

Study: Human actions influence fire in Sierra

By Science Magazine

While climate contributes strongly to fire activity in the Sierra Nevada Mountains, human activity, starting well before European contact, has also played an important part in the severity, frequency and sheer numbers of forest fires occurring in the area, according to researchers.

“Initially, we did work to see if we could develop long-lead forecasts for fire in the area – six to 18 months in the future – using climate patterns such as El Nino,” said Alan Taylor, professor of geography at Penn State. “This would be a significant help because we could place resources in the west if forecasts indicated it would be dry and the southeast would be wet. However, the climate relationships with fire did not consistently track.”

Taylor, working with Valerie Trouet, associate professor of dendrochronology at the University of Arizona, merged a tree-ring-based record of Sierra Nevada fire history with a 20th century record based on annual area burned to create a record of fires spanning 415 years, from 1600 to 2015. While year-to-year fire variability was influenced by climate throughout that time, they found that large decadal-scale shifts in the Sierra Nevada fire regime were related to changes in human activity.

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