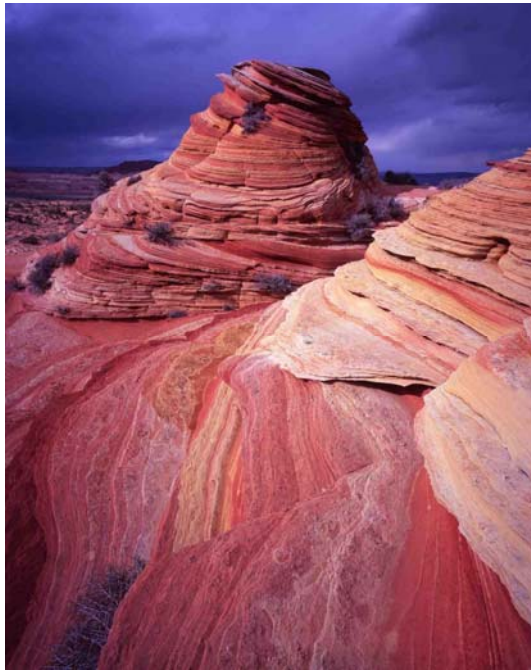




THE
WILDERNESS
SOCIETY

GLOBAL WARMING AND U.S. PUBLIC LANDS

America's Wild Lands are Under Threat, and Will Play Key Role in Any Climate Change Solution



Our Heritage—America's public lands—some 600 million acres of land and 150,000 square miles of protected waters—are the birthright of every citizen, and the legacy we hold in trust for generations to come. Global warming poses an unprecedented threat to the nation's iconic landscapes—our national parks, forests, wilderness areas, and wildlife refuges. At the same time, protecting these natural places is more important now than ever before. Our country's public lands store carbon and offer one of our best hopes for sustaining the plants, animals, birds, clean water and air, and recreational opportunities that are important to our heritage.

The Threat—Dramatic and rapidly occurring transformations to our lands and waters are well documented. Glaciers are receding. Beaches and coastal wetlands are eroding as sea levels rise. Inland lakes and wetlands are drying up. Droughts and severe storms are more frequent as precipitation patterns shift. Invasive species are gaining a foothold and native plants are struggling. Wildland fires are increasing in frequency and intensity. Wildlife that depend on these habitats are increasingly stressed—more so

as urban sprawl, energy development, and motorized recreation encroaches on the very habitats set aside to protect them. These threats have wide-ranging impacts on human communities, as well. Wildlands support the pollinators on which our crops depend. They feed the watersheds that supply our drinking water. They afford opportunities for hunting and recreation. Protected coastal wetlands buffer homes and property from damaging storms. What happens to these lands ultimately affects us all.

The Solution—Maintaining healthy, intact ecosystems is one of our best options for helping wildlands and the species that depend on them adapt to climate change, and for sequestering carbon emissions. America's public lands include some of the nation's most intact and diverse ecosystems. The American people have protected these landscapes for more than 100 years since the first national parks, refuges, and monuments were created. Now, that work must be done with increasing urgency. New funding is needed to restore and better manage public lands where global warming's impacts will be felt most severely, and to set aside additional lands to assure that key ecosystems and wildlife corridors are protected. Agencies must gather the best scientific information and be required to manage the lands in their care to adapt to climate change. If these resources are made available quickly, our nation's lands will be protected, and also will help to protect us from the ravages of climate change.

The examples that follow are a sampling of public lands from across the U.S. where the impacts of global warming already are being felt, and where urgent action is needed to provide a solution. For every example presented, there are dozens of others with similar threats—and similar need for urgent congressional, executive and public attention and action.

Alaska: Yukon Flats National Wildlife Refuge

Encompassing 11 million acres in eastern interior Alaska, the Yukon Flats National Wildlife Refuge represents some of the most productive Arctic wildlife habitat in North America. The refuge's diverse landscape, which ranges from mountains and high alpine tundra to a vast wetland basin of rivers, streams,



and more than 20,000 lakes, supports more than 150 species of birds, 39 mammals, and 18 species of fish. Yukon Flats NWR faces potentially significant changes that may alter its ecosystems, wildlife, and the subsistence lifestyles of its native residents.

Temperature changes due to global warming will lengthen the growing season which, in turn, will affect wildlife mating cycles, plant growth and flowering, hunting seasons, and water availability in the refuge's soil and rivers. Already documented effects include drying lakes, hotter temperatures, changes in

salmon health and migration patterns, and more frequent and severe wildland fires. To respond to these threats, more wilderness areas need to be designated within Yukon Flats NWR to protect this wild ecosystem. In particular, Congress must halt a proposed land exchange that would fragment Yukon Flats wilderness to allow for oil and gas exploration and drilling that would almost certainly exacerbate the effects of global warming and further stress the refuge's species and their habitats.

California & Nevada: The Sierra Nevada Range Ecosystem

Eleven national forests and three national parks are among the protected public lands of the Sierra Nevada Range in northern California and western Nevada. Characterized by mixed conifer forests, oak meadows, canyons, and rugged mountain peaks, this vast area normally receives between 20 and 80 inches of precipitation per year. Most falls as snow at elevations above 6,000 feet, but recent studies predict that 70 to 90 percent of the region's snow pack could disappear by century's end due to global warming. Already alpine meadows and the region's signature oak meadows are disappearing. Coldwater fish such as salmon and trout face serious threats due to warmer streams and decreased flows. Warmer winters and long droughts coupled with bouts of extreme precipitation could cause flash floods and increasing numbers of wildland fires. A hotter, drier climate makes densely packed trees more vulnerable to insect infestation and ecosystem-changing fires. Funding is needed to help land managers determine how best to control floods, store water for dry months, and manage forests to reduce the risk of catastrophic fires or insect infestations. Funding is needed for land acquisition and easements to ensure that key buffer zones and habitat corridors are protected.

Washington: The North Cascades Ecosystem

Home to rugged mountain peaks, more than 300 glaciers, and vast wilderness forests that include virgin Douglas fir and Western red cedar, the public lands of the North Cascades ecosystem in Washington include North Cascades National Park, the Ross Lake and Lake Chelan National Recreation Areas, and the Mount Baker-Snoqualmie and Wenatchee-Okanogan National Forests. The most heavily glaciated area of the U.S. outside of Alaska, the lands of the North Cascades are places of distinctive natural beauty and



diverse ecosystems that protect many species including salmon, bald eagles, grey wolves and grizzly bears. As global warming reduces precipitation and summers grow warmer, the glaciers of the North Cascades are shrinking dramatically, a trend that affects the park's water quality and flow, wildlife, vegetation, and soil. Global warming also affects the area's forests. As in other forest ecosystems on U.S. public lands, a hotter, drier climate could dramatically increase the number and intensity of wildland fires. Warming streams threaten coldwater fish such as wild salmon, Steelhead, and trout. Meeting these complex challenges will require funding for a whole range of new management strategies designed to protect the region's unique resources.



Idaho: The National Forests of Central Idaho

The Payette, Boise, Clearwater, Nez Perce, and Salmon-Challis National Forests in central Idaho are at the forefront of a fiercer and longer wildland fire season that is being seen across the West as a result of global warming. Fire seasons are longer, creating a greater threat to private property and to the small communities surrounded by national forest lands. More fire on the landscape will create more pressure to log national forest lands, including roadless lands, that are critical storehouses of carbon. Global warming also means longer, hotter summers and more drought. Drought impacts water

temperature, quality, and quantity, which in turn affects already declining populations of the native fish that rely on cold, clear water to survive. Roadless areas in Idaho's national forests will be increasingly important to accommodate wildlife migration, and to shade and protect streams from hotter temperatures. Idaho is currently a national leader in wildland fire management and the restoration of fire to the forest landscape. More funding is needed to protect communities from fire so that roadless areas in these national forests can be maintained as intact habitat for the benefit of fish and wildlife. More funding for forest restoration projects on the already-developed landscape of these forests also is needed.

Montana, Wyoming and Idaho: Greater Yellowstone Ecosystem

Anchored by America's first National Park, Yellowstone, the Greater Yellowstone Ecosystem encompasses park and forest lands in Montana, Wyoming, and Idaho managed by the National Park Service and the U.S. Forest Service. Climate change poses significant threats to the area's forests, streams, fish and wildlife. As in the Sierra Nevada and the North Cascades, earlier melting of high-elevation snowpack is reducing stream flows throughout the region. Higher water temperatures are depleting trout habitat. Warmer temperatures are expected to cause a loss of wildlife habitat, and the region already is experiencing a higher incidence of severe wildland fires and loss of alpine areas. Whitebark pine trees, a key fall protein food source for grizzly bears, are being lost to pests that are invading higher elevations as temperatures warm. New funding will be needed to acquire private forests or other lands in order to ensure an adequate winter range and to accommodate changing wildlife migration routes. Funding also is needed to ensure connectivity between habitats, and to protect and restore key habitats used by wildlife.



Arizona: Ecosystems of the Ironwood Forest and Sonoran Desert National Monuments

Global warming's impacts are not restricted to forested or alpine ecosystems of the West. The BLM-managed Ironwood Forest and Sonoran Desert National Monuments are desert sanctuaries that lie in the greater Sonoran Desert Landscape in southwest Arizona. The landscape is a mix of rugged mountains and quiet desert valleys that provide habitat for many types of flora and fauna, including the last viable population of desert bighorn sheep indigenous to the Tucson basin. In the desert, life hangs in a delicate balance, and what seem like minor changes in environmental conditions can have large impacts on the ecosystem. Global warming already is tipping the scale. Droughts are increasing in number and intensity. Protracted dry spells can deplete waterholes, lower water tables, and increase the risk of wildland fires. Invasive buffelgrass that is beginning to carpet the desert floor could be a significant fuel for fires. A high-intensity blaze could be catastrophic for the Sonoran desert ecosystem, since native species are not well adapted to burns. New management strategies are needed to minimize fire risks, use water resources more efficiently, and limit off-road vehicle use that can permanently scar the desert landscape.

West Virginia: Canaan Valley/Dolly Sods

This beautiful, wild landscape of public and private lands in northeast West Virginia includes the Monongahela National Forest and the Canaan Valley National Wildlife Refuge. The rugged terrain comprises several adjoining, wind-swept plateaus including Dolly Sods, Flatrock Plains, Red Creek Plains, and Roaring Plains. Dolly Sods is a unique piece of the boreal forest in West Virginia, with a climate and plant life similar to parts of northern Canada. Beside Dolly Sods lies Canaan Valley, the highest large valley in eastern North America. Within the valley is a 7000-acre expanse of wetlands. Climate-driven changes in temperature and precipitation could affect these wetlands, which are among the most biologically



significant in the Appalachians. Temperature increases could further stress red spruce/balsam fir forest types that, in turn, support important plant and animal species. The area's red spruce forests provide habitat for important wildlife species, including the endangered West Virginia northern flying squirrel. The area also is home to other rare and important species including snowshoe hare, bog lemming, bobcat and fisher, whose populations could be affected as forest and wetland habitats change. Funding is needed to acquire private lands to increase federal protected acreage and promote landscape connectivity in the Canaan Valley NWR, and also to add key private lands to the Monongahela National Forest. Funding to restore red spruce and balsam fir forests and reduce the impacts of non-native weeds also is needed, as is action to designate key portions of the area as Wilderness.

Northeast U.S.: Northern Forest Lands of Maine and New Hampshire

The forest dominated landscape of northern New England includes federal, state and privately held conservation lands, including the Lake Umbagog National Wildlife Refuge and the White Mountain National Forest. Lake Umbagog Refuge, located in northern New Hampshire and western Maine, provides a unique wetland and associated upland habitat for species such as the peregrine falcon, common loon, black tern, northern leopard frog, and marten. The nearly 800,000-acre White Mountain National Forest encompasses more than 148,000 acres of designated wilderness. The Forest is home to black bear, moose, bobcat and an important stopping off point for migratory songbirds. Scientists have recorded an average temperature increase of 1.5 degrees since 1970—and an alarming 4-degree increase in winter months. This translates into winters with less snow and more rain, stressing the region's snow-based economy as well as the region's iconic maple, beech, birch and spruce/fir forests. Under the worst case scenario, spruce/fir forests could



disappear almost completely. As forests change, so do their inhabitants. The U.S. Forest Service's 2007 Climate Change Bird Atlas indicates that the widely distributed Hermit Thrush may all but disappear from the heart of the northern forest. New Hampshire's native brook trout will be stressed as the hemlock trees that shade the trout's cold streams "move" north, and as the climate becomes more accommodating for the invasive and devastating hemlock wooly adelgid. Funding is needed to acquire strategically located lands to promote landscape connectivity among the region's public lands, and to secure conservation easements on key private lands. Funds also are needed for active restoration of the region's forests.