IUCN Red List of Ecosystems in the post-2020 global biodiversity framework

The IUCN Red List of Ecosystems has many roles in the post-2020 global biodiversity framework of the Convention on Biological Diversity. It can support the post-2020 monitoring framework through indicators for Goal A on ecosystem area, integrity and connectivity. The Red List Index of Ecosystems (RLIE) summarises global or national trends in risk status for terrestrial, marine and freshwater ecosystems, integrating data on ecosystem area and integrity. Ecosystems assessments can support implementation of targets through national planning processes, and provide key data for natural capital accounting.

What is the IUCN Red List of Ecosystems (RLE)?

The Red List of Ecosystems (RLE) was adopted by IUCN in 2014 as the global standard for ecosystem risk assessment for terrestrial, freshwater and marine ecosystems. RLE assesses the relative risk of ecosystem collapse by measuring change in ecosystem area and integrity. The five RLE criteria place ecosystems in familiar Red List risk categories (e.g. Endangered, Vulnerable). RLE assessments can be done for selected ecosystems or for all ecosystem types in an area, and can be applied at a range of spatial scales, from local to national to global. RLE assessments identify which ecosystems are most at risk, and drivers of ecosystem loss and degradation. The Red List of Ecosystems complements the IUCN Red List of Threatened Species by focusing on a different level of biodiversity, deepening understanding of biodiversity loss and priorities for action to reverse it.

RLE as an integrative framework: Because the RLE assesses change in ecosystem extent and integrity, RLE can serve as an integrative framework for other biodiversity indicators, placing them in the context of ecosystem collapse risk. For example, headline and complementary indicators of ecosystem extent and integrity from the post-2020 draft monitoring framework were used RLE assessments of coral reefs[1] (Fig. 1) and forests[2].

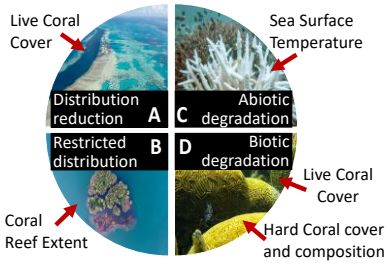

Figure 1. RLE assessments of coral reefs integrate indicators of extent and integrity.

Available data for the Red List of Ecosystems and Red List Index of Ecosystems

Over 4000 ecosystems have been assessed using the RLE protocol, the majority in national assessments (Figure 2). National RLE assessments are available for approximately 50 countries, which can form the basis for a Red List Index of Ecosystems (RLIE) at national levels, along with subsets of ecosystems for another 20 countries (e.g., forests across the Americas, Figure 4). Some countries have already undertaken repeat assessments (e.g. South Africa, Norway and Finland) providing RLIE time-series. Some national assessments are undertaken by governments, others in partnership with NGOs, while others were done independently of government processes or support. A global RLE for terrestrial ecosystems is anticipated by 2025.

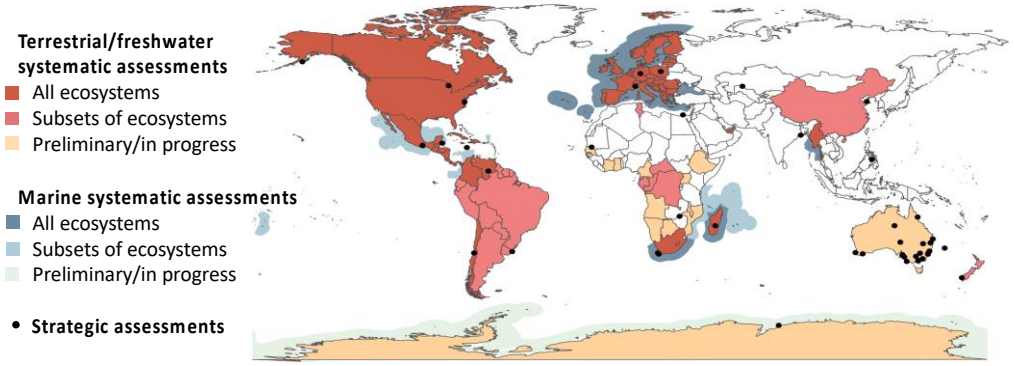

Figure 2. Availability of RLE assessments (June 2022); systematic assessments include national or regional assessments of all ecosystems or a subset of ecosystem (e.g. all forests); strategic assessments target one or a few ecosystems.

RLE as a headline indicator in the post-2020 monitoring framework

Data from the IUCN Red List of Ecosystems can provide biodiversity indicators for use at national or global levels. The **Red List Index of Ecosystems (RLIE)** summarises the status and trends in risk status of ecosystem. The RLIE reports on proportion of ecosystems in each Red List category, is applicable to all ecosystems (marine, terrestrial and freshwater), and complements the widely used Red List Index of species. Because RLE is a risk assessment protocol, RLIE emphasises ecosystems at high risk of collapse. However, data that underpin RLE assessment (e.g. maps of ecosystems and integrity) can identify and monitor high integrity areas, and contribute to complementary indicators. RLE assessments also provide indicators of change in area (Ecosystem Area Index, EAI) and integrity (Ecosystem Health Index, EHI).

Red List Index of Ecosystems (RLIE) can be reported at national or global levels, and disaggregated by ecosystem type, using the IUCN Global Ecosystem Typology. It can be presented in multiple ways, including current snapshots of risk (Figure 3) or time-series where available (Figure 4).

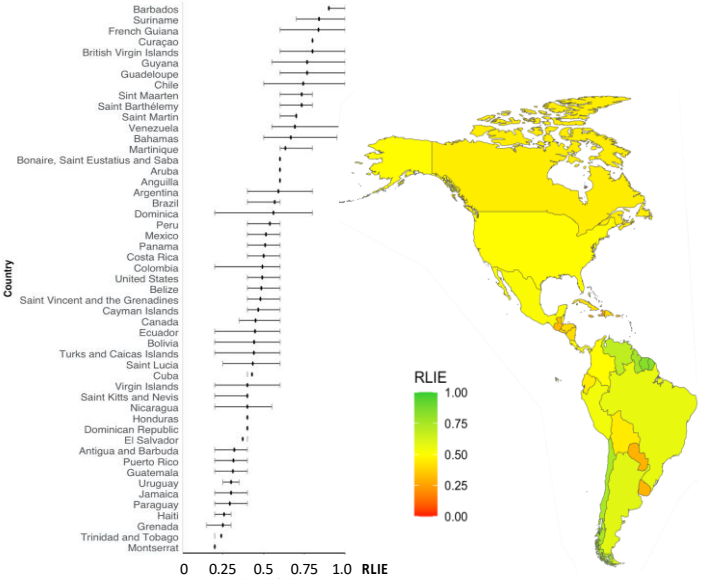

Figure 3. Red List Index of Ecosystems (RLIE) for the Forests of the Americas by country ,presented by mapping and in graphical format.

Is the Red List Index of Ecosystems (RLIE) sensitive?

A key question for indicators is how sensitive they are to biodiversity change. Analyses from Norway found that the RLIE could provide time-series to compare alternative policy scenarios. Our model-based tests of the sensitivity of the RLIE found that:

- RLIE (red in Figure 4) clearly differentiates between low and high threat levels
- RLIE responds quickly (within 5 years) to both increases in threats (e.g. climate change) and decreases (e.g., effective conservation policy).
- RLIE detects change in both in area and integrity.

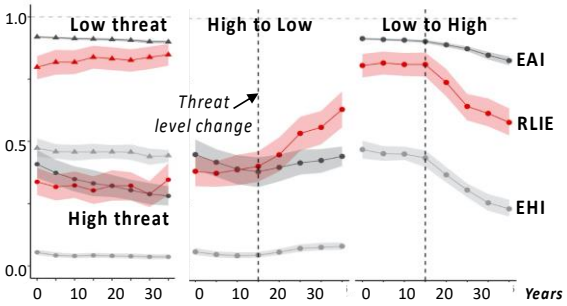

Figure 4. Tests of the Red List Index of Ecosystems (RLIE, red) show it differentiates between low and high threat scenarios, detects changes in threats, and responds to change in area (Ecosystem Area index EAI, black) and integrity (Ecosystem Health Index EHI, grey).

How can RLE support targets, national planning and natural capital accounting?

The Red List of Ecosystems and its indicators can support national planning and action, as well as monitoring. RLE assessments contain a wealth of data including ecosystem maps and classifications, and quantitative, spatial evaluations of change in ecosystem area and integrity. These data can provide input for biodiversity-inclusive spatial planning (Target 1), protection area designation (Target 3) and restoration planning (Target 2), and mainstreaming of biodiversity in policy and decision-making across a range of sectors (Targets 14 and 15). RLE assessments at national scales have supported these types of actions. Ecosystem classifications and spatial data layers in RLE assessments can also be used in ecosystem accounting with the UN System for Environmental Economic Accounting – Ecosystem Accounting (SEEA EA), providing data for ecosystem extent and condition accounts.

For more information, visit https://iucnrle.org/ or contact Marcos Valderrábano.

Notes: 1) RLE of coral reefs in the Western Indian Ocean and Meso-American Reef and 2) forests in Mozambique and the Americas.