





A reference ecosystem type classification for the SEEA EEA

25th London Group on Environmental Accounting,
7-10 October 2019, Melbourne

Sjoerd Schenau

SEEA EEA Working group 1, spatial units

Content

- **The issue:** Development of a reference classification that better represents the concept and coverage of ecosystem
- Process
- Main conclusions so far
- Plans for testing
- Questions for the London group



The issue: Development of a reference classification that better represents the concept and coverage of ecosystems

- A classification describing the ecosystem types and a map are **essential components** of ecosystem accounting
- **SEEA EEA (2014)**: recommended the use of an interim, land-cover classification as a starting point for an ecosystem classification
- **Key revision issue** for SEEA EEA is to develop a proposal for a classification that better represents the concept and coverage of ecosystems

Goal:

1. Choose / develop a reference classification of ecosystem types for SEEA EEA.
2. Provide guidance for further disaggregation for ecosystem accounting at a national or sub national scale.



Process so far

- **Spring 2018:** Start of SEEA EEA revision process, definition of the key issues
- **September 2018-March 2019:** preparation of discussion papers by WG1
- **May 2019:** Expert review
- **June 2019:** Discussion at the Expert forum SEEA EEA in New York
- **Summer 2019-June 2020:** Testing

Options for a (high level) reference classification scheme for ecosystem types

- 1. IUCN Red List of Ecosystems**
- 2. USGS/Esri GDBBS**
- 3. A two-tier approach building upon and linking IUCN RLE and USGS/Esri GDBBS**
4. Existing habitat classifications (e.g. IUCN, EUNIS)
5. Existing land cover classifications (e.g., FAO; Corine)

Of these, the first three are the recommended options due to their conceptual relevance and depth and their coverage of all relevant environmental domains.



Outcome of expert review and Glen Cove

- During the June 2019 Meeting of Experts in Glen Cove (NY), **consensus was reached that the IUCN Global Ecosystem Typology level 3 units (EFGs) will be proposed as the basis of the revised SEEA-EEA ecosystem type classification**
- The USGS/Esri WES maps (and underlying data) may provide a method to map some EFGs, especially when no ground observations are available, but requires a cross-walk to identify potential congruencies and gaps
- In many cases, the EFGs may be too coarse for accounting on a national scale, and countries may seek finer disaggregation of units.
- Crosswalks to aggregate the EFGs to existing classifications such as the SEEA LC classification will be necessary.



The IUCN RLE classification

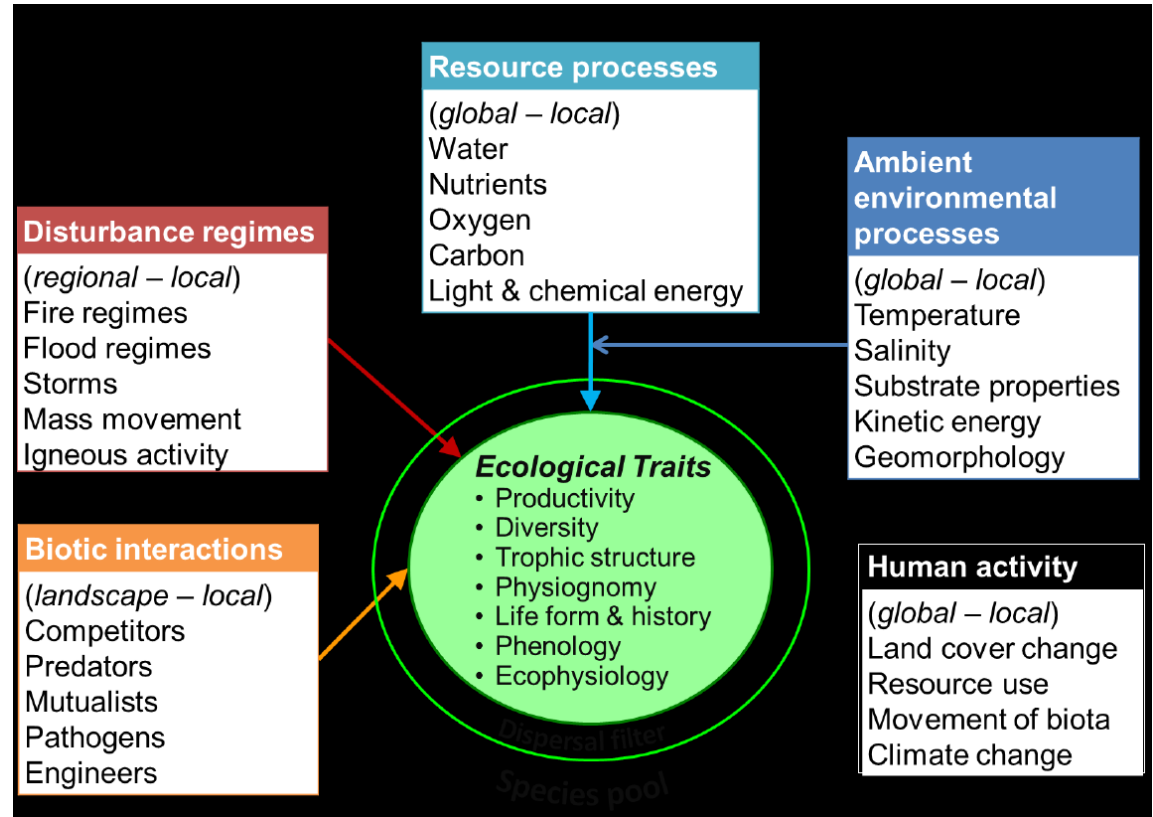


- Recently developed by IUCN (Keith et al., 2019)
- Process-based approach to ecosystem classification across the whole planet
- Ecological assembly theory is used to identify key properties that distinguish functionally related ecosystems
- **Pros:** Complies with all design criteria, explicit theoretical foundation and takes ecosystem as its conceptual base, strong biological component
- **Cons:** Not (yet) mapped, less focus on agricultural/urban areas

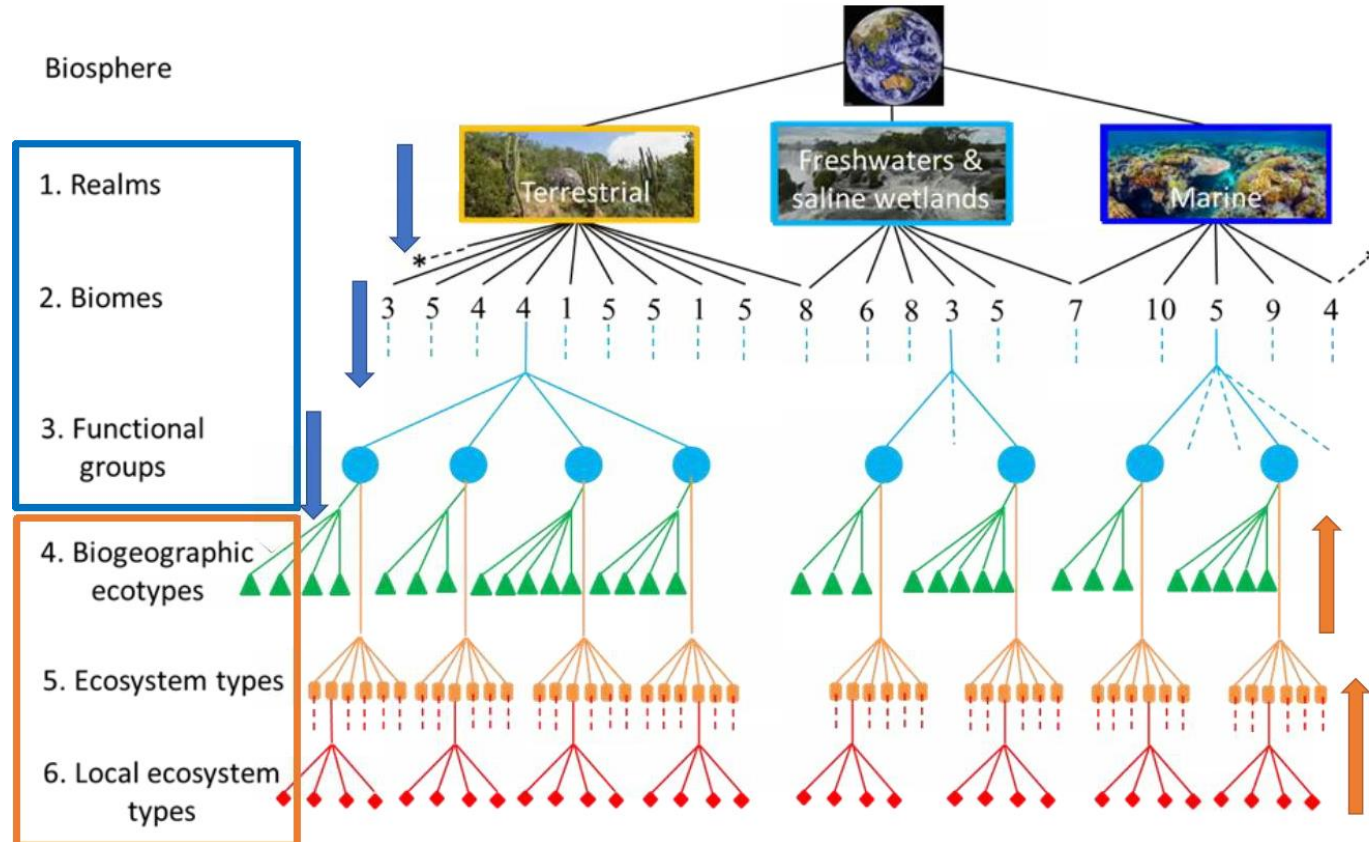


Theoretical foundation

- ecosystem assembly theory
- shared traits and key ecological processes
- focus on *ecosystem function*



Hierarchical structure



Upper three levels of the RLE IUCN classification

Environmental Domain	IUCN RLE ET Highest Order Ecosystem Complexes	Biome	Functional group (ecotype)
Terrestrial	T1 Tropical-subtropical forests	T1 Tropical-subtropical forests	T1.1 Tropical/Subtropical lowland rainforests
Terrestrial	T2 Temperate-boreal forests & woodlands		T1.2 Tropical/Subtropical dry forests and scrubs
Terrestrial	T3 Shrublands & shrub-dominated woodlands		T1.3 Tropical/Subtropical montane rainforests
Terrestrial	T4 Savannas and grasslands		T1.4 Tropical heath forests
Terrestrial	T5 Deserts and semi-deserts	T2 Temperate-boreal forests & woodlands	T2.1 Boreal and montane needle-leaved forest and woodland
Terrestrial	T6 Polar/alpine		T2.2 Temperate deciduous forests and shrublands
Terrestrial	T7 Intensive anthropogenic terrestrial systems		T2.3 Cool temperate rainforests
Terrestrial	MT2 Coastal vegetation		T2.4 Warm temperate rainforests
Freshwater	FT 1 Palustrine wetlands		T2.5 Temperate pyric humid forests
Freshwater	F1 Rivers and streams		T2.6 Temperate pyric sclerophyll forests and woodlands
Freshwater	F2 Lakes	T3 Shrublands & shrub-dominated woodlands	T3.1 Seasonally dry tropical shrublands
Freshwater	F3 Artificial wetlands		T3.2 Seasonally dry temperate heaths and shrublands
Marine Waters	FM1 Transitional waters		T3.3 Cool temperate heathlands
Marine Waters	M2 Pelagic ocean waters		T3.4 Rocky pavements, screes and lava flows
Marine Waters	MFT1 Brackish tidal systems		
Marine Seabed	MT1 Shoreline systems		
Marine Seabed	MT3 Artificial shorelines		
Marine Seabed	M1 Subtidal shelves and shelf breaks		
Marine Seabed	M3 Deep sea floors		
Marine Seabed	M4 Artificial marine systems		


Next steps: Testing

- 1. Crosswalking the 'global' EFGs with selected 'local' national ecological classifications.**
 - test the unambiguous mapping of local classes to the EFGs
 - Identify possible gaps in the EFGs
 - Identify other issues, e.g. related to gradients and ecotones
- 2. Assessing the usability of the USGS/Esri WES product.**
 - Assess the correspondence between WES mapping units to locally (country-scale) known ecosystems.
 - For cases where this correspondence is insufficient for adequate SEEA-EEA accounting purposes, identify if, and which, additional global data sets underlying the WES product, may be helpful to increase this correspondence.
- 3. Crosswalking EFGs with other international classification schemes, i.e. IUCN habitat classification, RAMSAR, EUNIS, MAES etc. Some of this work is in progress within IUCN.**



Questions for the London Group

1. Do you agree with the next steps for testing ?
2. What is needed in addition to test and implement a reference classification for ecosystem types ?
3. Would you want to volunteer and help in the testing ?

A close-up photograph of a branch with small white flowers and green buds against a dark background. The text "Thank for your attention!" is overlaid on the right side of the image.

Thank for your
attention!