**Fast climate change drives pronounced changes in species’ genetic diversity**

Numerous species responded to past climate change by tracking suitable environments and consequently altering their genetic diversity make-up 1,2. Future climate change velocities will likely outpace species dispersal abilities 3, leading to further changes in the distribution of genetic diversity 4, local extirpations (REFS) and ultimately to extinctions (REFS). Under different forecasted climate change scenarios species lacking genetic variability to survive in remnant isolated populations will appear particularly threatened 5. It is expected that species under stable climatic conditions -slow climate change velocity, reach stationary demographic conditions and stable levels of genetic diversity. Counterintuitively, it is also expected that fast range contractions better preserve species levels of genetic diversity 6. These opposite expectations hinder our ability to predict responses of genetic diversity to future climate change. For these reason, analysis of the differences in the response of species’ genetic diversity to slow and fast climate changes are the critical importance.

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