

# UC Davis

## UC Davis Previously Published Works

### Title

Species loss: climate plan saves only trees

### Permalink

<https://escholarship.org/uc/item/7px2c4n1>

### Journal

Nature, 537(7622)

### ISSN

0028-0836

### Authors

Caro, Tim

Mulder, Monique Borgerhoff

### Publication Date

2016-09-01

### DOI

10.1038/537617d

Peer reviewed

# Correspondence

## Nourish as well as feed the world

The report released last week by the Global Panel on Agriculture and Food Systems for Nutrition warns that only a response comparable in scale and commitment to that directed against HIV/AIDS and malaria will be sufficient to meet the challenge of changing food systems (see [www.glopan.org/foresight](http://www.glopan.org/foresight)).

Our independent experts used modelling and trend analysis to scrutinize diets and food systems and how these could change by 2030. Three billion people from 193 countries now have poor-quality diets, and populations in nearly half of all countries are increasingly experiencing serious under-nutrition that is coupled with weight gain and obesity. We find that the risk posed by poor diets to mortality and morbidity is now greater than the combined risks of unsafe sex, alcohol, drug and tobacco use.

As director of the Global Panel's secretariat, I have worked closely with the panel in producing this report, which recommends that food systems should be repositioned from feeding people to nourishing them. Action must go beyond agriculture to encompass trade, the environment and health, harnessing the power of the private sector and empowering consumers to demand better diets. **Sandy Thomas** *Global Panel on Agriculture and Food Systems for Nutrition, London.* [sandy.thomas@glopan.org](mailto:sandy.thomas@glopan.org)

## Species loss: diverse takes on biodiversity

Sean Maxwell and colleagues argue that agriculture is one of the greatest enemies of biodiversity — yet agriculture itself depends on biodiversity (*Nature* **536**, 143–145; 2016). To make sense of this, we need to recognize that perspectives on biodiversity can depend on context.

The authors are really referring to a limited range of species that are mainly of interest to conservationists, which could be called 'conservation biodiversity'. The biodiversity that supports global primary food production and a host of other industries, from pharmaceutical bioprospecting and engineering biomimetics to biological pest control (see, for example, [go.nature.com/2croaxv](http://go.nature.com/2croaxv)), might then be classed as 'production biodiversity'.

Production biodiversity is enormous and irreplaceable. It constitutes at least 90% of all species — predominantly invertebrates (such as pollinators) and microbes. It harbours most of the planet's chemical, genetic and metabolic diversity.

Global assessment of conservation biodiversity is crucial. But it must acknowledge the greater part of biodiversity on which humanity depends, or the very word 'biodiversity' risks losing its scientific, economic and social meaning.

**Andrew Beattie** *Macquarie University, Sydney, Australia.* [andrew.beattie@mq.edu.au](mailto:andrew.beattie@mq.edu.au)

## Species loss: a crude view of climate

We contend that Sean Maxwell and colleagues' analysis of risk factors for biodiversity loss should have included a more nuanced view of climate change (*Nature* **536**, 143–145; 2016).

For example, the authors seem to rely too much on extreme climate hazards in assessing climate threats to biodiversity. They also overlook the fact that the extinction-risk criteria for species on the IUCN Red List often fail to capture risks from climate (see, for example, W. B. Foden *et al.* *PLoS ONE* **8**, e65427; 2013). They do not consider slow-onset changes, such as habitat-range shifts and ocean acidification, or indirect threats to wildlife, such as human responses to climate-change

effects on food security — particularly in poor populations and tropical regions.

Maxwell *et al.* imply that efforts directed against new (climate) and old (historical) threats are mutually exclusive. We find this simplistic and counterproductive: solutions need to be integrative and additive. They should also have accounted for system interactions — threats don't occur in isolation.

In our view, tackling the complexity and uncertainties of climate change calls for new ideas that focus on emerging threats to species. Without these, dedicated conservation interventions will fail over the long term.

**Nikhil Advani** *World Wildlife Fund, Washington DC, USA.*

**Susan Evans** *WWF Canada, Toronto, Canada.*

**Arjette Stevens** *WWF Netherlands, Zeist, the Netherlands.* [nikhil.advani@wwf.us.org](mailto:nikhil.advani@wwf.us.org)

## Species loss: climate plan saves only trees

We agree that the challenge of protecting biodiversity — to be considered at the upcoming Conference of the Parties to the Convention on Biological Diversity — must not be eclipsed by climate-change concerns (see S. Maxwell *et al.* *Nature* **536**, 143–145; 2016). These are complementary but separate issues.

On Pemba Island, Tanzania, for example, we conducted systematic but open-ended interviews with village environmental committees, male and female focus groups, and randomly selected households in 11 villages, backed up by less-intensive interviews in 18 wards last year (unpublished results).

These revealed a general understanding of the dangers of immediate climate change and of the merits of a pending REDD+ programme (Reducing Emissions from Deforestation and Forest Degradation). Local expectations are high that reducing deforestation and

promoting reforestation will result in financial benefits through carbon accreditation.

By contrast, there is widespread, illegal hunting of animals in forest patches across the island. Hunted species include tree hyraxes (*Dendrohyrax validus*), blue duikers (*Philantomba monticola*), Pemba flying foxes (*Pteropus voeltzkowi*) and coconut crabs (*Birgus latro*).

Our case study highlights the mismatch between climate-change mitigation and conserving biodiversity in the tropics. Here, effective efforts to protect trees and reduce climate change may result in conserving only an empty forest.

**Tim Caro, Monique Borgerhoff Mulder** *University of California, Davis, USA.*

[tmcaro@ucdavis.edu](mailto:tmcaro@ucdavis.edu)

## Mobile networks aid weather monitoring

Competition over the bandwidths used by mobile phones and time-critical weather transmissions is only part of the story (see *Nature* **535**, 208–209; 2016). In fact, mobile networks are themselves becoming an important tool for monitoring the weather.

Because weather conditions reduce the strength of radio signals transmitted by commercial microwave links in cellular networks, they can act as a virtual environmental-monitoring facility. For instance, commercial cellular data are already being used to track precipitation, fog, near-surface moisture (see, for example, N. David *et al.* *Bull. Am. Meteorol. Soc.* **96**, 1687–1698; 2015) and dew (O. Harel *et al.* *IEEE Sel. Top. Appl. Earth Obs. Remote Sens.* **8**, 4396–4404; 2015), and to predict floods (a discovery awarded the World Intellectual Property Organization Medal in 2009).

**Pinhas Alpert, Hagit Messer** *Tel Aviv University, Israel.*

**Noam David** *Cornell University, Ithaca, New York, USA.* [pinhas@post.tau.ac.il](mailto:pinhas@post.tau.ac.il)