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

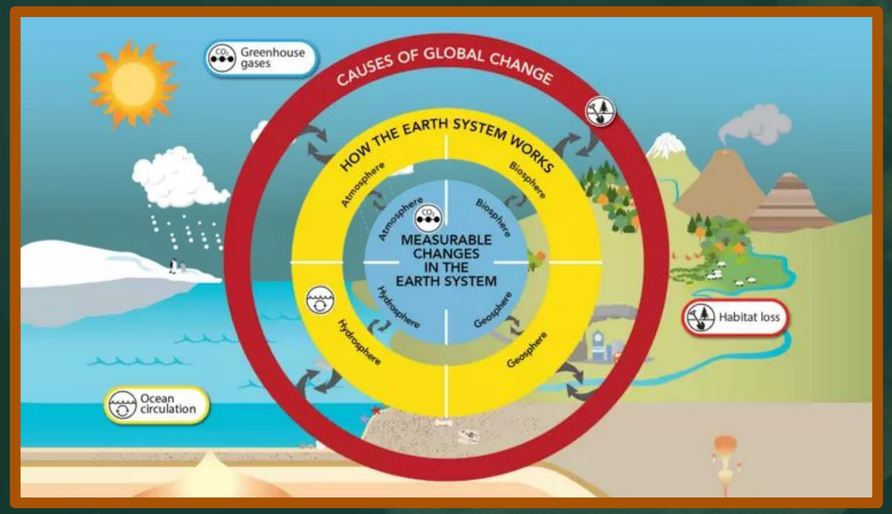
CBI provides **advanced conservation science, technology, and planning** to empower partners in solving the world's critical ecological challenges

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

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

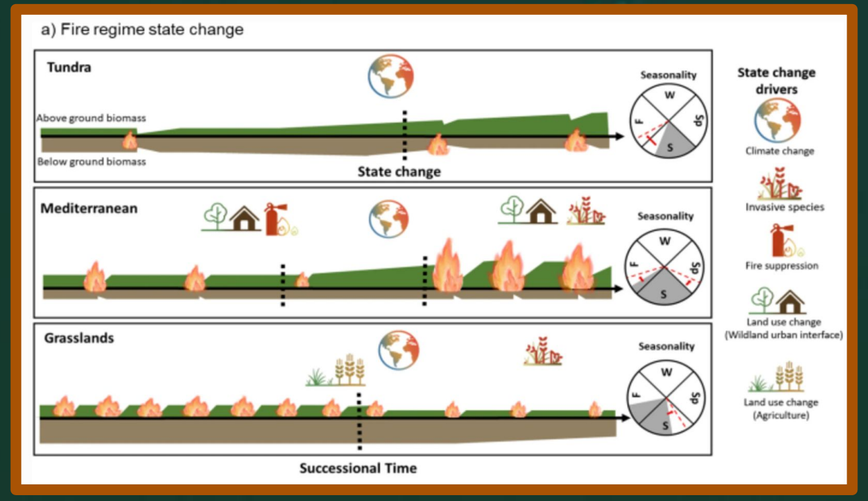
GWC Scientific Pillars

(1) Wildfires & global change



Diverse factors driving altered fire regimes

(2) Fire ecology & biodiversity



Effects and interactions with natural systems

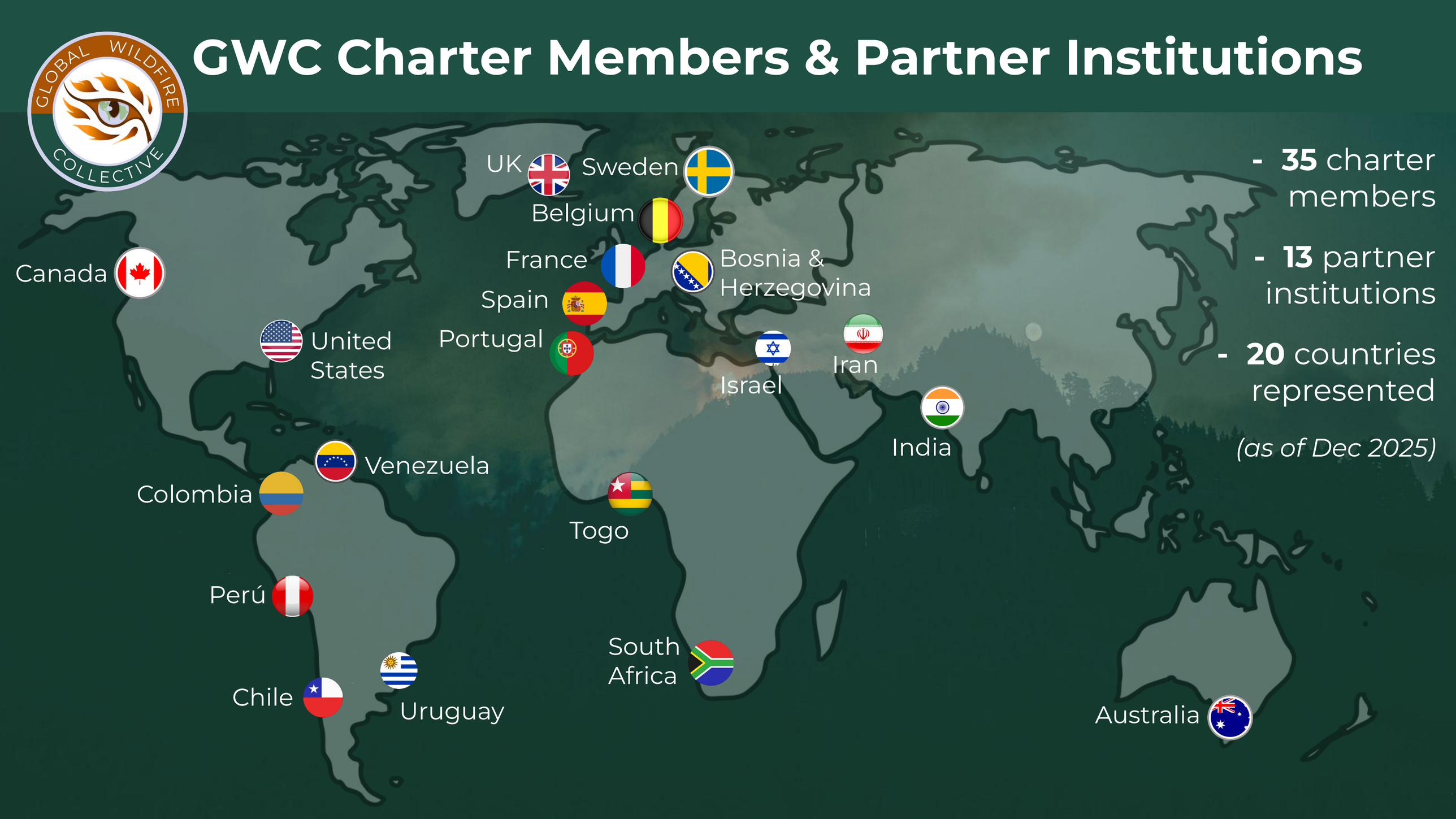
(3) Fire management & policy

Integrated strategies for beneficial outcomes

(4) Community safety & resilience

Expanded, equitable adoption for all

GWC Charter Members & Partner Institutions



- **35** charter members
- **13** partner institutions
- **20** countries represented

(as of Dec 2025)

GWC Charter Members (selected)

Interdisciplinary Wildfire Research Scientists

Dr. Lluís Brotons
Senior Researcher, Catalan Center for Ecological Research and Forestry Applications
Spain

Dr. Fantina Tedim
Professor
Department of Geography
Universidad de Porto
Portugal

Dr. Anne Ganteaume
Directrice de Recherche
INRAE
France

Dr. David Bowman
Director Fire Centre, Professor of Pyrogeography and Fire Science at the University of Tasmania
Australia

Dr. Mauro Gonzalez
Professor, Facultad de Ciencias Forestales y Recursos Naturales
Universidad Austral de Chile
Chile

Dr. Alejandra G. Martínez
Investigador Científico Asociado
Instituto Geofisico del Perú
Perú

GWC Charter Members (selected)

Interdisciplinary Wildfire Research Scientists

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

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

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

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

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

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

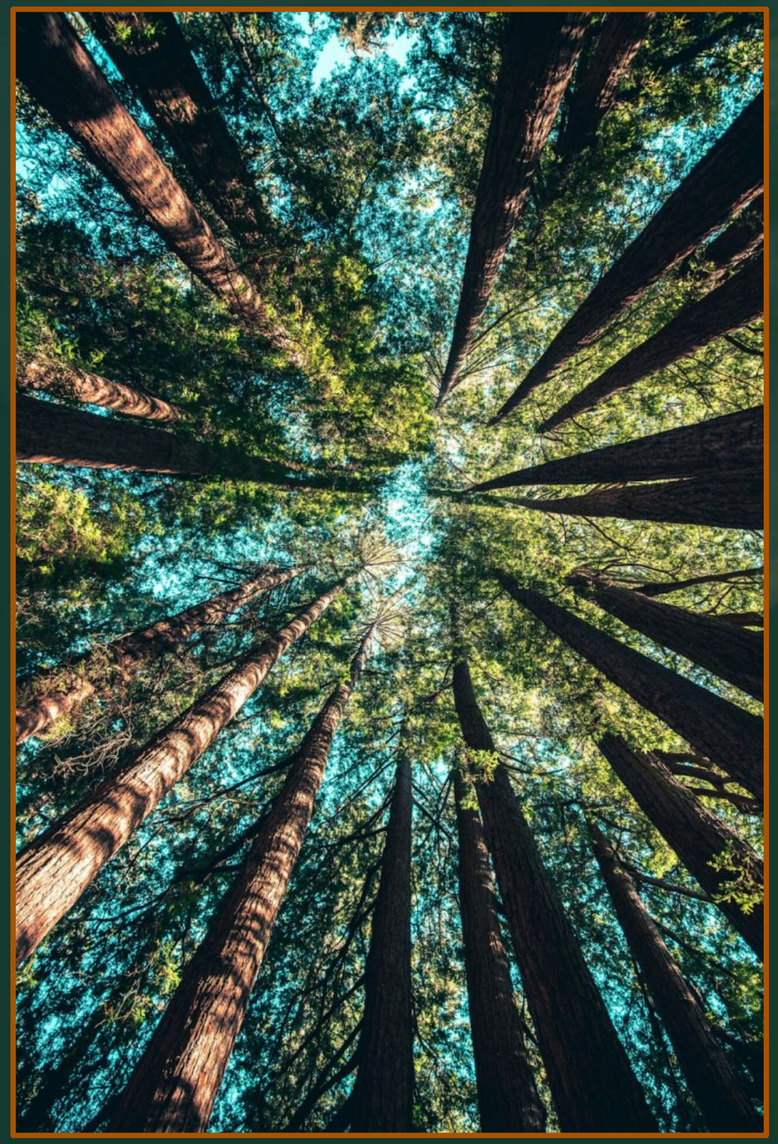
Colombia

RÉPUBLIQUE TOGOLAISE

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

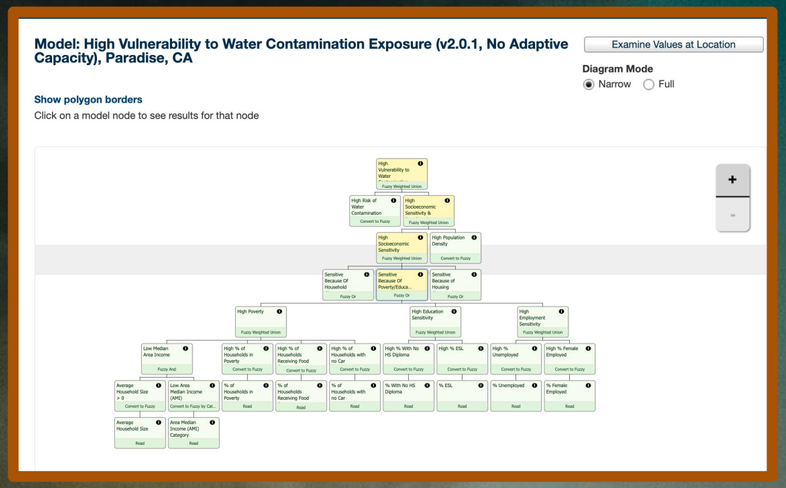
Togo

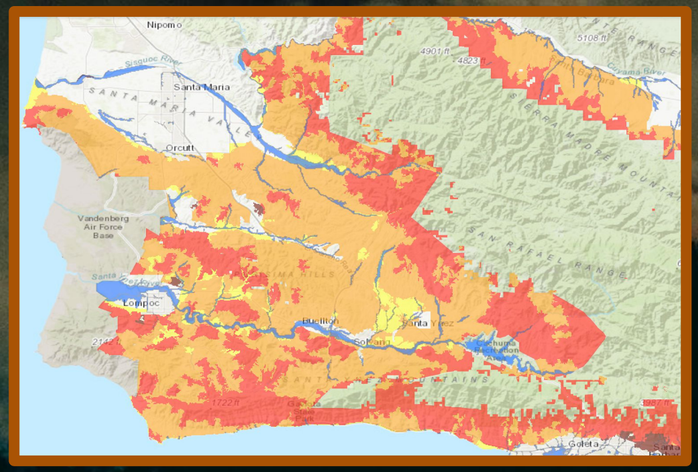
GWC Activities and Services



- **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

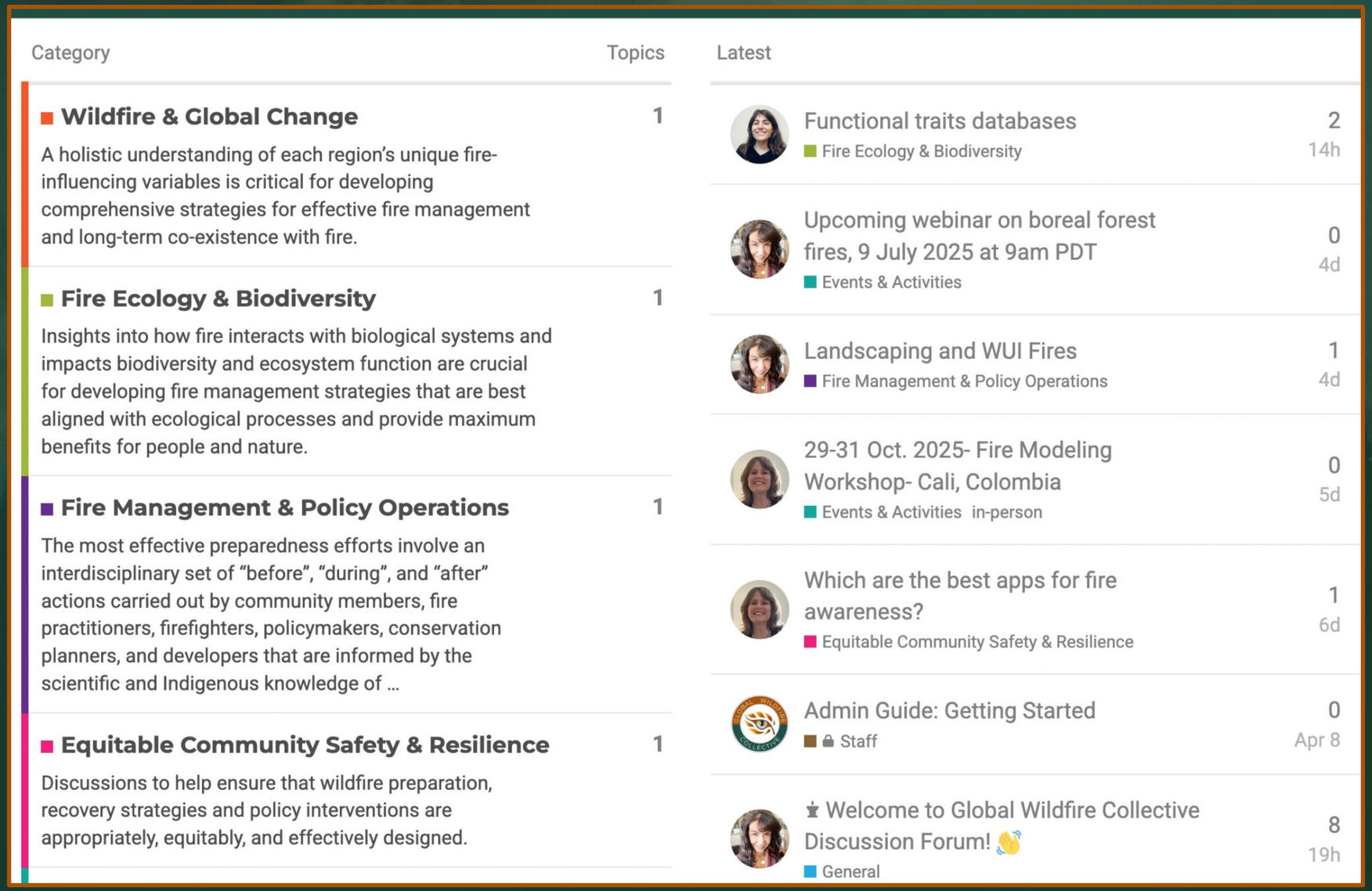

Historical Drought, Croplands, and Fire History for the Contiguous US


Climatic Limitation on Net Primary Production (Churkina & Running)


Community Fire Planning Zone

GWC Discussion Forum

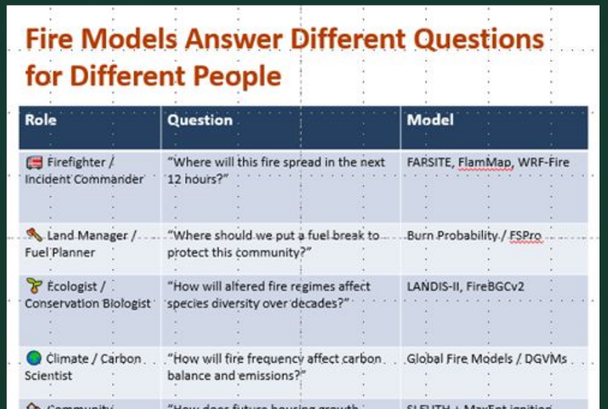
- A forum for GWC member **collaborations and knowledge sharing**.
- Multilingual support using AI to **automatically translate to** ~60 languages.



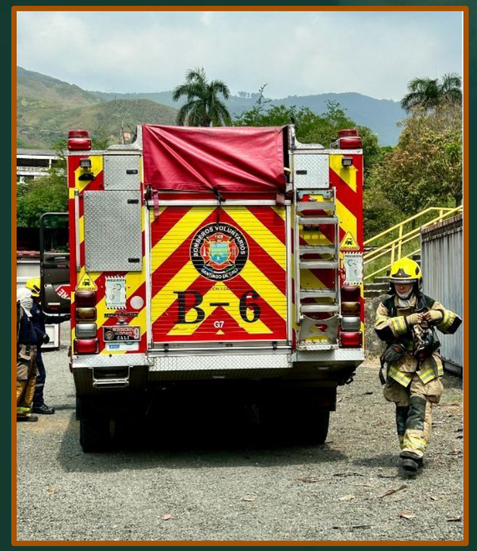
Category	Topics
Wildfire & Global Change A holistic understanding of each region's unique fire-influencing variables is critical for developing comprehensive strategies for effective fire management and long-term co-existence with fire.	1
Fire Ecology & Biodiversity Insights into how fire interacts with 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.	1
Fire Management & Policy Operations 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 ...	1
Equitable Community Safety & Resilience Discussions to help ensure that wildfire preparation, recovery strategies and policy interventions are appropriately, equitably, and effectively designed.	1

Latest	
Functional traits databases Fire Ecology & Biodiversity	2 14h
Upcoming webinar on boreal forest fires, 9 July 2025 at 9am PDT Events & Activities	0 4d
Landscaping and WUI Fires Fire Management & Policy Operations	1 4d
29-31 Oct. 2025- Fire Modeling Workshop- Cali, Colombia Events & Activities in-person	0 5d
Which are the best apps for fire awareness? Equitable Community Safety & Resilience	1 6d
Admin Guide: Getting Started Staff	0 Apr 8
Welcome to Global Wildfire Collective Discussion Forum! 👋 General	8 19h

Fire Ecology Webinar Series (2025)

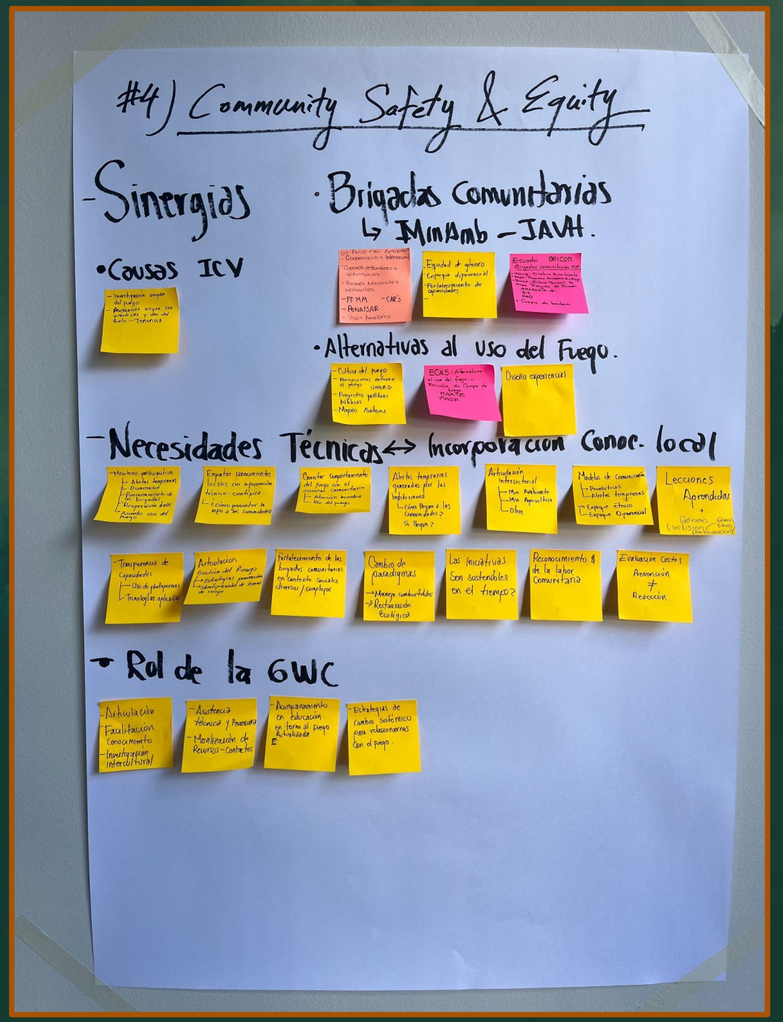


UN Biodiversity Summit (COP16) (Oct 2024, Cali)



COP16
COLOMBIA
Paz con la Naturaleza

Expert Group Meeting (May 2025, Bogota)

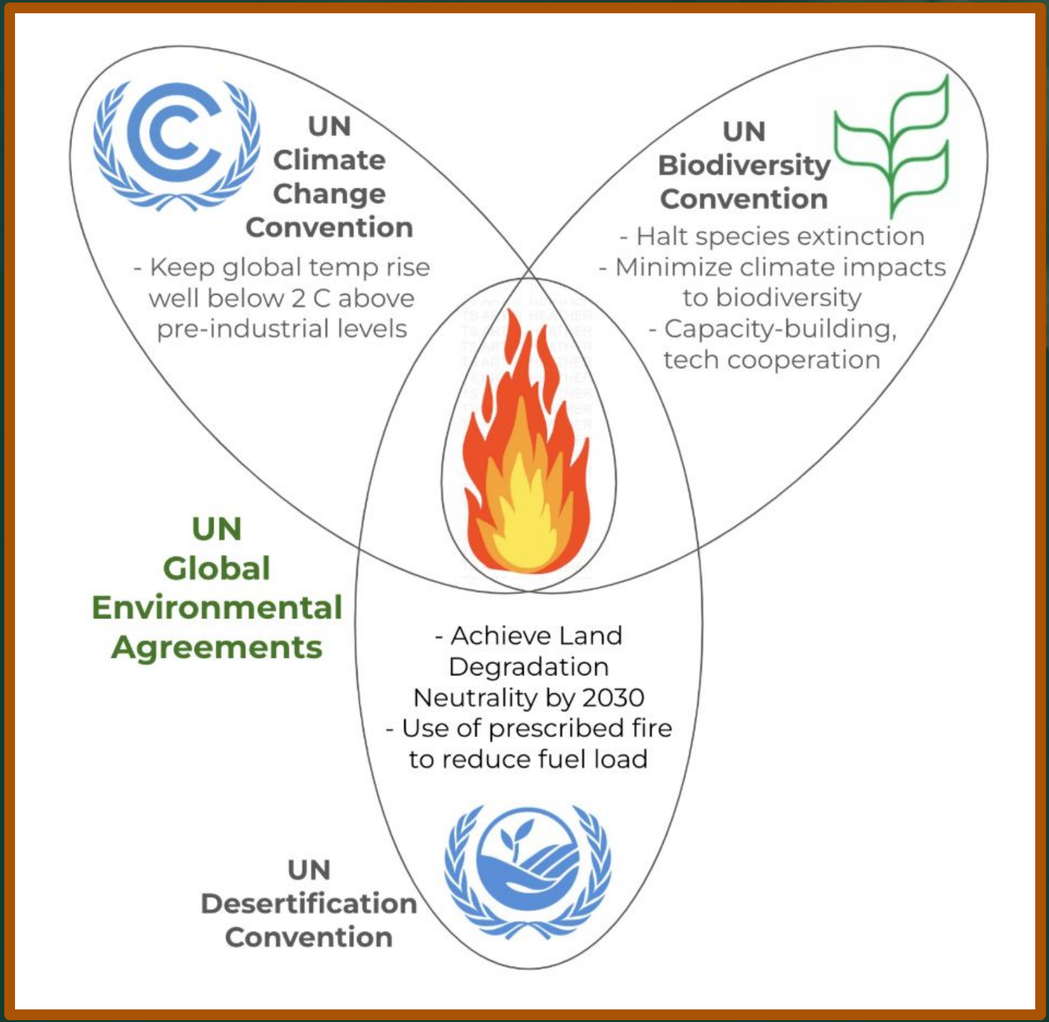


FAO Fire Hub + Global Forests Observation Initiative Plenary (ongoing)

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)

Kunming - Montreal
GLOBAL BIODIVERSITY FRAMEWORK

CRIC23
United Nations Convention to Combat Desertification

COP30 BRASIL AMAZÔNIA
BELÉM 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)

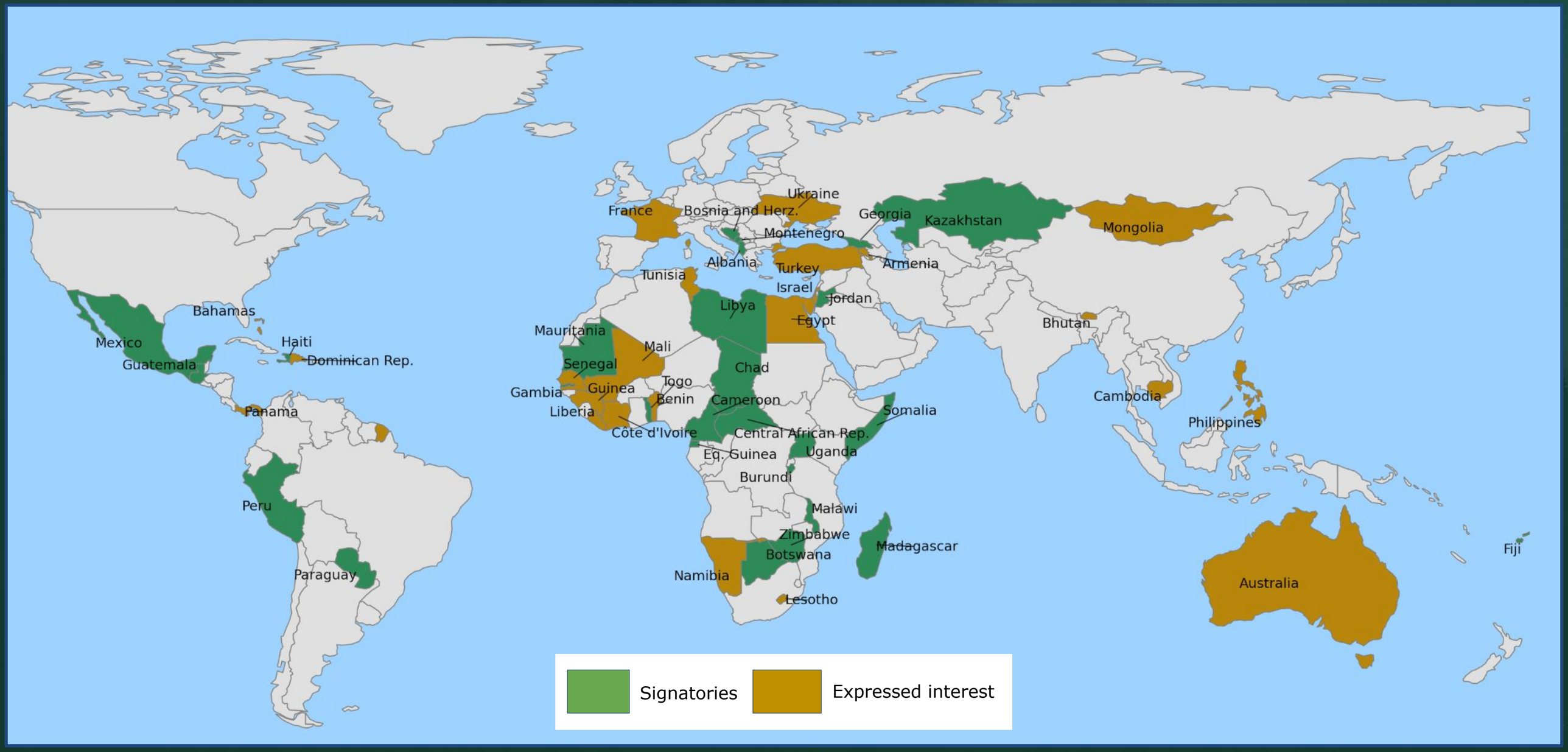
The Conservation Biology Institute urges discussion/refinement of this proposal at the 27th meeting of the CBD Subsidiary Body on Scientific, Technical and Technological Advice (20-24 October 2025).

4

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

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

Proposed 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

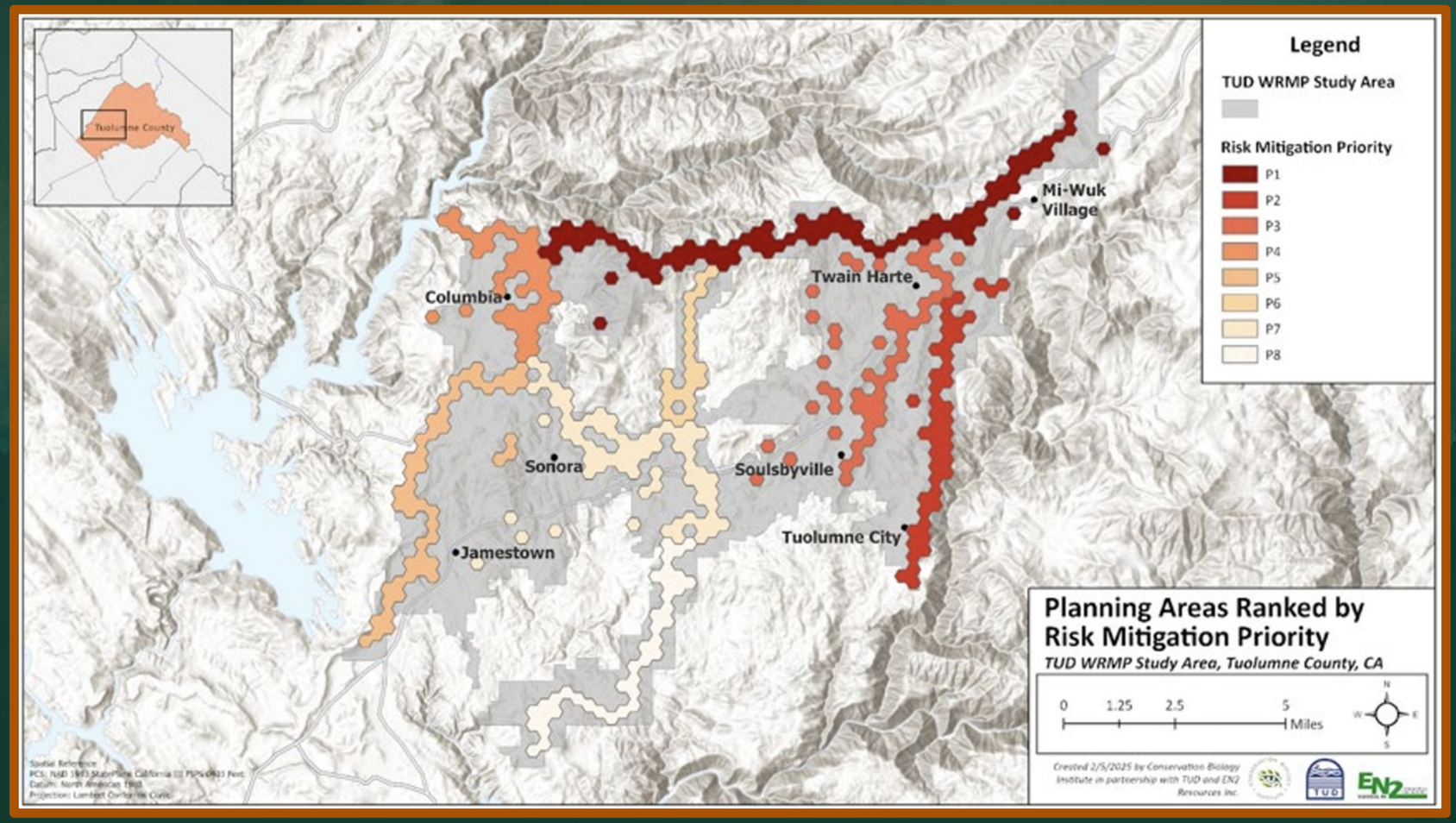
Panamá

Togo

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.

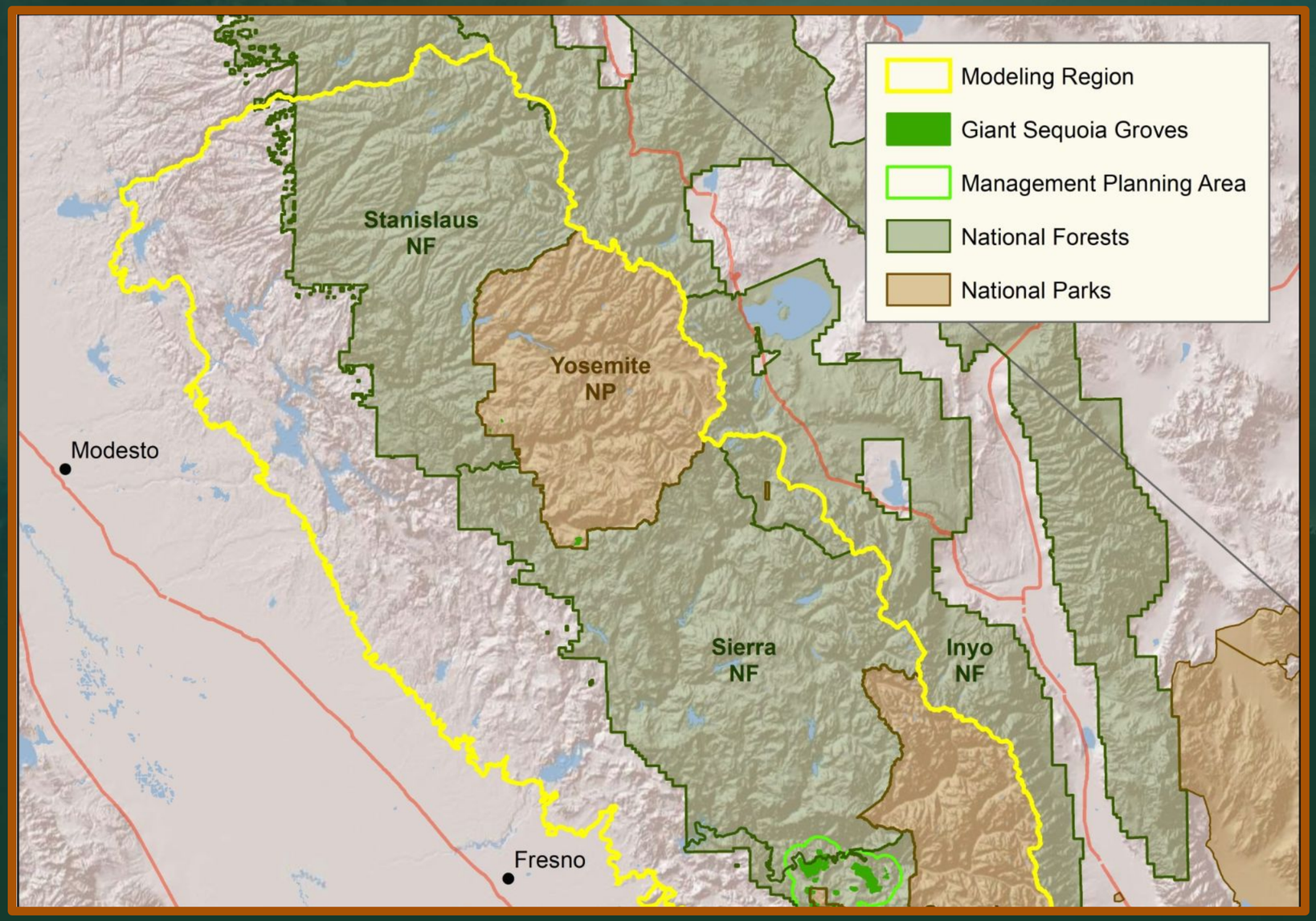
The plan follows state and federal directives on wildfire resilience, including the California Wildfire & Forest Resilience Action Plan and the US Forest Service's Wildfire Crisis Strategy Implementation Plan.



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.

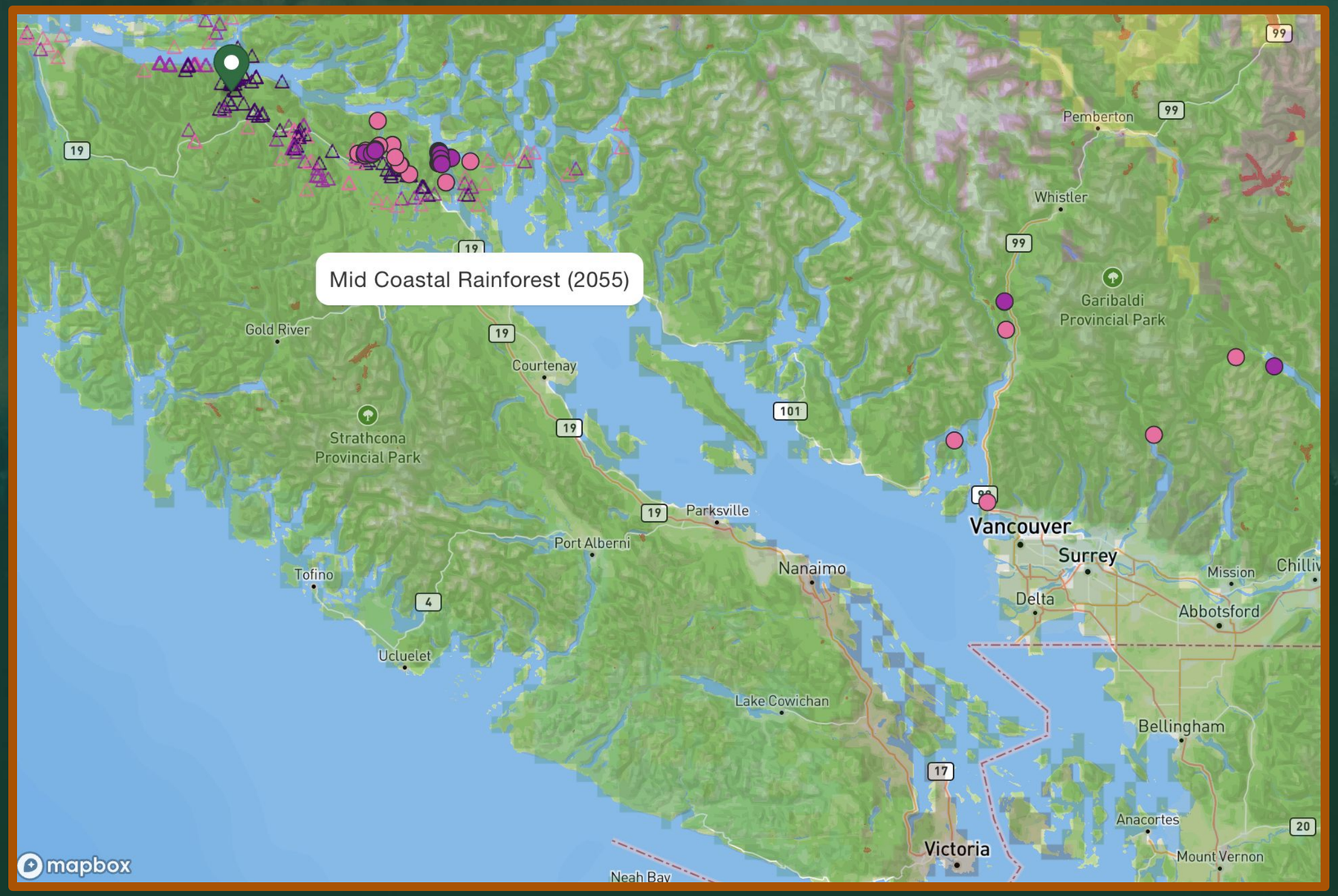
The tool will allow managers to simulate fuel-reduction treatments, evaluate their effects on a range of risks and resources, project the impacts into the future, and assess levels of uncertainty.



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.



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

www.globalwildfirecollective.org

www.consbio.org