**SUPPLEMENTARY MATERIAL**

Table S1: Life history data and corresponding model predictions for the two studied lizard species: Horvath’s rock lizard (*Iberolacerta horvathi*) and Common wall lizard (*Podarcis muralis*). “Age at hatching” corresponds to incubation time, “age at puberty” corresponds to time between birth and puberty. Personal unpublished data comes from a constantly expanding database of morphometric field observations for both species obtained in the studied locations and is available upon request. Bolded references present sources for closely related species (*Iberolacerta bonnali*).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Species:** |  |  | ***Podarcis muralis* (lowland)** | | | ***Iberolacerta horvathi* (highland)** | | |
| **Data:** |  | **Unit** | **Observed** | **Predicted** | **Data source** | **Observed** | **Predicted** | **Data source** |
| Age | Birth | day | 65.90 | 63.90 | Van Damme et al., 1992 | 44.00 | 46.44 | Ljubisavljević et al., 2012 |
|  | Puberty | day | 660 | 651 | Castanet and Roche, 1981 | 1095 | 1034 | Bernini and Doria, 2006 |
| Life span |  | day | 3650 | 3647 | Castanet, 1994 | 3285 | 3290 | Bernini and Doria, 2006 |
| SVL | Hatching | cm | 2.41 | 2.6 | in den Bosch and Bout, 1998 | 2.48 | 2.79 | Ljubisavljević et al., 2012 |
|  | Puberty (females) | cm | 4.42 | 4.511 | Castanet and Roche, 1981 | 4.90 | 4.71 | **Arribas and Galán, 2005** |
|  | Puberty (males) | cm | 4.99 | 4.988 | Castanet and Roche, 1981 | 4.50 | 4.50 | **Arribas and Galán, 2005** |
|  | Ultimate (females) | cm | 6.683 | 6.45 | Personal data | 6.77 | 6.39 | Personal data |
|  | Ultimate (males) | cm | 6.223 | 6.264 | Personal data | 6.17 | 6.16 | Personal data |
| Mass | Egg | g | 0.98 | 0.9368 | in den Bosch and Bout, 1998 | 1.30 | 1.26 | in den Bosch and Bout, 1998 |
|  | Hatchling | g | 0.36 | 0.3442 | in den Bosch and Bout, 1998 | 0.46 | 0.40 | in den Bosch and Bout, 1998 |
|  | Ultimate (females) | g | 5.078 | 5.256 | Personal data | 4.64 | 4.84 | Personal data |
|  | Ultimate (males) | g | 5.95 | 5.954 | Personal data | 4.96 | 4.97 | Personal data |
| Maximum reproduction rate |  | egg/day | 0.027 | 0.023 | Ji and Braña, 2000 | 0.01 | 0.01 | Speybroeck et al., 2016 |

Table S2: Table used to estimate temperatures at start of activity for both species of lizards. Temperatures were recorded using a digital thermometer (Fluke® 971, accuracy ±0.5°C). Tair – Air temperature, Tsurf – temperature of the surface in front of the refuge, Tref - temperature within the refuge. F- female, M – male, SAD – subadult, JUV – juvenile. AD -Adult, IM – immature.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ID** | **SPECIES** | **SEX** | **AGE** | **T air** | **T surf** | **T ref** |
| 1 | IHOR | AD | AD | 24.1 | 34.3 | 19.1 |
| 2 | IHOR | M | AD | 24.0 | 33.3 | 9.7 |
| 3 | IHOR | AD | AD | 24.3 | 23.2 | 19.4 |
| 4 | IHOR | F | AD | 22.6 | 22.4 | 17.0 |
| 5 | IHOR | M | AD | 24.0 | 15.9 | 5.6 |
| 6 | IHOR | SAD | IM | 24.0 | 16.5 | 1.5 |
| 7 | IHOR | AD | AD | 28.0 | 24.3 | 4.5 |
| 8 | PMUR | JUV | IM | 27.4 | 35.8 | 13.1 |
| 9 | PMUR | F | AD | 21.0 | 38.0 | 15.0 |
| 12 | IHOR | M | AD | 23.7 | 35.1 | 3.8 |
| 13 | PMUR | F | AD | 25.5 | 11.1 | 2.2 |
| 17 | IHOR | M | AD | 17.0 | 18.9 | 7.8 |
| 18 | IHOR | M | AD | 18.8 | 24.7 | 11.4 |
| 19 | IHOR | F | AD | 23.3 | 22.8 | 7.0 |
| 20 | IHOR | M | AD | 23.3 | 35.4 | 6.8 |
| 21 | PMUR | F | AD | 23.2 | 19.9 | 13.3 |
| 22 | IHOR | M | AD | 23.2 | 24.9 | 6.1 |
| 24 | IHOR | F | AD | 26.7 | 20.0 | 2.0 |
| 25 | IHOR | SAD | IM | 26.6 | 31.7 | 16.1 |
| 26 | PMUR | F | AD | 26.8 | 24.0 | 18.0 |
| 27 | PMUR | M | AD | 20.4 | 29.5 | 15.1 |
| 28 | PMUR | M | AD | 21.1 | 30.4 | 15.6 |
| 29 | PMUR | M | AD | 21.1 | 21.1 | 17.0 |
| 30 | PMUR | F | AD | 21.7 | 27.3 | 15.9 |
| 31 | IHOR | JUV | IM | 24.0 | 20.2 | 17.6 |
| 32 | IHOR | JUV | IM | 26.1 | 20.1 | 6.2 |
| 33 | IHOR | FGR | AD | 27.0 | 37.0 | 8.0 |
| 34 | PMUR | F | AD | 24.3 | 36.7 | 21.0 |
| 35 | PMUR | F | AD | 24.3 | 22.8 | 21.6 |
| 36 | IHOR | M | AD | 25.2 | 34.2 | 20.6 |
| 38 | IHOR | F | AD | 19.5 | 17.6 | 14.2 |
| 39 | IHOR | FGR | AD | 20.1 | 38.5 | 22.6 |
| 40 | IHOR | F | AD | 20.3 | 35.4 | 20.3 |
| 41 | IHOR | M | AD | 20.4 | 30.0 | 18.1 |
| 42 | IHOR | SAD | IM | 21.3 | 38.4 | 18.3 |
| 43 | IHOR | M | AD | 21.2 | 29.8 | 21.2 |
| 44 | IHOR | FGR | AD | 24.5 | 25.3 | 21.0 |
| 45 | IHOR | FGR | AD | 24.5 | 41.0 | 14.0 |
| 46 | IHOR | FGR | AD | 25.4 | 21.6 | 13.3 |
| 47 | IHOR | FGR | AD | 24.6 | 27.9 | 16.3 |
| 48 | IHOR | FGR | AD | 25.0 | 22.1 | 14.0 |
| 49 | IHOR | JUV | IM | 25.1 | 38.3 | 26.0 |
| 50 | IHOR | M | AD | 28.0 | 34.0 | 23.0 |
| 51 | IHOR | M | AD | 28.0 | 42.0 | 20.0 |
| 52 | IHOR | JUV | IM | 28.0 | 27.2 | 17.0 |
| 53 | IHOR | F | AD | 30.1 | 29.0 | 19.0 |
| 55 | IHOR | JUV | IM | 25.4 | 28.9 | 16.3 |
| 56 | IHOR | JUV | IM | 26.0 | 31.7 | 21.0 |
| 57 | PMUR | F | AD | 31.6 | 37.7 | 30.0 |
| 58 | IHOR | F | AD | 29.3 | 35.5 | 11.4 |
| 59 | IHOR | M | AD | 30.6 | 27.6 | 20.3 |
| 60 | IHOR | M | AD | 30.7 | 42.9 | 30.2 |
| 61 | IHOR | M | AD | 32.0 | 24.8 | 18.1 |
| 62 | PMUR | M | AD | 32.0 | 42.2 | 32.7 |
| 64 | IHOR | M | AD | 32.0 | 26.5 | 21.1 |
| 65 | IHOR | JUV | IM | 29.6 | 55.0 | 24.1 |
| 66 | IHOR | M | AD | 29.6 | 34.0 | 16.7 |
| 68 | IHOR | M | AD | 23.2 | 32.3 | 23.6 |
| 69 | IHOR | M | AD | 23.9 | 29.8 | 25.4 |
| 70 | PMUR | M | AD | 22.2 | 40.9 | 25.7 |
| 71 | PMUR | F | AD | 29.2 | 25.0 | 21.3 |
| 72 | IHOR | JUV | IM | 29.2 | 31.7 | 14.9 |
| 73 | IHOR | JUV | IM | 25.8 | 24.6 | 18.2 |
| 74 | IHOR | SAD | IM | 27.0 | 26.2 | 20.7 |
| 75 | IHOR | SAD | IM | 29.4 | 27.5 | 16.0 |
| 77 | IHOR | M | AD | 29.4 | 29.3 | 22.8 |
| 79 | IHOR | SAD | IM | 29.4 | 20.6 | 11.6 |
| 81 | IHOR | F | AD | 30.0 | 28.2 | 8.6 |
| 82 | IHOR | F | AD | 30.0 | 50.0 | 6.5 |
| 83 | IHOR | SAD | IM | 31.4 | 25.2 | 18.0 |
| 84 | IHOR | JUV | IM | 31.4 | 22.5 | 6.8 |
| 85 | IHOR | M | AD | 25.3 | 30.4 | 24.0 |
| 88 | IHOR | SAD | IM | 29.3 | 22.1 | 16.4 |
| 89 | IHOR | F | AD | 27.2 | 21.2 | 18.3 |
| 90 | IHOR | M | AD | 30.3 | 22.8 | 19.4 |
| 92 | IHOR | M | AD | 30.3 | 31.1 | 18.0 |
| 93 | IHOR | M | AD | 31.0 | 21.6 | 10.6 |
| 94 | IHOR | M | AD | 31.0 | 20.1 | 11.0 |
| 95 | IHOR | SAD | IM | 31.0 | 34.3 | 19.2 |
| 96 | IHOR | SAD | IM | 31.0 | 44.4 | 10.9 |
| 97 | IHOR | F | AD | 30.4 | 30.8 | 21.5 |
| 98 | IHOR | M | AD | 30.4 | 23.6 | 11.5 |
| 99 | IHOR | SAD | IM | 30.4 | 25.7 | 10.8 |
| 100 | PMUR | F | AD | 30.7 | 24.1 | 19.9 |
| 101 | IHOR | M | AD | 30.7 | 22.9 | 17.6 |
| 102 | IHOR | M | AD | 30.7 | 25.7 | 29.8 |
| 103 | PMUR | F | AD | 28.0 | 26.8 | 25.7 |
| 104 | IHOR | M | AD | 33.3 | 34.3 | 24.3 |
| 105 | PMUR | F | AD | 30.0 | 36.9 | 29.2 |
| 106 | IHOR | SAD | IM | 29.0 | 36.3 | 32.0 |
| 108 | IHOR | SAD | IM | 32.0 | 30.7 | 34.3 |
| 109 | IHOR | M | AD | 25.0 | 32.0 | 16.0 |
| 110 | IHOR | AD | AD | 28.0 | 24.0 | 15.0 |
| 111 | IHOR | F | AD | 28.0 | 24.0 | 19.0 |
| 112 | IHOR | JUV | IM | 28.0 | 48.0 | 11.0 |
| 113 | PMUR | F | AD | 28.0 | 30.0 | 17.0 |
| 114 | IHOR | SAD | IM | 27.0 | 22.0 | 15.0 |
| 115 | IHOR | M | AD | 28.0 | 26.0 | 19.0 |
| 116 | IHOR | JUV | IM | 28.0 | 44.0 | 12.0 |
| 117 | IHOR | M | AD | 27.0 | 26.0 | 13.0 |
| 119 | IHOR | M | AD | 27.0 | 18.0 | 19.0 |
| 120 | IHOR | SAD | IM | 27.0 | 22.0 | 24.0 |
| 121 | IHOR | F | AD | 27.0 | 23.0 | 18.0 |
| 122 | IHOR | SAD | IM | 24.0 | 22.0 | 19.0 |
| 123 | IHOR | M | AD | 24.0 | 28.0 | 15.0 |
| 125 | IHOR | M | AD | 26.0 | 22.0 | 14.0 |
| 126 | IHOR | F | AD | 27.0 | 35.0 | 12.0 |
| 127 | IHOR | AD | AD | 28.0 | 41.0 | 16.0 |
| 130 | IHOR | M | AD | 28.0 | 18.0 | 11.0 |
| 134 | IHOR | SAD | IM | 28.0 | 31.0 | 22.0 |
| 137 | PMUR | JUV | IM | 20.0 | 13.0 | 12.0 |
| 140 | IHOR | SAD | IM | 21.0 | 19.0 | 7.0 |
| 141 | IHOR | M | AD | 20.0 | 31.0 | 16.0 |
| 142 | IHOR | JUV | IM | 21.0 | 39.0 | 18.0 |
| 143 | IHOR | M | AD | 22.0 | 22.0 | 12.0 |
| 144 | IHOR | SAD | IM | 22.0 | 33.0 | 8.0 |
| 145 | IHOR | M | AD | 22.0 | 17.0 | 10.0 |
| 147 | IHOR | M | AD | 23.0 | 24.0 | 14.0 |
| 150 | IHOR | F | AD | 23.0 | 45.0 | 8.0 |
| 151 | IHOR | M | AD | 23.0 | 32.0 | 23.0 |
| 153 | IHOR | F | AD | 24.0 | 27.0 | 12.0 |
| 154 | IHOR | F | AD | 24.0 | 34.0 | 13.0 |
| 160 | IHOR | F | AD | 24.0 | 40.0 | 11.0 |
| 161 | IHOR | AD | AD | 24.0 | 19.0 | 12.0 |
| 165 | PMUR | SAD | IM | 23.0 | 27.0 | 18.0 |
| 166 | PMUR | M | AD | 24.0 | 17.0 | 20.0 |

Table S3: Core DEB parameters for the two studied species of lizards. Parameter estimation was carried out using the covariation method (Lika et al., 2011; Marques et al., 2018).

|  |  |  |  |
| --- | --- | --- | --- |
|  | ***Podarcis muralis*** | ***Iberolacerta horvathi*** |  |
| **Parameter** | **Estimate** | | **Units** |
| z, zoom factor (relative volumetric length) | 1.3094 | 1.4959 | - |
| δM, shape correction factor | 0.20302 | 0.23419 | - |
| v, energy conductance | 0.027014 | 0.048738 | cm day-1 |
| κ, allocation fraction to soma | 0.2756 | 0.31132 | - |
| [ṗM], somatic maintenance | 52.6527 | 31.1886 | J cm-3day-1 |
| maturity maintenance rate coefficient | 0.002 | 0.002 | day-1 |
| [EG], cost of structure | 7835.98 | 7838.15 | J cm-3 |
| maturity at birth | 3480 | 5108 | J |
| maturity at puberty | 29030 | 34480 | J |

Table S4: Individual coefficient results of OLS linear regression models of the effect of elevation and location type on environmental variables

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Mean temperature** | | |
| *Predictors* | *Estimates* | *SE* | *P* |
| Intercept | 14.1 | 0.581 | <0.01\*\*\* |
| Elevation | -0.005 | 0.0005 | <0.01\*\*\* |
| Loc. type:Pmur allotopy | -0.250 | 0.384 | 0.528 |
| Loc. type:Sintopy | 0.819 | 0.403 | 0.067˙ |
| F(3, 11): 65.2; R-squared: 0.932; p-value: <0.01 | | | |
|  | **Mean relative humidity** | | |
| *Predictors* | *Estimates* | *SE* | *P* |
| Intercept | 65.0 | 2.92 | <0.01\*\*\* |
| Elevation | 0.015 | 0.002 | <0.01\*\*\* |
| Loc. type:Pmur allotopy | 3.22 | 1.93 | 0.123 |
| Loc. type:Sintopy | -1.23 | 3.03 | 0.555 |
| F(3, 11): 17.68; R-squared: 0.828; p-value: <0.01 | | | |
|  | **Mean solar radiation** | | |
| *Predictors* | *Estimates* | *SE* | *P* |
| Intercept | 81.3 | 9.50 | <0.01\*\*\* |
| Elevation | 0.003 | 0.008 | 0.773 |
| Loc. type:Pmur allotopy | 2.12 | 6.28 | 0.742 |
| Loc. type:Sintopy | -4.36 | 6.0 | 0.523 |
| F(3, 11): 24.191; R-squared: 0.570 ; p-value: 0.646 | | | |
|  | **Days without snow cover** | | |
| *Predictors* | *Estimates* | *SE* | *P* |
| Intercept | 5824 | 119 | <0.01\*\*\* |
| Elevation | -1.053 | 0.106 | <0.01\*\*\* |
| Loc. type:Pmur allotopy | 48.4 | 78.7 | 0.551 |
| Loc. type:Sintopy | 89.3 | 82.7 | 0.304 |
| F(3, 11):54.342; R-squared:0.937 ; p-value: <0.01 | | | |

Table S5: Individual coefficient results of linear models of the effect of elevation, species, and location type on life history traits when modelled using spring preferred body temperatures.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Egg development time** | | |
| *Predictors* | *Estimates* | *SE* | *p* |
| **Intercept** | **33.9** | **2.06** | **<0.01\*\*\*** |
| **Elevation** | **0.02** | **0.002** | **<0.01\*\*\*** |
| **Species:P. muralis** | **8.53** | **0.958** | **<0.01\*\*\*** |
| **Loc. type:Pmur allotopy** | **2.76** | **1.321** | **0.05\*** |
| **Loc. type:Sintopy** | **-3.32** | **1.389** | **0.03\*** |
| F(4, 25):84.48; adjusted R-squared:0.92.; p-value: <0.001 | | | |
|  | **Lifespan** | | |
| *Predictors* | *Estimates* | *SE* | *p* |
| **Intercept** | **5.77** | **0.279** | **<0.01\*\*\*** |
| **Elevation** | **0.002** | **0.0002** | **<0.01\*\*\*** |
| **Species:P. muralis** | **0.93** | **0.130** | **<0.01\*\*\*** |
| Loc. type:Pmur allotopy | -0.24 | 0.179 | 0.283 |
| **Loc. type:Sintopy** | **-042** | **0.188** | **0.282\*** |
| F(4, 25):37.16; adjusted R-squared:0.83.; p-value: <0.001 | | | |
|  | **Years reproducing** | | |
| *Predictors* | *Estimates* | *SE* | *p* |
| **Intercept** | **2.54** | **0.25** | **<0.001\*\*\*** |
| Elevation | -0.0003 | 0.0003 | 0.36 |
| **Species:P. muralis** | **1.73** | **0.18** | **0.001\*\*\*** |
| F(4, 25):47.48; adjusted R-squared: 0.76.; p-value: 0.0058 | | | |
|  | **Yearly basking time** | | |
| *Predictors* | *Estimates* | *SE* | *p* |
| **Intercept** | **1666** | **88.9** | **<0.001\*\*\*** |
| **Elevation** | **-0.26** | **0.08** | **<0.01\*\*\*** |
| **Species:P. muralis** | **-348** | **41.3** | **<0.001\*\*\*** |
| Loc. type:Pmur allotopy | -20.3 | 57.1 | 0.291 |
| **Loc. type:Sintopy** | **143** | **60.1** | **0.025\*** |
| F(4, 25):22.29; adjusted R-squared:0.75.; p-value: <0.001 | | | |
|  | **Yearly foraging time** | | |
| *Predictors* | *Estimates* | *SE* | *p* |
| **Intercept** | **459** | **34.1** | **<0.001\*\*\*** |
| **Elevation** | **-0.12** | **0.03** | **<0.01\*\*\*** |
| **Species:P. muralis** | **210** | **35.64** | **<0.001\*\*\*** |
| Loc. type:Pmur allotopy | -9.63 | 29.2 | 0.62 |
| **Loc. type:Sintopy** | **49.9** | **20.2** | **0.02\*\*** |
| Elevation:SpeciesP. muralis | -0.08 | 0.04 | 0.07 |
| F(5, 24):40.1; adjusted R-squared:0.87.; p-value: <0.001 | | | |
|  | **Yearly fecundity** | | |
| *Predictors* | *Estimates* | *SE* | *p* |
| **Intercept** | **0.69** | **0.29** | **<0.05\*\*** |
| Elevation | -0.0003 | 0.0003 | <0.069 |
| **Species:P. muralis** | **2.39** | **0.30** | **<0.001\*\*\*** |
| Loc. type:Pmur allotopy | -0.22 | 0.16 | 0.069 |
| **Loc. type:Sintopy** | **0.36** | **0.17** | **<0.05\*\*** |
| **Elevation:SpeciesP. muralis** | **-0.001** | **0.0004** | **<0.01\*\*\*** |
| F(5, 24):46.49; adjusted R-squared:0.88.; p-value: <0.001 | | | |

Table S6: Post hoc comparisons of location types when modelled using spring preferred body temperatures

|  |  |  |  |
| --- | --- | --- | --- |
| ***Post hoc comparison*** | ***Estimates*** | ***SE*** | ***p*** |
| **Egg development time** | | | |
| *P. muralis* allotopy - *I. horvathi* allotopy | 2.76 | 1,32 | 0.11 |
| Sintopy - *I. horvathi* allotopy | -3.32 | 1.39 | 0.06 |
| **Sintopy - *P. muralis* allotopy** | **-6.08** | **1.78** | **<0.001\*\*\*** |
| **Lifespan** | | | |
| *P. muralis* allotopy - *I. horvathi* allotopy | -0.24 | 0.18 | 0.38 |
| Sintopy - *I. horvathi* allotopy | -0.41 | 0.19 | 0.08 |
| Sintopy - *P. muralis* allotopy | -0.18 | 0.16 | 0.52 |
| **Yearly basking time** | | | |
| *P. muralis* allotopy - *I. horvathi* allotopy | -20.3 | 57.1 | 0.93 |
| Sintopy - *I. horvathi* allotopy | 142 | 60.1 | 0.06 |
| **Sintopy - *P. muralis* allotopy** | **163** | **50.9** | **<0.01\*\*** |
| **Yearly foraging time** | | | |
| *P. muralis* allotopy - *I. horvathi* allotopy | -9.63 | 19.2 | 0.87 |
| Sintopy - *I. horvathi* allotopy | 49.9 | 20.2 | 0.05 |
| **Sintopy - *P. muralis* allotopy** | **59.5** | **17.1** | **<0.01\*\*** |
| **Yearly fecundity** | | | |
| *P. muralis* allotopy - *I. horvathi* allotopy | -0.22 | 0.16 | 0.37 |
| Sintopy - *I. horvathi* allotopy | 0.36 | 0.17 | 0.10 |
| **Sintopy - *P. muralis* allotopy** | **0.58** | **0.14** | **<0.01\*\*** |

Table S7: Individual coefficient results of linear models of the effect of elevation, species, and location type on life history traits when modelled using summer preferred body temperatures.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Egg development time** | | |
| *Predictors* | *Estimates* | *SE* | *p* |
| **Intercept** | **33.9** | **2.06** | **<0.01\*\*\*** |
| **Elevation** | **0.02** | **0.002** | **<0.01\*\*\*** |
| **Species:P. muralis** | **8.53** | **0.958** | **<0.01\*\*\*** |
| **Loc. type:Pmur allotopy** | **2.76** | **1.321** | **0.05\*** |
| **Loc. type:Sintopy** | **-3.32** | **1.389** | **0.03\*** |
| F(4, 25):84.48; adjusted R-squared:0.92.; p-value: <0.01 | | | |
|  | **Lifespan** | | |
| *Predictors* | *Estimates* | *SE* | *p* |
| **Intercept** | **5.31** | **0.284** | **<0.01\*\*\*** |
| **Elevation** | **0.001** | **0.0002** | **<0.01\*\*\*** |
| **Species:P. muralis** | **0.600** | **0.132** | **<0.01\*\*\*** |
| Loc. type:Pmur allotopy | 0.200 | 0.182 | 0.283 |
| Loc. type:Sintopy | -0.211 | 0.192 | 0.282 |
| F(4, 25):15.66; adjusted R-squared:0.83.; p-value: <0.01 | | | |
|  | **Years reproducing** | | |
| *Predictors* | *Estimates* | *SE* | *p* |
| **Intercept** | **3.153** | **0.350** | **<0.01\*\*\*** |
| **Elevation** | **-0.001** | **0.0004** | **0.01\*\*** |
| Species:P. muralis | 0.400 | 0.30 | 0.128 |
| F(4, 25):6.261; adjusted R-squared: 0.266.; p-value: 0.0058 | | | |
|  | **Yearly basking time** | | |
| *Predictors* | *Estimates* | *SE* | *p* |
| **Intercept** | **1830** | **104** | **<0.01\*\*\*** |
| **Elevation** | **-0.35** | **0.09** | **<0.01\*\*\*** |
| **Species:P. muralis** | **-365** | **48.54** | **<0.01\*\*\*** |
| Loc. type:Pmur allotopy | -72.4 | 67.1 | 0.291 |
| Loc. type:Sintopy | 92.9 | 70.57 | 0.200 |
| F(4, 25):22.29; adjusted R-squared:0.75.; p-value: <0.01 | | | |
|  | **Yearly foraging time** | | |
| *Predictors* | *Estimates* | *SE* | *p* |
| **Intercept** | **506** | **34.8** | **<0.01\*\*\*** |
| **Elevation** | **-0.16** | **0.03** | **<0.01\*\*\*** |
| **Species:P. muralis** | **63.8** | **16.2** | **<0.01\*\*\*** |
| Loc. type:Pmur allotopy | -27.6 | 22.4 | 0.23 |
| Loc. type:Sintopy | 36.7 | 23.5 | 0.13 |
| F(4, 25):19.27; adjusted R-squared:0.72.; p-value: <0.01 | | | |
|  | **Yearly fecundity** | | |
| *Predictors* | *Estimates* | *SE* | *p* |
| **Intercept** | **0.87** | **0.24** | **<0.01\*\*\*** |
| Elevation | -0.0004 | 0.0002 | <0.069 |
| **Species:P. muralis** | **1.14** | **0.25** | **<0.01\*\*\*** |
| Loc. type:Pmur allotopy | -0.26 | 0.13 | 0.069 |
| Loc. type:Sintopy | 0.28 | 0.14 | 0.053 |
| **Elevation:SpeciesP. muralis** | **-0.0009** | **0.0003** | **<0.01\*\*\*** |
| F(5, 24):18.69; adjusted R-squared:0.75.; p-value: <0.01 | | | |

Table S8: Post hoc comparisons of location types when modelled using summer preferred body temperatures

|  |  |  |  |
| --- | --- | --- | --- |
| ***Post hoc comparison*** | ***Estimates*** | ***SE*** | ***p*** |
| **Egg development time** | | | |
| *P. muralis* allotopy - *I. horvathi* allotopy | 2.76 | 1,32 | 0.11 |
| Sintopy - *I. horvathi* allotopy | -3.32 | 1.39 | 0.06 |
| **Sintopy - *P. muralis* allotopy** | **-6.08** | **1.78** | **<0.001\*\*\*** |
| **Lifespan** | | | |
| *P. muralis* allotopy - *I. horvathi* allotopy | -0.20 | 0.18 | 0.52 |
| Sintopy - *I. horvathi* allotopy | -0.21 | 0.19 | 0.52 |
| **Sintopy - *P. muralis* allotopy** | **-0.41** | **0.16** | **<0.05\*** |
| **Yearly basking time** | | | |
| *P. muralis* allotopy - *I. horvathi* allotopy | -72.4 | 67.2 | 0.53 |
| Sintopy - *I. horvathi* allotopy | 92.8 | 70.6 | 0.39 |
| **Sintopy - *P. muralis* allotopy** | **165.2** | **59.9** | **<0.05\*** |
| **Yearly foraging time** | | | |
| *P. muralis* allotopy - *I. horvathi* allotopy | -27.62 | 22.40 | 0.44 |
| Sintopy - *I. horvathi* allotopy | 36.68 | 23.55 | 0.28 |
| **Sintopy - *P. muralis* allotopy** | **64.29** | **19.97** | **<0.01\*\*** |
| **Yearly fecundity** | | | |
| *P. muralis* allotopy - *I. horvathi* allotopy | -0.25 | 0.13 | 0.16 |
| Sintopy - *I. horvathi* allotopy | 0.28 | 0.14 | 0.13 |
| **Sintopy - *P. muralis* allotopy** | **0.54** | **0.12** | **<0.001\*\*\*** |

A diagram of a structure

Description automatically generated

Figure S1: Schematic representation of the metabolic processes in the standard DEB model. Solid arrows represent energy fluxes, boxes mark state variables and green text describes the κ rule. Energy contained in food is assimilated into reserve and further allocated to fueling the metabolic processes. A fixed fraction κ is used for somatic maintenance and growth, the rest ((1-κ) is used for maturation and after puberty for reproduction. standard DEB model of metabolism, showing processes (black text), state variables (boxes) and energy fluxes . Modified from Kearney et al, 2013.

A collage of different types of graphs

Description automatically generated

Figure S2: Plots of univariate data used in DEB model estimation. Dots are observations sourced from literature or unpublished data and lines are model predictions. Plots A-E correspond to *Podarcis muralis* and plots F-H to *Iberolacerta horvathi*. In plots A, D and F, red denotes females and blue males. In plots B and G colors correspond to three different temperature regimes; red - 23°C, magenta – 28°C and blue - 33°C. SVL is an abbreviation for snout vent length, yearly fecundity is expressed in number of eggs per year. The overall goodness of fit (SMSE) had a value of 0.010 for *P. muralis* and 0.013 for *I. horvathi*. Both species share a low value of κ; 0.311 for *I. horvathi* and 0.276 for *P. muralis*, pointing to a trend of higher energy investment into maturation and reproduction over maintenance and growth. Maturity levels at birth and puberty were slightly higher in *I. horvathi*, which also exhibits a lower cost of somatic maintenance.

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