MARINE ECOLOGY

Rebounding coral reefs

Nature **518,** 94–97 (2015)

PHOTOSHOT HOLDINGS LTD / ALAMY

Coral bleaching is among the greatest threats to coral reefs today, causing widespread mortality. The factors that determine the ability of a reef to recover following a bleaching event are unknown, and this limits the predictability of reef responses under climate change scenarios.

To investigate the factors affecting reef recovery, Nicholas Graham from James Cook University, Australia, and co-workers document long-term reef responses to a major climate-induced coral bleaching event in the Indo–Pacific. Following loss of 90% of live coral cover, 12 of the 21 reefs investigated recovered towards pre-disturbance states, while the others shifted to fleshy macroalgae (seaweed) dominated systems.

The authors identified thresholds for those factors that accurately predicted ecosystem response to the bleaching event. Recovery was favoured when reefs were structurally complex and in deeper water, when the density of juvenile corals and herbivorous fishes was relatively high and when nutrient loads were low. Pre-disturbance measurment of simple factors such as structural complexity and water depth might therefore accurately predict ecosystem trajectories following bleaching events. *AB*

CLIMATE SCIENCE

Regional climate prediction

Nature Geosci. **8,** 135–139 (2015)

Uncertainty about the spatial distribution of future climatic changes is dominated by differences in projections that result from climate model differences. Much of the model variance can be attributed to the representation of climate feedbacks that alter radiative flux by reinforcing, or attenuating, external climate forcing. Constraining this uncertainty requires an understanding of how individual climate feedbacks combine to produce regional and global climate response.

Gerard Roe from the University of Washington, USA, and co-workers investigate how uncertainty in these feedbacks drives uncertainty in the patterns of temperature response. To do this, they employ a simple energy balance model that combines regional feedbacks and the diffusion of latent and sensible heat to emulate the relationship between regional feedbacks and temperature response in more comprehensive climate models. They find that uncertainty in tropical feedbacks affects the global temperature response, but that the impact of uncertainty in polar feedbacks is predominantly confined to these regions. *AB*

ENVIRONMENTAL BEHAVIOUR

Time is money

Organ. Behav. Hum. Dec. Process. **127,** 44–52 (2015)

© ALAN SPENCER PHOTOGRAPHY / ALAMY

Americans are no more likely to engage in environmentally responsible behaviour today than they were 20 years ago. This is perhaps surprising, given the tremendous growth in awareness of environmental issues.

According to Ashley Whillans and Elizabeth Dunn at the University of British Columbia, Canada, the explanation may lie in peoples' increased tendency to view time as money. Using large-scale survey data, they show that people are less likely to engage in environmentally responsible behaviour — even if trivial time commitment is required — if they are paid by the hour, a form of remuneration that the authors argue leads individuals to see their time as money. Experimental evidence shows that making the economic value of time salient reduces environmental intentions and behaviour. Part of the explanation for this behaviour is that thinking about the economic value of time raises awareness of the opportunity costs associated with environmental, or indeed any unpaid, behaviour. The authors show that this effect can be mitigated by framing environmental behaviour as being consistent with self-interest. *AB*

Written by Alastair Brown.

FORESTRY

Managing resilience

Front. Ecol. Evol. http://doi.org/zfj (2015)

Efforts to increase the resilience of dry forests to wildfire tend to involve removal of most small trees. However, these small specimens often survive other disturbances such as insect outbreaks and drought, and might therefore provide broader forest resilience. Palaeoecological evidence shows that dry forests of the western US have persisted for thousands of years in the face of multiple disturbances. However, because small trees are thought to have been historically rare, their role in forest resilience remains uncertain.

To investigate whether the removal of small trees might compromise broader forest resilience (that is, to more hazards than just fire), William Baker and Mark Williams from the University of Wyoming, USA, study the historical significance of smaller trees in dry forests in the western USA. Their systematic surveys reveal that small trees dominated (52–92% of total trees) and that the forests contained diverse tree sizes and species (in the late 1800s).

Removal of most of the small trees to reduce wildfire risk may therefore compromise the resilience provided by small trees and diverse tree sizes and species against unpredictable future disturbances. *AB*