



## Fuels Management in Creeks and Streambeds

Author: Kim Ingram

Published on: December 10, 2015

There is increasing concern about fire hazard from fuels accumulation in riparian areas and what forest landowners can do to manage these areas. Riparian vegetation and forests have ecological importance in terms of water quality and quantity, and wildlife and aquatic habitat. They also have social value such as recreation, natural heritage and aesthetics. These values are important to forest landowners, but is it possible to balance protection of riparian areas with fire hazard reduction?

**Historical fire in riparian areas.** In the last decade, we've come to better understand fire regimes in riparian areas. Research by Van de Water and North (2011) found that riparian and upland Sierran mixed conifer forests had similar forest composition, structure, fuel loading and fire behavior under an active fire regime. Before the era of fire suppression, fire burned through riparian areas regularly at varying intensity, thinning out trees and maintaining low amounts of fuels. Coupled with higher soil moisture, the lower vegetation density in riparian areas could disrupt the spread of fire across the landscape and act as a refuge for wildlife. California Native Indian tribes often applied fire in riparian areas to encourage the re-sprouting of tree and shrub species that respond well to low-intensity fire.

**What are the current rules for managing riparian areas?** Unfortunately, regulations on managing riparian areas have not really caught up to our new understanding of their fire regimes. Under the California Forest Practice Rules, the Watercourse and Lake Protection Zone (WLPZ) defines areas of land along both sides of a creek or stream, or around the circumference of a lake or spring, that buffers riparian areas against soil disturbances that potentially come from heavy equipment. The width of a WLPZ varies between 50 and 150 feet depending on slope, the class of the watercourse, and the geography of the location. Within the WLPZ, percentages of surface cover, canopy cover, and undisturbed areas must be maintained to protect water resources and wildlife habitat. Equipment Exclusion Zones (EEZs) prohibit the use of heavy equipment within the WLPZ in order to prevent soil disturbance, erosion and sedimentation into watercourses. In very small watercourses, you may be allowed some entry with heavy equipment through use of an Equipment Limitation Zones (ELZs) instead of an Equipment Exclusion Zone (EEZ).



**Current research.** Rob York, UC Cooperative Extension Forestry Specialist at UC Berkeley, Department of Environmental Science, Policy and Management, has been doing research at UC Blodgett Forest Research Station looking at fuels management within riparian areas and the potential

to mitigate fire hazard. Rob and his team are evaluating the effectiveness of existing WLPZ regulations, as well as other evidence-based alternatives, that aim to sustain low fire severity and high species diversity in and around riparian Sierra Nevada forests. According to Rob, while the intent of the CA Forest Practice Regulations is to avoid significant adverse cumulative impacts to the beneficial functions of riparian zones, there is an unintended risk of high severity wildfire impacts because of the lack of management done there. Without treatments that are similar in nature to the historic fire regime, riparian areas become more vulnerable to high severity fire.

With current regulations, it has essentially been easier to reduce fire hazard everywhere else besides the riparian area despite their special ecological and social value. An unintended consequence of this can be seen in the 2007 Angora fire, in which the untreated riparian areas acted as a wick for high severity fire along Angora Creek that ultimately led to destruction of over 250 homes.

**What is a landowner to do?** We now encourage appropriate fuels reduction in riparian areas. That said, it can be hard to do logistically. As heavy equipment is not allowed in riparian areas, trees can sometimes be cut and pulled out using a cable from outside the buffer area (called end lining). Because of this extra cost, however, it can lead to the preferential removal of larger trees which are desirable to retain. Thinning can occur by hand cutting, piling and burning, though in some areas you may be required to pull the burn piles out of the riparian area so ash doesn't reach the watercourse. A landowner could also treat the burn pile area by either covering it or working the ash and debris into the soil. Another option for riparian areas is prescribed fire in the spring or after fall rains begin. Because riparian areas are generally moist during the time of year when prescribed burns are allowed, reducing canopy cover to 60% or less can increase the probability of a successful prescribed fire because the greater radiation input can dry out surface fuels more quickly. Although reducing canopy is allowed under canopy retention rules, it is difficult to accomplish because of Equipment Exclusion Zones.



For more information and assistance, please contact your local UC Cooperative Extension [Forestry and Natural Resources Advisors and Specialists](#).

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Focus Area Tags: [Environment](#), [Natural Resources](#)

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## Study shows climate-driven forest fires on the rise

**Author:** Lorena Anderson

**Published on:** November 22, 2023

Reposted from [UC Merced News](#)





Credit: CalFire

Firefighters in the 2021 Monument Fire in Shasta-Trinity National Forest

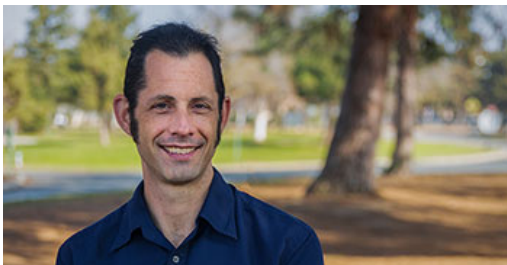
An upside of the increase in forest fires in the West is that they reduce the amount of fuel available for other burns. That might provide a buffering effect on western fires for the next few decades, but the threat of climate-driven forest fires is not diminishing, a new study shows.

Without substantial changes in how people interact with wildfire in the western U.S., climate change will increasingly put people in harm's way as fires become larger and more severe.

UC Merced professors [John Abatzoglou](#) and [Crystal Kolden](#), with the [School of Engineering](#), along with collaborators from the University of Washington, UCLA and the Cary Institute, recently published a paper in the journal [Nature Communications Earth and Environment](#) detailing their findings:

- Climate-driven increases in forest-fire area in the western U.S. are likely to continue in the coming few decades;
- Dynamic feedbacks between fire and fuel availability can reduce increasing fire activity, but are unlikely to ward off climate-driven increases in forest fire extent; and
- Extreme West-wide fire seasons similar to 2020 will become more common, but not every year will be that severe.

This study is the first that considers uncertainties in both climate trajectories and fire-fuel feedbacks on near-term changes in the western U.S. forest-fire areas. Many modeling efforts have ignored vegetation feedbacks in projecting fire activity, but the researchers on this study incorporated a range of plausible fire-fuel feedback scenarios.



Professor John Abatzoglou

Credit: UC Merced

"We looked at them alongside climate projections to ask whether these feedbacks will sufficiently bend the curve of increasing fire activity in our forests," Abatzoglou said. "We show that compared to the past three-decades — which already saw large increases in burned areas — the average annual forest area burned from 2021-2050 is likely to increase by 50 to 100 percent.

"We have to buckle up and get ready for bigger fire seasons."

A century of fire-suppression efforts left forest floors carpeted with fuels that have interacted with a warming and drying climate to produce a dramatic increase in fire extent. The continued increase in forest fires will carve away at the accumulation of fuel, but that's not going to be enough to reverse the trend of escalating forest-fire area in the western U.S. in the coming decades.

The researchers also show that climate change will increase the year-to-year variability in area burned, leading to substantial increases in the occurrence of fire seasons rivaling the 2020 fire season.

"Our results show that even with strong reductions in fossil fuel use, over the next 30 years warming due to climate change will greatly increase the annual averaged area burned," said University of Washington atmospheric sciences Professor David Battisti, a co-author of the new paper. "Perhaps more worrying, the area burned in most severe fire seasons will increase exponentially. The total area burned in western U.S. forests in the next 30 years will be equivalent to one-third of the total forested area."

The findings are critical for refining near-term trajectories of direct and indirect fire effects to human-environment systems in the western U.S. and devising adaptation and mitigation strategies, the researchers said.

One way to bend the curve of rising forest fire activity is to make a larger investment in appropriate place-based strategies already being used, such as prescribed fire, forest clearing and allowing fires to burn when they pose no threat to homes or infrastructure, Abatzoglou said.

The Biden administration's recent pushes for climate change-driven infrastructure make this work all the more important.

"The data we have can help us understand escalating fire impacts in the western U.S., as well as other fire-prone regions of the globe that have been the subject of recent fire outbreaks," the researchers said. "Given the impacts of wildfire on society highlighted by recent and ongoing extreme events, efforts to understand the influences of weather and climate against the backdrop of current non-climatic factors such as land management are urgent."

Public Value: [UCANR: Promoting healthy people and communities](#)

Focus Area Tags: [Environment](#)

Tags: [climate change](#) (32), [Crystal Kolden](#) (1), [John Abatzoglou](#) (1), [wildfire](#) (65)

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*UCANR: Protecting California's natural resources*

## To jump-start local economies, UC ANR partners with California Stewardship Network

Author: Pam Kan-Rice

Published on: November 11, 2020

Reposted from [UC ANR News](#)



UC ANR is hiring 15 new UC Cooperative Extension advisors and one specialist to study woody biomass, food systems, agricultural technology and other rural issues.

The University of California Agriculture and Natural Resources is pleased to announce a new partnership with the California Stewardship Network to accelerate economic recovery across the state by tapping expertise in broadband development, small-business acumen, agricultural technology and more.

To help communities recover from the recession and expand regional economic-development efforts, UC ANR is investing approximately \$3 million to hire 15 new UC Cooperative Extension (UCCE) advisors and one specialist. These UCCE experts will collaborate closely with members of the California Stewardship Network – an alliance of regional leaders who are committed to solving state’s most pressing economic, environmental and social well-being challenges.

“The California Stewardship Network represents regions across California and each region is different, with its own challenges and opportunities. This UCCE investment brings science and solutions that fit the uniqueness of each region, while partnering across the state to improve our communities,” said Heidi Hill Drum, co-chair of the California Stewardship Network and CEO of the Tahoe Prosperity Center.

The UCCE scientists will leverage existing community and economic development efforts, especially in rural parts of the state, and provide vital expertise in business development, agricultural technology, biomass and wood products, disaster recovery, water justice, controlled environment food production, food systems development, urban resiliency and – crucially – digital infrastructure.



"This UCCE investment brings science and solutions that fit the uniqueness of each region, while partnering across the state to improve our communities," said Heidi Hill Drum (center), co-chair of the California Stewardship Network and CEO of the Tahoe Prosperity Center.

"We've long known how important it was to close the digital divide, but COVID really highlighted the absolutely critical need for all families and communities to have high-quality access to the internet," said Glenda Humiston, University of California vice president for agriculture and natural resources.

In rural regions of the state, the pandemic, catastrophic wildfires and increased global competition have been whittling away at rural economies. The "working landscapes" of wilderness areas, farms and ranches provide food as well as wildlife habitat, recreational venues, energy and water. Humiston sees vital opportunities to expand revenue in these areas for rural residents.

"For California to thrive, these working landscapes must be managed to yield economic opportunities now and into the future," Humiston said.

"California needs healthier forests for many reasons – reduced risk from wildfire, producing more water, better habitat and recreation opportunities – but we will not get there if we can't develop valuable uses for the excess biomass that needs to be removed from our forests."





Glenda Humiston, right, announces UC ANR's new partnership with the California Stewardship Network to accelerate economic recovery across the state at the California Economic Summit Nov. 10, 2021. She's joined on stage by California Stewardship Network co-chairs Kate Roberts, left, and Heidi Hill Drum.

Hiring is underway for some of the new UC Cooperative Extension positions; others will be released for recruitment in early 2022. The 16 new UCCE positions and the counties they serve include the following:

1. Rural Community and Economic Development Area Advisor (Del Norte, Humboldt, and Trinity)
2. Agricultural Technology (Intermountain Research and Extension Center in Siskiyou County)
3. Biomass and Forest Products Advisor (Siskiyou, Shasta and Trinity)
4. Broadband Development Area Advisor (Butte, Tehama, Glenn)
5. Disaster Recovery for Housing (Plumas, Lassen, Sierra)
6. Water Justice Policy and Planning Specialist (UC Berkeley)
7. Regional Food Systems Area Advisor (Sacramento, Placer, Yolo, Solano)
8. Regional Food Systems Area Advisor (Amador, El Dorado, Calaveras, Tuolumne)
9. Woody Biomass and Forest Products Advisor, (El Dorado, Alpine, Amador, Calaveras, Tuolumne, and Mariposa)
10. Agriculture Technology Area Advisor, (Monterey, Santa Cruz, San Benito, San Luis Obispo)
11. Technology and Innovation for Small Farms Advisor, (Kearney Agricultural Research and Extension Center in Fresno County)
12. Community and Economic Development Area Advisor, (Inyo, Mono, Northeastern Kern)
13. Water and Community Resilience Area Advisor, (Kern, Kings, Tulare)
14. Community and Economic Development Area Advisor – (Los Angeles, Orange)
15. Woody Biomass and Bioenergy Advisor, (Riverside, San Bernardino)
16. Agriculture Technology Area Advisor, (South Coast Research and Extension Center in Orange County)

Public Value: [UCANR: Protecting California's natural resources](#)

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## What Forest Landowners Should Know About Casualty Losses Before a Wildfire Strikes

Author: **Kim Ingram**

Published on: **October 26, 2021**

Now that the traditional fire season is nearing an end, it is never too late to think about steps to take *before* a wildfire impacts your home and forest. According to the [Cal Fire Incidents Overview website](#), the 2021 fire season to date has either damaged or destroyed 3,629 structures and burned almost 2.5 million acres. For those private forest landowners impacted by these fires, claiming a casualty loss on their federal and state tax returns can help mitigate financial losses.

Larry Camp, a California forest landowner, California Registered Professional Forester, member of Forest Landowners of California, and retired IRS forester, gives us a brief overview of what a casualty loss is and what steps a landowner needs to take in order to determine a loss.

**What is a casualty loss?** In broad terms, a casualty loss for forest landowners is defined as a loss incurred if such losses arise from sudden and unexpected events such as *fire, storm* or *theft*. This resulting damage may directly impact your forest business, trade or other activities that produce a profit.

**Forest ownership type matters.** Tax treatment for casualty losses varies for property held as personal property, for investment purposes, or as a trade/business. Generally, homes within forested subdivisions settings, or smaller acreages, e.g. 5 acres or less, where periodic timber harvest would be marginal for economic reasons, would be considered personal property. Since 2017, casualty losses for federal tax purposes for all types of forest property ownership are generally not deductible unless the loss is within an area declared as a Federally Declared Disaster area. However, property owned and managed as a business may be eligible for a business loss due to a fire or other casualty event. California has not amended its statutes to conform to Federal law as of mid-October 2021.

How much loss a landowner can claim depends on the adjusted basis or the change in fair market value "before" and "after" the occurrence of the casualty.



**What is basis?** Basis is the cost of something when purchased, or received as a gift or inheritance and is used to determine taxable income, capital gains, and casualty losses among other purposes. Because tax treatment varies by asset type, total basis for timbered properties needs to be allocated to different subaccounts such as land, timber, and improvements like roads and structures. It is always best to make the allocation to these accounts at the time of purchase. However, basis can be calculated after the fact with the help of a Registered Professional Forester, an appraiser, and tax advisor.

#### **What steps need to occur in order to claim a casualty loss?**

1. Determine what your basis is.
2. Deduct from your preliminary estimated casualty loss any proceeds from insurance, judicial judgments and/or salvage harvest of dead and damaged timber.
3. For personal property, determine if the property is within a Presidentially Declared Federal Disaster Zone and within the time frame identified in the Disaster Declaration.
4. Ascertain and gather available documentation to demonstrate that the loss was sudden and unexpected, e.g., photos, management plans, harvest records. This is often best done at the time of acquisition of the property, and periodically, such as every 3 to 5 years.
5. Have an appraisal done to reflect the "before" and "after" value of the property. Note that acceptable appraisals will often require the services of a state licensed appraiser or forester with formal appraisal training and must meet required standards.



#### Other considerations and resources...

- Investment and business ownership of forestland have other factors that need to be considered when claiming a casualty loss. Talk with your tax professional to determine the appropriate steps to take.
- Additional consideration for taxpayers who itemize deductions may result in no deductible loss in the year of the casualty. Special provisions for taxpayers who do not itemize deductions also must be considered. Consult with your tax advisor.
- For a much more in-depth explanation of timber casualty loss, please visit Forest Landowners of California website at: [ForestLandowners.org](https://ForestLandowners.org).

Disclaimer: The purpose of this document is educational and is general in nature. It is NOT intended to provide legal or accounting advice, since the facts and circumstances of each taxpayer's individual situation need to be taken into consideration for an appropriate application of the tax law and associated regulations related to the preparation or filing of a completed tax return. Questions should be discussed with your accounting, legal and other appropriate professional advisors.

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Focus Area Tags: [Natural Resources](#)

Tags: [Forest Stewardship](#) (8)

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## Wildfire beyond forests

Author: UC Berkeley College of Natural Resources

Published on: October 7, 2021

Reposted from the [Berkeley ESPM News](#)





"ONLY YOU!" For nearly eight decades, Smokey Bear's face and words have served as an emblematic warning about preventing forest fires, but his age-old motto only describes a tiny piece of the current challenge California faces today. California's devastating wildfires have made global headlines for their ever-increasing size and destructiveness. Much of the political and scientific discussion around these fires, both historic and current, has focused on the state's management of conifer forests. Recent media attention includes former President Trump blaming California's wildfires on poor forest management, specifically on not "raking" forest floors, and the back-and-forth on fires and forest management in California in the 2020 presidential debates. These discussions and the long history of fire science have created the general belief that wildfires are predominantly a challenge affecting conifer forests in California and the people who live in and around them.

A [new study](#) appearing in the journal *Diversity and Distributions* challenges these perceptions. In the study, scientists from the Department of Environmental Science, Policy and Management (ESPM) at UC Berkeley found that the majority of recent wildfires in California have occurred outside of conifer forests. Moreover, the authors showed that fires burning outside of these forests potentially pose a greater threat to biodiversity and are more likely to occur in areas of dense human infrastructure (e.g., near houses). In short, the prevailing focus on forests is misleading and carries potentially dangerous consequences, the authors conclude. They call for a more nuanced approach to wildfire to protect California's unique biodiversity and people.

"Forests are just one piece of the incredible mosaic of ecosystems that make up California," said the study's lead author and current ESPM graduate student [Kendall Calhoun](#). "Ecosystems outside of conifer forests, like California's oak woodland savannahs, also provide key ecosystem services to the people who live around them and support an incredible amount of biodiversity. Understanding how ecosystems outside of conifer forests respond to fire is critical to their future conservation."



To conduct the analyses, Calhoun and the research team mapped out California wildfires from the last twenty years (2000-2020) and examined the land cover composition of each wildfire. They also overlapped the wildfire dataset with areas designated important for conserving biodiversity—specifically, those named Areas of Conservation Emphasis by the California Department of Fish and Wildlife. Their results illustrate that burned shrubland, hardwood, and conifer ecosystems all overlap with areas of special conservation concern for several wildlife species. Tailored management for each of these coarse ecosystem types could be critical for future conservation as megafires become more frequent and extreme, they assert.

The authors found that shrubland wildfires accounted for the largest amount of area burned and that non-conifer wildfires made up nearly two-thirds of the total area burned during this time period. In contrast, research on non-forest California wildfires from the last twenty years made up only 30% of the academic literature. This mismatch highlights a need for more representation of these unique non-forested ecosystems in future wildfire research and management.

“We were surprised that nearly 70% of studies on wildfire in California have focused on conifer forests, but such forests comprise only a third of fires,” said ESPM professor and the study’s senior author **Justin Brashares**. “By many metrics, fires outside of forests pose a higher threat to human well-being and biodiversity. Funding for management and research on the majority of fires occurring in the 68% of California that is not forested should be a state and federal priority.”



Previous research has found that the most effective wildfire management strategies are those that are ecosystem or region specific. The authors argue that to properly face the growing issue of megafire in California, researchers and land managers across the state must expand and diversify strategies to create ecosystem-specific wildfire management strategies and policies. To be successful, the authors add, these strategies must also draw on indigenous knowledge and leadership, which could help identify tools that can protect landscapes, wildlife, and people from future extreme wildfires.

Additional authors of this study include current ESPM PhD candidates Amy Van Scoyoc, Phoebe Parker-Shames, and Millie Chapman; recent ESPM PhD graduates Carmen Tubbesing, Alex McInturff, Christine Wilkinson, and Dave Kurz; and Kaitlyn Gaynor, an ESPM alum and current postdoctoral

fellow at the National Center of Ecological Analysis and Synthesis.

Public Value: [UCANR: Promoting healthy people and communities](#)

Focus Area Tags: [Environment](#)

Tags: [Justin Brashares](#) (1), [oak woodland](#) (5), [wildfire](#) (65)

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