

THE HEAT IS ON

Species feeling the effects of climate change



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Alpine Chipmunk

Tamias alpinus

Region:

Sierra Nevada

Area affected:

Yosemite National Park

Climatic change:

Warmer temperatures

Impact:

Habitat fragmentation,
loss of genetic diversity

ABOUT THIS SPECIES

Weighing in at just one to two ounces, the alpine chipmunk is one of the smallest varieties of this familiar rodent. They are striped like other chipmunk species, but generally paler in color and found only in the high-elevation regions of California's Sierra Nevada Mountains. Like pikas, they tend to live in sheltered crevices in rocky talus fields adjacent to alpine meadows where they feed on a variety of seeds, berries, mushrooms and sometimes bird eggs. From late October to June, alpine chipmunks hibernate under snowpacks, which provide shelter and insulation from cold temperatures. Females give birth to four or five young in early July, and the young reach adult size by October.

DESCRIPTION OF IMPACT

Yosemite National Park has a unique advantage when it comes to studying how species react to a changing climate: a set of baseline information collected during an exhaustive 1914 survey of the distribution of the park's fauna by zoologist Joseph Grinnell. Nearly 100 years later, the "Grinnell Resurvey Project" used the same methodology and observed that many of the park's mammals—including the alpine chipmunk—are now found at higher elevations, a response to the 5.4-degree F temperature increase in the park over that time. **Once found at elevations above 7,800 feet, alpine chipmunks now only occur above about 10,500 feet.** Unfortunately, as the chipmunks move upward, the amount of available habitat shrinks, and populations become stranded on isolated mountaintop "islands." Decreasing snowpack also reduces available hibernation sites. A recent survey of chipmunk genetics confirmed that populations are becoming fragmented and less genetically diverse, leaving them more likely to suffer from inbreeding and disease.

References

Storymaps. 2021. The Past and Present Life of Yosemite National Park. ArcGIS. <https://storymaps.arcgis.com/stories/5eb8d70aac454776a450968967892f56>

Yoder, J. 2019. Move or adapt to changing climate? These chipmunks have had to do both. The Molecular Ecologist. <https://www.molecularecologist.com/2019/05/13/move-or-adapt-to-changing-climate-these-chipmunks-have-had-to-do-both/>



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1130 17th Street, NW
Washington, DC 20036-4604

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