

Abstract

Climate Change Refugia as a Tool for Climate Adaptation

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Climate change refugia, areas relatively buffered from contemporary climate change so as to increase persistence of valued physical, ecological, and cultural resources, are considered as potential adaptation options in the face of anthropogenic climate change. In a collaboration involving science experts and natural resource managers from across the western United States, we have attempted to operationalize the climate change refugia concept. We will review definitions and discuss the identification of climate change refugia and how they can fit into the existing framework of federal management practice, illustrating their utility with a montane meadow example. Genetic and distribution data collected from Belding's ground squirrel (*Urocitellus beldingi*) populations in California were used to conduct a rare test of whether particular habitats are acting as refugia. As predicted, refugial meadows showed higher rates of occupancy, lower rates of extirpation over time, and higher genetic diversity. Although no panacea, climate change refugia could be an important strategy for biodiversity conservation under future climates.

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