**Supplementary Materials for:**

**DeLong et al. 2018. Habitat, latitude, and body mass influence the temperature dependence of metabolic rate. Biology Letters.**

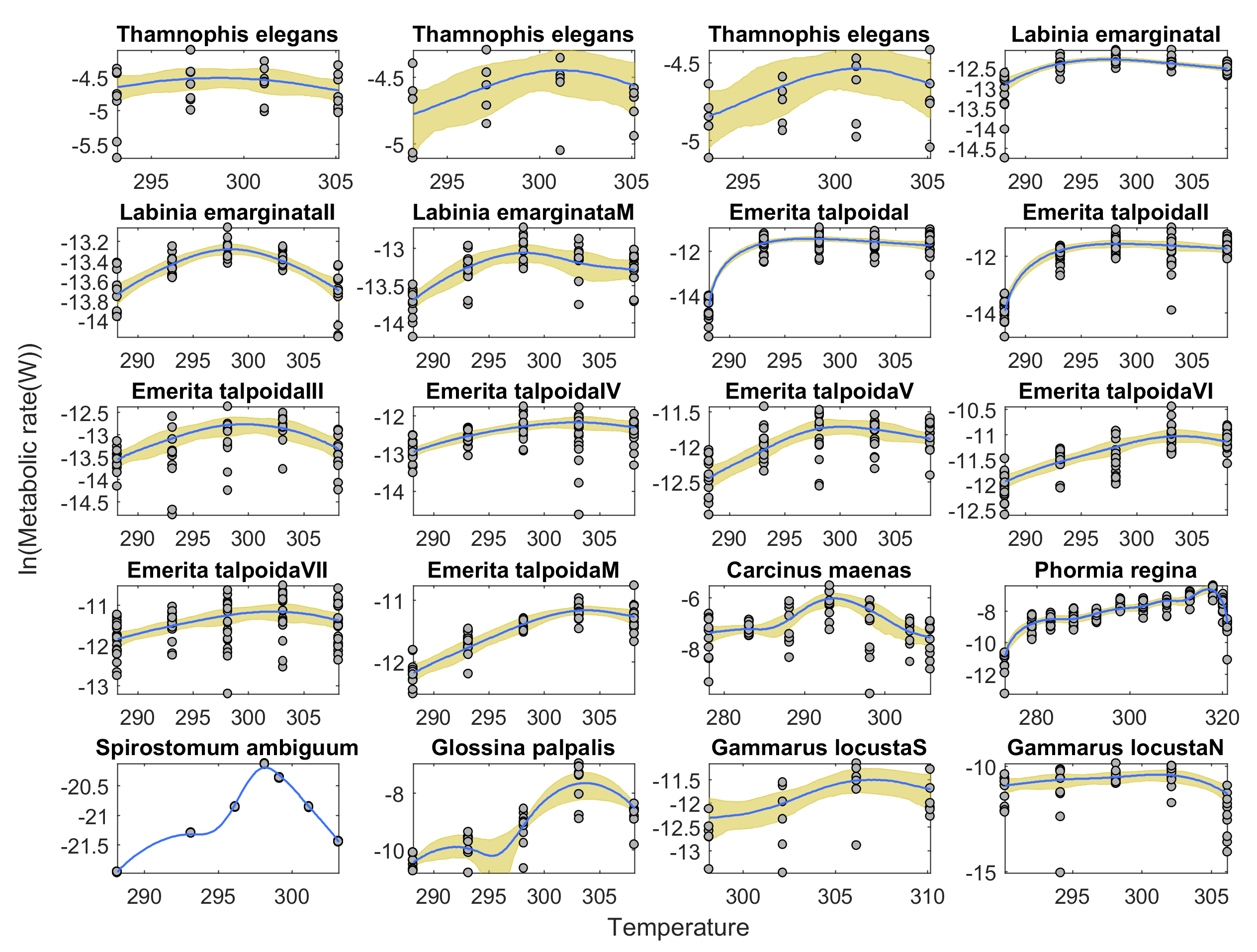
**Data and thermal performance curve fits**

We used splines fit to bootstrapped data sets to identify the *T*opt and *M*max of each curve. We employed safeguards against poor fits to data by discarding any bootstrap sample that had optimal temperatures at the highest experimental temperature. We continued with replacement fits until we achieved the desired 500 bootstrapped replicates. We illustrated the shape of these TPCs with the median (50% quartile) and confidence intervals (2.5% 97.5% quartiles) of the bootstrapped splines (Figure S1).

**Figure S1A. Data along with bootstrapped spline fits. Circles are one bootstrap iteration; blue lines are mean fit, and yellow regions show 95% CIs on fits. ‘E’ and ‘L’ at the end of *Amegilla chlorocyanea* refer to early and late, respectively.**

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**Figure S1B. Data along with bootstrapped spline fits. Circles are one bootstrap iteration; blue lines are mean fit, and yellow regions show 95% CIs on fits. ‘I’ through ‘VII’ refer to instars and ‘M’ on *Labinia emarginata* and *Emerita talpoida* indicate mature. ‘S’ and ‘N’ at the end of *Gammarus locusta* refer to southern populations and northern populations, respectively.**



**Figure S1C. Data along with bootstrapped spline fits. Circles are one bootstrap iteration; blue lines are mean fit, and yellow regions show 95% CIs on fits. ‘S’ and ‘N’ at the end of *Gammarus oceanicus* refer to southern populations and northern populations, respectively.**

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**Table S1. Species, habitat, and sources for data sets used in this study.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Dataset** | **Habitat** | **Taxon** | **Scientific name** | **Source** |
| 1 | Aquatic | Crustacean | *Daphnia middendorffiana* | Yurista 1999 |
| 2 | Aquatic | Crustacean | *Bythotrephes sp.* | Yurista 1999 |
| 3 | Aquatic | Crustacean | *Gammarus fossarum* | Issartel et al. 2005 |
| 4 | Aquatic | Crustacean | *Niphargus rhenorhodanensis* | Issartel, et al, 2005 |
| 5 | Aquatic | Crustacean | *Niphargus verei* | Issartel, et al, 2005 |
| 6 | Terrestrial | Insect | *Calandra Oryzae* | Birch 1947 |
| 7 | Terrestrial | Insect | *Rhyzopertha dominica* | Birch 1947 |
| 8 | Terrestrial | Insect | *Rhyzopertha dominica* | Birch 1947 |
| 9 | Aquatic | Mollusk | *Dreissena polymorpha* | Alexander Jr and McMahon 2004 |
| 10 | Aquatic | Mollusk | *Dreissena polymorpha* | Alexander Jr. and McMahon, 2004 |
| 11 | Aquatic | Mollusk | *Dreissena polymorpha* | Alexander Jr. and McMahon, 2004 |
| 12 | Terrestrial | Insect | *Acroneuria californica* | Heiman and Knight 1975 |
| 13 | Aquatic | Amphibian | *Anaxyrus woodhousii* | Fitzpatrick and Atebara 1974 |
| 14 | Terrestrial | Insect | *Apis mellifera* | Tomlinson et al. 2015 |
| 15 | Terrestrial | Insect | *Amegilla chlorocyanea* | Tomlinson et al., 2015 |
| 16 | Terrestrial | Insect | *Apis mellifera* | Tomlinson et al., 2015 |
| 17 | Terrestrial | Insect | *Amegilla chlorocyanea* | Tomlinson et al., 2015 |
| 18 | Aquatic | Crustacean | *Orconectes limosus* | Simčič et al. 2014 |
| 19 | Aquatic | Mollusk | *Perna perna* | Hicks and McMahon 2002 |
| 20 | Terrestrial | Reptile | *Thamnophis elegans* | Gangloff et al. 2015 |
| 21 | Terrestrial | Reptile | *Thamnophis elegans* | Gangloff et al., 2015 |
| 22 | Terrestrial | Reptile | *Thamnophis elegans* | Gangloff et al., 2015 |
| 23 | Terrestrial | Reptile | *Thamnophis elegans* | Gangloff et al., 2015 |
| 24 | Aquatic | Crustacean | *Labinia emarginataI* | Schatzlein and Costlow 1978 |
| 25 | Aquatic | Crustacean | *Labinia emarginataII* | Schatzlein and Costlow 1978 |
| 26 | Aquatic | Crustacean | *Labinia emarginataM* | Schatzlein and Costlow 1978 |
| 27 | Aquatic | Crustacean | *Emerita talpoidaI* | Schatzlein and Costlow 1978 |
| 28 | Aquatic | Crustacean | *Emerita talpoidaII* | Schatzlein and Costlow 1978 |
| 29 | Aquatic | Crustacean | *Emerita talpoidaIII* | Schatzlein and Costlow 1978 |
| 30 | Aquatic | Crustacean | *Emerita talpoidaIV* | Schatzlein and Costlow 1978 |
| 31 | Aquatic | Crustacean | *Emerita talpoidaV* | Schatzlein and Costlow 1978 |
| 32 | Aquatic | Crustacean | *Emerita talpoidaVI* | Schatzlein and Costlow 1978 |
| 33 | Aquatic | Crustacean | *Emerita talpoidaVII* | Schatzlein and Costlow 1978 |
| 34 | Aquatic | Crustacean | *Emerita talpoidaM* | Schatzlein and Costlow 1978 |
| 35 | Aquatic | Crustacean | *Carcinus maenas* | Halsey et al. 2015 |
| 36 | Terrestrial | Insect | *Phormia regina* | Keister and Buck 1961 |
| 37 | Aquatic | Protist | *Spirostomum ambiguum* | Sarojini and Nagabhushanam 1966 |
| 38 | Terrestrial | Insect | *Glossina palpalis* | Basson and Terblanche 2011 |
| 39 | Aquatic | Crustacean | *Gammarus locusta* | Rastrick and Whiteley 2011 |
| 40 | Aquatic | Crustacean | *Gammarus locusta* | Rastrick and Whiteley 2011 |
| 41 | Aquatic | Crustacean | *Gammarus oceanicus* | Rastrick and Whiteley 2011 |
| 42 | Aquatic | Crustacean | *Gammarus oceanicus* | Rastrick and Whiteley 2011 |
| 43 | Aquatic | Mollusk | *Mytilus galloprovincialis* | Jansen et al. 2009 |
| 44 | Terrestrial | Insect | *Talorchestia megalopthalma* | Edwards 1946 |
| 45 | Terrestrial | Insect | *Brevicoryne Brassicae* | Lamb 1961 |
| 46 | Aquatic | Crustacean | *Emerita talpoida* | Edwards 1946 |
| 47 | Terrestrial | Insect | *Tenebrio molitor* | Bozinovic et al. 2013 |
| 48 | Terrestrial | Insect | *Tenebrio molitor* | Bozinovic, et al, 2013 |
| 49 | Terrestrial | Insect | *Tenebrio molitor* | Bozinovic, et al, 2013 |
| 50 | Aquatic | Crustacean | *Balanus balanoides* | Newell and Northcroft 1965 |
| 51 | Terrestrial | Insect | *Calandra Oryzae* | Birch 1947 |
| 52 | Aquatic | Fish | *Trematomus bernacchii* | Wohlschlag 1960 |

**Table S2. Linear models relating body mass, latitude, optimal temperature (*T*opt), and habitat to peak metabolic rate (*M*max). Main effects are always included wherever they are shown in two-way interactions.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Model formula** | **Log-**  **likelihood** | **AIC** | **ΔAIC** |
| ***M*max** ~ 1 + habitat + mass\*latitude + latitude\****T*opt** | -81.04 | 178.09 | 0 |
| ***M*max** ~ 1 + habitat\*latitude + mass\*latitude + latitude\****T*opt** | -79.76 | 177.52 | -0.56 |
| ***M*max** ~ 1 + habitat \*mass + habitat\*latitude + mass\*latitude + latitude\****T*opt** | -79.74 | 179.49 | 1.40 |
| ***M*max** ~ 1 + habitat\*mass + habitat\*latitude + mass\*latitude + mass\****T*opt** + latitude\****T*opt** | -79.29 | 180.59 | 2.50 |
| ***M*max** ~ 1 + habitat\*mass + habitat\*latitude + mass\*latitude + habitat\****T*opt** + mass\****T*opt** + latitude\****T*opt** | -79.29 | 182.57 | 4.49 |

**Table S3. Summary of final linear model relating habitat type (terrestrial and aquatic), latitude, body mass, and *T*opt to *M*max.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Term** | **Estimate** | **SE** | ***t*** | **DF** | ***p*** |
| Intercept | -276.21 | 131.6 | -2.099 | 29 | 0.045 |
| habitat\_aquatic | -5.50 | 1.34 | -4.11 | 29 | 0.0003 |
| Mass | 4.94 | 1.68 | 2.94 | 29 | 0.006 |
| Latitude | 7.33 | 2.92 | 2.51 | 29 | 0.017 |
| Topt | 0.92 | 0.44 | 2.08 | 29 | 0.046 |
| Mass:latitude | -0.11 | 0.038 | -2.76 | 29 | 0.009 |
| Latitude:Topt | -0.025 | 0.0099 | -2.51 | 29 | 0.018 |

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