



## December 2022

Brought to you by Hawai'i Wildfire Management Organization and University of Hawai'i Cooperative Extension, CTAHR, Fire & Ecosystems Program. Partner submissions encouraged!

### Weather & Climate Outlook

The recent Kona low pressure system that swept across Hawai'i brought flooding to some areas, but will hopefully bring some much needed fire risk relief for many leeward areas. We will be keeping our eyes out on the fuels green-up, but things should live up to the predictions for low fire risk across the Hawaiian Islands in the new year by the National Interagency Fire Center (first link below):

- [National Significant Wildland Fire Potential Outlook](#) December 2022 through March 2023
- US [Drought Monitor for Hawaii](#) - current conditions

- [Hawaii and USAPI Climate Summary - 4th Quarter 2022](#)

## Pacific Fire Exchange (PFX) Highlights

**PFX FACT SHEET** Intended Audience: land managers & researchers

Pacific Fire Exchange Climate Change Series | September 2022

### Changing Climate and Wildfire in Hawai'i: Current Observations and Future Projections

As the climate crisis intensifies, weather extremes and environmental impacts such as drought, intense rainfall and wildfires are expected to increase in Hawai'i with the most drastic effects expected by mid-century.

**As our climate warms, Hawai'i as we know it is changing.**



Weather extremes such as drought and intense rainfall are already happening and are expected to become more frequent as the climate warms, causing fires to be more frequent, widespread & last longer lasting.



More than 25% of the state is dominated by non-native grasses, making our landscape especially sensitive to more variable and unpredictable rainfall. Vegetation "green-up" after rainy events followed by drought creates high fire risk in both leeward and windward areas.



The largest increase in future fire risk is expected across upper elevation areas. This may pose challenges for ground water recharge, ecosystem conservation & fire suppression since road and water access in these areas are typically limited.

### Regional spotlight

#### Mauí 2019 fires

With little rain and record-breaking heat, more than 25,000 acres burned on Maui island in 2019. This marked the island's worst fire year ever.

Specifically, multiple fire responders pointed to climate change, in particular, when discussing the 9,000 acre Waiko Road Fire. They said that the speed and intensity of this grassland fire was something they "had never experienced before." Along with high winds, the temperature topped 93 degrees at Kahului, 9 degrees above average, with very low relative humidity (34%).

As a result, the fire growth was explosive with little chance for containment and incredibly dangerous conditions for fire responders and the community. The Waiko Road Fire also threatened Maui Electric Co.'s Ma'alaea Power Plant that supplies electricity to 80% of the island.

This fact sheet was co-produced by Hawai'i Wildfire Management Organization and University of Hawai'i Cooperative Extension Wildland Fire Program on behalf of the Pacific Fire Exchange project, which is funded by the Joint Fire Science Program. Photo credits: U.S. Drought Monitor and The Maui News/Matthew Thyne.

### Wildfire Predictions From Historical Trends

#### Fire Science Summary

Authors: Clay Trauernicht, Nathan DeMaigd  
University of Hawai'i, Dept. Natural Resources and Environmental Management

**Scope & Methodology**

- Using an analysis developed for Hawai'i Island<sup>1</sup>, fire probability maps for the state of Hawai'i were created using historical large fires (>50 acres, 1999–2018), grass and forest cover, and short-term and long-term rainfall prior to each fire.<sup>2</sup>
- Two types of fire probability prediction maps were made: (1) combinations of heavy rainfall and drought based on historical rainfall<sup>3</sup> and (2) future climate scenarios (Fig 2).<sup>4,5</sup>
- These fire maps present categories of fire risk as low, moderate, high and very high based on fire probabilities predicted for historical fires in each county.<sup>6</sup>

**Historical fire & rainfall data point to the increased risk of wildfires due to vegetation buildup during rainy periods.**

**Results based on Historical Rainfall**

- The most dramatic increase to fire risk occurs with long-term (12 month) excess rainfall followed by short-term (3 month) drought (upper left, Figure 1) due to grassy fuels build up.
- Although most fire risk tools and alerts (e.g. red flag warnings), focus on short term drought, understanding longer-term rainfall trends is critical for assessing fire risk in Hawai'i.

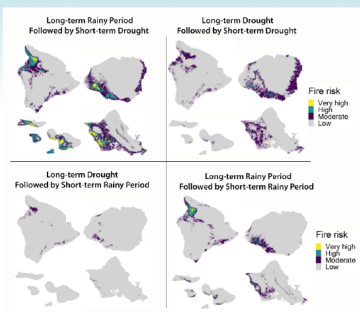


Figure 1. Fire risk scenarios for the main Hawaiian Islands under different combinations of long-term (12 month) and short-term (3 month) cumulative rainfall. "Wet" and "Dry" were defined as the 75th and 25th percentiles of historical rainfall, respectively. Clockwise from top: Hawai'i Island, Kauai, O'ahu, Maui Nui (not to scale).

[pacificfireexchange.org](http://pacificfireexchange.org)

And speaking of climate, weather and fire, **new factsheet alert!** Since the climate crisis is affecting Pacific islands in real time, now more than ever we need to understand what the wildfire projections tell us for the future. As requested, our UH Mānoa fire researchers **Dr. Clay Trauernicht and Nate**

Check out or download the latest 3-page wildfire and climate change factsheet [HERE](#).

## Partnerships in Action



For the past decade, Hawai'i has been working towards aligning our wildfire management priorities and strategies to the framework set forth

forward across the country by the Wildland Fire Leadership Council (WFLC), an intergovernmental committee of federal, state, tribal, county, and municipal government officials convened by the Secretaries of the Interior, Agriculture, Homeland Security, and Defense in 2002 for purposes of promoting consistent wildland fire policies, goals, and management activities across the U.S.

On December 13 -15, the Hawai'i Wildfire Management Organization and wildland fire managers from Hawai'i's county, state, and federal fire agencies joined the WFLC during their annual strategic planning meeting on Hawai'i Island. In addition to assessing progress towards goals and planning next initiatives, **Hawai'i representatives were able to bring mainland partners up to speed on Hawaii's fire ecology, our mitigation challenges, our collaborative programs to educate and mitigate, and our post-fire stabilization needs and recovery goals.** We were given time and space to advocate for and brainstorm next steps for building up Hawai'i's capacity to address wildfire to a level that matches our true risk and need.

After 3 days of presentations, discussions, and a learning field tour, many from **WFLC expressed a deeper understanding of our wildfire situation and needs** along with feeling a greater sense of friendship and mutual partnership toward wildfire progress in our region. HWMO wishes to express our heartfelt gratitude for the time spent together, the exchange of technical information and ideas, and the efforts so many went to to make the events useful, informative, and impactful.

News article to note:

- [Fire managers from around the country take post-fire tour of Māna Road fire](#) (Big Island Now, December 17, 2022)

(Photo credit upper left: Department of Land and Natural Resources)

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## Hometown Heros



It wasn't all work--we got to play together too! After years of working together yet separately (during the two+ years of the pandemic), Wildland Fire Leadership Council members, fire departments, state and federal partners, Hawai'i Wildfire Management Organization board members, staff, and community members mixed it up in person at the Fish and Hog restaurant kick-off dinner in Waimea, Hawai'i. We celebrated the close ties that bind us through the shared work of pre-fire emergency planning, wildfire response and so much more.

## From Our Partners

Western Forestry Leadership Coalition (WFLC) recently released [The True Cost of Wildfire in the Western U.S](#) (November 17, 2022). It provides information on the full range of costs associated with wildland fire in order to inform leaders and policymakers as they work to improve wildfire response and mitigation.

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## Hawai'i and Pacific: Webinars, Research, Reports and News

- [Easter Island rebounds from wildfire that singed its statues](#) (West Hawai'i Today, December 17, 2022)
- [Parker Ranch sued over farmland wildfire](#) (Star Advertiser, Dec. 16, 2022)
- [Maui County's first Climate Action and Resiliency Plan now available online for public comment](#) (Maui County press release, December 12, 2022)
- Webinar Recording: The Resist-Accept-Direct Framework for Climate Adaptation. Watch it [HERE](#). Ecosystems across the Pacific are transforming due to climate change and invasive species. How can

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Ecosystems Research Center.

- [West Oahu residents take matters into their own hands as threat of brush fires loom](#) (Hawaii News Now, Dec. 5, 2022)

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## Fire Adapted Communities Learning Network

[Farming through Wildfire Season: The Key Role of Farmers in Building Wildfire Resilience](#) (Dec 8, 2022)

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## Other Meetings, Conferences and Courses

- Webinar Recording: 2022 Virtual Island Biosecurity Workshop, The Nature Conservancy and Pacific RISC. View the Workshop Day 1 [HERE](#) and Day [HERE](#).
- [Coral Restoration: Sharing Knowledge for the Enhancement of Restoration Practices](#) (Jan 11, 2023 10:00 AM EST). Coral Restoration Foundation (CRF) has been working to reverse the functional extinction of endangered reef-building corals and restore coral reefs in Florida (USA) since 2007. In that time, CRF has returned over 215,000 corals to

- [2023 Climate Week hosted by the UH Mānoa East West Center](#) is January 9 - 11, 2023. Register [HERE](#).
- Call for abstracts for the [2023 Hawai'i Conservation Conference - 30th Anniversary](#) (read more about it [HERE](#)). Theme is “Aia i hi'ikua, i hi'ialo – Reflecting on our Past; Dreaming on our Future.” Abstract submissions are now being accepted [HERE](#) and are due by February 24th, 2023.
- Call for abstracts for the [10th World Conference on Ecological Restoration](#) to be held in Darwin, Australia September 26 - 30, 2023. Submit your abstracts [HERE](#) by 5 February 2023.
- [5th Marianas Terrestrial Conservation Conference and Workshop](#), February 21 - 23, 2023—in person and streamed virtually. This conference is free to the public and seeks to inform residents of the Marianas, as well as researchers, scientists and cultural practitioners about science and conservation projects being conducted in the Marianas. Register [HERE](#).

## National News & Policy

- [Deputy Secretary Beaudreau Announces \\$228 Million for Wildfire Mitigation and Resilience from Bipartisan Infrastructure Law](#) (US Department of Interior press release, December 14, 2022)
- [Setting ambitious international restoration objectives for terrestrial ecosystems for 2030 and beyond](#) (Leadly et al, December 6, 2022)

- [Biden Administration Releases Environmental Justice Screening Tool](#) (White House, November 22, 2022)
- [Wildfire burn scars can intensify and even create thunderstorms that lead to catastrophic flooding – here's how it works](#) (The Conversation, September 10, 2021)
- [Wildfires: Burning Through State Budgets](#) (Pew Charitable Trusts, November 30, 2022)
- [USDA Forest Service signs 11 new agreements to advance tribal co-stewardship of national forests](#) (USDA Press Release, November 30, 2022)
- [The US Forest Service Life First safety initiative: Exploring unnecessary exposure to risk](#) (USDA Forest Service, November 29, 2022)
- [Good Fire: Current Barriers to the Expansion of Cultural Burning and Prescribed Fire in California and Recommended Solutions](#) (Karuk Tribe)

## National and International Research and Reports

- [Major fires an increasing risk as the air gets thirstier, research shows](#) (Nature Communications, University of Melbourne, November 29, 2022)

## Webinars, Interviews, and Learning through Stories

- VIDEO: [Trees Won't Save Us](#), a new educational video produced by [MinuteEarth](#)
- The [Wildfire Crisis Strategy Story Map](#) covering 10 landscapes across Washington, Oregon, California, Idaho, Montana, Colorado, New Mexico, and Arizona

## Jobs

- Nāpuʻu Conservation Project (Puʻuwaʻawaʻa, Hawaiʻi Island):  
[RESTORATION & OUTPLANTING FIELD ASSISTANT](#) (deadline 1/6/2023); [FIRE OUTREACH ASSOCIATE](#) (deadline 12/16/22); [FIELD ASSISTANT](#) (deadline 1/6/2023)

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