Biodiversa+ Policy Brief Information Sheet: 'Reconciling biodiversity values: inclusive pathways for transformative change in agriculture and protected areas'

Alyson McHugh, were contracted by Biodiversa+ to produce a policy brief based on the results of the Biodiversa+ 2017-2018 BiodivScen research call.

The BiodivHealth call on "Scenarios of biodiversity and ecosystem services" aimed to support research projects at the nexus of biodiversity and health issues.

This international call gathered 26 funding agencies from 23 countries and was co-funded by the European Commission.
The call covered the two following themes:

Theme #1: Development and application of scenarios of biodiversity and ecosystem services across spatial scales of relevance to multiple types of decisions
Theme #2: Consideration of multiple dimensions of biodiversity and ecosystem services in biodiversity scenario.

Knowledge and methodology used

The Policy Brief '**Reconciling biodiversity values: inclusive pathways for transformative change in agriculture and protected areas**' is based on some of the scientific results of three research projects funded by this call: ENVISION, SECBIVIT and OBServ..

Contributors to quality control and reviews Biodiversa+ funded researchers:

ENVISION
Ignasi Bartomeus – Estación Biológica de Doñana, CSIC, Seville, Spain

SECBIVIT
Silvia Winter – University of Natural Resources and Life Sciences, Vienna, Austria

OBServ
Facundo J. Oddi

Biodiversa+ team
Julie de Bouville
Leendert Plaetinck
Fréderic LeMaitre
Patricia Kammerer

References used in the policy brief

1. Allen-Perkins, Magrach, Dainese, Garibaldi, Kleijn, Rader, Reilly, Winfree, … , Bartomeus. 2021. CropPol: A dynamic, open and global database on crop pollination. Ecology 103(3): e3614.

2. Beaumelle, L., Auriol, A., Grasset, M., Pavy, A., Thiéry, D., Rusch, A. (2021). Benefits of increased cover crop diversity for predators and biological pest control depend on the landscape context. Ecological Solutions and Evidence 2(3): e12086. https://doi.org/10.1002/2688-8319.12086
3. Blasi, Bartomeus, Bommarco, Gagic, Garratt, Holzschuh, Kleijn, Lindström, Olsson, Polce, Potts, Rundlöf, Scheper, Smith, Steffan-Dewenter, Clough. 2021. Evaluating predictive performance of models explaining wild bee pollinator abundance in a mass-flowering crops. Ecography, 44: 525-536.
4. Daane, K. M. et al. (2018). "Native grass ground covers provide multiple ecosystem services in Californian vineyards", Journal of Applied Ecology, 55(5), pp. 2473–2483. doi: 10.1111/1365-2664.13145.
5. Domínguez-Garcia, Molina, Godoy, Bartomeus. 2023. Interaction network structure predicts species temporal persistence in empirical plant-pollinator communities. Nature Ecology and Evolution. In press.
6. Garibaldi, L.A., Sáez, A., Aizen, M.A., Fijen, T. and Bartomeus, I., 2020b. Crop pollination management needs flower-visitor monitoring and target values. Journal of Applied Ecology, 57(4), pp.664-670.
7. Garibaldi, LA, Oddi, FJ, Miguez, FE, Bartomeus, I, et al. 2020a. Working landscapes need at least 20% native habitat. Conservation Letters. 2020;e12773.
8. Garibaldi LA, Pérez-Méndez N, Cordeiro GD, Hughes A, Orr M, Alves-dos-Santos I, Freitas BM, Freitas de Oliveira F, LeBuhn G, Bartomeus I, Aizen MA. 2021. Negative impacts of dominance on bee communities: Does the influence of invasive honey bees differ from native bees? Ecology 102(12):e03526.
9. Giménez-García, Allen-Perkins, Bartomeus, Balbi, Knapp, Hevia, Woodcock, Smagghe, Miñarro, Eeraerts, Colville, Hipólito, Cavigliasso, Nates-Parra, Herrera, Cusser, Simmons, Wolters, Jha, Freitas, Horgan, Artz, Sidhu, Otieno, Boreux, Biddinger, Klein, Joshi, Stewart, Albrecht, Nicholson, O'Reilly, Petsersen, Crowder, Burns, Nabaes Jodar, Garibaldi, Sutter, Dupont, Dalsgaard, da Encarnação Coutinho, Lázaro, Andersson, Raine, Krishnan, Dainese, van der Werf, Smith, and Magrach. Pollination supply models from local to global scale. WEB Ecology. In press.
10. Hall, R.M. et al. (2020). "Vegetation management intensity and landscape diversity alter plant species richness, functional traits and community composition across European vineyards", Agric. Syst. 177, 102706. https://doi.org/10.1016/j.agsy.2019.102706
11. Magrach, Giménez-García, Allen-Perkins, Garibaldi, Bartomeus. 2022. Increasing crop richness and reducing field sizes provide higher yields to pollinator-dependent crops. Journal of Applied Ecology, 60, 77–90.
12. Moth, S., Walzer, A., Redl, M., Petrovic, B., Hoffmann, C., Winter, S. (2021). Unexpected Effects of Local Management and Landscape Composition on Predatory Mites and Their Food Resources in Vineyards. INSECTS 12(2), 180. https://doi.org/10.3390/insects12020180
13. Ostandie, N., Giffard, B., Bonnard, O. et al. (2021). Multi-community effects of organic and conventional farming practices in vineyards. Sci Rep 11, 11979. https://doi.org/10.1038/s41598-021-91095-5
14. Paredes, D., Rosenheim, J. A., Chaplin-Kramer, R., Winter, S., & Karp, D. S. (2020). Landscape simplification increases vineyard pest outbreaks and insecticide use. Ecology Letters https://doi.org/10.1111/ele.13622
15. Paredes, D., Rosenheim, J. A., Karp, D. S. (2022) The causes and consequences of pest population variability in agricultural landscapes. Ecological Applications e2607. https://doi.org/10.1002/eap.2607

16. Raymond et al. (forthcoming). Inclusive conservation and the new global biodiversity conservation targets: Tensions and prospects. One Earth.
17. Reiff, J.M., Kolb, S., Entling, M.H., Herndl, T., Moth, S., Walzer, A., Kropf, M., Hoffmann, C., Winter, S. (2021). Organic Farming and Cover-Crop Management Reduce Pest Predation in Austrian Vineyards. INSECTS 12(3), 220. https://doi.org/10.3390/insects12030220
18. Reilly, J.R., Artz, D.R., Biddinger, D., Bobiwash, K., Boyle, N.K., Brittain, C., Brokaw, J., Campbell, J.W., Daniels, J., Elle, E. and Ellis, J.D., 2020. Crop production in the USA is frequently limited by a lack of pollinators. Proceedings of the Royal Society B, 287(1931), p.20200922.
19. Segre, Kleijn, Bartomeus, Wallis De Vries, de Jong, van der Schee, Román, Fijen. 2023. Butterflies are not a robust bioindicator for assessing pollinator communities, but floral resources offer a promising way forward. Ecological Indicators 154, 110842.
20. Tomoiagă, L. (2015). "The Impact of Pesticides on Tarnave Vineyard - Biodiversity Ecosystem," Bulletin UASVM Horticulture, 72(1), pp. 235–236. http://doi:10.15835/buasvmcnhort:10702.
21. Zamorano, J., Bartomeus, I., Grez, A.A. and Garibaldi, L.A. (2020). Field margin floral enhancements increase pollinator diversity at the field edge but show no consistent spillover into the crop field: a meta-analysis. Insect Conserv Divers, 13: 519-531.
22. Observ. (n.d.). Modeler. Retrieved from https://observ.integratedmodelling.org/modeler/?app=observ_app#/login
23. Inclusive Conservation. (2020). Policy Brief: Modelling Visions. Retrieved from https://inclusive-conservation.org/wp-content/uploads/2020/12/Policy-Brief-modelling-visions-fall-2020.pdf
24. Panorama. (n.d.). Decision-making toolbox for inclusive conservation in Sierra de Guadarrama National Park. Retrieved from https://panorama.solutions/en/solution/decision-making-toolbox-inclusive-conservation-sierra-de-guadarrama-national-park
25. Inclusive Conservation. (2020). Fact Sheet: Building capacity for resilient and inclusive conservation of cultural landscapes. Retrieved from https://inclusive-conservation.org/2020/12/22/fact-sheet-building-capacity-for-resilient-and-inclusive-conservation-of-cultural-landscapes/
26. Inclusive Conservation. (2021). Report 3-2: A social-ecological inventory of the Denali region. Retrieved from https://inclusive-conservation.org/2021/02/25/report-3-2-a-social-ecological-inventory-of-the-denali-region/