### The role of biodiversity indicators in condition measurement

or "The role of condition indicators in biodiversity measurement"?

Simon Ferrier, CSIRO Land & Water

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#### With thanks to: Kristen Williams, Tom Harwood, Chris Ware, Andrew Hoskins, Anna Richards, Randall Donohue

### **Biodiversity in the SEEA-EEA framework**





### Bigger picture of global initiatives in biodiversity measurement & assessment



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#### Approaches to assessing species-level biodiversity in accounting

EXPLORING APPROACHES FOR CONSTRUCTING SPECIES ACCOUNTS IN THE CONTEXT OF THE SEEA-EEA





https://www.unep-wcmc.org/resources-and-data/towards-an-approach-for-species-accounting



A major challenge in mapping habitat condition from remote sensing - land cover is a function of <u>both</u> ecosystem type <u>and</u> use/condition





## Using reference data to model habitat condition as a function of remotely sensed land-cover attributes, conditional on abiotic environment



https://research.csiro.au/biodiversity-knowledge/projects/hcas/

### CSIRO's global biodiversity modelling & assessment infrastructure (BILBI)





### **CSIRO's global biodiversity modelling & assessment infrastructure (BILBI)**



### Estimating habitat condition as a function of down-scaled land use



#### Estimating habitat condition as a function of down-scaled land use



### CSIRO's Biodiversity Habitat Index (BHI) – a habitat-based biodiversity account for the entire terrestrial surface of the planet?



## Bioclimatic Ecosystem Resilience Index (BERI) – assessing capacity of ecosystems to retain biological diversity under climate change





a) Habitat condition (forest cover)

b) BERI (standard index)



c) BERI (assuming no climate change)





d) BERI (assuming intact habitat)





#### **Bioclimatic Ecosystem Resilience Index (BERI)** – assessing capacity of ecosystems to retain biological diversity under climate change





Sumatran Freshwater Swamp Forests Ecoregion



**Deciduous Forests Ecoregion** 



#### Deriving and mapping ecosystem types through biologically-scaled environmental classification





#### Deriving and mapping ecosystem types through biologically-scaled environmental classification

Vascular-plant scaled terrestrial ecosystem classification



Benthic-biota scaled marine ecosystem classification

https://www.landcareresearch.co.nz/\_\_data/assets/pdf\_file/0006/ 21795/ExplanationofGDMTerrestrialEcosystemClassifications.pdf

https://fs.fish.govt.nz/Doc/23073/AEBR\_88.pdf.ashx



# Thank you

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