Psammodromus edwardsianus*	El Prat de Llobregat (Barcelona, Spain)	Whole year	0.996	0.005
59	*Podarcis guadarramae*	Nava de Francia (Salamanca, Spain)	Spring	1.637	0.016
59	*Podarcis guadarramae*	Nava de Francia (Salamanca, Spain)	Autumn	0.858	0.023
59	*Podarcis guadarramae*	Nava de Francia (Salamanca, Spain)	Winter	0.698	0.014

The **Final Group 8** included 7 populations (Table A17) and it was still heterogeneous (Q_H = 13.89, P = 0.03088, I^2 = 56.81%), so we integrated the effect sizes with the random effects model: 1.1066 (0.9546/1.2086).

Table A17 Final Group 8. Summary of the 7 populations of lacertids of the Final Group 8 of the second meta-partition (effect size used as a proxy for the thermoregulatory ability of the population is the correlation between T_b and T_a, particularly the Fisher's Z). ID is the identification number of the study of which data for the meta-analysis were extracted (see Appendix 2). Var Z is the variance of the effect size Fisher's Z.

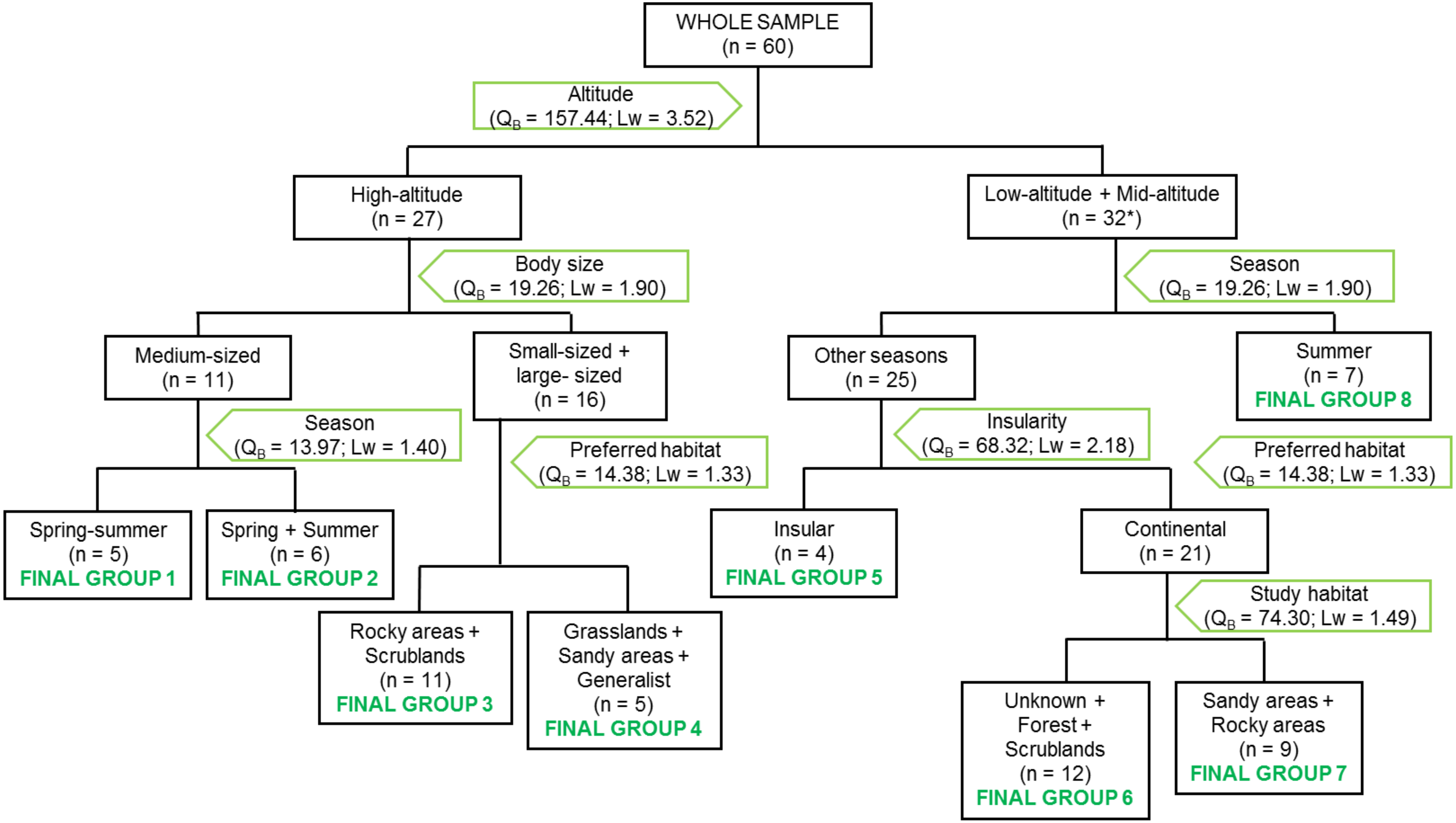
ID	Species	Study place	Season	Fisher's Z	Var Z
14	*Psammodromus algirus*	Soto de Viñuelas (Madrid, Spain)	Summer	1.245	0.018
19	*Acanthodactylus boskianus*	El-Omayed dunes (Egypt)	Summer	1.245	0.007
19	*Acanthodactylus boskianus*	El-Omayed rocks (Egypt)	Summer	0.822	0.014
57	*Scelarcis perspicillata*	Lithica, Menorca (Spain)	Summer	0.927	0.020
58	*Podarcis siculus*	Menorca (Spain)	Summer	0.987	0.083
59	*Podarcis guadarramae*	Nava de Francia (Salamanca, Spain)	Summer	1.245	0.008
65	*Podarcis milensis*	Milos Island (Greece)	Summer	1.099	0.005

Table A18 All the studies included in the second meta-partition. Full references of the studies are provided in the Electronic Supplementary Material 1

Population	Study	Fisher's Z	Var z
Acanthodactylus boskianus dunes	Darwish-Mahmoud 2003	1.2454	0.0067
Acanthodactylus boskianus rocks	Darwish-Mahmoud 2003	0.8217	0.0137
Acanthodactylus boskianus	Pérez-Mellado 1992	0.1348	0.0435
Acanthodactylus erythrurus	Gil et al. 1993	0.7414	0.0108
Acanthodactylus erythrurus	Carretero and Llorente 1995	0.5901	0.0135
Acanthodactylus erythrurus	Pollo and Pérez-Mellado 1989	0.3712	0.0333
Acanthodactylus longipes	Pérez-Mellado 1992	0.2715	0.200
Acanthodactylus scutellatus	Pérez-Mellado 1992	0.0983	0.0147
Archaeolacerta bedriagae	Bauwens et al. 1990	0.3361	0.0143
Atlantolacerta andreanszkyi	Busack 1987	0.6565	0.0192
Heliobolus lugubris	Verwaijen and Van Damme 2007	0.4847	0.0058
Hellenolacerta graeca	Maragou et al. 1997	0.586	0.0161
Iberolacerta aranica	Arribas 2010	0.4599	0.0071
Iberolacerta aurelioi 2500 m asl	Ortega et al. 2016g	-0.4024	0.0714
Iberolacerta aurelioi 2700 m asl	Ortega et al. 2016g	-0.1481	0.0714
Iberolacerta aurelioi	Arribas 2009	0.5361	0.0094
Iberolacerta bonnali	Martínez-Rica 1977	0.4489	0.0222
Iberolacerta bonnali	Ortega et al. 2016e	0.3161	0.0232
Iberolacerta bonnali	Arribas 2010	0.3428	0.0164
Iberolacerta cyreni	Martín and Salvador 1993	0.2997	0.0036
Iberolacerta cyreni	Ortega et al. 2016c	0.5295	0.027
Iberolacerta galani	Ortega et al. 2016a	0.3496	0.0435
Iberolacerta galani	Ortega et al. 2016b	0.5493	0.0131
Iberolacerta martinezricai	Arribas 2013	0.1511	0.0036
Iberolacerta monticola	Ortega et al. 2017	0.4477	0.025
Ichnotropis squamulosa	Verwaijen and Van Damme 2007	0.3008	0.0112
Meroles suborbitalis	Huey and Pianka 1977	0.6184	0.0021
Mesalina guttulata	Pérez-Mellado 1992	0.2844	0.125
Mesalina olivieri	Pérez-Mellado 1992	0.5794	0.0769
Nucras tessellata	Huey and Pianka 1977	0.8107	0.0068
Pedioplanis lineoocellata	Huey and Pianka 1977	0.6625	0.0015
Pedioplanis namaquensis	Huey and Pianka 1977	0.3428	0.0068
Podarcis bocagei	Ortega et al. 2016b	0.7057	0.0145
Podarcis carbonelli	Pérez-Mellado 1983	0.3654	0.012
Podarcis guadarramae	Pérez-Mellado 1983	0.9076	0.0096
Podarcis guadarramae spring	Ortega and Pérez-Mellado 2016	1.6366	0.0159
Podarcis guadarramae summer	Ortega and Pérez-Mellado 2016	1.2454	0.0076
Podarcis guadarramae autumn	Ortega and Pérez-Mellado 2016	0.8576	0.0232
Podarcis guadarramae winter	Ortega and Pérez-Mellado 2016	0.6978	0.0143
Podarcis liolepis	Castilla and Bauwens 1991	0.1501	0.0063
Podarcis milensis	Adamopoulou et al. 2005	1.0986	0.0054
Podarcis muralis	Martín-Vallejo 1990	0.4284	0.0174
Podarcis peloponnesiaca	Maragou et al. 1997	0.9868	0.0092
Podarcis siculus	Van Damme et al. 1990	0.053	0.0185
Podarcis siculus spring	Ortega et al. 2016f	0.2121	0.0769
Podarcis siculus summer	Ortega et al. 2016f	0.9868	0.0833
Podarcis tiliguerta	Van Damme et al. 1989	0.3194	0.0101
Psammodromus algirus	Carrascal and Díaz 1989	1.2454	0.0185
Psammodromus algirus	Carretero and Llorente 1995	0.9505	0.0076
Psammodromus algirus	Pollo and Pérez-Mellado 1989	0.8673	0.0145
Psammodromus algirus 300 m asl	Zamora-Camacho et al. 2015	-0.0591	0.0154
Psammodromus algirus 700 m asl	Zamora-Camacho et al. 2015	0.1409	0.0345
Psammodromus algirus 1200 m asl	Zamora-Camacho et al. 2015	-0.3073	0.037
Psammodromus algirus 1700 m asl	Zamora-Camacho et al. 2015	0.6112	0.0454

Psammodromus algirus 2200 m asl	Zamora-Camacho et al. 2015	0.491	0.0172
Psammodromus algirus 2500 m asl	Zamora-Camacho et al. 2015	0.4225	0.0156
Psammodromus edwardsianus	Carretero and Llorente 1993	0.9962	0.0055
Psammodromus occidentalis	Pollo and Pérez-Mellado 1989	0.8404	0.200
Scelarcis perspicillata	Ortega et al. 2016d	0.9266	0.0200
Zootoca vivipara	Herczeg et al. 2004	2.1095	0.0143

Figure A10 Tree of the second meta-partition. Summary tree of the meta-partition of the correlations between body and air temperatures in lacertids. Within each partition, effect sizes are organized from left (smaller) to right (larger). The best moderator that explains the variability of each partition is reported into a green arrow, with its respective values of the between-class component of the sums of squares from the test of homogeneity (Q_B) and the Logworth (-log10(p-value)) of Q_B.



THID ANALYSIS: MULTIMODEL INFERENCE

We report below the results od the multimodel inference and model averaging of the following model set:

E ~size + season + altitude + insularity + season:altitude + size:altitude,

, where ‘E’ is the index of thermoregulation effectiveness of Hertz et al. (1993)[5], ‘size’ is mean snout-vent length (SVL, in mm) of the studied population, ‘altitude’ is the elevation of the population (m asl), ‘insularity’ is considered as: 0 = ‘continental population’ vs 1 = ‘insular population’, sesason is considered as: 1 = ‘spring’, 2 = ‘summer’ and 3 = ‘others’ (since many authors merged data of various seasons into a common value of E).

It is recommended to select the potential moderator variables and their possible interactions based on their biological meaning influencing the response variable, and to avoid including many moderators and/or interactions that are not supported by evidence (Burnham and Anderson 2004[6]; Zuur et al. 2010[7]). Thus, we included each moderator in the model after a carefull exploration of the effect that it had in the response variable (through plots and descriptive statistics). We also took in consideration the results from the two meta-analyses to take into account the potential moderators incluencing the thermoregulation effectiveness.

```
Call:
glm(formula = E ~ Size + factor(Season) + Altitude + factor(Insularity) +
    factor(Season):Altitude + Size:Altitude, family = gaussian,
    na.action = "na.fail")

Deviance Residuals:
     Min        1Q    Median        3Q       Max
-0.27248  -0.03881   0.01332   0.06911   0.24187

Coefficients:
                           Estimate Std. Error t value Pr(>|t|)
```

[5] Hertz, P. E., Huey, R. B., & Stevenson, R. D. (1993). Evaluating temperature regulation by field-active ectotherms: the fallacy of the inappropriate question. The American Naturalist, 142(5), 796-818.
[6] Burnham, K. P., & Anderson, D. R. (2004). Multimodel inference: understanding AIC and BIC in model selection. Sociological Methods and Research, 33(2), 261-304.
[7] Zuur, A. F., Ieno, E. N., & Elphick, C. S. (2010). A protocol for data exploration to avoid common statistical problems. Methods in Ecology and Evolution, 1(1), 3-14.

```
(Intercept)                1.057e+00  1.670e-01   6.330 2.52e-07 ***
Size                      -3.174e-03  1.791e-03  -1.772   0.0849 .
factor(Season)2           -3.061e-03  8.244e-02  -0.037   0.9706
factor(Season)3           -8.258e-02  8.282e-02  -0.997   0.3253
Altitude                   2.180e-05  1.866e-04   0.117   0.9076
factor(Insularity)2       -6.028e-04  5.453e-02  -0.011   0.9912
factor(Season)2:Altitude -4.821e-05  7.509e-05  -0.642   0.5249
factor(Season)3:Altitude -9.363e-05  7.054e-05  -1.327   0.1928
Size:Altitude              2.550e-07  2.403e-06   0.106   0.9161
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for gaussian family taken to be 0.01159417)

    Null deviance: 0.73611  on 44  degrees of freedom
Residual deviance: 0.41739  on 36  degrees of freedom
AIC: -62.913

Number of Fisher Scoring iterations: 2
```

```
stdz.model <- standardize(global.model, standardize.y = FALSE)
summary(stdz.model)
```

```
Call:
glm(formula = E ~ z.Size + factor(Season) + z.Altitude + factor(Insularity) +
    factor(Season):z.Altitude + z.Size:z.Altitude, family = gaussian,
    na.action = "na.fail")

Deviance Residuals:
     Min        1Q    Median        3Q       Max
-0.27248  -0.03881   0.01332   0.06911   0.24187

Coefficients:
                            Estimate Std. Error t value Pr(>|t|)
(Intercept)                0.8874066  0.0626858  14.156 2.77e-16 ***
z.Size                    -0.0829009  0.0563498  -1.471   0.1499
factor(Season)2           -0.0497216  0.0586663  -0.848   0.4023
factor(Season)3           -0.1731957  0.0571434  -3.031   0.0045 **
z.Altitude                 0.0672272  0.1228248   0.547   0.5875
factor(Insularity)2       -0.0006028  0.0545329  -0.011   0.9912
factor(Season)2:z.Altitude -0.0844170  0.1314679  -0.642   0.5249
factor(Season)3:z.Altitude -0.1639396  0.1235155  -1.327   0.1928
z.Size:z.Altitude          0.0126424  0.1191593   0.106   0.9161
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for gaussian family taken to be 0.01159417)

    Null deviance: 0.73611  on 44  degrees of freedom
Residual deviance: 0.41739  on 36  degrees of freedom
AIC: -62.913

Number of Fisher Scoring iterations: 2
```

```
model.set <- dredge(stdz.model)
model.set
```

```
Global model call: glm(formula = E ~ z.Size + factor(Season) + z.Altitude + factor(I
nsularity) +
    factor(Season):z.Altitude + z.Size:z.Altitude, family = gaussian,
    na.action = "na.fail")
---
Model selection table
    (Int) fct(Ins) fct(Ssn)    z.Alt    z.Siz fct(Ssn):z.Alt z.Alt:z.Siz df logLik
AICc delta
11 0.8845                +          -0.10450                              5 39.215 -
66.9  0.00
15 0.8769                + -0.04067 -0.10520                              6 40.090 -
66.0  0.92
12 0.9011       +        +          -0.10980                              6 39.678 -
65.1  1.75
```

```
16 0.8743        +         + -0.04350 -0.10460                              7 40.093 -
63.2  3.73
47 0.8767                  + -0.04095 -0.10690                   -0.004964  7 40.092 -
63.2  3.73
31 0.8871                  +  0.07002 -0.08682               +              8 41.450 -
62.9  3.99
3  0.8186                  +                                                4 35.524 -
62.0  4.84
7  0.8108                  + -0.03944                                       5 36.219 -
60.9  5.99
23 0.8451                  +  0.13470                        +              7 38.864 -
60.7  6.19
48 0.8739        +         + -0.04403 -0.10650                   -0.005671  8 40.095 -
60.2  6.70
63 0.8870                  +  0.06665 -0.08283               +    0.012600  9 41.457 -
59.8  7.12
32 0.8874        +         +  0.07044 -0.08688               +              9 41.450 -
59.8  7.14
4  0.8259        +         +                                                5 35.644 -
59.8  7.14
8  0.7918        +         + -0.06386                                       6 36.417 -
58.6  8.27
24 0.8331        +         +  0.11470                        +              8 38.931 -
57.9  9.03
64 0.8874        +         +  0.06723 -0.08290               +    0.012640 10 41.457 -
56.4 10.45
13 0.7933                    -0.05784 -0.08176                              4 31.985 -
55.0 11.92
9  0.7933                             -0.07615                              3 30.731 -
54.9 12.02
10 0.8225        +                    -0.08580                              4 31.417 -
53.8 13.06
45 0.7909                    -0.06273 -0.11610                   -0.103800  5 32.485 -
53.4 13.46
1  0.7933                                                                   2 28.691 -
53.1 13.79
5  0.7933                    -0.04991                                       3 29.545 -
52.5 14.39
14 0.7908        +           -0.06069 -0.08121                              5 31.987 -
52.4 14.46
2  0.8100        +                                                          3 28.903 -
51.2 15.67
46 0.7847        +           -0.06973 -0.11530                   -0.105300  6 32.498 -
50.8 16.11
6  0.7716        +           -0.07502                                       4 29.697 -
50.4 16.50
   weight
11  0.352
15  0.222
12  0.147
16  0.054
47  0.054
31  0.048
3   0.031
7   0.018
23  0.016
48  0.012
63  0.010
32  0.010
4   0.010
8   0.006
24  0.004
64  0.002
13  0.001
9   0.001
10  0.001
45  0.000
1   0.000
5   0.000
14  0.000
2   0.000
46  0.000
6   0.000
Models ranked by AICc(x)
```

```
top.models <- get.models(model.set, subset = delta < 2)
top.models
      $`11`

      Call:  glm(formula = E ~ factor(Season) + z.Size + 1, family = gaussian,
          na.action = "na.fail")

      Coefficients:
          (Intercept)  factor(Season)2  factor(Season)3          z.Size
              0.88451         -0.05126         -0.17808         -0.10454

      Degrees of Freedom: 44 Total (i.e. Null);  41 Residual
      Null Deviance:          0.7361
      Residual Deviance: 0.4611    AIC: -68.43

      $`15`

      Call:  glm(formula = E ~ factor(Season) + z.Altitude + z.Size + 1, family = gaussian,

          na.action = "na.fail")

      Coefficients:
          (Intercept)  factor(Season)2  factor(Season)3       z.Altitude          z.Size

              0.87694         -0.04354         -0.16757         -0.04067         -0.10521


      Degrees of Freedom: 44 Total (i.e. Null);  40 Residual
      Null Deviance:          0.7361
      Residual Deviance: 0.4435    AIC: -68.18

      $`12`

      Call:  glm(formula = E ~ factor(Insularity) + factor(Season) + z.Size +
          1, family = gaussian, na.action = "na.fail")

      Coefficients:
              (Intercept)  factor(Insularity)2      factor(Season)2      factor(Season)3
                  0.90113             -0.03111             -0.04807             -0.17296
                   z.Size
                 -0.10976

      Degrees of Freedom: 44 Total (i.e. Null);  40 Residual
      Null Deviance:          0.7361
      Residual Deviance: 0.4517    AIC: -67.36

      attr(,"rank")
      function (x)
      do.call("rank", list(x))
      <environment: 0x0000000015b5fde0>
      attr(,"rank")attr(,"call")
      AICc(x)
      attr(,"rank")attr(,"class")
      [1] "function"     "rankFunction"
      attr(,"beta")
      [1] "none"

average <- model.avg(top.models)
summary(average)
      Call:
      model.avg(object = top.models)

      Component model call:
      glm(formula = E ~ <3 unique rhs>, family = gaussian, na.action = na.fail)

      Component models:
          df logLik   AICc delta weight
      24   5  39.21 -66.89  0.00   0.49
      234  6  40.09 -65.97  0.92   0.31
      124  6  39.68 -65.14  1.75   0.20

      Term codes:
      factor(Insularity)     factor(Season)         z.Altitude              z.Size
```

```
                 1                   2                   3                   4

Model-averaged coefficients:
(full average)
                     Estimate Std. Error Adjusted SE z value Pr(>|z|)
(Intercept)           0.885564   0.048430    0.049876  17.755  < 2e-16 ***
factor(Season)2      -0.048231   0.055985    0.057703   0.836  0.40324
factor(Season)3      -0.173802   0.054582    0.056251   3.090  0.00200 **
z.Size               -0.105810   0.038737    0.039927   2.650  0.00805 **
z.Altitude           -0.012527   0.025955    0.026344   0.476  0.63442
factor(Insularity)2  -0.006341   0.019859    0.020234   0.313  0.75400

(conditional average)
                    Estimate Std. Error Adjusted SE z value Pr(>|z|)
(Intercept)           0.88556    0.04843     0.04988  17.755  < 2e-16 ***
factor(Season)2      -0.04823    0.05599     0.05770   0.836  0.40324
factor(Season)3      -0.17380    0.05458     0.05625   3.090  0.00200 **
z.Size               -0.10581    0.03874     0.03993   2.650  0.00805 **
z.Altitude           -0.04067    0.03229     0.03329   1.222  0.22184
factor(Insularity)2  -0.03111    0.03412     0.03519   0.884  0.37667
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Relative variable importance:
                     factor(Season) z.Size z.Altitude factor(Insularity)
Importance:          1.00           1.00   0.31       0.20
N containing models:    3              3      1          1
```

```
top.models2 <- get.models(model.set, cumsum(weight) <= 0.95)
top.models2
     $`11`

     Call:  glm(formula = E ~ factor(Season) + z.Size + 1, family = gaussian,
         na.action = "na.fail")

     Coefficients:
         (Intercept)  factor(Season)2  factor(Season)3           z.Size
             0.88451          -0.05126         -0.17808         -0.10454

     Degrees of Freedom: 44 Total (i.e. Null);  41 Residual
     Null Deviance:          0.7361
     Residual Deviance: 0.4611    AIC: -68.43

     $`15`

     Call:  glm(formula = E ~ factor(Season) + z.Altitude + z.Size + 1, family = gaussian,

         na.action = "na.fail")

     Coefficients:
         (Intercept)  factor(Season)2  factor(Season)3      z.Altitude          z.Size

             0.87694          -0.04354         -0.16757        -0.04067        -0.10521


     Degrees of Freedom: 44 Total (i.e. Null);  40 Residual
     Null Deviance:          0.7361
     Residual Deviance: 0.4435    AIC: -68.18

     $`12`

     Call:  glm(formula = E ~ factor(Insularity) + factor(Season) + z.Size +
         1, family = gaussian, na.action = "na.fail")

     Coefficients:
             (Intercept)  factor(Insularity)2      factor(Season)2      factor(Season)3
                 0.90113             -0.03111             -0.04807             -0.17296
                  z.Size
                -0.10976

     Degrees of Freedom: 44 Total (i.e. Null);  40 Residual
```

```
Null Deviance:          0.7361
Residual Deviance: 0.4517    AIC: -67.36

$`16`

Call:  glm(formula = E ~ factor(Insularity) + factor(Season) + z.Altitude +
    z.Size + 1, family = gaussian, na.action = "na.fail")

Coefficients:
        (Intercept)  factor(Insularity)2      factor(Season)2      factor(Season)3
           0.874350             0.003858            -0.043404            -0.167478
         z.Altitude               z.Size
          -0.043502            -0.104614

Degrees of Freedom: 44 Total (i.e. Null);  39 Residual
Null Deviance:          0.7361
Residual Deviance: 0.4435    AIC: -66.19

$`47`

Call:  glm(formula = E ~ factor(Season) + z.Altitude + z.Size + z.Altitude:z.Size +
    1, family = gaussian, na.action = "na.fail")

Coefficients:
      (Intercept)    factor(Season)2    factor(Season)3         z.Altitude
   z.Size
         0.876722          -0.043650          -0.167184          -0.040952
-0.106872
z.Altitude:z.Size
        -0.004964

Degrees of Freedom: 44 Total (i.e. Null);  39 Residual
Null Deviance:          0.7361
Residual Deviance: 0.4435    AIC: -66.18

$`31`

Call:  glm(formula = E ~ factor(Season) + z.Altitude + z.Size + factor(Season):z.Alt
itude +
    1, family = gaussian, na.action = "na.fail")

Coefficients:
              (Intercept)              factor(Season)2              factor(Season)3
                  0.88710                     -0.05056                     -0.17296
               z.Altitude                       z.Size  factor(Season)2:z.Altitude
                  0.07002                     -0.08682                     -0.09062
factor(Season)3:z.Altitude
                 -0.16600

Degrees of Freedom: 44 Total (i.e. Null);  38 Residual
Null Deviance:          0.7361
Residual Deviance: 0.4175    AIC: -66.9

$`3`

Call:  glm(formula = E ~ factor(Season) + 1, family = gaussian, na.action = "na.fail
")

Coefficients:
    (Intercept)  factor(Season)2  factor(Season)3
        0.81857          0.03329         -0.10798

Degrees of Freedom: 44 Total (i.e. Null);  42 Residual
Null Deviance:          0.7361
Residual Deviance: 0.5433    AIC: -63.05

$`7`

Call:  glm(formula = E ~ factor(Season) + z.Altitude + 1, family = gaussian,
    na.action = "na.fail")

Coefficients:
    (Intercept)  factor(Season)2  factor(Season)3       z.Altitude
        0.81082          0.04129         -0.09735         -0.03944
```

```
Degrees of Freedom: 44 Total (i.e. Null);  41 Residual
Null Deviance:        0.7361
Residual Deviance: 0.5268    AIC: -62.44

$`23`

Call:  glm(formula = E ~ factor(Season) + z.Altitude + factor(Season):z.Altitude +
    1, family = gaussian, na.action = "na.fail")

Coefficients:
              (Intercept)            factor(Season)2            factor(Season)3
                 0.845057                   0.006923                  -0.126238
               z.Altitude  factor(Season)2:z.Altitude  factor(Season)3:z.Altitude
                 0.134725                  -0.153831                  -0.247478

Degrees of Freedom: 44 Total (i.e. Null);  39 Residual
Null Deviance:        0.7361
Residual Deviance: 0.4684    AIC: -63.73

attr(,"rank")
function (x)
do.call("rank", list(x))
<environment: 0x0000000015b5fde0>
attr(,"rank")attr(,"call")
AICc(x)
attr(,"rank")attr(,"class")
[1] "function"      "rankFunction"
attr(,"beta")
[1] "none"
```

```
top.models2 <- get.models(model.set, cumsum(weight) <= 0.95)
average2 <- model.avg(top.models2)
summary(average2)
```

```
Call:
model.avg(object = top.models2)

Component model call:
glm(formula = E ~ <9 unique rhs>, family = gaussian, na.action = na.fail)

Component models:
     df logLik   AICc delta weight
24    5  39.21 -66.89  0.00   0.37
234   6  40.09 -65.97  0.92   0.24
124   6  39.68 -65.14  1.75   0.16
1234  7  40.09 -63.16  3.73   0.06
2346  7  40.09 -63.16  3.73   0.06
2345  8  41.45 -62.90  3.99   0.05
2     4  35.52 -62.05  4.84   0.03
23    5  36.22 -60.90  5.99   0.02
235   7  38.86 -60.70  6.19   0.02

Term codes:
       factor(Insularity)            factor(Season)                z.Altitude
                        1                         2                         3
                   z.Size factor(Season):z.Altitude         z.Altitude:z.Size
                        4                         5                         6

Model-averaged coefficients:
(full average)
                            Estimate Std. Error Adjusted SE z value Pr(>|z|)
(Intercept)                0.8801829  0.0514335   0.0528411  16.657   <2e-16 ***
factor(Season)2           -0.0425007  0.0591109   0.0607381   0.700   0.4841
factor(Season)3           -0.1685995  0.0569570   0.0585716   2.879   0.0040 **
z.Size                    -0.0975681  0.0467977   0.0477780   2.042   0.0411 *
z.Altitude                -0.0093684  0.0479685   0.0487856   0.192   0.8477
factor(Insularity)2       -0.0046280  0.0218368   0.0223398   0.207   0.8359
z.Altitude:z.Size         -0.0002865  0.0233983   0.0241453   0.012   0.9905
factor(Season)2:z.Altitude -0.0071979  0.0403784   0.0410837   0.175   0.8609
factor(Season)3:z.Altitude -0.0126056  0.0566652   0.0572111   0.220   0.8256

(conditional average)
                           Estimate Std. Error Adjusted SE z value Pr(>|z|)
(Intercept)                0.880183   0.051433    0.052841  16.657   <2e-16 ***
```

```
factor(Season)2             -0.042501   0.059111    0.060738   0.700    0.484
factor(Season)3             -0.168600   0.056957    0.058572   2.879    0.004 **
z.Size                      -0.104767   0.039968    0.041194   2.543    0.011 *
z.Altitude                  -0.021416   0.070725    0.071991   0.297    0.766
factor(Insularity)2         -0.021652   0.043155    0.044343   0.488    0.625
z.Altitude:z.Size           -0.004964   0.097278    0.100392   0.049    0.961
factor(Season)2:z.Altitude -0.106413   0.116388    0.119981   0.887    0.375
factor(Season)3:z.Altitude -0.186359   0.122840    0.126525   1.473    0.141
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:
                     factor(Season) z.Size z.Altitude factor(Insularity)
Importance:          1.00           0.93   0.44       0.21
N containing models:    9              6      6          2
                     factor(Season):z.Altitude z.Altitude:z.Size
Importance:          0.07                      0.06
N containing models:    2                         1
```