

The background of the slide is a high-angle aerial photograph of a lush, green forest. The canopy of the trees is dense and textured, with varying shades of green. The overall scene is a natural, undisturbed landscape.

GLOBAL TREE COVER LOSS

Exploratory Data Analysis (2005-2024)

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DATASET DESCRIPTION

- Source: Global Forest Watch (satellite-based monitoring)
- Tree cover defined using $\geq 30\%$ canopy density (threshold 30)
- Annual data from 2001 to 2024
- Analysis focused on:
 - Countries
 - Year
 - Drivers of loss
 - Tree cover loss area (hectares)

	country	driver	year	tc_loss_ha
0	Afghanistan	Hard commodities	2014	0.0
1	Afghanistan	Logging	2001	3.0
2	Afghanistan	Logging	2002	64.0
3	Afghanistan	Logging	2003	73.0
4	Afghanistan	Logging	2004	143.0



1. DECADE CHANGE IN FOREST LOSS

How has global tree cover loss changed by decade?

2. DRIVERS OF RECENT LOSS

What drivers have had the greatest impact in the last decade?



1. DECADE CHANGE IN FOREST LOSS

First Decade (2005-2014)

Median < Mean (right-skewed distribution)

High standard deviation indicates extreme values

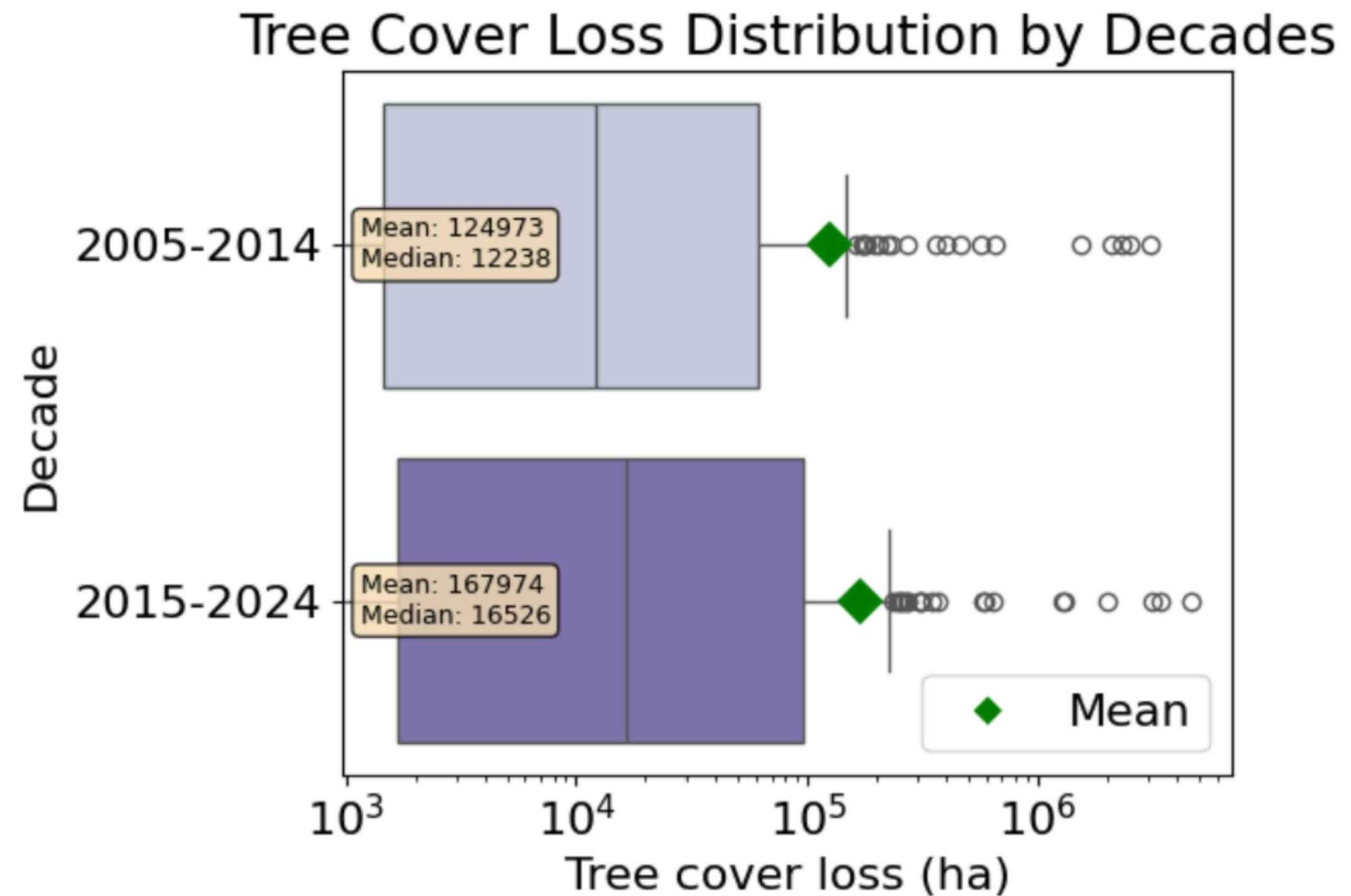
Top 4: Russia, Brazil, Canada, US (>2M ha avg)

Second Decade (2015-2024)

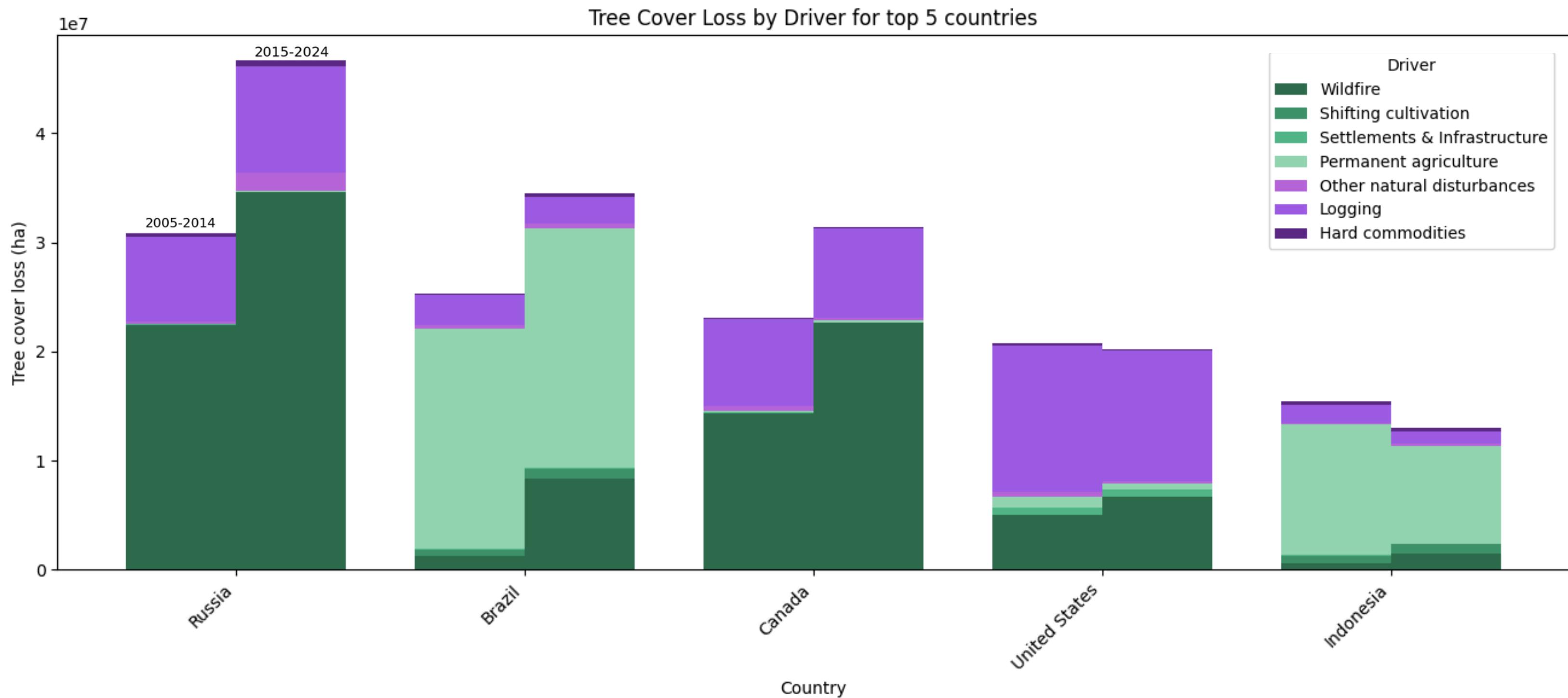
Some countries show 0.0 loss (dense forest depleted)

Median < Mean (right-skewed distribution)

Top 3: Russia, Brazil, Canada (>3M ha avg)

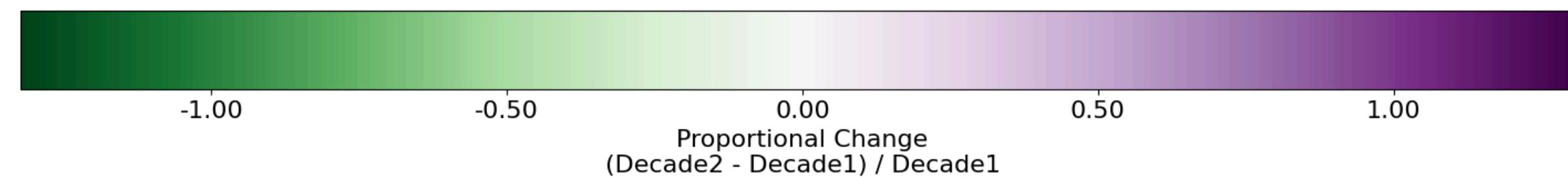
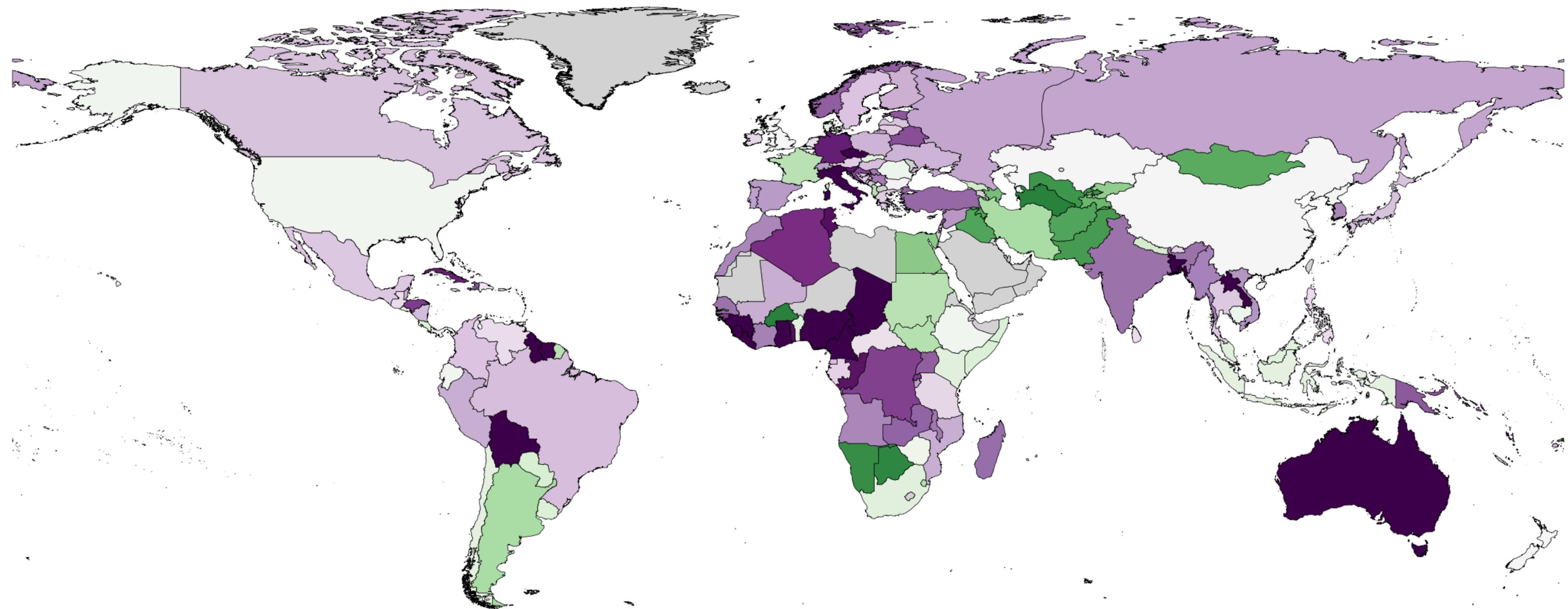


1. DECADE CHANGE IN FOREST LOSS

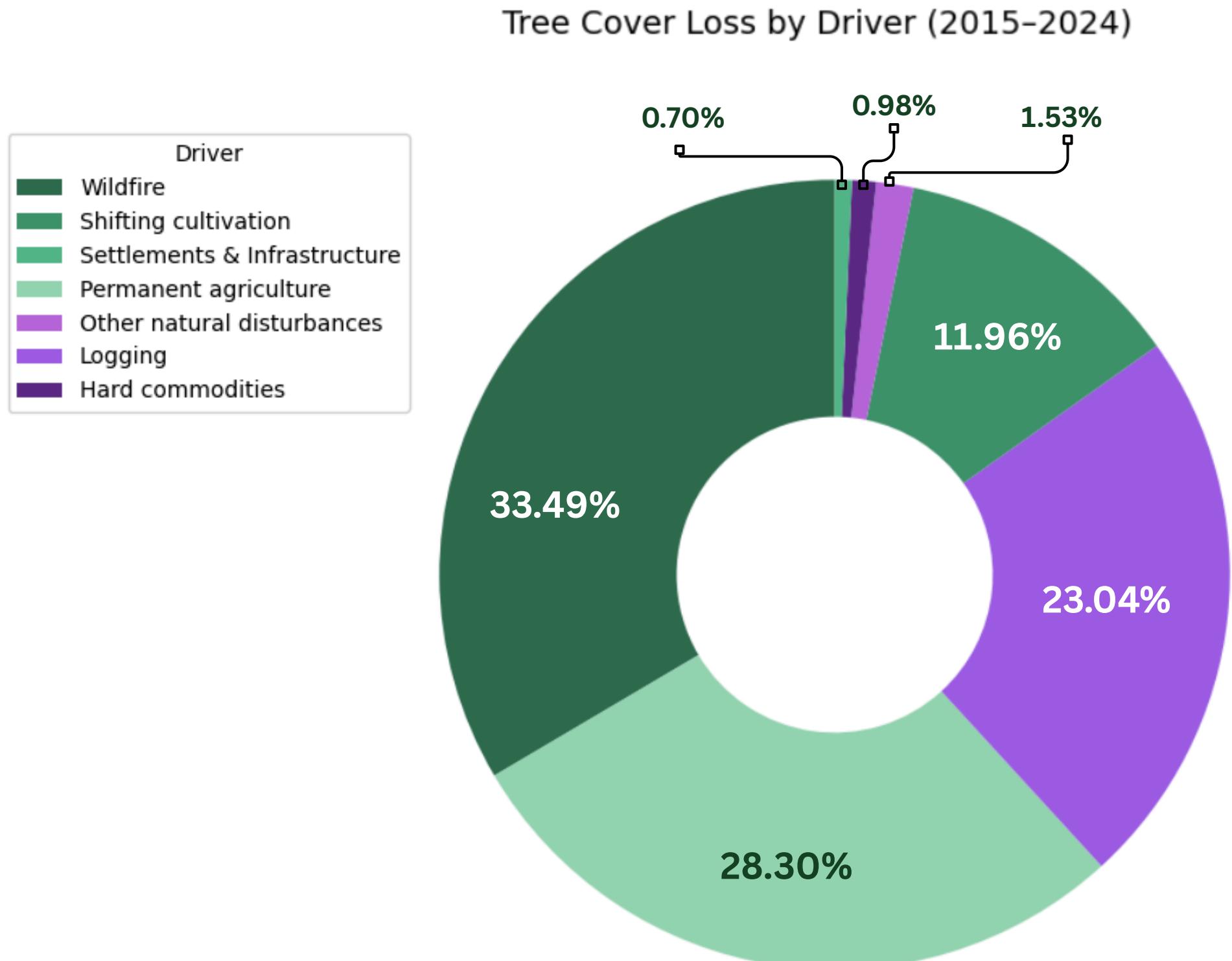


1. DECADE CHANGE IN FOREST LOSS

Tree Cover Loss: Proportional Change Between Decades
Green = Loss decreased (better) | Purple = Loss increased (worse)

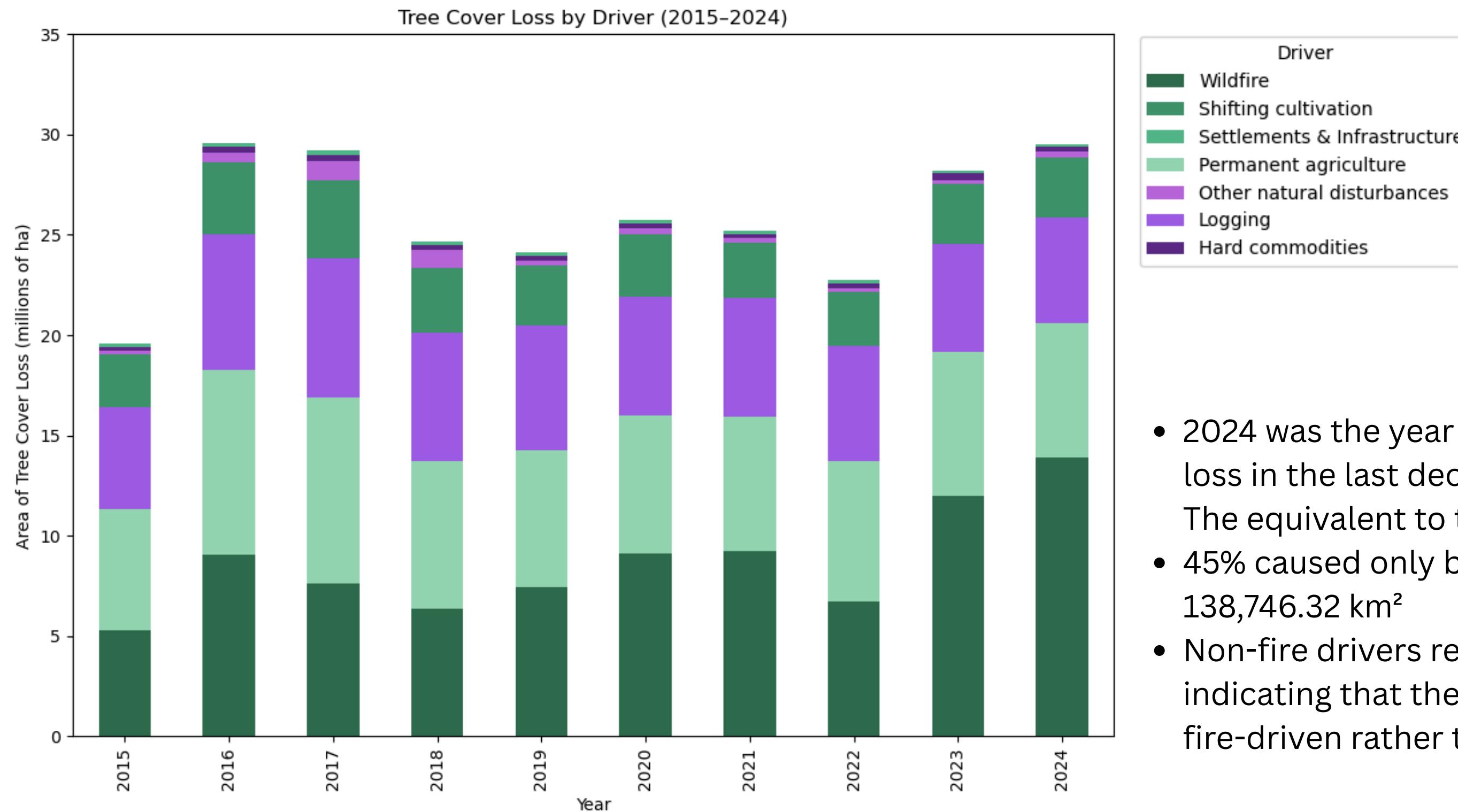


2. DRIVERS OF RECENT LOSS

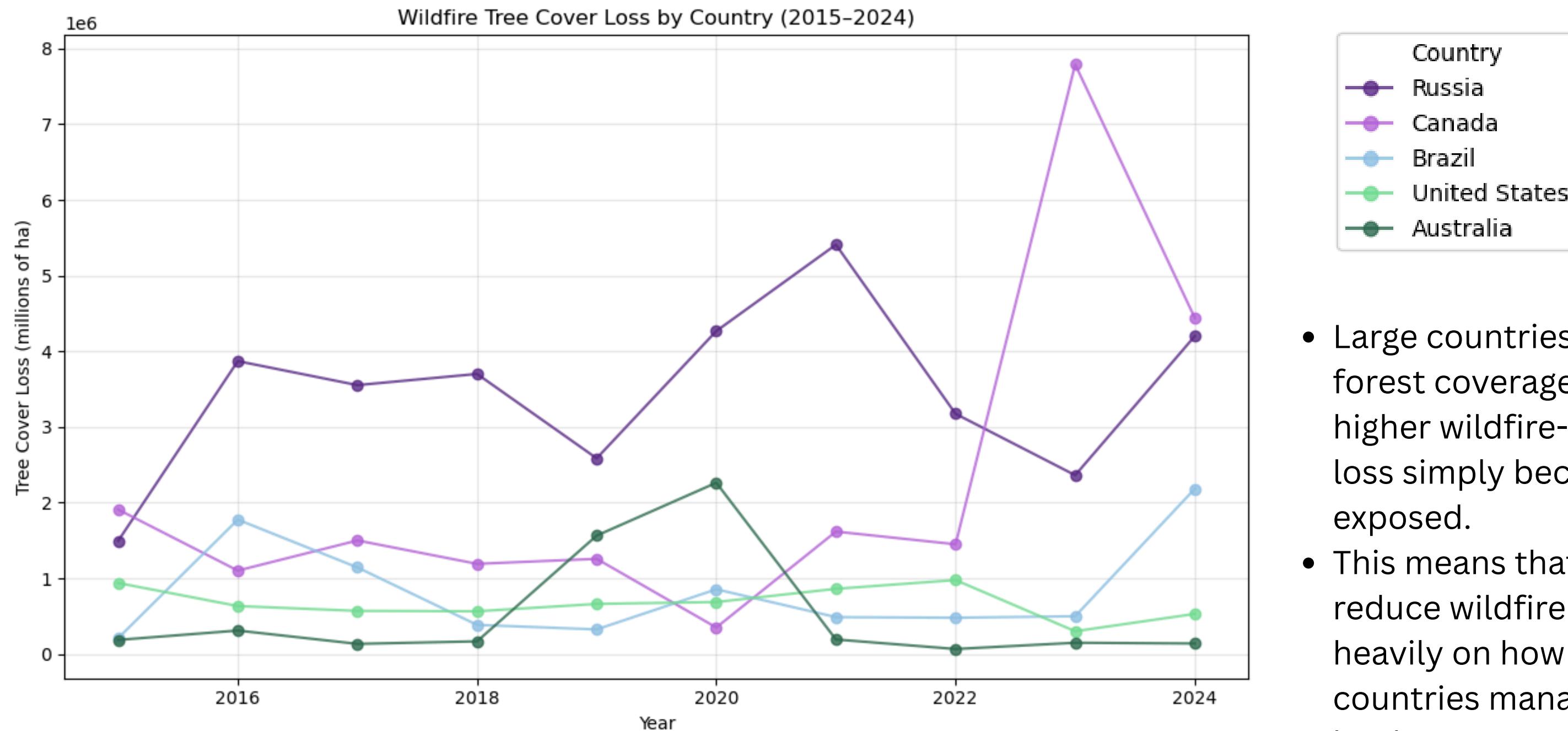


- Wildfires emerge as the largest contributor to tree cover loss.
- Forest loss is multifaceted: while fires dominate, multiple drivers contribute simultaneously.
- Land-use change remains critical: Permanent agriculture and Logging together account for over 50% showing that active human activity is still a dominant pressure.

2. DRIVERS OF RECENT LOSS



2. DRIVERS OF RECENT LOSS



- Large countries with extensive forest coverage tend to experience higher wildfire-related tree cover loss simply because more forest is exposed.
- This means that global efforts to reduce wildfire impacts depend heavily on how these forest-rich countries manage and protect their land.



LESSONS LEARNED

- **Data interpretation is critical:** Low or zero values may indicate either improvement—or the absence of remaining tree cover.
- **Data harmonization matters:** Inconsistent country naming across datasets and mapping libraries required careful reconciliation.
- **Visualization requires preprocessing:** Missing values affected stacked bar accuracy and had to be handled explicitly (e.g., filling with zeros).
- **Scale changes perception:** Large absolute numbers can mask proportional differences, making contextual comparisons essential.
- **Environmental data tells a story of urgency:** The speed and scale of forest loss underline the limited progress in global mitigation efforts.

A photograph of a dense forest. Sunlight filters through the tall, thin trunks of the trees, creating bright highlights and deep shadows. The forest floor is covered in a thick layer of green ferns and other forest undergrowth. The overall atmosphere is misty and serene.

THANK YOU