**ELEVATIONAL GRADIENTS AND NICHE BREATH**

Elevational gradients in some groups have been explained by the mid-domain effect. But it remains unclear why this null model works well for some taxa but not others. We hypothesize that elevational constraints should be more restrictive for species with broader niches which may potentially span much of the gradient. When niches are narrow, species distributions are less likely to fall near the edges of the gradient so their elevational patterns call for a non-null explanation. This scenario should apply in particular to species with narrower climatic tolerances and species occurring in the tropics where stable conditions favors climatic specialization (sensu Janzen 1968). Our work suggests why null models are more powerful in some taxa than others. We also identify the groups whose distributions (and hence diversity patterns) can be better explained by geographic constraints than biological factors.

