



Fueling The Fire

Global Warming, Fossil Fuels and the Fish and Wildlife of the American West

National Wildlife Federation October 2006



Hunting, fishing and other outdoor traditions are an important part of wildlife in the American West. Twenty-five percent of people who live in the region are sportsmen and women. According to the U.S. Fish and Wildlife Service, in 2001 hunters and anglers spent more than \$17 billion on their recreational pursuits in the western United States, contributing greatly to the region's economy. For generations, sportsmen have been true champions for conservation, recognizing the importance of fish, wildlife and their habitats to the region's and nation's culture and values. Despite many important conservation successes, however, the American West faces serious and growing problems that have yet to be solved.

Now, there are growing signs that the nation's over-dependence on coal, oil and gas is coming at an enormous price, not only for people, but for the fish, wildlife and ecosystems that sustain them. Hunters and anglers are rightly concerned about the critical problems facing the region, from mounting pressure to drill for oil and gas in sensitive areas to the devastating consequences of global warming.

Global warming is already contributing to catastrophic wildfires, the expansion of invasive species and more pervasive drought across the western United States, thereby threatening cold-water fish, waterfowl and other wildlife. Without dramatic reductions in emissions of carbon dioxide and other heat trapping gases responsible for the problem, global warming will fundamentally alter the western landscape.

In the News....

"Yes, the planet is heating up. Hottest year on record; more to come,"

by Jane Kay, San Francisco Chronicle, July 30, 2006

"Heat halts fishing on Little Blackfoot, most of Clark Fork,"

by Perry Backus, The Missoulian, July 26, 2006

"Western parks hit hard by the heat,"

by Michael Jamison, The Missoulian, July 26, 2006.

"Scientists see link in warmer climate, more fires,"

by Charles J. Hanley, Salt Lake Tribune, July 26, 2006.



Fortunately, there are substitutes for fossil fuels. Effective and affordable technologies are available today that can significantly improve the energy efficiency of buildings, appliances, cars and trucks. In addition, clean, renewable energy sources such as the sun, wind and bio-fuels are becoming increasingly affordable and have tremendous potential to diversify the region's and nation's energy portfolio. Hunters and anglers can help build a new energy future with cleaner alternatives, help ensure alternative energy is produced using wildlife-friendly siting and agricultural practices, and help protect wildlife from the growing threat of global warming.

It is time to re-tap the pioneering spirit that built America and forge a new energy frontier for generations to come. By acting now to reduce dependence on fossil fuels, the United States will take the single most important conservation action of the 21st century.

Declining Water Resources

Global warming will cause a dramatic reduction in snowpack. Snowpack is the primary source for the water flowing down the rivers in many parts of the West during the dry summer months. Less snowpack means less water when it is most needed, and will result in a considerable strain on the region's water supply. Mountains in the Pacific Northwest are projected to lose as much as 88-percent of average snowpack by 2090; the Central Rocky Mountains could lose up to 75-percent by 2090; and the Sierra Nevada range could lose up to 74-percent of snowpack in the just the next 30 years.



NPS



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More Extreme Heat Waves

The past nine years (1997-2005) were the warmest years on record, and scientists are projecting that heat waves will become more intense, more frequent and longer lasting during this century if global warming continues unabated. Extreme heat can have serious consequences for fish and wildlife. For example, a study of quail in Oklahoma shows that bobwhite populations would decline if average temperatures over the long-term become significantly greater than the historic average.

Pervasive Drought

Drought conditions will become more extreme in some areas as higher average temperatures contribute to increased evaporation rates. The current drought plaguing the West is the worst in 500 years and has drastically reduced available water resources for people and wildlife alike. Wildlife officials in Arizona blame extremely dry weather for declines in the state's deer and elk populations, whose natural water sources have all but disappeared in some areas. Conditions near the Grand Canyon are so bad that wildlife species have become dependent on man-made water catching devices as their only source of water.



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NASA

Expansion of Invasive Species, Pests and Diseases

Warmer average winter temperatures and less frost will increase the rate, intensity and extent of invasive species, pest and disease outbreaks throughout the region. If warming trends continue as projected, forest die-offs due to pine bark beetles and other pests are expected to become even worse than recent devastating epidemics. In Colorado, Arizona and New Mexico, scientists have identified warming-enhanced drought as a major factor in extensive forest die-off by causing pinon pine trees to be more susceptible to bark beetle infestations. This has already resulted in more than a 90-percent die-off of trees in some high-elevation areas of these states, significantly altering the regional landscape in the process. Global warming will also contribute to the expansion of invasive species such as Tamarix, which can spread rapidly into perennial riparian drainages throughout arid and semi-arid regions in the West.

More Catastrophic Wildfires

Warmer, drier conditions due to global warming have caused a four-fold increase in the number of major wildfires in western forests and a six-fold increase in the area of forest burned since the mid-1980s. Scientists predict that the overall area of acreage burned by wildfires will double in size across 11 western states between 2070-2100. States hit particularly hard include Montana, Wyoming, Utah, Nevada, Idaho and New Mexico. In Nevada, wildlife officials were forced to call for an emergency antelope hunt and relocation effort as major wildfires destroyed more than half of the area's critical winter range northwest of Elko.



FEMA

Loss of Sagebrush Habitat

Big sagebrush habitats throughout the western U.S. could decline by 59-percent before the end of this century, which would have devastating consequences for sage grouse, mule deer, pronghorn and other species that depend on them. Idaho, Nevada, Wyoming and Utah are all predicted to lose significant amounts of sagebrush habitat.



NPS

Loss of Habitat for Trout, Salmon and Other Cold-Water Fish

A continuing trend toward higher stream temperatures would significantly reduce viable habitat for trout, salmon and other cold-water fish across the West. The Rocky Mountain region alone could see the area of suitable habitat for cold-water fish decline by 50-percent if average July temperatures rise 5.4 degrees Fahrenheit. In Montana, the Montana Department of Fish, Wildlife and Parks was forced to close some of the top trout streams during peak periods to reduce stress on trout fisheries due to higher-than-normal water temperatures. A continuing trend toward higher average temperatures would have devastating impacts on prized trout habitat in the state, as well as in Idaho, Colorado, Wyoming and Utah.

Loss of Wetland Habitat and Waterfowl

Global warming poses a significant threat to the region's diverse wetlands, including areas that provide critical breeding and wintering habitat for waterfowl. Predictions are indicating an increased likelihood of severe drought across central North America, including the Prairie Pothole region in Montana, the Dakotas and Minnesota. Drier conditions are projected to result in up to a 91-percent reduction in the Prairie Pothole wetlands within this century, and up to a 69-percent reduction in the abundance of ducks breeding in the region. Often called North America's "duck factory," the Prairie Pothole Region is the primary source for waterfowl harvested in the U.S. and Canada.



NRCS

Loss of Alpine Tundra and Other Mountain Habitats

High-elevation species are particularly vulnerable to global warming given the fact that they have limited space available to find new habitats as higher average temperatures push them farther up in the mountains. Wildlife species at risk include mountain goats, bighorn sheep and ptarmigan. Scientists predict that populations of desert bighorn sheep in California are facing the risk of extinction if global warming continues unabated.



NRCS

Increased Risk of Species Extinctions

There is growing concern that the accelerating pace of change will put alarming numbers of species on the path to extinction. Global warming is projected to reduce boreal habitat in all of the mountain ranges of the Great Basin region, contributing to a 44-percent loss of mammal species, a 23-percent loss of butterfly species, a 30-percent loss of perennial grasses and forbs and a 17-percent loss of shrub species.



USFWS

Changing the Forecast for Fish and Wildlife in the West

A Plan of Action

Fortunately, solutions are at hand. Effective and affordable technologies are available that can significantly improve the energy efficiency of buildings, appliances, cars and trucks. In addition, clean, renewable energy sources such as the sun, wind and biofuels are becoming increasingly affordable and have tremendous potential to diversify the region's and nation's energy portfolio. It is time to re-tap the pioneering spirit that built America and forge a new energy frontier for generations to come. A meaningful strategy should include the following actions:

1. Place significant, mandatory limits on U.S. global warming pollution.
2. Reduce the nation's overall dependence on fossil fuels through greater investments in energy efficiency and renewable energy technologies.
3. Implement strategies to help wildlife survive the effects of global warming that are already underway.
4. Promote strong wildlife stewardship as an important part of a new energy future.

With a resounding voice and determination, people can change the forecast for fish and wildlife in the West and ensure that their children and grandchildren will have the same opportunities to fish, hunt, and enjoy the natural world they know and love. By acting now to reduce dependence on fossil fuels and invest in cleaner, more sustainable energy resources, the United States will take the single most important conservation action of the 21st century.

PHOTODISC



SACRAMENTO MUNICIPAL UTILITY DISTRICT

5 Five Steps You Can Take at Home to Combat Global Warming

1. Replace incandescent light bulbs with compact fluorescent bulbs.
2. Install a clock thermostat to save heating and cooling energy at night and when no one is home.
3. Set your water heater to a lower setting or call a service person to adjust it for you.
4. When shopping for home appliances and electronics, look for the Energy Star® label; when purchasing a car, buy the most fuel efficient model that meets your needs.
5. Contact your representatives in Congress and encourage our government to enact policies to reduce global warming pollution.

For More Information:

www.targetglobalwarming.org

