CRITICAL ECOSYSTEM AREAS:
Better biodiversity metrics for business

Background

Industry and lender safeguards, standards and guidance such as the IFC Performance Standards, the BBOP Standard and the CSBI Mitigation Hierarchy Guide describe good practice to help development projects avoid and reduce impacts on biodiversity. However, there is often a gap between the adoption of principles and high quality outcomes for biodiversity following development. It is important to address this gap as biodiversity loss is increasing globally.

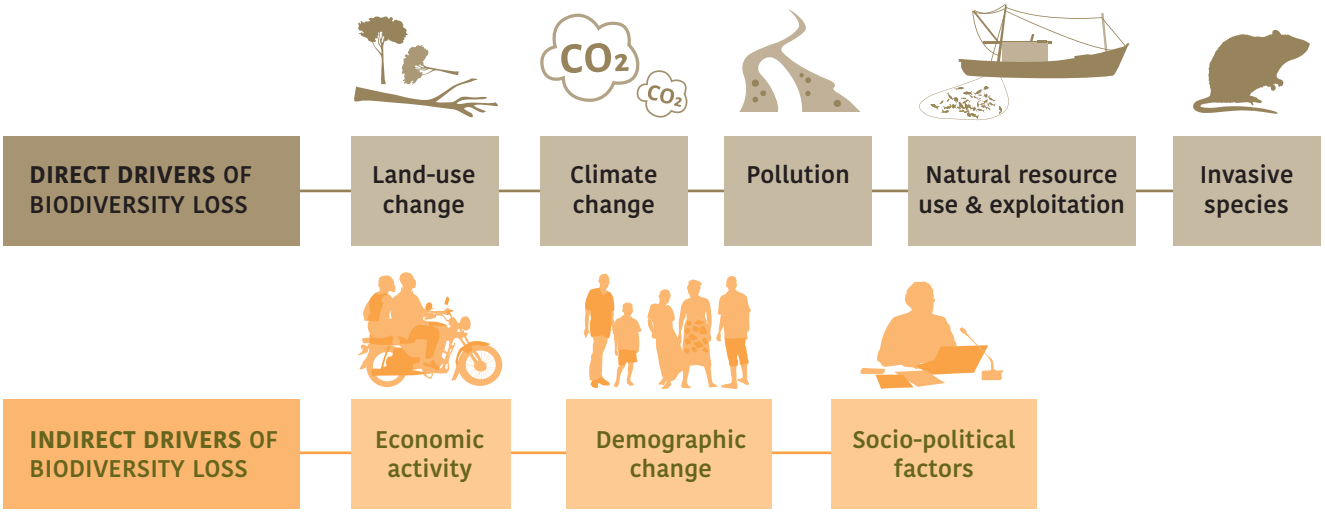
Countries are recognising a need to address biodiversity loss through the Global Biodiversity Framework (GBF) currently under development. Nations and other jurisdictions will develop biodiversity strategies and targets to support progress towards the GBF. The Science-based Targets Network (SBTN) is developing guidance on biodiversity for business which are aligned with the GBF. The IUCN Impact Mitigation and Ecological Compensation thematic group has identified the opportunity for mitigation policy to support progress towards these targets. The COMBO Program is working with countries to encourage policy which support biodiversity targets of No Net Loss or a Net Gain following development. Application of policy by development projects requires accessible biodiversity data to identify the mitigation actions required to achieve required goals.

Why do we need this metric?

Biodiversity is inherently diverse. Consolidating biodiversity features into a small suite of robust indicators has proved challenging. Current methodologies do not yet meet all the characteristics for a suitable metric for business, particularly at the project level. Existing methodologies may require detailed knowledge of individual biodiversity groups or be at too broad a scale to be helpful for industry. Some metrics may not provide information on how the status of that biodiversity can be maintained or improved.

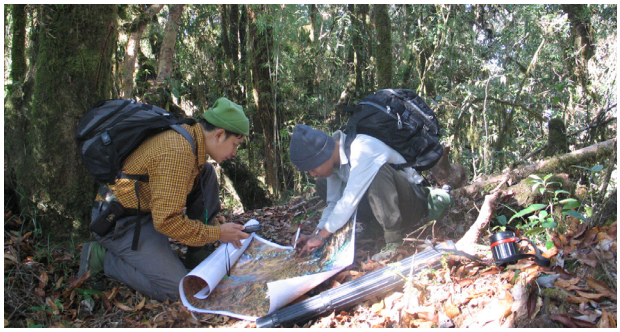
While biodiversity is complex, the main direct drivers of biodiversity loss are few and inter-related comprising: (i) land-use change; (ii) climate change; (iii) pollution; (iv) natural resource use & exploitation; and (v) invasive species. Indirect drivers of biodiversity loss result from, amongst others, interactions of economic activity, demographic change and socio-political factors.

A shift to a metric which assesses drivers of biodiversity loss presents an opportunity for business; it can reduce technical complexity, lower costs and simplify reporting. Importantly, it identifies the drivers that must be addressed to improve biodiversity outcomes. Management of drivers of biodiversity loss can be overlooked if most emphasis is placed on measurement of biodiversity.



Aim

We aimed to develop a metric which would improve decision-making, monitoring and communication by development projects so that drivers of biodiversity loss from industry and infrastructure are reduced. We wanted a metric that informs mitigation actions by industry and investors for addressing biodiversity risk, as well as simplifying reporting. Ideally, a metric would align with national and local biodiversity priorities that contribute to the GBF.

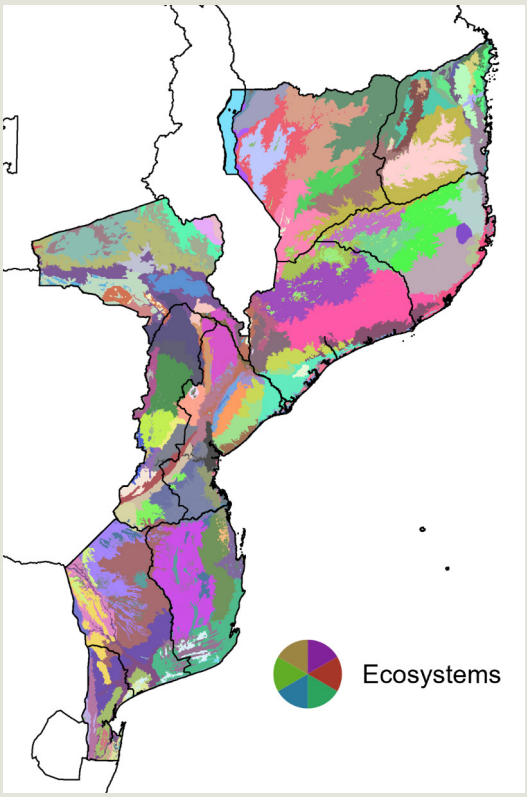


Approach

To avoid re-inventing the wheel, we reviewed the potential of existing methodologies to inform a metric. Our experience assessing forest ecosystem integrity indicated the potential suitability of an ecosystem metric as this incorporated data on drivers of biodiversity loss as well as biodiversity characteristics. **An ecosystem goal for the GBF should include three core components to be effective: area, integrity and risk of collapse.** A metric for industry that integrates these components would be effective for measuring biodiversity outcomes and for informing decision-making around biodiversity risk. IUCN Red List of Ecosystems criteria applied to spatial ecosystem data can inform an assessment of risk of collapse. Ecosystems by definition are based on a suite of biodiversity characteristics. However, an analysis that incorporates spatial conservation priorities such as Key Biodiversity Areas, protected areas, ICCAs and OECMs, supports outcomes aligned with local and national biodiversity priorities. This Critical Ecosystem Area approach can support national progress towards the GBF.

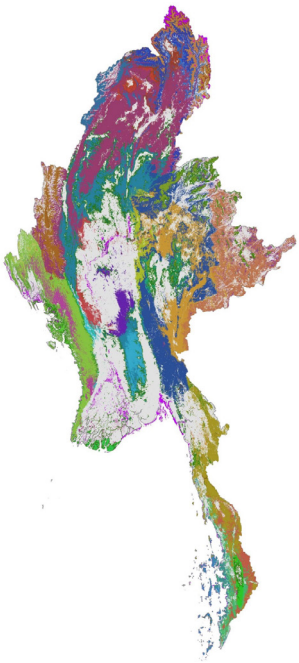
Ecosystem Red Listing in Mozambique:

Mozambique recently completed an ecosystem mapping and red listing process, providing good example of how these kinds of analyses can inform development planning. Mozambique's Red List of Ecosystems (RLE) assessment involved the development of a detailed historical ecosystem map using machine-learning supervised classification algorithms and manual expert validation. This map allowed a comprehensive RLE assessment to be conducted using land cover and forest integrity data, resulting in identification of 73 threatened ecosystems (45% of Mozambique's 159 ecosystems). These results were critical in the subsequent delineation of Key Biodiversity Areas, which are a key part of Mozambique's mitigation and offset legislation. The RLE results will also directly inform application of the mitigation hierarchy in Mozambique, for example by facilitating impact avoidance and mitigation in threatened ecosystems – see Jones et al. (2022) for details on how Mozambique's RLE will inform mitigation planning.

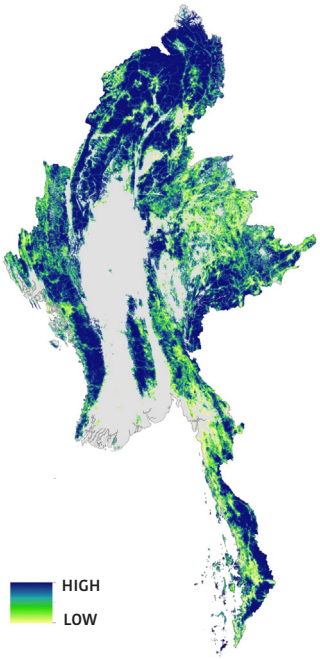


Case study for testing methodology

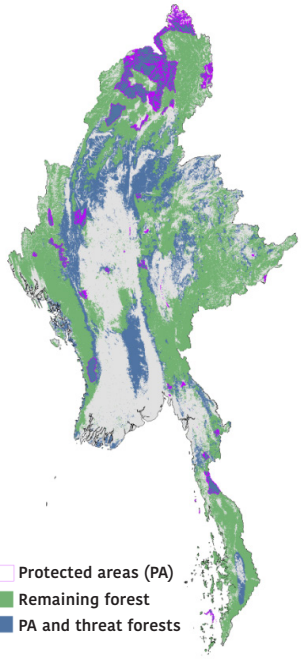
We tested the metric methodology on Myanmar's forest ecosystem data as a case study. The available data also included an assessment of these ecosystems against IUCN Red List of Ecosystems criteria. We also integrated protected area and KBA data. We applied the forest integrity methodology to these ecosystems. The output from this analysis categorises Myanmar's forest landscape based on a matrix that considers risk from drivers of biodiversity loss (based on forest integrity) and importance for achieving biodiversity objectives. This aids measurement of ecosystem risk and supports risk-based decision-making. The result aligns with the SBTN mission and could inform national progress towards the GBF.



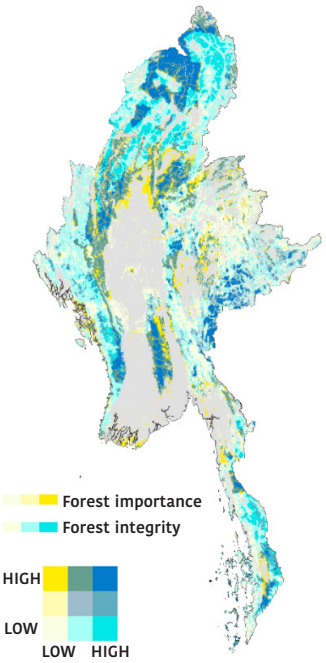
Type and extent of Myanmar's forest ecosystems



Integrity of Myanmar's forests



Red Listing and protected status of Myanmar's forests

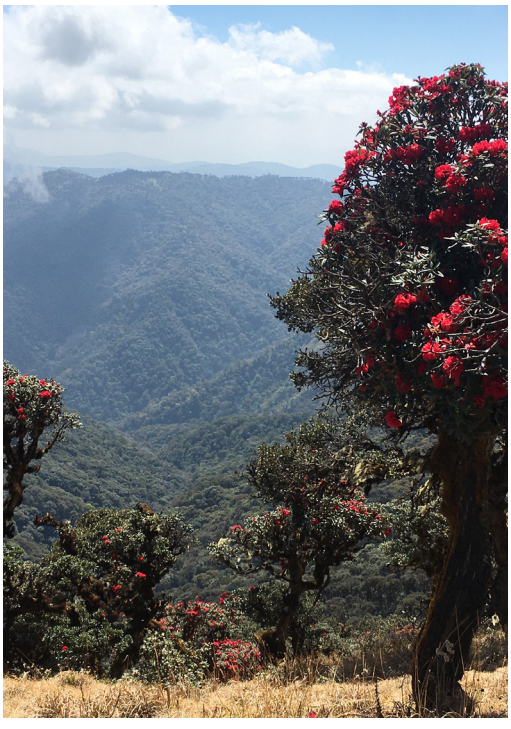


Critical Ecosystem Areas: categorisation of forests by conservation importance and risk from drivers of biodiversity loss

Outputs

The results from this analysis are available as maps of forest extent, risk, and priority. This facilitates understanding of landscape biodiversity priorities for development decision-makers. Data can also be tabulated as categories of forest integrity and drivers of loss. Data will be publicly available to encourage use in improving biodiversity outcomes following development.

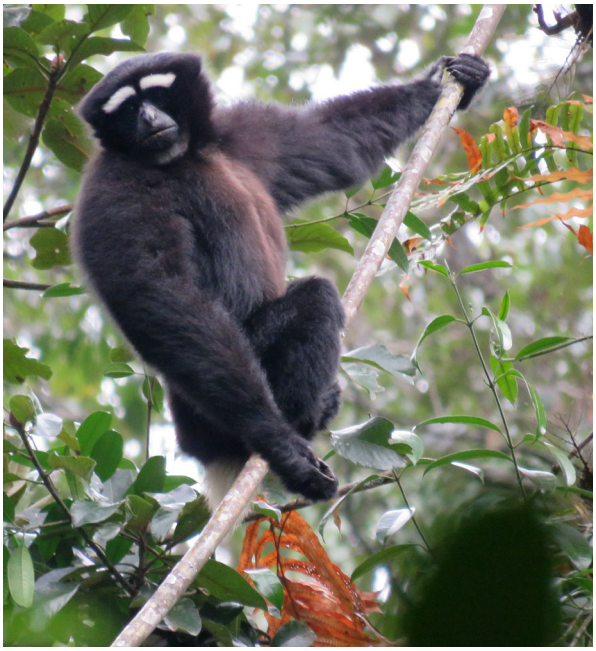
This Critical Ecosystem Area approach aids measurement and reporting of biodiversity risk supported by visually accessible data to improve understanding of risk. It allows identification of mitigation actions such as the most important areas where impacts on biodiversity should be avoided. This approach can identify sites with lower integrity which could benefit from offset investment to reduce drivers of loss and potentially connect high priority areas. Outputs also support identification of sites which might be lower priority and may be more suitable for development. Data can be used by government to report progress towards national targets and identify areas where further action could be taken.



Next steps

We presented this Critical Ecosystem Areas methodology to potential end users, including extractive industry and lenders. Feedback on several important points was received from the private sector and other partners which we have taken on board for planning further development of this metric.

- **High resolution accessible data.** Project-based decision-making requires higher resolution data than was used in this analysis. As we refine the metric and develop data accessibility, we will aim to use higher resolution data for more effective local decision-making and reporting. We will work with partners to aid data accessibility and standardisation.
- **Testing on new regions and ecosystems.** This metric must be globally effective for wider uptake. We will test and expand the methodology in new regions and ecosystems to develop more universal application. A priority is to test it on forest and other ecosystems in West and Central Africa. The methodology will need to be adapted for use in open forest, grassland and marine ecosystems.
- **Global, national and local alignment.** Universal uptake may be aided if local priorities are specifically integrated into the metric. This would support progress towards national and local biodiversity targets. Similarly, alignment with SBTN and the Species Threat Abatement and Restoration (STAR) metric will encourage industry and decision-maker use of this methodology.
- **User guidance** will encourage further encourage uptake.



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