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China's ecosystems: Focus on biodiversity

IN THEIR REPORT "Improvements in ecosystem services from investments in natural capital" (17 June, p. 1455), Z. Ouyang *et al.* state that China's investment in natural capital has contributed substantially to improvements in most ecosystem services, with one exception: Habitat provision for biodiversity decreased slightly between 2000 and 2010. The implications of this slight decrease in biodiversity conservation should not be overlooked.

The latest Red Lists of China's biodiversity show that ~22% of vertebrates and ~11% of higher plants are either extinct or threatened (*1*, *2*). The rate of biodiversity loss has not slowed (*3*). Habitat provision remains vital to conservation. Ouyang *et al.* explain that China's environmental investment programs "aim to reduce natural disaster risk by restoring forest and grassland," but this goal lacks a direct link to biodiversity conservation. For instance, nonnative planted forests can provide important ecosystem services but contribute very little to regional biodiversity.

To enhance biodiversity conservation, ecosystem service policies should incorporate goals specific to biodiversity; focus on implementation in areas that integrate both biodiversity and ecosystem services (*4*), as identified by systematic conservation planning; emphasize the role of existing protected areas in ecosystem services provision; and prioritize remaining intact ecosystems and wilderness areas. These areas are often the last refuges of endangered and endemic species. They also provide irreplaceable ecosystem services (*5*).

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Red-necked pond turtle (*Mauremys nigricans*)

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China's ecosystems: Overlooked species

A RECENT REPORT by Z. Ouyang *et al.* ("Improvements in ecosystem services from investments in natural capital," 17 June, p. 1455) found that investment in the restoration and preservation of natural capital in China has brought improvements at the national level in most of the major ecosystem services measured. Our recent status assessment of China's vertebrates (*1*) tells a less hopeful story.

Although charismatic species, such as the giant panda (*Ailuropoda melanoleuca*) and crested ibis (*Nipponia nippon*) have been rescued from the brink of extinction (*1*), species that do not benefit from media attention are suffering. Seventeen vertebrate species are extinct or regionally extinct, including the Yunnan lake newt (*Hypselotriton wolterstorffi*) and the Caka stone loach (*Triplophysa cakaensis*). The red-necked pond turtle (*Mauremys nigricans*) and the Liaoning clawed salamander (*Onychodactylus zhaoermii*) are among the 43% of China's vertebrates that are in peril. Some may disappear soon if urgent action is not taken (*1*). The proportion of threatened amphibians, also overlooked by the media, is as high as 63% (*1*). As indicated by the Red List Index (*2*), the status of mammals and fishes in China is deteriorating rapidly, amphibians and reptiles are threatened, and many birds lack sufficient data to determine a status.

Existing laws protect a few charismatic species (*3*), but all species need legal protection. Although most are not deemed worthy of media headlines, all species are crucial to the stability and function of ecosystems (*4*).

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China's ecosystems: Sacrificing the poor

IN THEIR REPORT "Improvements in ecosystem services from investments in natural capital" (17 June, p. 1455), Z. Ouyang *et al.* model changes in selected ecosystem services in China to show that, at the national level, rapid economic growth is compatible with increased provision of ecosystem services. However, closer examination of their data reveals that national-scale improvements have come at the cost of environmental justice toward poor, marginalized, and ethnic minority communities, whose well-being is sacrificed to provide ecosystem services for wealthier, mostly urban populations.

For example, Sanjiangyuan, a grassland region found to have a net increase in ecosystem services, has been subject to

purported grassland restoration and ecological migration programs that destock and move Tibetan herders off the land to new and often poorly built settlements, where they face health problems, unemployment, declines in living standards, and loss of Tibetan language and cultural practices (*1*, *2*). Their livelihoods and rights are sacrificed to provide downstream ("national") ecological security.

Furthermore, reforestation programs have increased forest cover at a national scale, but many plantations have failed because of inappropriate species selection or inadequate financial compensation to farmers recruited to plant trees. Others have yielded forests that provide downstream ecosystem services but bear few if any benefits locally (*3*). China also makes up for lost lumber production by importing timber, often illegally harvested in poorer countries, contributing to global-scale environmental injustice by exporting deforestation (*4*). Given that degradation and disasters harm human populations, efforts to steward resources must be equitable.

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TECHNICAL COMMENT ABSTRACTS

Comment on "Mutation rate and genotype variation of Ebola virus from Mali case sequences"

Andrew Rambaut, Gytis Dudas, Luiz Max de Carvalho, Daniel J. Park, Nathan L. Yozwiak, Edward C. Holmes, Kristian G. Andersen

Hoenen *et al.* (Reports, 3 April 2015, p. 117; published online 26 March) suggested that the Ebola virus Makona responsible for the West African epidemic evolved more slowly than previously reported. We show that this was based on corrupted data. An erratum provided a rate compatible with the initial and later, more precise, estimates but did not correctly state the nature of the error.

Full text at http://dx.doi.org/10.1126/science.aaf3823

Response to Comment on "Mutation rate and genotype variation of Ebola virus from Mali case sequences"

Thomas Hoenen, Allison Groseth, David Safronetz, Kurt Wollenberg, Heinz Feldmann

Rambaut *et al.* show that the erratum to our report on Ebola virus Makona evolution not only corrected sample dates modified by others in GenBank but also corrected an additional transcriptional error in our original analysis. We agree with their observation that both factors contributed to our revised evolutionary rate estimate but continue to stand by our revised estimate and conclusions.

Full text at http://dx.doi.org/10.1126/science.aaf4561