**Body size divergence is greater among sympatric species of birds in warm, but not cool, environments**

**Bothwell E., Montgomerie R., Lougheed S.C., Martin P.R**. (AFFILIATIONS?)

Differences in body size are widely thought to allow closely related species to coexist in sympatry; however, body size variation may also represent an important adaptation to climate. Here, we use a sister species approach to test the prediction that body size differences among closely related species are greater in sympatric compared with allopatric species of birds worldwide, and that these differences vary with geography, evolutionary distance, and environmental temperatures experienced across the range. We find greater differences in body size among sympatric compared with allopatric lineages, but only at temperatures above 25°C. These body size differences in warm environments declined with evolutionary distance between sister lineages, as allopatric lineages diverge over time. In regions with mean annual temperatures below 25°C, allopatric and sympatric species did not differ in body size, suggesting either that colder temperatures constrain the divergence of body size in sympatry, or that the biotic selective pressures favoring greater differences in size in sympatry are weaker in colder environments. Our results are consistent with suggestions by both Wallace and Darwin that climatic selective pressures are more important in cold environments, such as high elevations and latitudes, while biotic selective pressures dominate in warm environments, such as the lowland tropics.