FIVE STEPS TO SAFEGUARD AMERICA'S WILDLIFE & OURSELVES FROM

Climate Change

America's national parks are showing the signs of climate change. From Yosemite's forests in California to the Gulf Stream waters of the Florida coast, from the top of the Rocky Mountains to the shores of the Chesapeake Bay, these lands and the incredible diversity of life they support are all feeling the heat.

The choice is now ours to either chronicle their decline or take actions to make our national parks part of the climate change solution. If we fail to act, many species of fish and wildlife could disappear from the parks — or even become extinct.

That we must reduce global warming pollution to protect our natural world and human communities is now understood by many. But that is not all we must do. Unnatural climate change is already underway and will continue for decades even if we put a stop to all global warming pollution today.

Additional steps must be taken now to safeguard wildlife. We must protect the places that will help wildlife survive as the climate changes, manage wildlife anticipating the changes ahead, and improve the ecological health of the national parks and their surrounding landscapes to give fish and wildlife a fighting chance to survive unnatural climate change.

National Parks Conservation Association (NPCA) advocates five steps that, taken together, will help safeguard fish and wildlife, their homes, and our communities, from climate change. Here's what needs to be done:

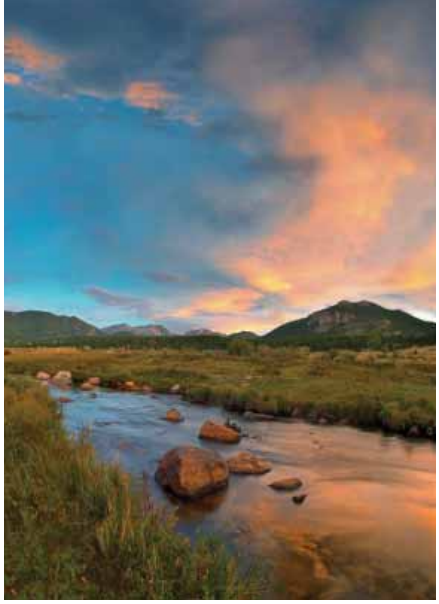
If we fail to act, many species of fish and wildlife could disappear from the parks — or even become extinct. We can safeguard the wildlife of America's national parks if we take the following ***five steps:***

We must limit the effects of climate change by rapidly reducing greenhouse gas emissions and switching to less-polluting sources of energy.

#1: Stop contributing to climate change

Many wildlife species are struggling to cope with climate changes already underway. Some will not be able to endure much more change, and could disappear from national parks and even go extinct if climate change is unchecked. We must limit its effects by rapidly reducing greenhouse gas emissions and switching to less-polluting sources of energy.

- Coral reefs protected by **Biscayne** and **Virgin Islands** national parks might not survive if we fail to reduce carbon dioxide pollution that is warming and acidifying the ocean.
- Salmon might disappear from **Olympic**, **North Cascades**, and **Mount Rainier** national parks if climate change continues to alter stream flows, increase water temperatures, and create extreme downpours that wipe out young salmon.
- Grizzly bears, birds, fish, and other animals in **Yellowstone** and **Rocky Mountain** national parks could decline if the lodgepole and whitebark pine forests that sustain them continue to be wiped out by the advance of bark beetles, drought, and other climate change-related forces.



#2: Reduce and eliminate existing harms that make wildlife more vulnerable to climate change

The damaging effects of climate change are compounded by existing stresses on wildlife. Air and water pollution, development of adjacent wild lands, logging and mining, and other forces are harming national park wildlife now, and adding climate change to the mix could be disastrous. By reducing and eliminating these environmental harms we can significantly decrease the vulnerability of plants, fish, and wildlife to climate change as well as produce rapid and tangible benefits — such as clean air and water — that both people and wildlife need to thrive.

- Water pollution and non-native species are already stressing waterfowl, shorebirds, and migratory birds that visit **Sleeping Bear Dunes National Lakeshore** and other **national parks** in the **Great Lakes** region. By cleaning up water pollution and combating invasive species, we can give birds that depend on the Great Lakes a better chance to survive climate-related changes.

- Historic overharvesting, disease, and pollution have caused a massive decline in **Chesapeake Bay** oysters. A more aggressive approach to reducing these threats would help the bay's oysters survive climate change stresses such as warmer waters and heavier floods that flush pollution in to the Bay and introduce more fresh water than the oysters can tolerate.

- Pesticides, disease, and non-native trout have nearly eliminated the mountain yellow-legged frog from **Yosemite, Sequoia,** and **Kings Canyon** national parks. Reducing these threats and restoring healthy populations of frogs throughout the parks could help them survive the loss of shallow ponds and streams expected to occur in some areas as the climate continues to warm.

By reducing and eliminating existing environmental harms we can significantly decrease the vulnerability of plants, fish, and wildlife to climate change as well as produce rapid and tangible benefits — such as clean air and water — that both people and wildlife need to thrive.

Because national parks, like all protected areas, are interconnected with surrounding landscapes, cooperation and coordination among all land owners — public and private — is essential to preserve functioning ecosystems and the wildlife they support.

#3: Give wildlife freedom to roam

Climate change will cause some wildlife to move outside the parks' protected boundaries, while other species may move in. Because national parks, like all protected areas, are interconnected with surrounding landscapes, cooperation and coordination among all land owners — public and private — is essential to preserve functioning ecosystems and the wildlife they support. National parks can play a key role in conserving wildlife across the landscape. In some cases they provide natural corridors; in other cases new corridors will be needed to connect parks and other protected lands so that wildlife can move in response to climate change.

- Thanks to the efforts of the National Park Service, there is an unbroken, 2,175-mile corridor of protection, the **Appalachian** National Scenic Trail. Stretching from Georgia, north through **Great Smoky Mountains** and **Shenandoah** national parks, to Maine, the trail and its network of parks stands ready to serve as a corridor and refuge for species that need to move in response to climate change.

- Desert bighorn sheep that frequent **Arches, Canyonlands,** and **Capitol Reef** national parks shift location in response to seasons and weather. As climate change alters precipitation and vegetation patterns, new migration patterns could emerge. Working together, wildlife managers and private landowners can ensure pathways are available for bighorn sheep to access food and water they need to thrive.

- The caribou that live in and pass through Alaska's high arctic parks — **Noatak** and **Bering Land Bridge** national preserves**, Kobuk Valley** National Park**,** and **Gates of the Arctic** National Park & Preserve — also roam across a landscape with a patchwork of federal, state, and tribal owners. As climate change renders traditional calving grounds and winter feeding areas unsuitable, wildlife managers working together can identify new habitat and ensure the path is clear for caribou to get there.

#4: Adopt "climate smart" management practices

"Climate smart" management includes four key elements: (1) training national park managers to build climate change into their work, (2) establishing guidance and policies that enable park staff to work closely and equally with other federal, state, local and private landowners, (3) providing sufficient funding and staffing for the challenge at hand, and (4) creating a political and organizational setting that facilitates appropriate, timely, and collaborative action. While research and monitoring should be a part of any park's approach to "climate smart" management, real focus needs to be placed on implementing management changes now based on what we already know.

"Climate smart" management requires real focus on implementing management changes now based on what we already know.

- For wolverines in **Yellowstone** and **Glacier** national parks, the loss of deep winter snows could mean fewer winter-killed animals that are essential to their diet. A healthy wolf population creates ample carrion. Further research could confirm that maintaining a healthy wolf population is a "climate smart" strategy for helping wolverines survive as winter snows decline.

- Nestled between its larger neighbors in the Sierra Nevada Mountains — **Yosemite** and **Sequoia** — **Devils Postpile** National Monument is home to a great diversity of wildlife. But at only 800 acres, the park cannot by itself meaningfully address climate change impacts on its wildlife. So the park superintendent is developing a plan in coordination with managers of the surrounding national forest to protect wildlife throughout the larger ecosystem.

- Northeast coastal parks like **Acadia** National Park and **Fire Island** National Seashore provide critical nesting and feeding areas along the Atlantic migratory flyway. Sea level rise threatens to swamp some bird habitat along the flyway. Working together, resource managers from the Park Service and other federal, state, and local agencies can identify and protect critical habitat, restore marshes, and take steps that allow coastal habitats the opportunity to shift inland.

National parks can help visitors understand climate change already occurring, the vulnerabilities of tomorrow, and how we can all reduce our contribution to global warming.

#5: National parks lead by example

With more than 270 million annual visitors, a core education mission, and a tradition of scientific leadership, national parks have an unparalleled ability to engage Americans in the fight against climate change. National parks can help visitors understand climate change already occurring, the vulnerabilities of tomorrow, and how we can all reduce our contribution to global warming. National parks can also serve as natural laboratories for testing innovative ways to safeguard wildlife from the effects of climate change, and to reduce greenhouse gases that are causing climate change.

- Throughout the country, national parks such as **Everglades**, the **Smokies**, **Glacier**, and **Yosemite**, have banded together as **Climate Friendly Parks**. They share common goals of reducing their own greenhouse gas emissions and demonstrate sustainable solutions to others. NPCA operates ***Do Your Part!***, a program that carries the parks' sustainability message to the general public and provides individuals with opportunities to do their part to reduce global warming pollution.

- The National Park Service is beginning to experiment with **scenario planning**, a model that identifies future scenarios that could occur with increasing climate change and explores management responses for each. The model will help managers develop action and monitoring plans that give them the information and flexibility they need to maximize the chance not of the single "best" outcome — a risky approach when uncertainty is high — but the chance of *some* positive outcome.

By safeguarding wildlife, we help secure our own future

National parks are America's national treasures. It is a uniquely American idea that each of us owns our national parks. They have been entrusted to us, and it is our responsibility to make sure that climate change does not rob the parks of their incredibly rich array of plants, fish, reptiles, birds, and mammals.

Wildlife is threatened now as perhaps never before. The Intergovernmental Panel on Climate Change warns that up to a quarter of assessed species could face extinction due to global warming by the end of this century. It's difficult to imagine that the changes leading to mass wildlife extinctions would not also profoundly threaten human life.

Decisive action now can help bring about a more hopeful future for wildlife and for ourselves. Taking the five steps recommended here will help safeguard national park wildlife by preserving and strengthening the ecosystems that support all wildlife. In turn our communities, which have always relied on healthy natural resources, will be better equipped to cope with the changes ahead.

They have been entrusted to us, and it is our responsibility to make sure that climate change does not rob the parks of their incredibly rich array of plants, fish, reptiles, birds, and mammals.

Mark Wenzler

Mark Wenzler, Director, Clean Air & Climate Programs, National Parks Conservation Association

Lara Hansen, PhD, Chief Scientist & Executive Director, EcoAdapt