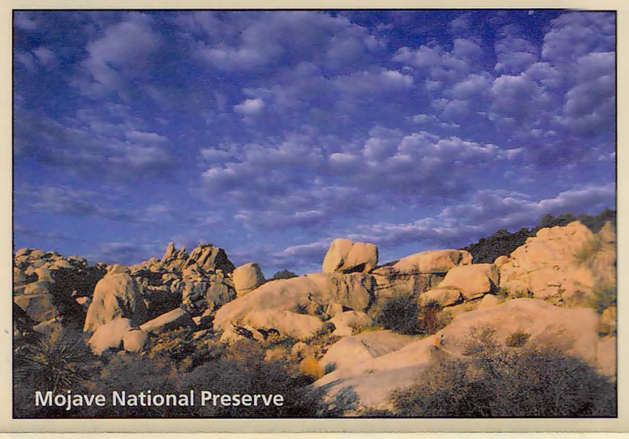
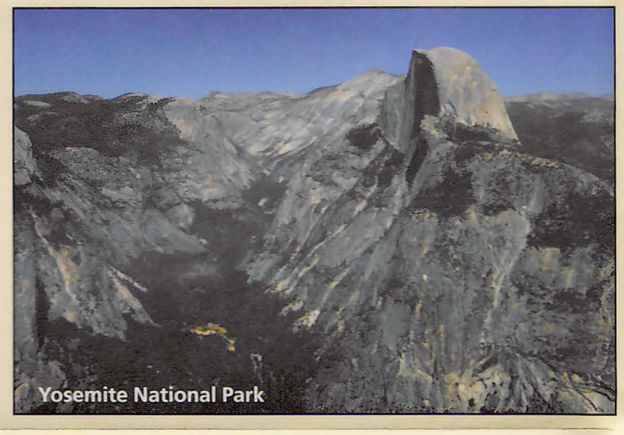
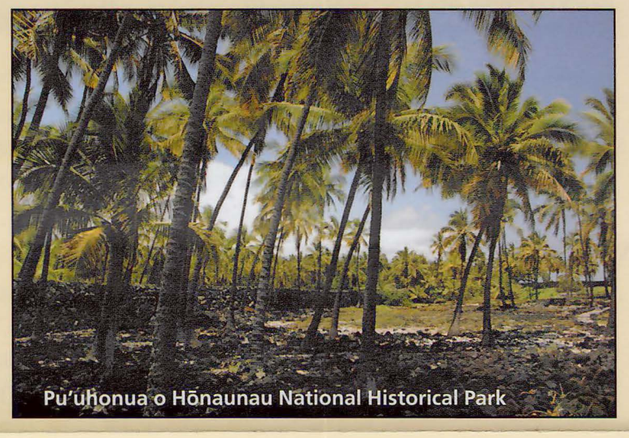
Climate Change and Western National Parks

National Park Service
U.S. Department of the Interior
Pacific West Region


Mojave National Preserve


Yosemite National Park


Golden Gate National Recreation Area


Pu'uhonua o Hōnaunau National Historical Park

Welcome to the Pacific West Region! This region of the National Park System includes 54 national park units in Washington, Oregon, Idaho, California, Nevada, Hawaii, and the Pacific Islands of Guam, Saipan and American Samoa. Together they preserve a rich heritage of cultural and natural diversity, as well as the stories and experiences of the American people.

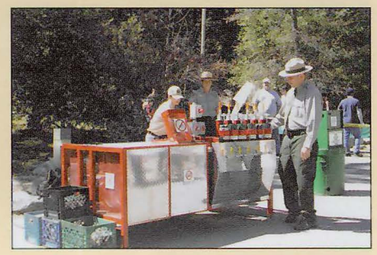
Preserving park ecosystems for the enjoyment, education, and inspiration of present and future generations is the mission of the National Park Service. In the face of many changes and challenges, this region strives to meet this important goal. Today, preservation of these diverse resources faces its greatest challenge—global climate change.

What is Climate Change?

Climate change is any significant change in the climate lasting for decades or longer. Climate patterns (e.g. temperature, rain, snow) may vary naturally, but modern climate changes are being driven at accelerated rates by human activity. Scientists cannot yet predict with certainty what the long-term impacts from climate change will be. However, there is a rapidly growing body of evidence of negative climate change effects already being felt within our national parks.

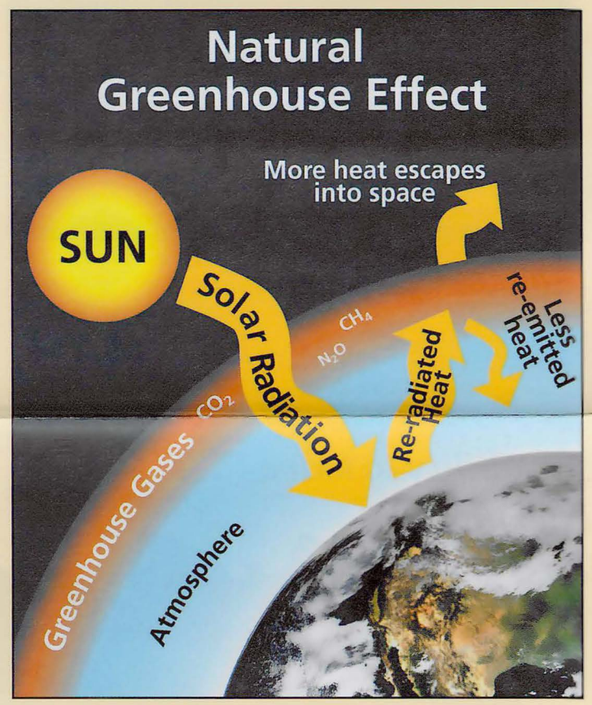
Challenges for the National Park Service

In the Pacific West Region, impacts from climate change that we are observing now include changing snow packs, increasing areas burned by wildland fires, more tree deaths, melting glaciers, species migration, and an increase in non-native weed species. In this region of the National Park System, we realize that it will "take a village" of park employees, scientists, visitors, students, and partners working together to tackle these serious climate change impacts.

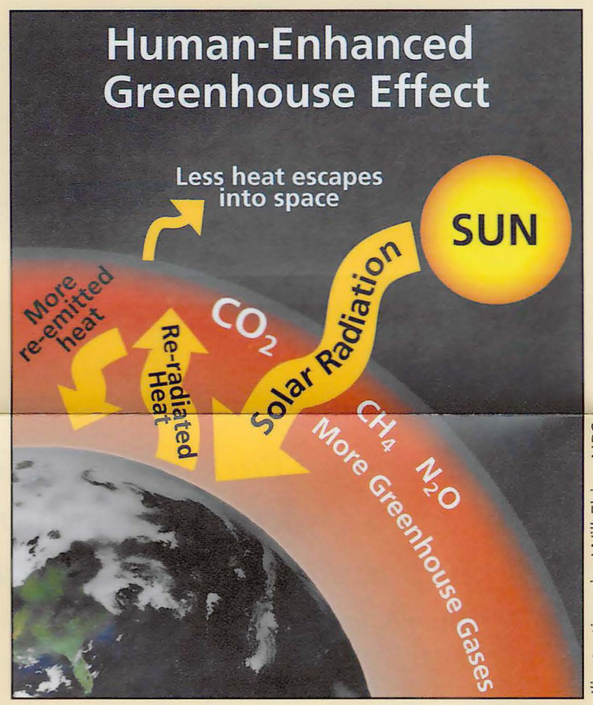


Causes and Effects of Climate Change

Global warming is an increase of temperatures in the atmosphere and oceans around the world. This warming can change global climate patterns such as temperatures, rainfall, snow, and wind. Greenhouse gases are a major contributor to increasing global temperatures.



Major greenhouse gases—carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O)—trap some of the sun's heat. At natural levels, this is enough heat to keep earth from freezing and sustain life as we know it.



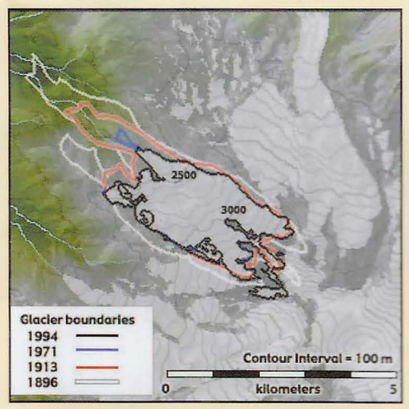
Human activities, such as burning fossil fuels, increase greenhouse gas levels. These extra gases trap even more heat, resulting in global warming and accelerated rates of climate change.

Illustrations by Will Elder, NPS

Climate Change Impacts in National Parks

Bleaching and mortality in coral reefs are increasing. When healthy, these reefs protect islands from erosion and provide habitat for a wide variety of sea life.

Climate change could greatly increase the risk of wildfires in California. Longer, hotter summers have already lengthened the fire season at many parks.



Mount Rainier's glaciers are retreating due to warmer summers and drier winters.

The already-small range of giant sequoias may shrink—or disappear—as snowfall decreases and temperatures climb.

Contemporary climate change is affecting populations of the hamster-sized pika, especially at lower elevations.

Together we can make a difference

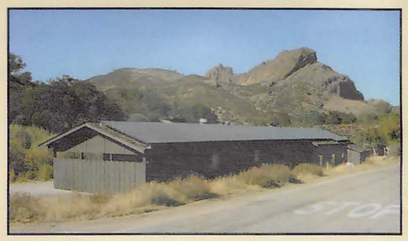
Taking Action

In an effort to lead by example, parks throughout the Pacific West Region have a vision to meet the challenge of climate change. They are taking actions to reduce energy consumption and associated greenhouse gas emissions in park operations. All this is in an effort to reach a goal—to become carbon neutral in park operations.

This goal will be achieved not by working alone but by working together. There are no borders in climate change—it presents significant risks and challenges not only to the National Park System but to the global community as well. Park employees, partners, visitors, and residents of gateway communities are working together to reach this important goal.

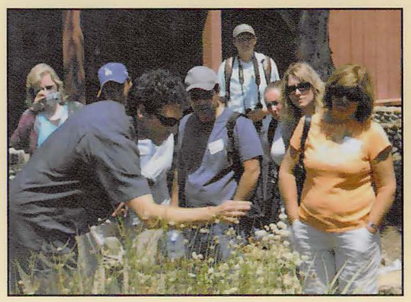
Lake Mead National Recreation Area involves students in hands-on science learning at its Forever Earth Floating Environmental Laboratory.

Like many parks in the region, Sequoia and Kings Canyon National Parks partner with local agencies to provide transit alternatives. Visitors can leave their cars behind and reduce vehicle emissions.



Pinnacles National Monument uses solar panels to power some of its facilities. In the Pacific West Region, over 700,000 kilowatt-hours of power were produced in 2008 from renewable sources.

Yosemite National Park uses a propane bottle recycler to recover leftover propane so that the empty bottles can be recycled with other metals.



Park scientists at Santa Monica Mountains National Recreation Area are partnering with local teachers to monitor plant and animal species for impacts related to climate change.

Kalaupapa NHP provides recycling opportunities for the local community. Parks throughout the region are developing recycling programs to reduce solid waste.

The new Lassen Volcanic National Park Kohm Yah-mah-nee Visitor Center received LEED Platinum certification, the highest level obtainable under the US Green Building Council's rating system. Other parks that are using LEED criteria in building designs include the USS Arizona Memorial, Redwood National and State Parks, Lake Mead National Recreation Area, and Mount Rainier National Park.

Please Do Your Part

You may feel like you cannot make a difference when it comes to climate change, but you can! Your actions will help to slow its progression, giving scientists and society more time to minimize its impacts on our world.

Check out the list below for suggestions. Remember, the more you do, the more you can make a difference.

Transportation

Keep tires properly inflated and change air and oil filters regularly to improve your car's mileage.	Choose a fuel-efficient vehicle. Burning a gallon of gas releases 20 pounds of CO_2 into the air.	Walk, bike, or take public transit to reduce the number of miles you drive. Avoid traveling by airplane.

Energy

Replace incandescent light bulbs with compact fluorescent or LED bulbs.	Turn off lights and appliances when not in use. Unplug electronics to avoid phantom loads.	Purchase green power that is generated by the wind or the sun, or install solar panels.

Heating and cooling

Air dry your clothes on a clothesline instead of using an electric or gas dryer.	Insulate and turn down your water heater to 120°F, or install an efficient tankless water heater.	Weatherize your home by adding insulation and replacing single-glazed windows.

Waste

Choose items that have recyclable packaging and are made from recycled materials.	Before you buy, consider alternatives that will reduce waste. Consider buying secondhand items.	Use items as long as possible before they enter the waste stream. Don't replace items that are still useful.

Food

Avoid highly processed food. Creating and transporting it uses more energy than fresh foods.	Choose produce that is in season and grown locally to reduce energy used to ship perishable food.	Eat lower on the food chain by adding more fruits, vegetables, and grains to your diet.

Yard

Compost food and yard waste to reduce the amount of garbage you send to landfills.	Use organic or natural methods to control weeds and pests in your yard and garden.	Use native plants to reduce water and chemical use and provide habitat for birds and other wildlife.

More Things You Can Do

What is your carbon footprint? It is the total amount of greenhouse gases caused directly or indirectly by your activities. Visit the Climate Friendly Parks website to track your progress on reducing your carbon footprint and share ideas on how to make a difference.

www.doyourpartparks.org

CLIMATE*Friendly* PARKS

"Climate change challenges the very foundation of the National Park System and our ability to leave America's natural and cultural heritage unimpaired for future generations."

Jonathan B. Jarvis, Director of the National Park Service