

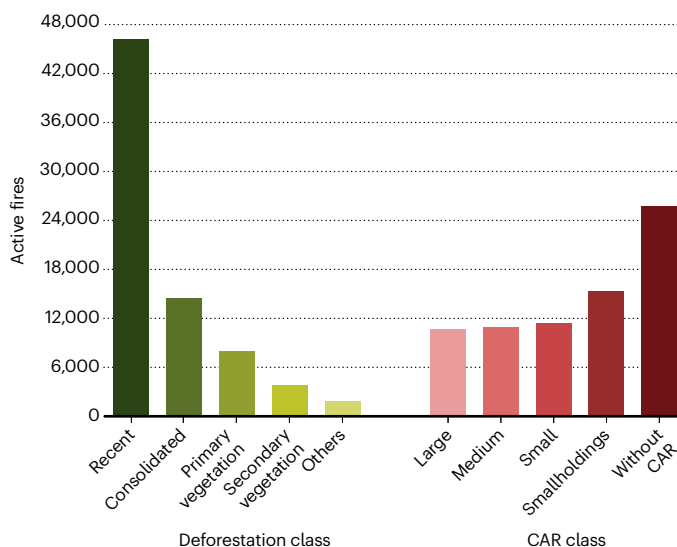
# Record-breaking fires in the Brazilian Amazon associated with uncontrolled deforestation



**A**t the 2021 United Nations Climate Change Conference (COP26), Brazil committed to ambitious goals to fight climate change<sup>1</sup>. These include reducing greenhouse gases emissions by 50% when compared with 2005 levels by 2030, and achieving zero illegal deforestation by 2028. However, recent record-breaking fires in the Brazilian Amazon highlight a stark reality that is far removed from these lofty promises. Combining August and September of 2022, a two-month ‘fire season’ in half of the Amazon<sup>2</sup>, 74,398 active fires were recorded in the Brazilian Amazon – the highest number since the severe drought event of 2010 (ref.<sup>3</sup>). Alarming, the number of active fires on 24 August 2022 (3,358) surpassed the remarkable ‘Fire Day’ of 2019, and during the first eight days of September 2022 the number of active fires detected (>20,000) exceeded the total for this month in 2019 and 2021 (ref.<sup>3</sup>).

Deforestation-related fires, a consequence of weak governance and political stance<sup>4</sup>, are behind this extreme burning. Accumulated deforestation notices in August and September of 2022 (3,116 km<sup>2</sup>) were 64% above the same two-month period in 2021 (ref.<sup>5</sup>). Moreover, 62% of the active fires detected in August and September of 2022 occurred in recently deforested areas<sup>5</sup> (Fig. 1). Active fires in recently deforested areas have increased by 71% compared with the same months in 2021 (ref.<sup>5</sup>).

Troublingly, the largest portion of the August and September 2022 fires (35% of them) were in vulnerable protected areas, Indigenous lands and other public areas that are not required to register with Brazil’s Environmental Rural Registry (Cadastro Ambiental Rural (CAR))<sup>5</sup> (Fig. 1). The CAR is a self-declaratory public electronic registry that is required only for private lands, and is aimed at enhancing law enforcement; although CAR does not establish land ownership, land grabbers have been using this instrument to claim ownership of illegally occupied public lands<sup>6</sup>. Active fires in these areas have increased by 69% compared with August and September of 2021<sup>5</sup>. In recent years, the Brazilian Amazon has become highly vulnerable to land



**Fig. 1 | Active fires are on the rise in areas of recent deforestation and areas without CAR.** Categorization of accumulated active fires during August and September of 2022 ( $n = 74,398$ ) by deforestation (left) and CAR (right) classes in the Brazilian Amazon, with data from TerraBrasilis<sup>5</sup>. Deforestation classes comprise recent deforestation (deforested areas mapped by the Brazilian Amazon Deforestation Monitoring Program (PRODES) in 2018, 2019 and 2020 plus Near-Real Time Deforestation Detection System (DETER) deforestation notices mapped between 1 August 2020 and 31 July 2022); consolidated deforestation (areas mapped as deforested by PRODES from 1988 to 2017, which include older agriculture and pasture conversion); primary vegetation (areas considered primary vegetation by PRODES in 2020); secondary vegetation (areas considered secondary vegetation by the TerraClass project in 2020); and other (non-forest areas including savannah formations and remaining areas such as urban areas). CAR classes are smallholdings (private properties of up to 1 fiscal module); small (private properties of between 1 and 4 fiscal modules); medium (private properties of between 4 and 15 fiscal modules); large (private properties with more than 15 fiscal modules); and ‘without CAR’ (public lands, where CAR is not required). A fiscal module is a property area unit that varies by municipality from 5 to 110 ha. Fires in public lands (the without CAR class) often arise with deforestation associated with the land grabbing (*grilagem*) process. Classes within each category are exclusive and all fires are classified.

grabbing (*grilagem*) and speculation, and these fires are the result.

Clearly, lessons from the 2020 Amazonia fire crisis, when 74% of fire anomalies fell within Indigenous and protected lands<sup>7</sup>, have been ignored. As with the fires of the 2022 season, spikes in illegal mining<sup>8</sup> are a severe threat to the traditional Amazonians, who carry most of the socioenvironmental burdens resulting from these illegal activities. Reinforcing this, in a new Brazilian Amazon deforestation frontier, nearly half of the registries in the CAR database are in protected areas, including Indigenous lands<sup>6</sup>.

The rush to liquidate natural resources for short-return capital gains to a small group of economic elites puts the Brazilian economy at risk. In the near term, export markets are at risk because of foreign policies that reduce commodity imports produced from deforested or degraded lands, to fight climate change<sup>9</sup>. In the longer term, deforestation regionally intensifies drought and warming and reduces rainfall, with consequences for agriculture that are likely to be ruinous<sup>10</sup>. In addition to antidemocratic politics and threats to Indigenous and other marginalized communities, Brazil risks becoming an international pariah

by ignoring the disastrous consequences of Amazon loss, *grilagem* and other unregulated destructive activities.

Uncontrolled deforestation and fires in Amazonia are indefensible. Tackling the combined effects of deforestation, fire, *grilagem* and misappropriation in the Brazilian Amazon, and holding to account those who are destroying the Amazon, are challenging tasks on the environmental agenda facing the Brazilian federal administration that will start in 2023.

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Published online: 17 November 2022

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## Acknowledgements

G.M., L.O.A., L.V.G. and L.E.O.C.A. thank the São Paulo Research Foundation (FAPESP) for funding (grants 2019/25701-8, 2020/08916-8, 2016/02018-2 and 2020/15230-5, respectively). L.O.A. and L.E.O.C.A. thank the National Council for Scientific and Technological Development (CNPq) for funding (grants 314473/2020-3 and 314416/2020-0, respectively). G.d.O. thanks the University of South Alabama Faculty Development Council Grant for funding (grant 279600-2022).

## Competing interests

The authors declare no competing interests.