**Are species larger at high latitudes? Testing latitude-body size relationships in ectotherms**

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Ecological rules state that the mean body size of populations and species increase latitudinally.  
These rules have found support among endotherms; however, to date the data is very limited and much less conclusive for ectothermic organisms. This study responds to this gap, and examines how body size of crustacean zooplankton changes with latitude and temperature. I measured body size for 9 focal plankton species (both cladoceran and copepods) from 18 freshwater lakes which occur across a 1900 km gradient from southern British Columbia to the Yukon Territory. While latitude did not have a consistent impact on body size, there was a significant interaction between latitude and body size among species – within species, I found equal support for body size increasing and decreasing with latitude. These findings for individual species are confirmed at the community level, as I found no trend for community weighted mean body size with respect to latitude. My findings are consistent with studies on the body size variation of insects and suggest that latitude-body size relationships cannot be unanimously applied to ectothermic organisms. These results suggest that the effects of temperature change on zooplankton communities will be difficult to predict a priori because of these heterogeneous responses.