**Habitat Area And Environmental Filters Determine Avian Richness Along An Elevation Gradient In Mountain Peatlands**

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Globally, relationships between avian richness and elevation in mountain ecosystems typically reflect one of four well-documented patterns, but the mechanisms responsible for these patterns are poorly understood. We investigated which pattern best described bird species richness in mountain peatlands of Alberta and used an AIC framework to investigate possible mechanisms. Avian richness displayed a plateauing (cubic) relationship in response to increasing elevation. Once we accounted for the richness–area relationship, the richness–elevation relationship was best described by a negative linear model rather than a cubic model. Consequently, we reject the neutral model and conclude that peatland area and one or more environmental filters are simultaneously driving relationships between avian richness and elevation in Rocky Mountain peatlands. Multicausality likely explains why researchers in different geographies observe inconsistent patterns between richness and elevation: drivers and interactions among drivers may vary spatially. Importantly, Natural Subregion was a stronger predictor of avian species richness than elevation per se (AICc weight = 0.96), suggesting that the responsible environmental filter(s) is relatively homogenous within ecological land classes (e.g. primary productivity) rather than directly variable with elevation (e.g. temperature). The results also lend insight into priorities for future research on richness–elevation patterns in mountain birds.