CORRESPONDENCE

Extinctions: conserve not collate

Fangliang He and Stephen Hubbell correct an overestimation of 160% for species extinction rates resulting from habitat destruction (*Nature* **473,** 368–371; 2011). However, near-term extinction rates predicted by the Millennium Ecosystem Assessment still remain at 400–4,000 times the background rate of species extinction.

Although it may help to refine future predictions, we caution against their recommendation for collating more detailed geographical data as an urgent priority for conservation science.

Knowing where species occur and their risk of extinction is fundamental for deciding where to focus efforts to protect them. But the diminishing returns on the value of biological surveys (H. S. Grantham *et al. Conserv. Lett.***1,** 190–198; 2008) means that more data may not translate into significantly better decisions. Heterogeneity in the costs and likelihood of success of conservation actions can influence investment priorities far more.

Areas designated a priority for species protection, identified using the 'species–area relationship', are not affected by model uncertainty, taxonomic group or the non-random distribution of species (M. C. Evans *et al. Divers. Distrib.* **17,** 437–450; 2011).

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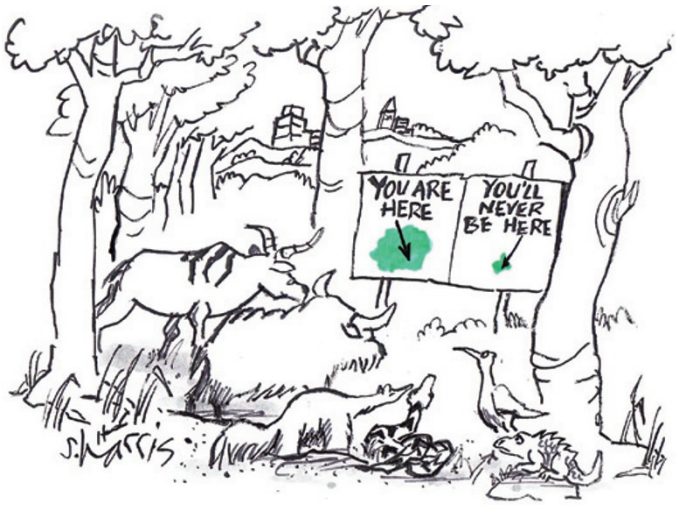
Extinctions: consider all species

We question Fangliang He and Stephen Hubbell's claim that species–area relationships overestimate global extinction



(*Nature* **473,** 368–371; 2011). We contend that they do not test their claims against real data on global extinction or threat. We also believe that they address only a small part of the problem.

Imagine destruction that wipes out 95% of habitat overnight — metaphorically speaking. How many species will have disappeared the following morning? He and Hubbell tell us it would be just those living only in the destroyed area, and not in the other 5%. In our view, the more important question is how many species in total, including those in the remnant habitat 'islands' (the 5%), will eventually become extinct (see M. L. Rosenzweig *Species Diversity in Space and Time* Cambridge Univ. Press, 1995.)

Many studies accurately verify extinction predictions based on the relationship between island area and numbers of species, which He and Hubbell dismiss. Scores of separate tests find striking agreement between the number of predicted extinctions from habitat loss and the number of consequent extinctions (or of species facing extinction). This is seen globally and within individual regions, including eastern North America, South America, Africa and southeast Asia (see, for example, S. L. Pimm and R. A. Askins *Proc. Natl Acad. Sci. USA* **92,** 9343–9347; 1995).

Comprehensive analyses can now combine remotely sensed ecosystem changes with information on species extinction risk, distribution, habitats, threats and conservation actions from the International Union for Conservation of Nature Red List. In our opinion, it is these studies — which ask the right questions and verify the answers — that have crucial implications for the world's efforts to conserve biodiversity.

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** On behalf of 7 co-signatories (see go.nature.com/tsnlzs).*

Making society more resilient

Japan's government would do well to consider how society can adapt to cope with the uncertainty and change caused by sudden disastrous natural events — called resilience thinking — rather than simply trying to overcome and eliminate such changes.

Catastrophic disturbances such as tsunamis, wildfires, flooding and volcanic eruptions can exact a huge human cost. But they may also have a positive impact on ecosystems, particularly those eroded by human activity. The 2004 Indian Ocean tsunami, for example, restored the beach nesting habitats for several threatened sea-turtle species (D. B. Lindenmayer and C. R. Tambiah *Conserv. Biol.* **19,** 991; 2005).

The ability of ecosystems to absorb natural disturbances and society's ability to resist and recover from them are connected. History shows that socio-ecological systems that are resilient to hazards are less devastated by recurring natural events such as hurricanes (W. N. Adger *et al. Science* **309,** 1036–1039; 2005). Ignoring the connection could lead to more unforeseen economic disasters.

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Population decline is a long way off

Fred Pearce uses strong words to criticize the United Nations' latest projected global population figures (*Nature* **473,** 125; 2011). But the UN's projections of a continuing rise in the population (see go.nature.com/wj3br5) are in line with its previous projections and with those of other major sources, including the US Census Bureau (see go.nature.com/owcela) and the International Institute for Applied Systems Analysis (go.nature.com/cbg34l).

The new UN 'medium variant' projection expects 10.1 billion people by 2100, 3 billion more than now. This is a sobering prospect for those concerned with human and environmental poverty.

In his book *The Coming Population Crash* (Beacon Press, 2010), Pearce predicts a drastic population decline owing to falling fertility. But the birth rate worldwide still exceeds the replacement rate, so the young greatly outnumber the old. The number of young women coming

into reproductive age can be three times the number becoming post-menopausal. So, although women are now having fewer children than they did previously, the number of children remains high. The US Census Bureau projects no decline in the global number of births to 2050.

The result is that the population has risen by a billion people in the past 13 years and the UN's medium variant expects about the same in the next 13 years.

None of the UN scenarios envisages a rise in fertility. If fertility stays at its present level, the UN projects 27 billion people in 2100. Only by assuming a continuing and rapid fall in fertility do projections come down to between 6 and 16 billion.

Globally, there are 2.5 births for each death (see go.nature.com/ows9ux). Population stability, let alone a decline, is therefore a long way off. For the foreseeable future, the world is going to be much more crowded than it is now.

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Brazilian soya: the argument for

Your scepticism about a market-based approach to conservation in the Amazon is ill-founded (*Nature* **472,** 5–6; 2011). It is based on a misrepresentation of the partnership in Brazil's Santarém region between US agricultural giant Cargill and environmental group The Nature Conservancy.

The aims of the Santarém partnership are explicitly environmental, not social as you claim. It was set up to reduce deforestation by enforcing Brazil's Forest Code (a federal law restricting the amount of deforestation) and the soya bean moratorium (a voluntary agreement by agribusiness not to source soya from land deforested after 2006).

The partnership monitors farmers' land-use practices in Santarém by satellite and by visits on the ground. Its contribution is crucial in the absence of a legal mechanism to enforce the soya moratorium and, given the limited government resources, the Forest Code.

Soya production in Santarém comprises less than 0.5% of the total production of the Legal Amazon (http://sidra.ibge.gov.br), yet this small region receives intense scrutiny from scientists and the media. Despite this, no evidence has emerged that the partnership has failed to deter deforestation. We must therefore consider what the environmental outcome would have been had The Nature Conservancy not intervened.

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Brazilian soya: the argument against

Rachael Garrett's arguments for a market-based approach to Amazon conservation (see above: *Nature* doi:10.1038/474285a; 2011) hinge on the assumption that the expansion of agro-industrial development in Amazonia is inevitable. Using market mechanisms to solve environmental problems is questionable when those problems are themselves caused by market-driven expansion.

It is the relatively small soya-production area of Brazil's Santarém region that makes it an important case study. If voluntary market-based conservation programmes do not work even on a small scale, what are the chances of success for larger-scale programmes such as the Round Table on Responsible Soy (see go.nature.com/jc6ua1), hailed as the way to mitigate problems created by agro-industry?

Conservation organizations must face up to the social consequences of their programmes. The Santarém case shows that exclusively addressing environmental aspects of a complex problem exacerbates socio-political issues. The social unrest there correlates with environmental degradation in the region (C. S. Simmons *et al. Ann. Assoc. Am. Geogr.* **97,** 567–592; 2007).

Amazonian deforestation has accelerated and extraction of its resources have continued under the market-based conservation paradigm. It is time for a radical rethink of the development model.

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Peer reviews: some are already public

Several journals are already making anonymized reviewers' reports public for published papers, as Daniel Mietchen proposes (*Nature* **473,** 452; 2011). These include *Atmospheric Chemistry and Physics* (see go.nature.com/qamrfc) and *The EMBO Journal* (see *Nature* **468,** 29–31; 2010). But at the European Molecular Biology Organization, we do not see an equitable way to publish referee reports on rejected manuscripts.

Instead, we favour the transfer between journals of rejected manuscripts, along with full referee reports that could be made public after acceptance of the paper. An extension of this might be to release referee names after several years, or to sign the reports with anonymized digital identifiers that could be read by official bodies to help evaluate academic performance.

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Competing interests declared (see go.nature.com/witfzb).

Change Chinese returnee rules

Developing countries rely on free movement of skilled scientists for the inflow of information and technology. China's rigid citizenship regulations are hindering the return of highly trained Chinese scientists from abroad, and must be changed if modernization is to be effective.

Of more than 1.62 million Chinese who left to study abroad before 2009, less than one-third have returned. China was the second largest country of origin for science and engineering students in US higher education in 2009 (see go.nature.com/evj2t9). Almost 90% of Chinese scientists and engineers trained overseas remained there.

At present, a Chinese researcher naturalized in another country sacrifices his or her Chinese citizenship and needs a temporary visa to return to China. Unless foreign citizenship is renounced, he or she is denied the right to open a bank account, buy a house or register a company. This bureaucracy deprives the nation of scientific and technological know-how, entrepreneurial capital, international experience and access to professional networks.

One solution would be for China to recognize a type of dual citizenship, as in India. This would allow Chinese scientists to enjoy unlimited, visa-free trips back to China and preserve such rights as access to medical care, social security, income tax and intellectual-property protection, although not the right to vote.

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Worm scientist's identity revealed

The mystery scientist so hauntingly quoted on the ubiquity of roundworms in Ralph Buschbaum's 1938 textbook *Animals Without Backbones* (*Nature* **474,** 6; 2011) is biologist Nathan Cobb (1858–1932).

Cobb's pioneering work laid the foundations for the systematic discovery and study of nematodes. Members of the Nematoda are best known for supplying us with the model organism *Caenorhabditis elegans*, but it is their abundance and diversity that makes them central to biology.

Cobb would have undoubtedly been thrilled, but perhaps not surprised, by the discovery of his beloved worms more than 3 kilometres inside Earth's crust.

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