The Protecting America’s Wilderness Act (H.R. 2546) and the coetaneous PUBLIC Lands Act (S. 3288), will help restore 729,000 acres of previously logged federal land, discourage illegal marijuana farms, and protect 630,000 acres for wilderness and 684 miles of streams to be designated as Wild and Scenic Rivers in California.

Just as importantly, these pending bills will help in the struggle for species’ survival during climate change. This factsheet explains how protected public lands can serve as an important tool in helping California’s natural lands adapt.

FACTSHEET: How the Protecting America’s Wilderness Act Will Help Safeguard California’s Unique Ecology from the Impacts of Climate Change

Key Takeaways

- Climate change is affecting California today. The 2020 fire season was the most destructive on record. Five of the six worst fire seasons have taken place this decade.
- Beyond wildfire, climate change is impacting California’s plant and animal species in numerous ways. Forests are being stressed by record high temperatures. The snowpack has declined. Rainfall has become more erratic. Creeks and lakes have grown more acidic. Species are on the move.
- California’s nature is worth protecting. California is a biological hotspot, due to the state’s remarkable biodiversity.
- The Protecting America’s Wilderness Act will help species adapt to a changing climate.
How the Protecting America’s Wilderness Act Will Boost Nature’s Ability to Adapt to Climate Impacts

California’s unique ecosystems are worth saving. California is home to one of 25 global hotspots for conservation, both because of its remarkable biodiversity and due to the significant threat of losing habitats and wildlife species unique to California. California also has the highest number of native and endemic plant species of any U.S. state. Climate change is one of the biggest threats to conserving the rich biodiversity found in this state.

The International Union for Conservation of Nature has determined that the Klamath and Siskiyou Mountains are Areas of Global Botanical Significance. Some endemic species in the Klamath mountains are limited to only one mountain or valley.

Indeed, protecting potential future refugia is essential to maintain biodiversity in the face of climate change. A survey of the best places in America to preserve biodiversity and enhance resilience include the three regions designated for protection in the Protecting America’s Wilderness Act.

It’s getting hotter. Globally, the six warmest years on record have occurred in the past six years, according to the National Oceanic and Atmospheric Administration. In California, temperatures have similarly risen. Nighttime temperatures have increased the fastest, rising 2.3°F Fahrenheit in the last century.

The most severe temperature increase in California has occurred in the South Coast region, which includes Los Angeles and the San Gabriel Mountains. The Central Coast region, from Santa Barabra to Watsonville, has also shown warming trends.

High temperatures not only affect people—but also trees, plants, fish, insects, reptiles, amphibians, mammals and other classes of species.

When it comes to California’s climate and its many ecosystems, the past is no longer prologue. The past year’s peak temperatures may have felt extreme—on August 16, 2020, thermometers reached 130°F in Death Valley—yet, scientists still predict warmer temperatures in the future.

Among the three California regions being considered for protection in the Protecting America’s Wilderness Act, the State’s Fourth Climate Change Assessment suggests that the San Gabriel Mountains may increase in temperature by as much as 8°F by the end-of-century. The Central Coast and Northwestern California regions may warm by 7°F by the same epoch.

Plant and animal species are highly vulnerable to the effects of heat, whether the exposure is slow—via chronic higher temperatures—or experienced intensely during heat waves. In California, some species have moved higher in elevation; others have moved further north in latitude to reach cooler temperatures. The act of relocation is called refugia. Species unable to relocate—such as the Sugar Pine, Limber Pine, Gray Pine and Madrone in the San Gabriel Mountains—are most at risk at the southern end of their ranges. There is an observed decrease in pines in the North Coast area, fewer oaks and pines in the Central Coast area, and fewer pine trees in the San Gabriel Mountains. The San Gabriel Mountains Slender Salamander, batrachoseps gabrieli, is also considered vulnerable.

In the Los Angeles Basin, heat exacerbates the production of surface-level ozone, which in turn injures trees in the San Gabriel Mountains. Specifically, smog inhibits trees’ ability to photosynthesize and damages other plant functions, reducing growth.

Warming temperatures also affect lakes and streams. The average lake water temperatures at Lake Tahoe have increased by nearly 1°F since 1970, at an average rate of 0.02°F per year. The lake’s ecosystem has been affected. What’s true for Lake Tahoe is true for other bodies of water throughout the state.

Some of the state’s most vulnerable ecosystems to climate change are those that would be protected as part of the Protecting America’s Wilderness Act.

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14. 2018 Indicators of Climate Change in California, p. 205-206.
17. 2018 Indicators of Climate Change in California, p. 131.
Heat makes wildfires more destructive and deadly. Fire is a natural element in California ecosystems. Yet warming temperatures and drought—both linked to anthropogenic climate change—have made California’s wildfires become more damaging and deadly.

It is no accident that the state’s largest wildfires followed the five-year drought: 2012 to 2016. The trend is clear, fires are getting larger, burning hotter, and becoming harder to control. Nine of the ten largest fires have occurred in the last ten years. Numerous studies point to the role of climate change—specifically, higher temperature and desiccated soils leading to drier fuel and weakening trees to pests and disease—as the main culprit behind the sharp increase in acres burned in California. Climate models suggest even larger fires in California’s future.

In 2020, California experienced the largest wildfire season on record, with over 4.3 million acres burned. Scientists predict that California will experience longer and drier droughts in coming decades.

Drought harms both terrestrial and aquatic ecosystems. Trees stressed from higher temperatures and decreased water availability are more susceptible to pests and pathogens, such as dendroctonus ponderosae, the mountain pine beetle, which has devastated 149 million trees in California since 2010. Current research shows that warming summer and winter temperatures are driving beetle population outbreaks in susceptible forests, and allowing these insects to persist in habitats previously constrained by cold temperatures. The dead trees, of course, have contributed massive quantities of highly-combustible, hot-burning fuel to California’s major wildfires.

And with trees competing for less water, smaller trees are now outperforming larger trees. Consequently, California’s forests are predicted to host smaller trees in the future.

Droughts exacerbated by increasing temperatures also render rivers with low flows and poor water quality, which place native fish and bird species at risk of extinction.

Whether it is shocks or unwavering stressors, the rising temperatures and heat waves of tomorrow will necessitate better management of California’s national forests.

19. 2018 Indicators of Climate Change in California, https://oehha.ca.gov/epic/impacts-biological-systems/wildfires
23. Larvie, K; Moody, T; Axelson, J; Fettig, C; Cafferata, P. Synthesis of Research into the Long-Term Outlook for Sierra Nevada Forests following the Current Bark Beetle Epidemic, California Forestry Note, June 2019.
Our land management agencies have the tools needed to better steward the landscapes that would be protected as part of the Protecting America’s Wilderness Act. Existing guidance from USFS and the State of California will help ensure that our protected public lands will be more resilient.

**California’s public lands need additional protections.** The Protecting America’s Wilderness Act aligns with the State of California's aggressive climate action plans for forest and habitat protection. The state’s climate adaptation plan, called Safeguarding California, promotes “the protection of potential climate refugia in forests or highly resilient landscapes,” and to “protect relatively intact forest landscapes and maintain and enhance connectivity among them to support species movement in response to changing climate conditions.”

Protecting the landscapes proposed in the Protecting America’s Wilderness Act would go a long way towards meeting the state’s forest and habitat conservation goals.


**Take action:** visit [www.clимерesolve.org](http://www.clимерesolve.org) to contact legislators on the Protecting America’s Wilderness Act and on other climate change matters of importance.

California-based Climate Resolve advocates for equitable climate solutions. The organization organizes numerous programs that reduce climate pollution as well as prepare Californians for the impacts of climate change. Climate Resolve is located at the LA Cleantech Incubator.