

DOCKETED

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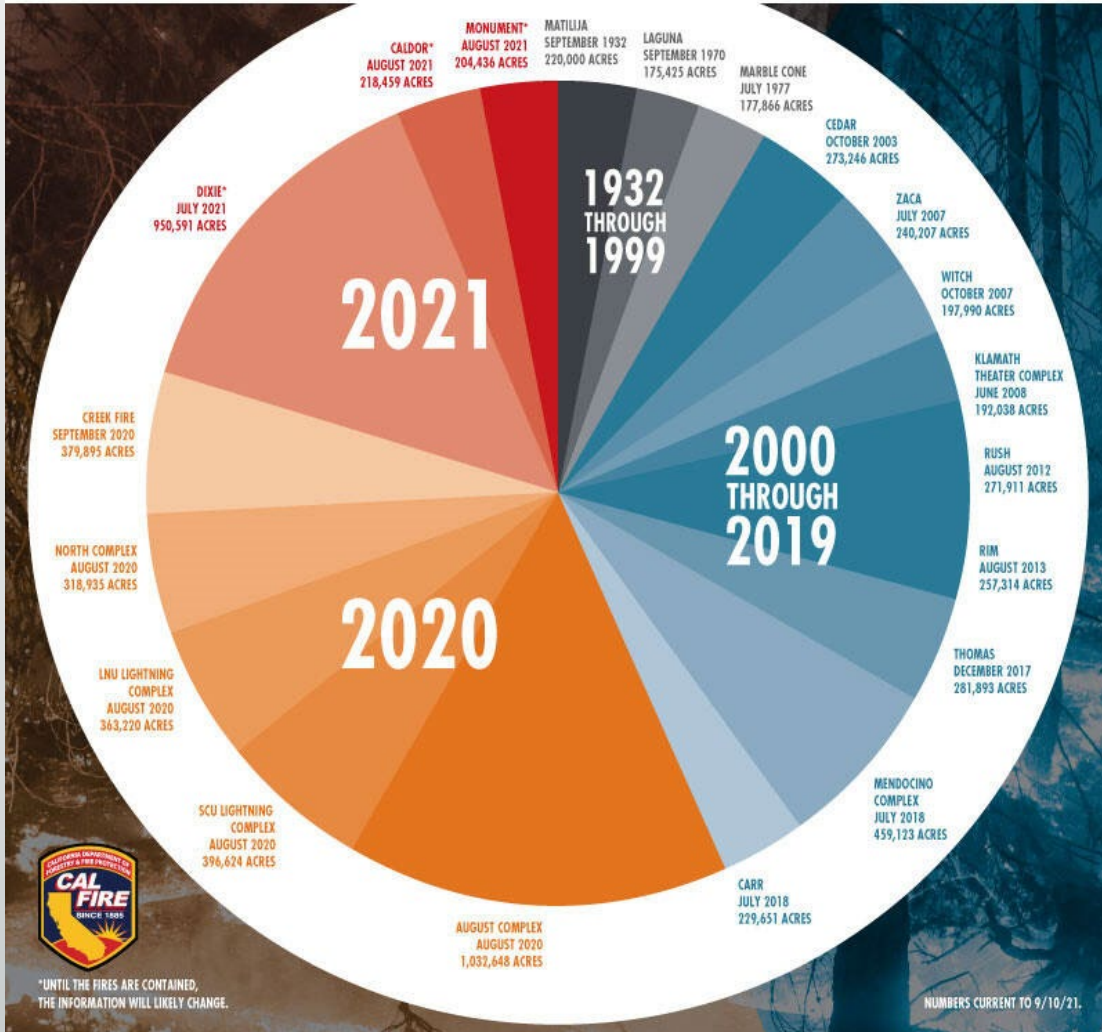


CAL FIRE Intel decision support using Science and Technology

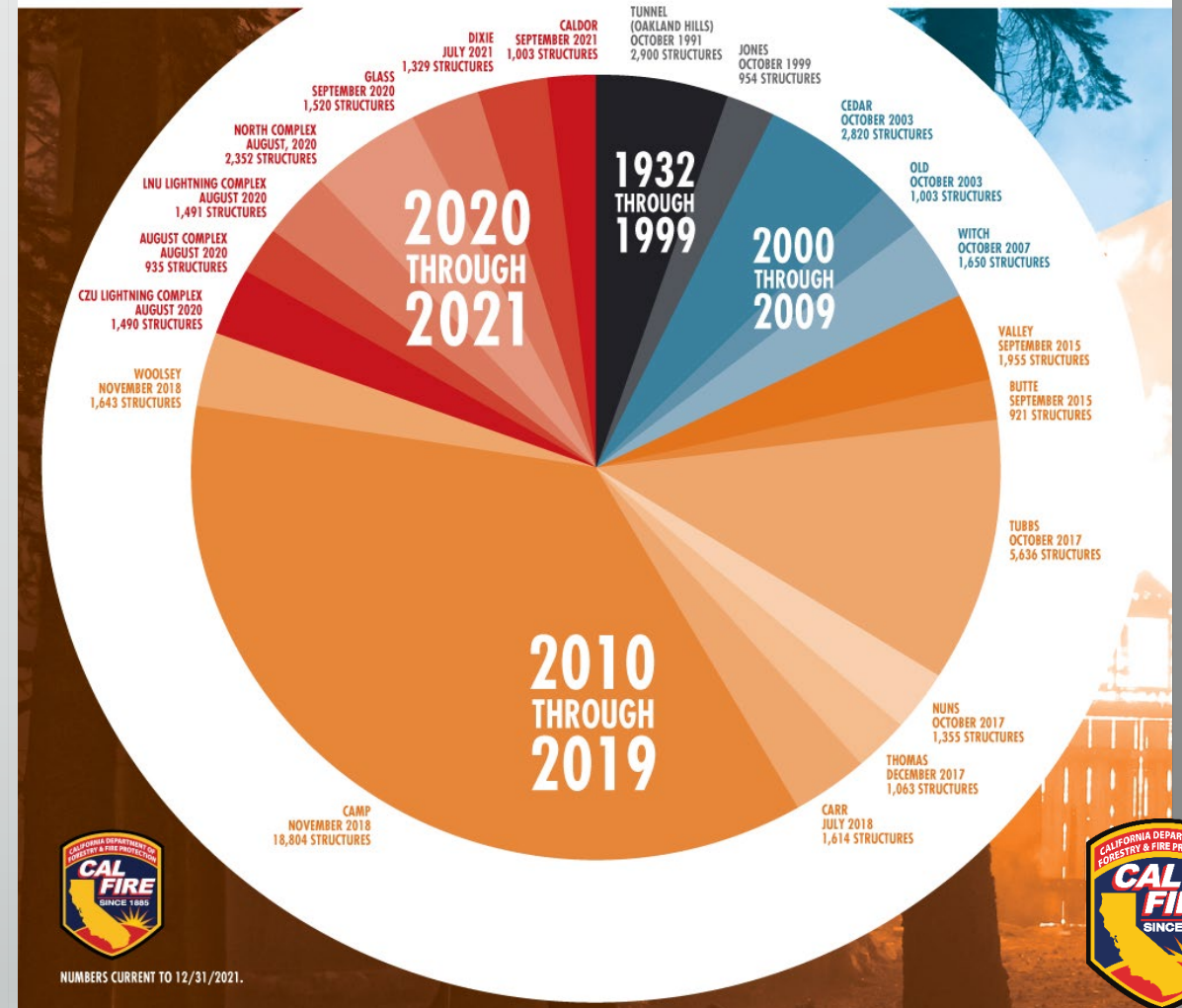


EXTREME WILDFIRES IN CALIFORNIA

TOP 20 LARGEST CALIFORNIA WILDFIRES



TOP 20 DESTRUCTIVE CALIFORNIA WILDFIRES



INTEL PROGRAM

Functions Pre – During – Post

Strategic and Tactical products

Office locations

Northern Region HQ Redding

Southern Region HQ Riverside

Sacramento HQ Rancho Cordova

Unit Personnel Research Data Specialist (RDS-2)

Synthesizing Technologies



PARTNERS

- Federal agencies
USFS- DOI- NOAA- NASA
- California Military Department
- Department of Defense
- Universities
UCSD- Berkeley- San Jose State
- Non-Profit Orgs – Consortia



U.S. Department of Defense



WILDFIRE THREAT INTEGRATED INTELLIGENCE CENTER (WFTIIC)

STATEWIDE
DAILY
PRODUCT

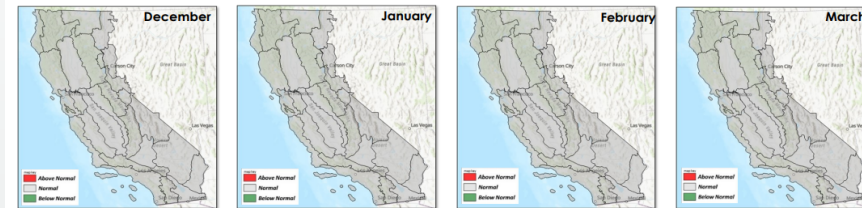
Daily Risk
Potential

WFTIIC Four Month Outlook

Visit WFTIIC Hub @ <https://wftiic.ca.gov> for more information | Created: December 1, 2023



Significant Fire Potential | December 2023 - March 2024



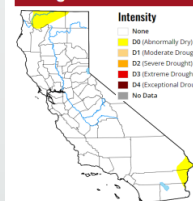
Northern Operations

- Offseason period from December through March with episodic moisture events and low elevation green-up.
- Active storm track periods expected during December and January with generally above normal temperatures.
- Less confidence in the February-March period but above normal temperatures should continue.
- Significant Fire Potential is normal for December through March which means very little if any activity.

Southern Operations

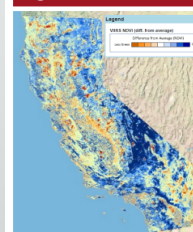
- The odds show a slight to moderate tilt in favor of a cooler and wetter December 2023 – March 2024 forecast period.
- The odds tilt towards above normal dead fuel moisture to occur for the majority of the forecast period.
- The odds tilt strongly towards El Niño conditions to persist for the entirety of the forecast period.

Drought Monitor



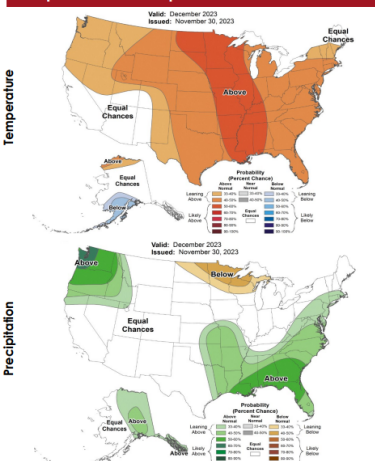
Overall, the West has gotten off to a slow start in terms of snowpack conditions across the region except for some basins in the southern tier of the region. In California, the California Cooperative Snow Surveys reports statewide snowpack conditions at 30% of normal for the date (11/29). For the week, average temperatures were below normal across most of the region with areas of the Intermountain West experiencing departures ranging from 4 to 10 degrees F below normal.

Vegetation Growth & Normalized Difference Vegetation Index (NDVI)

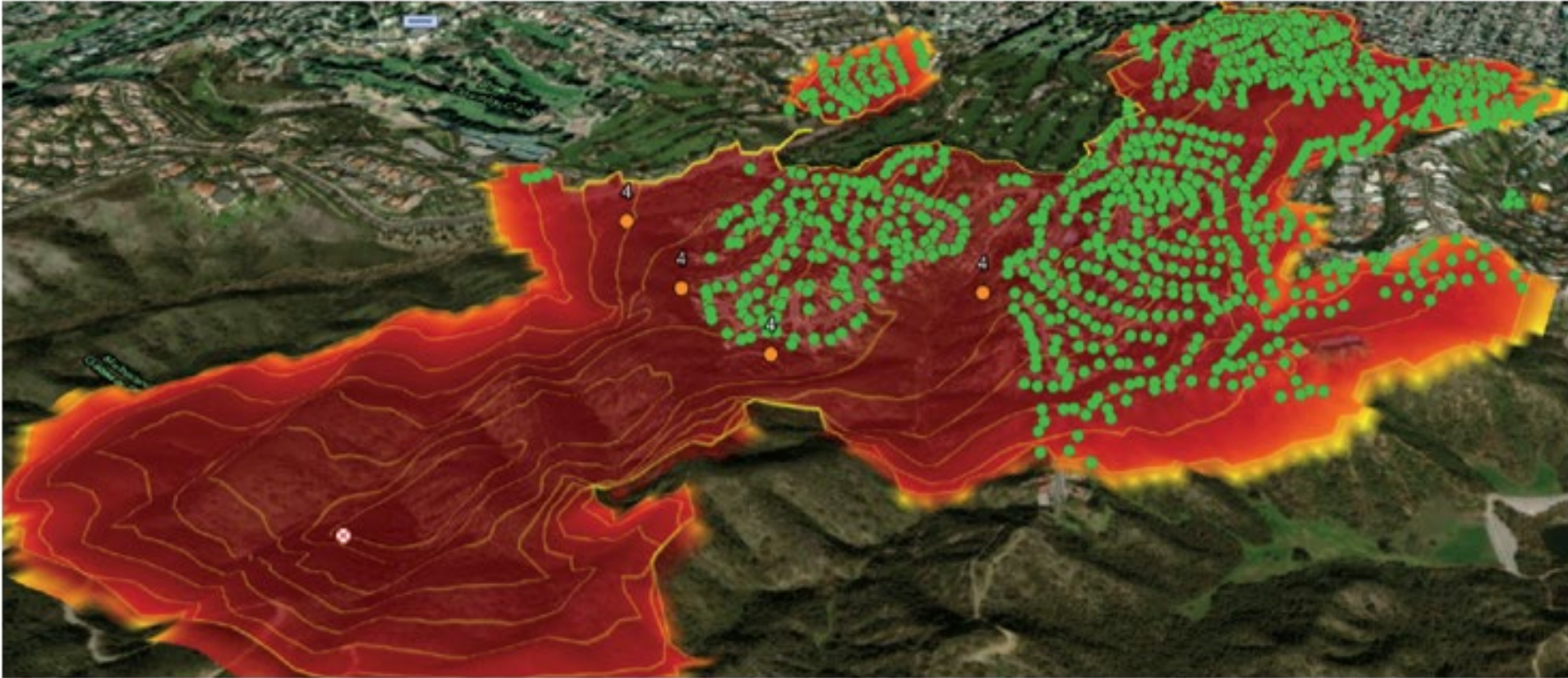


The NDVI measures the greenness and the density of vegetation remotely sensed from imagery. The darker areas in the adjacent image reflect how a wetter year allowed vegetation to grow longer and denser. If California experiences another wet winter, this could increase moisture levels in plants and promote a similar pattern of growth and potentially compounding the fuel loading. Plants with high moisture content will help to delay the upcoming fire season. However, a drier winter can inhibit current vegetation growth and stress last year's vegetation current growth adding to the fire risk potential for 2024.

Temperature & Precipitation



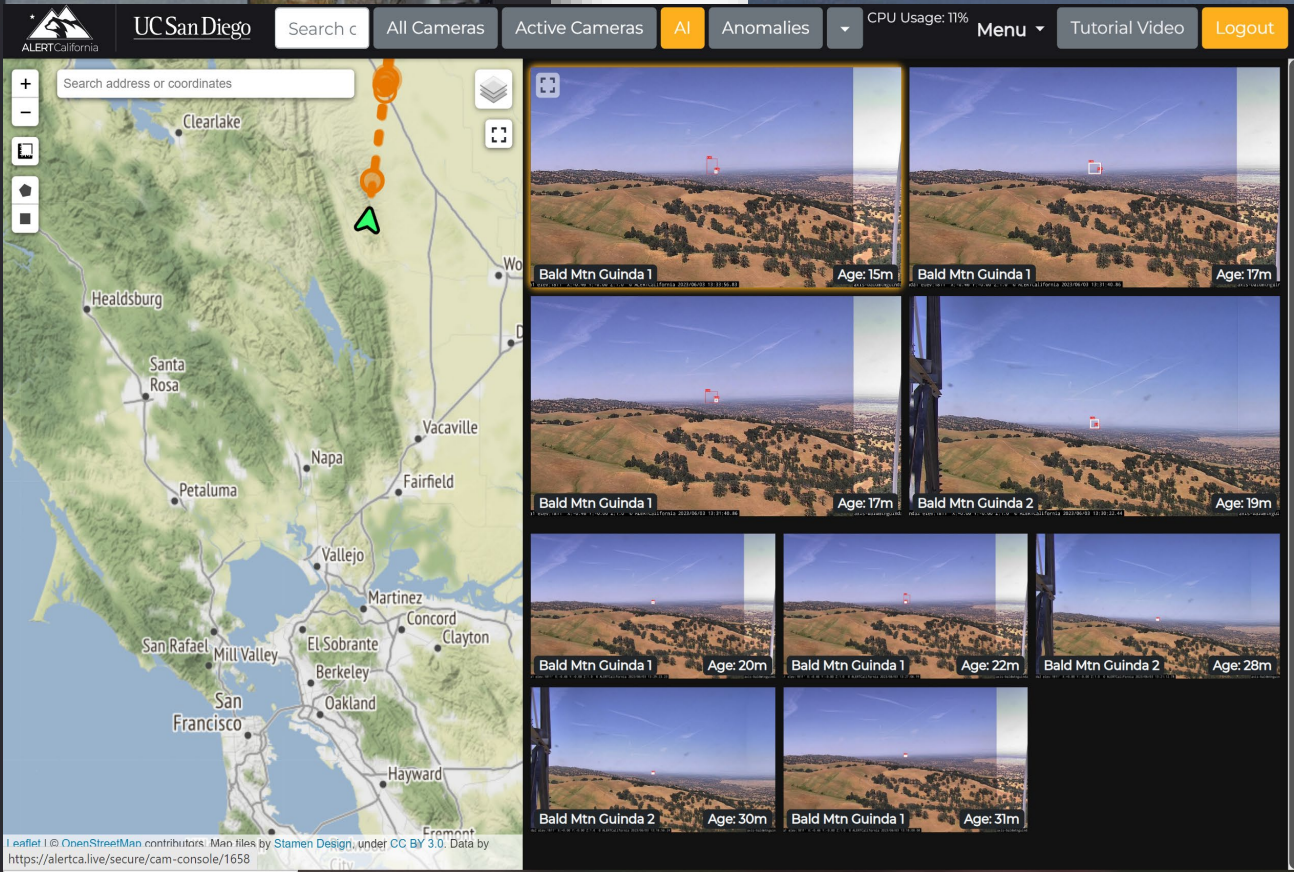
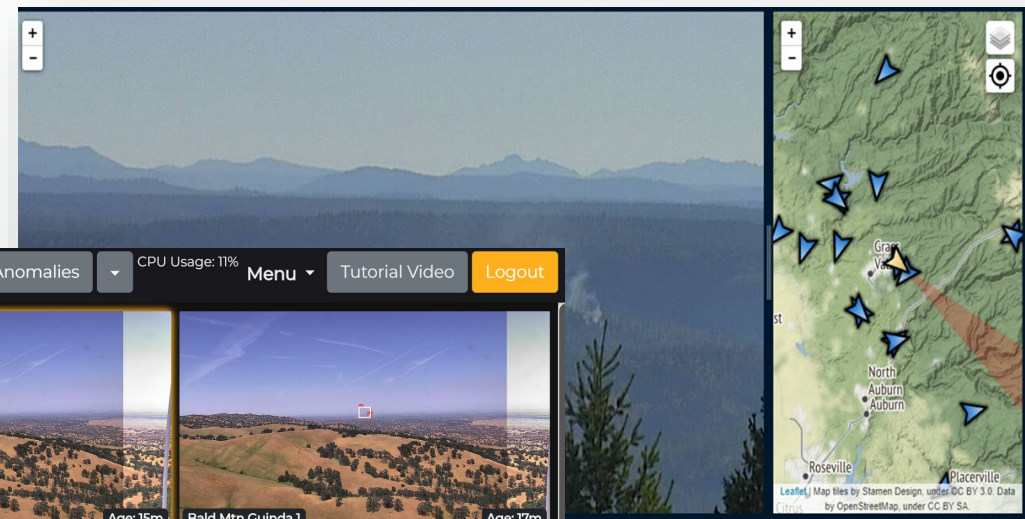
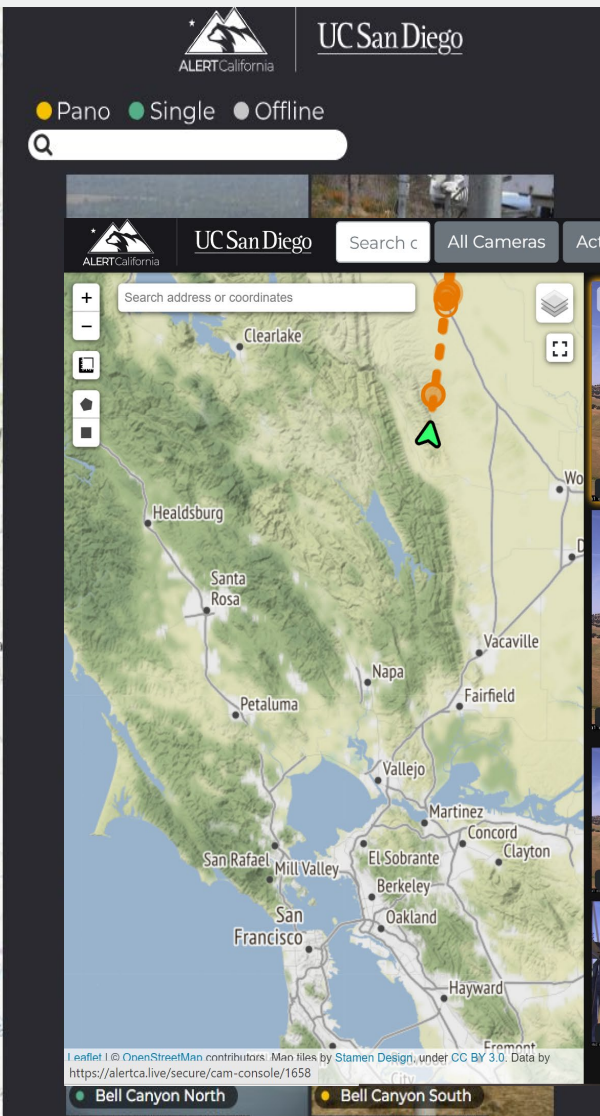
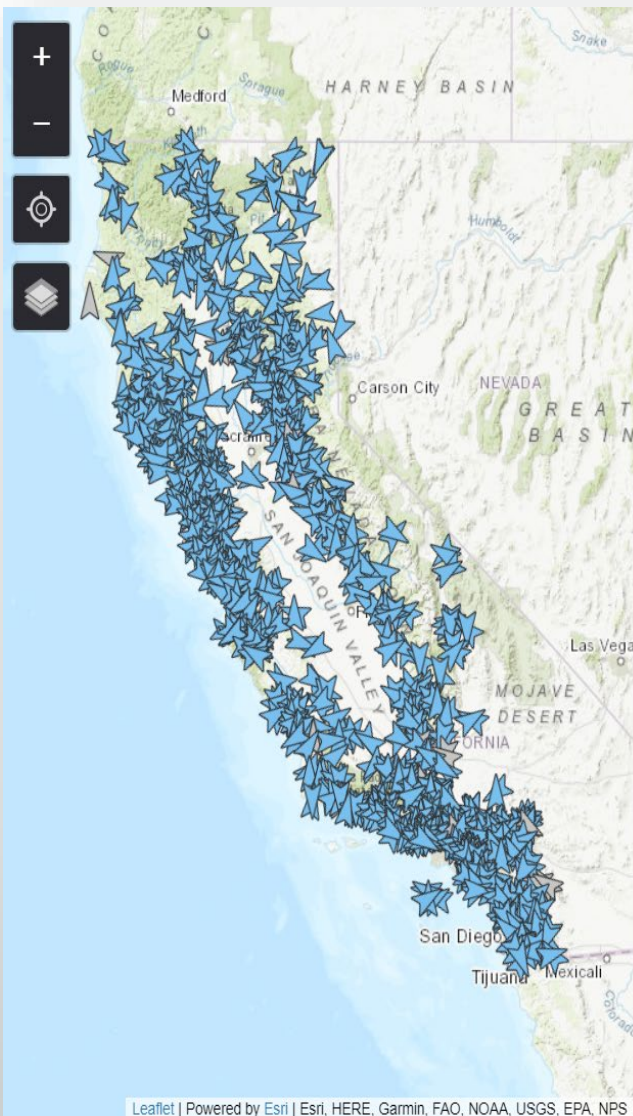

DATA DISSEMINATION - RISK



Wildfire Risk = The combination of probability of an ignition and the consequences.



ALERTCALIFORNIA.ORG



California National Guard FireGuard

UNCLASSIFIED

NATIONAL GUARD



FIREGUARD

Mission Statement:

FireGuard analysts exhaust all means to aggregate, analyze and assesses multi-source near real-time remote sensing information, and disseminate timely and tailored products to wildfire fighting interagency partners nationwide in order to inform operational decisions on the ground when lives and property are on the line and every second counts.

Overall Classification:
Controlled Unclassified Information

Contains CUI
Controlled by: CAARNG
CUI Category: OPSEC
Distribution/Dissemination Control: None
POC: Blaine Villados, 916.369.4996

CA - FG

UNCLASSIFIED



DATA COLLECTION

Incidents Active Incidents Over 10 Acres - Dynamics 365

https://orgf9247f35.crm9.dynamics.com/main.aspx?appid=5c903534-501c-ee11-8f6d-001dd806f7e2&pag...

Dynamics 365 | Power Intel CRM

Search

Show Chart | + New | Refresh | Export to Excel

Active Incidents Over 10 Acres

Edit columns | Edit filters | Filter by keyword

Internal Id	Incident Name	Acres	Containment	Uncontained Acres	Incident Status	Last Updated Source
INC-001...	Mosquito	6,048.27	19.00	4,899.10	Active	IRWIN
INC-001...	DEEP	4,198.00	90.00	419.80	Active	IRWIN
INC-004...	QUARRY	596.00	0.00	596.00	Active	IRWIN
INC-001...	Kelly	94,170.00	82.00	16,950.60	Active	IRWIN
INC-001...	HAPPY CAMP COMPLEX	35,008.06	58.00	14,703.39	Active	ICS 209
INC-001...	UFISH	7,556.37	58.00	3,173.68	Active	IRWIN
INC-001...	SWILLUP	2,147.00	100.00	0.00	Active	IRWIN
INC-001...	CANYON	1,108.00	100.00	0.00	Active	IRWIN
INC-001...	THREE CREEKS	320.00	100.00	0.00	Active	IRWIN
INC-001...	MALONE	976.00	100.00	0.00	Active	IRWIN
INC-001...	ELLIOT	13,626.88	59.00	5,587.02	Active	IRWIN
INC-001...	2023 SRF Lightning Complex	33,093.62	7.00	30,777.07	Active	ICS 209
INC-002...	Smith River Complex	93,559.40	79.00	19,647.47	Active	ICS 209

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Wildfire Technology: Leveraging Private and Public Investments for Impact

Paula Uniacke
Director of Impact
DBL Partners

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DOUBLE BOTTOM LINE VENTURE CAPITAL

DBL PARTNERS

DOUBLE BOTTOM LINE VENTURE CAPITAL

First Bottom Line

Top tier Venture
Capital returns

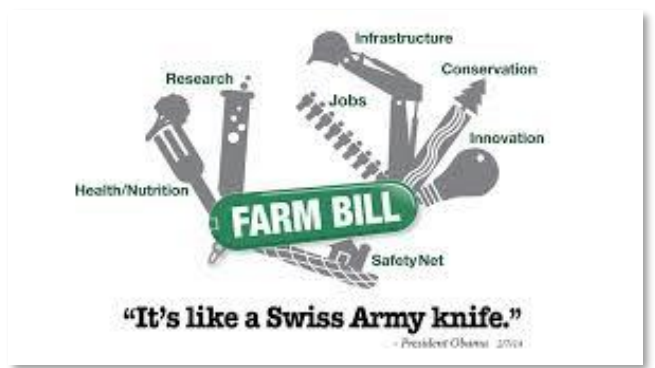
Positive social,
environmental and
economic impact

Second Bottom Line



Policy plays an important role in creating virtuous cycles

Farm Bill



Land use



All-Electric Mandates and Natural Gas Bans

ITC

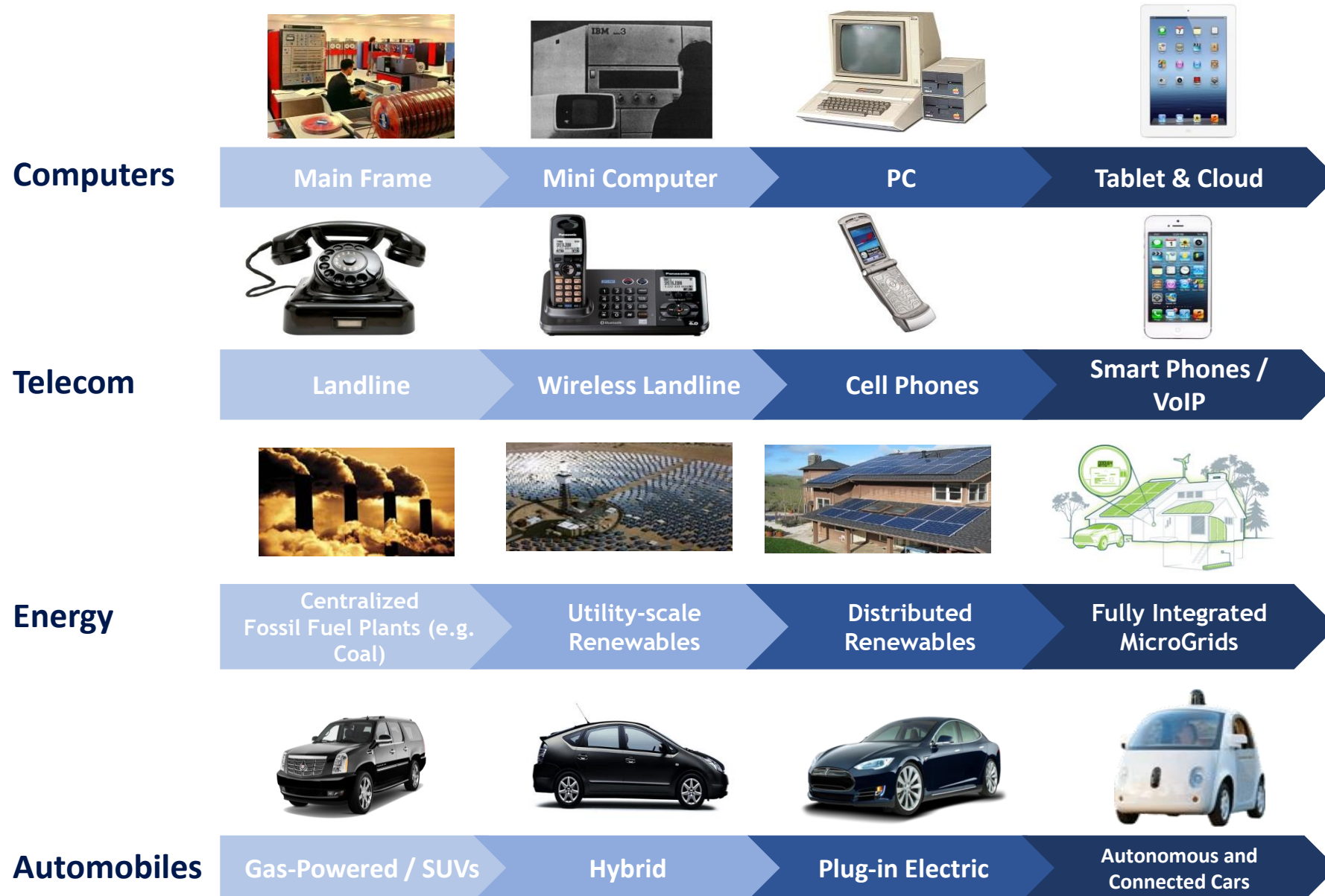


Wildfire and Forest Resilience Spending



Cap and Trade

When policy meets innovation, things really take off



PIONEERING THE REGENERATIVE COFFEE REVOLUTION



A nighttime photograph of a city skyline, likely San Francisco, with the Transamerica Pyramid as the central focus. The sky is filled with a thick, orange-brown haze, suggesting a wildfire. The city lights are visible through the haze, and the water of the bay is in the foreground. A semi-transparent white banner is overlaid across the middle of the image.

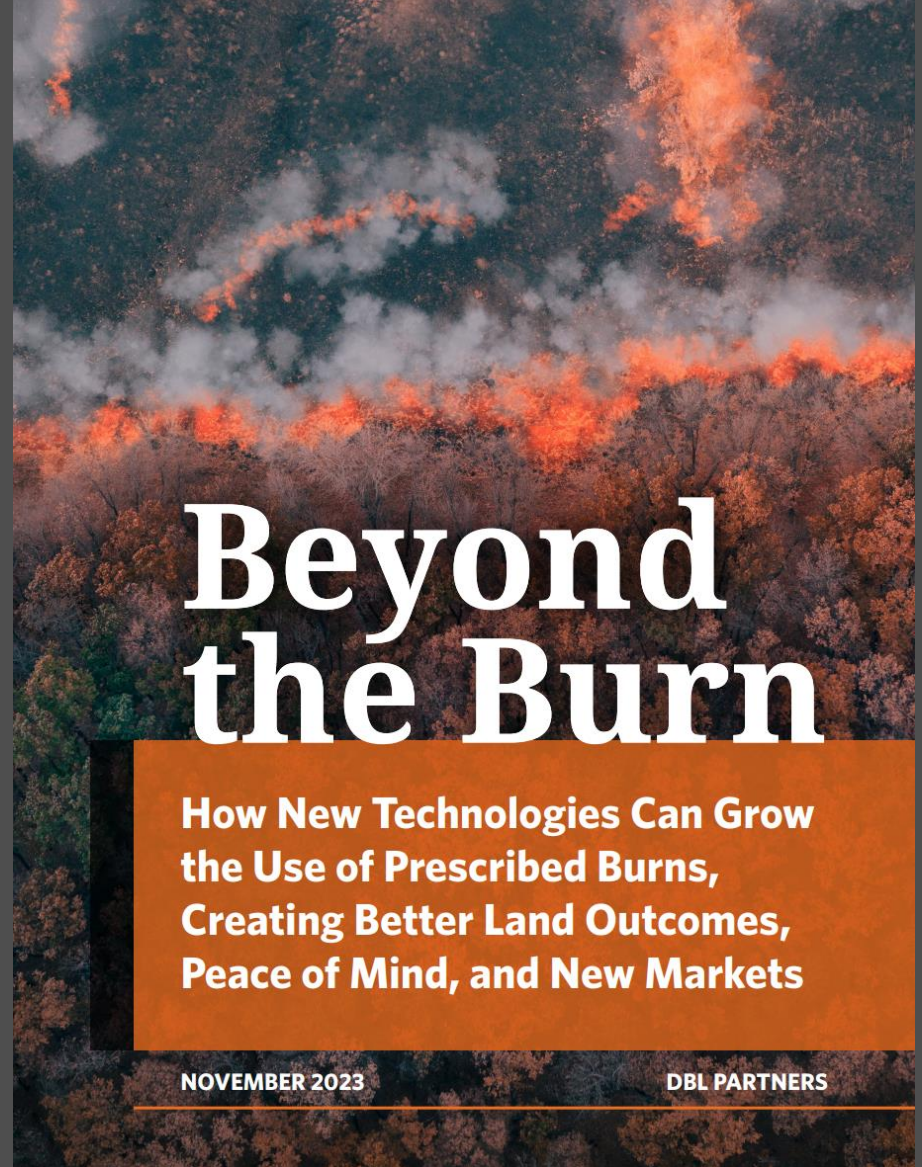
The Wildfire Problem



forests of innovation

Models for Reimagining
the Future of Forests

Vincent Caruso
Lisa Hagerman
Nancy Pfund
DECEMBER 2020
DBL PARTNERS



Beyond the Burn

How New Technologies Can Grow
the Use of Prescribed Burns,
Creating Better Land Outcomes,
Peace of Mind, and New Markets

NOVEMBER 2023

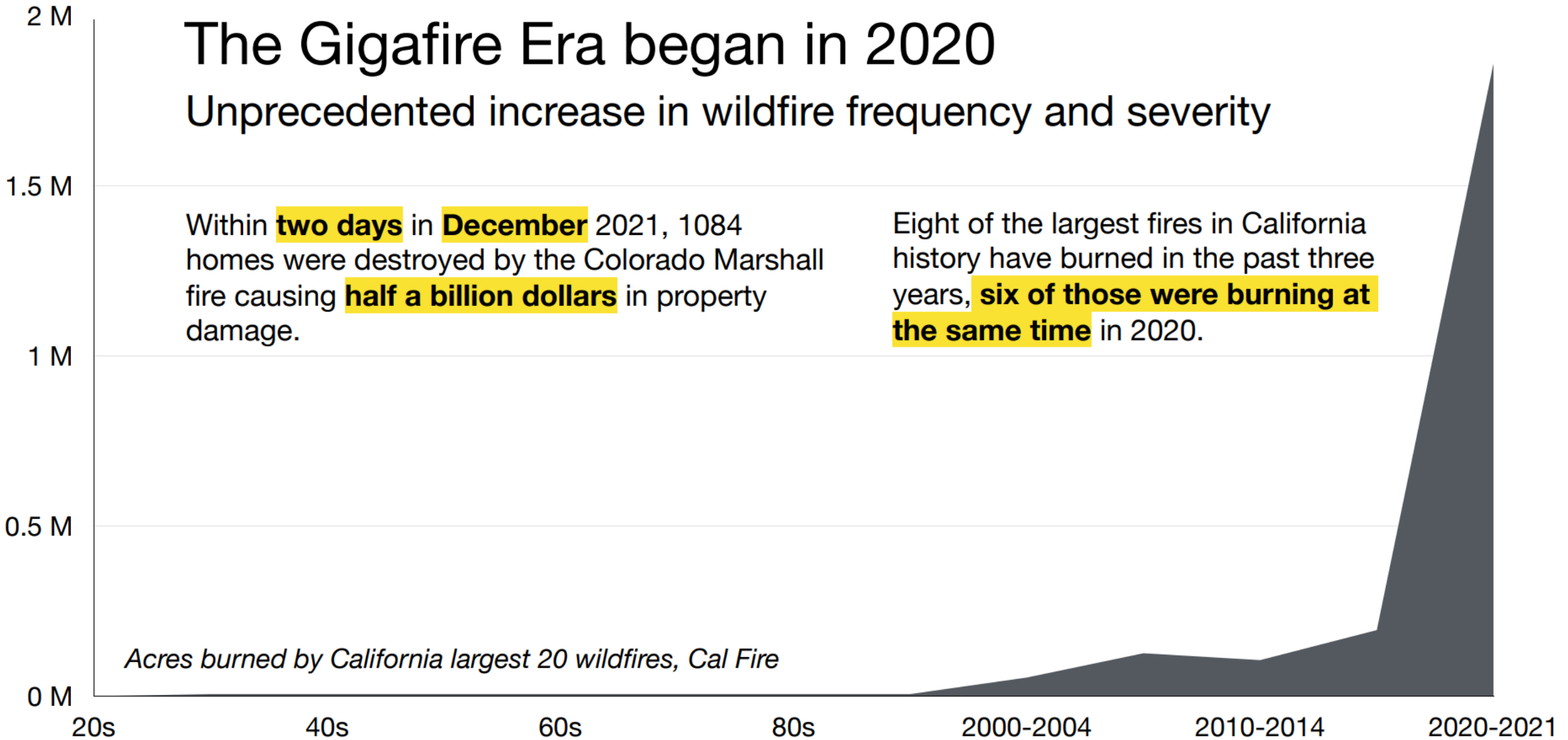
DBL PARTNERS

The Gigafire Era began in 2020

Unprecedented increase in wildfire frequency and severity

Within **two days** in **December** 2021, 1084 homes were destroyed by the Colorado Marshall fire causing **half a billion dollars** in property damage.

Eight of the largest fires in California history have burned in the past three years, **six of those were burning at the same time** in 2020.



Acres burned by California largest 20 wildfires, Cal Fire

The world is on fire

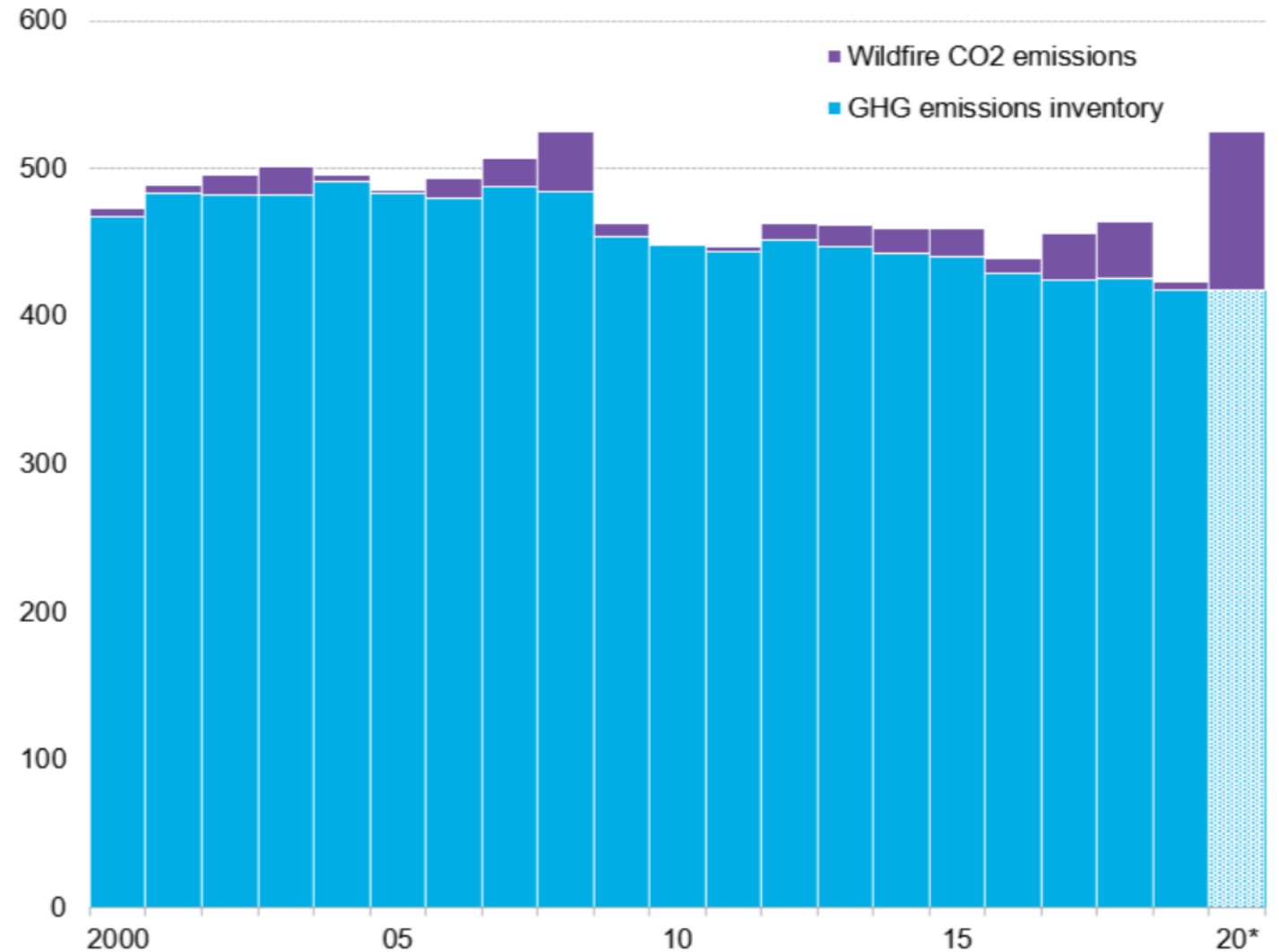
Wildfire will cost the global economy \$3.6 Trillion by 2050

	California	United States	World
Human Impact	3,652 deaths attributed to 2018 California wildfire smoke. 104 direct deaths - <i>Nature</i>	1 in 6 Americans live in areas with significant wildfire risk in 2022 - <i>Washington Post</i>	Projected global increase of extreme fires of up to 14% by 2030 - <i>United Nations Environment Program</i>
Environmental Damage	California's 2020 wildfires undid all GHG emissions progress over the last two decades - <i>California Air Resources Board</i>	10.1 million acres burned in 2020, 196% increase since 2010 US - <i>National Interagency Fire Center</i>	18% of 2021 global fossil fuel CO ₂ emissions generated by wildfire - <i>EU Copernicus Atmosphere Monitoring Service</i>
Financial Cost	\$148.5B in economic damage from 2018 California Wildfires (0.7% of US GDP) - <i>Nature</i>	\$348B/year in US wildfire costs and losses - <i>US Department of Commerce</i>	\$3.6 Trillion - cost of climate change attributable to wildfire by 2050



A single wildfire season undid all progress in reducing Greenhouse Gas Emissions in California over the last two decades

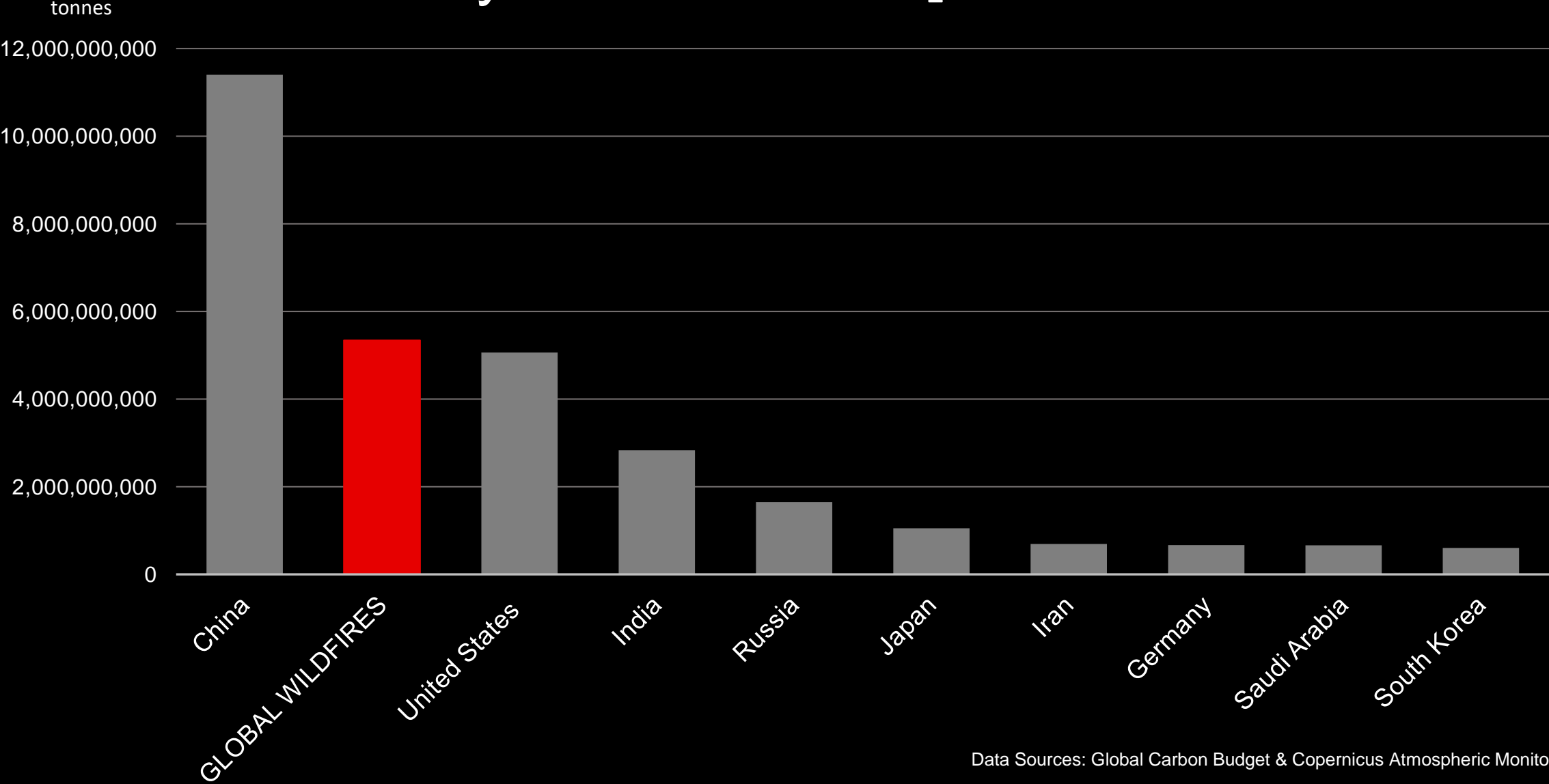
California GHG emissions (Mt CO₂e)



Source: California Air Resources Board

Note: 2020 ARB inventory values kept constant from 2019. Actual value will vary

2022 Wildfire CO₂ emissions ranked against country fossil fuel CO₂ emissions



Data Sources: Global Carbon Budget & Copernicus Atmospheric Monitoring Service



The Economic, Fiscal, and Environmental Costs of Wildfires in California

James Paci, Matthew Newman, and Tim Gage

JUNE 27, 2023

GORDON AND BETTY
MOORE
FOUNDATION

Summary of annual wildfire-related costs in California (2017-2021 average)

Annual losses due to wildfire	Cost (in millions)
Total economic loss in CA	\$117,423
State fiscal loss (subset of total economic loss)	\$5,035
Climate impact (global)	\$1,168

***The good news:* A 15-minute reduction in average response times could be expected to generate \$3.5-\$8.2 billion in economic benefits & \$150-\$350 million in fiscal benefits**

From Niche to Developing a Groundswell of Support

2021

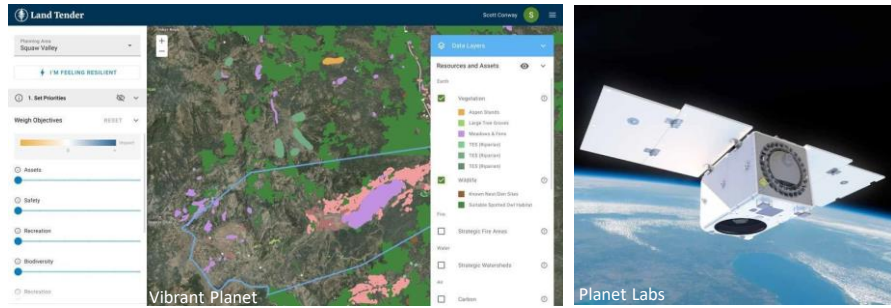


2023



Wildfire Technology Spectrum At a Glance

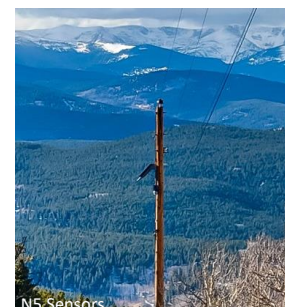
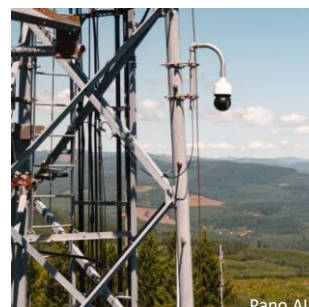
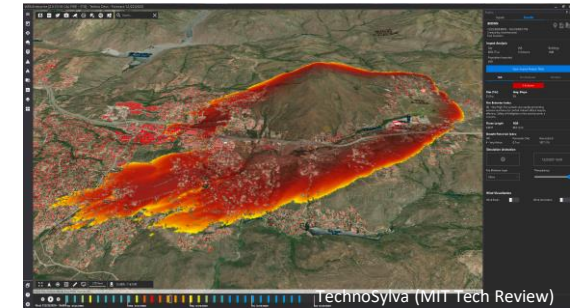
Forest & Land Management



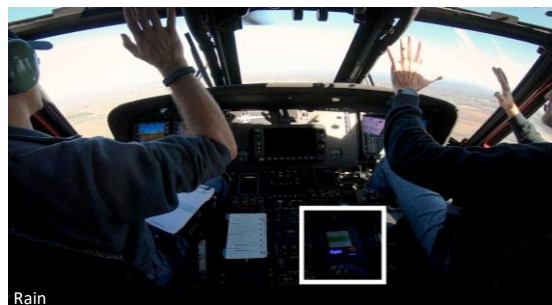
Early Detection & Alerts



Fire Modeling & Decision Support Tools



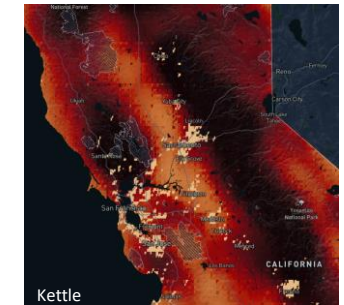
Rapid Response & Suppression



Recovery & Reforestation



Wildfire Insurtech







Restoration for Resilience



ENVIRONMENT | PLANET POSSIBLE

To regrow forests, the U.S. needs billions of seeds—and many more 'seed hunters'

Skilled collectors are becoming rarer, undermining the nation's ambitious tree planting goals.



Scaling Impact: What's It Take to Move from Innovation to Solution?



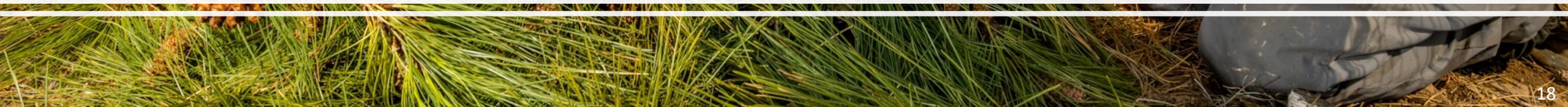
Catalytic public funding: Cutting-edge technologies create impact at scale; public funding leverages private investments to move the needle



Real demonstration: Real-world testing tech at scale & hands-on validation and familiarization with firefighting professionals



Equity & Wildfire-Impacted Communities



Federal funding opportunities

- Some history of the Department of the interior and US Forest Service supporting the development and deployment wildfire technologies
- Meaningful allocations from the Infrastructure Investment and Jobs Act



[Home](#) > [Interior Awards First Contract for Small Unmann...](#)

Interior Awards First Contract for Small Unmanned Aircraft Systems Services

Drone services contract capitalizes on industry strengths, part of a broader strategy to aggressively combat costly wildfires

05/15/2018



[Home](#) > [Meeting the Challenges of Modern Wildfire](#) > [Wildland Fire News](#) > [Biden-Harris Administration Announces \\$185 Mill...](#)

Biden-Harris Administration Announces \$185 Million for Wildfire Mitigation and Resilience as Part of the Investing in America Agenda

Share

During a visit to Montana today, Deputy Secretary of the Interior Tommy Beaudreau announced a \$185 million investment from President Biden's Bipartisan Infrastructure Law to support wildland fire management nationwide in fiscal year 2023 and to assist land managers in planning for wildfire management activities in fiscal year 2024.

07/12/2023

A wide-angle landscape photograph of a mountain valley. The foreground and middle ground are filled with dense, vibrant green coniferous forests covering the slopes of the mountains. In the distance, several mountain ranges are visible, with the peaks appearing hazy and blue due to atmospheric perspective. The sky is a clear, pale blue. The overall scene is bright and natural.

Thank you