Synergies between the IUCN Red List of Ecosystems and SEEA Ecosystem Accounting

Shared concepts, common data foundations and opportunities for collaboration to support implementation and monitoring of the Kunming-Montreal Global Biodiversity Framework

Edited by A. Driver and E. A. Botts



INTERNATIONAL UNION FOR CONSERVATION OF NATURE

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Purpose of this booklet

This booklet provides practical guidance on how the IUCN Red List of Ecosystems (RLE) and the System of Environmental-Economic Accounting (SEEA) Ecosystem Accounting can be produced and used in combination for policy, decision-making and monitoring, with a focus on implementation and monitoring of the Kunming-Montreal Global Biodiversity Framework. The Red List of Ecosystems focuses on the risk status of ecosystems from a biodiversity perspective, while SEEA Ecosystem Accounting foregrounds the contributions of ecosystems to people and the economy. The booklet encourages collaboration between practitioners and agencies tasked with developing programmes of work for the Red List of Ecosystems or SEEA Ecosystem Accounting to co-invest in shared datasets and align workflows, reducing duplication of effort, strengthening national capacity and enhancing outcomes for biodiversity, ecosystems and people.

If not otherwise indicated, figures, tables and boxes were prepared by report editor.

What's inside?

- An introduction to the Red List of Ecosystems and SEEA Ecosystem Accounting, including their distinct but related purposes.
- A focus on shared concepts, common data foundations and complementary approaches between these two frameworks, including the central role of classifying and mapping ecosystem types.
- Emphasis on how approaching the two together adds scientific and technical rigor to both and supports consistent policy messages, improving their practical usefulness.
- Suggestions on starting points and practical opportunities for collaboration.
- A call to action for implementing the Red List of Ecosystems and SEEA Ecosystem Accounting in your country.

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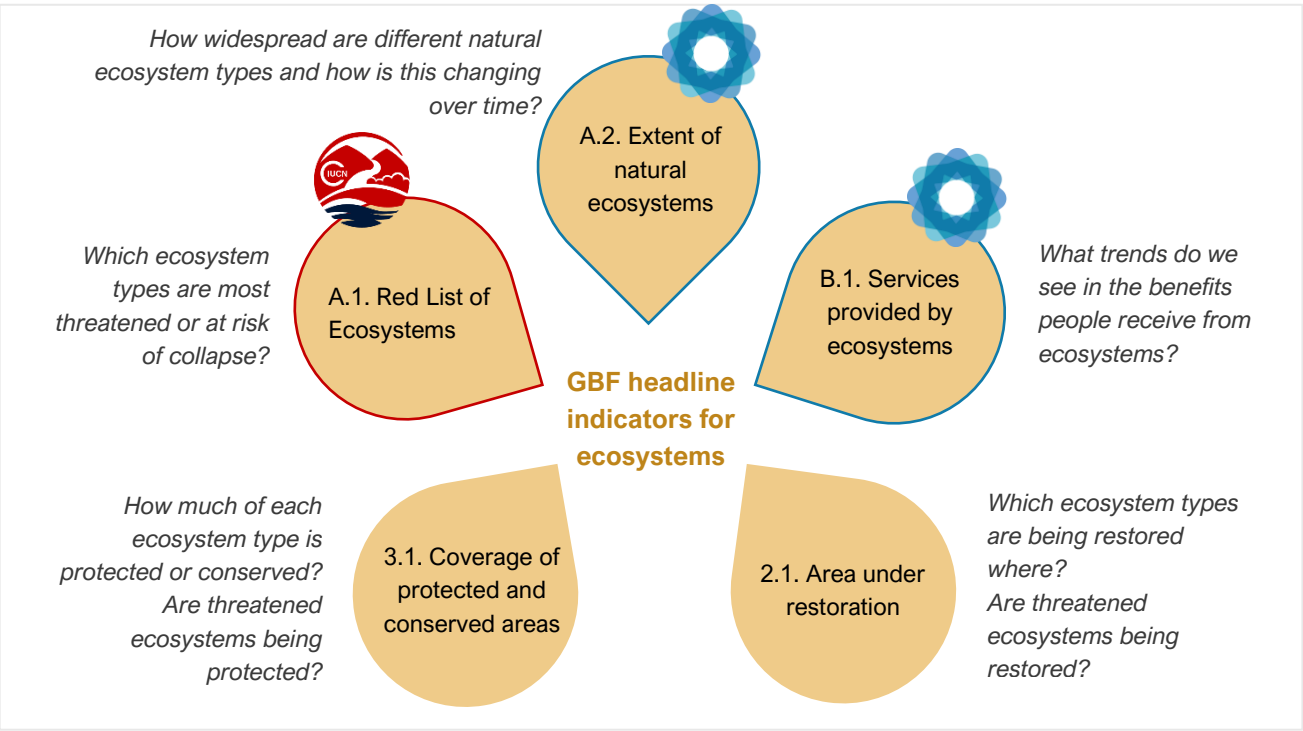
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New global targets and indicators for ecosystems

The Kunming-Montreal Global Biodiversity Framework (GBF) was adopted by Parties to the Convention on Biological Diversity (CBD) in 2022, setting ambitious goals and targets for halting and reversing biodiversity loss, and introducing a new set of global headline indicators for biodiversity. Countries that are signatories to the CBD have revised their National Biodiversity Strategy and Action Plans (NBSAPs) in line with the GBF goals and targets, and are obliged to report on the headline indicators as part of their regular national reports to the CBD.

The GBF headline indicators are intended for use at the national level as well as to review progress globally based on reports from all countries. Five of the 26 headline indicators directly address the status, trends and benefits of ecosystems, helping to answer a set of interrelated questions about ecosystems and providing complementary perspectives.

The Red List of Ecosystems provides the basis for indicator **A.1 Red List of Ecosystems**, and SEEA Ecosystem Accounting provides the basis for **A.2 Extent of natural ecosystems** and **B.1 Services provided by ecosystems**. These global frameworks are relatively new, and their implementation at national level is gaining momentum, especially as countries prepare for further regular reporting on their progress towards the GBF targets.



What is an ecosystem?

An ecosystem is a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit (CBD, 1992, Article 2). Ecosystems exist at a range of geographic scales, from the whole planet to, for example, an individual pond or patch of vegetation.

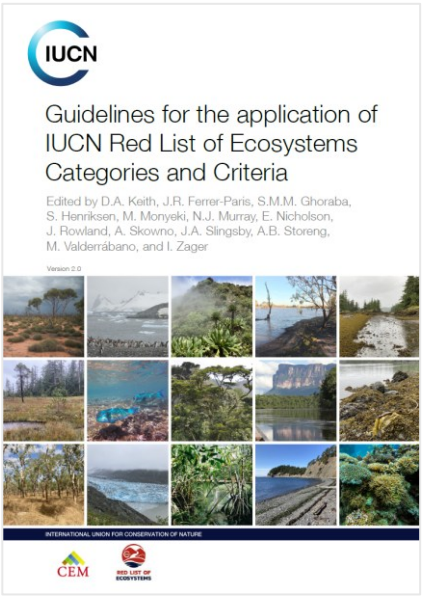
What is an ecosystem type?

An ecosystem type is a set of ecosystem occurrences with common ecological characteristics distinct from other ecosystem types, including species composition, ecosystem structure and ecosystem functioning. Dividing the landscape or seascape into ecosystem types provides pragmatic spatial units for assessment, accounting, planning, management and monitoring. Ecosystem types can be identified within the terrestrial, freshwater and marine realms and the transitions between them.

The Red List of Ecosystems and SEEA Ecosystem Accounting contribute together to designing, implementing and monitoring actions to achieve many of the GBF targets.

Kunming–Montreal GLOBAL BIODIVERSITY FRAMEWORK	RED LIST OF ECOSYSTEMS	System of Environmental Economic Accounting
 TARGET 1: Plan and Manage all Areas to Reduce Biodiversity Loss	Highlights threatened ecosystem types as priorities for avoiding further loss of area or integrity, as an input to integrated spatial planning.	Provides information on location, extent and condition of different ecosystem types to inform integrated spatial planning.
 TARGET 2: Restore 30% of all Degraded Ecosystems	Identifies threatened ecosystem types, helping to guide restoration priorities and design interventions for increasing the area or integrity of ecosystems.	Tracks changes in ecosystem extent and condition, helping to measure restoration outcomes.
 TARGET 3: Conserve 30% of Land, Waters and Seas	Highlights threatened ecosystem types most in need of protection based on risk status.	Provides baseline maps and accounts to monitor protected area coverage of different ecosystem types.
 TARGET 8: Minimize the Impacts of Climate Change on Biodiversity and Build Resilience	Identifies ecosystem types at risk of collapse due to climate-driven environmental degradation or disruption of biotic processes.	Quantifies ecosystem services that support climate mitigation, adaptation and disaster risk reduction.
 TARGET 10: Enhance Biodiversity and Sustainability in Agriculture, Aquaculture, Fisheries, and Forestry	Identifies ecosystem types under pressure from production sectors and highlights where sustainable management may reduce risk of ecosystem collapse.	Accounts for the extent and condition of natural and anthropogenic ecosystem types, measuring their contributions to food and water security.
 TARGET 11: Restore, Maintain and Enhance Nature's Contributions to People	Assesses risks to ecosystem processes and functions for different ecosystem types.	Quantifies ecosystem services, including those that contribute to nature-based solutions.
 TARGET 12: Enhance Green Spaces and Urban Planning for Human Well-Being and Biodiversity	Determines the risk status of ecosystem types in urban areas, supporting prioritisation of urban conservation and restoration actions.	Accounts for urban ecosystems, including green spaces within them and the services they provide to people.
 TARGET 14: Integrate Biodiversity in Decision-Making at Every Level	Provides science-based ecosystem risk information that can be mainstreamed in cross-sectoral and sector-specific policies, planning and decision making.	Ensures coherence with economic statistics so that ecosystem extent, condition, and services can be embedded in official national statistics.
 TARGET 15: Businesses Assess, Disclose and Reduce Biodiversity-Related Risks and Negative Impacts	Provides ecosystem risk information to inform corporate assessment and disclosure of impacts, and to help businesses identify geographic priority areas for reducing biodiversity impacts.	Offers systematic metrics that support corporate assessment and disclosure of impacts and dependencies, as well as integration of ecosystem data in planning and business models.
 TARGET 21: Ensure That Knowledge is Available and Accessible to Guide Biodiversity Action	Provides standardised data on ecosystem status through an open database, supporting evidence-based planning and transparent reporting.	Publishes ecosystem accounts through national statistical offices, increasing visibility and ensuring regular access to integrated environmental-economic information.

What is the IUCN Red List of Ecosystems?



The Red List of Ecosystems is a global standard for assessing the risk status of ecosystems, by applying standardised criteria and thresholds to assess how close an ecosystem type is to collapsing. Many people are familiar with the IUCN Red List of Threatened Species, which allocates species to categories such as Critically Endangered, Endangered and Vulnerable based on their risk of extinction. The Red List of Ecosystems uses these same categories to reflect how threatened different ecosystem types are, to guide conservation priorities and track ecosystem risk status over time.

History of the Red List of Ecosystems

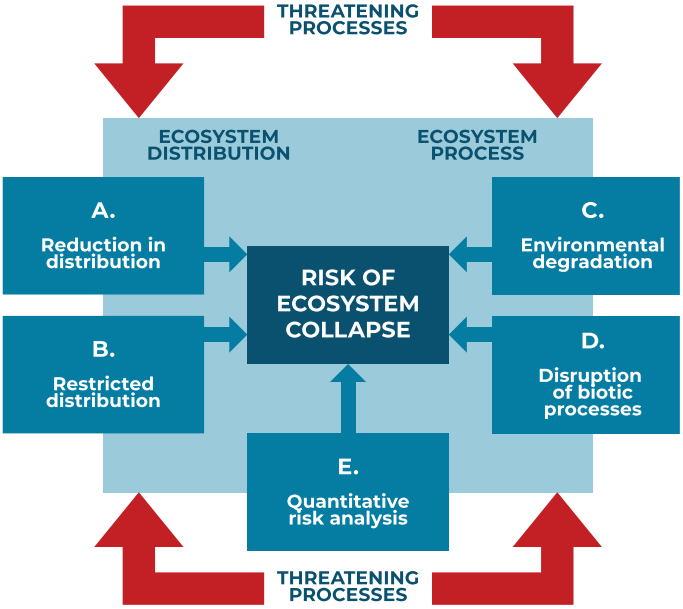
The Red List of Ecosystems was first introduced in the mid-2000s, with an official global standard adopted by the IUCN in 2014. This makes it much newer than the Red List of Threatened Species, which was introduced in the 1960s, with standardised criteria for assessing species risk adopted in 1994. Both Red Lists use the same set of risk categories, which have become well recognised in many contexts beyond the biodiversity sector.

Red List of Ecosystem assessments apply five criteria to assess each ecosystem type.

Two criteria assess spatial symptoms:

Criterion A measures reductions in the spatial extent of an ecosystem type over time.

Criterion B identifies ecosystem types with a small range and ongoing threats.



Two criteria assess functional symptoms:

Criterion C evaluates deterioration in abiotic conditions (e.g. soil, water, climate) that affect ecosystem integrity.

Criterion D considers changes in species composition and interactions that compromise ecosystem stability.

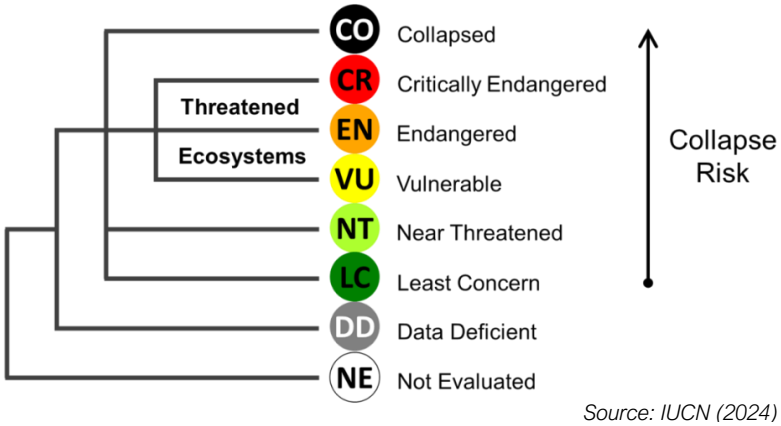
Criterion E (less commonly applied) uses ecosystem models to estimate the probability of ecosystem collapse within a specified time frame, providing a probabilistic assessment of risk.

Source: Valderrábano et al. (2021)

The Red List of Ecosystems evaluates declines across four standardised timeframes: the recent past (last 50 years), the future (next 50 years), any 50-year period spanning both past and future, or the historical past (since approximately 1750 or the onset of industrial development). Although it is ideal to use all the criteria in an assessment, in data constrained contexts it is possible to do an adequate assessment that will provide policy-relevant actionable information using a subset of the criteria, especially if one or two criteria are known to be driving the risk of collapse for a certain ecosystem type. The highest risk category across the assessed criteria determines the overall risk category.

Ecosystem types are assigned to one of eight categories of risk. A collapsed ecosystem type has lost all its distinctive characteristics and effectively no longer exists, similar to a species becoming extinct. Ecosystems assessed as Critically Endangered, Endangered or Vulnerable are together referred to as threatened ecosystems.

For more information, visit: https://iucnrle.org/

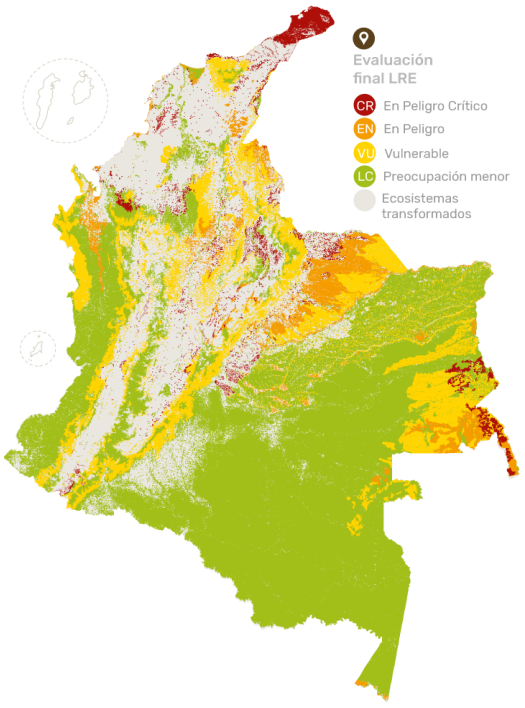


Source: IUCN (2024)

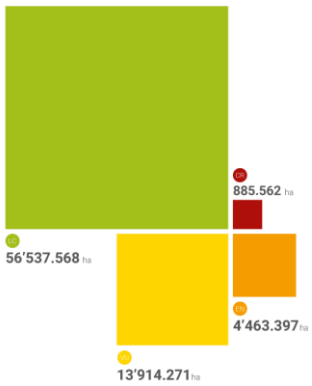
Information from an RLE assessment can be presented in various formats, such as maps and graphs, and can be summarised into an overall Red List Index for Ecosystems that can be tracked over time.

Who's responsible for the Red List of Ecosystems?

- The IUCN is the custodian of the global standard, which sets out the assessment criteria in detail and gives broad guidance on methods.
- National governments typically lead the development of a national Red List of Ecosystems, often with support from NGOs and research institutions. Environment ministries or agencies with ecosystem-related mandates often play a central role. Red Lists should be updated preferably every five to seven years.
- Global partners can provide technical support to country-led efforts.
- The IUCN hosts a global database of ecosystems with Red List assessments, to which countries can submit their nationally assessed ecosystems. Many governments also host portals for biodiversity-related data and information, where national Red Lists can be made available.
- Assessments may also be undertaken at the regional level (for example, for a group of countries) or at the global level (for example, the Global Red List of Mangrove Ecosystems).

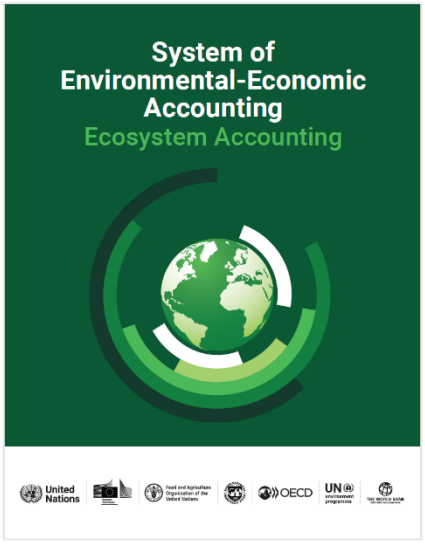


Colombia's National Red List of Ecosystems for terrestrial ecosystems found that nearly 50% of ecosystems are at high risk of collapse (CR or EN), impacting biodiversity and the ecosystem services they provide to people. These findings are now being used as a management tool to minimise land-use conflicts and strengthen the national system of protected areas.



Source: Instituto Humboldt. https://reporte.humboldt.org.co/biodiversity/2015/cap2/206.html#seccion1

What is SEEA Ecosystem Accounting?



SEEA Ecosystem Accounting is a statistical framework for measuring ecosystems and their contributions to people and the economy. It has the same status as the System of National Accounts, which is used for national economic statistics such as GDP. This helps to embed ecosystem accounting in a country's statistical systems and institutions, and provides a powerful mechanism for mainstreaming ecosystems into economic measurement and planning.

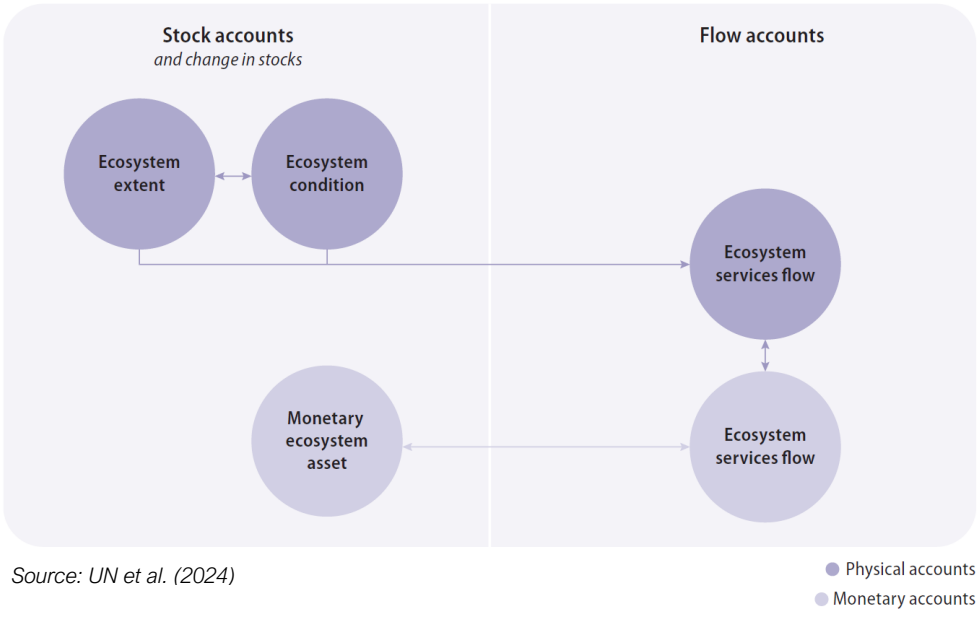
History of SEEA Ecosystem Accounting: The System of Environmental-Economic Accounting, which has several elements, arose from efforts to link environmental data with national economic accounts. The concept of accounting for ecosystems was first introduced in the 2000s, with an experimental version of SEEA Ecosystem Accounting published in 2014, and the formal standard adopted by the UN Statistical Commission in 2021.

SEEA Ecosystem Accounting is built around a set of core accounts, dealing with extent and condition of ecosystem assets and flows of ecosystem services, intended to be compiled regularly for consecutive accounting periods. The term 'accounting' is often immediately associated with monetary values, but accounting refers to the process of organising data in a structured and systematic way and need not be only in monetary terms. For ecosystems, accounts in biophysical terms are essential, with the option of building on these to compile monetary accounts. The three core biophysical accounts are:

Ecosystem extent accounts record the extent (size) and changes in extent for all ecosystem types within the accounting area, giving the opening and closing extent of each ecosystem type for successive accounting periods.

Ecosystem condition accounts record the condition of different ecosystem types within the accounting area over successive accounting periods, using a set of condition indicators that can be aggregated to a condition index.

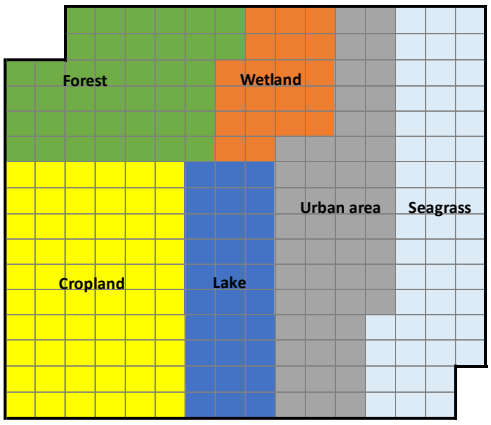
Ecosystem services accounts record the supply of services from different ecosystem types to different users, recording the total flow per accounting period for each ecosystem service included in the account.



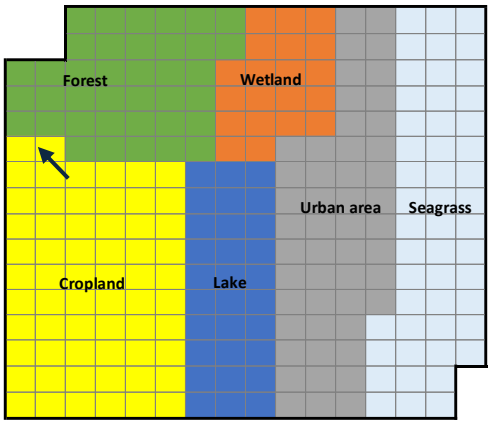
Source: UN et al. (2024)

The accounts use structured tables to organise data from a range of sources to provide coherent, consistent information over time. In this simple, stylised example of an ecosystem extent account, provided in SEEA Ecosystem Accounting, the account table shows that two hectares of the forest ecosystem was converted to a cropland ecosystem in this accounting period, while the extent of the other ecosystem types remained unchanged.

The entries in account tables can be used to derive a series of indicators, such as percentage change in the extent of different ecosystem types. Information from the account tables can also be presented in maps and graphs.



Opening extent



Closing extent

Accounting entries (ha)	Ecosystem types						TOTAL
	Forest	Lake	Cropland	Urban	Wetland	Seagrass	
Opening extent	40	30	60	50	20	50	250
Additions to extent			2				
Reductions to extent	2						
Net change in extent	-2		+2				
Closing extent	38	30	62	50	20	50	250

Source: SEEA-EA. https://seea.un.org/ecosystem-accounting

For more information, visit: https://seea.un.org/ecosystem-accounting

Who's responsible for SEEA Ecosystem Accounting?

- The UN Statistical Commission is the custodian of the global standard, which sets out the core principles, concepts and accounts, and gives broad guidance on methods.
- National statistical offices typically have the mandate to lead the development of SEEA ecosystem accounts, in partnership with ministries and agencies with ecosystem-related mandates as well as technical partners with relevant expertise. Ideally ecosystem accounts should be updated annually, but in practice updates are often less frequent.
- Global partners can provide technical support to country-led efforts.
- The UN Statistical Division (UNSD) hosts a SEEA knowledge platform where ecosystem accounts from many countries are available. Statistical offices usually have national portals where published accounts are made available.

7

Shared approaches and complementary perspectives

Shared approaches

The Red List of Ecosystems and SEEA Ecosystem Accounting share several methodological features, making it possible for practitioners to combine efforts to build common datasets and workflows that serve both frameworks simultaneously.

- **Systematic and repeatable**: Both frameworks apply structured, transparent methods consistently across ecosystem types.
- **Comprehensive coverage**: Each aims preferably to cover all ecosystem types nationally, rather than focusing only on some ecosystem types or priority areas (although it is possible to start with a subset of ecosystem types and/or subnational areas).
- **Incremental options**: In RLE, it is possible to start by applying a subset of the five criteria. In SEEA EA, it is possible to start by compiling a subset of the core accounts.
- **Evidence-based**: Assessments and accounts are grounded in ecosystem science, using the best available data.
- **Expert-informed**: Expert judgement and local knowledge are integrated, especially where data are limited, ensuring results are credible and robust.

Complementary perspectives

While the Red List of Ecosystems and SEEA Ecosystem Accounting have common aspects, they have different perspectives that play complementary roles in policy and decision-making.

RED LIST OF ECOSYSTEMS	System of Environmental Economic Accounting
Focuses on assessing risk of ecosystem collapse and identifying threatened ecosystem types based on criteria and thresholds.	Focuses on measuring stocks and flows related to ecosystems using accounting principles.
Answers the question: Where is biodiversity most threatened and at risk of being lost?	Answers the questions: Which ecosystem types exist in a country, what condition are they in and how do they contribute to people and the economy?
Essential for guiding priorities for conservation action and restoration, and for highlighting areas where pressures on biodiversity should be avoided or reduced by a range of sectors.	Enables integration of ecosystems into national statistics and economic planning, enhancing visibility of biodiversity in core economic ministries and sectors.
Evaluates ecosystem data from a biodiversity perspective, interpreting it for users to provide information about the risk status of ecosystem types.	Provides a standard set of information on ecosystems, with its interpretation dependent on users' needs and perspectives.

Together, these perspectives provide a fuller picture of ecological risk and priorities for conservation action on one hand, and integration into national statistics and the economy on the other. Both perspectives are useful for mainstreaming ecosystems in policy, planning and decision-making, in both the public and private sector. Complementary outputs from RLE and SEEA EA, such as graphs of changes in the extent and condition of ecosystems and maps of the locations and risk status of ecosystem types, can make ecosystem information available in forms that are relevant and meaningful for a range of audiences, from conservation agencies and NGOs to municipalities and ministries of finance, planning and development, as well as businesses and financial institutions.

Equivalent concepts, similar terms

The Red List of Ecosystems and SEEA Ecosystem Accounting share several common concepts although sometimes use different terms to describe them. There are also some terms that are specific to either RLE or SEEA EA. It's useful for practitioners to be aware of concepts, definitions and terms used across RLE and SEEA EA, to avoid talking at cross purposes, to support interoperability of datasets, and to converge on shared data and measurement approaches for equivalent concepts.

Ecosystem type	RLE and SEEA EA use the same concept of an ecosystem type, preferably linked to a national ecosystem classification aligned with the Global Ecosystem Typology. This alignment in the concept of an ecosystem type means the same ecosystem classifications and maps can form the foundation of both RLE assessments and ecosystem accounts.
Ecosystem assets or occurrences	SEEA EA uses the term ecosystem assets to refer to individual occurrences of an ecosystem type. The term occurrence rather than asset is used in RLE and many other contexts.
Ecosystem extent	The extent of an ecosystem type is the total area of all occurrences of that type. Ecosystem extent has an equivalent meaning in RLE and SEEA EA, also referred to as **ecosystem area** in RLE.
Ecosystem condition or integrity	SEEA EA defines ecosystem condition as the quality of an ecosystem measured in terms of its abiotic and biotic characteristics. Condition is assessed with respect to an ecosystem's composition, structure and function which, in turn, underpin the integrity of the ecosystem. RLE uses the term ecosystem integrity, with essentially the same meaning as ecosystem condition in SEEA EA. This equivalence in meaning allows for common indicators of ecosystem condition to be used in RLE assessments and ecosystem accounts.
Ecosystem degradation	The term degradation is used differently in RLE and SEEA EA. It is linked to decline in ecosystem integrity or condition in RLE, while linked to decline in ecosystem service flows in SEEA EA. Although declines in condition may be associated with declines in ecosystem service flows in some cases, they can also be associated with increased service flows. When using the term degradation, care should be taken that its meaning is clear. It can be helpful to refer to decline in condition or integrity rather than degradation, to avoid potential confusion.
Ecosystem collapse	The concept of ecosystem collapse is used only in RLE, to mean the endpoint of ecosystem decline, when an ecosystem type loses all its defining features and ceases to exist (similar to extinction of a species). Ecosystem collapse could result from declines in the extent or condition of an ecosystem type, or a combination.
Ecosystem conversion	In SEEA EA, conversion means a change from one ecosystem type to another, involving a distinct and persistent change in ecosystem characteristics which, in turn, is reflected in the supply of a different set of ecosystem services. In many cases, ecosystem conversion involves the abrupt replacement of one ecosystem type (such as a grassland) by another (such as a cropland), resulting in a decrease in extent of the first ecosystem type and an increase in extent of the second.
Ecosystem services	Equivalent meaning in RLE and SEEA EA, but less directly relevant in RLE.

National ecosystem maps as an essential starting point

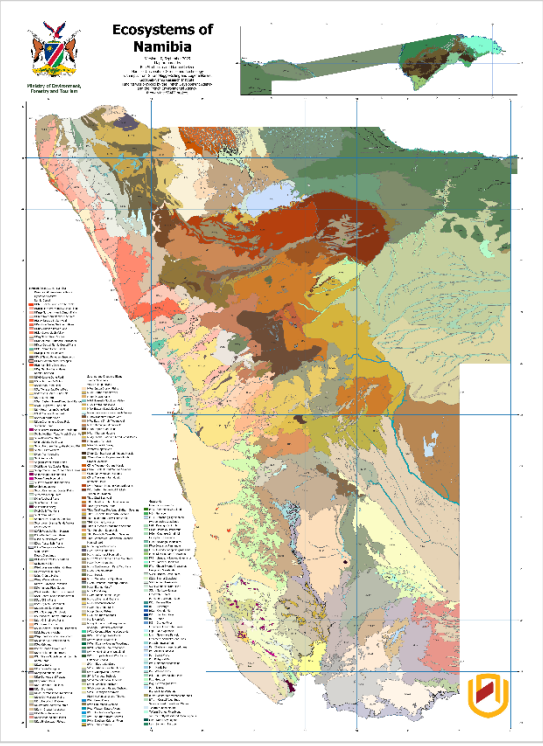
National ecosystem maps are central to both the Red List of Ecosystems and SEEA Ecosystem Accounting. A national ecosystem map shows which ecosystem types are present in a country and where they are located, providing essential information for ecosystem assessment, accounting, monitoring, reporting and action.

A national ecosystem map should consist of several elements:

- A **hierarchical classification** of all the ecosystem types in a country, with names and descriptions of ecosystem types and the hierarchy of levels in which they are nested (such as biomes and realms).
- A well-organised **geospatial dataset** representing the spatial distribution (geographic locations) of the ecosystem types, with attribute data and metadata.
- **Technical documentation** that describes the data, methods and process used to develop the map.

Countries are at different stages in developing national ecosystem maps, and the process is usually iterative, with improvements and refinements over time. In practice, maps are often developed separately for different realms (e.g. terrestrial, freshwater, marine), and in many cases they are built up from partial datasets that already exist for some ecosystem types, reconciling them and filling in gaps. National ecosystem maps for different realms may be 'stitched together' into a single map, but this need not be an immediate objective. A national ecosystem map may be known by another name, such as a vegetation map or habitat map.

Developing a national ecosystem map requires integrating various types of data, often including historical maps, earth observation data, environmental variables and field data, together with expert and local knowledge. An interdisciplinary approach is important, drawing on expertise from ecologists, biologists, spatial analysts, environmental scientists and remote sensing experts, among others. Collaboration between ministries and agencies as well as research institutions, NGOs and other partners helps to ensure a credible product that will be widely used. Developing national ecosystem maps takes time and resources but is well worth the effort given their multiple uses, including in RLE and SEEA EA. As a starting point it's useful to identify which ministries and agencies have the mandate to convene the process, and likely key partners, which may differ by realm.



Source: Strohbach et al. (2025) https://zenodo.org/records/17218337

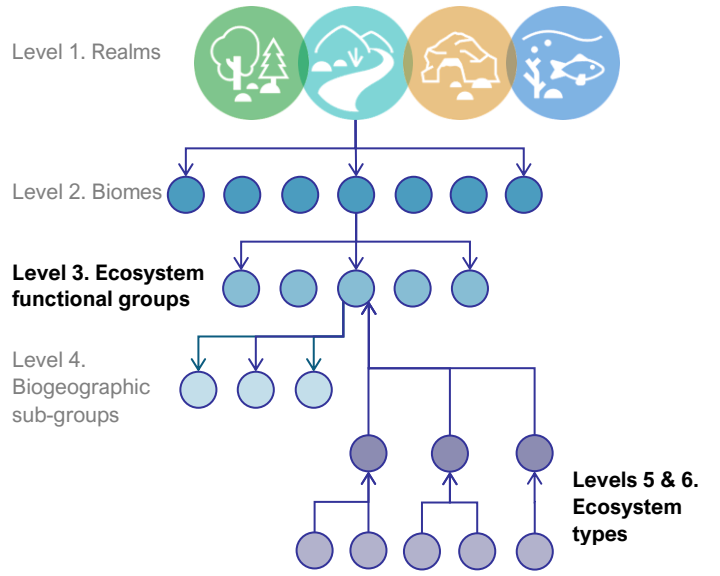
A baseline national ecosystem map represents the distribution of ecosystem types at a certain time, which could be contemporary (present-day or relatively recent) or historical (for example, pre-industrial). In addition, time series datasets showing where the distribution of ecosystem types has changed are essential for accounting and assessment. Conversion of natural ecosystem types to anthropogenic ecosystem types (such as croplands and urban areas) is especially important to track for ecosystem extent accounts, RLE Criterion A, and GBF Indicator A.2.

For more information, see *Guidelines for developing national ecosystem maps*.

Namibia released its first national ecosystem map in 2025, identifying 218 ecosystem types across the country. The classification is aligned with the IUCN Global Ecosystem Typology, with national ecosystem types at level 5 cross-referenced to higher levels of the Typology. The map was produced using spatial analysis, field validation and integration of existing national biodiversity datasets.

The Global Ecosystem Typology as a shared reference

The IUCN Global Ecosystem Typology (GET) provides a hierarchical framework for classifying the world's ecosystems, across the terrestrial, freshwater, subterranean and marine realms and the transitions between them. It was endorsed as an international statistical classification by the UN Statistical Commission in 2024, and is recommended for use in the GBF monitoring framework. For more information about the GET, visit https://global-ecosystems.org/



Source: Adapted from Xiao et al., 2024

The Global Ecosystem Typology enables global consistency at the upper levels of the hierarchy while encouraging countries to develop their own national ecosystem classifications at the lower levels. Red List of Ecosystem assessments and SEEA ecosystem accounts usually focus on detailed national ecosystem types (level 5 or 6), which can then be cross-referenced to the GET's ecosystem functional groups (EFGs) (level 3). EFGs provide a standard set of units for comparing ecosystem information across countries and for synthesising ecosystem information globally, which is especially important for reporting on the ecosystem-related GBF indicators. Cross-referencing national ecosystem types to the GET requires identifying which EFG is the best fit with the characteristics of a particular ecosystem type.

For more information on cross-referencing, see the *Standards, Methods and Guidelines for Cross-referencing Ecosystem Classifications and Maps to the IUCN Global Ecosystem Typology.*

The Global Ecosystem Typology covers all the world's ecosystems, including **natural and anthropogenic ecosystems**. Natural ecosystems are a broad category that includes ecosystems modified by humans, sometimes quite substantially, in contrast with anthropogenic ecosystems, which exist solely as the result of human intervention and usually replaced a previously existing natural ecosystem. Examples of anthropogenic ecosystem types include urban areas, croplands, plantations, dams, canals and harbours. The Red List of Ecosystems typically focuses on assessing risks to natural ecosystem types, where detrimental changes threaten biodiversity. By contrast, the scope of SEEA Ecosystem Accounting includes natural and anthropogenic ecosystem types, with anthropogenic ecosystem types often supplying important ecosystem services alongside natural ecosystem types.

Why the Global Ecosystem Typology matters for RLE, SEEA EA and the GBF indicators:

- Provides a common language for ecosystem classification within and between countries.
- Supports harmonisation between RLE and SEEA EA through consistent classification of ecosystem types.
- Facilitates sharing of knowledge and information between countries with similar ecosystem types.
- Allows cross-country comparisons and global aggregation for reporting ecosystem indicators to the GBF.

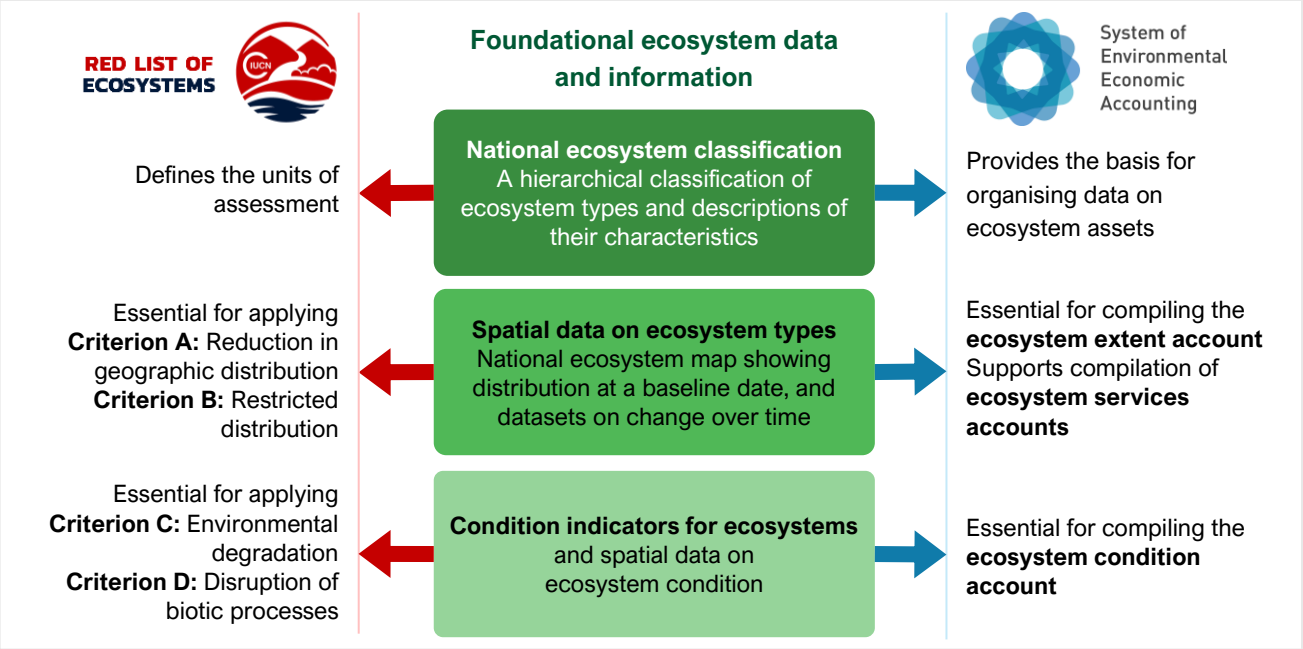
The **Global Ecosystems Atlas** is an initiative to provide a synthesis map of ecosystem functional groups (level 3 of the Global Ecosystem Typology) worldwide. It combines the best available national and regional maps, and uses advanced technologies and data to fill gaps where national maps are not yet available. The Atlas is intended as a resource to support GBF reporting and a wide range of other applications of spatial data on ecosystems. For more information, visit https://globalecosystemsatlas.org/

GLOBAL ECOSYSTEMS ATLAS

Aligned foundations for measuring ecosystem change

Common data foundations

Once different ecosystem types have been classified and mapped in a national ecosystem map, it is possible to systematically assess their extent (or area) and condition (or integrity) as well as how these change over time. Both the Red List of Ecosystems and SEEA Ecosystem Accounting differentiate between changes in the extent of an ecosystem type, which are captured in RLE Criterion A and in the ecosystem extent account, and changes in its condition, which are captured in RLE Criteria C and D and in the ecosystem condition account.

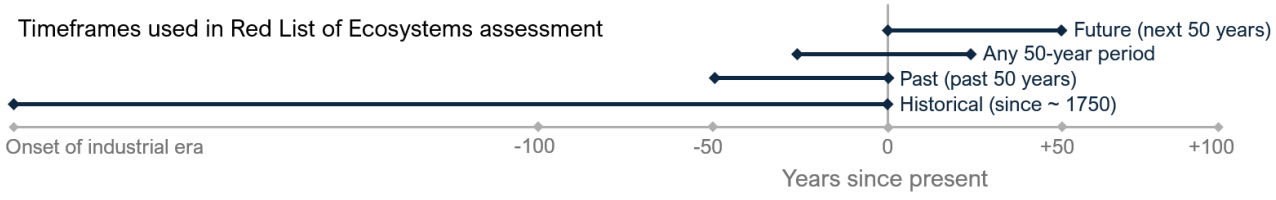


These foundational datasets generally draw on a wide range of data sources, from government agencies, research institutions, citizen science, global datasets, and more. Bringing together data from diverse sources is often complex, involving both technical and institutional challenges. As a starting point, it is useful to identify custodian agencies with the mandate to compile and curate such datasets, which may differ by realm.

Shared data foundations for the RLE and SEEA EA means data can be assembled and processed once and used across both frameworks. Coordinating foundational datasets avoids duplicated effort, improves consistency and helps to ensure that outputs reinforce each other, giving policy audiences clearer and more coherent messages. The same data foundations also support many other policy, planning and reporting needs.

Aligning timeframes

While SEEA EA measures change over consecutive accounting periods, for example every three years, the Red List of Ecosystems evaluates these same trends over set historical, past and future timeframes. If a country's national ecosystem map represents the historical distribution of ecosystem types, it provides a suitable reference for the opening extent of the first accounting period as well as for assessing historical time periods in RLE. Regular accounts can support assessment of past trends for RLE and can contribute to predictions of expected change.



Synergies in measuring ecosystem extent

Many natural ecosystem types have boundaries that are relatively stable at the timescales of accounting periods, except where they are converted to anthropogenic ecosystem types. In general, there is thus no need to remap the distribution of all ecosystem types on a frequent basis. Mapping efforts to measure change in ecosystem extent can focus on those areas and ecosystem types that are subject to short- to medium-term changes in distribution, which would typically include conversions from natural to anthropogenic ecosystem types and a limited number of natural ecosystem types with migrating boundaries.

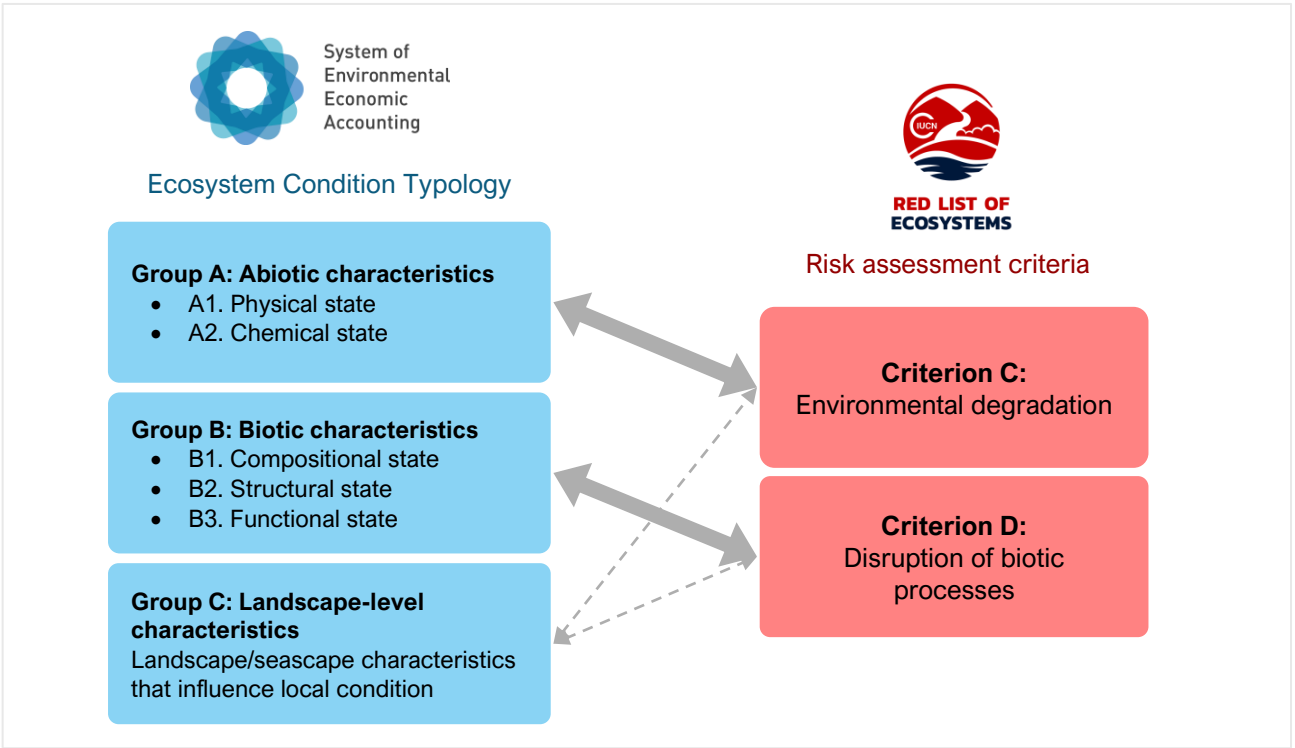
Teams involved in compiling ecosystem extent accounts and conducting Red List of Ecosystems assessments should collaborate to align approaches to mapping changes in ecosystem distribution and, where possible, to synchronise accounting and assessment timeframes.

Synergies in measuring ecosystem condition

Measuring the condition or integrity of ecosystems is complex, as ecosystem condition is multifaceted and typically cannot be assessed based on just one or two indicators of condition. Also, condition indicators should relate to an ecosystem's characteristics, so there are no universal condition indicators that can be used across all ecosystem types. For example, condition indicators for tropical rainforests, trophic savannas, semi-desert steppes, seasonal lakes, seagrass meadows and submarine canyons will be different.

SEEA Ecosystem Accounting has an Ecosystem Condition Typology that identifies different groups of condition indicators, to give countries a standard structure and common language for recording ecosystem condition. This aligns well with the Red List of Ecosystems, with Group A in the Ecosystem Condition Typology corresponding broadly to RLE Criterion C, and Group B corresponding broadly to RLE Criterion D. Ideally, condition indicators that meet the needs of both the Red List of Ecosystems and SEEA Ecosystem Accounting should be identified.

Teams involved in compiling ecosystem condition accounts and conducting Red List of Ecosystem assessments should collaborate to align condition indicators. Shared indicators of condition can strengthen the case for investing time and resources in national ecosystem condition datasets that are regularly updated.



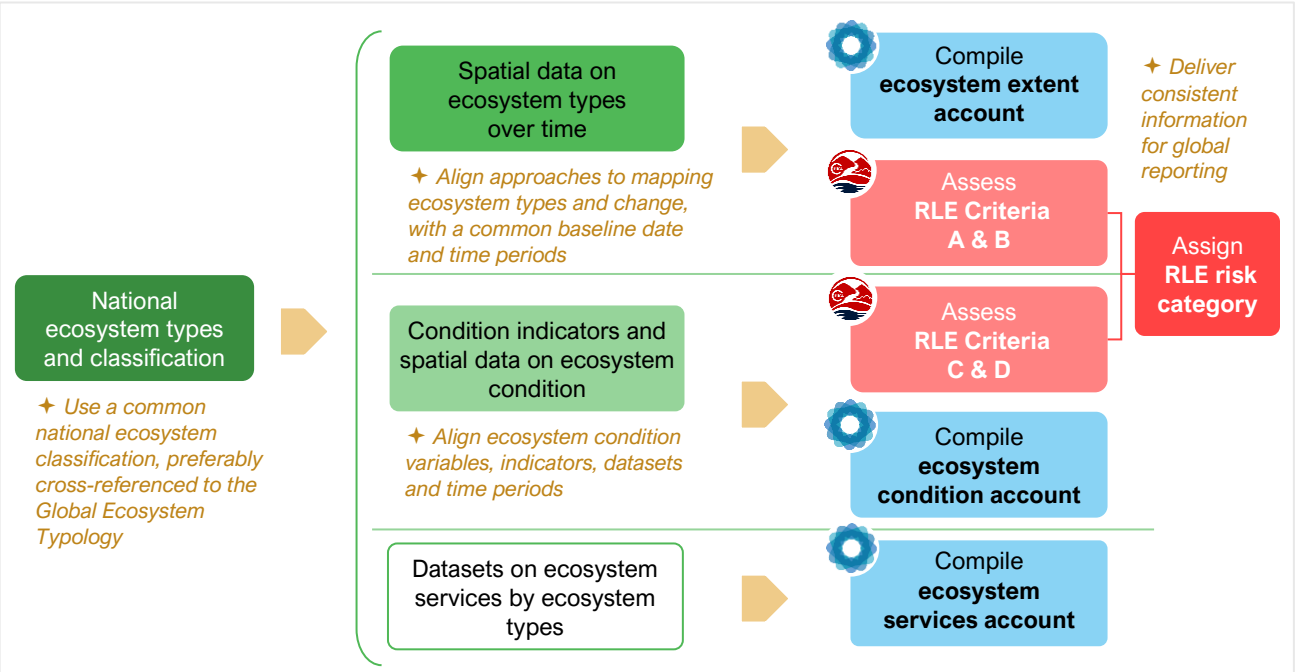
Collaboration in practice

Collaboration in developing and applying SEEA Ecosystem Accounting and the Red List of Ecosystems at the national level can enhance the quality and impact of both. However, in many countries, separate agencies lead the Red List of Ecosystems and SEEA Ecosystem Accounting processes, and finding pathways to collaboration is not always simple. Barriers to collaboration between these different teams can include differing mandates, data practices, vocabularies and organisational cultures. Aligning statistical accounts with risk assessments often requires patience and persistence to overcome institutional hurdles, but it also opens opportunities to share knowledge, co-invest in data, strengthen reporting and deliver more coherent insights for GBF implementation. When collaboration succeeds, the benefits are tangible.

Challenges to effective cooperation	Benefits of working together
Duplication of effort: Separate RLE and EA teams creating similar or parallel datasets without coordination.	**Data utility:** One set of shared foundational datasets that meets multiple needs, for RLE, EA and other applications.
Fragmented expertise: Ecosystem scientists working in isolation from national statisticians and economists.	**Combined expertise**: Drawing on diverse scientific and statistical expertise to connect different disciplines and co-produce knowledge.
Resource constraints: Stretched budgets and limited personnel assigned to parallel processes.	**Resource efficiency:** More effective use of scarce funds and staff by avoiding redundant foundational work.
Inconsistent outputs: Ecosystem accounts and RLE assessments that lack coherence and send different policy messages.	**Coherent messaging:** Consistent results that enhance credibility and promote unified policy responses.

Opportunities to develop shared workflows and invest simultaneously

The shared concepts and common data foundations between the Red List of Ecosystems and SEEA Ecosystem Accounting create the potential for teams to coordinate and actively align their efforts. Realising this potential will ensure the substantial work of investing in foundational data is not duplicated, allowing limited national capacity and resources to go further. A shared workflow shows key points where the foundational datasets and measurement approaches can be harmonised to ensure they are fit-for-purpose for both RLE and ecosystem accounts and that outputs are consistent and mutually reinforcing.



Practical steps to get started

Establishing a coordinated approach for the Red List of Ecosystems and SEEA Ecosystem Accounting at the national level requires concrete actions to get started in a realistic way and then build momentum over time.

Strengthen institutional links

1. **Find out who is involved:** Locate the separate teams of people who may already be involved in Red List of Ecosystems or SEEA Ecosystem Accounting to establish contact and consider joint working groups.
2. **Make contact between focal points:** Most countries already have designated focal points for the CBD and SEEA who can be connected to share information on existing initiatives.
3. **Engage mandated counterparts:** Statistical agencies (SEEA Ecosystem Accounting) and environment ministries (Red List of Ecosystems) should engage closely with each other to avoid working independently.
4. **Widen cooperation:** Involve other relevant ministries, research institutions and NGOs early in the process to augment national technical capacity and foster broader intergovernmental collaboration.
5. **Build a common lexicon:** Actively use and clarify understanding of shared terms and definitions to avoid talking at cross-purposes and support data interoperability.
6. **Utilise global support:** Draw on available international guidance and reach out to the CBD's regional technical and scientific support centres to facilitate technical cooperation and share progress with other countries.

Establish shared data foundations

1. **Identify custodians with mandates for key datasets:** Determine which agencies have the mandate to convene the development of national ecosystem maps and condition datasets, which may differ by realm.
2. **Prioritise investment in a national ecosystem map:** Work towards a robust, nationally agreed ecosystem classification and map at an agreed baseline date, preferably aligned with the Global Ecosystem Typology.
3. **Align condition indicators:** Coordinate the selection of ecosystem-specific indicators of condition to ensure this complex aspect is measured in the same way to deliver consistent results.
4. **Document shared data gaps:** Identify data needs now to develop a combined long-term strategy for data gathering and processing, bearing in mind the CBD's national reporting cycles.

Decide on pragmatic starting points and build from there

1. **Assess the 'state of play' to identify achievable entry points:** Determine which realms (terrestrial, marine, etc.) have the most available data and fewest institutional hurdles, so early successes can help to build confidence.
2. **Consider focusing initially on a subset of criteria and accounts:** It can be useful to select a subset of RLE criteria and the corresponding core accounts (e.g. the extent-based Criteria A and B and ecosystem extent accounts) for which foundational data is more readily available, and to develop a work programme around those. Aim for an initial set of credible outputs that demonstrate the value of the work to decision makers.
3. **Expand as expertise and data improve:** Incorporate additional criteria into RLE assessments and compile additional ecosystem accounts, as national technical capacity and datasets improve.
4. **Work towards comprehensive, regular accounts and assessments:** Aim to establish institutionalised programmes that produce full national RLE assessments and ecosystem accounts across all realms at regular intervals, to support multiple policy and decision-making applications.

Pay careful attention to aligning outputs and messages

1. **Consistent messaging:** Provide coherent messages across assessments and accounts about the state of ecosystems and their importance, to increase credibility, avoid conflicting policy advice and ensure that national reporting on headline ecosystem indicators remains consistent.
2. **Diverse audiences:** Generate complementary outputs to make ecosystem information meaningful for a range of users, from conservation agencies prioritising action, municipalities managing land-use decisions, businesses assessing biodiversity-related risks, to economic ministries focused on planning.

A call to action for countries and global partners

With NBSAP implementation underway, countries can harness the Red List of Ecosystems and SEEA Ecosystem Accounting as powerful, complementary tools to turn diverse data into coherent policy-ready evidence that drives action and strengthens biodiversity outcomes.

In the period between national reporting cycles to the CBD, countries have a window of opportunity to strengthen their ability to report on the ecosystem-related GBF headline indicators. **Vital elements at the national level include:**

→ **Strengthening collaboration between the statistical and biodiversity communities**

Collaboration between agencies is essential, not optional, for effective use of resources and credible national reporting. At the country level, this means establishing and deepening working relationships between national statistical offices and ministries or agencies with ecosystem science or biodiversity-related mandates. In particular, those leading on the Red List of Ecosystems and SEEA Ecosystem Accounting should coordinate closely.

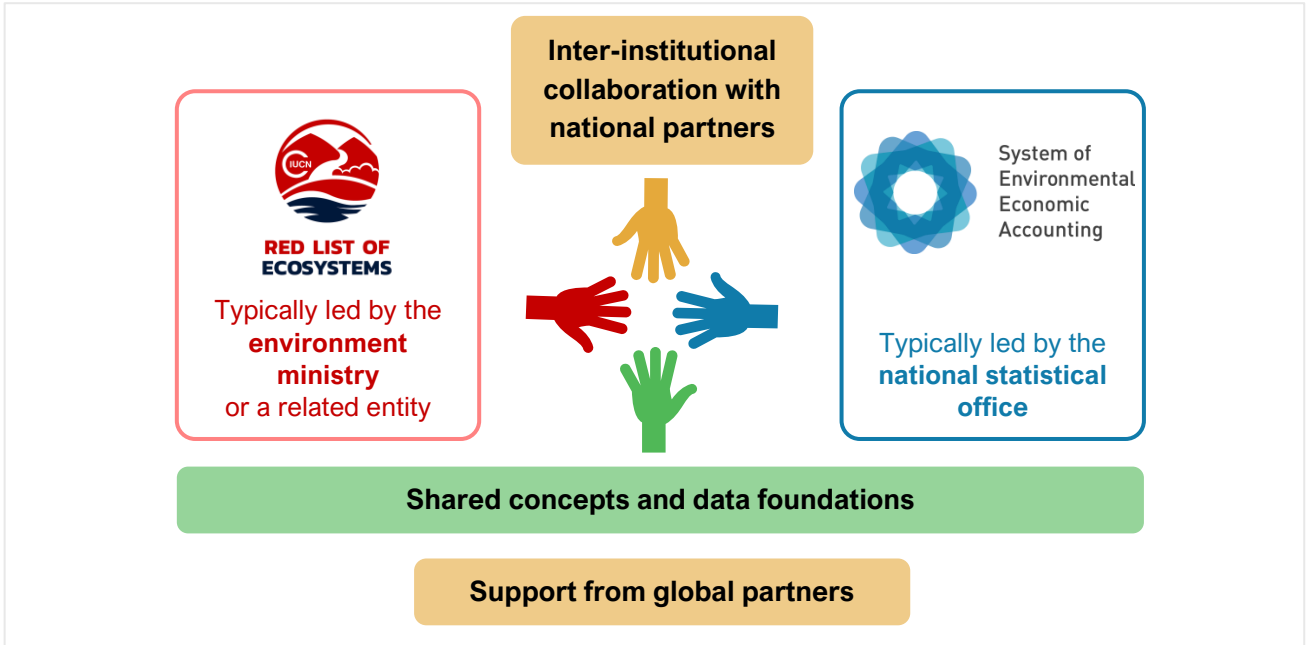
→ **Investing in foundational ecosystem data**

Optimising investment in foundational ecosystem data, including national ecosystem maps, consolidated ecosystem condition datasets and national datasets on ecosystem service flows, has multiple benefits for implementing NBSAPs and reporting on the GBF as well as a range of other applications. A collaborative strategy for building on existing data and progressively addressing gaps, within and across realms, can help to direct progress.

Alongside national action, global partners have a key supporting role to play

Global agencies that provide funding and technical expertise can support countries to invest in foundational data on ecosystems. Where they are involved in projects related to the Red List of Ecosystems or SEEA Ecosystem Accounting, these agencies can contribute actively to connecting national counterparts with each other and with other relevant global initiatives, fostering stronger links between the statistical and ecosystem science communities. In this way, they reinforce national priorities while strengthening the collective capacity to meet global biodiversity goals.

By working together across countries and institutions, we can ensure that ecosystem accounts and risk assessments become a cornerstone of well-informed, strategic and credibly monitored biodiversity action.



Resources

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United Nations Statistics Division. (In prep). *Compilation guidelines for Global Biodiversity Framework headline indicator B.1 Services Provided by Ecosystems.* United Nations, New York.

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