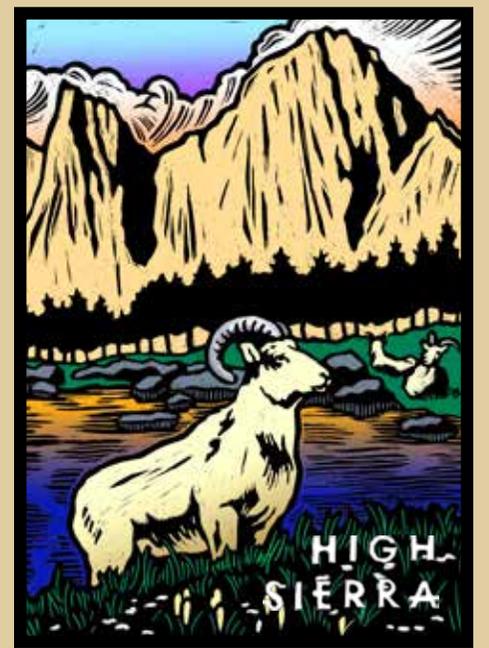
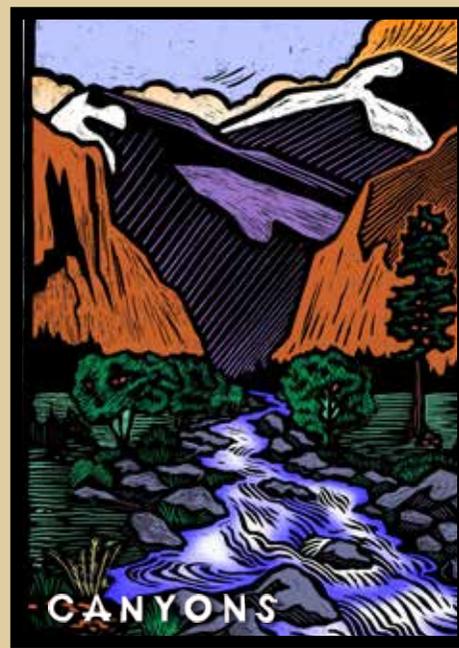




Sequoia & Kings Canyon National Parks & Sequoia National Forest/Giant Sequoia National Monument



What's with all the dead trees?

The reason depends a bit on where you are in these parks. The huge range in elevation here, from 1300' to 14,500', causes conditions--and types of trees--to vary a lot from place to place. But there is one main culprit -- "hot drought."

For more than four years, it's been very dry *and* hotter than normal. California is no stranger to droughts, but with the added heat, this drought has been more deadly to trees here than we've ever seen before.

Some trees take it harder than others, such as ponderosa and sugar pines. These grow at the lowest elevation of the conifer belt, and form most of the brown you see in these "evergreen" forests.

In the low-elevations of the foothills, blue oaks are in trouble. Some have died on their feet, while others are collapsing or dropping large limbs.

Once drought stresses trees, some of them lose the ability to fight off diseases and insects. This is the case on much of the floor of the Kings Canyon. There, native bark beetles are infesting drought-weakened trees and finishing them off.

Even among the hardy sequoias, you can see stress in many trees. Scan the giants for browning foliage for the canopy die-back that has caught the attention of scientists. Overall, the big trees are holding their own so far, but scientists are keeping a close eye on them as the climate continues to warm.

Two exceptions to blaming hot drought: In and around Kings Canyon National Park, many dead trees resulted from the 2015 Rough Fire, which raced through areas that had not burned naturally for decades. And in the foothills, those silvery-barked trees with the dry, cinnamon-colored leaves? Not

dead! These California buckeyes always let their leaves die in summer, so that they use less moisture when it's driest.

Studies show that trees fare better in areas where low-intensity fire, either lightning fire or intentional prescribed fire, has played its natural role. This is likely because low-intensity fires thin out small trees, resulting in less competition between the remaining trees.

Research in the parks continues to seek answers to how climate change is altering this environment, as hot droughts may become more frequent. Studies may also offer suggestions for how scientists and society respond to the shifts and changes.

If we can work together to reduce the actions that contribute to climate change, we have a chance to reduce the damage that may be in store for our great trees.

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