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Rural Policy Centre



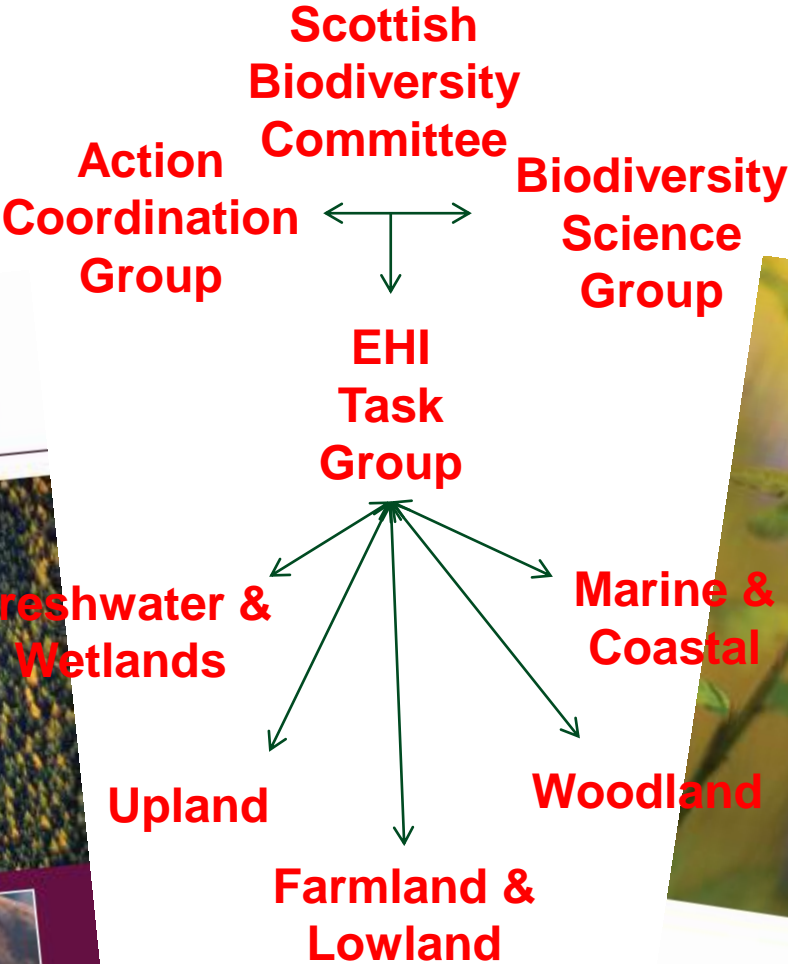
The need for indicators of ecosystem health in Scotland

Davy McCracken



National Ecological Network conference
6 February 2013, Edinburgh

Leading the way in Agriculture and Rural Research, Education and Consulting

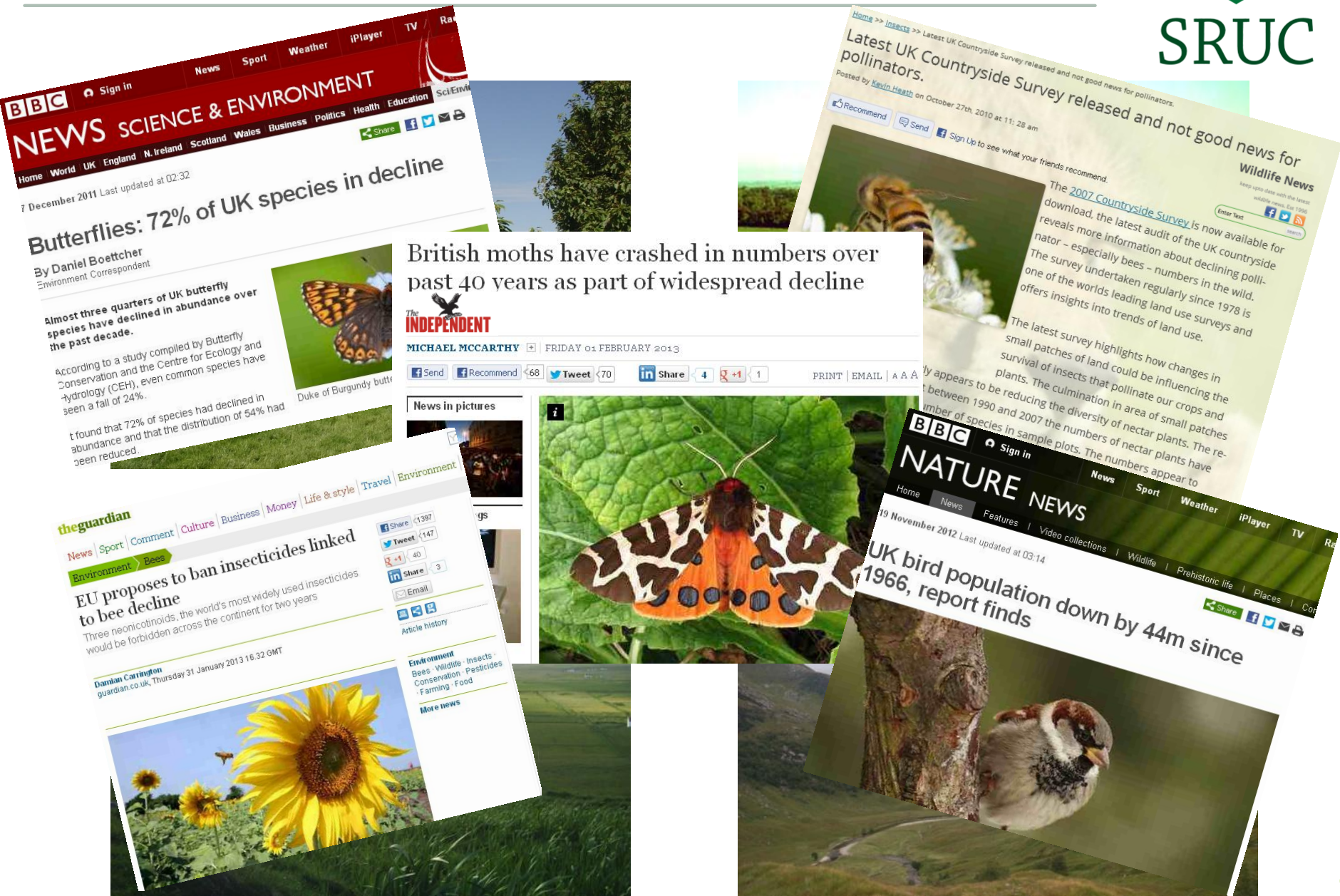




- Ecosystem health is the condition of an ecosystem, its individual parts and their connections
- A healthy ecosystem is one whose structure and functions enable it to deliver its full range of services into the foreseeable future
- Looking to understand the ecological state of a whole area and not just patches

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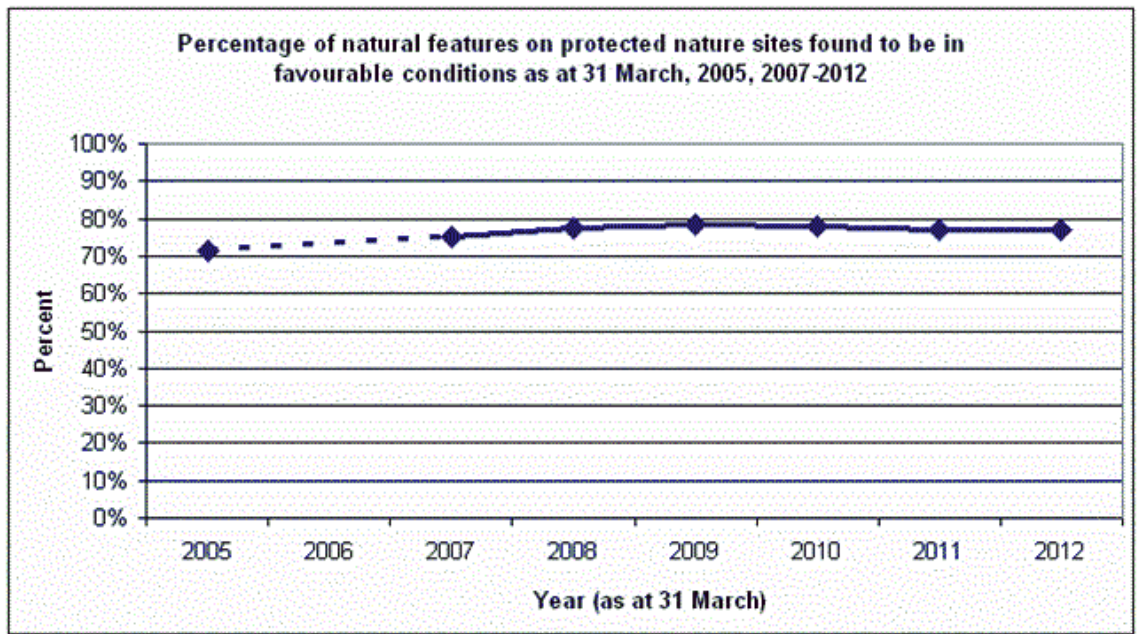


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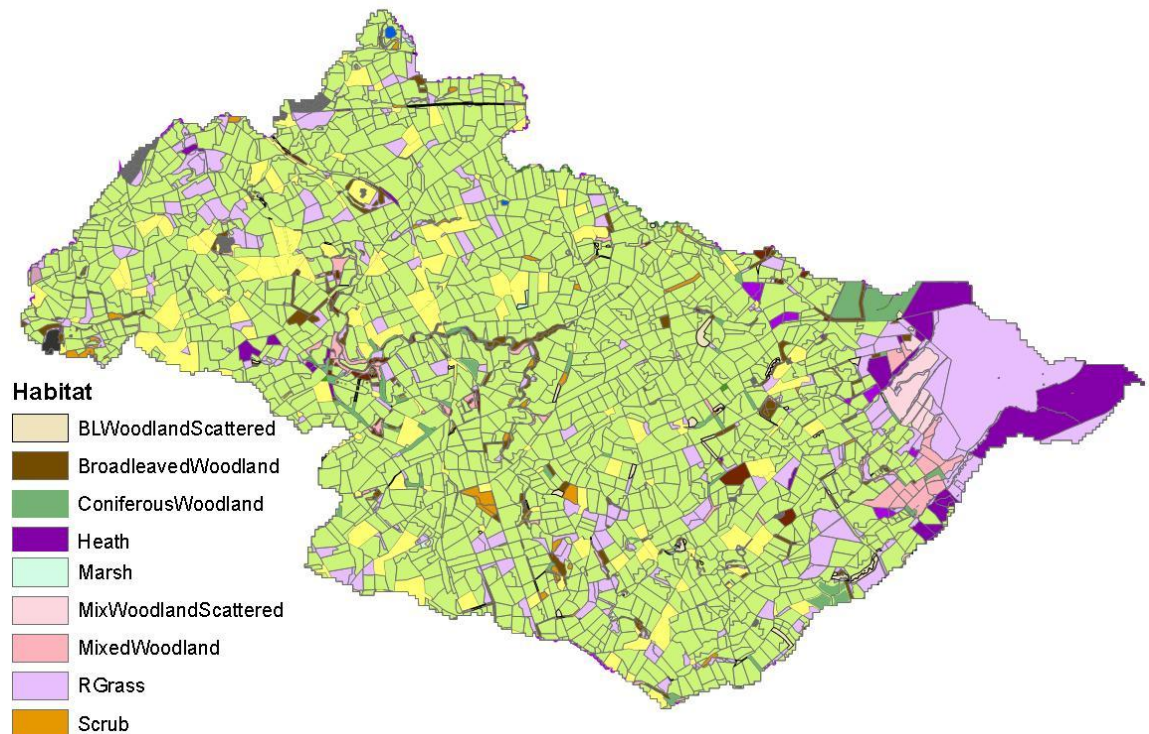


	Mean values (Scotland)			Direction of significant changes	
	1990	1998	2007	1990-1998	1998-2007
(a) Arable and Horticulture					
Species richness	10.3	9.2	9.6		
No. bird food species	6.1	5.4	5.2		
No. butterfly food species	3.5	2.8	3.1	↓	
(b) Improved Grassland					
Species richness	14.2	14.4	13.2		↓
No. bird food species	8.5	8.5	8.2		
No. butterfly food species	7.0	7.1	6.7		



Why do we need more indicators?:

- Landscape context needs to be taken into account more:
 - Characterise
 - Assess
 - Prioritise
 - Target
 - Evaluate

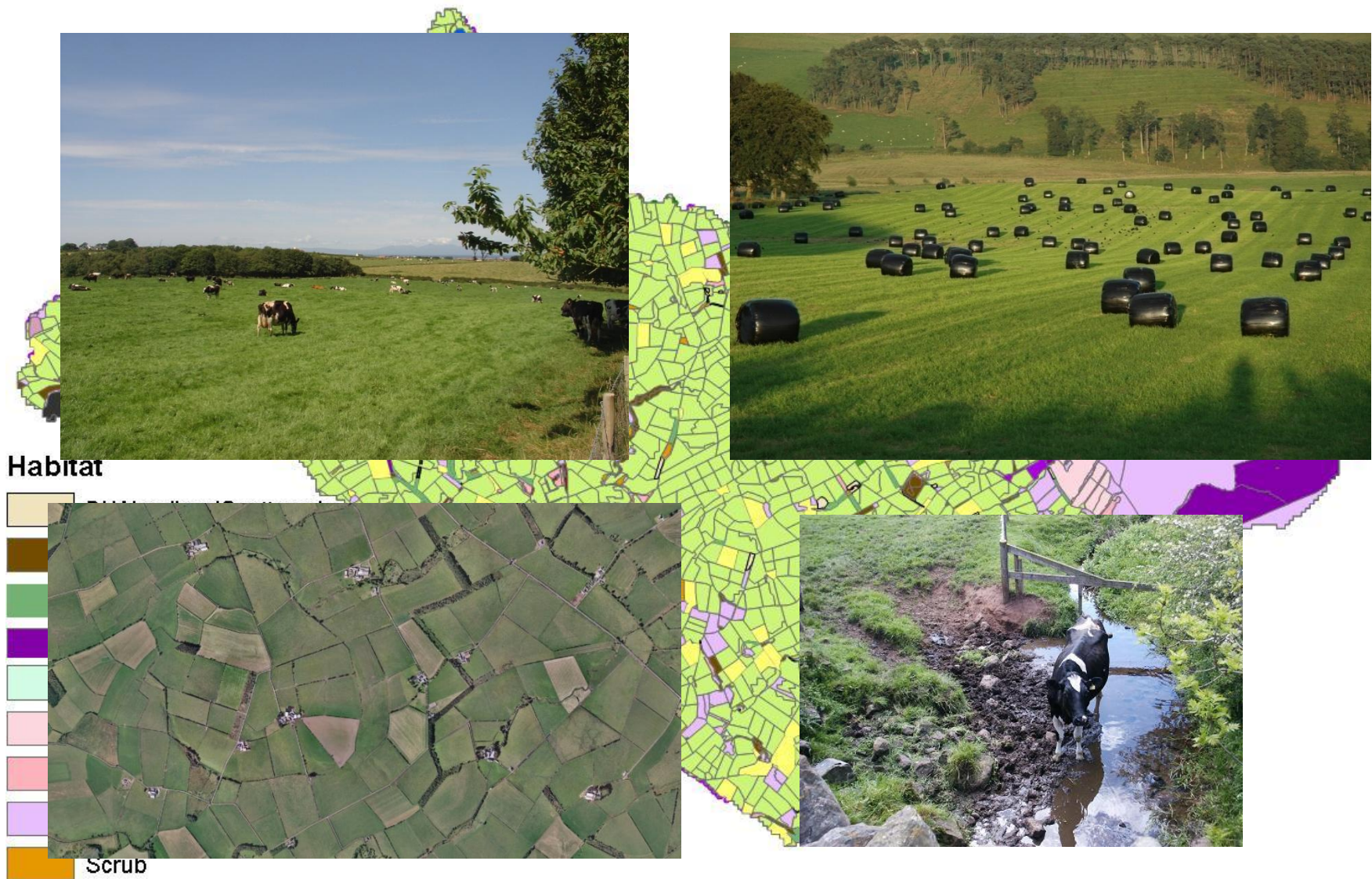


What type of additional indicators do we need?:

- Add to understanding of ecosystem condition
- Different drivers but some 'generic' issues
- Resilience increases with:
 - structural or functional complexity
 - habitat size and functional connectivity
 - species richness and (meta) population size



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What type of additional indices do we need?:

- habitat extent
- habitat quality & condition
- habitat fragmentation
- keystone species
- invasive species
- water quality
- soil structure & quality
- carbon balance

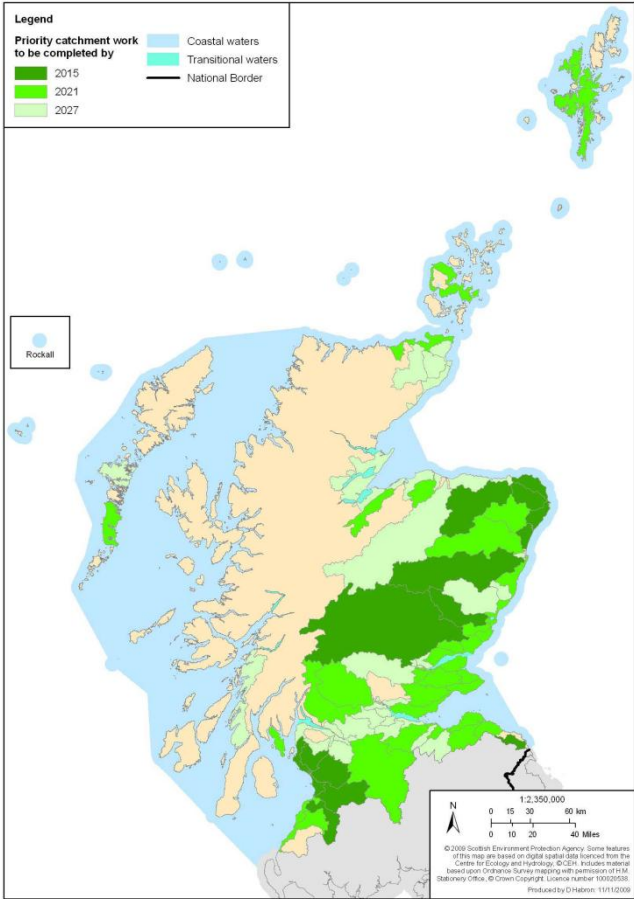
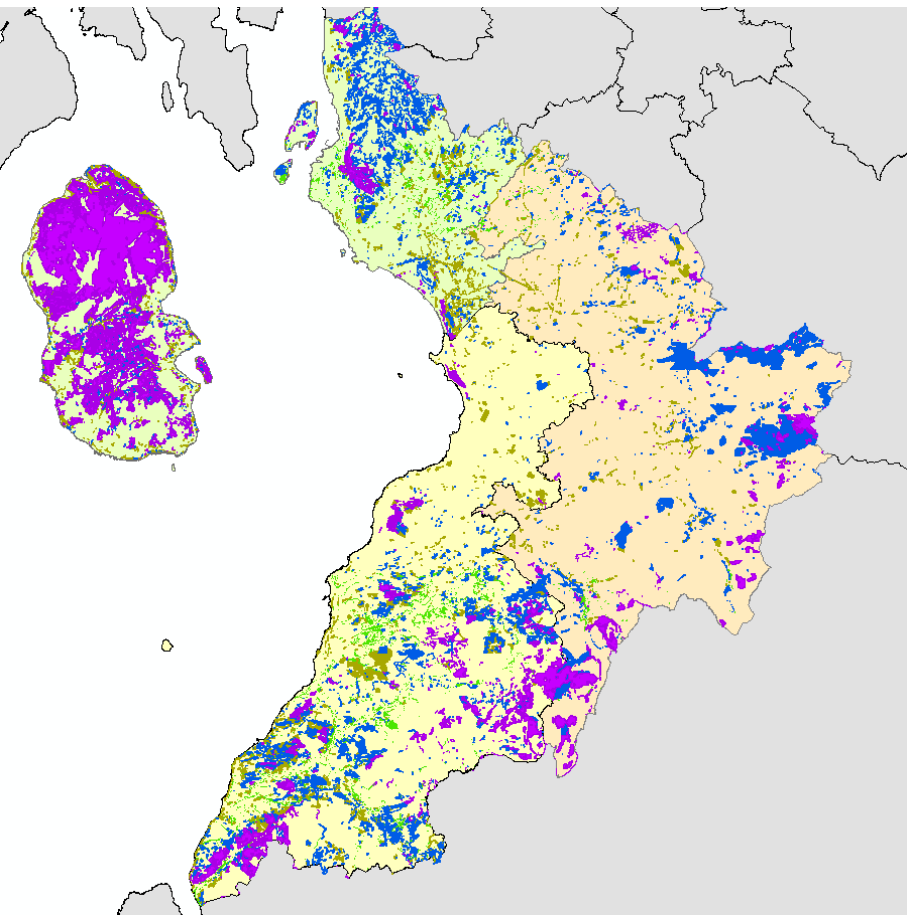


What type of additional indicators do we need?:

- Add to understanding of ecosystem condition
- Sensitive to change within a 10 year period
- Easy and cost-effective to gather and analyse data
- Scalable, e.g. national, local authority, river catchment



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Is it feasible to develop these additional indicators?:

- habitat extent
 - habitat quality & condition
 - habitat fragmentation
 - keystone species
 - invasive species
 - water quality
 - soil structure & quality
 - carbon balance
- Need to know qualifications associated with each. But
answer has to be **YES!!**



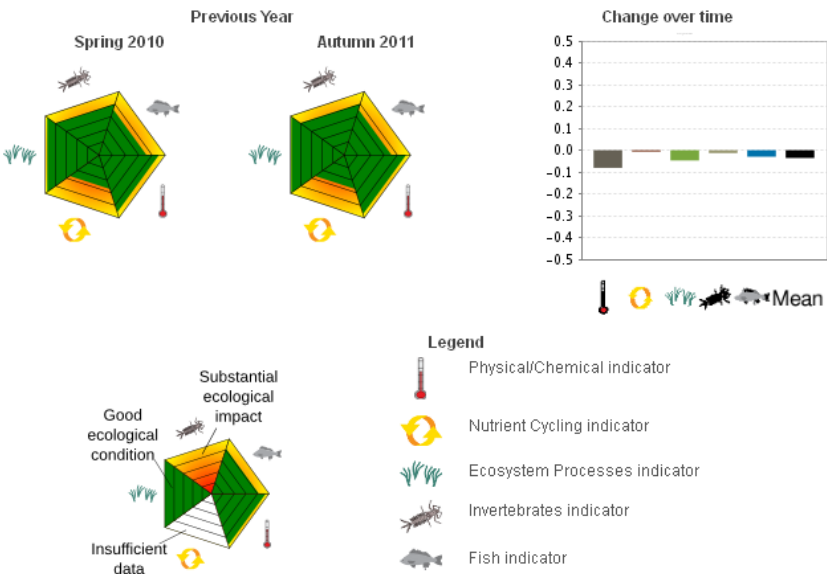
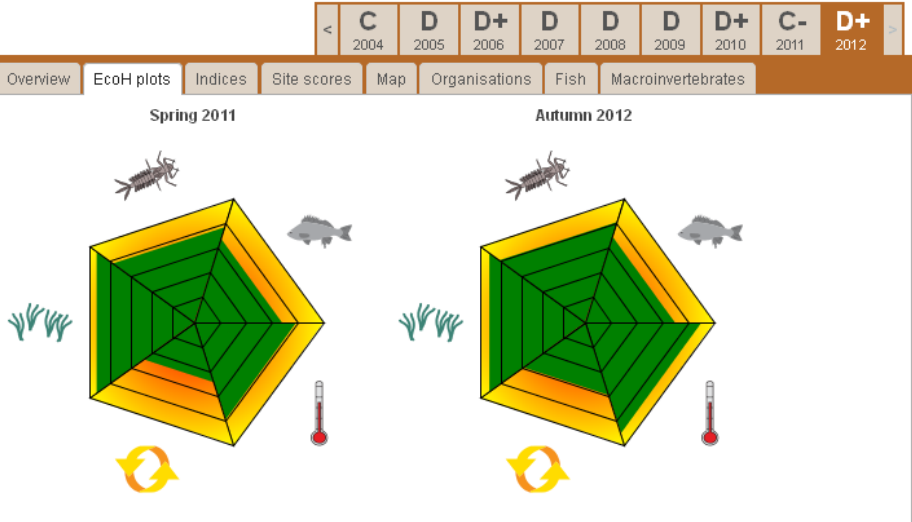
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Logan Catchment



Queensland Ecosystem Health Monitoring Program

<http://www.health-e-waterways.org>



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An Integrated Waterways Information System

The *Health-e-Waterways* project is a collaboration between [The University of Queensland](#), [Healthy Waterways](#) and [Microsoft Research](#). The aim is to develop a new waterways information management system which will provide a significant advance on current information technology and accessibility.

The system has integrated multiple water information databases generated through the [Ecosystem Health Monitoring Program](#) and which are hosted by a variety of government agencies and research organisations. This will allow science, policy-makers, management and the general public the ability to search and query water information through a single online interface.

Ecosystem Health Report Card results are generated dynamically via an online map interface connected to the underlying databases. Users can now quickly access both current and historical Ecosystem Health Report Card grades for the waterways of South East Queensland.

Quick Links



Consequences of not having additional indicators?:

- 2020 targets missed
- Biodiversity continues to decline:
 - Insufficient and poorly targeted actions on ground
 - Continued focus on protected areas rather than also on wider countryside and landscape scale
 - Wasted spend of limited funding
- Continue to be ‘someone else’s problem’



Rural Policy Centre



Our aims are:

- To be recognised as a leading centre for research and consultancy on rural policies
- To position SRUC as a major source of intelligence for the evolution of future rural policies
- To ensure SRUC responds to relevant developments in policy-making



Leading the way in Agriculture and Rural Research, Education and Consulting