

Biodiversity before capital

A standpoint on the human-made loss of diversity and what must be done

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Disclaimer	Standpoint of the author. Assessments and demands are labelled as such; the findings come from the papers and data layers of this strand.

Abstract

The papers of this strand describe, classify and provide evidence. This text does something else: it takes a stand. The findings are clear enough to support a statement of position. The loss of species, populations and varieties is caused by humans, it continues, and its most important drivers are still being fuelled with public and private money. In doing so we are destroying the foundation on which our food, our plant breeding and our adaptation to a changing climate depend. The standpoint is this: where diversity and the short-term return on capital stand against each other, diversity takes precedence, because it cannot be replaced and capital can. The text gives the reasons for this precedence, warns of the paths we are on, names solutions for individuals, municipalities, farms, associations and policy, and finally engages with the strongest counter-arguments.

1. Why a standpoint

Science describes what is. It cannot decide on its own what ought to be. But anyone who spends years compiling figures on the decline of farmland birds, insects, plant species and cultivated varieties, as papers P01, P06 and P18 do, at some point faces the question of whether describing is enough. This text answers no. It is therefore explicitly labelled as a standpoint and kept separate from the papers. The findings on which it relies can be read there with their sources and caveats. The assessments are those of the author.

2. The findings in five sentences

1. According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, IPBES (2019), around one million species are threatened with extinction; 75 per cent of the ice-free land surface has been significantly altered by humans.
2. Across all assessed indicators, biodiversity is declining by 2 to 6 per cent per decade, according to the IPBES Nexus report (2024).
3. The five direct drivers are human-made: change in land and sea use, direct exploitation, climate change, pollution and invasive species, in this order of rank.
4. In Austria, the Farmland Bird Index fell by 43 per cent from 1998 to 2023, 37 per cent of the assessed ferns and flowering plants are in Red List categories, and around 6.5 hectares of land are newly taken every day.
5. With the wild relatives of crop plants and with old varieties, precisely the material from which future varieties must be bred is disappearing; in Mesoamerica 35 per cent of the assessed wild relatives are

threatened, 44 per cent in the maize-related genus *Zea*.

How these figures are to be read is set out in P18. Not every figure means what the headline makes of it: the Living Planet Index measures an average relative decline of monitored populations, not a loss of 73 per cent of all animals. But the direction is the same in all data series.

3. We are on the wrong path

Author's assessment. Four developments show that society knows the findings and nevertheless steers in the opposite direction.

We help pay for the destruction. The IPBES Nexus report puts public subsidies with harmful effects on nature at around 1.7 trillion US dollars a year, plus private financial flows of 5.3 trillion US dollars. The Kunming-Montreal Framework requires harmful incentives to be reduced by at least 500 billion US dollars annually by 2030. As long as the ratio remains like this, money works against every protective measure.

We are reversing what was decided. The EU Biodiversity Strategy for 2030 set out to halve the use and risk of pesticides. The European Parliament rejected the regulation that was to implement this in November 2023, and the Commission withdrew it in 2024. The obligation to keep four per cent of arable land out of productive use was dropped in 2024. The Austrian Soil Strategy was adopted in 2024 without a binding target. These are not natural events but decisions.

We are concentrating the basis of our food in a few hands. According to surveys by GRAIN and ETC Group, four corporations hold around half of the global commercial seed market (P17). Whoever supplies the seed determines which varieties exist, which traits are bred for and which claims are made regarding patents and farm-saved seed (P10). Breeding geared to a few large markets produces uniform varieties, not diverse ones.

We are replacing diversity with storage. Genebanks are indispensable, and papers P02 and P06 show how much depends on them. But a variety in the cold store no longer adapts; a wild plant in the seed store no longer has a site. Genebanks secure what is being lost outside. They are an insurance, not a solution.

In doing so we are destroying our own natural foundation of life, and we are doing it with our eyes open. It cannot go on like this.

4. Why diversity before capital

Reasoning of the standpoint. Capital can be multiplied, transferred and replaced. An extinct species, a lost landrace, a vanished population with its alleles cannot (P14 shows how quickly genetic diversity is lost in small populations). Between a replaceable and an irreplaceable good, the irreplaceable one takes precedence as soon as the two stand against each other. This is not a rejection of markets, business or profit. It is an order: first the foundation is secured, then business is done on it.

This order is not new. It is found, in weaker form, in the precautionary principle of environmental law, in the Convention on Biological Diversity and in the FAO seed treaty with its commitment to farmers' rights (P03). What is new is only that the time to honour it is running short.

5. What must be done

Author's demands and recommendations. The following measures come from the data layer of the Action Compass; there they are recorded with evidence and degree of effect (evidenced, plausible in the subject, or framework condition). None of them is utopian.

5.1 Individuals and households

- Grow open-pollinated varieties, save your own seed and pass it on (P15); take on a variety as a custodian.
- Mow less often: a meta-analysis (Proske et al. 2022) shows more arthropods and more species on less frequently mown areas.
- Reduce outdoor lighting.
- Create demand for diversity: buy seed and food from open-pollinated, non-profit breeding.
- Use your own voice: the public consultation on the Austrian national restoration plan runs until 15 October 2026.

5.2 Municipalities

- Change mowing on public green spaces, adopt a lighting concept.
- Limit land take: zoning is a municipal matter, and this is where the decision about land is made.
- Set up seed libraries (concept K01 of this strand).

5.3 Farms

- Diversify cultivation: according to an evaluation of 98 meta-analyses (Tamburini et al. 2020), diversification promotes biodiversity, on average without loss of yield.
- Create perennial, species-rich flower strips, place biodiversity areas under ÖPUL, the Austrian agri-environmental programme, in a targeted way.
- Use landraces and organic heterogeneous material.
- Reduce pesticide risk.

5.4 Associations and networks

- Create safety duplicates at a second, geographically separate location; the retrieval of the ICARDA collection from Svalbard shows that a duplicate can save a collection (P06).
- Document holdings and report them to the national inventory (P11, P12); the Collection Manager of this strand is built for this.
- Network; the Network Directory lists organisations to get involved with.

5.5 Policy and administration

- Remove harmful incentives, in Austria first in agriculture, transport and spatial planning.
- Make the national restoration plan binding and fully fund it.
- Adopt a binding land target.
- Open seed law to diversity: conservation and amateur varieties, heterogeneous material and exchange among custodians must not fail because of requirements written for uniform high-performance varieties (P03, P15).
- Safeguard competition in the seed market and limit the scope of patents on plants (P10, P17).
- Fund public and non-profit breeding on a permanent basis.

- Expand observation: without monitoring no findings, without findings no steering.

The Action Compass makes it possible to put together one's own plan from these measures and to save it.

6. The counter-positions

A standpoint that does not take its opponents seriously is worthless. Four objections carry weight.

Food security needs yield. A growing population must be fed, and high-performance varieties, mineral fertiliser and plant protection have multiplied yields. The answer: the standpoint does not demand that yield be given up, but requires that it not be achieved at the expense of the foundation. The meta-analyses on diversification show that the two are often compatible. Where they are not compatible, the decision must be made openly.

Large companies fund research that nobody else pays for. The OECD (2018) found in the seed markets examined no evidence that higher concentration had led to higher prices, and no decline in innovation in the EU seed markets from 2013 to 2017; Klümper and Qaim (2014) report for genetically modified varieties on average higher yields and lower pesticide use, the latter mainly for insect-resistant varieties (P17). The answer: innovation is not the same as diversity. An industry can be highly innovative and still work on few crops, few traits and few markets. That is why public and non-profit breeding is needed alongside private breeding.

New techniques can help. Proponents of new genomic techniques expect faster adaptation to heat and drought and fewer plant protection products (P16). That is possible. The standpoint is not directed against techniques, but against ownership rules and market structures that crowd out diversity, and it demands freedom of choice and labelling.

The figures are uncertain. Whether a sixth mass extinction is already under way is disputed among experts; background rates are difficult to determine; individual indices are mathematically biased (P18). That is true. But the sharp decline of populations is undisputed, and all data series agree on the direction. Uncertainty about the extent is not a reason to wait, but a reason to take precautions.

7. Conclusion

It takes a voice to say it: the diversity on which we live is being lost through our own actions, and we are helping to finance this loss. But it takes more than one voice. It takes people who conserve varieties, municipalities that mow differently and seal less, farms that grow more diversely, associations that document and duplicate, and policy that stops paying against its own goals. The tools and papers of this strand are meant to help ensure that this does not remain mere words.

Limits of this paper

This text is a standpoint, not a specialist paper. It selects and assesses; a complete and balanced account of the findings is given in P17 and P18 and in the data layers `markt.json`, `artensterben.json` and `handlungsfelder.json`. The demands have not been examined in detail for their costs and side effects. Individual indicators, in particular the extrapolations of IPBES (2019), are listed in the data layer as partially verified. The market shares come from civil society organisations with a declared position. The text represents no party and no organisation.

References

1. IPBES (2019): *Global Assessment Report on Biodiversity and Ecosystem Services*. <https://doi.org/10.5281/zenodo.3553579>
2. IPBES (2024): *Nexus Assessment*, media release. <https://www.ipbes.net/nexus/media-release>
3. BirdLife Österreich (2024): Farmland Bird Index für Österreich 2023, on behalf of the Ministry of Agriculture; reference in paper P18.
4. Schratt-Ehrendorfer, L. et al. (2022): Rote Liste der Farn- und Blütenpflanzen Österreichs. Stapfia 114.
5. BMLUK and ÖROK (2025): Land take and soil sealing in Austria; according to data layer artensterben.json.
6. IUCN (2021): Assessment of crop wild relatives in Mesoamerica; according to data layer artensterben.json.
7. WWF and ZSL (2024): *Living Planet Report 2024*. <https://www.worldwildlife.org/publications/2024-living-planet-report/>
8. Convention on Biological Diversity (2022): Kunming-Montreal Global Biodiversity Framework. <https://www.cbd.int/gbf>
9. GRAIN and ETC Group (2025): *Top 10 agribusiness giants*. <https://grain.org/en/article/7284-top-10-agribusiness-giants-corporate-concentration-in-food-farming-in-2025>
10. ETC Group and GRAIN (2026): *Top 10 Agribusiness Giants – 2026 Update*. https://www.etcgroup.org/sites/www.etcgroup.org/files/files/top_10_2026_en.pdf
11. Proske, A. et al. (2022): Meta-analysis on mowing frequency and arthropods; according to data layer handlungsfelder.json.
12. Tamburini, G. et al. (2020): Agricultural diversification promotes multiple ecosystem services without compromising yield. *Science Advances* 6.
13. OECD (2018): *Concentration in Seed Markets: Potential Effects and Policy Responses*. https://www.oecd.org/en/publications/concentration-in-seed-markets_9789264308367-en.html
14. Klümper, W. and Qaim, M. (2014): A meta-analysis of the impacts of genetically modified crops. *PLOS ONE* 9(11), e111629. <https://doi.org/10.1371/journal.pone.0111629>
15. Regulation (EU) 2024/1991 on nature restoration. <https://eur-lex.europa.eu/eli/reg/2024/1991/oj>
16. Papers P01, P03, P06, P10, P14, P15, P16, P17 and P18 of this strand; data layers artensterben.json, handlungsfelder.json and markt.json.