

Hotter Droughts: A Challenge for the Southwest

Climate Change – A problem for ecosystems

Drought-induced tree mortality events are reshaping ecosystems in the Southwest US. Significant mortality events have happened in the past, but their frequency, severity, and extent are expected to increase with climate change. Drought-induced mortality can cause forests and woodlands to transition to grasslands and shrublands. Prolonged drought also impacts southwestern grasslands by allowing invasion by shrubs. These changes can negatively affect ecosystem services such as wildlife habitat, grazing potential, water cycle processes, carbon storage, and recreational opportunities. Rising temperature and prolonged drought are expected to have substantial impacts on ecosystems of the southwestern US.



Dying piñon pine, Jemez Mtns, NM.
Photo: CD Allen

Extreme drought causes ecosystem change.

Climate change – Adding fuel to the fire



Rising temperature and prolonged drought are increasing the flammability of forests. Large wildfires are projected to increase with climate change. Tree mortality, forest loss, and substantial fire emissions all pose risks to society. The projected effects of climate change on wildfire could increase emissions four-fold and cause substantial changes to forests of the Southwest US. Changing climate

and prolonged drought can alter ecosystem recovery after wildfire, making wildfire a catalyst for ecosystem change. Recent large wildfires have directly impacted communities, water quality and water supply, air quality, carbon storage, wildlife habitat, and recreation.

Large high-severity wildfires put ecosystem services at risk.

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