

The Western Mountains



A wildfire sweeps through Bitterroot National Forest in Montana.

Image courtesy of John McColgan, USDA Forest Service.

Wildfire, Drought, and Insects

In recent years, visitors to several National Parks, including Zion in Utah and Yosemite in California, have been turned away by nearby wildfires. In addition to their effects on treasured natural areas, wildfires put people, homes, livestock, and businesses at risk. Wildfire is nothing new, but it is dramatically escalating in frequency and extent in western forests, among other areas. There are now four times as many wildfires exceeding 1 ½ square miles as there were 30 years ago, and these frequent large fires are burning six times as much forest area. In the last 20 years, the western fire season has expanded by more than ten weeks.

This increase in wildfire is a legacy of both a changing climate and decades of total fire suppression that has resulted in a buildup of dead fuels. One important factor is drought. Wintertime precipitation is increasingly falling as rain instead of snow, and the snow that does accumulate is melting earlier in the spring—decreasing the amount of water available in the late summer months and contributing to longer and more intense droughts. Compounding the effects of these droughts is the increased susceptibility of drought-stressed trees to attacking insects. In the last decade, a bark beetle epidemic has exploded across 18,000 square miles of western mountain forests. Milder winter temperatures kill fewer beetles in their budworm phase than the colder winters of the past, helping to increase the bark beetle population, with devastating effects. As the beetles kill vast areas of forest, they leave standing dead wood, fueling even larger wildfires.

The climate is becoming too dry to support some of our nation's forests. Ecologists expect that some drought- and wildfire-stricken areas will not recover as forests but will instead regrow as open savannah or grassland ecosystems.

The American Pika

Some species that have adapted to living at higher elevations are being stranded on mountaintop “islands.” These species can be stuck with nowhere to move as warmer temperatures, and formerly lower-elevation species, creep up to higher elevations. One such species is the American pika, a small-eared relative of rabbits and hares. This species delights visitors to Glacier National Park and other parks throughout the mountain ranges in western states.



The American pika, a cold-adapted species that is being isolated on mountaintop “islands” by rising temperatures.

Image courtesy of J. R. Douglass, Yellowstone National Park.

Pikas lived in the lowlands during the last ice age. As the ice retreated, these small animals gradually climbed mountain slopes in pursuit of their required climate. Today, the species is restricted to the isolated mountaintop islands as populations below about 7,000 feet rapidly go extinct. The cause, studies suggest, is simple heat stress.

Trout Habitat

Earlier springs and warmer summers are beginning to have a major impact on some of the Rockies’ legendary trout streams. With mountain snow melting earlier in the spring, the cool snowmelt water that used to flow through late summer is now slowing to a trickle. In seven Montana rivers, the amount of water flowing in the late summer has dropped on average 30 percent since 1950 as a result of increasing irrigation demand, earlier snowmelt, and warmer summer temperatures. Some small rivers, like Montana’s Big Hole, now stop flowing entirely in late summer, shrinking to isolated pools until the autumn rains.

In addition, some streams are reaching high temperatures that are lethal for trout—above 78°F—in July and August. State officials have had to temporarily close some streams to trout fishing during August in recent years because of low stream flow and high water temperatures. Scientists estimate that 18–92 percent of bull trout habitat could be lost in the northern Rocky Mountains in the next half century.



Climate change is altering some trout streams. Here, a family enjoys catch-and-release fishing in Rocky Mountain National Park.