

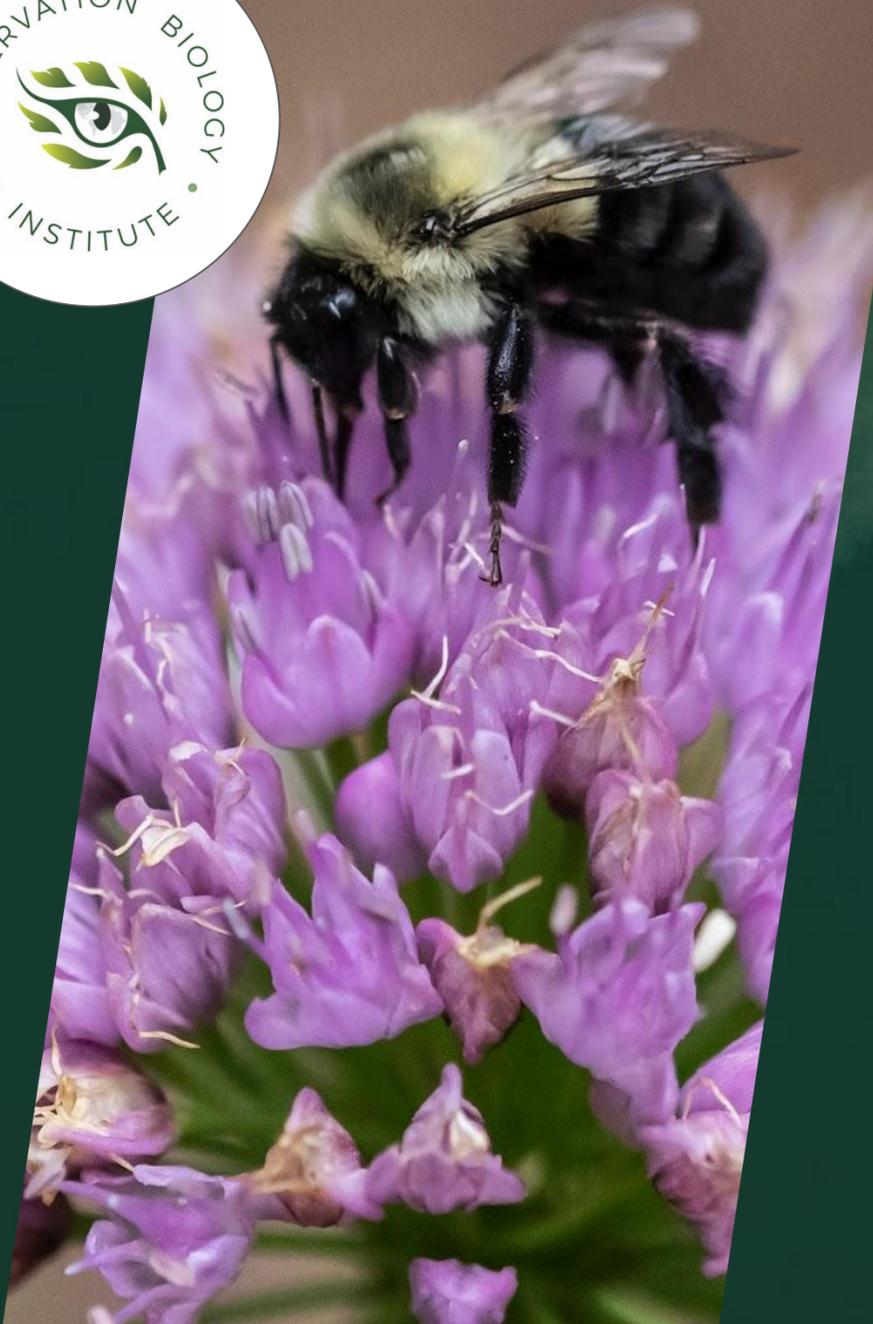


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**The Global Wildfire Collective facilitates collaboration among scientists, firefighters, policymakers and communities to enable wildfire resilience and recovery in ecological and social systems**

---

# GWC and Conservation Biology Institute (CBI)



CBI is a **non-profit, science-based conservation** organization with **three decades** of experience

CBI provides **advanced conservation science, technology, and planning** to empower partners in solving the world's critical ecological challenges

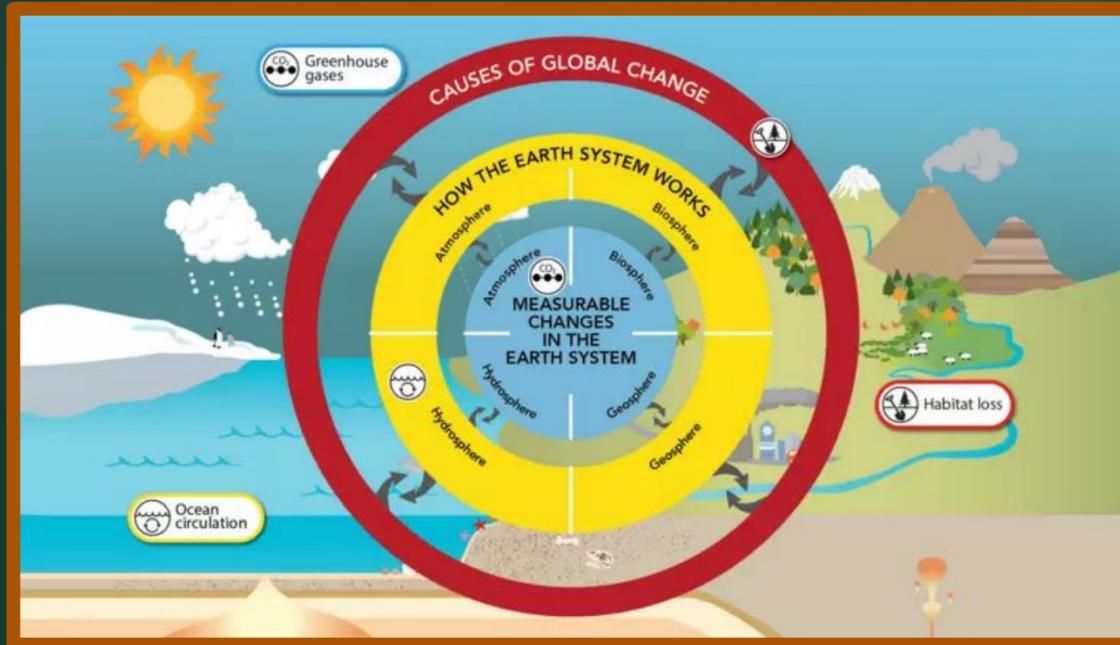
CBI team is composed of **three main disciplines:**

- Conservation Science
- Geospatial Science + Remote Sensing
- Software Engineering



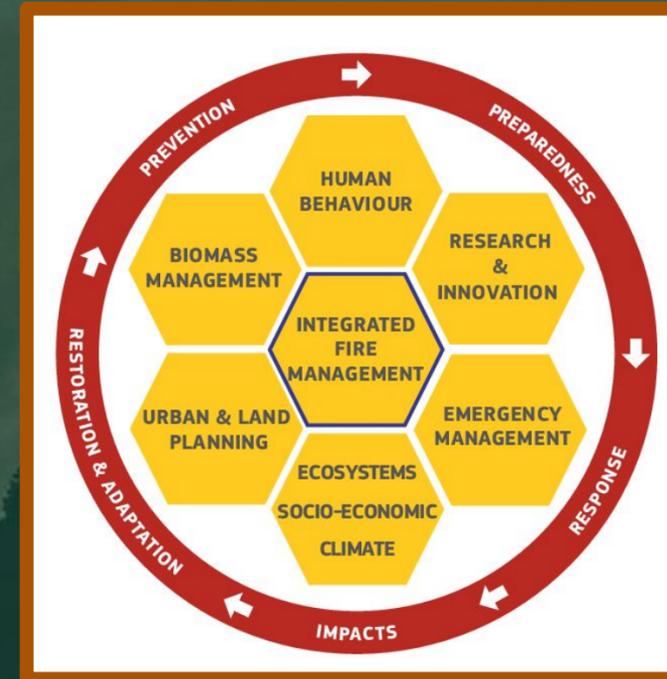
# GWC Scientific Pillars

## (1) Wildfires & global change



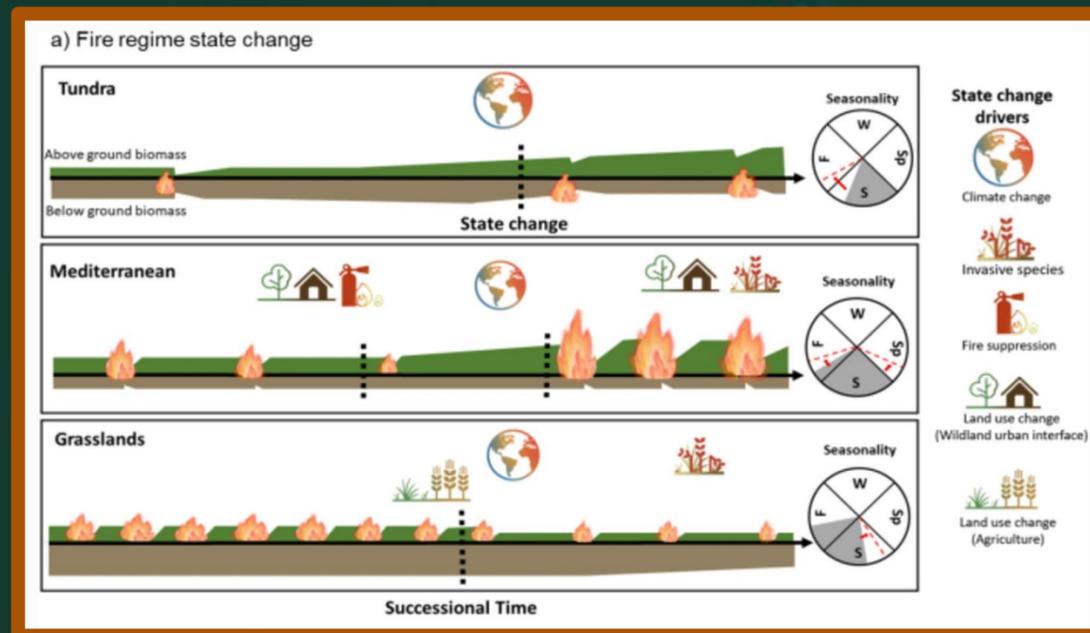
Diverse factors driving altered fire regimes

## (3) Fire management & policy



Integrated strategies for beneficial outcomes

## (2) Fire ecology & biodiversity



Effects and interactions with natural systems

## (4) Community safety & resilience



Expanded, equitable adoption for all



# GWC Charter Members & Partner Institutions

- **37** charter members
- **14** partner institutions
- **21** countries represented  
*(as of Jan 2026)*





# GWC Charter Members (selected)

## Interdisciplinary Wildfire Research Scientists



### **Dr. Lluís Brotons**

Senior Researcher, Catalan  
Center for Ecological Research  
and Forestry Applications  
*Spain*



### **Dr. David Bowman**

Director Fire Centre, Professor of  
Pyrogeography and Fire Science at  
the University of Tasmania  
*Australia*



### **Dr. Fantina Tedim**

Professor  
Department of Geography  
Universidade de Porto  
*Portugal*



### **Dr. Mauro Gonzalez**

Professor, Facultad de Ciencias  
Forestales y Recursos Naturales  
Universidad Austral de Chile  
*Chile*



### **Dr. Anne Ganteaume**

Directrice de Recherche  
INRAE  
*France*



### **Dr. Alejandra G. Martínez**

Investigador Científico  
Asociado  
Instituto Geofísico del Perú  
*Perú*



# GWC Charter Members (selected)

## Interdisciplinary Wildfire Research Scientists



**Dr. Alexandra D. Syphard**  
Senior Research Scientist  
Conservation Biology Institute  
*United States*



**Dr. Alejandro Miranda**  
Researcher  
Department of Forest Science  
University of La Frontera  
*Chile*



**Dr. Stijn Erik R Hantson**  
Associate Professor  
Faculty of Natural Sciences  
Universidad del Rosario  
*Belgium / Colombia*



**Dr. Saeedeh Eskandari**  
Associate Professor  
Research Institute of Forests and  
Rangelands  
*Iran*



**Dr. Iokiñe Rodríguez**  
Senior Lecturer in  
Environment & Development,  
University of East Anglia  
*Venezuela / United Kingdom*



**Dr. William Bond**  
Emeritus Professor  
Department of Biological Sciences  
University of Cape Town  
*South Africa*



# GWC Charter Members (selected)

## Firefighting practitioners



**Lt. Bernardo Lenis Duque**  
Institutional Development Director  
Benemérito Cuerpo de Bomberos  
Voluntarios de Cali  
*Colombia*



**Mr. Markristian Madariaga Pareja**  
Jefe Nacional de previsión del riesgo  
ante Incendios Forestales  
Cuerpo General de Bomberos Voluntarios  
*Perú*



**Óscar Enrique Tibaquicha Velandia**  
Miembro Activo  
Brigada Forestal Indígena de Cota  
*Colombia*

## Interdisciplinary team members



**Ms. Robin Jones**  
Executive Director  
Conservation Biology Institute  
*United States*



**Dr. Arindam Roy**  
Climate Science Advisor  
Clean Air Fund  
*India*



**Mr. Karl Peet**  
Senior Advisor, Global Strategy  
Conservation Biology Institute  
*United States*



# GWC Partner Institutions



**Academia  
National de  
Bomberos de  
Colombia**



Colombia



**Benemérito  
Cuerpo de  
Bomberos  
Voluntarios de  
Cali**



Colombia



**Centre de  
Recerca  
Ecològica i  
Aplicacions  
Forestals  
(CREAF)**



Spain



**Center for  
Climate and  
Resilience  
Research (CR2)**



Chile



**Leverhulme  
Centre for  
Wildfires,  
Environment and  
Society**



United Kingdom



**Environmental  
Defense Fund  
(EDF)**



United States



**International  
Savanna Fire  
Management  
Initiative (ISFMI)**



Australia



**La Unidad  
Nacional para la  
Gestión del  
Riesgo de  
Desastres  
(UNGRD)**



Colombia



**Universidad de  
La Frontera**



Chile



**Universidad del  
Rosario**



Colombia



**Brigada Forestal  
Indígena de Cota**



Colombia



RÉPUBLIQUE TOGOLAISE

**Ministère de  
l'Environnement  
et de la  
Ressource  
Forestière  
(MERF)**



Togo



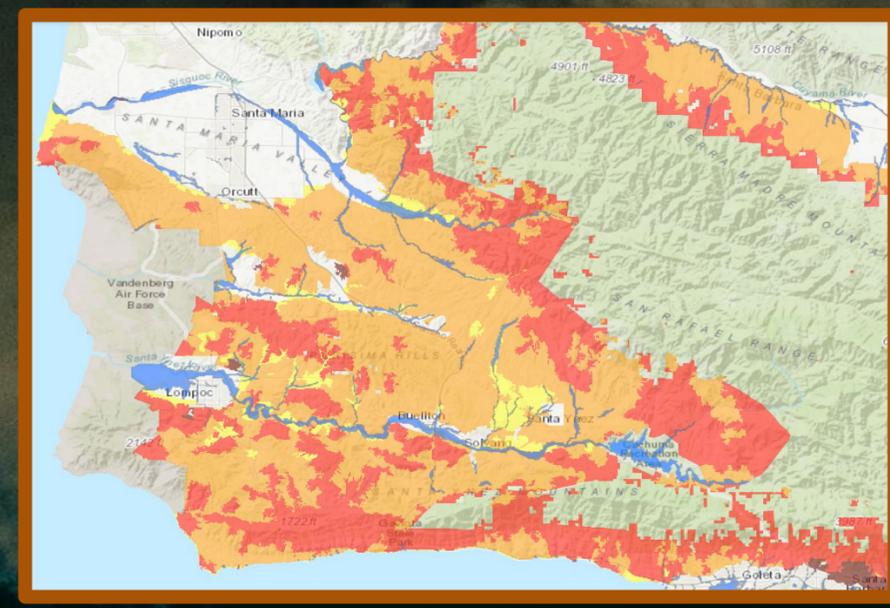
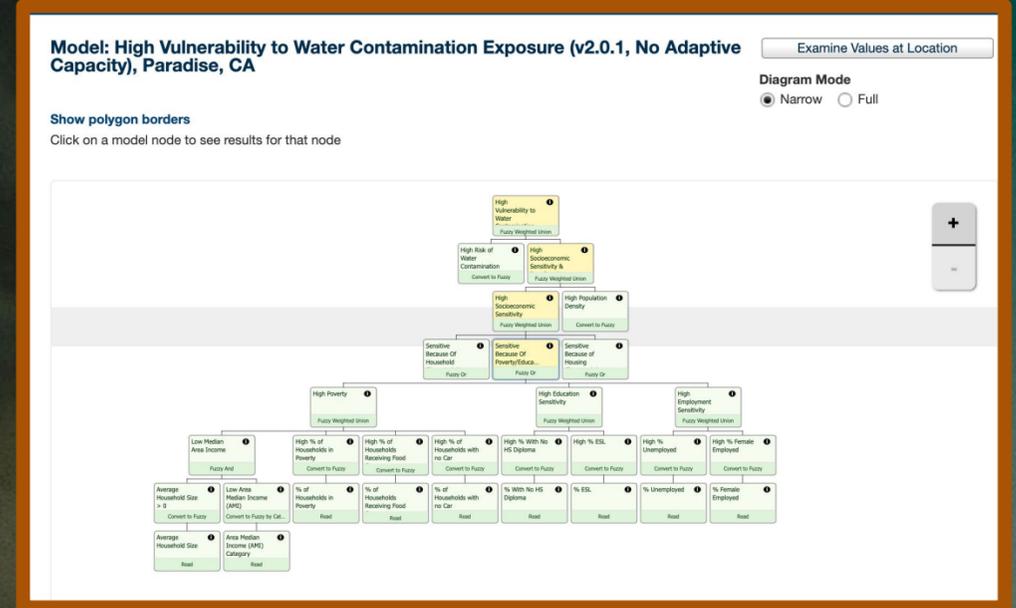
# GWC Activities and Services



- ❖ **GWC Collaborative Capacity Development**  
Webinars, events, workshops
- ❖ **GWC Research Collaboration**  
Cross-region/discipline transferability
- ❖ **GWC Spatial Data Gateway**  
Data and technology exchange
- ❖ **GWC Discussion Forum**  
Multilingual science & practice exchange



# GWC Collaborative Capacity Development





# GWC Research Collaboration

- **Wildfire impacts accelerating**, as must resilience efforts
- 'One size fits all' approach could **worsen risk if misapplied**
- Need research on **responsible knowledge transfer**

## Recent grant applications (pending, as of Oct 2025)

- **NSF - FIRE-NET** (*w/ San Diego State , Oregon State*)  
Compare fire regimes, WUI typologies, 3 regions
- **NATO** (*w/ TNC Colombia*)  
Ecoregional resilience roadmaps (US & Colombia)  
Frameworks for responsible knowledge transfer

(more to follow)





# GWC Spatial Data Gateway



Global Wildfire Collective  
Gateway

Search by keyword or location



powered by DATA BASIN

## Featured Datasets

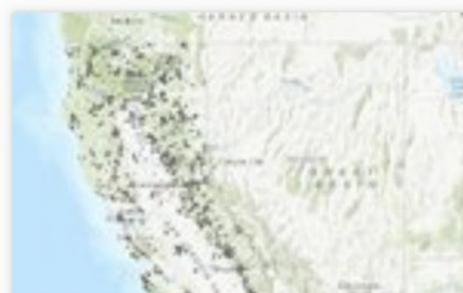
Explore the latest wildfire datasets



USA Current Wildfire Perimeters



OpenAQ Recent Conditions in Air Quality



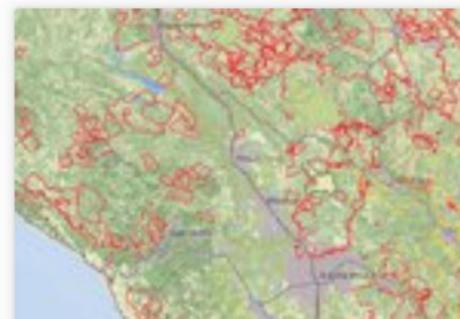
California Wildfire & Landscape Resilience Interagency Treatments (Polygons)



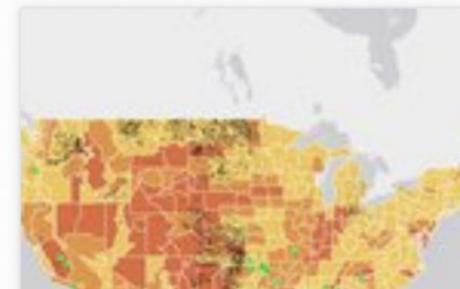
Land cover, Central and South America (GlobCover 2009)

## Featured Maps

Explore curated wildfire maps



Fire History, Vegetation, Fire Safety Councils, Pepperwood



Historical Drought, Croplands, and Fire History for the Contiguous US



Climatic Limitation on Net Primary Production (Churkina & Running)



Community Fire Planning Zone



# GWC Discussion Forum



❖ A forum for GWC member **collaborations and knowledge sharing.**

❖ Multilingual support using AI to **automatically translate to ~60 languages.**

Category	Topics	Latest
<p><b>Wildfire &amp; Global Change</b></p> <p>A holistic understanding of each region's unique fire-influencing variables is critical for developing comprehensive strategies for effective fire management and long-term co-existence with fire.</p>	1	<p> <b>Functional traits databases</b> <span style="float: right;">2 14h</span></p> <p><span style="color: green;">■</span> Fire Ecology &amp; Biodiversity</p>
<p><b>Fire Ecology &amp; Biodiversity</b></p> <p>Insights into how fire interacts with biological systems and impacts biodiversity and ecosystem function are crucial for developing fire management strategies that are best aligned with ecological processes and provide maximum benefits for people and nature.</p>	1	<p> <b>Upcoming webinar on boreal forest fires, 9 July 2025 at 9am PDT</b> <span style="float: right;">0 4d</span></p> <p><span style="color: teal;">■</span> Events &amp; Activities</p>
<p><b>Fire Management &amp; Policy Operations</b></p> <p>The most effective preparedness efforts involve an interdisciplinary set of "before", "during", and "after" actions carried out by community members, fire practitioners, firefighters, policymakers, conservation planners, and developers that are informed by the scientific and Indigenous knowledge of ...</p>	1	<p> <b>Landscaping and WUI Fires</b> <span style="float: right;">1 4d</span></p> <p><span style="color: purple;">■</span> Fire Management &amp; Policy Operations</p>
<p><b>Equitable Community Safety &amp; Resilience</b></p> <p>Discussions to help ensure that wildfire preparation, recovery strategies and policy interventions are appropriately, equitably, and effectively designed.</p>	1	<p> <b>29-31 Oct. 2025- Fire Modeling Workshop- Cali, Colombia</b> <span style="float: right;">0 5d</span></p> <p><span style="color: teal;">■</span> Events &amp; Activities in-person</p>
		<p> <b>Which are the best apps for fire awareness?</b> <span style="float: right;">1 6d</span></p> <p><span style="color: pink;">■</span> Equitable Community Safety &amp; Resilience</p>
		<p> <b>Admin Guide: Getting Started</b> <span style="float: right;">0 Apr 8</span></p> <p><span style="color: brown;">■</span> Staff</p>
		<p> <b>Welcome to Global Wildfire Collective Discussion Forum!</b> <span style="float: right;">8 19h</span></p> <p><span style="color: blue;">■</span> General</p>



# Fire Ecology Webinar Series (2025)



## Social Impacts: Dr. Susan Cutter

- What are the most challenging social impacts of catastrophic events?
- How do these vary from event to event or region to region?
- Could global coordination and collaboration improve social outcomes?



Ecological & human causes and impacts of three extreme wildfire events  
Webinar – 20/March/2025

Global Wildfire Collective

### Chile's Valparaíso hills on fire 2024

Alejandro Miranda<sup>1,2</sup> & Mauro González<sup>1,3</sup>

(1) Centro de Ciencias del Clima y la Resiliencia (CR<sup>2</sup>), Santiago, Chile.  
(2) Departamento de Ciencias Forestales, Universidad de La Frontera, Temuco, Chile.  
(3) Instituto de Conservación, Biodiversidad y Territorio, Facultad de Ciencias Forestales y Recursos Naturales, Universidad Austral de Chile, Valdivia, Chile.

[miranda.alejandro@gmail.com](mailto:miranda.alejandro@gmail.com) | [alejandro.miranda@ufrontera.cl](mailto:alejandro.miranda@ufrontera.cl)

### North American Boreal Forest Fires – spreading into uncharted territory

Mike Flannigan  
Thompson Rivers University

THOMPSON RIVERS UNIVERSITY  
Institute for Wildfire Science, Adaptation and Resiliency

Boreal Forest Webinar 9 July 2025



## Ecology: Dr. Stijn Hantson

- Are ecological influences or impacts similar across these events? Or across other regions / events?
- Could global coordination and collaboration improve outcomes?



## Wildfires in the European boreal Risks and opportunities associated to managed forests



Johan Sjöström  
RISE Research institutes of Sweden  
[johan.sjostrom@ri.se](mailto:johan.sjostrom@ri.se)

Frida Vermina Plathner  
Anders Granström

## Fire Models Answer Different Questions for Different People

Role	Question	Model
Firefighter / Incident Commander	"Where will this fire spread in the next 12 hours?"	FARSITE, FlamMap, WRF-Fire
Land Manager / Fuel Planner	"Where should we put a fuel break to protect this community?"	Burn Probability / ESPro
Ecologist / Conservation Biologist	"How will altered fire regimes affect species diversity over decades?"	LANDIS-II, FireBGCv2
Climate / Carbon Scientist	"How will fire frequency affect carbon balance and emissions?"	Global Fire Models / DGVMs
Community	"How does future housing growth..."	SLEUTH + MaxEnt ignition

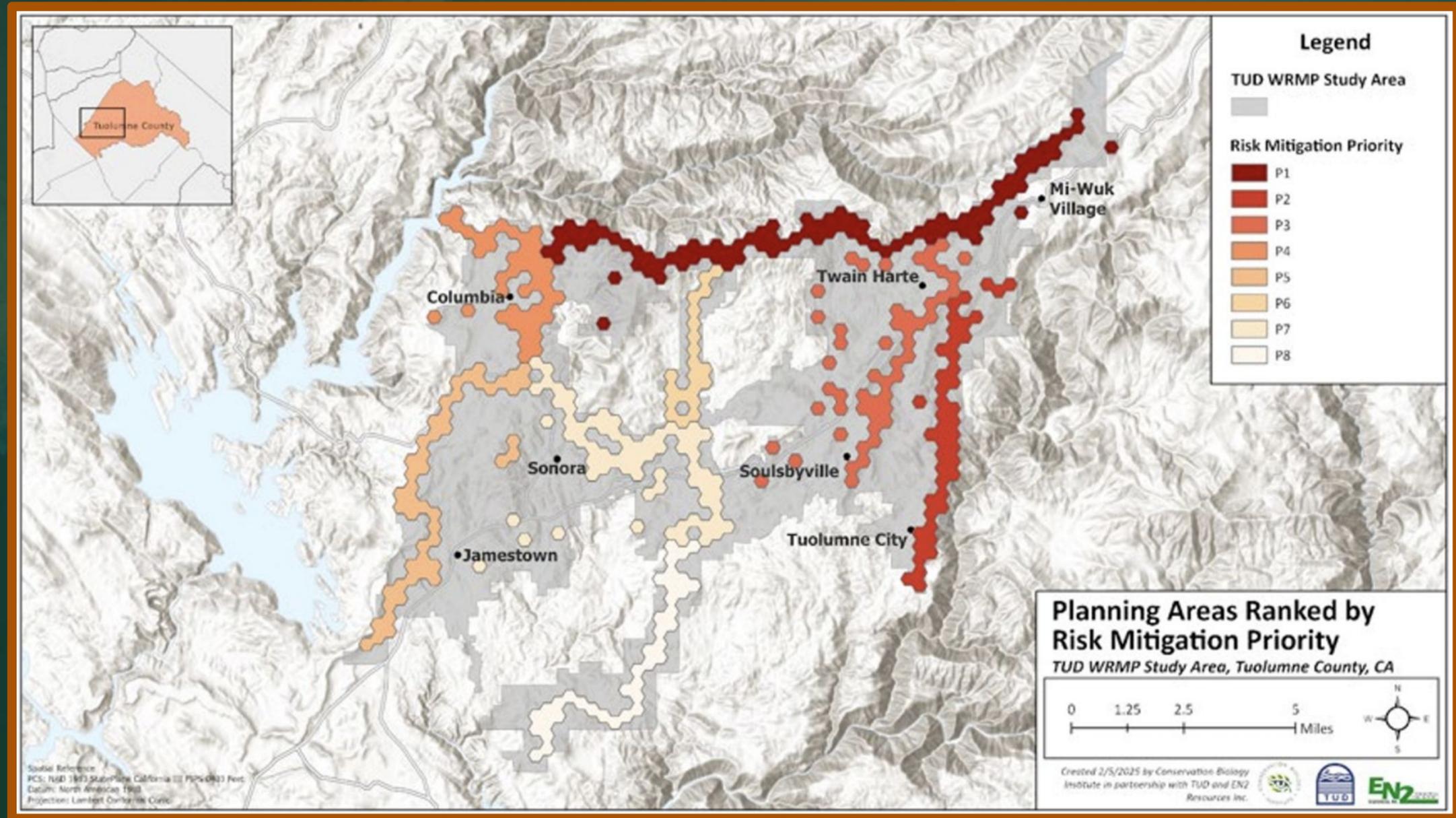


# CBI Example 1: Tuolumne Utilities District Wildfire Defense Plan (California)



CBI and **EN2 Resources Inc.** partnered to develop a comprehensive strategy to protect Tuolumne County's water resources and increase the community's resilience to wildfire.

The plan follows state and federal directives on wildfire resilience, including the California Wildfire & Forest Resilience Action Plan and the US Forest Service's Wildfire Crisis Strategy Implementation Plan.

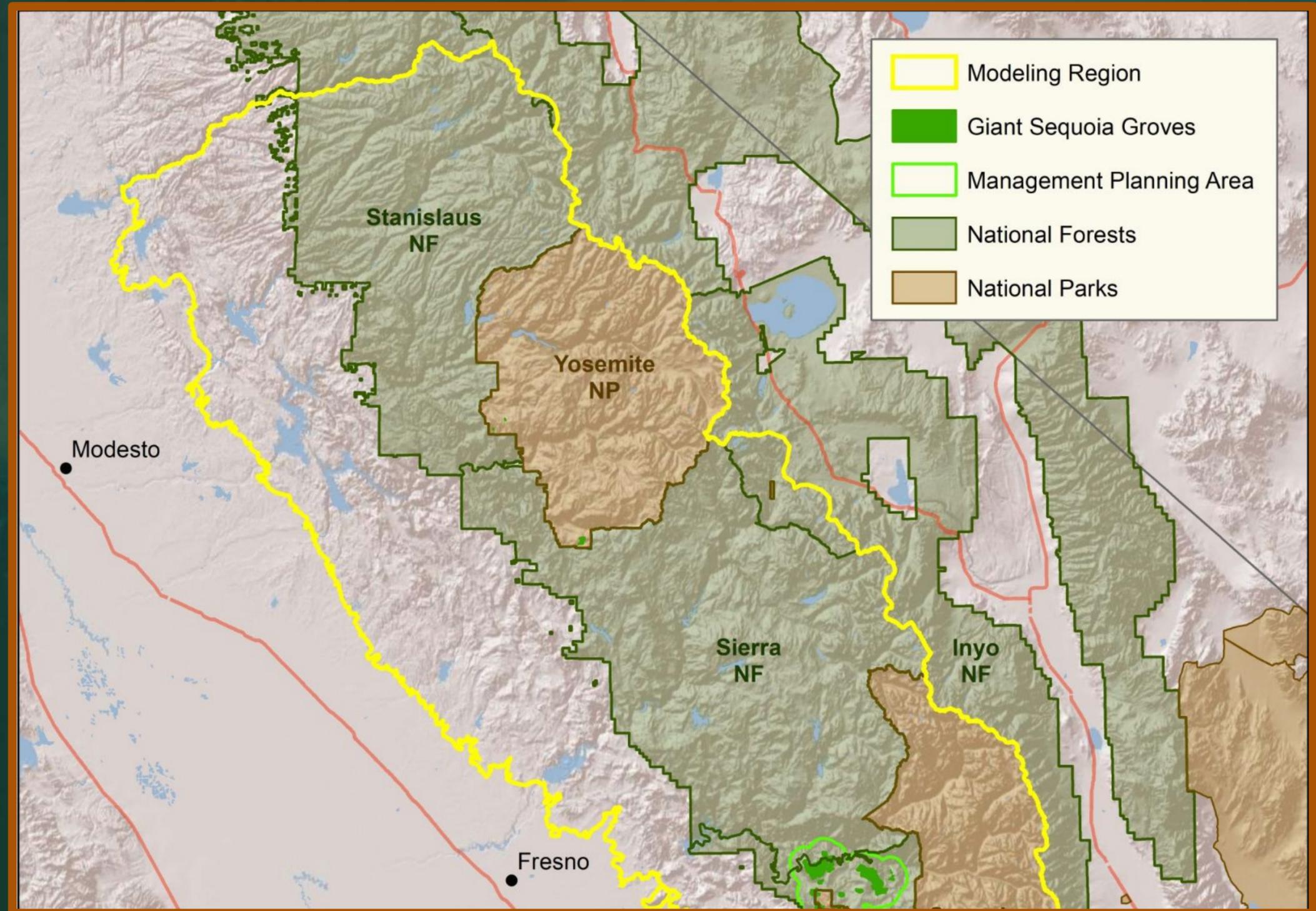


# CBI Example 2: Sierra Nevada Forest Resilience Decision-Support System (California)



CBI developed and applied a decision-support system for forest resilience planning that models how vegetation, terrain, climate, and weather interact to influence fire risk.

The tool will allow managers to simulate fuel-reduction treatments, evaluate their effects on a range of risks and resources, project the impacts into the future, and assess levels of uncertainty.



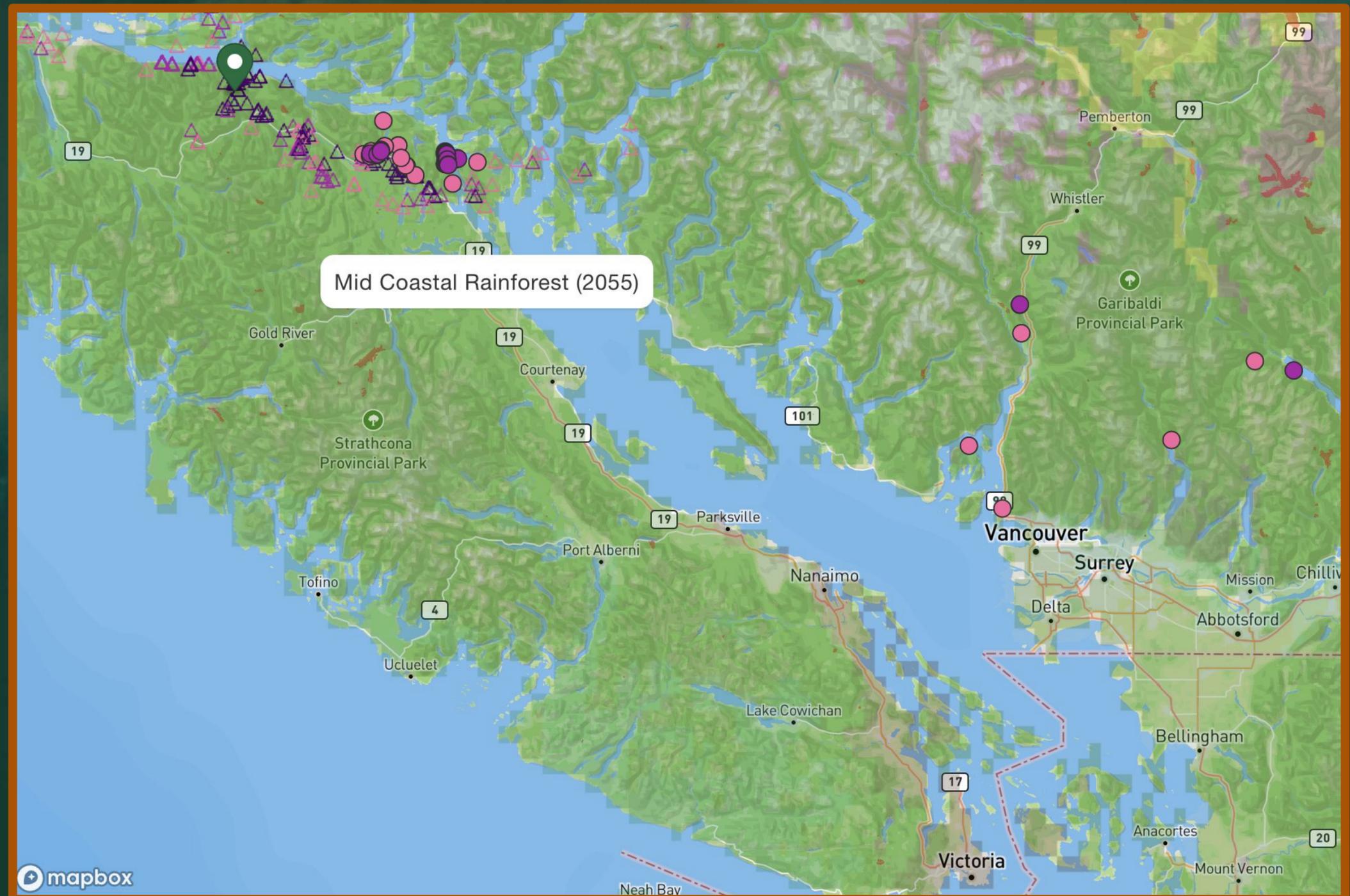


# CBI Example 3: Climate Smart Restoration Tool



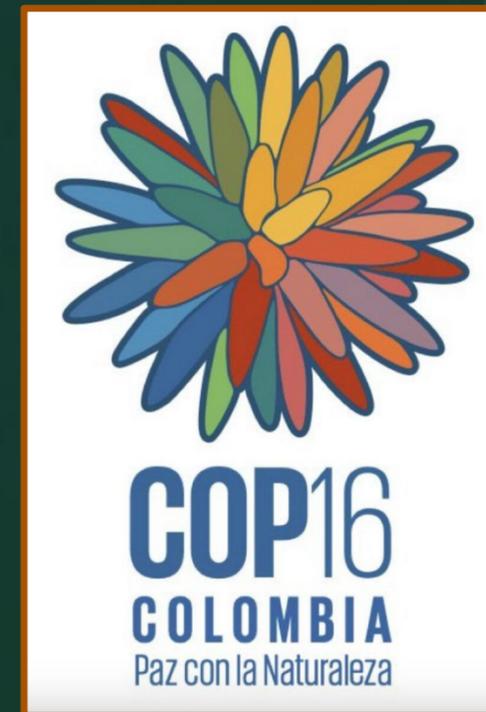
CBI developed the CSRT to provide information on seed collection and transfer of native plants. The CSRT maps current and future seed transfer limits for plant species using climate data.

The CSRT assesses potential plant species for ecosystem restoration using data (and genetic information where available) to infer vegetation transitions over time.





# UN Biodiversity Summit (COP16) (Oct 2024, Cali)





# Expert Group Meeting (May 2025, Bogota)



## #4) Community Safety & Equity

- Sinergias
  - Causas ICV
  - Brigadas Comunitarias  
↳ MinAmb - JAVH.
  - Alternativas al uso del Fuego.
- Necesidades Técnicas ↔ Incorporación Conoc. local
- Rol de la GWC





# FAO Fire Hub + Global Forests Observation Initiative Plenary (ongoing)



CBI is a member of the Core Group of the Fire Hub **Working Group on Fire Data**

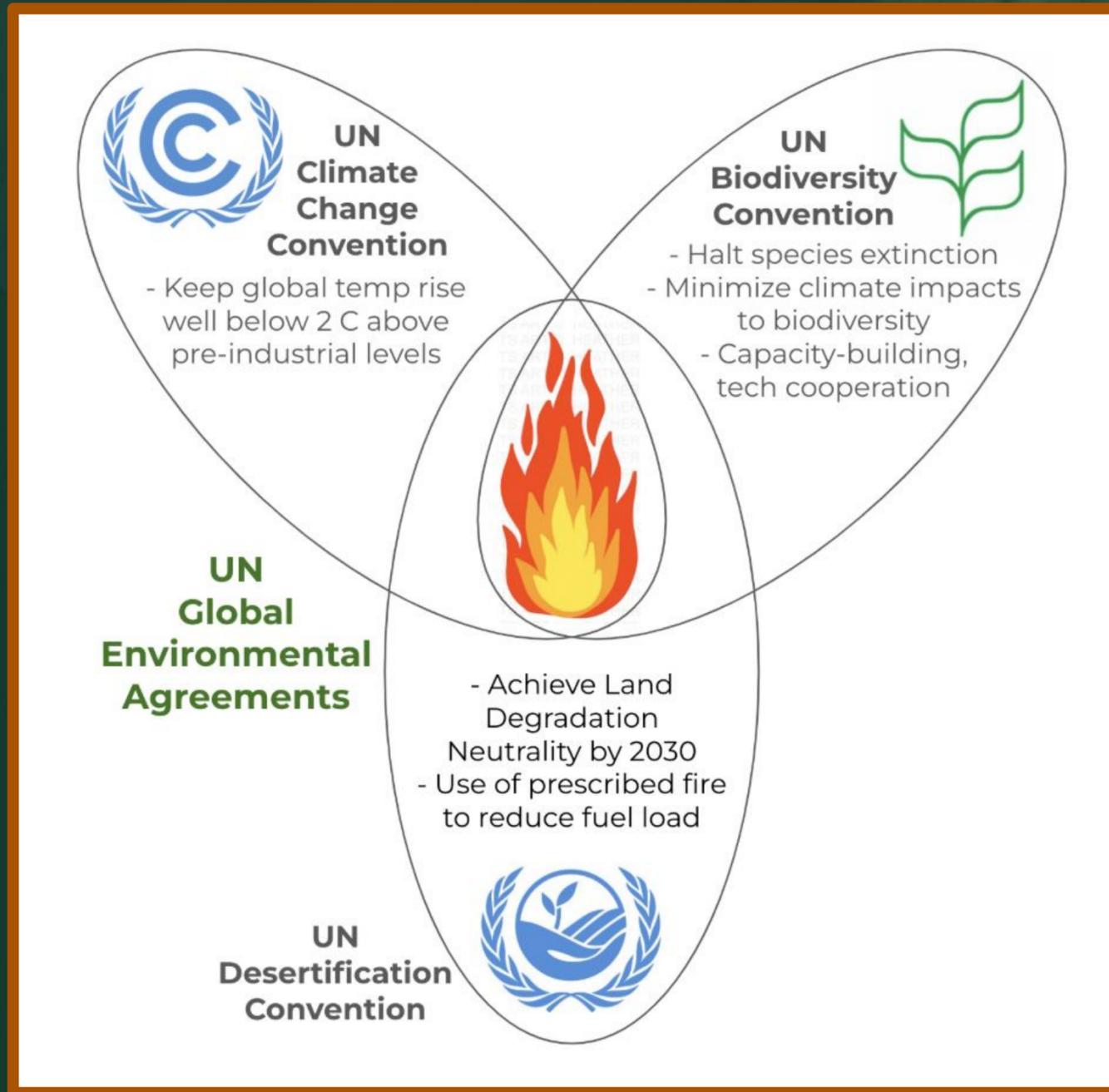


CBI is a contributor to the Fire Hub **Working Group on International Interoperability**

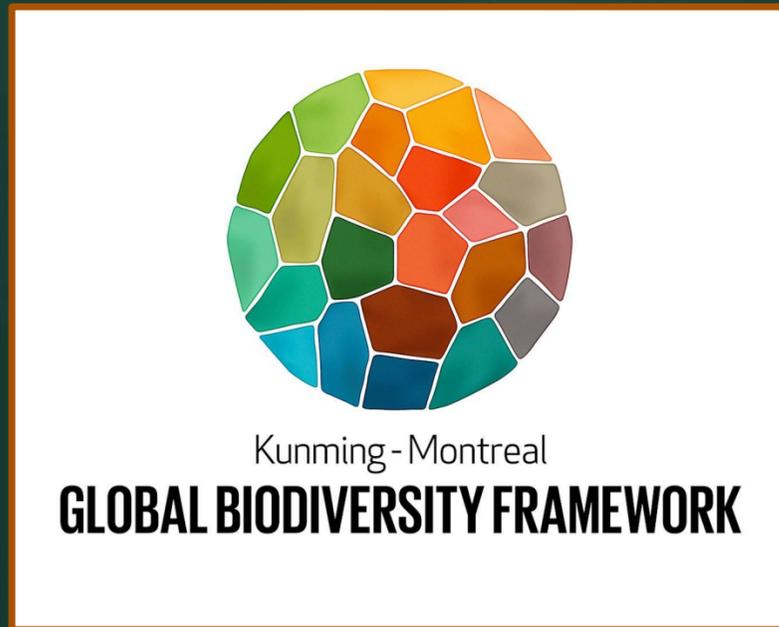




# UN Conventions on Climate / Biodiversity / Land



# UN Biodiversity/Climate/Land Engagement (2025)





# Proposed Joint Work Programme on Wildfire Resilience across UN Rio Conventions



## Annex 1: Proposed Joint Work Programme on Wildfire Resilience and Recovery (Draft)

Note: This proposal is based on existing UN Rio Convention work programmes & expert groups, e.g.

- CBD: Ad Hoc Technical Expert Group on Indicators
- UNCCD: Intergovernmental Working Group on Drought (2022-2024)
- UNFCCC: NWP Thematic Expert Group on Biodiversity and Climate Change

This proposal has two parts: (A) a Joint Work Programme containing (B) a Technical Expert Group

### (A) Joint Work Programme on Wildfire Resilience and Recovery

#### Functions:

- Build national capacity and accelerate action on wildfire resilience and recovery
- Incorporate wildfire resilience in negotiations/strategic frameworks of each Rio Convention
- Provide means of implementation to scale up impact (input from Technical Expert Group)

#### Composition:

- Secretariats: Implementation-focused divisions, e.g.
  - CBD: Implementation Support Division
  - UNCCD: Global Policy, Advocacy and Regional Cooperation
  - UNFCCC: Means of Implementation Programme
- Parties:
  - National focal points with political focus (e.g. Ministries of Foreign Affairs)
- Non-Party Stakeholders:
  - Sub-national policymakers
  - Local and Indigenous community representatives
  - Industry groups (e.g. agriculture, energy, insurance)

#### Activities:

- Convene general assembly (1 per year, rotating among conventions)
- Convene regional capacity building sessions (input from Tech Expert Group) (1-2 per year)
- Report to outputs/outcomes to COP Presidencies (1 per 1-2 years)

### (B) Technical Expert Group on Wildfire Resilience and Recovery (sub-group of JWP)

#### Functions:

- Increase science-based understanding of wildfire drivers, impacts, and solutions.
- Highlight need for context-sensitive solutions across geographies and ecosystems.
- Inform frameworks, policy dialogue, and negotiations within each Rio Convention.

#### Composition:

- Secretariats: Science/technology-focused divisions, e.g.
  - CBD: Science, Society and Sustainable Futures Division
  - UNCCD: Science and Policy Interface members
  - UNFCCC: Mitigation/Adaptation Programmes
- Parties:
  - National focal points with technical focus (e.g. Ministries of Environment)
- Non-Party Stakeholders:
  - Wildfire research scientists/ecologists
  - Fire and conservation managers and practitioners
  - Local/Indigenous community representatives

#### Activities:

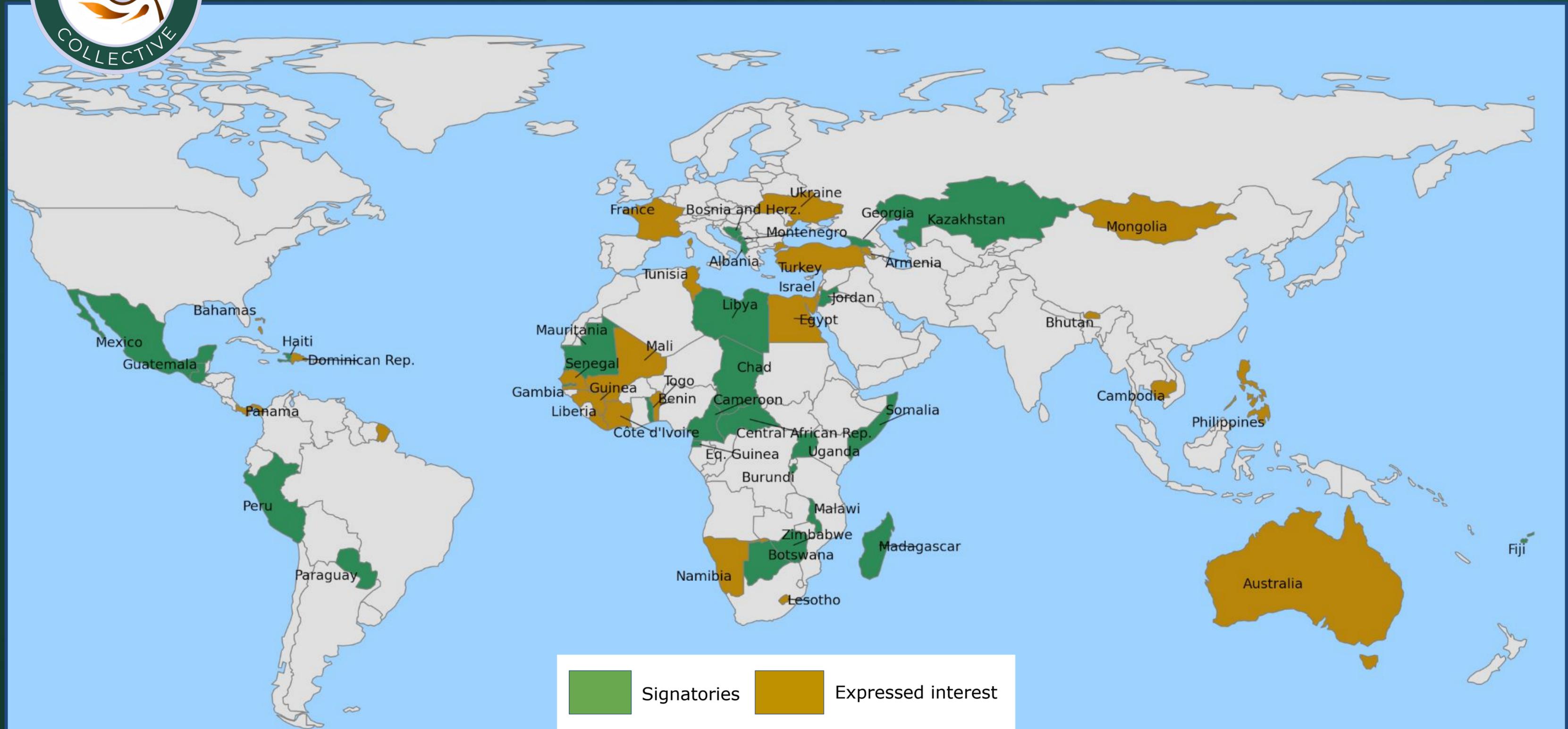
- Convene technical information exchange (1 per year, SBSTTA or other technical meetings)
- Convene national capacity building sessions (2-3 per year, at request of Parties)
- Facilitate remote collaboration (e.g. via [Global Wildfire Collective](#) Knowledge Exchange Hub)

The Conservation Biology Institute urges discussion/refinement of this proposal at the 27th meeting of the CBD Subsidiary Body on Scientific, Technical and Technological Advice (20-24 October 2025).

- |  |                          |  |             |
|--|--------------------------|--|-------------|
|  | Albania                  |  | Libya       |
|  | Bosnia & Herzegovina     |  | Madagascar  |
|  | Botswana                 |  | Malawi      |
|  | Burundi                  |  | Mauritania  |
|  | Cameroon                 |  | Montenegro  |
|  | Central African Republic |  | México      |
|  | Chad                     |  | Paraguay    |
|  | Equatorial Guinea        |  | Peru        |
|  | Fiji                     |  | Saint Lucia |
|  | The Gambia               |  | Samoa       |
|  | Georgia                  |  | Somalia     |
|  | Guatemala                |  | Sénégal     |
|  | Haiti                    |  | Togo        |
|  | Jordan                   |  | Uganda      |
|  | Kazakhstan               |  | Zimbabwe    |

**36 signatories** from **30 parties** to UN Conventions on Biodiversity, Climate and Land (as of Dec 2025)

# Proposed UN Joint Work Programme on Wildfire Resilience - Party Responses





# National & Regional Roadmaps for Integrated Fire Management

## Component 1: Assess existing conditions of wildfire vulnerability & resilience

(Estimated timeline: 2-3 months / Estimated budget: USD 40-60K)

- Compile inputs for assessments, e.g.
  - Literature review
  - Data discovery and gap analysis
  - Spatial data synthesis
- Conduct rapid analysis of wildfire vulnerability and resilience, e.g.
  - Map strengths/vulnerabilities across biomes
  - Map observed impacts to biodiversity loss, land degradation, climate change
- Engage remotely (surveys, interviews) contributors from core stakeholder groups, e.g.
  - National/subnational policymakers
  - Indigenous peoples/local communities
  - Research scientists (including *GWC Charter Members*)
  - Firefighting agencies
  - Industry partners
  - Civil society orgs
- Convene expert group meeting (EGM) and listening sessions (in-person/remote)  
(See further details in draft *LAC EGM summary*)
  - Deliver two-day workshop with these objectives
    - Determine current wildfire science data needs and gaps in the LAC region
    - Share/assess existing efforts/initiatives to address data needs and gaps
    - Engage with local communities/area ecosystems to understand impacts
  - Incorporate these elements in workshop
    - Expert roundtable to discuss existing resources, gaps and roadblocks toward addressing the increasing risks of devastating wildfires
    - Field visit to deepen understanding through onsite observation/exchange

## Component 2: Develop national wildfire resilience action plan (NWRAP)

(Estimated timeline: 4-6 months / Estimated budget: USD 60-80K)

Develop draft NWRAP based on principles of IFM from FAO/others (see *Annex 1* for background):

- Scientific analysis, e.g.
  - Assess decision support tools for dynamic and actionable responses,
  - Recommending use of existing tools, and assess needs for customised tools (see *CBI Project Example 1*)
- Operational analysis, e.g.
  - Assess operational readiness across biomes
  - Demonstrate operational application/implementation of decision support tools
- Policy analysis, e.g.
  - Assess political/social contexts; propose opportunities for enabling legislation
  - Demonstrate political application/implementation of decision support tools
  - Propose mechanisms for monitoring, reporting, verification (MRV)
- Community engagement planning, e.g.
  - Engage community members in strategies first responders to wildfire
  - Provide outreach/alerts to community members on wildfire preparedness

Currently in discussions with:



Armenia



Bahamas



Haiti



Madagascar



Panamá



Togo



# Summary and Resource Links

## Learn about our work

---

The GWC promotes science-based resilience strategies that prioritise biodiversity and ecosystem health

---



## Explore our spatial data gateway

---

The GWC provides a collaborative space for sharing fire science maps and datasets among firefighters, policymakers and local communities

---



## Join our wildfire discussion forum

---

The GWC facilitates knowledge-sharing and collaboration across disciplines, ecosystems and global regions

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[www.globalwildfirecollective.org](http://www.globalwildfirecollective.org)

[www.consbio.org](http://www.consbio.org)