

00  
01



# How fires are often seen...
















# Fire as a Conservation Tool: Lessons from Southern Africa in an Era of Wildfire

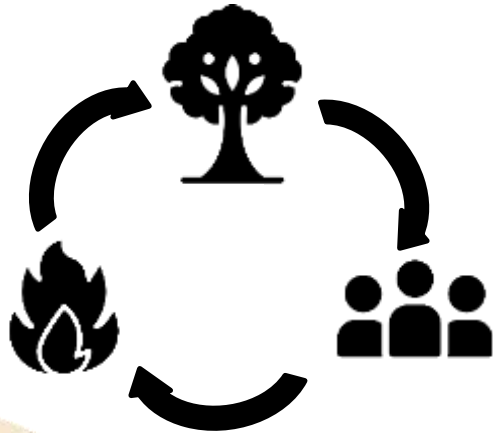
Dr Elliot Convery-Fisher

Collaborators:  
Dr Caroline Lehmann, RGBE  
Dr Sam Staddon, UoE  
Dr Adam Devenish, Kew Gardens  
Diana Rabeharison, KMCC,  
Dr. Navashni Govender, SANParks  
Tiana Randriamboavonjy, KMCC  
Richard Lewis, Durrell



# About Me

- Post-doc
- Interdisciplinary



THE UNIVERSITY  
of EDINBURGH



Royal  
Botanic Garden  
Edinburgh



Author's own

Approximately, what percentage range of the Earth's land surface is covered by fire-dependent ecosystems: where fire is considered a natural and integral ...

- ① Less than 10% 8% 2
- ② 10-25% 33% 8
- ③ 25-50% 54% 13 ✓
- ④ Over 75% 4% 1







The continent with the most fire is....



1

Place on the continent of your choice



January

2000 km

1000 mi

2025-09-09

Wed Sep 24 2025 11:27:32 GMT+0100 (British Summer Time)



February

2000 km

1000 mi

2025-09-09

Wed Sep 24 2025 11:28:01 GMT+0100 (British Summer Time)



March

2000 km

1000 mi

2025-09-09

Wed Sep 24 2025 11:28:11 GMT+0100 (British Summer Time)



April

2000 km

1000 mi

2025-09-09

Wed Sep 24 2025 11:28:22 GMT+0100 (British Summer Time)



May

2000 km

1000 mi

2025-09-09

Wed Sep 24 2025 11:28:32 GMT+0100 (British Summer Time)



June

2000 km

1000 mi

2025-09-09

Wed Sep 24 2025 11:28:34 GMT+0100 (British Summer Time)



July

2000 km

1000 mi

2025-09-09

Wed Sep 24 2025 11:28:36 GMT+0100 (British Summer Time)



August

2000 km

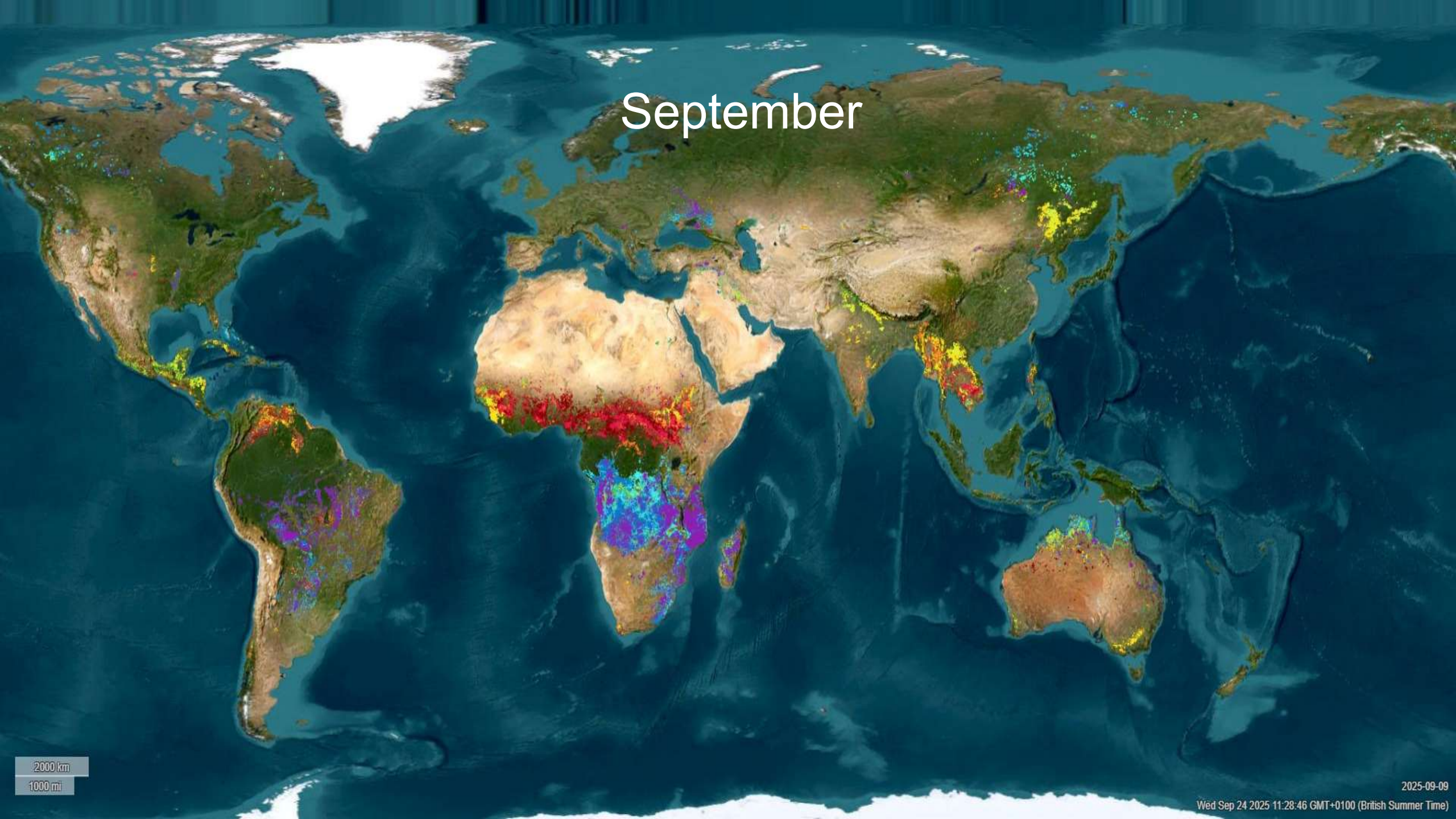
1000 mi

2025-09-09

Wed Sep 24 2025 11:28:42 GMT+0100 (British Summer Time)



# September



2000 km

1000 mi

2025-09-09

Wed Sep 24 2025 11:28:46 GMT+0100 (British Summer Time)



October

2000 km

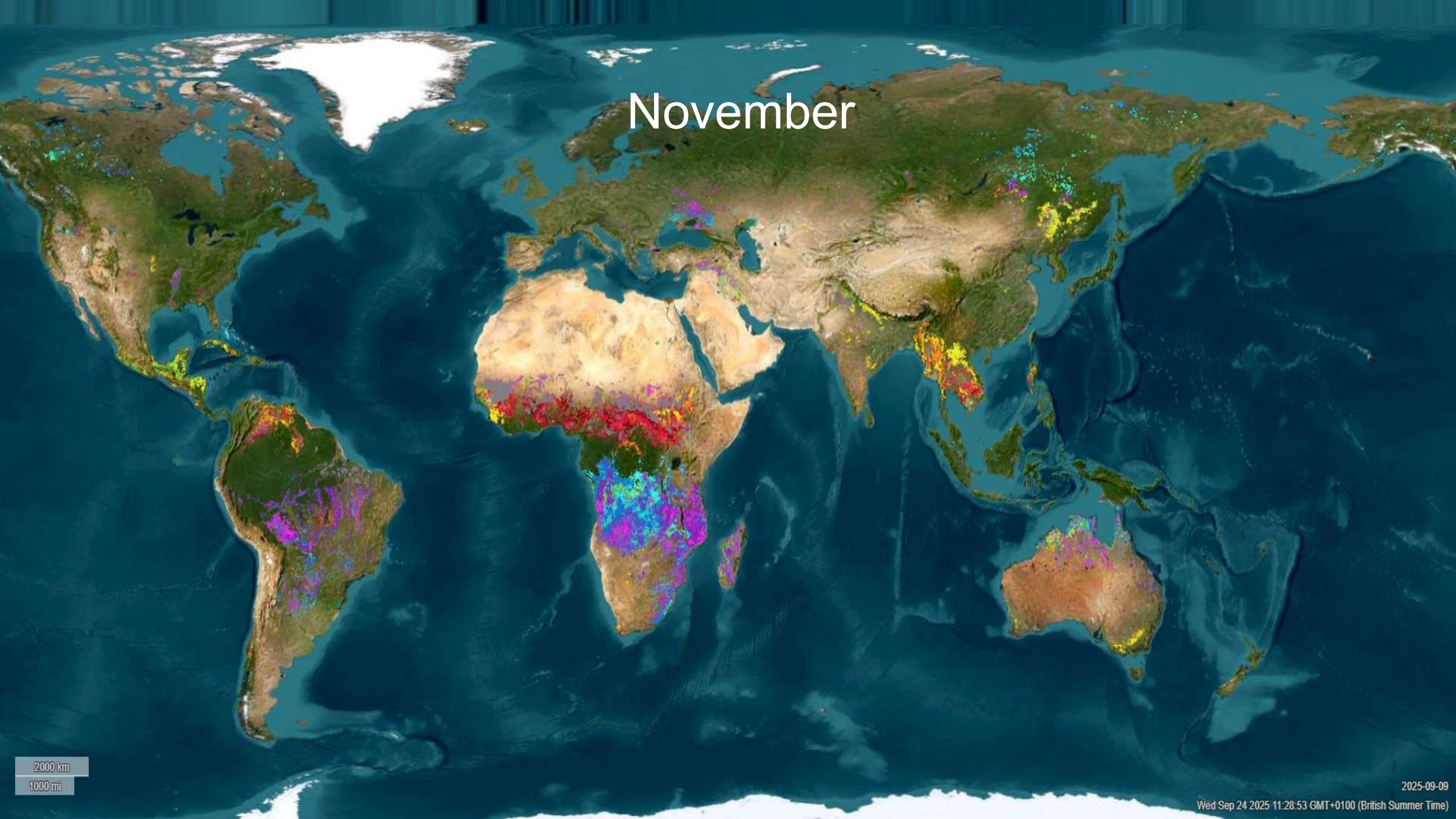
1000 mi

2025-09-09

Wed Sep 24 2025 11:28:49 GMT+0100 (British Summer Time)



# November



2000 km

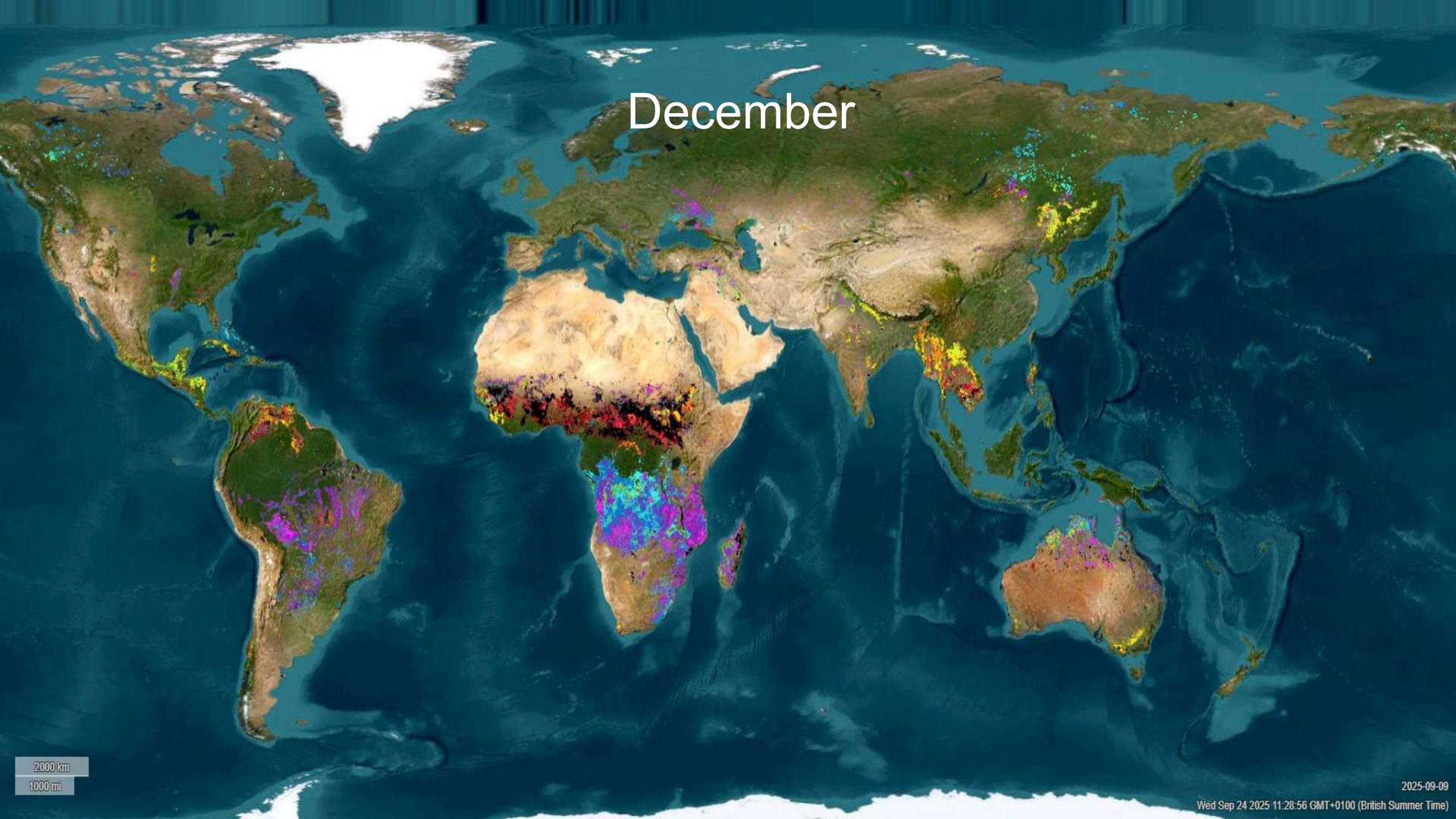
1000 mi

2025-09-09

Wed Sep 24 2025 11:28:53 GMT+0100 (British Summer Time)



# December



2000 km

1000 mi

2025-09-09

Wed Sep 24 2025 11:28:56 GMT+0100 (British Summer Time)



January

2000 km

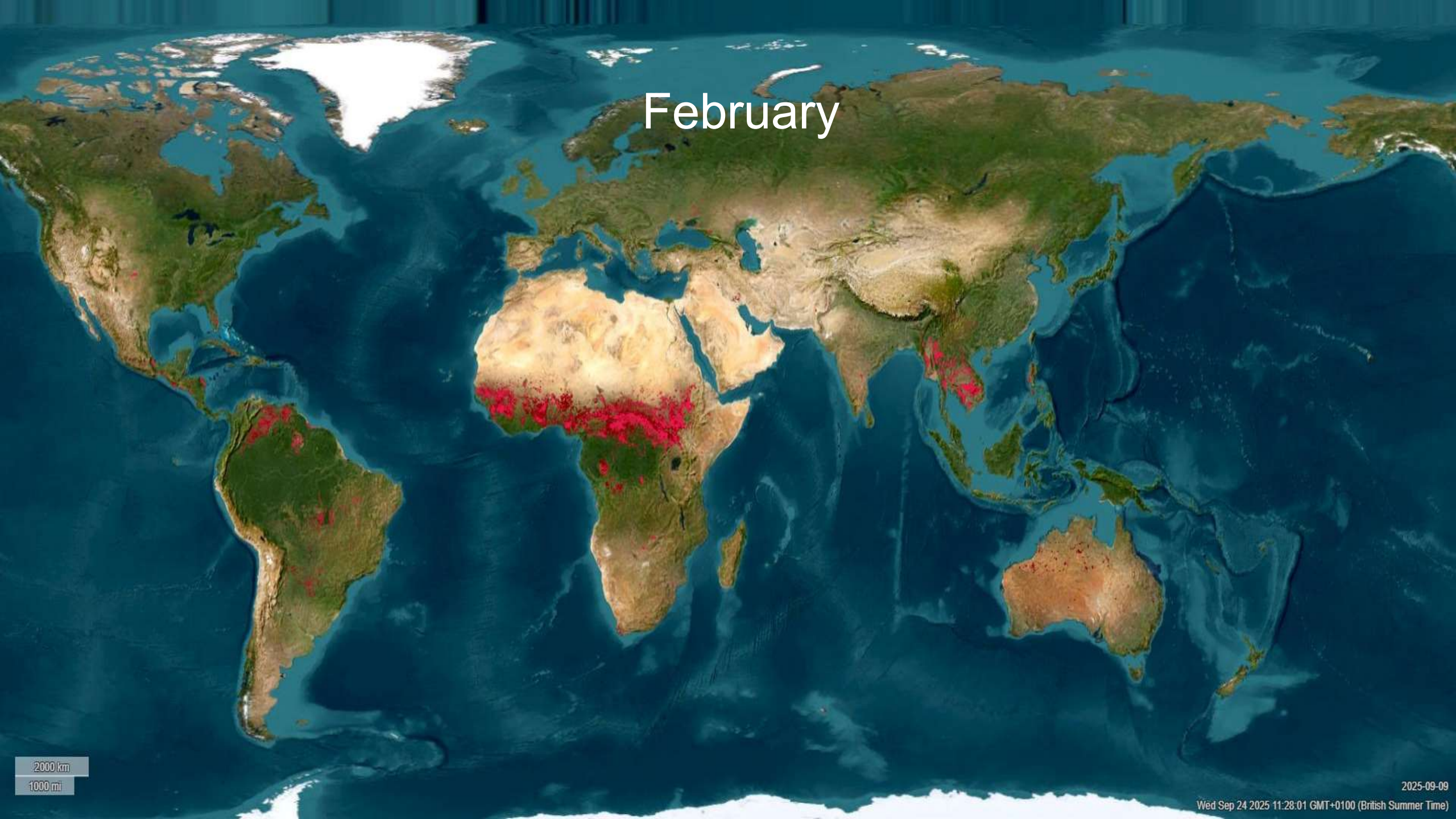
1000 mi

2025-09-09

Wed Sep 24 2025 11:27:32 GMT+0100 (British Summer Time)



# February



2000 km

1000 mi

2025-09-09

Wed Sep 24 2025 11:28:01 GMT+0100 (British Summer Time)



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Wed Sep 24 2025 11:28:36 GMT+0100 (British Summer Time)



August

2000 km

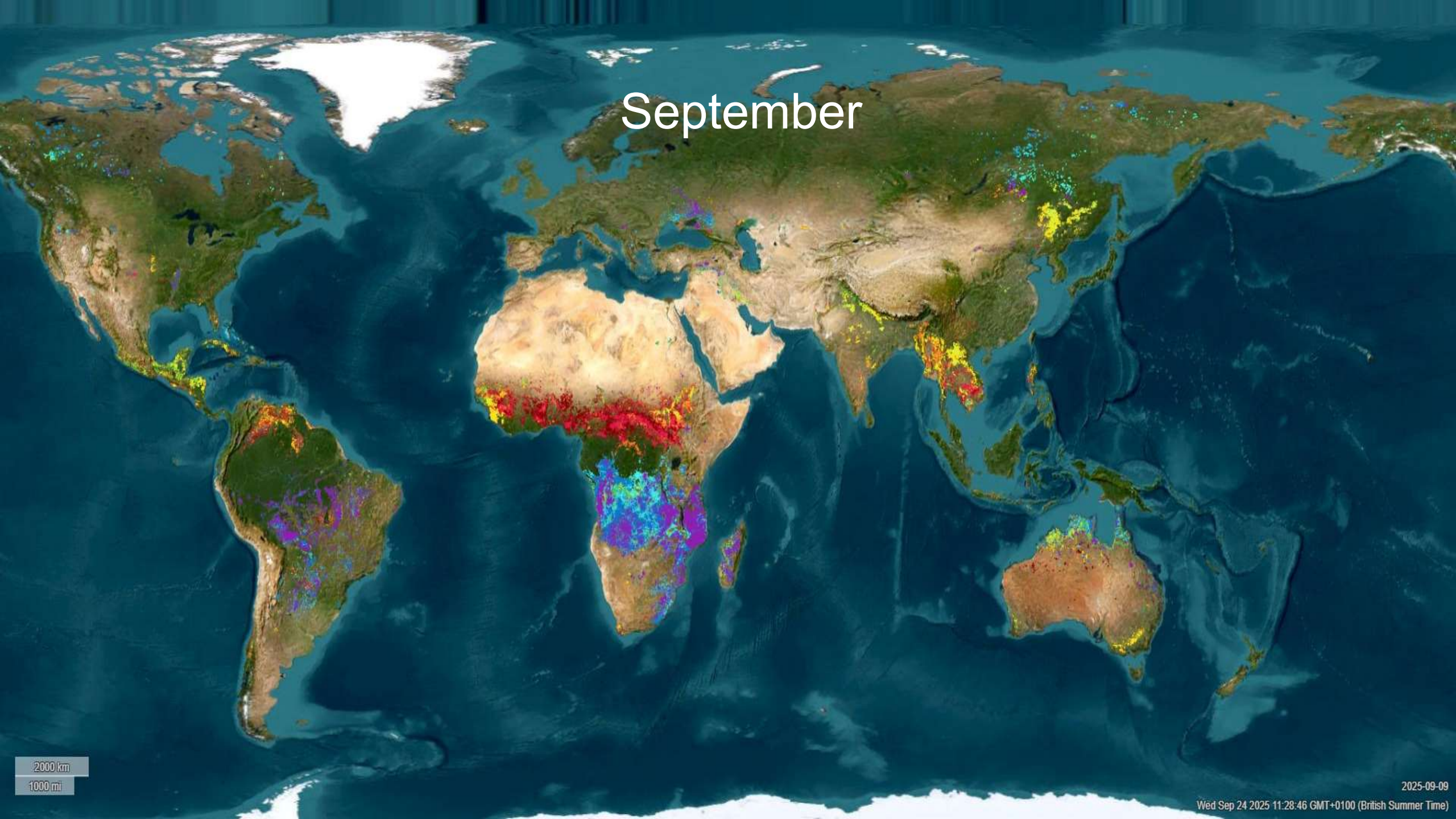
1000 mi

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2000 km

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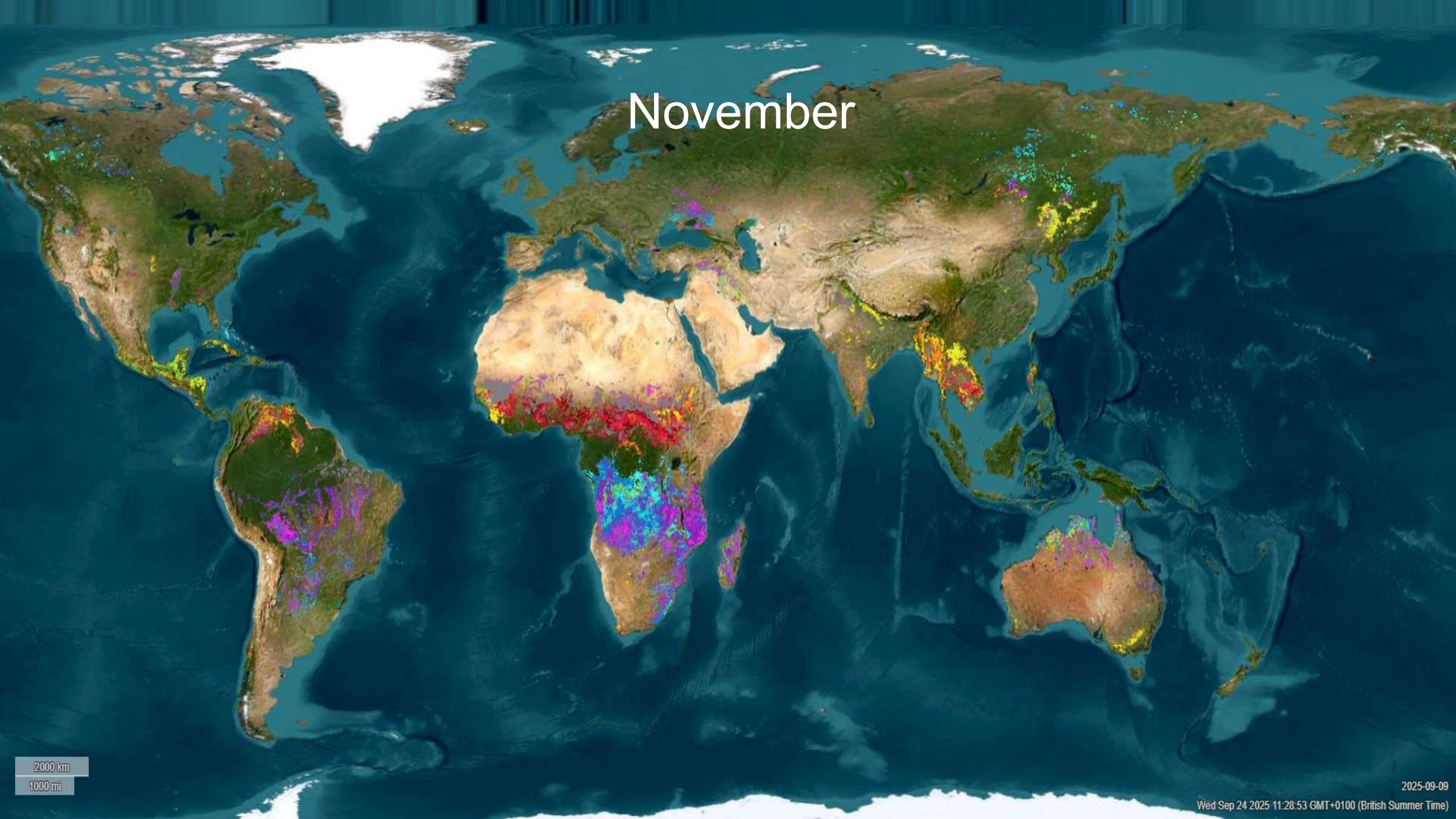
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2000 km

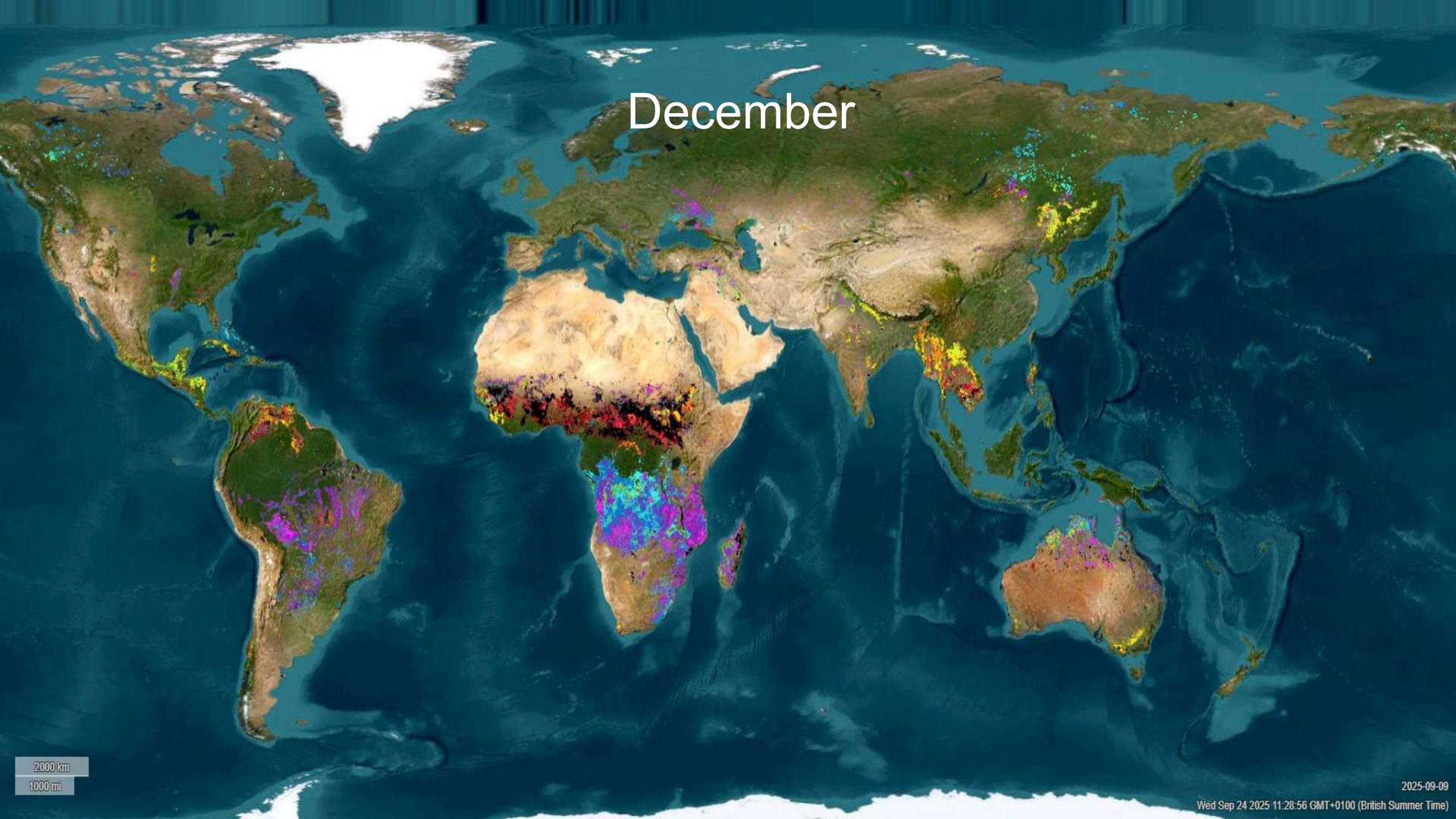
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# December



2000 km

1000 mi

2025-09-09

Wed Sep 24 2025 11:28:56 GMT+0100 (British Summer Time)



Global trends in the amount of fire (measured as burned area) is....



- 1

Stable over time

10% 3
- 2

Decreasing over time

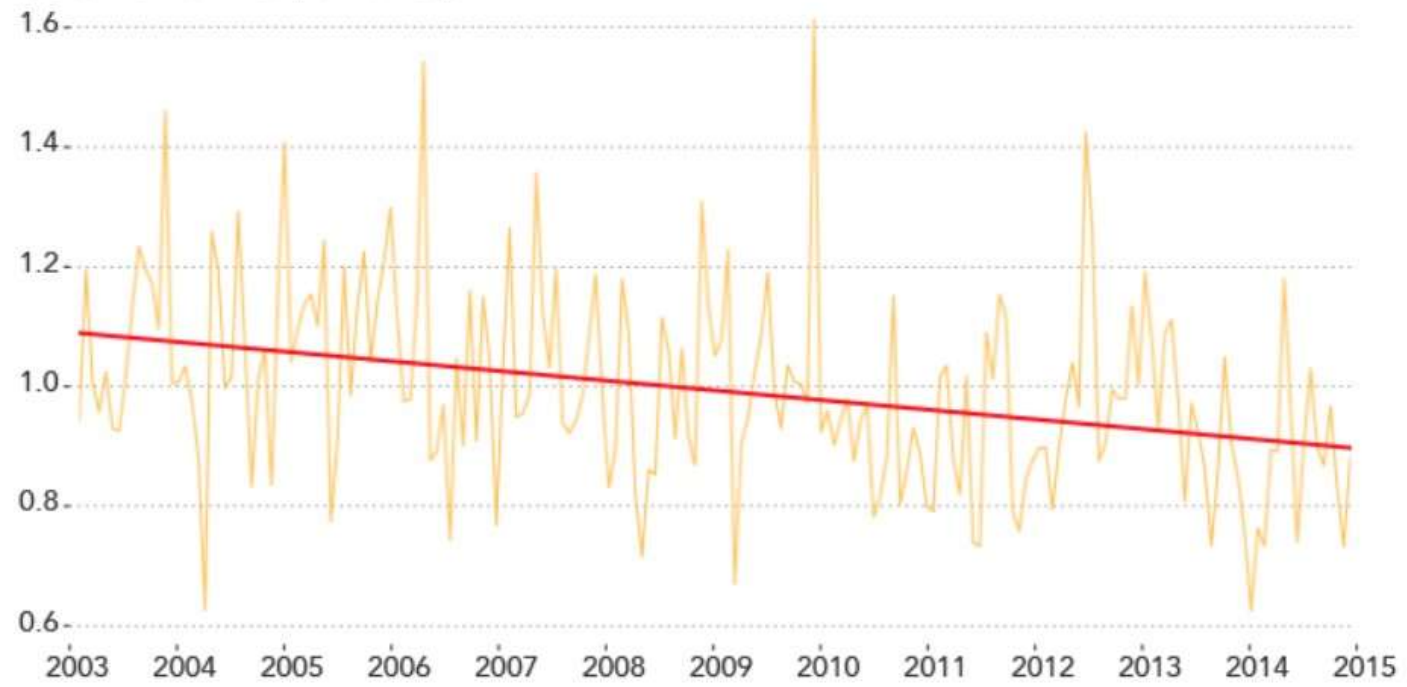
21% 6 ✓
- 3

Increasing over time

69% 20



Global Burned Area (normalized)



2003 - 2015

NASA, 2017



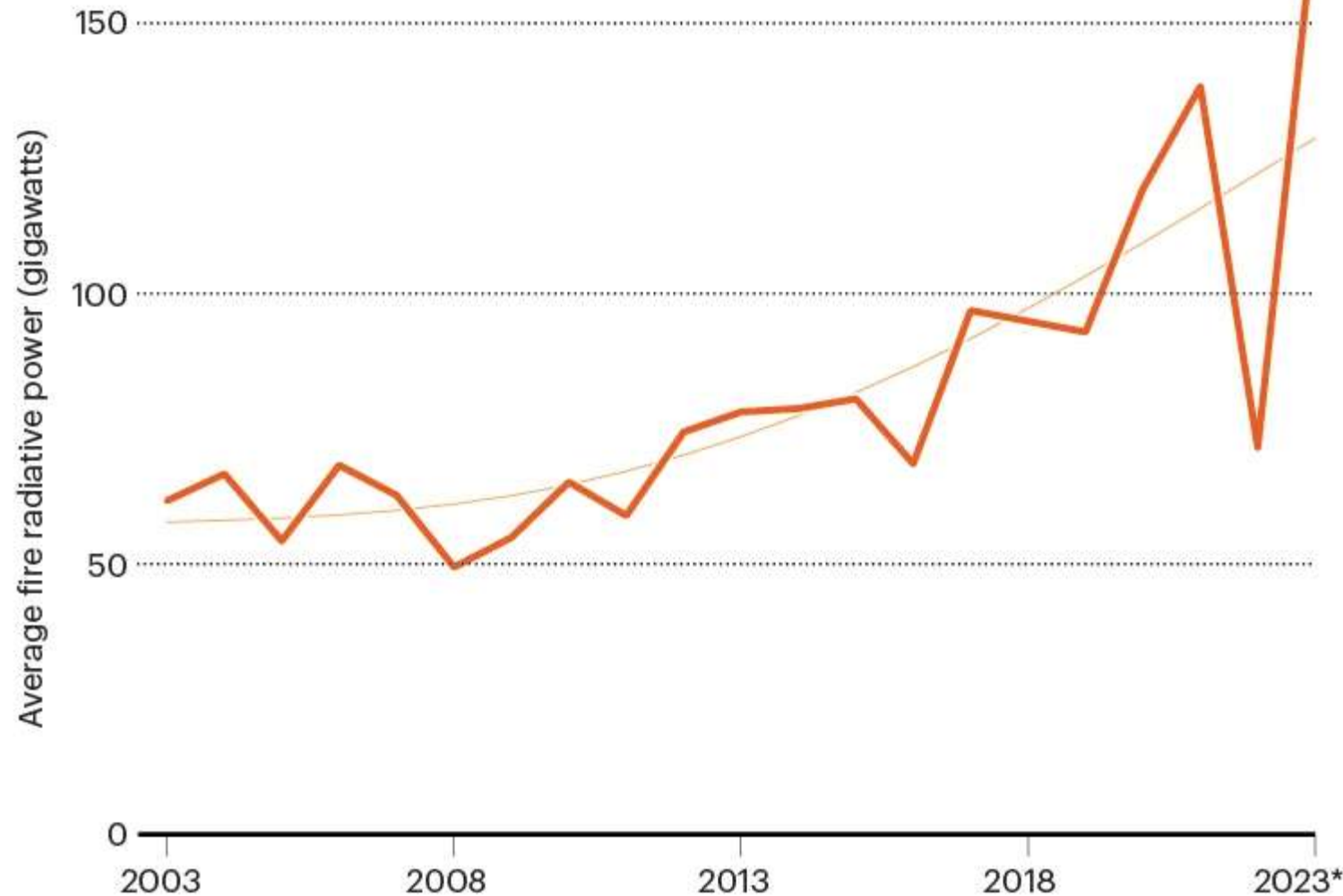






## RISING FIRE INTENSITY

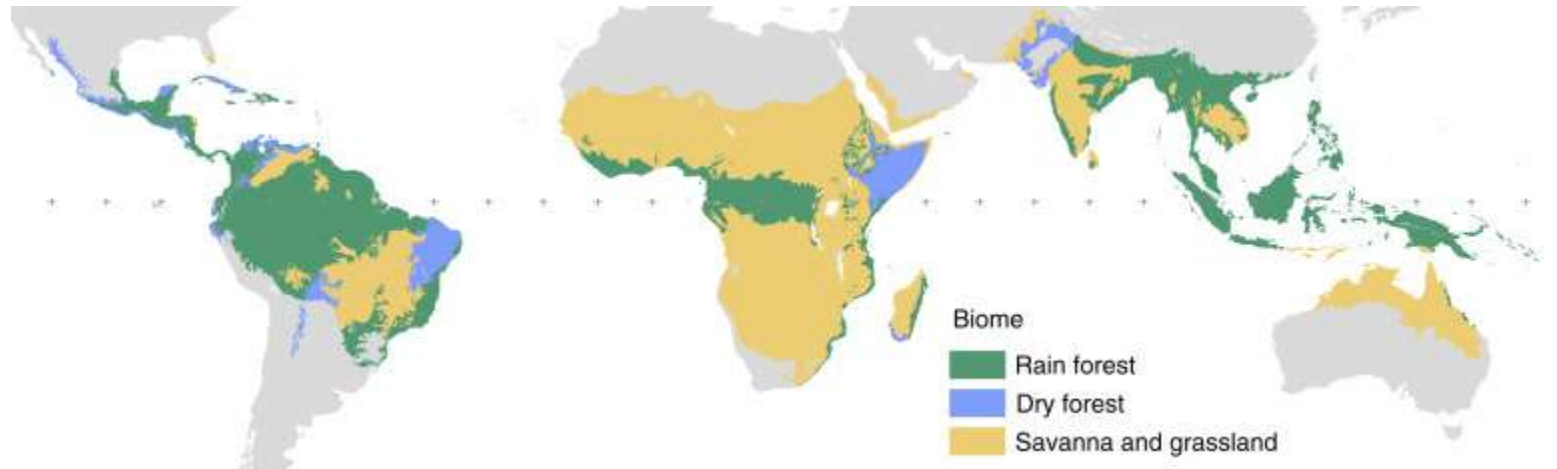
The energy intensity of the 20 most extreme wildfires worldwide increased about 2.3-fold over the past two decades, according to an analysis of satellite data.



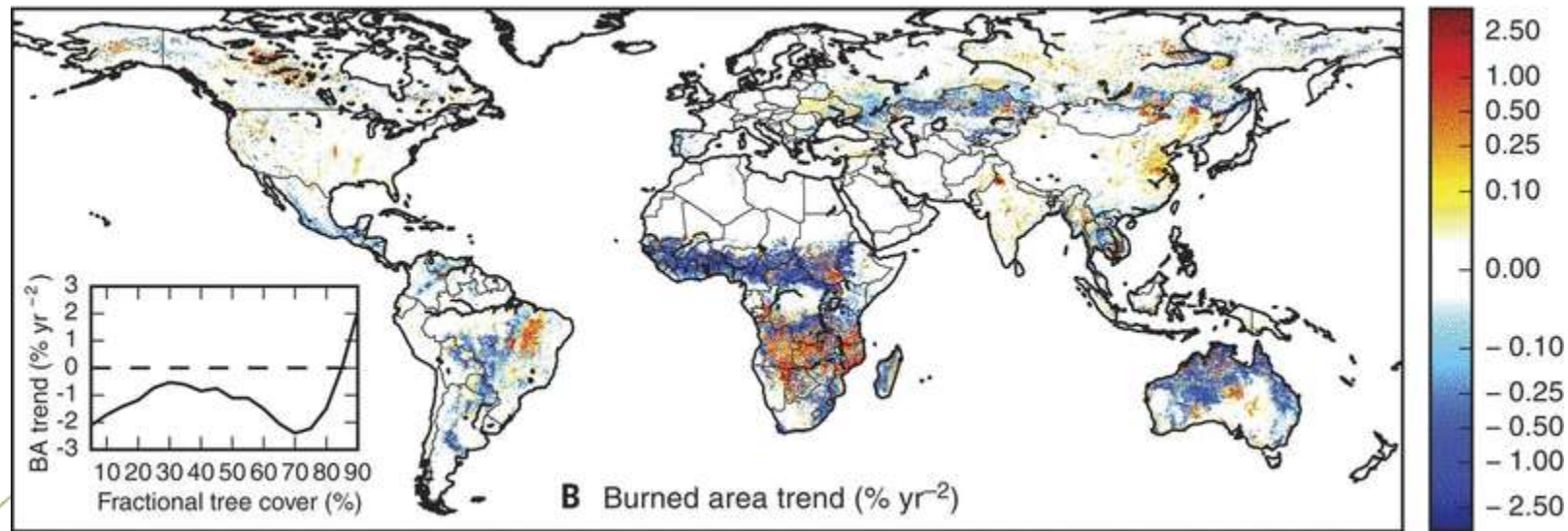
\* The average for 2023 does not include December because that information was not available at the time of analysis.

Cunningham et al. 2024

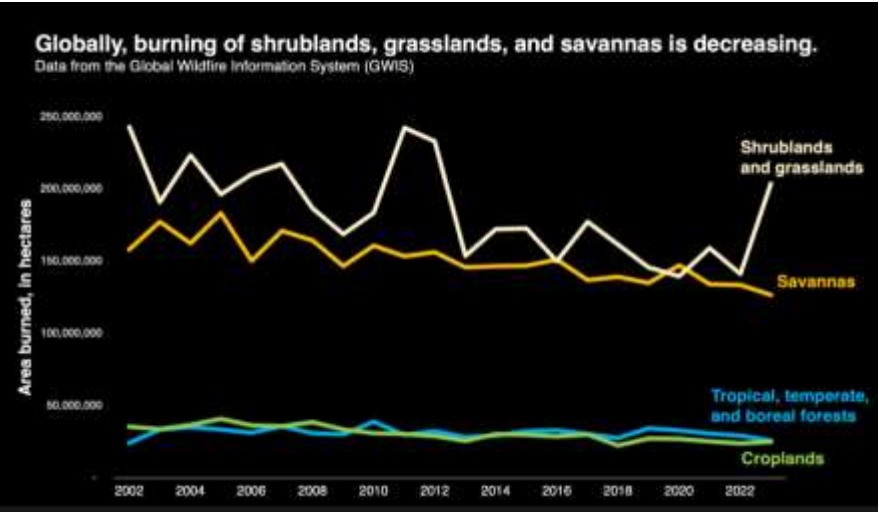




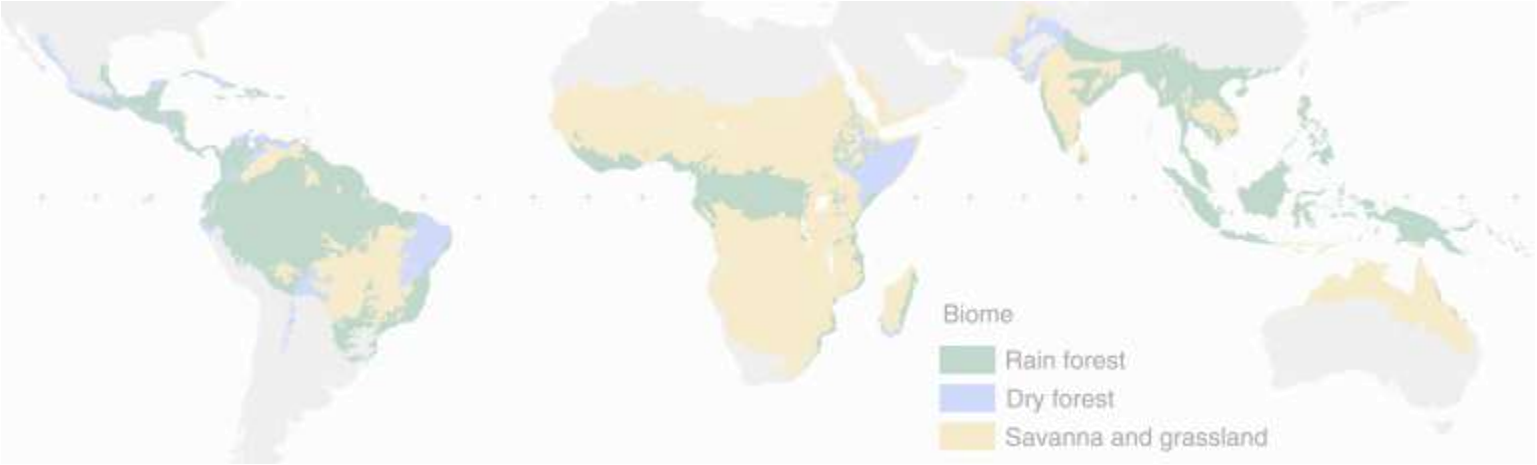
Pennington, Lehmann, Rowland. 2015



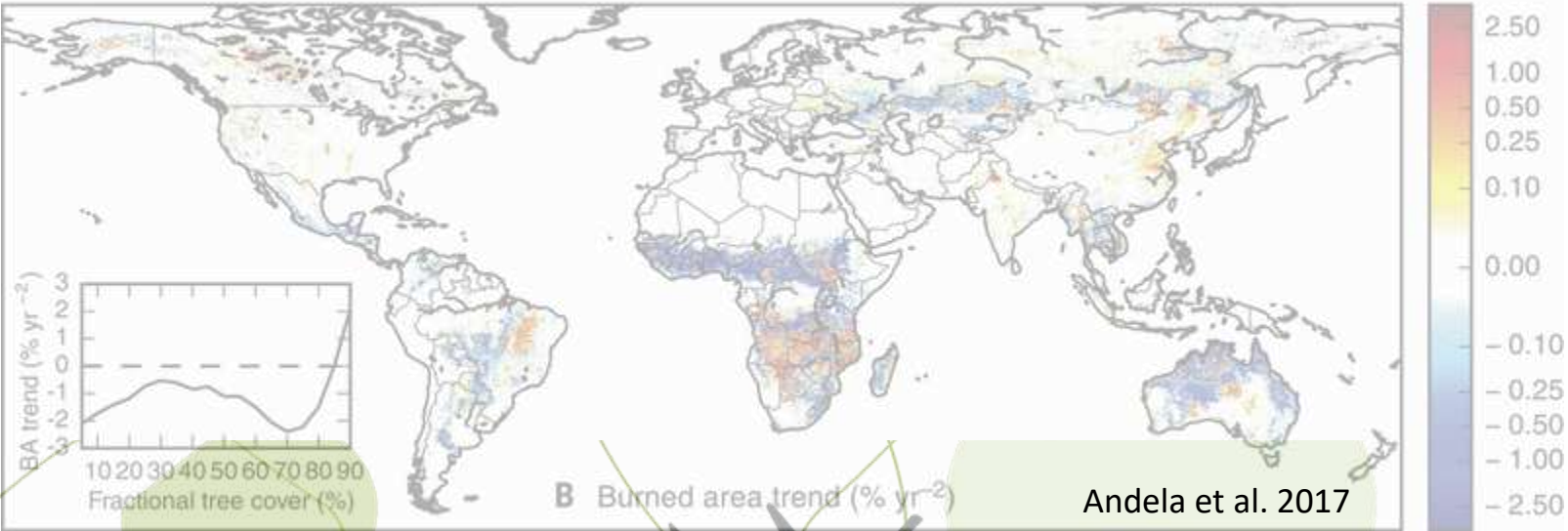




NASA. 2024

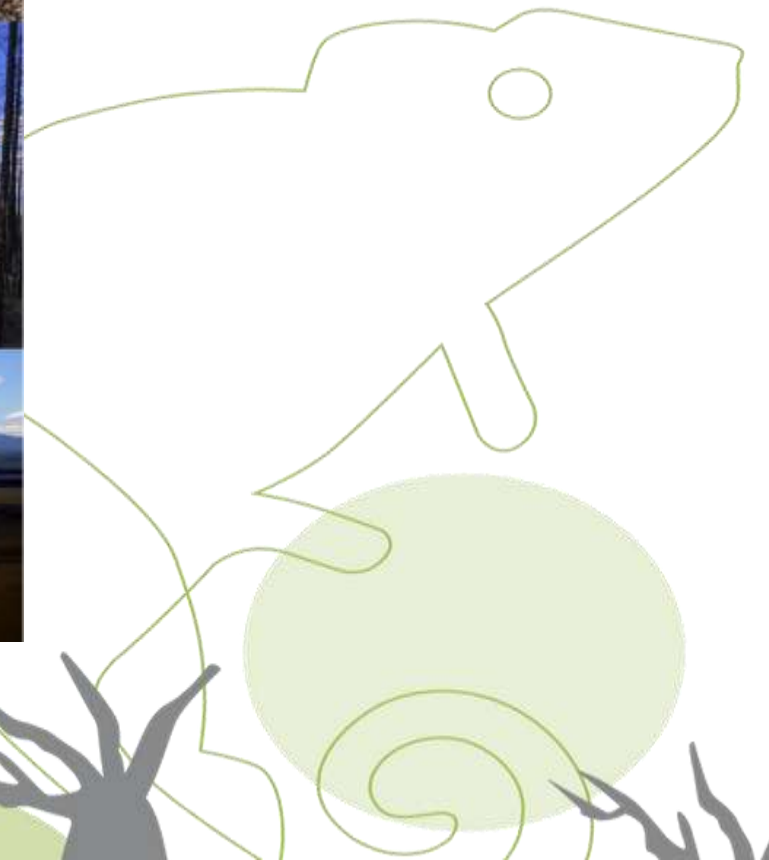
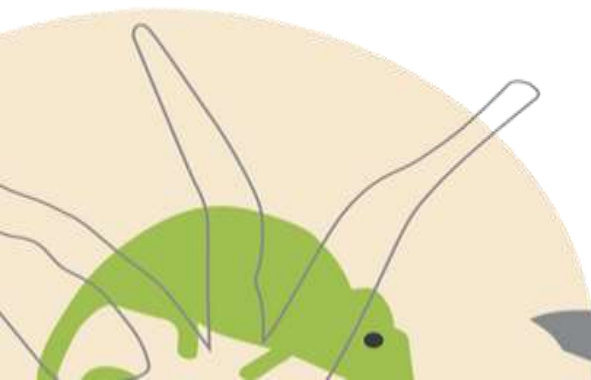


Pennington, Lehmann, Rowland. 2015



Andela et al. 2017



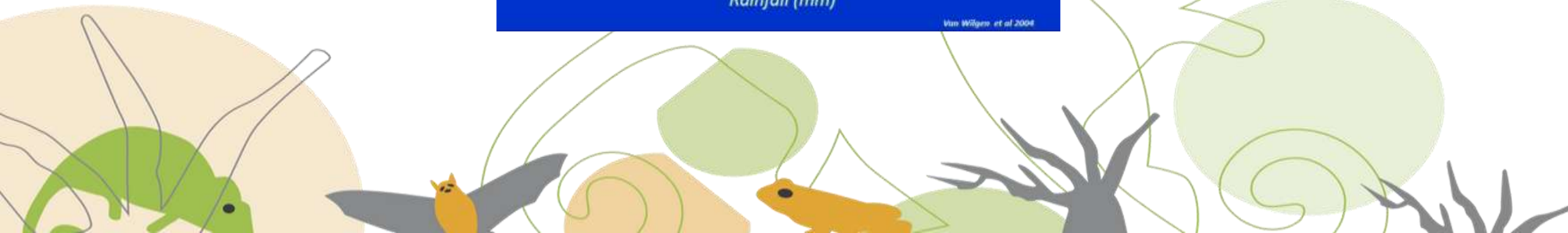
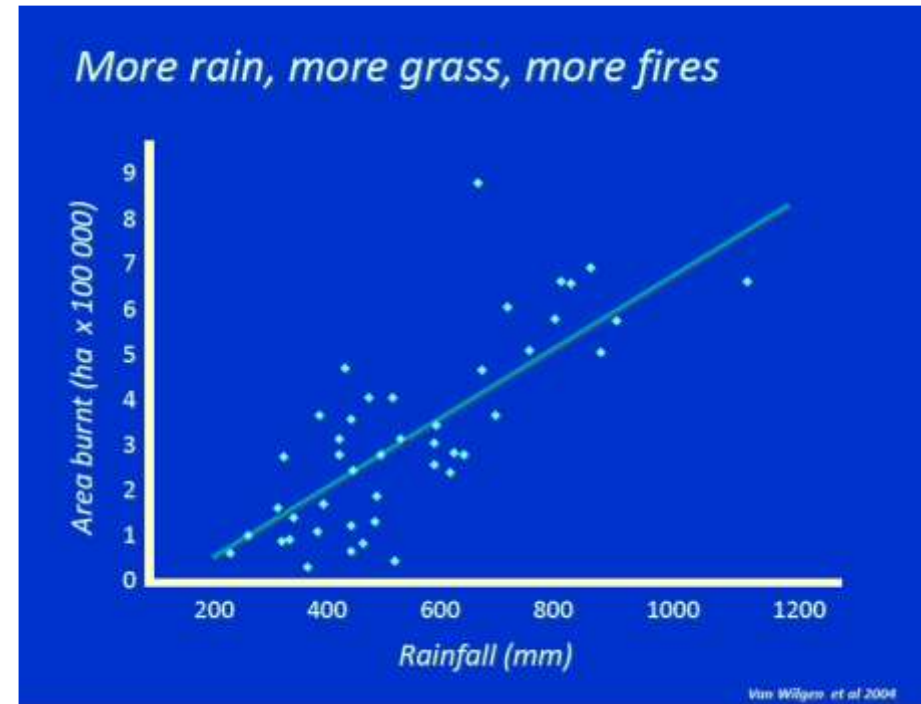








# 1. Build an evidence-base





# 1. Build an evidence-base





## 2. Seek diversity in fire patterns



*Creation of  
grazing lawns  
(patches of long  
and short grass)*





### 3. Be adaptive and proactive

ERA	POLICY	OBJECTIVE
1926 – 1947	Lassaiz faire	Provision of green grazing for wildlife
1948 – 1956	Fire protection	Concern about the perceived negative effects of fire on grazing
1957 – 1980	Regular (Fixed) prescribed burning	Importance of fire for ecosystem health is recognized
1981 – 1991	Flexible prescribed burning	3yr. Burn with season variation
1992 – 2001	Natural (lightning) fire	Simulation of “natural” conditions under which the biota evolved
2001 – 2012	Integrated fire management policy	Combined ignition source & seasonal variation– Managers, lightning & illegal trans-migrants
2013 – to date	Integrated fire management policy	Burning for ecological and safety

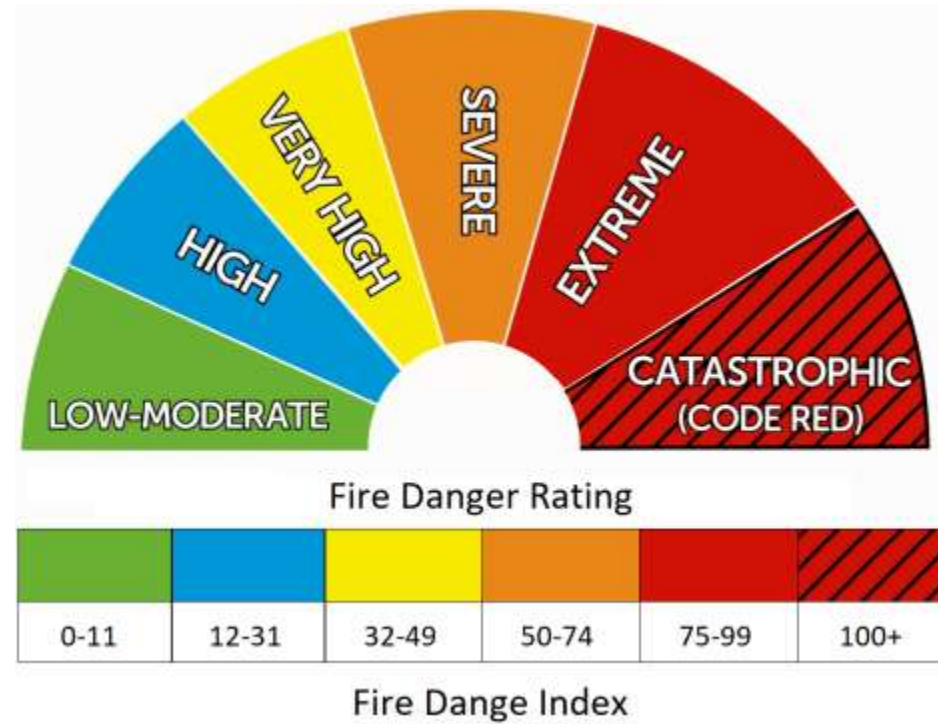


## 4. Be prepared



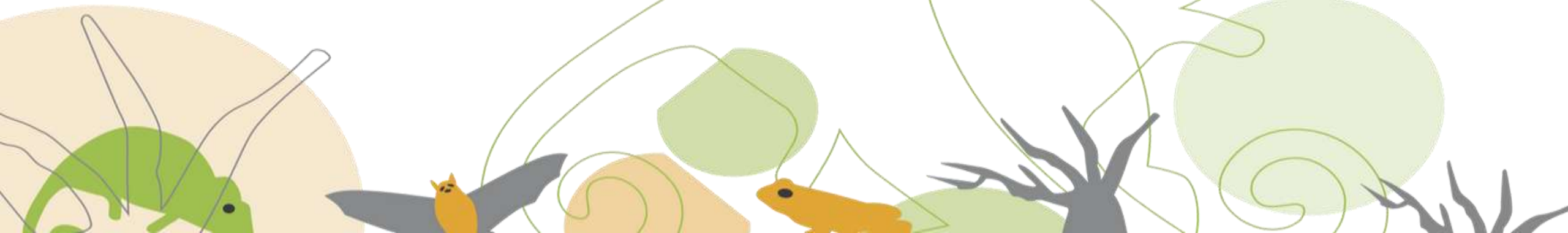


## 4. Be prepared





## 5. Get the governance right





# Key Lessons

1. Build an evidence-base
2. Seek diversity in fire patterns
3. Be adaptive and proactive
4. Be prepared
5. Get the governance right





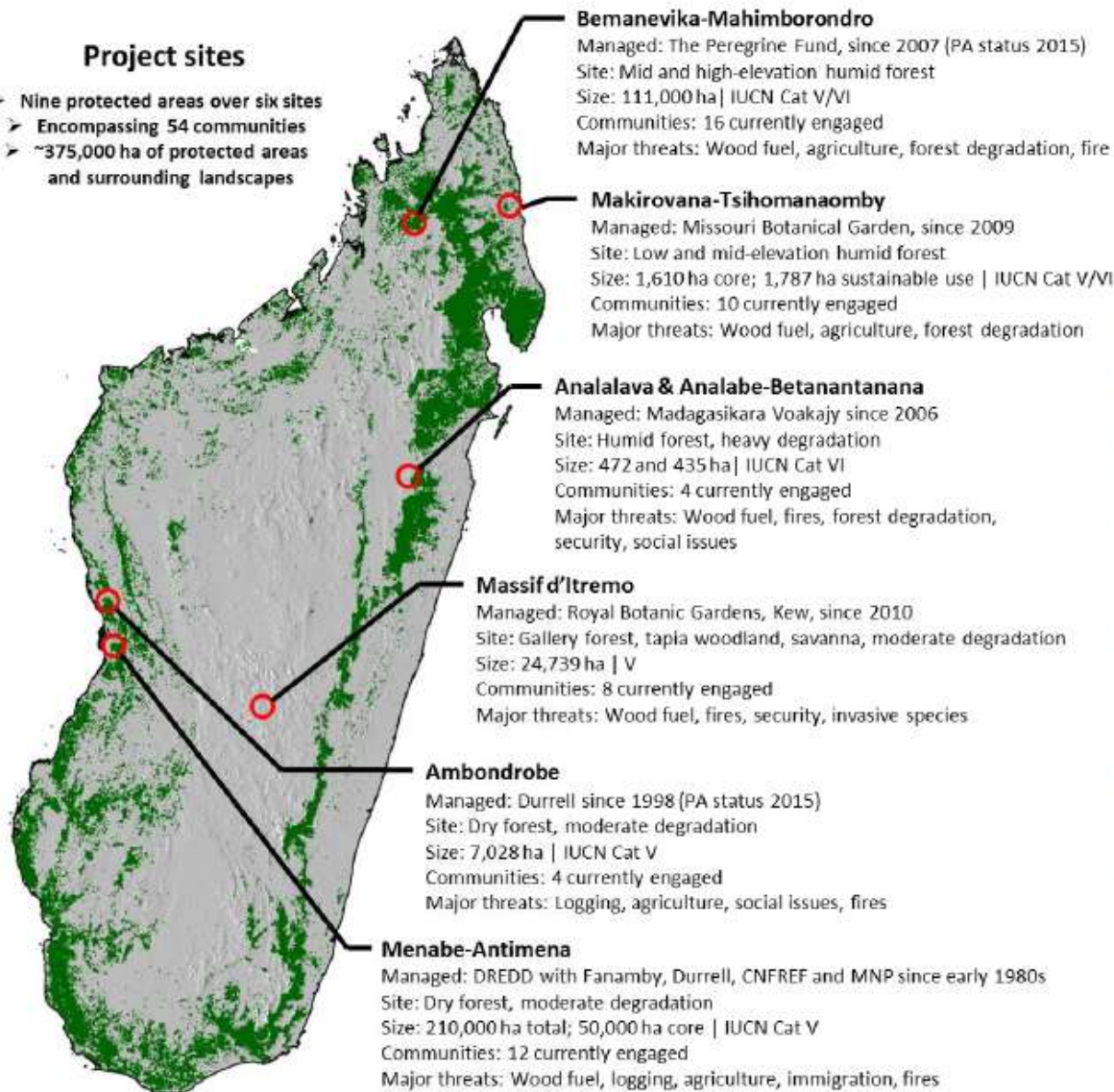
# Study area



FITANTANANA MAHARITRA  
HOLOVAIN-JAFY

## Project sites

- Nine protected areas over six sites
- Encompassing 54 communities
- ~375,000 ha of protected areas and surrounding landscapes



## PA-based partners

- Missouri Botanical Garden
- The Peregrine Fund
- Madagascar Voakajy
- Durrell Wildlife Conservation Trust
- RBG Kew

## Two overarching partners

- CARE International (Community development)
- LTS-NIRAS (Internal monitoring, evaluation and learning)



# Context





# 1. Build an evidence-base





# 1. Build an evidence-base





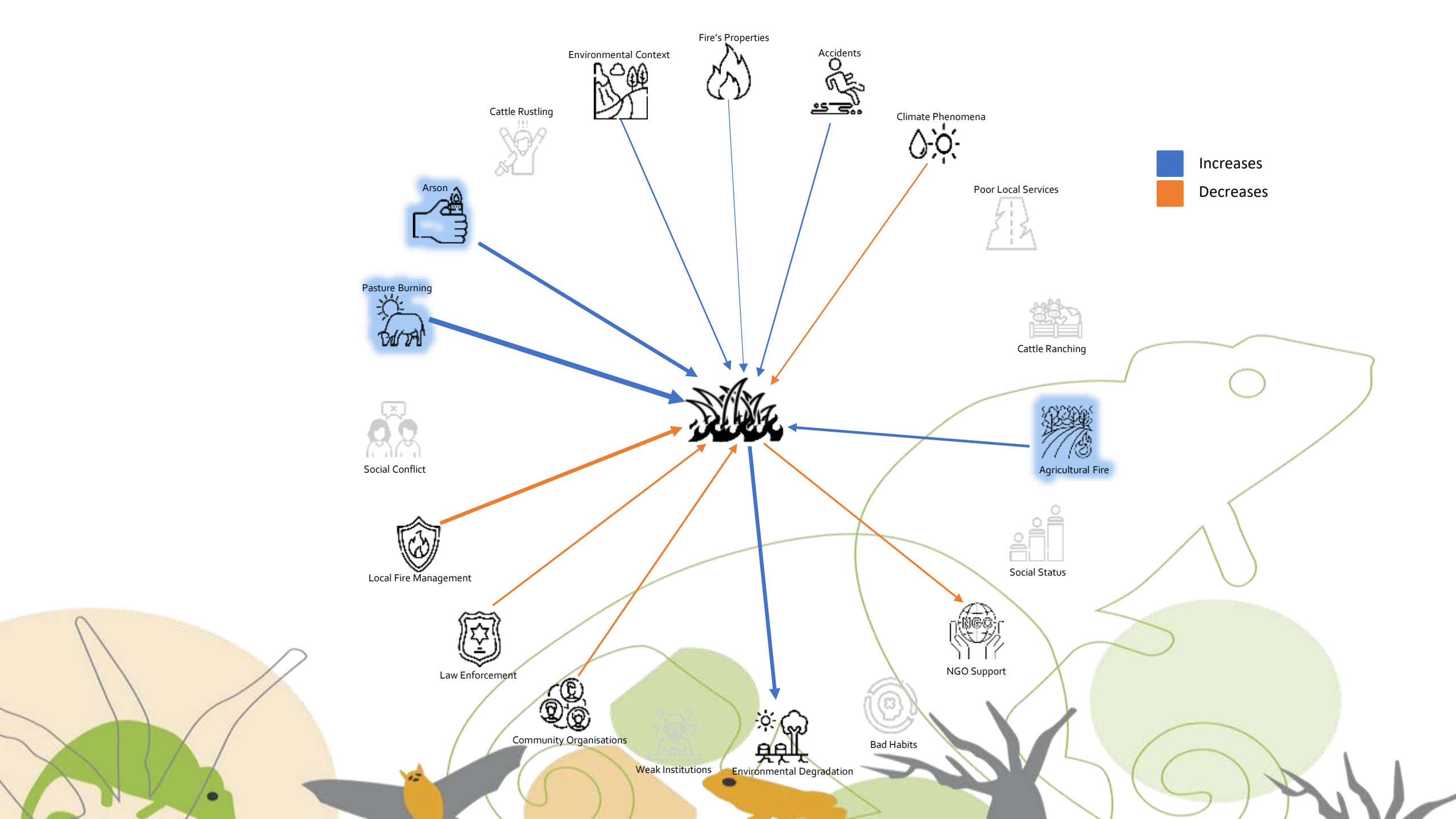
# 1. Build an evidence-base



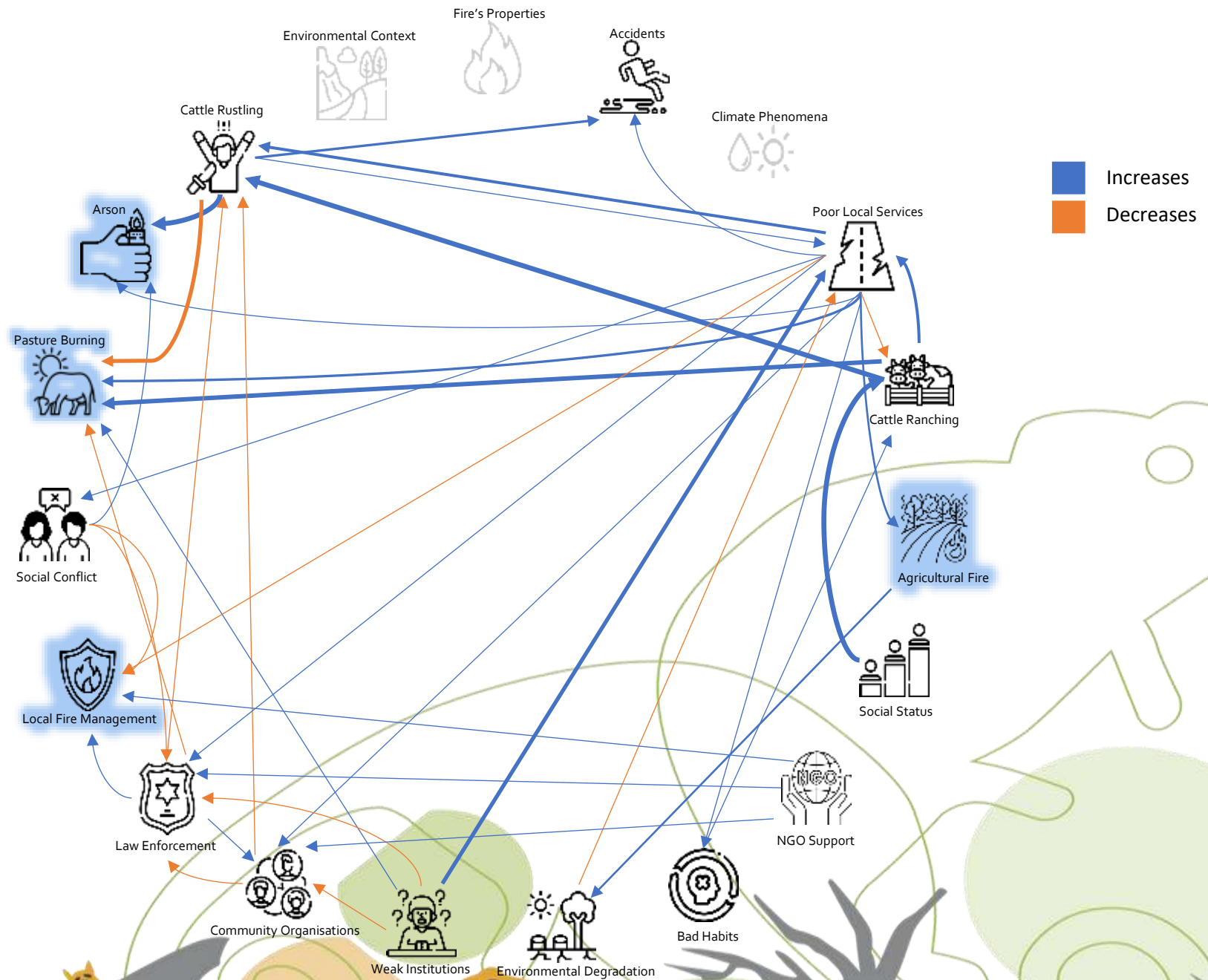




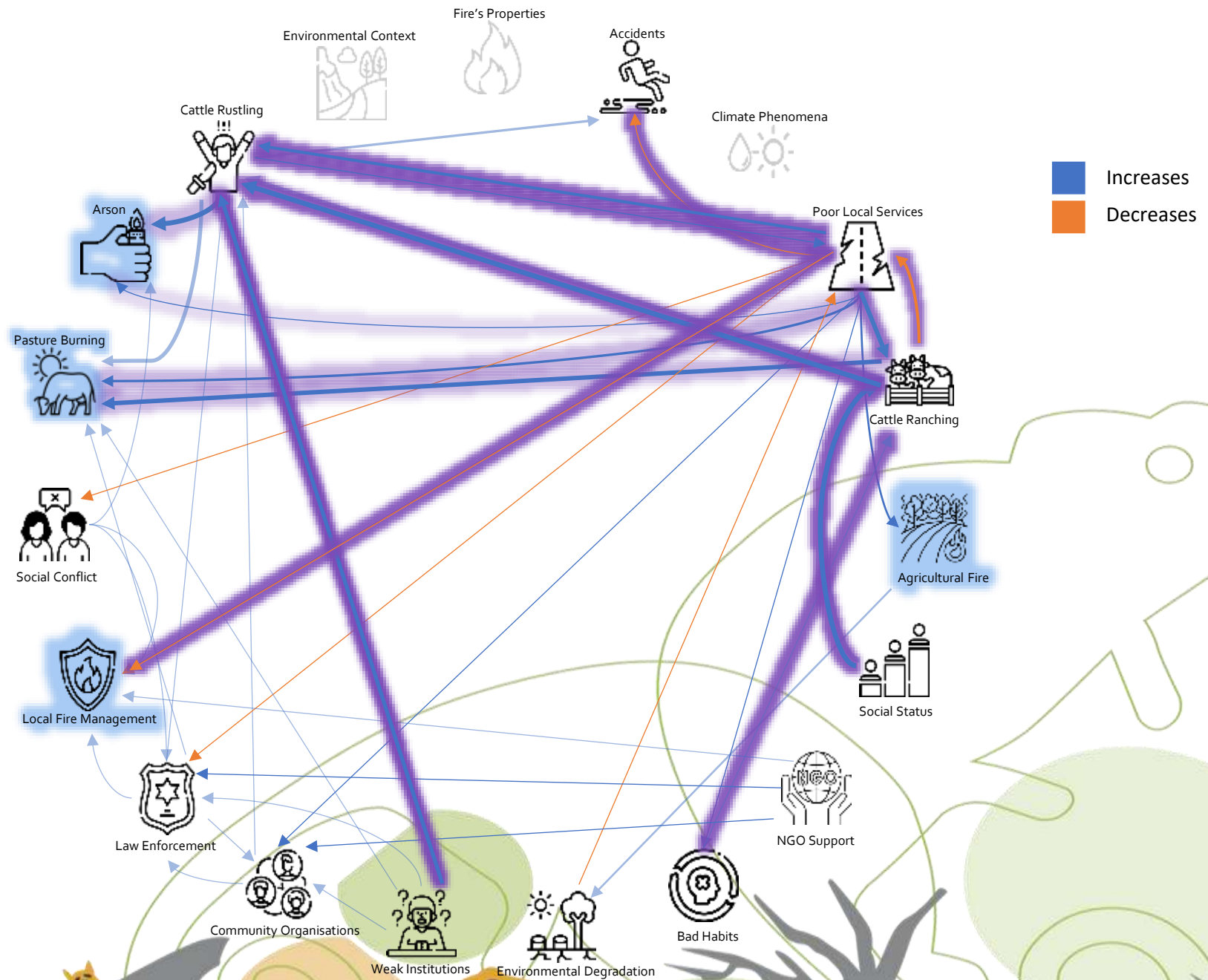


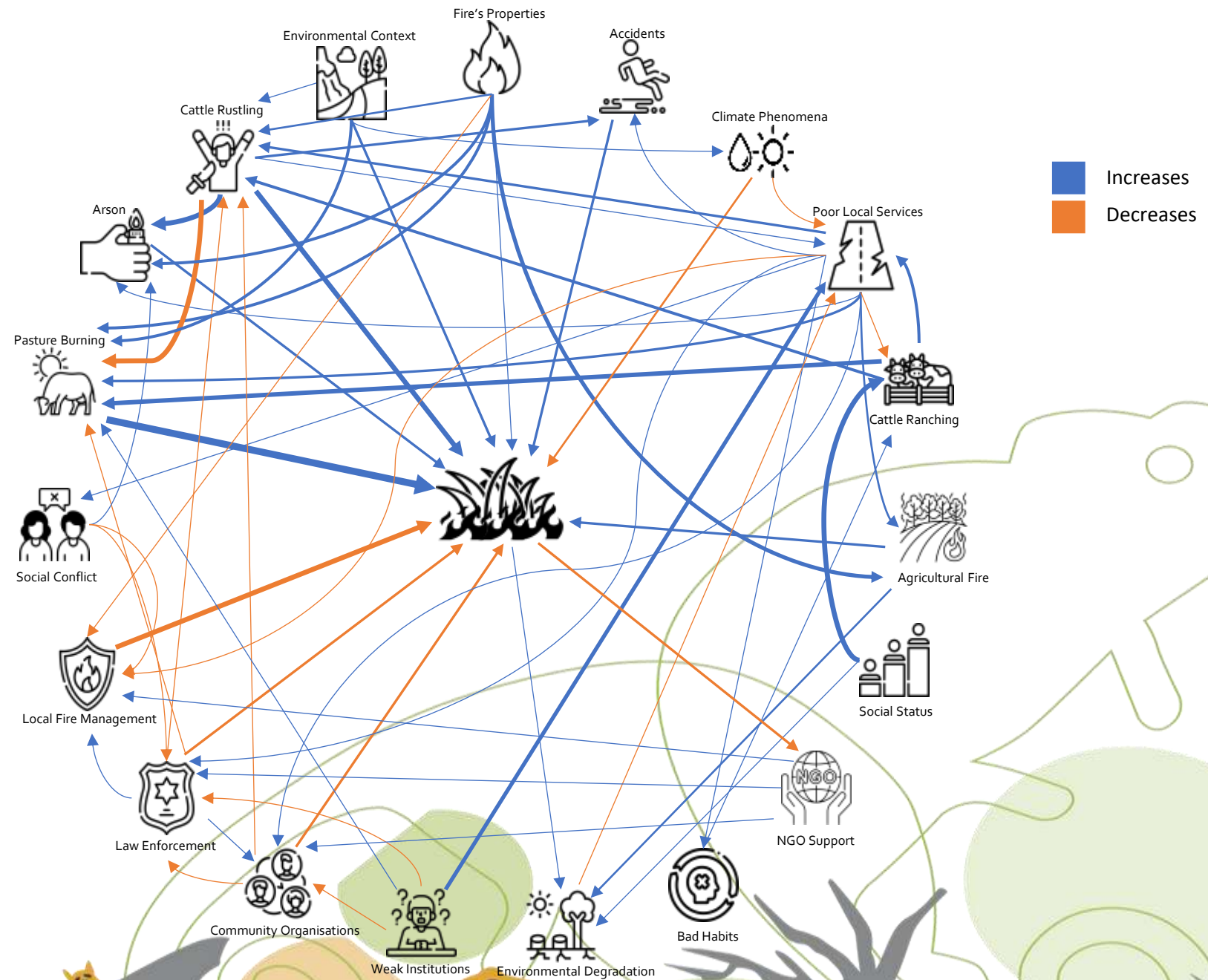






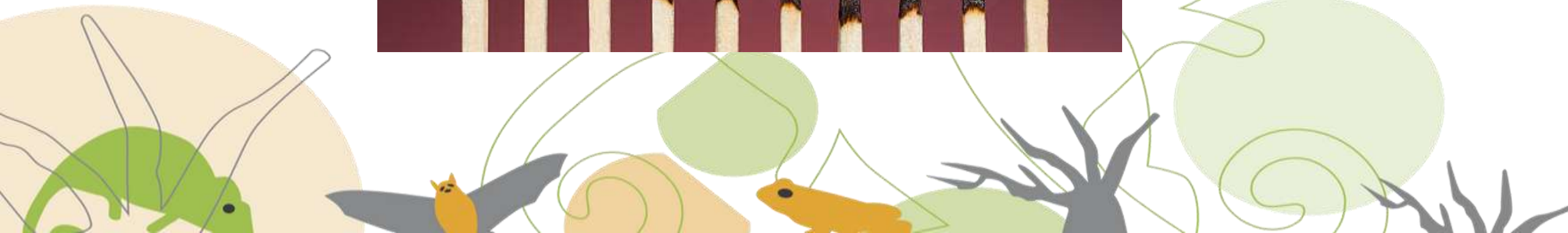




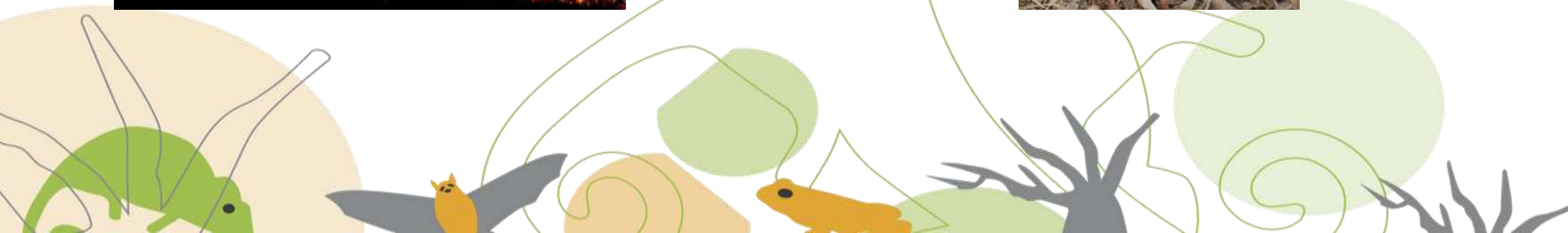




# 1. Build an evidence-base



# 1. Build an evidence-base





# 1. Build an evidence-base



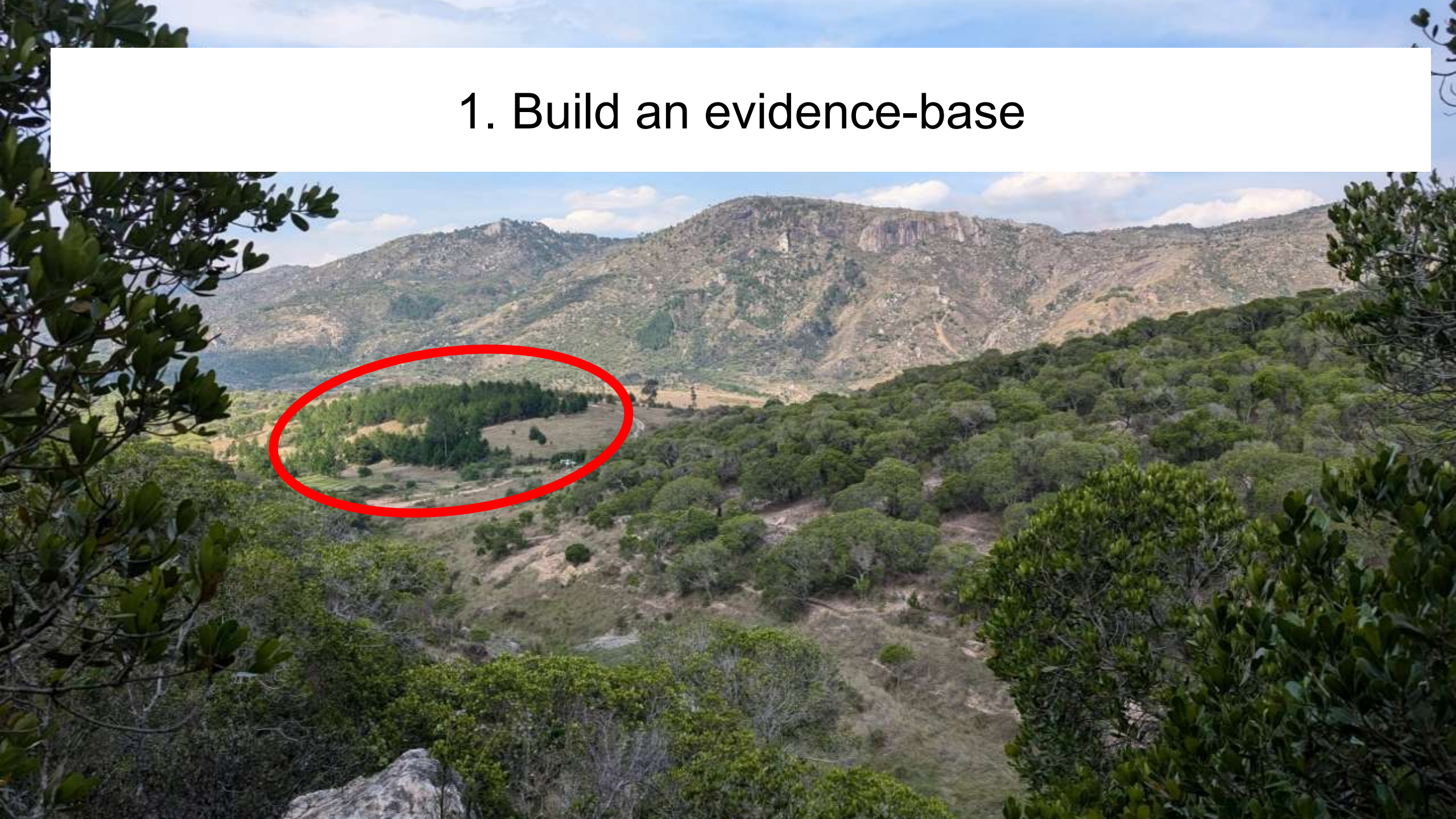


# 1. Build an evidence-base





# 1. Build an evidence-base



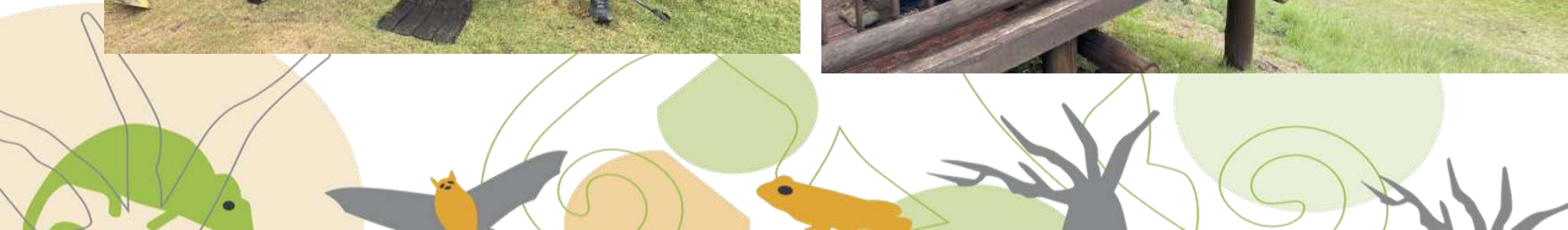


## 2. Be prepared





## 2. Be prepared





## 2. Be prepared

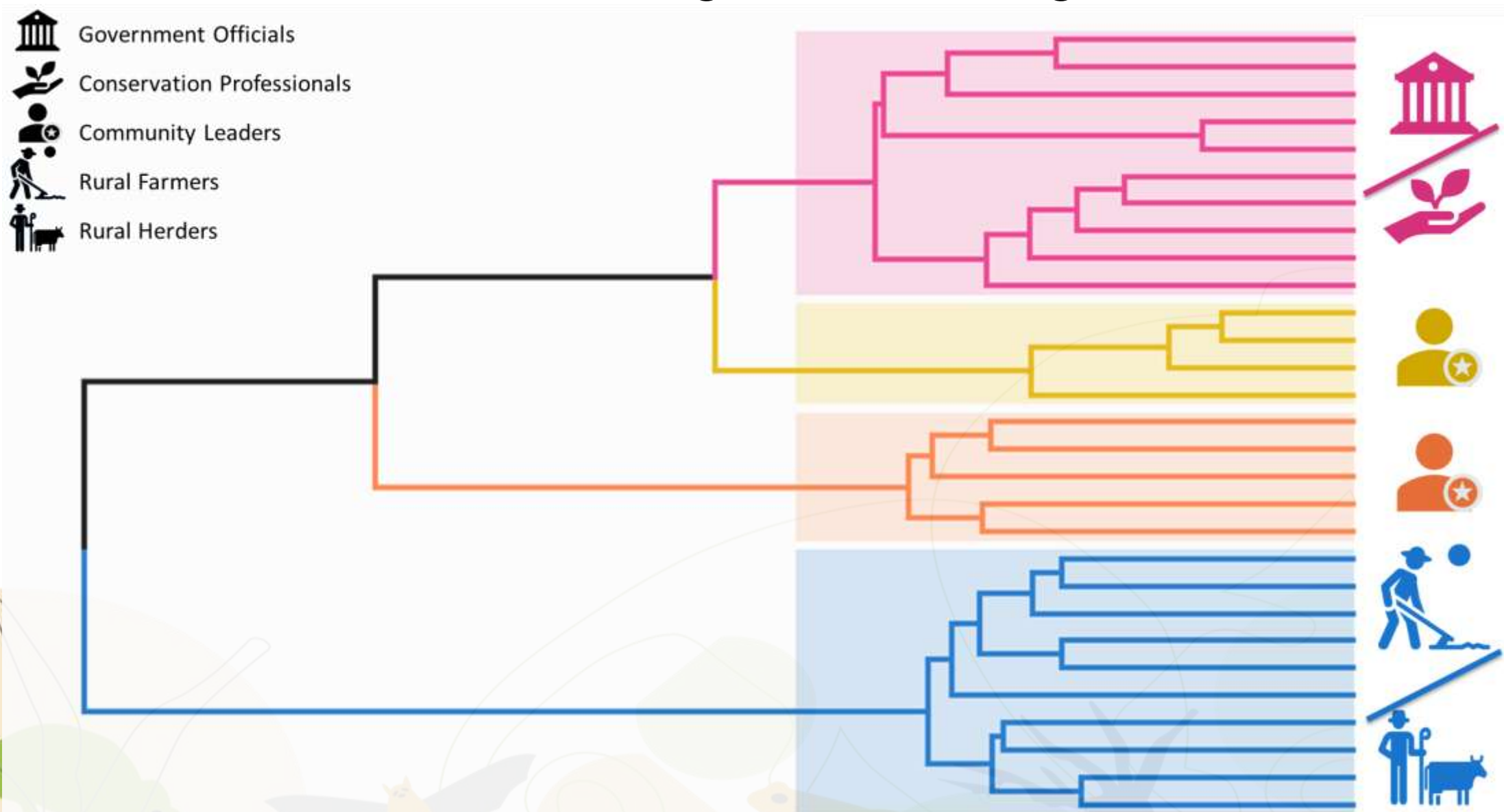




### 3. Be adaptive and proactive

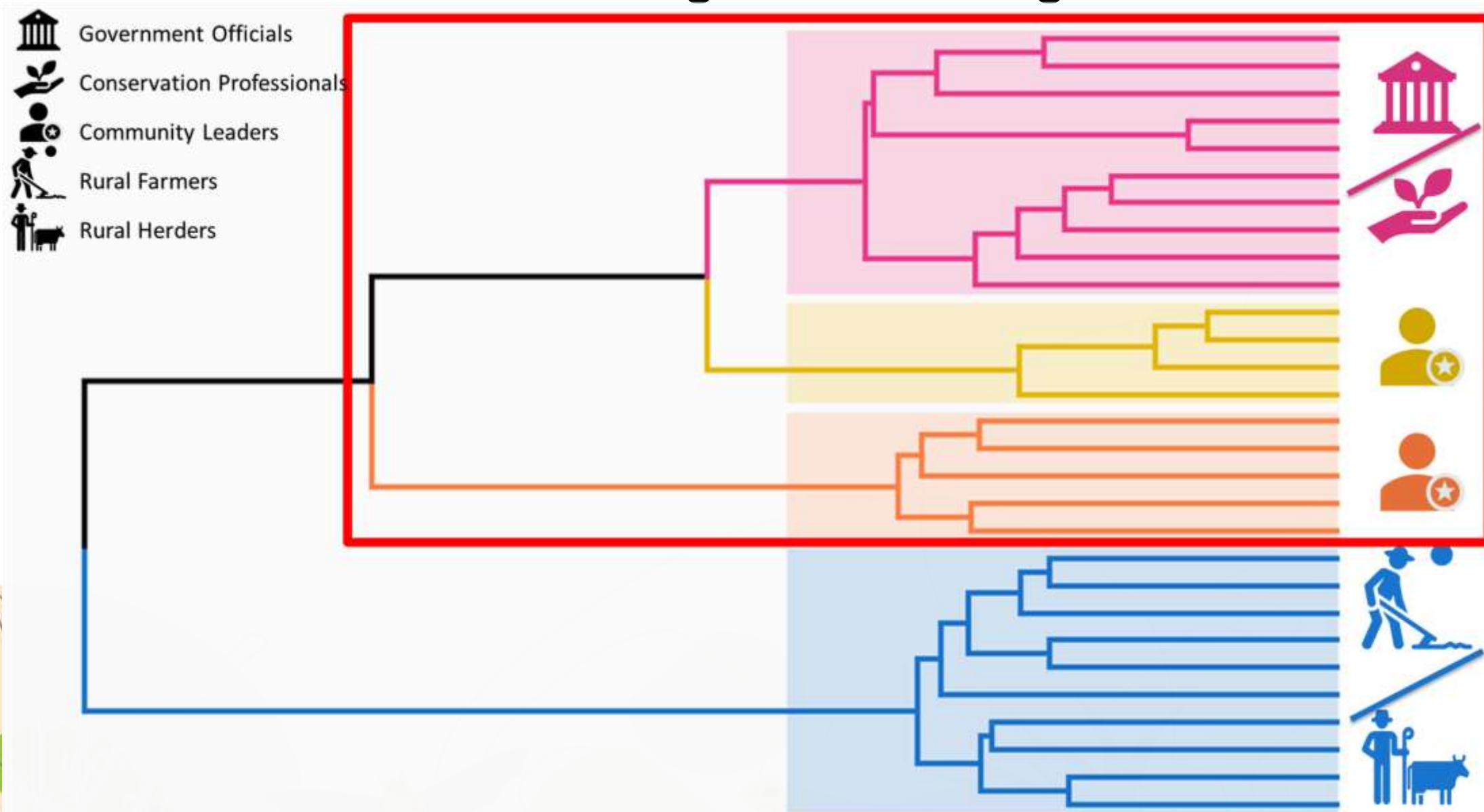


## 4. Get the governance right





## 4. Get the governance right



## 4. Get the governance right





# What can we learn from Southern Africa?



## Highland wildfires were 'biggest in Scotland's history'



NAIRN COMMUNITY FIRE STATION

Dozens of fire crews assisted by rural workers tackled wildfire that burned late last month into July



# Reflections for Scotland



Be proactive





# Reflections for Scotland



Be proactive



Change the narrative around fire



# Reflections for Scotland



Be proactive



Change the narrative around fire



Build an evidence-base





# Reflections for Scotland



Be proactive



Change the narrative around fire



Build an evidence-base



Be adaptive



# Reflections for Scotland



Be proactive



Change the narrative around fire



Build an evidence-base



Be adaptive



Get the governance right





# Thanks, Contacts & Questions



# Thanks, Contacts & Questions

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## Contact me:

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LinkedIn: [elliot-convery-fisher](#)

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Website: [elliotconveryfisher.com](http://elliotconveryfisher.com)

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Research Gate: [Elliot-Convery-Fisher](#)

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Royal  
Botanic Garden  
Edinburgh



Partnership | Progress | Prosperity



# 1. Build an evidence-base

**WET YEAR**

*Herbivores cannot consume all  
grass*

*More fire*



**DRY YEAR**

*Herbivores consume grass*

*Less fire*

