

The evolution of biodiversity metrics

do they add value for the environment?



Background

10 years as an ecologist

Mott MacDonald's biodiversity projects:

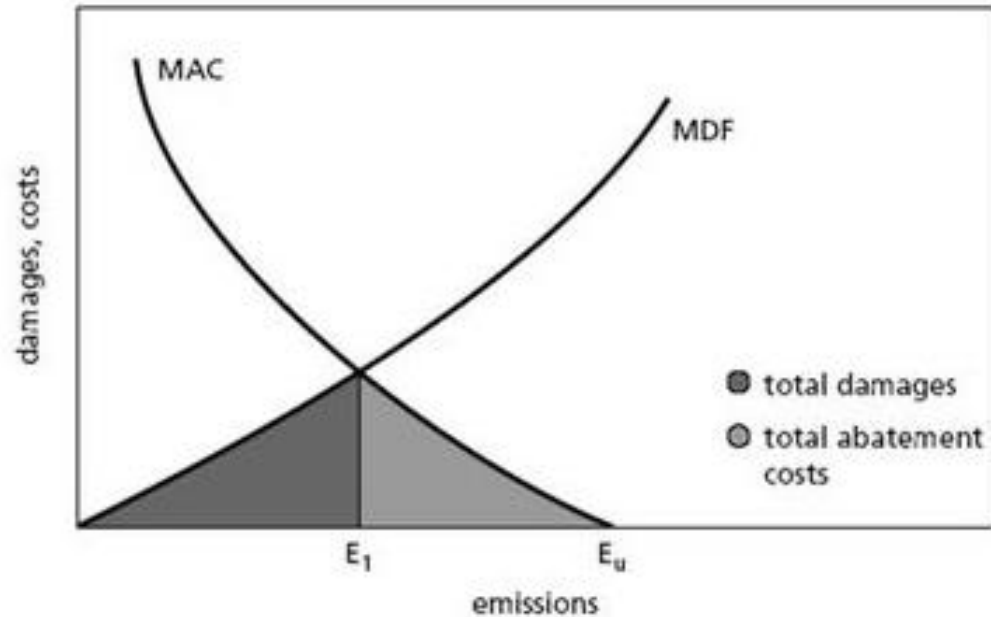
- Heathrow
- Network Rail
- TfL
- Water companies
- Road schemes



Why measuring Biodiversity Gain and Losses

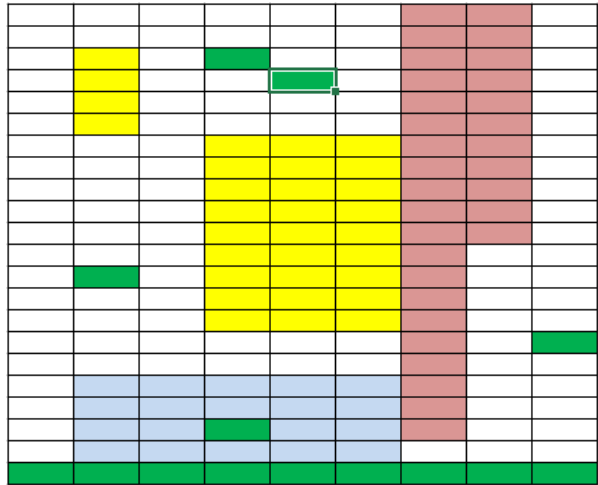
Ecology Economics Module

The Optimum Level of Pollution



Dissertation – Comparison of 2 Biodiversity Metrics

Code for Sustainable Homes Vs Biodiversity Offsetting



Before

Number of species?

Distinctiveness and condition?



After

Biodiversity Metrics Comparison

Dissertation Aim, Parameters, and Assumptions

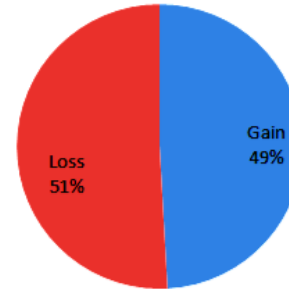
- Would there be any difference in outcome if BO metric had been used instead of CfSH and if so, what would the difference be?
- Possible areas where the difference could be:
 - Difference in outcome, more project showing net loss when using the BO metric.
 - Size and/or location of the project would influence the outcome.
- Data gathering: Planning portals / internet
- Data analysis: Warwickshire Coventry and Solihull Biodiversity Impact Assessment Calculator version 18.

Biodiversity Metrics Comparison

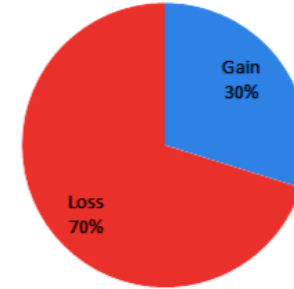
Results - 1

	All	North	South	< 0.1 ha	0.1 to 1ha	> 1 ha
Biodiversity offsetting loss / Code for Sustainable Homes loss	28	9	19	4	15	9
Biodiversity offsetting gain / Code for Sustainable Homes gain	16	1	15	2	12	2
Biodiversity offsetting loss / Code for Sustainable Homes gain	12	3	9	3	7	2
Biodiversity offsetting gain / Code for Sustainable Homes loss	1	0	1	0	1	0
Total	57	13	44	9	35	13
Biodiversity gain	17	1	16	2	13	2
Biodiversity loss 0-25%	2	0	2	1	1	0
Biodiversity loss 25-50%	4	2	2	0	4	0
Biodiversity loss 50-75%	8	3	5	1	5	2
Biodiversity loss 75-100%	26	7	19	5	12	9
Total	57	13	44	9	35	13

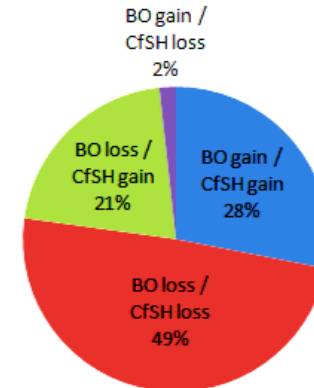
Code for Sustainable Homes



Biodiversity Offsetting



	North	South	< 0.1 ha	0.1 to 1ha	> 1 ha	Total
Loss of 0-50%	2	4	1	5	0	11%
Loss of 50-100%	10	24	6	17	11	89%
Gain + loss up to 25%	1	18	3	14	2	33%
Loss of 25-100%	12	26	6	21	11	66%



Biodiversity Metrics Comparison

Results - 2

No statistically significant difference and none of the parameters seemed to influence the outcome...However!

Issues / limitations with the CfSH reports:

- No ecology report
- Lack or poor habitat description (Habitat 1, grassland or wildlife garden)
- Grouped habitats or habitat not counting (garden and improved grassland)
- Linear vs surface area habitats
- Contaminated land

Biodiversity Metrics Comparison

Dissertation conclusion

CfSH metric was too simple and BO metric was better but still too simple, it needed to also include:

- Habitat condition and distinctiveness, more choice needed?
- LBAP habitats adjacent to site and genetic diversity impact
- Top soil translocation need to be considered for some habitats and given some credit this is where the seed bank and invertebrates are located
- Time to target conditions: a minimum should be set for some habitats rather than choosing from the whole range
- Connectivity

Biodiversity Net Gain Going Forwards

DEFRA Consultation and more

- Smaller size site consideration and merging all BNG metrics?
- Should we stop / modify PEA?
- Ecosystem Services, Natural Capital and Carbon Accounting added to the metric
 - too much / trade-off risk or logical evolution?
- Adding the Urban Greening Factor into the metric?
- Mapping and giving some level of protection to offset sites?
- Training ecologists differently and changing the way we think about project design

Thank you!

