Information sheet

Mainstreaming Resilience in Forest Policy: From Diverse Ecosystems to Tailored Financial Incentives

Marion Ferrat was commissioned by Belspo (Belgium), on behalf of BiodivERsA, to produce an issue brief based on the results of five BiodivClim projects — FeedBaCks, ACORN, MixForChange, FUNPOTENTIAL, and SUSTAIN-COCOA — funded under the 2019 joint call on Biodiversity and Climate Change.

Knowledge and methodology used

This Issue Brief is part of a series aiming to inform on practical, science-based strategies to make Europe's soils, forests, and landscapes more resilient based on the key results of the BiodivClim research projects funded by Biodiversa+.

The brief was drafted by Marion Ferrat in consultation with the BiodivClim Issue Briefs Working Group. The Working Group reviewed the brief in three stages: first, to agree on its overall direction; second, to assess the quality and accuracy of the draft; and finally, to review the last set of modifications. This final review was carried out only by the project leads, who are members of the Working Group, to ensure the brief accurately reflected their research.

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Foot notes:

1. Full project title: *Feedbacks between Biodiversity and Climate*
2. Full project title: *Identifying seed sources for highly adaptable oak forests in a changing climate*
3. Full project title: *Mixed Forest plantations for Climate Change mitigation and adaptation*
4. Full project title: *Potential of functional diversity for increasing the disturbance resiliency of forests and forest-based socio-ecological systems*
5. Full project title:*Sustainable sourcing policies for biodiversity protection, climate mitigation, and improved livelihoods in the cocoa sector*
6. Intergovernmental Panel on Climate Change. (2018). *Global Warming of 1.5°C* (Chapter 3).
   Intergovernmental Panel on Climate Change. (2021). *Working Group I contribution to the 6th Assessment Report* (Technical summary).
7. Intergovernmental Panel on Climate Change. (2019). *Special Report on Climate Change and Land* (Technical Summary);
   Ke, X., et al. (2024). Low latency carbon budget analysis reveals a large decline of the land carbon sink in 2023. *National Science Review, 11*(2). https://doi.org/10.1093/nsr/nwae367
8. Forest Declaration Assessment Partners. (2024). *Regional Forest Declaration Assessment 2022: Tracking progress towards forest goals in the Congo Basin*.
9. European Commission. (2024). *Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on nature restoration*.
10. European Commission. (2021). *Forests and Forestry for a Sustainable Future: New EU Forest Strategy for 2030*.

11. Datasets providing automated assignment of >1 million vegetation plots to the refined EUNIS system, including decision trees, diagnostic species sets, and cross-walk tables to older typologies; gridded predictions of plant γ-diversity at 1 km.

    https://doi.org/10.5281/zenodo.4812736

    https://doi.org/10.5281/zenodo.10441454

12. The Nature Futures Framework is a tool developed by IPBES to support the development of scenarios and models of desirable futures for people and nature. https://www.naturefuturesframework.org/
13. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)

For further information, project publications:

FeedBaCks:

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- Kambach, S., Attorre, F., Axmanová, I., Bergamini, A., Biurrun, I., Bonari, G., ... & Bruelheide, H. (2024). Climate regulation processes are linked to the functional composition of plant communities in European forests, shrublands, and grasslands. Global change biology, 30(2), e17189.https://doi.org/10.1111/gcb.17189
- Kambach, S., Sabatini, F. M., Attorre, F., Biurrun, I., Boenisch, G., Bonari, G., Čarni, A., Carranza, M. L., Chiarucci, A., Chytrý, M., Dengler, J., Garbolino, E., Golub, V., Güler, B., Jandt, U., Jansen, J., Jašková, A., Jiménez-Alfaro, B., … Bruelheide, H. (2023). Climate-trait relationships exhibit strong habitat specificity in plant communities across Europe. Nature Communications, 14(1), Article 712.https://doi.org/10.1038/s41467-023-36240-6
- Karger, D. N., Sieber, P., Hickler, T., Zimmermann, N. E., FeedBaCks Consortium, & Queiroz, C. (2023). The risks of leaving biodiversity behind: Seven points to consider for climate change mitigation (Brief). Stockholm Resilience Centre & Global Resilience Partnership.

MixForChange :

- Blondeel, H., Guillemot, J., Martin-StPaul, N., Druel, A., Bilodeau-Gauthier, S., Bauhus, J., Grossiord, C., Hector, A., Jactel, H., Jensen, J., Messier, C., Muys, B., Serrano-León, H., Auge, H., Barsoum, N., Birhane, E., Bruelheide, H., Cavender-Bares, J., Chu, C., … Baeten, L. (2024). Tree diversity reduces variability in sapling survival under drought. Journal of Ecology, 112(5), 1164–1180.https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2745.14294
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- Kamath, V., Sassen, M., Arnell, A., van Soesbergen, A., & Bunn, C. (2024). Identifying areas where biodiversity is at risk from potential cocoa expansion in the Congo Basin. Agriculture, Ecosystems & Environment, 376, 109216
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