Damaged forests (left) can turn from carbon sinks to sources. Forest fires (right) can be mitigated by removing biomass material.

specific forest communities affected by particular pathogens or insects. Foresters are using such studies to combat, for example, infestations of the Eurasian spruce bark beetle in Slovenia and Poland and chestnut ink disease in the United States and Italy.

For fire prevention, policy-makers should incentivize practices that reduce the accumulation of fuel: prescribed burning, thinning, pruning and biomass removals, grazing and the creation of a mosaic of forest types including less-flammable species. Such approaches are cheaper than conventional air and ground-based fire-fighting, which may even raise fire risk by leaving biomass to proliferate. Mega-fires covering hundreds of hectares are increasingly common[8].

Consider renewable energy. Forest biomass currently accounts for 60–80% of the EU's total renewable-energy consumption. By 2020, the EU aims to provide 20% of its energy from renewable sources. This would require doubling the use of biomass, the equivalent of all of today's harvest going to energy. Currently, only two-thirds of annual growth is harvested and only about 40% of that is used for bioenergy.

Global changes in the production, consumption and trade of forest commodities make it hard for Europe to mobilize forest biomass through markets alone. Policy-makers need to provide incentives for investment across the supply chain, and the impacts of such policies should be considered carefully. For example, subsidizing biodiesel production would increase the price of forest biomass and thus lessen its use in generating heat and power. To ensure that bioenergy production is environmentally and economically sustainable, reseachers should analyse the carbon balance of the biomass-production process, the impacts on biodiversity, trade-offs with alternative forest uses, and the socio-economic viability of biomass production[9].

Quantify and market other benefits. Non-wood products and services from forests — related to conservation, water and soil protection, recreation or climate-change mitigation and adaptation — are now excluded from the market. Introducing payments for them would encourage private landowners to manage their forests sustainably[10] (about half of European forests are in private hands). A water company, for example, might pay foresters to protect a catchment; citizens might pay to enter a woodland for recreation.

The EU Forest Strategy recognizes the importance of valuing ecosystem services in accounting systems at EU and national levels by 2020. The challenge is to quantify the value of particular services based on the perceived benefits[10]. Governments and forest owners need to develop strategies for making environmental service payments: small amounts might be negotiated directly between buyers and sellers; large amounts might involve government agencies or other intermediaries.

Billions of euros are earmarked for forestry for 2014–20 in the EU 2020 Biodiversity Strategy and EU rural development fund. Europe's forestry community needs to implement a sustainable management strategy to secure its woodlands, and their ecosystem services, for future generations. ■

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CORRECTION

In the Comment 'Put people at the centre of global risk management' (*Nature* **519,** 151–153; 2015), the credit for the lead picture should have read Abbie Trayler-Smith/Panos Pictures.