Developing UK indicators for the Strategic Plan for Biodiversity 2011-2020. (Defra contract 1301).

Supporting information for the survey on ecosystem service indicators and data sets.

This project is considering options for developing a UK indicator for **ecosystem services**. Availability of suitable datasets is a significant constraint on possible options.

We are investigating datasets or indicators that have been developed to track change in the four service types (Supporting, Provisioning, Regulating, Cultural) provided by UK habitats, as identified in the UK National Ecosystem Assessment (UK NEA, 2011a,b). We will also consider recommendations made by those who have tackled the challenges of developing ecosystem service indicators (e.g. UNEP-WCMC, 2011).

The review and synthesis of data used in the UK National Ecosystem Assessment identified data sets that may be used in relation to ecosystem services (**Table 1**).

Using the metadata synthesis as a starting point, we are keen to identify any additional existing data sets or indicators of ecosystem services.

Criteria that will be used for quality testing data and indicator options can be viewed in **Annex 1** and **Annex 2**.

The information that you provide will be used in an expert workshop, which will: review and rank all datasets identified against the criteria for quality testing indicator options; consider the pros and cons of different types of indicators and rank them against the criteria for quality testing data and indicator options; and identify a maximum of three possible options for developing an indicator of ecosystem service indicators at both the UK and country-level (i.e. England, Scotland, Northern Ireland, Wales).

References:

UK NEA (UK National Ecosystem Assessment) (2011a). The UK National Ecosystem Assessment: synthesis of the key findings. UNEP-WCMC, Cambridge. [Online]. Available at: http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx.

UK NEA (UK National Ecosystem Assessment) (2011b). The UK National Ecosystem Assessment: technical report. UNEP-WCMC, Cambridge. [Online]. Available at: http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx.

*UNEP-WCMC (2011)***.** Developing ecosystem service indicators: experiences and lessons learned from sub-global assessments and other initiatives. Secretariat of the Convention on Biological Diversity, Montreal, Canada. Technical Series No. 58. [Online]. Available at: http://www.bipindicators.net/bippublications.

Table 1. Data sets identified in the scoping study that might be used in relation to developing an indicator of ecosystem services.

Data Set ID No.	Data Description	Ecological System			Temporal Coverage					Spatial Coverage					Data Quality and Accessibility			Relevance to Biodiversity Options Papers							Relevance to CBD Strategic Goals & Aichi Targets					Data Quality
		Freshwater	Marine	Terrestrial	First Data Point	Most Recent Data Point	Data Collection ongoing?	Sampling Frequency	Time Series	England	Scotland	Wales	Northern Ireland	Can Be Disaggregated	Transparency	Method	Fees	Options P1.: Awareness	Options P2: ES	Options P3: HC	Options P4: PGR	Options P5: CC	Options P6: Business	Most Relevant Ecosystem Service	SG A : Mainstreaming	SG B :Pressures	SG C : Status	SG D: Benefits	SG E : Implementation	Subjective Quality Score
								☐ Annual ◘ Bi-annual ◘ Every 3-5y ⊡ Decadal ▣ Sub-annual ▨ Stochastic ■ Baseline U unknown	☐ <5y ◘ 5-10y ■ >10y					☐ No ■ Yes	☐ Metadata in public domain ◘ Primary data set in public domain ▣ Available behind paywall ■ Primary dataset available upon request U unknown	☐ Not available ◘ Available but not peer reviewed ■ Externally published & peer reviewed U unknown	☐ No charge ◘ Nominal Fee ■ Substantial fee U unknown		ES ecosystem services	HC habitat connectivity	PGR plant genetic resources	CC climate change		S supporting P provisioning R regulating C cultural						☐ Low ◘ Medium ■ High
009	Area of fully and in-conversion organic land areas			✓	2002	2008	✓	☐	◘	✓	✓	✓	✓	■	◘	■	☐	✓	✓					P	**4**	**7**				◘
418	Designated woodland habitats in Northern Ireland (ASSIs, SACs)			✓				■	☐				✓	☐	■	U	☐	✓	✓					C		**5**				☐
281	Distribution of forested land in the UK			✓	1924	2000	✓	▨	■	✓	✓	✓		■	■	◘	☐		✓		✓	✓		S		**7**				☐
210	Changes in wetland plant species			✓	1990	2007	✓	▨	■	✓	✓	✓	✓	■	◘	◘	☐		✓		✓					**5**				◘
458	National inventory of crop wild relatives - TBC																									**7**	**13**			
048	Soil carbon density 0-100 cm under different land-use types, UK			✓	1980	2005	✓	▨	■	✓	✓	✓	✓	■	▣	■	■		✓			✓		S			**15**		◘
347	Potential new primary production for marine areas around Scotland		✓		1960	2000	✖	▨	■		✓			☐	■	◘	☐		✓			✓		S		**10**	**15**		◘
007	Energy crop production on set-aside land			✓	2001	2007	✓	☐	◘	✓	✓	✓	✓	■	☐	■	◘		✓			✓		P		**7**				◘
011	Landings of finfish and shellfish by UK vessels in UK and abroad		✓		1994	2011	✓	☐	■	✓	✓	✓	✓	■	■	■	☐		✓			✓		P		**6**				◘
031	Diversity of marine zooplankton communities		✓		1960	2005	✓	☐	■	✓	✓	✓	✓	☐	■	■	U		✓			✓		S		**10**	**12**			◘
035	Quality of life indicator: population trends of wild birds	✓	✓	✓	1970	2008	✓	☐	■	✓	✓	✓	✓	■	■	◘	☐		✓			✓		C	**1**		**12**		**19**	☐
047	Density of soil carbon in the UK			✓	1980	2005	✓	▨	■	✓	✓	✓	✓	■	▣	■	■		✓			✓		R			**15**			◘
047a	Soil profiles in the UK			✓	1980	2005	✓	▨	■	✓	✓	✓	✓	■	▣	■	■		✓			✓		R		**8**		**15**		◘
070	Conc. of acid neutralising capacity & DOC upland lakes & streams	✓			1989	2010	✓	☐	■	✓	✓	✓	✓	■	◘	■	☐		✓			✓		R		**8**				◘
088	Winter concentration of soluble phosphorus and chlorophyll a	✓			1960	2008	✓	☐	■	✓				☐	▣	◘	◘		✓			✓		R		**10**				☐
098	Exceedance of the critical loads for acidification and eutrophication	✓	✓	✓	1986	2008	✖	▨	■	✓	✓	✓	✓	■	■	■	☐		✓			✓		R		**8**				◘
211	Trends in breeding populations of selected wetland birds	✓		✓	1982	2009	✓	☐	■	✓	✓	✓	✓	■	◘	◘	☐		✓			✓		C		**6**	**12**			◘
212	Trends in populations of wintering water birds in Great Britain	✓		✓	1975	2009	✓	☐	■	✓	✓	✓	✓	■	◘	◘	☐		✓			✓		C		**6**	**12**			◘
230	Trends in lichen diversity in London			✓	1970	2004	✖	▨	■	✓				☐	■	■	☐		✓			✓		S		**8**	**12**			☐
233	Past, present and projected future area of coastal margin habitats		✓	✓	1945	2010	✖	▨	■	✓	✓	✓	✓	☐	◘	◘	☐		✓			✓		R		**5**		**14**		☐
242	Plankton greeness from Continuous Plankton Recorder		✓		1948	2012	✓	▣	■	✓	✓	✓	✓	■	◘	■	☐		✓			✓		S		**8**		**15**		◘
275	Threats to biodiversity in the UK	✓	✓	✓	2005	2008	✓	◘	☐	✓	✓	✓	✓	■	■	◘	U		✓			✓		S	**1**				**19**	☐
285	Condition of Welsh lakes within SSSIs	✓			2010	2010	✖	U	☐			✓		☐	■	◘	☐		✓			✓		S		**5**		**14**		◘
291	Health and biodiversity of marine habitats in the UK		✓		2005	2010	✓	◘	☐	✓	✓	✓	✓	■	◘	◘	☐		✓			✓		S	**1**	**5**				◘
297	Net primary production of landcover in Wales			✓	2007	2007	✖	U	☐			✓		☐	U	◘	U		✓			✓		S			**14**			◘
417	Area and distribution of forests managed by the Forest Service in NI			✓	2010	2010	✖	U	☐				✓	☐	■	U	☐		✓			✓		R		**5**		**14**		☐
419	Age structure of woodland in Northern Ireland			✓	<1900	2009	✖	⊡	■				✓	☐	■	U	☐		✓			✓		S		**5**				☐
420	Area of new woodland plantings in Northern Ireland			✓	1999	2008	✓	☐	■				✓	☐	◘	◘	☐		✓			✓		P		**7**		**14**		◘
421	River basin catchment area in Northern Ireland	✓		✓	2011	2011	✓	U	☐				✓	☐	■	U	☐		✓			✓		R		**5**				☐
434	Distribution of peat, ESAs, hoticultural extraction and windfarms			✓	1990	2010	✖	U	☐				✓	☐	■	■	◘		✓			✓		R			**14**			☐
438	Carbon in vegetation and soils in Northern Ireland			✓		1998	✖	U	☐				✓	☐	■	■	◘		✓			✓		R			**15**			◘
453	WFD chemical classification in Northern Ireland	✓			2008	2009	✓	☐	☐				✓	☐	■	■	☐		✓			✓		R		**8**				☐
457	TBC																									**7**	**13**			
213	UK urban and suburban areas with populations >10000 people			✓		2001	✓	⊡	☐	✓	✓	✓	✓	■	◘	◘	☐		✓				✓		**1**					☐
022	Hardwood harvest in Great Britain			✓	1975	2011	✓	☐	■	✓	✓	✓		■	◘	◘	☐		✓				✓	P		**7**		**14**		■
034	Sustainability of UK marine fin-fish stocks		✓		1970	2010	✓	☐	■	✓	✓	✓	✓	■	■	◘	☐		✓				✓	P		**6**		**14**		◘
411	Agricultural Land Classification in Northern Ireland			✓		1997	✓	U	☐				✓	☐	■	◘	◘		✓				✓	P		**7**		**14**		◘
423	Size and location of urban areas in Northern Ireland			✓	2005	2005	✖	U	☐				✓	☐	■	◘	☐		✓				✓	R	**1**					☐
425	Planning application approvals in Northern Ireland			✓	2003	2009	✓	☐	◘				✓	☐	◘	◘	☐		✓				✓	R	**2**					☐

Table 1 continued.

Data Set ID No.		Freshwater	Marine	Terrestrial	First Data Point	Most Recent Data Point	Data Collection ongoing?	Sampling Frequency	Time Series	England	Scotland	Wales	Northern Ireland	Can Be Disaggregated	Transparency	Method	Fees	Options P1.: Awareness	Options P2: ES	Options P3: HC	Options P4: PGR	Options P5: CC	Options P6: Business	Most Relevant Ecosystem Service	SG A : Mainstreaming	SG B :Pressures	SG C : Status	SG D: Benefits	SG E : Implementation	Subjective Quality Score
430	Commercial salmon catch in Northern Ireland	✓	✓		1994	2009	✓	□	■				✓	□	■	◘	□		✓				✓	**P**		**6**		**14**		◘
006	Sheep numbers and wool production in the UK			✓	1866	2011	✓	□	■	✓	✓	✓	✓	■	◘	◘	□		✓					**P**				**14**		◘
002	Area of crops in the UK			✓	1940	2011	✓	□	■	✓	✓	✓	✓	■	◘	◘	□		✓					**P**		**7**		**14**		◘
003	Cereal and oilseed areas, yield and production in the UK			✓	1945	2011	✓	□	■	✓	✓	✓	✓	■	◘	◘	□		✓					**P**		**7**		**14**		◘
004	Livestock numbers in the UK			✓	1866	2011	✓	□	■	✓	✓	✓	✓	■	◘	◘	□		✓					**P**				**14**		◘
005	Area of grasslands in the UK			✓	1940	2011	✓	□	■	✓	✓	✓	✓	■	◘	◘	□		✓					**P**		**5**				◘
010	Landings of finfish and shellfish by UK and foreign vessels		✓		1866	2011	✓	□	■	✓	✓	✓	✓	■	◘	◘	□		✓					**P**		**6**		**14**		◘
012	Production of Atlantic salmon from Scottish aquaculture sector		✓		1988	2010	✓	□	■		✓			□	◘	◘	□		✓					**P**		**6**		**14**		◘
013	Red grouse shot annually on moorland in England and Scotland			✓	1850	2010	✓	□	■	✓	✓	✓	✓	■	■	◘	□		✓					**P**				**14**		□
014	Game birds shot annually and released per 100 ha in the UK			✓	1850	2010	✓	□	■	✓	✓	✓	✓	■	■	◘	□		✓					**P**				**14**		□
017	Catch of wild salmon by different methods in Scotland	✓	✓		1952	2009	✓	□	■		✓			□	◘	◘	□		✓					**P**		**6**		**14**		◘
018	Catch of wild salmon & trout by different methods, England & Wales	✓	✓		1956	2009	✓	□	■	✓		✓		■	◘	◘	□		✓					**P**		**6**		**14**		◘
020	Honey production in England & Wales			✓	1949	2009	✓	◙	■	✓		✓		■	■	■	◘		✓					**P**				**14**		□
024	Softwood harvest in Great Britain			✓	1961	2011	✓	□	■	✓	✓	✓		■	◘	◘	□		✓					**P**		**7**		**14**		■
029	Population trends of wild bird species in different habitats	✓	✓	✓	1970	2008	✓	◙	■	✓	✓	✓	✓	■	■	□	**U**		✓					**P**	**1**		**12**			□
030	Status and trends in components of UK biodiversity			✓	1970	2009	✓	◙	◘	✓	✓	✓	✓	□	◘	■	□		✓					**S**	**1**		**12**			□
036	Population trends of wild terrestrial mammal species in the UK			✓	1982	2007	✓	◙	■	✓	✓	✓	✓	■	◘	◘	□		✓					**S**	**1**		**12**			◘
038	Number of threatened fungi in Great Britain			✓	1992	2007	✓	◙	■	✓	✓	✓		□	◘	◘	□		✓					**S**			**12**			◘
039	Trends in threat categories to fungi in Great Britain			✓	1992	2007	✓	◙	■	✓	✓	✓	✓	□	◘	◘	□		✓					**S**			**12**			◘
041	Trends in soil invertebrate abundance and broad taxa			✓	1998	2007	✓	◙	■	✓	✓	✓		□	◘	◘	□		✓					**S**			**12**			◘
042	Changes in the extent of lowland heath in Dorset			✓	1759	1978	✖	◙	■	✓				□	■	■	◘		✓					**S**		**5**				◘
043	Changes in the extent of heath land in Dorset			✓	1750	1996	✖	◙	■	✓				□	■	■	◘		✓					**S**		**5**				◘
045	Number of bird species of high, medium & low conservation concern	✓	✓	✓	1990	2009	✓	◙	■	✓	✓	✓	✓	■	◘	■	□		✓					**R**			**12**			◘
065	Trends in topsoil concentrations of heavy metals in Great Britain			✓	1998	2007	✓	◙	■	✓	✓	✓		■	◘	◘	◘		✓					**R**		**8**				◘
066	Exceedance of critical acid loads for UK broad habitats			✓	2004	2009	✓	□	◘	✓	✓	✓	✓	■	◘	◘	□		✓					**R**		**8**				◘
069	Regional 5-year mean conc. of water quality parameters -large rivers	✓			1980	2005	✖	◘	■	✓	✓	✓		■	◘	◘	□		✓					**R**		**8**		**14**		◘
073	Nitrogen stock and availability in soils			✓	1998	2007	✓	◙	■	✓	✓	✓		■	◘	◘	□		✓					**P**	**4**	**7**		**14**		◘
074	Lengths of rivers (England & Wales) containing nitrate & phosphorus	✓			1990	2009	✓	□	■	✓		✓		■	◘	◘	□		✓					**R**		**8**		**14**		◘
075	Changes in mean Olsen-P concentration within broad habitats in GB			✓	1998	2007	✓	◙	■	✓	✓	✓		■	◘	◘	□		✓					**P**		**8**				◘
077	Trends in pH in surface and subsurface soils in UK			✓	1993	2011	✓	□	■	✓	✓	✓	✓	■	■	■	□		✓					**P**		**8**				◘
086	Above ground biomass in road verges in Gloucestershire			✓	1968	1993	✖	□	■	✓				□	■	■	**U**		✓					**S**		**5**				□
087	Patterns of primary production in UK waters		✓		1998	2012	✓	▣	□	✓	✓	✓	✓	■	**U**	■	□		✓					**S**		**10**				◘
090	Extent of habitat types in the UK	✓		✓	1990	2007	✓	◙	■	✓	✓	✓	✓	■	◘	◘	□		✓					**S**		**5**				■
095	Number of Red deer in Scottish highlands			✓	1965	2003	✖	◙	■		✓			□	■	■	**U**		✓					**P**				**14**		□
102	Plant species diversity due to land use change in Scotland			✓	1590	2000	✖	**U**	■		✓			□	■	■	◘		✓					**P**		**5**				◘
108	Impact of different grazers on upland habitats in Scotland			✓	1997	2003	✖	**U**	◘		✓			□	■	■	□		✓							**5**		**14**		◘
116	Condition of semi-natural grassland habitats			✓	2002	2010	✓	◙	■	✓	✓	✓	✓	■	**U**	◘	**U**		✓					**S**		**5**				□
117	Overall trends and conservation status for UK habitats and species	✓	✓	✓		2007	✓	□	□	✓	✓	✓	✓	□	◘	■	□		✓							**5**				□
119	Transition of semi-natural grasslands in the South Downs			✓	1971	1991	✖	◙	■	✓				□	■	■	□		✓					**S**		**5**				□
120	Change in extent of semi-natural grassland in England and Wales			✓	1932	1984	✖	◙	■	✓		✓		■	■	■	**U**		✓					**S**		**5**				□
122	Geographic extent and location of lowland grassland sites			✓		2010	✖	**U**	□	✓				□	**U**	◘	**U**		✓					**S**		**5**				◘
126	UK BAP targets for restoration of semi-natural grassland habitats			✓	2005	2010	✓	◘	◘	✓	✓	✓	✓	□	◘	◘	□		✓					**S**		**5**		**15**		□
129	Long-term trends in areas of orchards in Great Britain and the UK			✓	1875	2011	✓	□	■	✓	✓	✓	✓	■	◘	◘	□		✓					**P**				**14**		◘
132	Trends in the overall length of managed hedgerows			✓	1990	2007	✓	◙	■	✓	✓	✓		■	◘	◘	□		✓					**P**				**14**		■
133	Trends in the overall land area covered by farm woodlands			✓	1981	2011	✓	□	■	✓	✓	✓	✓	■	◘	◘	□		✓					**P**		**7**				◘
140	Lengths of rivers in the UK containing nitrate and phosphorus	✓			2001	2009	✓	□	◘	✓	✓	✓	✓	■	◘	◘	□		✓					**P**		**8**		**14**		◘
074	Lengths of rivers (England & Wales) containing nitrate & phosphorus	✓			1990	2009	✓	□	■	✓		✓		■	◘	◘	□		✓					**R**		**8**		**14**		◘
141	Trends in populations of UK farmland birds			✓	1970	2010	✓	□	■	✓	✓	✓	✓	■	■	◘	**U**		✓					**C**	**1**	**7**	**12**			◘
149	Changes in woodland area in the UK over 10 centuries			✓	1086	2011	✓	◙	■	✓	✓	✓	✓	■	◘	◘	□		✓					**R**		**5**		**14**		■
154	Trends in populations of UK woodland birds			✓	1970	2010	✓	□	■	✓	✓	✓	✓	■	◘	◘	□		✓					**C**	**1**		**12**			◘
165	Changes in the delivery of ecosystem services at Kielder forest			✓	1920	2010	✖	◙	■	✓				□	**U**	■	□		✓					**S**				**14**		□
174	Trends in chemical and biological quality of rivers across the UK	✓			1990	2009	✓	◙	■	✓	✓	✓	✓	■	■	◘	□		✓					**R**		**8**		**14**		◘
175	Trends in quality measures from headwaters in Great Britain	✓			1990	2007	✓	◙	■	✓	✓	✓	✓	■	◘	◘	□		✓					**R**		**8**		**14**		◘
176	Trends in the nitrate classification of rivers across England & Wales	✓			1995	2008	✓	◙	■	✓		✓		■	■	◘	□		✓					**R**		**8**		**14**		◘
177	Trends in minimum pH in an upland stream at Llyn Brianne, Wales	✓			1981	2005	✖	□	■			✓		□	■	■	□		✓					**R**		**8**				◘
178	Trends in total reactive phosphorus in the Avon river, England	✓			1955	2010	✓	□	■	✓				□	■	■	□		✓					**R**		**8**				◘
180	Spatial patterns in chemical and biological quality of rivers across GB	✓			2006	2008	✓	◘	□	✓	✓	✓		■	■	◘	□		✓					**R**		**8**				◘
181	Spatial variations in water quality in north west England	✓			1995	2001	✖	◙	◘	✓				□	■	■	□		✓					**R**		**8**				□
182	Spatial patterns in nitrate concentrations of rivers across GB	✓			2006	2008	✓	◘	□	✓	✓	✓		■	■	◘	□		✓					**R**		**8**				◘
183	Ecological status classes for rivers and river basins in Great Britain	✓			2008	2008	✓	□	□	✓	✓	✓		■	■	◘	□		✓					**R**		**5**				◘
199	Growing depth of macrophytes in relation to changes in phosphorus	✓			1905	2006	✖	◙	■		✓			□	■	■	□		✓					**S**		**8**		**14**		□
200	Conc. of soluble reactive phosphorus in basins of Windermere	✓			1945	2005	✖	□	■	✓				□	■	■	□		✓					**R**		**8**				◘
205	Historical and current (modelled) extent of wetlands in England	✓			8000BC	2008	✖	◙	■	✓				□	■	■	**U**		✓					**S**		**5**		**14**		◘
206	Characteristics of floodplains in the UK	✓		✓	1995	2008	✓	⊡	■	✓	✓	✓		■	■	◘	□		✓					**R**		**5**		**14**		◘
207	Extent of UK wetlands	✓		✓	1990	2007	✓	◙	■	✓	✓	✓		■	◘	■	□		✓					**R**		**5**		**14**		□
217	Spatial analysis of public urban greenspace			✓	2004	2010	✖	**U**	□	✓				□	◘	◘	**U**		✓					**C**	**1**			**14**		□
218	Analysis of greenspace in four urban areas of England			✓	2001	2001	✖	◙	□	✓				□	◘	◘	□		✓					**C**	**1**			**14**		□
221	Urban greenspace composition within Scotland			✓	2009	2009	✖	◙	□		✓			□	■	◘	**U**		✓					**C**	**1**					◘
224	Designated green belt land in the UK			✓	2009	2009	✖	◙	□	✓	✓	✓		■	■	◘	□		✓					**C**	**3**	**5**		**14**		□

Table 1 continued.

Data Set ID No.		Freshwater	Marine	Terrestrial	First Data Point	Most Recent Data Point	Data Collection ongoing?	Sampling Frequency	Time Series	England	Scotland	Wales	Northern Ireland	Can Be Disaggregated	Transparency	Method	Fees	Options P1.: Awareness	Options P2: ES	Options P3: HC	Options P4: PGR	Options P5: CC	Options P6: Business	Most Relevant Ecosystem Service	SG A : Mainstreaming	SG B :Pressures	SG C : Status	SG D: Benefits	SG E : Implementation	Subjective Quality Score
229	Status of urban surface water in Scotland	✓		✓		2009	✓	□	□		✓			□	■	◘	□		✓					**R**				**14**		◘
231	Distributions and approximate extent of coastal margin habitat in GB		✓	✓	1990	1990	✖	▣	□	✓	✓	✓		■	■	□	■		✓					**R**		**5**		**14**		□
234	Extent, trends and condition in coastal margin habitats		✓	✓	1950	2006	✓	▣	■	✓	✓	✓		■	◘	◘	□		✓					**R**		**5**				□
235	Length of UK coastline with erosion and protection		✓	✓	2010	2010	✖	**U**	□	✓	✓	✓		■	◘	◘	□		✓					**R**		**5**				□
240	Distribution of marine habitat types found in UK marine waters		✓		2010	2010	✖	**U**	□	✓	✓	✓		■	◘	◘	□		✓					**S**		**5**				□
243	Spatial distribution of the annual value of fish landings		✓		2004	2007	✖	□	□	✓	✓	✓		■	◘	◘	□		✓					**P**		**6**		**14**		□
251	Farmed shellfish production in England and Wales		✓		1993	2010	✓	□	■	✓		✓		□	◘	◘	□		✓					**P**		**6**		**14**		◘
252	Yearly small pelagic fisheries and fishmeal production in the UK		✓		1950	2006	✓	□	■	✓	✓	✓		□	◘	◘	□		✓					**P**		**6**		**14**		◘
257	Area of National Park in England			✓	1951	2010	✓	▣	□	✓				□	◘	◘	□		✓					**C**	**1**		**11**			□
265	Extent and distribution of broad habitat types in Wales	✓	✓	✓	2004	2004	✖	■	□			✓		□	■	◘	□		✓					**S**		**5**				◘
266	Habitat complexity and species richness in Countryside Survey plots			✓	1978	2007	✓	▣	□	✓	✓	✓		■	**U**	◘	□		✓					**S**		**5**		**14**		■
268	Habitat (biotope) diversity in marine habitats of Wales		✓		2010	2010	✖	■	□			✓		□	■	◘	□		✓					**S**		**5**				◘
269	Trends for priority UK BAP habitats in the UK	✓	✓	✓	2002	2008	✓	◘	□		✓	✓	✓	■	◘	◘	□		✓					**S**		**5**			**19**	□
270	Trends for priority UK BAP species in the UK	✓	✓	✓	2002	2008	✓	◘	□		✓	✓	✓	■	◘	◘	□		✓					**S**			**12**		**19**	□
271	Short-term abundance of widespread breeding birds in Wales			✓	1994	2010	✓	□	■			✓		□	◘	◘	□		✓					**C**				**14**		◘
276	Distribution of crested dogs-tail/knapweed grassland in Wales			✓	1987	2004	✖	**U**	□			✓		□	■	■	**U**		✓					**S**		**7**	**12**			◘
277	Extent and community diversity of grasslands in Wales			✓	2010	2010	✖	■	□			✓		□	■	■	□		✓					**S**		**7**	**12**			◘
287	Condition of riverine species and riverine habitats in SACs in Wales	✓				2010	✖	**U**	□			✓		□	■	□	□		✓					**S**		**5**	**12**			□
288	Accessible Natural Greenspace Standards in Wales			✓	2007	2010	✖	□	□			✓		□	◘	◘	□		✓					**C**	**1**		**11**			□
292	State of commercial marine fish species		✓		1989	2009	✓	□	■	✓	✓	✓	✓	■	■	◘	**U**		✓					**P**		**6**		**14**		◘
293	Soil map and soil groups of England and Wales			✓	1998	1998	✖	**U**	□	✓		✓		■	◘	◘	□		✓					**R**				**14**		■
302	Trends in biological quality of streams in Wales	✓			1990	2008	✓	**U**	■			✓		□	■	◘	□		✓					**R**		**8**		**14**		□
304	Agricultural less favoured areas in Wales			✓		2011	✖	**U**	□			✓		□	◘	◘	□		✓					**P**		**7**		**14**		□
318	Change in the status of widespread breeding land birds in Scotland			✓	1994	2010	✓	□	■	✓	✓	✓	✓	■	■	◘	□		✓					**C**				**14**		◘
319	Percentage changes in seabird populations		✓		1969	2002	✖	▣	■	✓	✓	✓	✓	□	■	◘	□		✓					**C**		**5**	**12**			◘
324	UK NEA broad habitat types in main river catchments of Scotland	✓	✓	✓	2000	2000	✓	■	□		✓			□	◘	◘	□		✓					**S**		**5**				□
327	National Vegetation Classification of plant communities in GB			✓	1975	2000	✓	▣	■	✓	✓	✓		■	■	◘	□		✓					**S**		**5**		**14**		□
342	Marine habitats, substrate types and tide stress in Scotland's seas		✓		2004	2008	✖	▣	□	✓	✓	✓	✓	■	■	◘	□		✓							**5**		**14**		◘
343	Length of coastal margin habitats in Scotland		✓	✓	1984	2011	✖	■	□		✓			□	■	◘	□		✓					**R**		**5**		**14**		◘
349	Topsoil organic carbon content of Scotland's soils			✓	2008	2008	✖	**U**	□		✓			□	**U**	◘	■		✓					**R**		**5**		**15**		◘
350	Estimated extent of soil erosion in upland Scotland			✓	1988	1989	✖	▣	□		✓			□	**U**	■	**U**		✓					**R**		**7**				□
352	Area of sensitive habitats at risk from acid and nutrient deposition			✓	1995	2006	✖	□	■		✓			□	◘	◘	□		✓					**S**		**8**				◘
372	Salmon and sea trout caught in estuaries and freshwaters	✓	✓		1952	2009	✓	□	■		✓			□	■	◘	□		✓					**P**		**6**		**14**		◘
381	Net Landscape Ecological Potential Index for Scotland			✓	2011	2011	✖	▣	□		✓			□	■	□	□		✓					**S**		**5**		**14**		□
391	Extent and type of wetlands in England	✓				2008	✖	▣	□	✓				□	■	◘	□		✓					**S**		**5**		**14**		□
406	Number of Species in Northern Ireland	✓	✓	✓		2010	✓	▣	□				✓	□	◘	◘	□		✓					**S**	**1**		**12**			◘
407	TBC																													
408	Status of Northern Ireland priority habitats and species	✓	✓	✓	2005	2008	✓	**U**	□				✓	□	◘	◘	□		✓					**S**	**1**	**5**	**12**			□
424	Applications for residential development in Northern Ireland			✓	2002	2010	✖	□	◘				✓	□	◘	◘	□		✓					**P**	**4**					◘
427	Priority habitats in Northern Ireland's marine environment		✓		2011	2011	✓	▣	□				✓	□	■	**U**	□		✓					**S**		**5**				□
428	Winter dissolved inorganic nitrogen for sea loughs in NI		✓		1992	2007	✖	□	■				✓	□	◘	◘	□		✓					**S**		**8**				◘
431	Salmon catch in Northern Ireland	✓	✓		2002	2009	✓	□	◘				✓	□	■	◘	□		✓					**P**		**6**		**14**		◘
442	Water bodies in NI at risk of not meeting GES in 2015	✓	✓		2004	2004	✓	□	□				✓	□	◘	◘	□		✓					**R**	**4**	**5**				□
444	Surface water and ground water concentrations of nitrate in NI	✓			2004	2008	✖	□	◘				✓	□	■	◘	□		✓					**R**		**8**				□
450	Soil geography and type of Northern Ireland			✓		1996	✖	■	□				✓	□	◘	◘	□		✓					**R**		**5**				◘
452	Status of designated sites in Northern Ireland	✓	✓	✓	1998	2007	✓	□	□				✓	□	◘	◘	□		✓								**11**			□
454	Environmentally sensitive areas in Northern Ireland	✓		✓	2010	2010	✖	■	□				✓	□	■	**U**	□		✓							**5**	**11**			□
456	Less favoured areas in Northern Ireland			✓		2009	✓	■	□				✓	□	■	◘	□		✓					**P**			**11**			◘
021	Hardwood production in the UK			✓	1961	2011	✓	□	■	✓	✓	✓	✓	■	◘	◘	□		✓	✓		✓	✓	**P**	**4**	**7**		**14**		■
023	Softwood production in the UK			✓	1961	2011	✓	□	■	✓	✓	✓	✓	■	◘	◘	□		✓	✓		✓	✓	**P**	**4**	**7**		**14**		■
151	New woodland creation			✓	1976	2011	✓	◘	■	✓	✓	✓	✓	■	◘	◘	□		✓	✓		✓		**P**				**15**		■
019	Number of beekeepers and colonies in Great Britain			✓	1953	2008	✓	□	■	✓	✓	✓		■	■	■	□		✓	✓				**R**	**1**			**14**		◘
032	Species richness of vegetation plots in Great Britain			✓	1978	2007	✓	▣	■	✓	✓	✓		■	◘	◘	□		✓	✓	✓			**R**		**7**	**12**		**18**	■
146	Extent of ancient and semi-natural woodland in the UK			✓	2001	2011	✓	□	■	✓	✓	✓	✓	■	◘	◘	□		✓	✓	✓			**C**		**5**				■
091	Extent and distribution of (BAP and NEA) habitat types in the UK	✓	✓	✓	1990	2007	✓	▣	■	✓	✓	✓	✓	■	■	◘	□		✓	✓		✓		**R**		**5**				■
091a	Extent and distribution of Less Favoured Areas (LFA)			✓		2000	✓	▣	**U**	✓	✓	✓	✓	■	■	◘	□		✓	✓		✓		**P**		**5**				◘
273	Butterfly indicator for Wales			✓	1976	2008	✓	□	■			✓		□	■	◘	□		✓	✓		✓		**R**			**12**			□
283	Extent of woodland in the UK			✓	1924	2000	✓	▣	■	✓	✓	✓	✓	■	■	◘	□		✓	✓		✓		**P**		**5**				□
385	Loss, depletion and decline of vertebrate and invertebrate species	✓	✓	✓	1800	2009	✓	▣	■	✓				□	■	◘	□		✓	✓		✓		**S**			**12**			◘
008	Area of land under agri-environment schemes in the UK			✓	1992	2010	✓	□	■	✓	✓	✓	✓	■	◘	■	□		✓	✓				**P**	**4**	**7**				◘
033	Population trends of butterfly species			✓	1976	2010	✓	□	■	✓	✓	✓	✓	■	◘	◘	□		✓	✓				**R**		**7**	**12**			◘
037	Trends in widely established non-native species in Great Britain	✓	✓	✓	1960	2007	✓	□	■	✓	✓	✓		■	◘	■	□		✓	✓				**R**		**9**				□
040	Distribution of *Pilularia globulifera* (pillwort) in the UK			✓	1970	2011	✓	▣	■	✓	✓	✓	✓	■	◘	◘	□		✓	✓				**S**			**12**			□
101	Number, extent and distribution of protected area designations, UK			✓		2010	✓		**U**	✓	✓	✓	✓	■	◘	◘	□		✓	✓				**P**	**1**		**11**			□
150	Changes in woodland cover in Great Britain by county			✓	1895	1998	✓	▣	■	✓	✓	✓		■	◘	□	□		✓	✓				**R**		**5**				◘
185	Extent of physical modifications to rivers in Great Britain	✓			1995	2008	✖	▣	■	✓	✓	✓		■	■	◘	**U**		✓	✓				**R**		**5**		**14**		◘
202	Change in estimated number of ponds and pond density across GB	✓			1998	2007	✓	▣	◘	✓	✓	✓		■	◘	◘	□		✓	✓				**R**		**5**		**14**		◘
219	Proportion of urban land by region in England			✓		2006	✖	▣	□	✓				□	◘	◘	□		✓	✓				**P**		**5**				□
289	Change in extent of Local Nature Reserves in Wales			✓	1970	2008	✓	□	■			✓		□	■	□	**U**		✓	✓				**C**		**5**	**11**			□
386	Status of farmland BAP priority habitats in the UK			✓	2002	2008	✖	◘	◘	✓	✓	✓	✓	■	◘	◘	□		✓	✓				**R**	**4**	**7**				◘
390	Inventory of Standing Waters in Great Britain	✓				1983	✖		□	✓	✓	✓		■	■	■	**U**		✓	✓				**R**		**5**	**11**			◘

Table 1 continued.

451a	**410**	**Data Set ID No.**
Designations of protected sites in Northern Ireland	Land cover and Land Use in Northern Ireland	
✓	✓	Freshwater
✓	✓	Marine
✓	✓	Terrestrial
1999	1986	First Data Point
2010	2007	Most Recent Data Point
✓	✓	Data Collection ongoing?
▣	◘	Sampling Frequency
☐	◘	Time Series
		England
		Scotland
		Wales
✓	✓	Northern Ireland
☐	☐	Can Be Disaggregated
■	■	Transparency
C	◘	Method
☐	☐	Fees
		Options P1.: Awareness
✓	✓	Options P2: ES
✓	✓	Options P3: HC
		Options P4: PGR
		Options P5: CC
		Options P6: Business
R	S	Most Relevant Ecosystem Service
		SG A : Mainstreaming
	5	SG B :Pressures
11		SG C : Status
	14	SG D: Benefits
		SG E : Implementation
☐	◘	Subjective Quality Score

Annex 1. Criteria for quality testing data.

Criteria	Levels
Precision	1. Unknown precision or precision quantifiable but unable to statistically assess trends due to small sample size/unrepresentative/biased/high volatility
	2. Uncertainty quantifiable and signal-to-noise ratio allows for statistical assessment of trends
	3. Uncertainty quantifiable and signal-to-noise ratio allows for year on year statistical assessments
Time series availability	1. Insufficient data for assessment (<5 years)
	2. Sufficient data to make an assessment of progress (5-10 years)
	3. Both long and short -term trends can be assessed (10+ years data)
Data security	1. Future data sources known to be uncertain
	2. Future data unthreatened
	3. Future data secure
Data transparency and auditability	1. Data unavailable to public
	2. Limited summary data available
	3. Full raw/primary data set and detailed description available
Transparency and soundness of methodology	1. Methodology not available
	2. Methodology available but not peer reviewed
	3. Methodology externally published and peer reviewed
Data verification	1. Unverified data
	2. Some verification checks in place
	3. Detailed verification in place and documented
Frequency of updates	1. Periodic
	2. 3-5 years
	3. Annual or biennial
Geographic coverage	1. Not full UK
	2. UK coverage, some bias
	3. Full UK coverage
Capacity for disaggregation	1. Cannot be disaggregated
	2 Can be disaggregated but data quality issues arise
	3. Can be disaggregated to Country level and assessed

Annex 2. Criteria for selection of the proposed indicators (adapted from the CBD[1], SEBI[2], BIP[3])
Indicator sets should recognize the different audiences for indicators. In general, indicators should be ecosystem and policy relevant, simple and easily understood, quantitative, scientifically credible, normative (allowing comparison with a baseline situation and policy target), responsive to changes in time and space, cost-effective and unambiguously, useable for scenarios for future projections, allowing aggregation at the level of ecosystem/habitat types or at national and possibly international level. The criteria are listed below. Indicators will be scored (between 1-3) against each criteria.

1. *Policy relevant and meaningful*: indicators should send a clear message and provide information at a level appropriate for policy and management decision-making by assessing changes in the status of biodiversity (or pressures, responses, use or capacity), related to baselines and agreed policy targets if possible.

2. *Biodiversity relevant*: indicators should address key properties of biodiversity or related issues as state, pressures, benefits and responses.

3. *Broad acceptance*: the power of an indicator depends on its broad acceptance. Involvement of policy-makers as well as major stakeholders and experts in the development of an indicator is crucial.

4. *Scientifically valid*: indicators must be based on clearly defined, reliable, verifiable and scientifically acceptable data, which are collected using standard methods with known accuracy and precision. Methodology should be clear, well defined and relatively simple.

5. *Cause-effect relationship*: there should be an accepted theory of the relationship between the indicator and its purpose, with agreement the change in the indicator does indicate change in the issue of concern. Information on cause-effect relationships should be achievable and quantifiable in order to link pressures, state and response indicators. These relationship models allow scenario analysis and represent the basis of the ecosystem approach.

6. *Based on available data*: indicators should be measurable in an accurate and affordable way and part of a sustainable monitoring system, using determinable baselines and targets for the assessment of improvements and declines over time.

7. *Spatial coverage*: indicators should ideally be pan-UK and include adjacent marine areas, if and where appropriate.

8. *Temporal trend*: indicators should show temporal trends.

9. *Country disaggregation*: as far as possible, it should be possible to make valid comparisons between the four UK countries using the indicators selected.

10. *Sensitive to relevant change*: indicators should show trends and, where possible, permit distinction between human-induced and natural changes. Indicators should thus be able to

[1] UNEP/CBD/SBSTTA/9/10 (2003). Monitoring and indicators: designing national-level monitoring programmes and indicators. UN Environment Programme. http://www.cbd.int/doc/meetings/sbstta/sbstta-09/official/sbstta-09-10-en.pdf

[2] EEA (2007). Halting the loss of biodiversity by 2010: proposal for a first set of indicators to monitor progress in Europe. EEA Technical report No 11/2007. http://www.eea.europa.eu/publications/technical_report_2007_11

[3] 2010 Biodiversity Indicators Partnership (2010) Guidance for national biodiversity indicator development and use. UNEP World Conservation Monitoring Centre. http://www.bipnational.net/

detect changes in systems in timeframes and on scales that are relevant to the decisions, but also be robust enough to measure errors that do not affect interpretation.

11. *Easily understandable and communicated*: how the measure relates to the purpose should be easily conveyed, and indicator messages clearly interpreted and presented.

12. *Progress towards 2020*: indicators should show clear progress towards the 2020 targets.