

Wildfire Resilience Initiative

**The Social-Ecological Consequences
of Future Wildfire in the West**

National Academy of Sciences, Engineering and Medicine
Board of Environmental Change and Society
March 27, 2024

Vision

Wildfire resilience in Western North America, where beneficial fire is the dominant contributor to annual area burned...2075.

Initiative outcome and vision

GOALS



OUTCOME

2035

Healthy fire-
adapted
ecosystems
and resilient
fire-prone
communities

VISION

2075

**Wildfire
resilience in
Western North
America,
where
beneficial
fire is the
dominant
contributor to
annual area
burned**

Initiative goals, outcome, vision

GOALS

Early Fire Interventions goal

100% of wildland fire (both beneficial and severe fire, based on science-informed data) ignitions and detections to be confirmed and transmitted to responders **within 15 minutes** in Western North America.

Pre-Fire Community Interventions goal

Property loss will have **stabilized** through risk mitigations sufficient to **disrupt fire pathways** and **structure-to-structure conflagration** in developed wildland-urban interface communities.

Pre-Fire Ecosystem Interventions goal

Annual acres burned at **low-to-moderate severity** will have **increased** in aggregate, and annual acres burned at **high severity** have **decreased** in aggregate.

OUTCOME

2035

Healthy fire-adapted ecosystems and resilient fire-prone communities

VISION

2075

Wildfire resilience in Western North America, where beneficial fire is the dominant contributor to annual area burned



"BAD" FIRE



"GOOD" FIRE



**Aim: as much beneficial
fire as needed, with no
severe consequences.**

- ✓ Appropriate for place/time
- ✓ Communities thrive
- ✓ Reasonable cost

FIRESAT



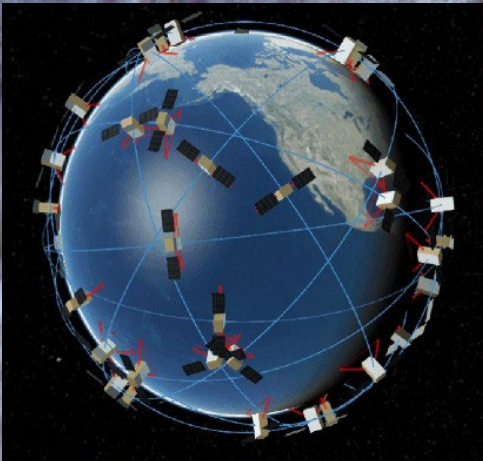
A WILDFIRE-FIRST CONSTELLATION

A non-profit satellite system providing low-latency, high-resolution, broad coverage data to better inform wildfire fighting strategies, and better understand the impact wildfires have on carbon and climate.

All slides are proprietary to SATMgmt LLC and Muon Space

Fire intensity for fire management

GORDON AND BETTY
MOORE
FOUNDATION



All fire is managed fire – immediate suppression, Rx fire, extended suppression, monitored suppression.

Every ignition – same analysis, same planning, same resource access rights.

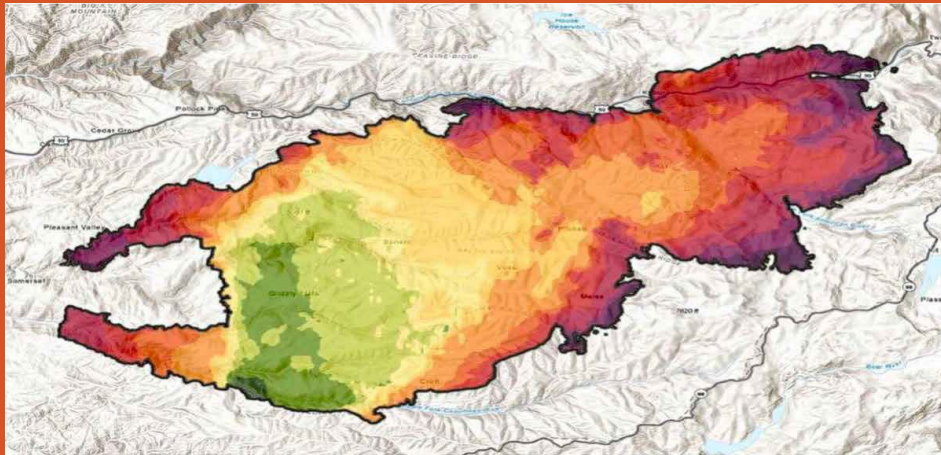
Every acre of fire – assessed for beneficial value in real time and shared to all.

Recalibrate Fire Suppression

Active fire data product types

DETECTION

Expected <20 minute latency from detection to message delivery with 12 minute spacecraft revisit cadence. Formatted to provide simple text data and imagery overview for reference with flexible delivery.



MAP PRODUCTS



Expected 60 minute latency between data downlinks. Formatted as cloud-optimized raster and/or vector files.

Fire Perimeter

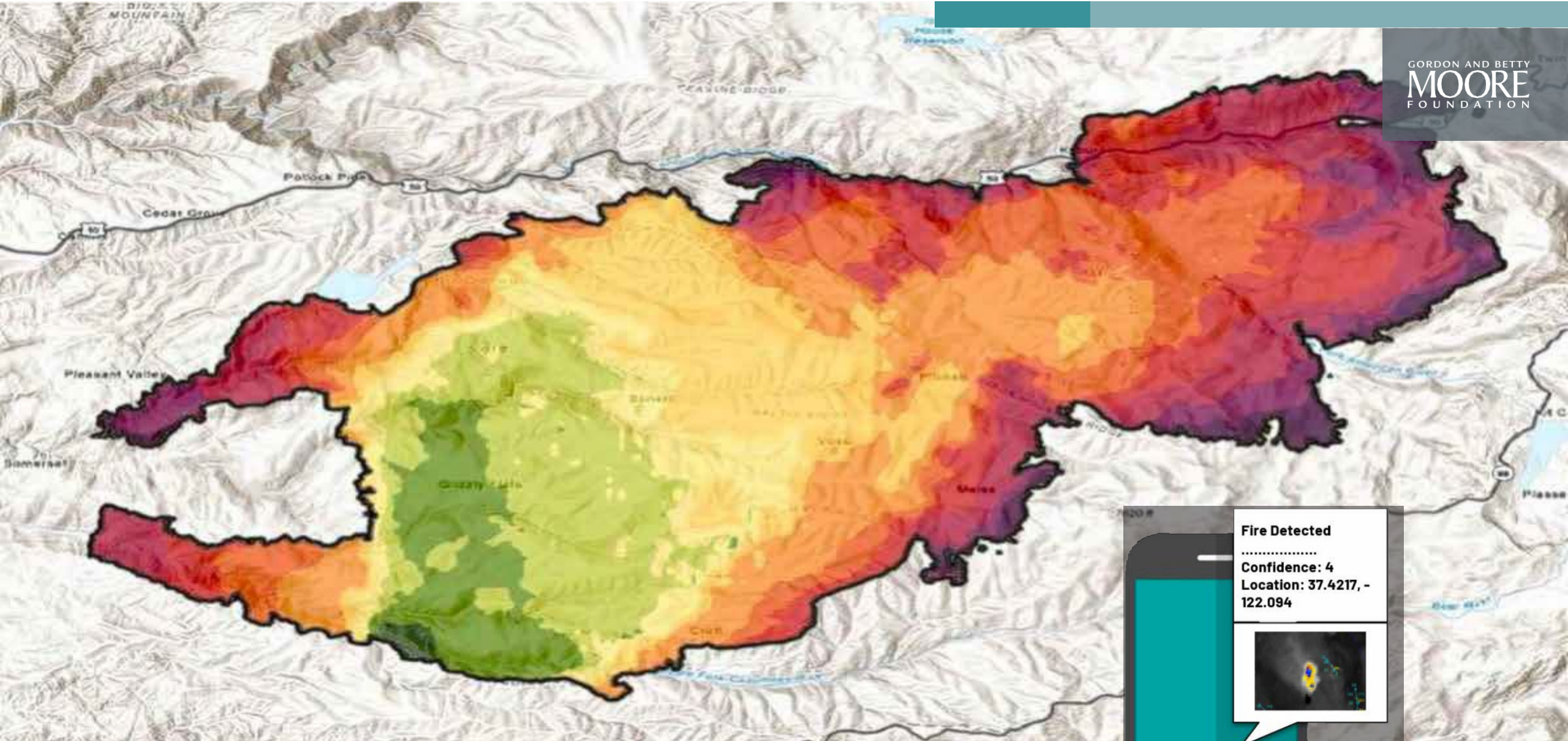
Mapped active fire perimeter showing boundary edge of a monitored fire.

Fire Radiative Power

Map of the intensity, or radiative power, of actively monitored fires.

Pre / Post Fire Products

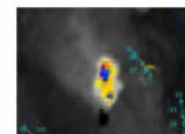
Understanding pre-fire conditions and post-fire impacts, including burn area maps.



Fire Detected

Confidence: 4

Location: 37.4217, -
122.094



AK: Bristol Bay
Borough/
Watersheds

BC: Bulkley-
Morice
Watersheds

WA: Klickitat County

OR: TBD County
and Watersheds

WY: Green River
Basin Watershed

CA: Tahoe
Sierra Region

CO: Gunnison County
and Watersheds

CA: Santa Barbara
County

AZ: Coconino
County

**SELECT
PILOTS TO
ACHIEVE
RESILIENCE by
KEY INDICATORS**