CLIMATE

Do Mountain Forests Hold the Answers for Climate Science?

As fire and disease move up the mountains, researchers race to find answers.

BY CHIP SOMODEVILLA 4 MIN READ AUG 6, 2020

Deep in the forests of Montana, life is slowly changing. To start, it's getting hotter. According to the 2017 Montana Climate Assessment, the annual average temperature in the state has increased

by midcentury. As climate change makes summers hotter and drier in the Northern Rockies, forests are threatened with increasing wildfire activity, deadly pathogens, and insect infestations, including the mountain pine beetle outbreak, which has killed more than 6 million acres of forest across Montana since 2000. Researchers from all disciplines are setting up labs in Montana's mountains to study climate change as quickly as possible.

P*art 2 of a photo series on Montana forest communities scrambling to keep up with climate change: learning, responding, adapting.* *See Part 1.*

Cross sections from living and dead trees, also called "cookies," are collected from across the country and studied at the U.S. Forest Service Missoula Fire Sciences Laboratory in Missoula, Montana. Part of the Fire, Fuel, and Smoke Science Program at the Rocky Mountain Research Station, the lab is a state-of-the-art facility working to improve scientific understanding of wilderness fires.

Forest Service Biological Science Technician Elliott Conrad measures the heat content in a sample of live jack pine needles from Wisconsin.

In the Soil Lab, Forest Service biological science technician Courtney Johnson measures the bulk density of sticks collected at sites across the Northern Rockies.

Burned trees killed by the 2018 Howe Ridge Fire stand like twigs against the evening sky in Glacier National Park.

Ashen lodgepole pine cones cling to the branches of a tree killed by the mountain pine beetle and its symbiotic blue fungus infection. This tree stands alongside living trees in the Beaverhead-Deerlodge National Forest near Deer Lodge, Montana. The number of new trees infested each year by the pine beetle has reduced since the height of the outbreak around 2012.

A tree burned by the 2017 Sprague Fire in Glacier National Park, Montana. A slow-growing species that lives at elevations above 6,000 feet, the whitebark is an essential source of food for many birds and small mammals.

Left: Soil Lab measurements. Right: Biologists unload 24 days of water samples from the Tenderfoot Creek Experimental Forest at the Missoula Fire Sciences Laboratory.

Galleries, or eating trails, left behind by the mountain pine beetle, scar a fallen lodgepole pine log in Beaverhead-Deerlodge National Forest near Deer Lodge, Montana.

Confederated Salish and Kootenai Tribes Preservation Office program manager Mike Durglo Jr. greets what remains of a 2000-year-old whitebark pine tree that he named “Illawia,” which means great-great-grandparent in his native language. The guided hike was organized by Whitebark Pine Ecosystem Foundation in the mountains of the Flathead Indian Reservation.

Confederated Salish and Kootenai Tribes Forestry department manager Tony Incashola Jr., right, his daughter Kieran Incashola, 10, and U.S. Forest Service fire ecologist and member of the Pit River Tribe Monique Wynecoop make a gift of tobacco to the 2000-year-old tree.

Wynecoop makes a gift of tobacco to “Illawia.”