Testing ecosystem condition accounts

Joachim Maes; Virtual Expert Forum on SEEA Experimental Ecosystem Accounting 2020

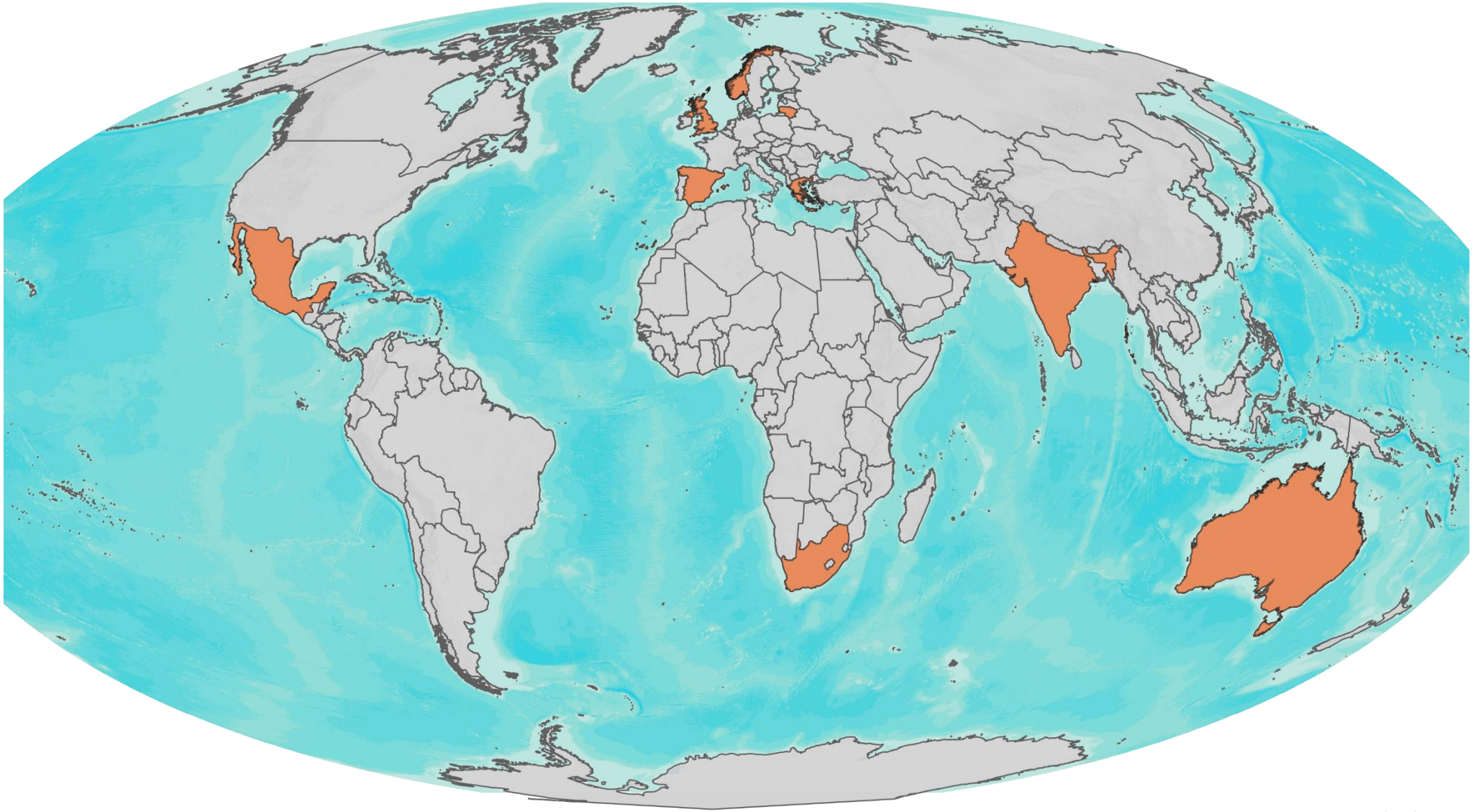
Test the applicability of a three-stage approach to condition accounting

Stage 1 account: Tracking the changes of condition variables over time

- IUCN typology of ecosystem types
- SEEA ECT (ecosystem condition typology)

Stage 2 account: Set reference condition and indicator reference levels; report and scale condition indicators

Stage 3 account: Aggregate into an ecological condition index



European Commission

Results: ecosystem typology

- Most (but not all) testing countries have a national ecosystem classification.
- Cross walk with the IUCN typology is possible
- Delineation of ecosystem types based on mapping
- More detail (level 2, level 3) increases the significance of the condition account

Results: condition variables and typology

- **Selection of condition variables**: selection criteria are not systematically screened (NO is the exception); pragmatic and data-driven approach to select suitable variables
- Broad support for the **SEEA ecosystem condition typology**

Groups	Classes	Examples
Abiotic ecosystem characteristics	1. Physical state characteristics	Soil structure, water availability, impervious surfaces
	2. Chemical state characteristics	Soil nutrient concentration, water quality, air pollutant concentration
Biotic ecosystem characteristics	3. Compositional state characteristics	Species richness, genetic diversity, presence of threatened species
	4. Structural state characteristics	Vegetation density, biomass, food chains and trophic levels
	5. Functional state characteristics	Productivity and decomposition processes, disturbance regimes
Landscape level characteristics	6. Landscape and seascape characteristics	Landscape diversity, connectivity, fragmentation, ecosystem type mosaics

Results: reference condition and reference levels

- Different approaches to reference condition: **baseline year** (ESP, AUS), **natural state** (NOR and MEX, LTU and GRC, ZAF); but different approaches or descriptions of the natural state.

- Confusion about the upper and lower limits of condition variables/indicators

Results: Aggregation

- ESP, NOR, experimental stage 3 accounts for following guidance: scaled indicators + equal weighting + mean statistic
- LTU, GRC: aligned with EU environmental reporting
- MEX: expert based system (Bayesian network)
- ZAF: distance to natural + reporting area under different condition classes
- More guidance needed; more elaborated approaches involving expert opinion

Conclusions

- Three-stage approach is a feasible approach to develop and report ecosystem condition accounts.
- Additional guidance needed on reference condition and aggregation.
- No examples of ecosystem conversion and the impact on the extent and condition accounts.