Wolverine Gene Flow Across a Narrow and Disappearing Climatic Envelope

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Wolverines (*Gulo gulo*) are climate specialists that have components of their life history that require snow. Our research team initially investigated the potential impacts of climate change on wolverine habitat by analyzing observed and projected spring snow cover using MODIS satellite data. The spring snow cover is strongly correlated with year-round wolverine locations and wolverine dens (See Copeland et al. talk this session). In this work we investigate the degree to which spring snow influences movement and gene flow of wolverines by using genetic-based landscape resistance modeling. Using Mantel tests, we found that both Euclidean distance and landscape resistance distances were significantly correlated with genetic distances among all pairs of wolverine. However, partial Mantel tests reveal that Euclidean distance is not significant when removing the effect of landscape distance. Alternatively landscape distance is significant when removing the effect of Euclidean distance. This result supports our suggestion that the spring snow bioclimatic niche is important to the movement of wolverine; a niche that is predicted to rapidly disappear (See McKelvey et al. talk this session).