

DOI Ecosystem Service Data, Method, & Tool Gap Analysis

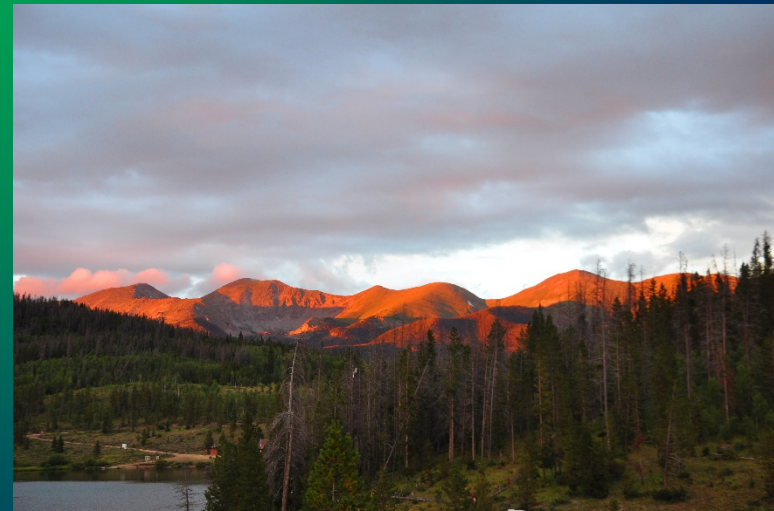


Method: data collection

- Modified Importance Performance Analysis (IPA)
- On-line survey of DOI employees with ES experience
 - 141 email invitations sent.
 - Overall response 102 (72.3%)
 - 80 completed surveys (56.7%) and 22 Partial Completions (15.6%)

Method: importance measure

- Research Team identified list of 24 ES topics
- Cross walked with existing lists of topics for consistency with other contexts
 - Millennium Ecosystem Assessment and Final Ecosystem Goods and Services (FEGS)
- Provided definitions of issues for consistency in interpretation across respondents
- Select up to five issues you are able to answer detailed questions about
 - Selection bias issue



Method: performance measure

PERFORMANCE OF:	Ecological Production Functions	Economic Valuation	Non-Monetary Valuation
Data	1	2	3
Methods	4	5	6
Tools	7	8	9



DOI Ecosystem Services

1. Recreation
2. Open Space
3. Viewscapes
4. Sounds & Scents
5. Cultural or Spiritual Resources
6. Freshwater
7. Water Bodies
8. Flora
9. Fiber
10. Timber
11. Soil
12. Fauna
13. Fish
14. Pollinators
15. Depredators & Predators
16. Presence of the Environment
17. Fungi
18. Substrate
19. Non-Renewable Energy Sources
20. Air
21. Weather
22. Wind
23. Atmospheric Phenomena
24. Renewable Energy Sources

Importance Question

For each category listed below, how important is information about ecosystem services related to natural resource management within your bureau/office/station? Please provide a response for all items, using response table below. Select NA (not applicable) if necessary

Not at all important	Minimally Important	Moderately Important	Important	Critically Important
Not important at all	Some consideration but as an ancillary topic, not enough to result in project design or policy topics	One of several main issues considered in project design or policy topics	One of very few issues that are considered in decision outcomes	Foundational to determining decision outcomes
0	1	2	3	4

Performance Question

Assess the status of the DATA/ Methods/Tools available for developing ecological production functions (i.e. translating ecosystem structures, functions, and processes into outputs potentially valued by people.)

Not at all	Minimal	Moderate	Good	Robust
Not well developed; not functional	Very limited in scope, scale, or functionality; high uncertainty	Generally functional with notable insufficiencies; limitations, or uncertainty	Good with limited uncertainty. Gaps may exist for minor elements. Consistently functional	Robust with little uncertainty and high functionality
0	1	2	3	4

Respondent selected up to 5 issues for performance questions

How much scientific information is available for the issue?

Critically important

GAP

- Are good decisions being made with little information?
- What science is necessary?

STRENGTHS

- Keep up the good work
- Reallocate resources to strengthen weaknesses?

No information at all

Robust information

REASSESS

- Are we missing something?
- What science is necessary?
- What process is necessary?

INSIGNIFICANT STRENGTHS

- Reallocate resources?
- Effective use of science?
- Asking right questions?

Not important at all

How important is the issue in decision making?

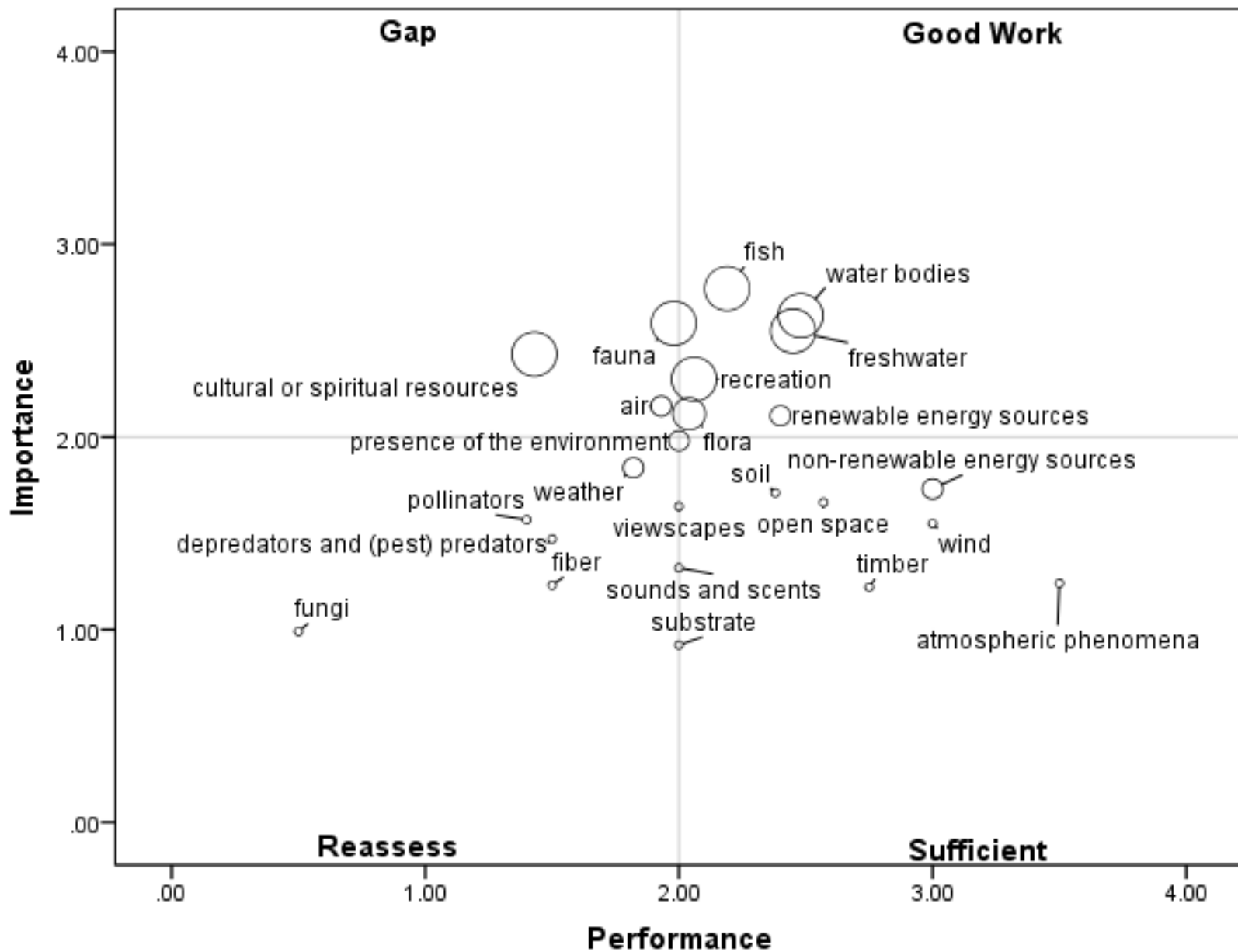
Results: importance

Ecosystem Service	n	Mean	Std Dev	Ecosystem Service	n	Mean	Std Dev
fish	91	2.77	1.25	soil	91	1.71	1.40
water bodies	91	2.63	1.36	open space	91	1.66	1.23
fauna	91	2.59	1.32	viewsapes	91	1.64	1.17
freshwater	91	2.55	1.50	pollinators	91	1.57	1.39
Cultural/spiritual res.	91	2.43	1.37	wind	91	1.55	1.38
recreation	91	2.30	1.29	depredators & predators	91	1.47	1.40
air	91	2.16	1.49	sounds and scents	91	1.32	1.12
flora	91	2.12	1.37	atmospheric phenomena	91	1.24	1.29
renewable energy sources	91	2.11	1.43	fiber	91	1.23	1.19
presence of the env.	91	1.98	1.35	timber	91	1.22	1.36
weather	91	1.84	1.42	fungi	91	0.99	1.25
non-renewable energy	91	1.73	1.50	substrate	91	0.92	1.16

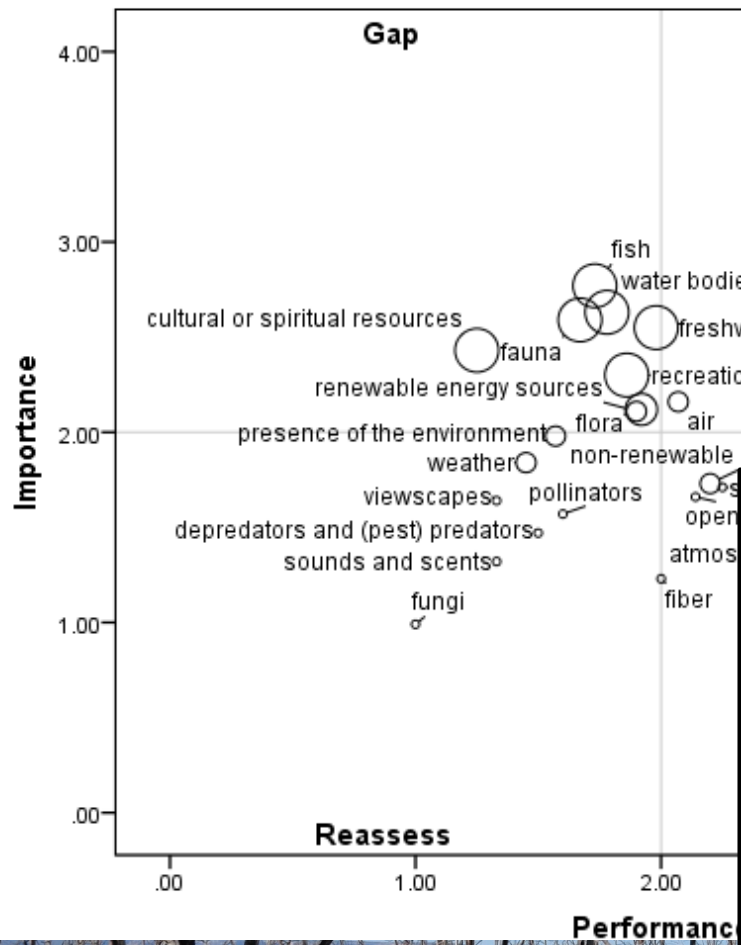
DATA: Ecological Production Functions



Status of the Data Available for Developing Ecological Production Functions

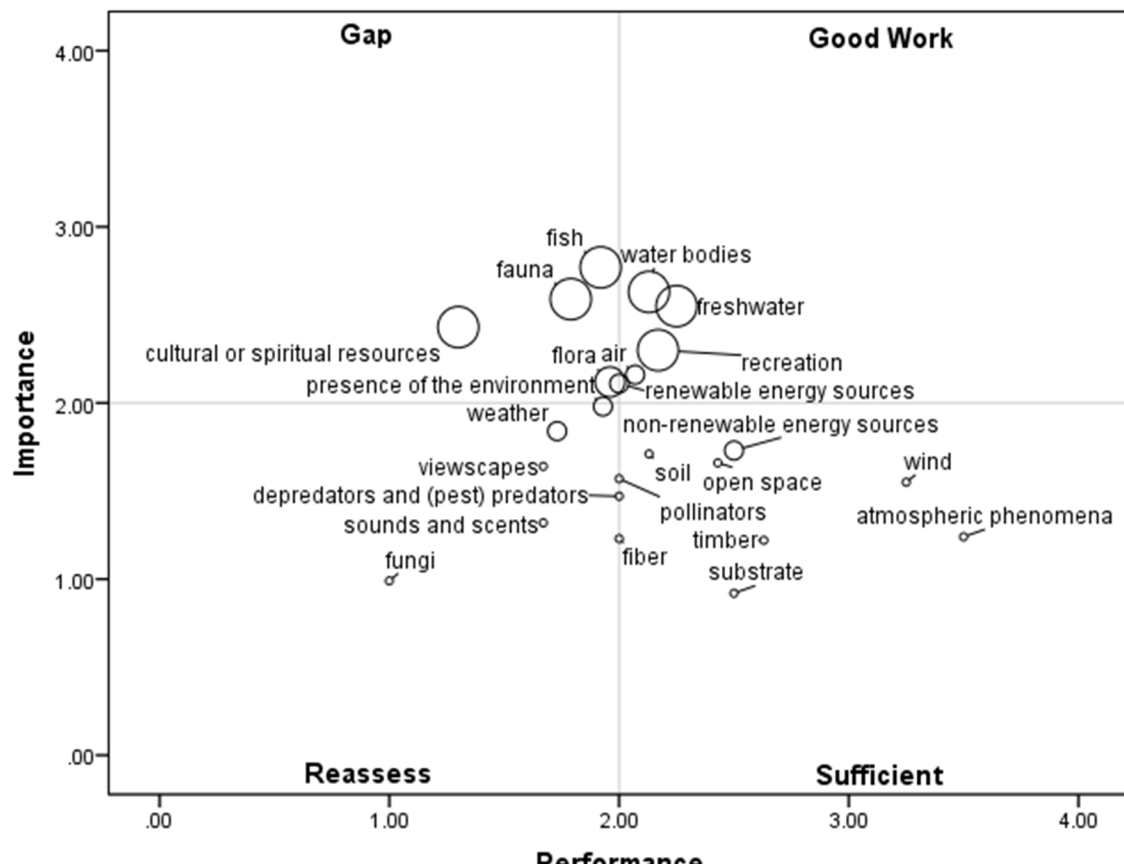


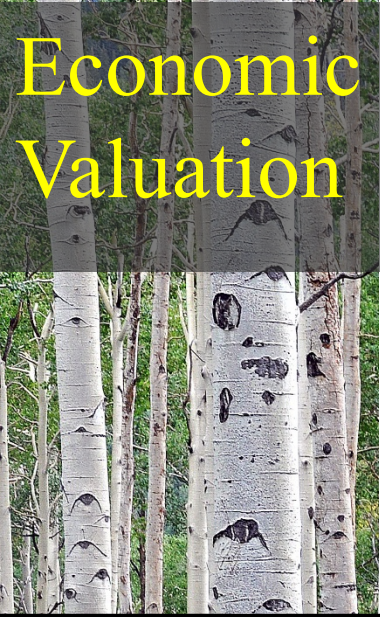
Status of Tools Available for Developing Ecological Production Functions



TOOLS & METHODS: Ecological Production Functions

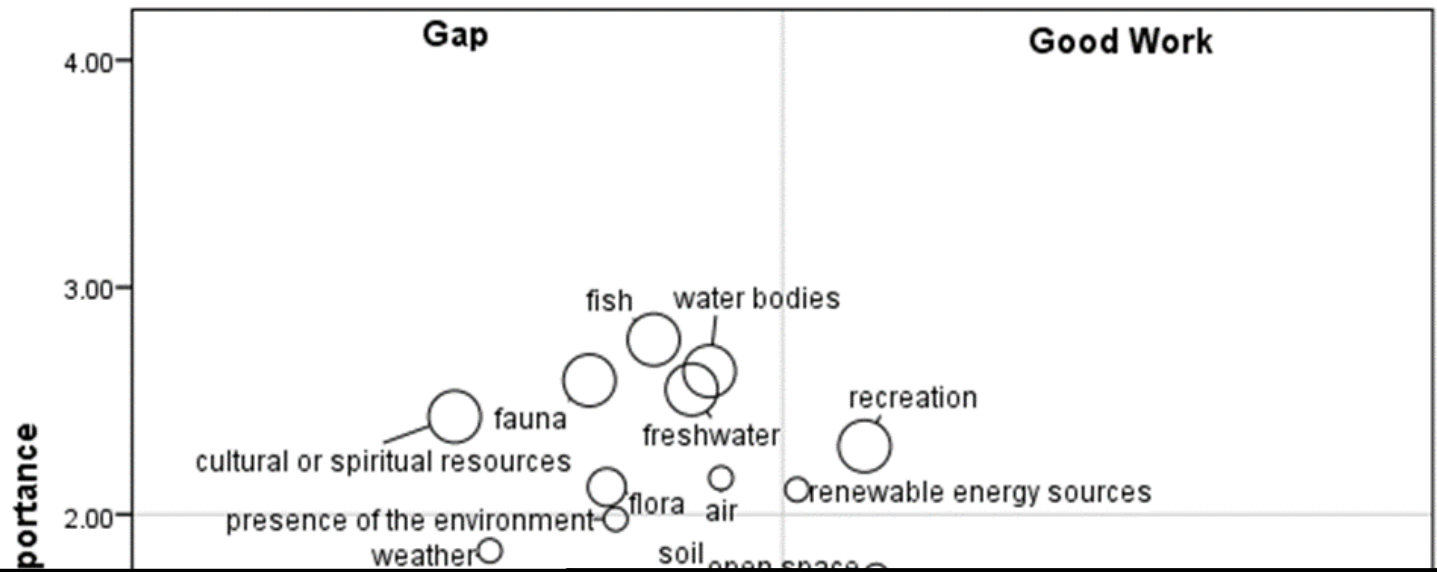
Status of the Methods Available for Developing Ecological Production Functions



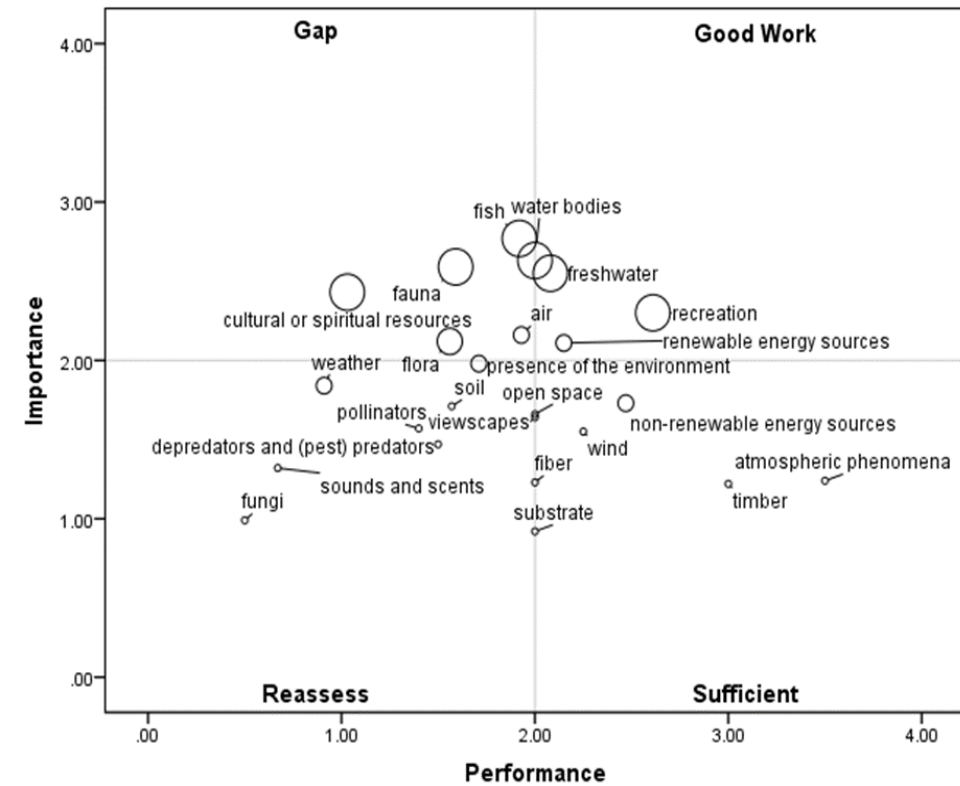


Economic Valuation

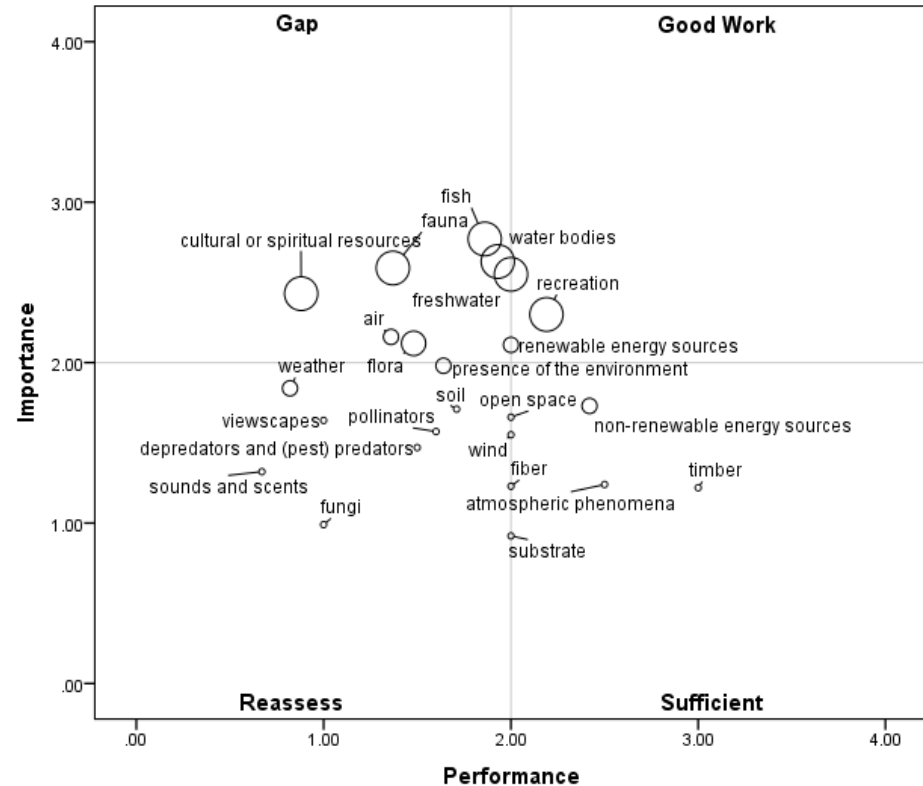
Status of the Tools Available for Economic Valuation



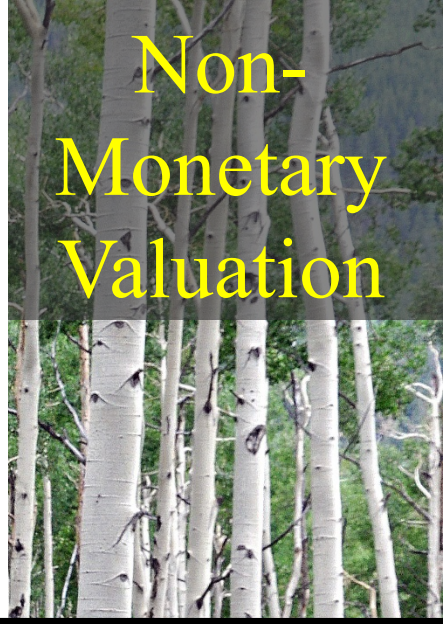
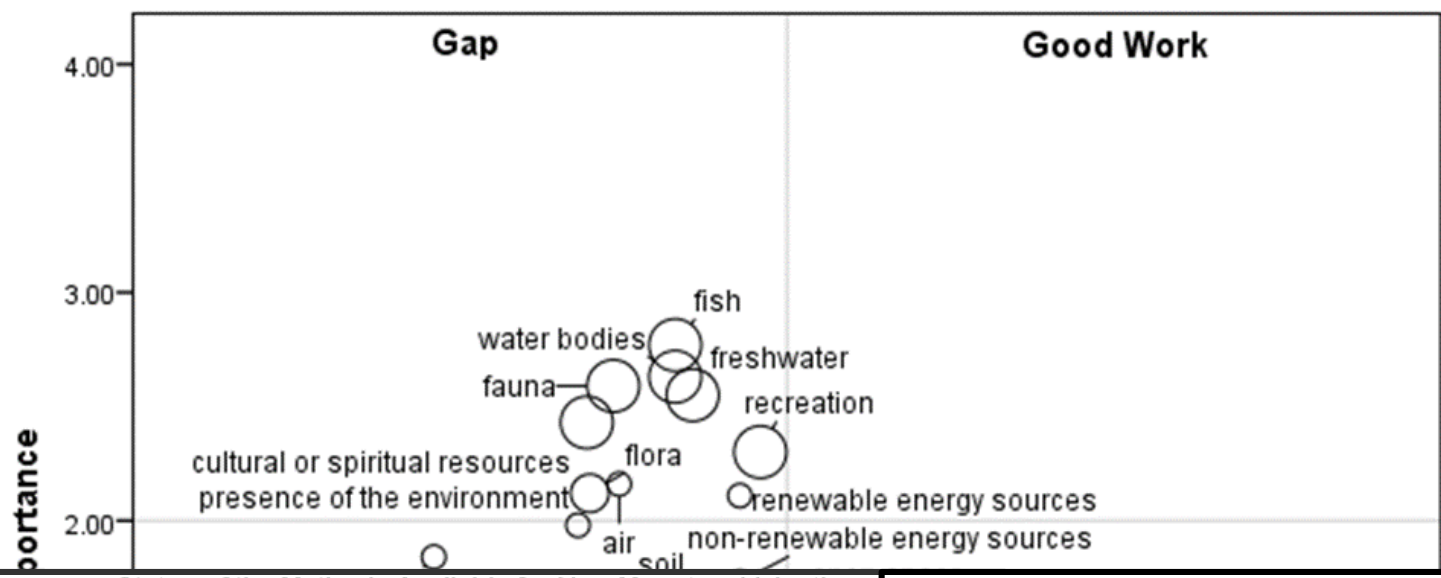
Status of the Methods Available for Economic Valuation



Status of the Data Available for Economic Valuation

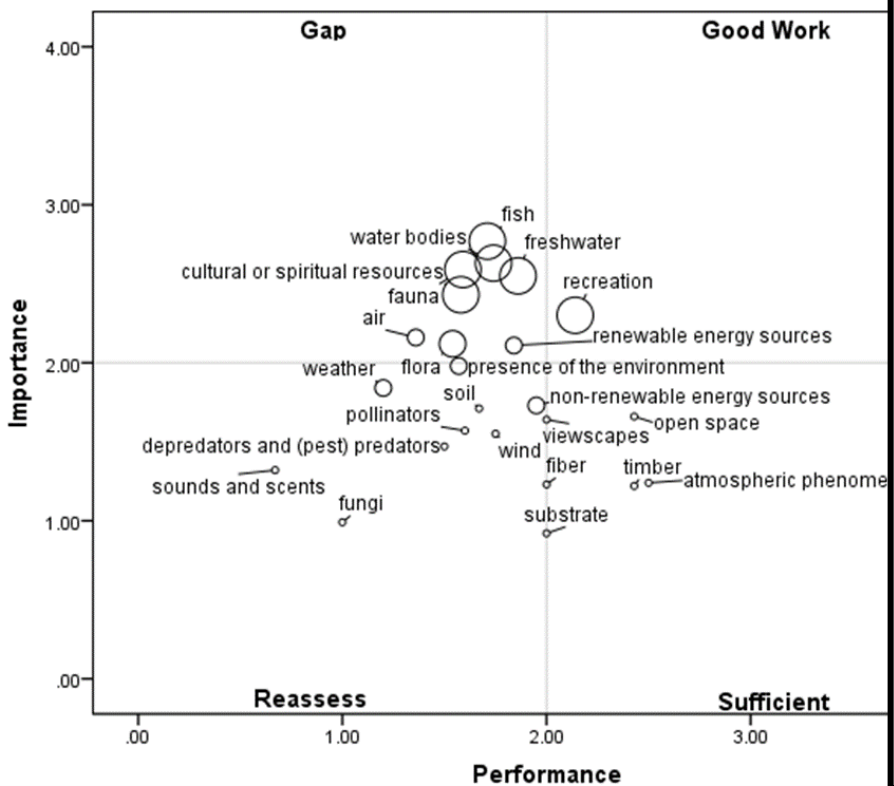


Status of the Tools Available for Non-Monetary Valuation

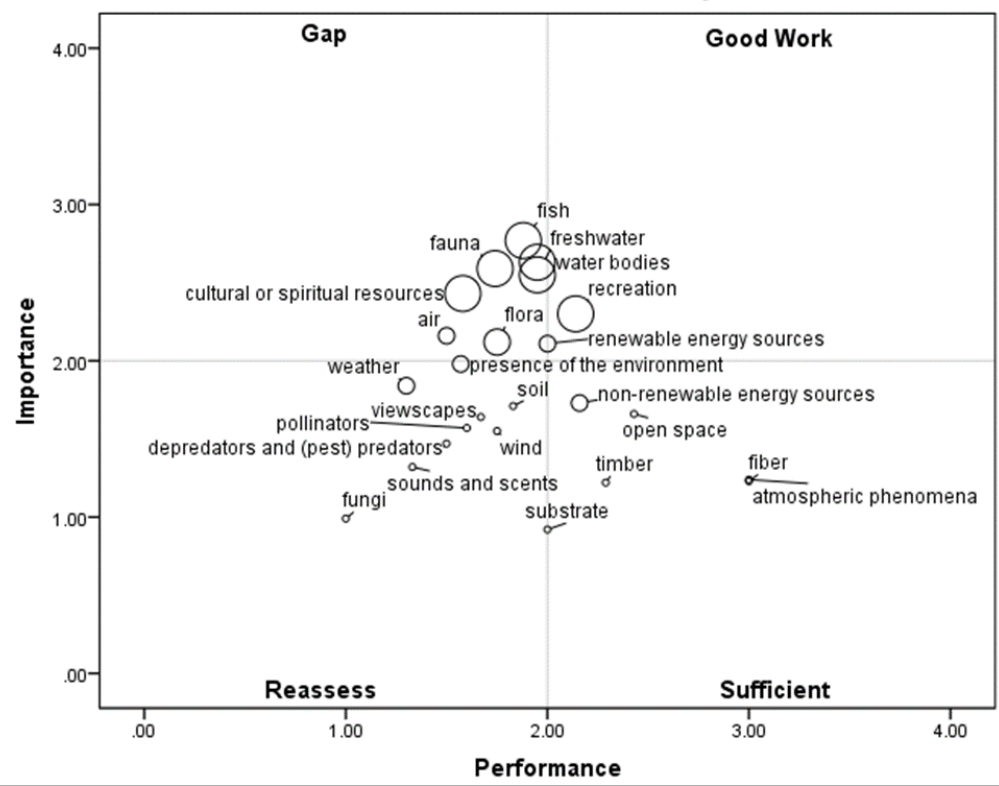


Non-Monetary Valuation

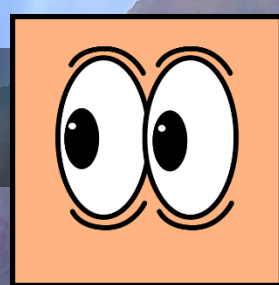
Status of the Methods Available for Non-Monetary Valuation



Status of the Data Available for Non-Monetary Valuation



GAPS & Good Work: a closer



GAP	# out of 9 possible grids
1. Cultural & Spiritual Resources	9
2. Fauna	9
3. Fish	8
4. Flora	8
5. Waterbodies	7
6. Air	7
7. Freshwater	6
8. Renewable Energy Sources	6
9. Recreation	2 (tools & methods)

Good Work	# out of 9 possible grids
1. Recreation	6
2. Renewable Energy Sources	3
3. Freshwater	3
4. Fish	2
5. Air	2
6. Waterbodies	1
7. Flora	1

What Was Left-Out?

1. Recreation
2. Open Space
3. Viewscapes
4. Sounds & Scents
5. Cultural & Spiritual Resources
6. Freshwater
7. Water Bodies
8. Flora
9. Fiber
10. Timber
11. Soil
12. Fauna
13. Fish
14. Pollinators
15. Depredators & Predators
16. Presence of the Environment
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Where do we go from here?

- **Revision**
- **Replication**
- **Confirmation**
- **Implementation**
 - deliver the information & tools



Where do we go from here?



Photo: D. Morias