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## LETTER

### **Ecosystem services: Forests are more than sticks of carbon**

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Valentin Bellassen and Sebastiaan Luyssaert suggest that forest managers should improve both carbon stocks and timber harvests to mitigate climate change (Nature 506, 153–155; 2014). But forests are more than just sticks of carbon.

Maximizing harvests may be appropriate in heavily managed plantations. But in the remaining 96% of the world's forests, it could conflict with other forest uses and ecosystem services, as well as with biodiversity.

Some 1.6 billion people depend on forests to live. So optimizing wood production and carbon stocks at the expense of traditional uses and access rights could backfire. These people should not become carbon refugees.

The authors recommend “protecting trees from animals”. In the African and Asian tropics particularly, such a move would have to consider the needs of elephants, rhinoceroses and ungulates, for example, to avoid undermining conservation efforts and the crucial ecosystem functions that these animals provide, such as seed and nutrient dispersal.

There is also a risk that simplifying forests to optimize two ecosystem services would reduce forest resilience to pest outbreaks and droughts, and to climatic and environmental changes (R. F. Noss Conserv. Biol. 15, 578–590; 2001).

Promoting areas of multi-use forest that have various functions would provide environmental and social benefits, while retaining more carbon than smaller, single-use areas.