

# Correspondence

## Brazil's biofuel plans drive deforestation

The scientific community, Brazil's policymakers and the public need to take coordinated action against plans to amplify biofuel production at the expense of the Amazon rainforest. Brazilian President Jair Bolsonaro lifted the ban on sugar-cane cultivation in the Amazon by decree in November 2019 to help boost the country's biofuel production. Plans to produce more oil palm for biofuel in the state of Roraima follow the inauguration of a processing plant there last April. And in the west of the state of Amazonas, new roads could open up previously inaccessible areas for palm plantations and drive further devastating cycles of deforestation.

After the president took over in January 2019 (C. A. Nobre *Nature* 574, 455; 2019), a government consortium announced investments of 4.4 billion reais (US\$1.1 billion) in six Amazon states – Amazonas, Acre, Amapá, Mato Grosso, Rondônia and Roraima – for the installation of power plants fuelled by maize ethanol. Maize ethanol was chosen because of the ban on sugar-cane production, introduced to curb deforestation and the loss of ecosystem services essential to Brazil's agriculture and to mitigate global climate change (L. Ferrante and P. M. Fearnside *Science* 359, 1476; 2018).

Lifting the ban adds to the already huge pressure on the rainforest from cattle ranching, soya-bean production, hydroelectric dams and mining.

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## Social media sows ecology consensus

All too often, social media deepens divisions rather than bridges them. But we have had a refreshingly different experience: through an open call on Twitter, we assembled a global team of more than 50 authors at different career stages and from a range of scientific disciplines. We aim to build a consensus on the drivers of ecological disturbances and their impact (see go.nature.com/2pwwrrb).

Disturbances such as wildfires, hurricanes and sea-level rise have long-lasting implications that can fundamentally alter the structure and functions of an ecosystem. Understanding their complex causes and consequences requires rigorous analysis of multi-stressor interactions. To this end, we developed an integrated concept of disturbance ecology that is independent of the scale of the investigation. This method draws together ideas from disciplines such as data science, molecular ecology and palaeoecology. Our approaches are based on input from places as ecologically varied as Argentina, Luxembourg and Singapore. They fulfil minimum reporting standards and aim to meet key requirements for understanding long-term socio-ecological impacts.

We have found that social media can stimulate open science and attract contributions from researchers, irrespective of their career stage or financial support.

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## In defence of the paper census

We agree that hard-copy censuses are crucial to public-health surveys in developing economies (see *Nature* 574, 296; 2019). In our view, they should be continued and not replaced by online 'big data' collection. Furthermore, your suggestion that non-governmental organizations (NGOs) – as opposed to governments – could carry out censuses would pose several risks.

For example, NGOs would be unlikely to guarantee country-level coverage, uniformity in data collection, periodicity or commitment to conservation and oversight of data access. That could seriously impair the availability, quality, long-term observability and accessibility of complete national data sets. Collection of data online only is a limiting factor, especially for the most disadvantaged segments of the population. Although electronic gathering aided by collectors might improve coverage, it could also breach rights to privacy.

More frequent sampling, as envisaged by some countries, would require data sets to be catalogued year on year for comparative purposes, raising the possibility of missed or double-counted entries.

We urge caution. All too often, governments are willing to renege on their responsibilities to citizens – particularly if NGOs are poised to meet the challenge. The work of Roy Burstein and his colleagues in tracking child mortality (*Nature* 574, 353–358; 2019) would not have been possible without the granularity of household-level census returns.

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## Consider context to avert catastrophe

Alisha Graves and her colleagues suggest that catastrophe in Africa's Sahel region could be averted by boosting food production and personal security, along with improving efforts to slow population growth (*Nature* 575, 282–286; 2019). In my view, however, their suggestions overlook the realities of conflicts on the ground.

Increasing military spending can, as they themselves point out, aggravate the problem. Heavy-handed responses by the army, such as scorched-earth tactics and human-rights abuses, undermine communities' ability to cope with the effects of climate change and risk driving up recruitment to armed opposition groups (see <https://shoring-up-stability.org/>). Even national governments in the region accept the need to step away from military force and move towards governance that can tackle problems.

The authors suggest that more international aid could address the shortfall in basic services (in health and education, for example) that is resulting from increased military spending. Evidence from the region points to the contrary: failure of governance and service provision by national and local governments stoked initial grievances, which continue to drive conflict. Increased dependence on foreign aid could lock in this problem.

Bringing science and policy together can inform better responses, but these need to take the context and its people as the starting point.

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