Temperature and body size evolution in insects:

exploring the 3 rules of body size and temperature

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DOCTORAL DISSERTATION

By permission of the Faculty of Science, Lund University, Sweden.

To be defended in the Blue Hall, Ecology Building, Sölvegatan 37, Lund Sweden on Friday 26th January, 2018 13.00 - 15.00.

Faculty opponent
Dr. Locke Rowe
Dean of school of graduate studies and
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List of Papers

I. **Waller**, J.**,** & Svensson, E. I. (2016). The measurement of selection when detection is imperfect: How good are naïve methods?. *Methods in Ecology and Evolution*, *7*(5), 538-548.

II. **Waller**, J., Willink B., Tschol M., & Svensson E. I. (2018). The odonate phenotypic database. www.odonatephenotypicdatabase.org. submitted to *Scientific Data*.

III. **Waller**, J., & Svensson, E. I. (2017). Body size evolution in an old insect order: No evidence for Cope's Rule in spite of fitness benefits of large size. *Evolution*.

IV. **Waller**, J. (2018). Is the blunderbuss a misleading visual metaphor for stasis and punctuated evolution? submitted to *American Naturalist*.

V. **Waller**, J., & Svensson, E. I. (2017). Temperature, latitude, and birds: factors influencing geographic body size patterns in an old insect order (Odonata). *manuscript.*

VI. **Waller**, J., Kell, A., Ballesta, M., Giraud, A., Abbott, J., & Svensson, E. (2017). Limited genetic variation for male mating success reveals low evolutionary potential for thermal plasticity in *Drosophila melanogaster*. *bioRxiv*, 166801. Submitted to *Genetical Research*.

VII. **Waller**, J. & Svensson, E. I. (2018). Selection on thermal plasticity in small ectotherms: a study of two small insects species (damselflies of the genus *Calopteryx*). *manuscript*.

Kingsolver and Huey (2008) wrote the following 3-rule haiku for selection and life history in insects:

bigger is better
hotter makes you smaller
hotter is better

I will explore Kingsolver and Huey's 3 rules and greatly expand and explore the implications and ramifications of these rules in the evolution of dragonflies and damselflies.