Stefano Mezzini, Michael J Noonan

Effects of temperature on mammals’ movement and habitat selection in British Columbia, Canada

Anthropogenic changes in climate during the last two centuries have exposed wildlife in BC to increasingly warm winters and hot summers. Since large mammals in the province already contend with numerous other human-induced stressors, understanding the effects of climate change on mammalian movement and habitat use is essential for developing conservation strategies with long-term population viability. To address this need, we estimated the effects of temperature on the movement of six BC mammal species (*Canis lupus*, *Cervus elaphus*, *Oreamnos americanus*, *Puma concolor*, *Rangifer tarandus*, *Ursus arctos horribilis*) to understand how changes in climate through the current century might affect how often, how much, and where mammals will move. We then paired these relationships with ClimateNA’s spatially explicit climate change projections to predict behavioral responses to the different climate change scenarios. While the models suggested most species will move less frequently at higher temperatures, the changes in mammals’ movement frequency, speed, and habitat selection were non-linear, and there were no strong common trends between species. Consequently, we cannot assume the environments we are currently protecting and restoring will be equally valuable to species in the future, and conservation strategies should depend on the species of interest, future changes in habitats, and how temperature will affect the species’ habitat selection. These results will help inform long-term conservation and proactive management, including designing conservation areas.