

# Wing Pigmentation Affects Thermal Response in Two Sexually Dimorphic *Calopteryx* (Odonata)

Gretchen Schreiner<sup>1</sup>, Lucie Duffy<sup>1</sup>, and Jonathan Brown<sup>1</sup>

<sup>1</sup>Grinnell College

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## Abstract

1. Organisms may internally or behaviourally regulate their body temperatures or conform to the ambient air temperatures. Previous studies are inconclusive on whether pigmentation influences thermoregulation in various odonates. 2. We investigated the thermal response of sympatric North American *Calopteryx aequabilis* and *Calopteryx maculata* with a thermal imaging study across a 25 °C ambient temperature range. 3. We found that regressions of thorax temperature on ambient temperature had similar slopes for male and female *C. maculata*, but females were consistently 1.5 °C warmer than males. 4. In contrast, the sexes of *C. aequabilis* differed in slope, with *C. aequabilis* females having a slope less than 1.0 and males having a slope greater than 1.0. 5. Given that *C. aequabilis* is strongly sexually dimorphic in pigment, but *C. maculata* is not, our findings suggest that pigmentation does influence thermal response rate in sympatric populations of both species.

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