Understanding IA and Mine Closure Contributions to Nature Positive

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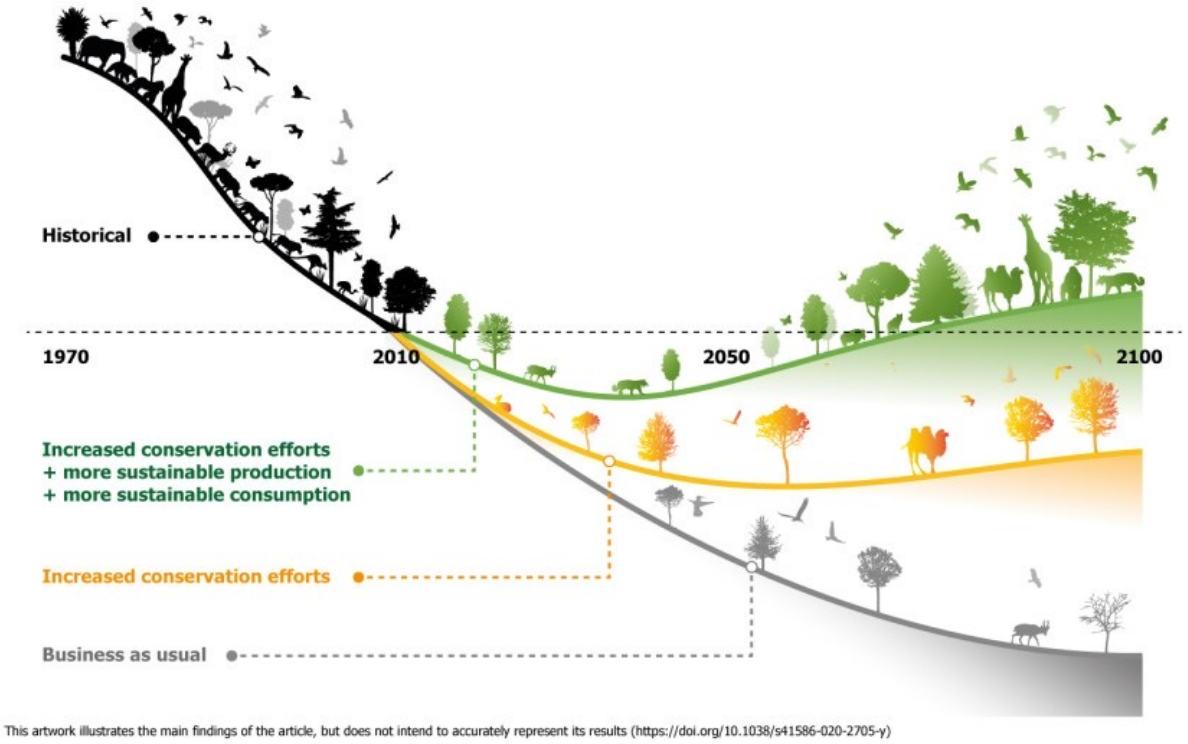
Why “Nature Positive”?

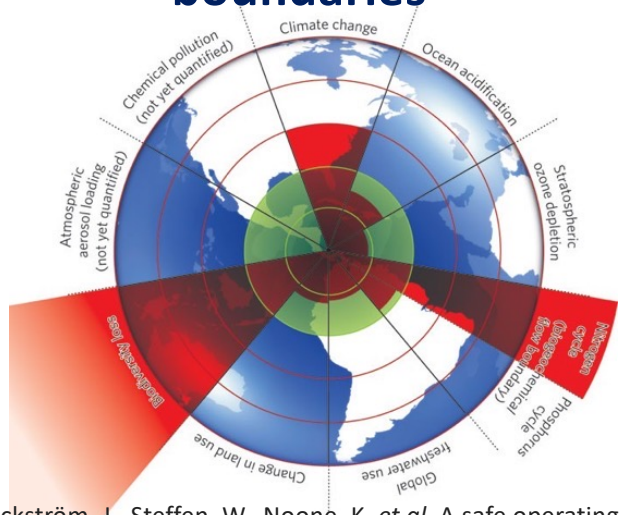
Steep decline in biodiversity



This artwork illustrates the main findings of the article, but does not intend to accurately represent its results (https://doi.org/10.1038/s41586-020-2705-y)

Leclère, D., Obersteiner, M., Barrett, M. *et al.* Bending the curve of terrestrial biodiversity needs an integrated strategy. *Nature* 585**,** 551–556, 2020.

Going beyond planetary boundaries



Rockström, J., Steffen, W., Noone, K. *et al.* A safe operating space for humanity. *Nature* 461, 472–475, 2009.

Top 10 risks

WORLD ECONOMIC FORUM

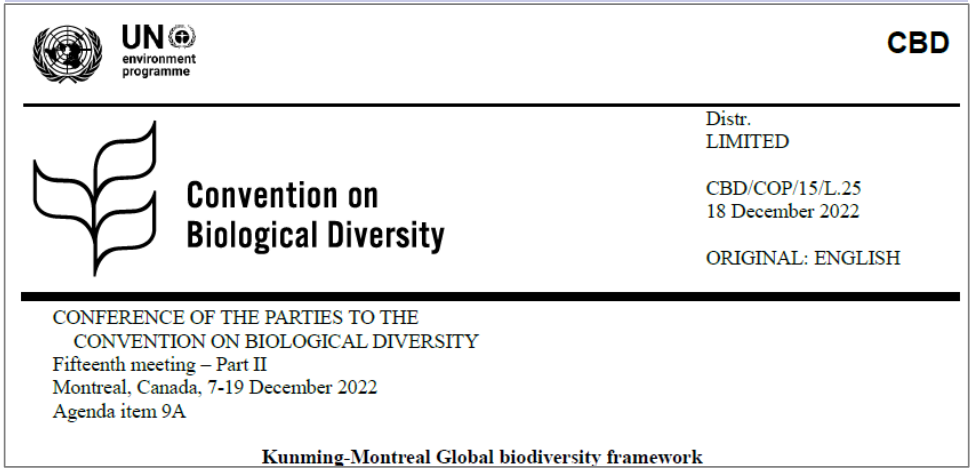
Published: 11 January 2022

Global Risks Report 2022

Global Biodiversity Targets

30 by 30

- **CDB Kumming-Montreal Framework 18 dez 2022 CBD/COP/15/L.25**



UN environment programme

CBD

Convention on Biological Diversity

Distr.
LIMITED

CBD/COP/15/L.25
18 December 2022

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Fifteenth meeting – Part II
Montreal, Canada, 7-19 December 2022
Agenda item 9A

Kunming-Montreal Global biodiversity framework

To meet the targets we need to protect and restore

TARGET 2

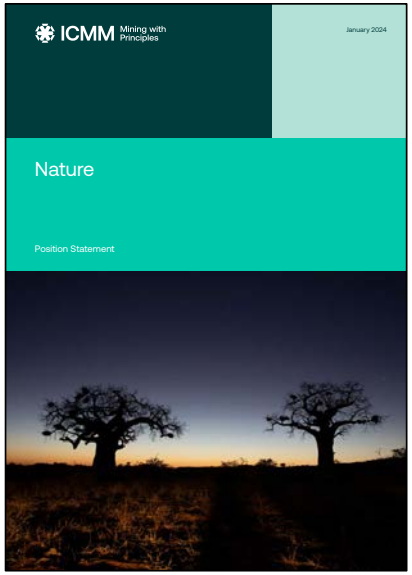
Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.

TARGET 3

Ensure and enable that by 2030 at least 30 per cent of terrestrial, inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through (…)

ICMM Nature commitments – ***mine site*** level

ICMM



1.3 Assess and address material† risks and impacts to biodiversity and ecosystem services by implementing the mitigation hierarchy† actions to achieve a minimum of no net loss (NNL) or net gain of biodiversity by completion of closure.[7†]

This includes through:

— Applying the mitigation hierarchy with an avoidance-first focus from the earliest feasible stage of exploration and continuing throughout project lifecycles,

— Pursuing progressive restoration, rehabilitation and/or reclamation† where feasible, and commencing with offsets for residual adverse impacts as early as possible, and

— Transparently disclosing the relevant methodology used to calculate no net loss or net gain, objectives and site-level performance in 2030, 2040 and 2050, or more frequently.

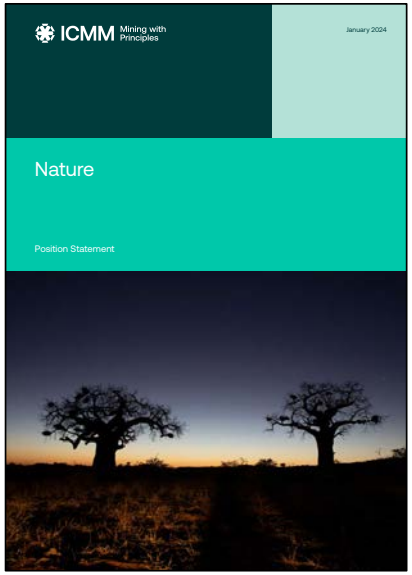
1. Direct operations

For all new operations and significant expansions, no net loss or net gain should be measured against a pre-operation or pre-expansion baseline respectively. For existing operations†, this should be measured against a 2020 or earlier baseline. For future acquisitions, the baseline should be the date of takeover or earlier.

https://www.icmm.com/website/publications/pdfs/mining-principles/position-statements_nature.pdf?cb=71327

ICMM Nature commitments – ***landscape*** level

ICMM



3. Landscapes[8]

3.1 **Restore, Conserve and Regenerate:** Contribute towards the GBF targets[9] of (a) placing 30 per cent of terrestrial, inland water area, and marine and coastal areas under conservation globally or (b) placing 30 per cent of degraded areas under restoration globally; for example through funding, building capacity or executing conservation or restoration initiatives.

https://www.icmm.com/website/publications/pdfs/mining-principles/position-statements_nature.pdf?cb=71327

So, what is necessary in IA and mine closure planning and implementation to meaningfully contribute to nature positive goals?

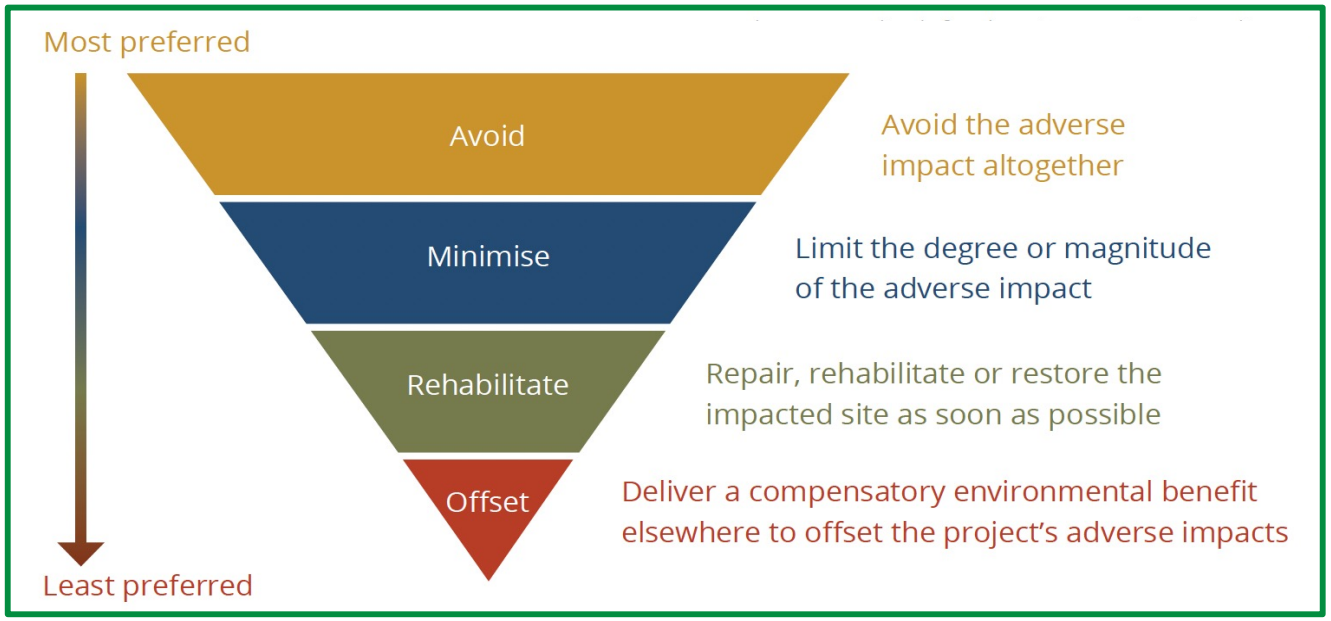
Key challenges

1. application of ***mitigation*** hierarchy and BD ***offsetting***
2. the ***time-lag*** for restoring BD in mining rehabilitation
3. considering ***indirect and induced impacts*** of mining
4. managing ***trade-offs*** in decision-making processes
5. meeting ***social needs*** in post-mining transitions
6. ensuring ***long-lasting*** Nature Positive benefits

Note: our assumption is that IA and MCP are integrated

https://doi.org/10.1016/j.eiar.2020.106366

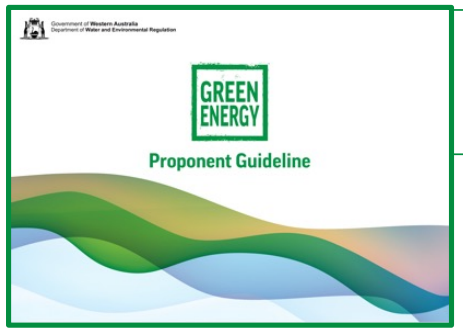
1. Application of mitigation hierarchy and BD offsetting



ensure that:

- *policies uphold 'true offsets' with*
- *provision to 'say no' to development for high biodiversity areas*

(Morrison-Saunders & Sánchez, 2024, p386)



DWER, 2024, *Green Energy Proponent Guideline* https://www.wa.gov.au/system/files/2024-12/green-energy-proponent-guideline.pdf (p8)

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https://doi.org/10.1080/14486563.2024.2400899
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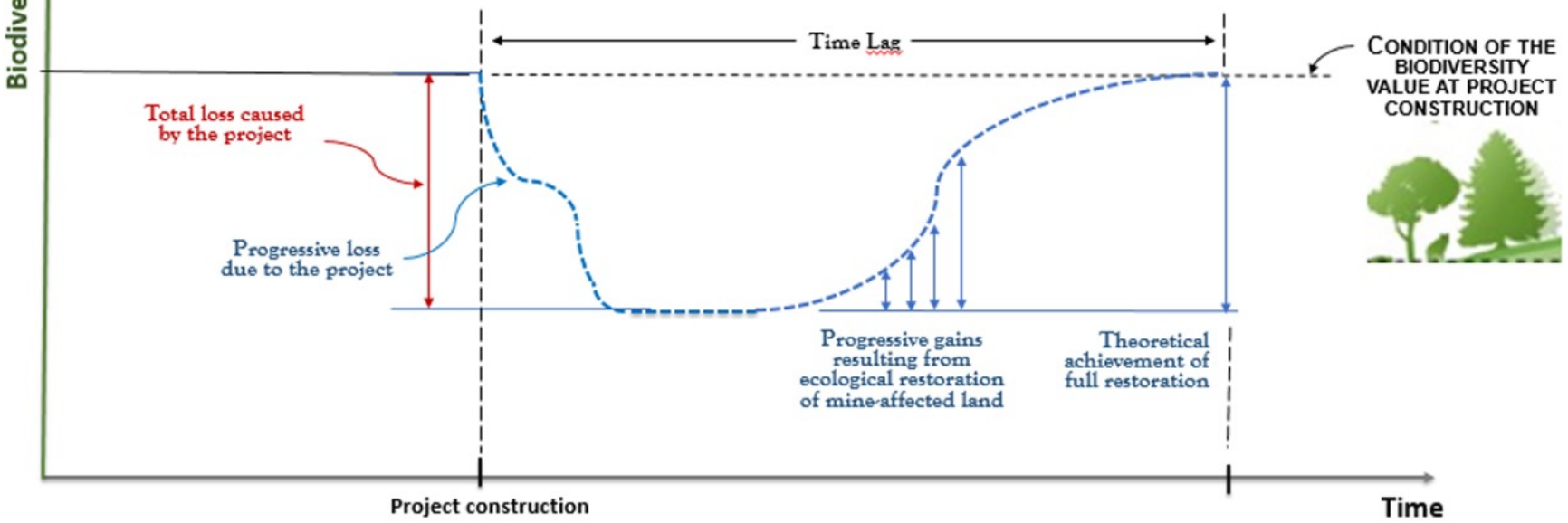
Conceptualising project environmental impact assessment for enhancement: no net loss, net gain, offsetting and nature positive

Angus Morrison-Saunders [a,b] and Luis Sánchez [c]

https://doi.org/10.1080/14486563.2024.2400899

2. Time-lag for restoring BD in mining rehabilitation

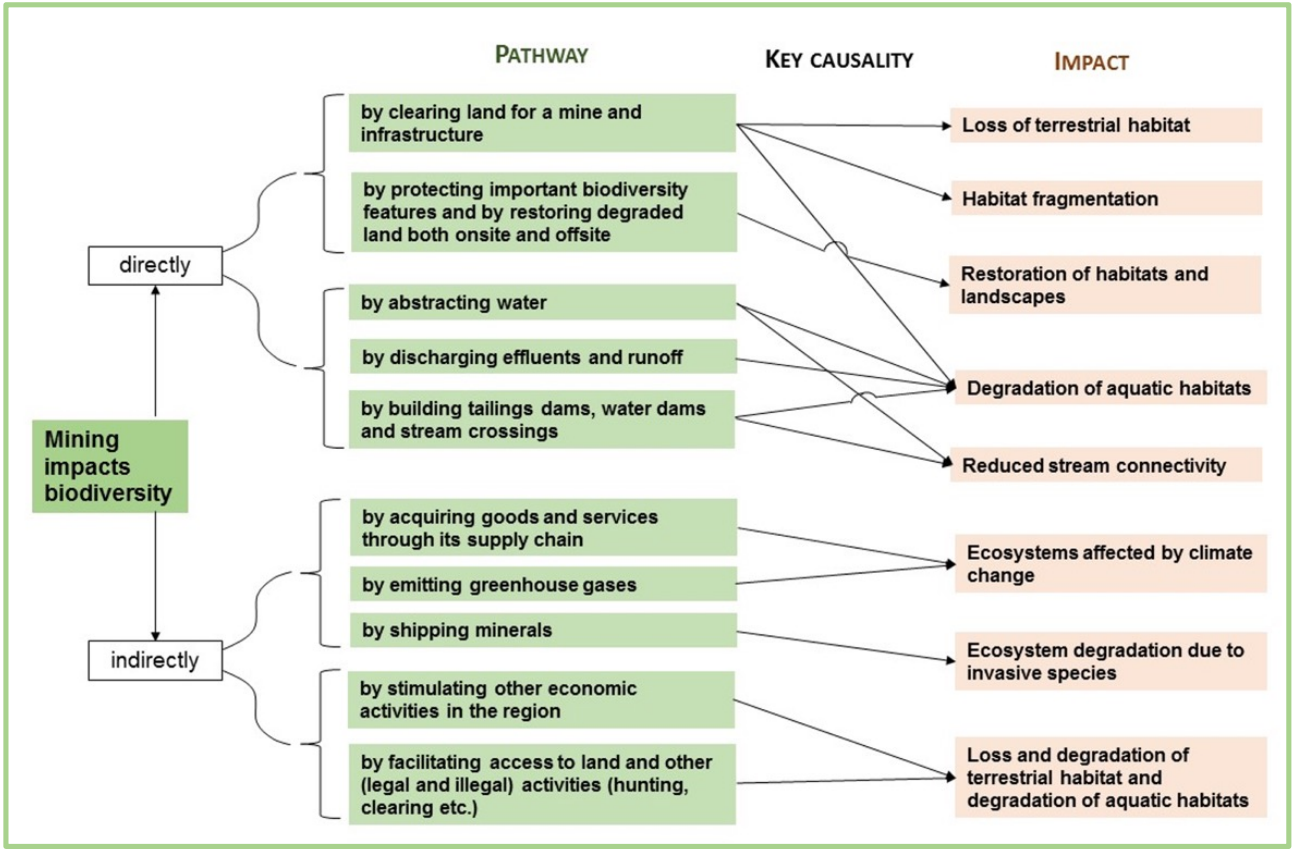
- the '30-by-30' goal of Nature Positive poses a particular challenge for individual mine sites



Time lag between biodiversity losses in mining and gains resulting from mine site ecological restoration.

Sánchez, L. & A. Morrison-Saunders (2025), Mine Closure Planning Must Face the Challenge of Delivering Nature Positive Outcomes, *Research Directions: Mine Closure and Transitions*, https://doi.org/10.1017/mcl.2025.1

3. Indirect and induced impacts of mining on Nature



- *No mine is an island* (IUCN, 2021)
- indirect & induced impacts of mining are significant

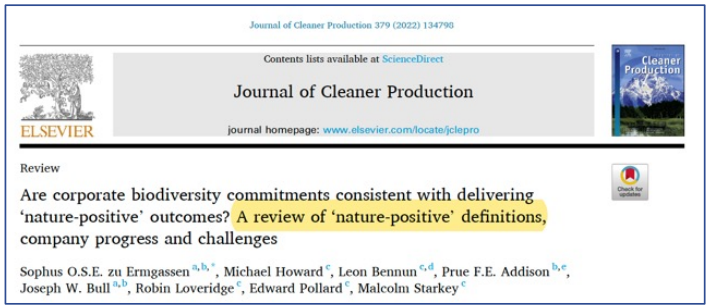
IUCN (2021) Stricter guidelines needed to balance development, conservation and social issues related to mining, https://iucn.org/news/business-and-biodiversity/202109/stricter-guidelines-needed-balance-development-conservation-and-social-issues-related-mining

Sánchez, L. & A. Morrison-Saunders (2025), Mine Closure Planning Must Face the Challenge of Delivering Nature Positive Outcomes, *Research Directions: Mine Closure and Transitions*, https://doi.org/10.1017/mcl.2025.1

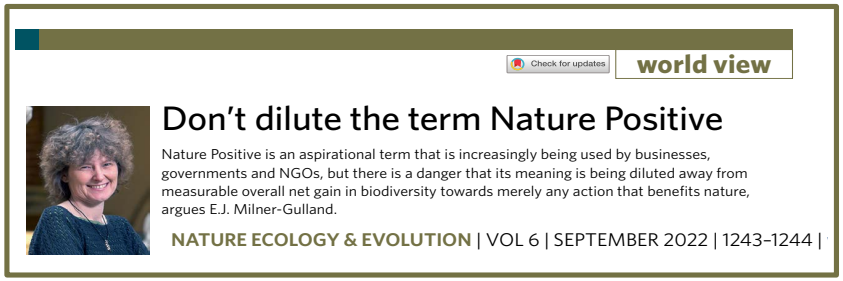
4. Managing trade-offs in decision-making processes

- Biodiversity conservation is relatively clear (e.g. no net loss of a given species or ecosystem)
- nature positive means more than biodiversity – encompassing different realms (water, biodiversity, air/climate, and soil/land (Baggaley *et al*. 2023)
- gains in one realm may not represent gains in another
- lack of clarity for Nature Positive concept may be a problem (Milner-Gulland 2022; zu Ermgassen et al. 2022)
- clear policy positions or trade-off decision-making rules are needed

https://portals.iucn.org/library/sites/library/files/documents/2023-023-En.pdf



https://doi.org/10.1016/j.jclepro.2022.134798



https://www.nature.com/articles/s41559-022-01845-5

5. Social needs in post-mining transitions

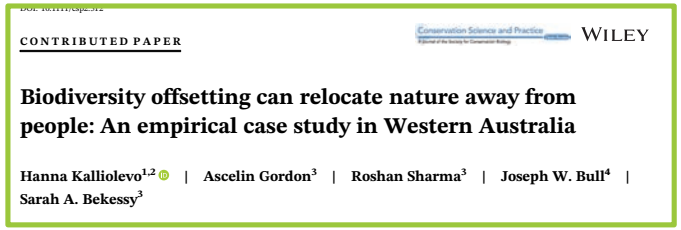
An exclusive focus on Nature or biodiversity ignores social issues

- e.g. recent concerns about social impacts of BD offsetting (Bidaud et al. 2018; Kalliolevo et al. 2021; Tupala et al. 2022)

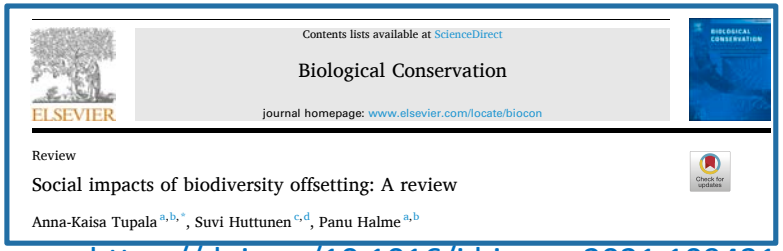
Should mined areas return to its former status (e.g. attempts to rehabilitate habitat) or be repurposed to make alternative uses of the infrastructure & development?

Mine closure and IA must be social processes that are fair and with good governance to meet the needs of local communities

https://doi.org/10.1016/j.landusepol.2018.05.003



https://doi.org/10.1111/csp2.512



https://doi.org/10.1016/j.biocon.2021.109431

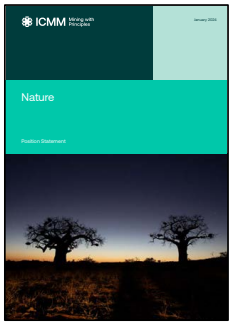
6. Ensuring long-lasting Nature Positive benefits

As with BD offsets, Nature Positive benefits must be permanent

Mine closure plans must ensure that the positive legacy of mining is maintained

It will require working on a regional, landscape or ecosystem scale, not just at the mine site itself

(e.g. Sonter et al. 2018; ICMM 2024; Morrison-Saunders & Sanchez 2024; Maron et al 2025)



Mining and biodiversity: key issues and research needs in conservation science

Laura J. Sonter[1,2,4], Saleem H. Ali[3,4,5] and James E. M. Watson[1,2,6]

https://dx.doi.org/10.6084/m9.figshare.c.4302752.


nature reviews biodiversity

https://doi.org/10.1038/s44358-025-00023-2

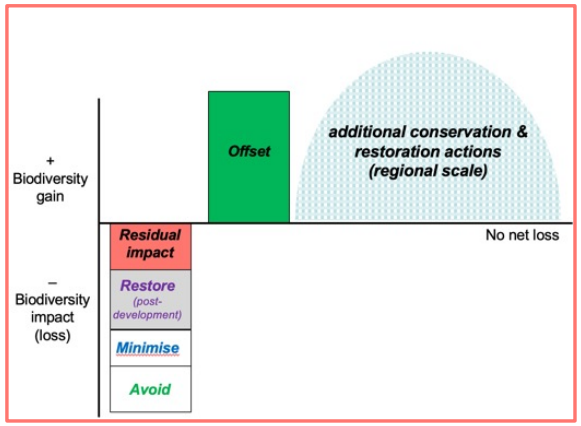
Review article

Check for updates

Biodiversity offsets, their effectiveness and their role in a nature positive future

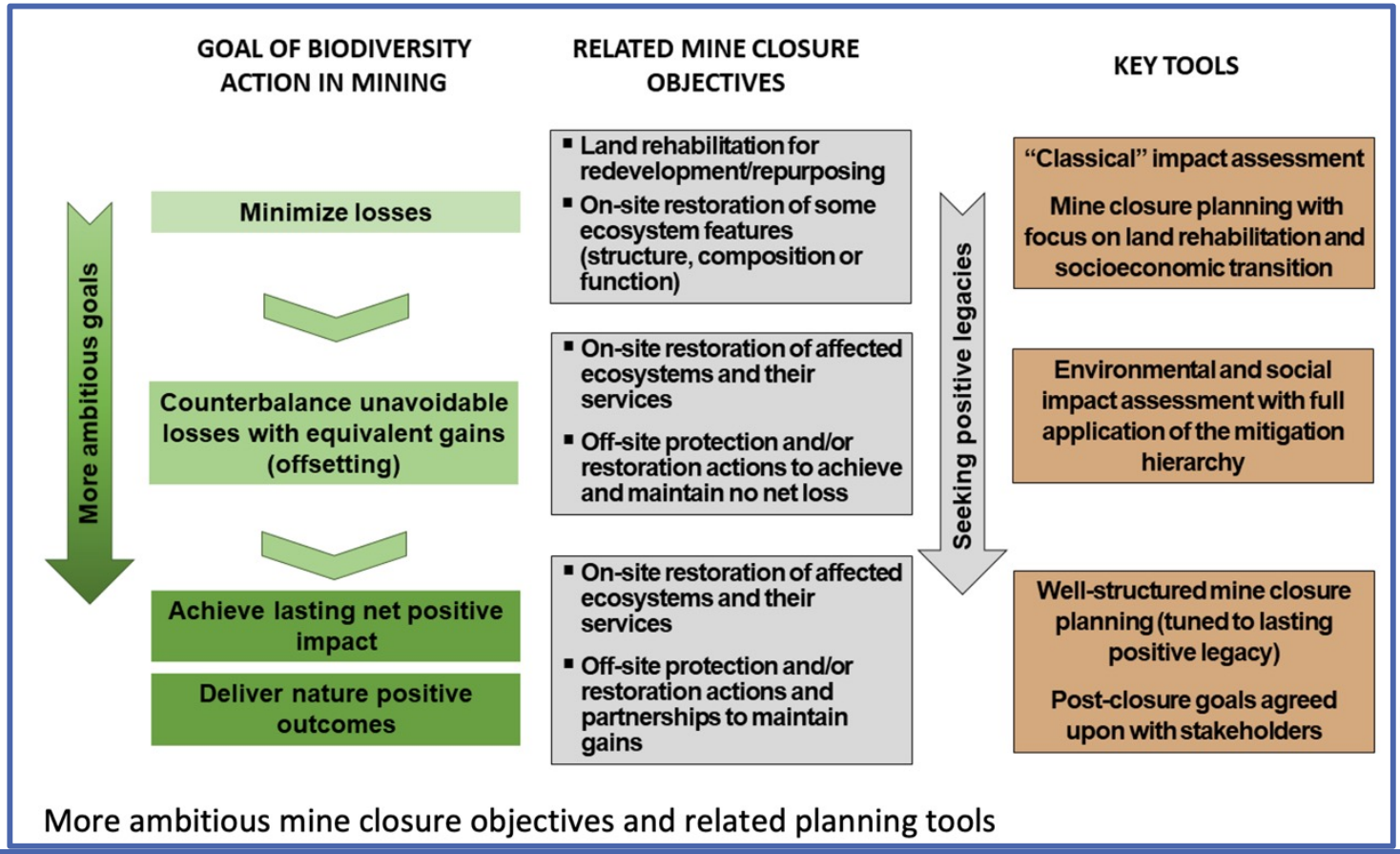
Martine Maron[1,2], Amrei von Hase[3], Fabien Quétier[4], Laura J. Sonter[1,2,5], Sebastian Theis[6] & Sophus O. S. E. zu Ermgassen[7,8]

https://doi.org/10.1038/s44358-025-00023-2



Conclusions

The Nature Positive goal in IA and mining is possible but represents an evolution of goals and will require well-tuned and updated tools to deliver



More ambitious mine closure objectives and related planning tools

Sánchez, L. & A. Morrison-Saunders (2025), Mine Closure Planning Must Face the Challenge of Delivering Nature Positive Outcomes, *Research Directions: Mine Closure and Transitions*, https://doi.org/10.1017/mcl.2025.1

Thank you!

Let’s continue the conversation!

Message me your questions or comments in the IAIA25 app.

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