Afforestation falls short as a biodiversity strategy

The recent EU Biodiversity Strategy for 2030 (1) recognizes the importance of biodiversity for increasing our resilience to natural disasters and pandemics and, thus, for human well-being. Although it proposes ambitious measures such as reversing pollinator decline and controlling invasive species, it also introduces the ill-advised idea of planting 3 billion trees.

Massive tree plantation programs (2, 3) have been strongly criticized by the scientific community for their negative ecological and economic impacts and their limited role in climate change and CO₂ mitigation (4–8).

The specific number of trees proposed in the EU Strategy suggests a lack of a serious, science-based ecological assessment of actual restoration needs. Meeting such a target could threaten biodiverse treeless ecosystems (4, 6, 7, 9) and would waste an opportunity to implement ecologically sound management practices to restore fully functionally integrated mosaics of natural, seminatural, and sustainable agricultural ecosystems.

Massive tree planting could also substantially change the fire regime, especially given the increasing frequency of heat waves and droughts in an area with high population density (10). The probability of large intense fires that threaten biodiversity and human assets is largely influenced by the type, amount, and continuity of biomass. Therefore, determining how many trees should be planted is less important than figuring out the most safe and effective conservation strategy.

We need to move toward optimizing our landscapes. A diverse mosaic of nature based production systems should be

interspersed with protected natural areas to maximize biodiversity, resilience, and ecosystem services. Trees are not synonymous with biodiversity. Policy-makers and society need to internalize this message to make proper decisions in the context of environmental and health crises.

Susana Gómez-González^{1,2*}, Raúl Ochoa-Hueso¹, Juli G. Pausas³

¹ Departamento de Biología-IVAGRO, Universidad de Cádiz, Puerto Real, Spain. ²Center for Climate and Resilience Research (CR)², Santiago, Chile.

³ Centro de Investigaciones sobre Desertificación (CIDE-CSIC), Valencia, Spain.

*Corresponding author. Email: susana.gomez@uca.es

REFERENCES AND NOTES

1. European Commission, “EU Biodiversity Strategy for 2030” (2020); https://ec.europa.eu/environment/nature/biodiversity/strategy/index_en.htm.
2. International Union for Conservation of Nature, The Bonn Challenge (2020); www.bonnchallenge.org.
3. J.-F. Bastin *et al.*, *Science* 365, 76 (2019).
4. W. J. Bond *et al.*, *Trends Ecol. Evol.* 34, 963 (2019).
5. D. Baldocchi, J. Penuelas, *Glob. Change Biol.* 25, 1191 (2019).
6. J. W. Veldman *et al.*, *Science* 366, eaay7976 (2019).
7. K. D. Holl, P. H. Brancalion, *Science* 368, 580 (2020).
8. M. Jiang *et al.*, *Nature* 580, 227 (2020).
9. J. Scurlock, D. Hall, *Glob. Change Biol.* 4, 229 (1998).
10. D. de Rigo *et al.*, “Forest fire danger extremes in Europe under climate change: Variability and uncertainty” (JRC Tech. Rep. 28926, Publications Office of the European Union, Luxembourg, 2017).