

Accounting for the value of nature in the UK

**A roadmap for the development
of natural capital accounts within
the UK Environmental Accounts**

December 2012



A National Statistics publication

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Summary of key proposals for the production of natural capital accounts for the UK

2013 to 2015

“Top down” account

- Improvement of natural capital estimates within the framework of comprehensive wealth accounts, in order to provide an immediate overview of the value of natural capital within the UK

Enabling/cross-cutting accounts

- Land Use/Land Cover accounts: these provide the basic framework for the development of accounts relating to specific habitats
- Cross-cutting carbon account, enabling changes in the UK stocks of carbon to be monitored over time

Habitat-based accounts

- Woodlands - these accounts will be needed to inform the balance sheets not only of the Public Forest Estate but also private forestry
- Enclosed farmland accounts, which will help us to value the flows of ecosystem services which farmland provides
- An account for wetlands ecosystems, which, as the National Ecosystem Assessment (NEA) showed, have experienced a deterioration in the three highly important ecosystem services
- Initial accounts for the marine environment, in order to address some of the more difficult conceptual and data challenges of developing these types of accounts

The habitat-based accounts will be exploratory in the first instance and focus on getting the physical aspects right to start with, supplemented by monetary entries where available. The Office for National Statistics (ONS) will publish these accounts at an early stage as we go along and will continue to work collaboratively with users in their development.

After 2015

These plans will be kept under continuous review; however, we plan to hold an interim evaluation at the end of 2014. This will review for example the extent to which technical challenges have been resolved, any coverage issues outstanding, the use of the initial accounts in policy applications and the degree to which stakeholder expectations have been met, before deciding on next steps.

1. Measuring what matters

The Government’s White Paper on the Natural Environment, *The Natural Choice*, committed to growing a green economy in which the benefits of nature would be recognised and valued. Natural assets and the services they provide are part of our nation’s wealth, and therefore the White Paper commits the Government to work with the ONS in order to capture these values in the nation’s balance sheet. This paper sets out a roadmap of the ONS’ plans for developing these accounts.

This is a global agenda with a broad momentum:



In 2010 at [Nagoya](#), Japan, 193 countries agreed to a strategic target to incorporate the values of biodiversity into national accounting and reporting systems by 2020. This followed the United Nations (UN) led study, [The Economics of Ecosystems and Biodiversity](#), which called for national accounts to be upgraded to include the value of changes in natural capital stocks and ecosystem service flows.



The “[Stiglitz](#)” [report](#) on Measuring Economic Performance and Social Progress called for a broader definition of wealth, followed up by ONS’ work on [measuring national well-being](#).



The [World Bank](#), through its “WAVES” project, is assisting a number of partner countries, with UK support, to implement natural capital accounting.



At the World Summit in 2012, the UN published the [Inclusive Wealth Report](#), showing broad measures of wealth for 20 countries based on estimates of their manufactured, human and natural capital. Such indices, however, capture only limited aspects of natural capital (such as mineral resources).



The [Rio+20 UN Conference on Sustainable Development](#) recognised “the need for broader measures of progress to complement GDP in order to better inform policy decisions” and requested the UN Statistical Commission to convene “a programme of work in this area building on existing initiatives.”

Amongst these initiatives is the work by the UN Statistical Division in developing a framework for accounting for the environment within the National Accounts – the [System of Environmental-Economic Accounts](#) (SEEA). It has three parts:

- The Central Framework, covering standards for physical flows, environmental activities (such as environmental protection) and asset accounts was approved by the UN Statistical Commission in February 2012
- Draft guidance on Experimental Ecosystem Accounting has been issued for public consultation
- A third volume on Applications and Extensions of environmental accounting is being prepared

The UN has made good progress in developing guidance, however there remain significant challenges ahead and much of the work proposed in this paper will be breaking new ground. Therefore, it is important to keep this wider context in mind when considering the compilation of ecosystem accounts within the UK. Lessons learned from the work undertaken by the UK will be used to inform the development of guidance by the UN, but equally the UK should be able to benefit from the work being carried out by other countries and organisations.

By developing a systematic framework of the assets and services that nature provides, we will be much better able to:

- Assess levels of, and changes in, the natural wealth of our economy
- Identify the value and contribution of nature to conventional economic activities
- Develop policies that efficiently maintain and enhance the value of nature, taking into account potential trade-offs within ecosystems and between different forms of capital
- Help to prioritise improving certain habitats and target funding
- Influence international and developing countries efforts to implement natural capital accounting with benefits to global sustainability

2. Three different types of natural capital accounts

In July 2012 the ONS published a [consultation paper](#) seeking views on the scope and priorities for the development of ecosystems accounts within the UK. The ONS is today publishing the **responses to the consultation** alongside this roadmap. From these responses and a subsequent stakeholder workshop held in London in October, the following three types of accounts emerged as priorities:

1. Fast-track work to improve the valuations of the natural capital element of the estimates of inclusive national wealth published by the UN – the so-called “top-down approach”.

2. Cross-cutting accounts for widespread natural assets such as land, carbon and water. Initially these will simply be stock accounts in physical terms, although some valuation may be possible.
3. Selective (“bottom-up”) accounts for particular ecosystems, loosely built around the eight broad habitats covered by the [National Ecosystem Assessment \(NEA\)](#), but with a recognition that in practice it may be necessary to focus on particular elements within the broad habitat category (such as wetlands within the open water/wetlands/floodplain category). These accounts will cover not only the asset stocks and attempt to describe the extent and condition of the asset, but also provide for measures of the flows of different ecosystems services. The intention is to establish the accounts in both monetary and non-monetary terms, although initially the scope, level of geographical disaggregation and accuracy of the estimates will be constrained by the availability of data.

3. A roadmap for the development of natural capital accounts in the UK

The following table sets out the work plan for developing each of these accounts. It has been produced by the ONS in association with the Department for Environment, Food and Rural Affairs (Defra) and in consultation with the [Natural Capital Committee](#). A broad summary of the work plan is given in the Gantt chart following the workplan.

The workplan represents a significant challenge. Success will depend heavily on integrating the resources and expertise of a wide range of stakeholders in an effective way, and will involve the ONS and Defra working closely with the Devolved Administrations, the relevant Executive Agencies and Arms Length Bodies, and other experts.

The Roadmap focuses on the work to be undertaken in 2013 to 2015, and inevitably has less detail about the work needed after that point. The plans will be kept under continuous review, but it is intended that there will be a major review in two years’ time to establish the work needed for the longer term.

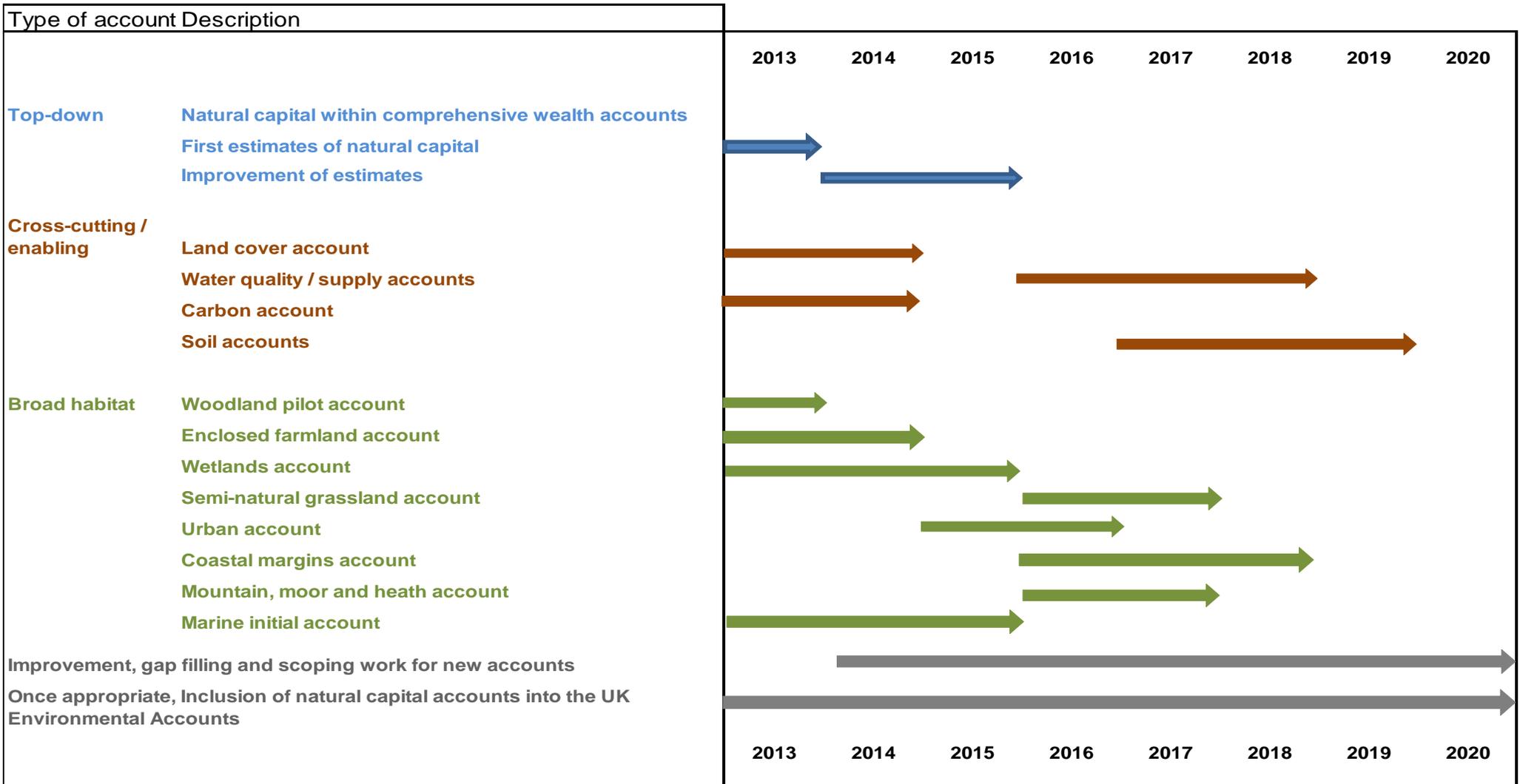
<u>Account</u>	<u>Description</u>	<u>Current status</u>	<u>Main use</u>	<u>Proposed timing</u>	<u>Expected coverage 2015</u>	<u>Assessment of likely quality of initial account</u>
Top-down comprehensive wealth account	Estimates of the monetary value of different elements of UK natural capital	UN estimates are partial and approximate - there should be scope for expanded coverage and to use UK-based data	Provides an overview of the value of natural capital in the UK	Autumn 2013. Improvements in 2014/15	Improved and extended estimates of the value of natural capital in the UK in the context of broader wealth accounts	Coverage may not be complete in the first instance due to differences in sources
Land use/land cover account	Physical extent of different land uses and land covers and changes over time	Countryside Survey provides basic broad habitat account though nesting and overlaps with NEA broad habitats (data needs to be identified)	Enabling account which provides basic physical data on the extent of different ecosystems	Land use 2013, with further work in 2014 to meet ecosystem accounting requirements	Integrated account with land use data	Variable – will be dependent upon access to and quality of remote-sensed data
Cross-cutting carbon account	Comprehensive account of stocks and changes in stocks of carbon including potentially fossil fuel stocks	Various disparate data sources but no coherent account - DECC carbon value could support monetisation	Informs interventions along the carbon cycle; shows changes in carbon stocks due to ecosystem changes	2013-14	Stock of carbon in different reservoirs plus analysis of changes in stock, monetisation of changes in stocks using DECC carbon values	Good for soils, landfill, possibly forestry, further work needed on other stocks
Woodlands	Accounts for broadleaved/mixed/yew woodland and coniferous woodland in the UK, by sector of ownership	Timber (flow) accounts	Informs balance sheet of not only the Public Forestry Estate but also private forestry	Physical account: April 2013 Monetary account: Autumn 2013	Stocks of wooded land and flows of ecosystem services in both monetary and non-monetary terms	Generally good, with gaps in a few minor areas
Enclosed farmland	Account of land in UK used for arable/horticulture and improved grassland	Various disparate data sources but no coherent account	Strong policy interest in sustainable agriculture, identifying the value of different ecosystem services	2013-14	Initial account of extent and related flows of ecosystem services plus links with other ecosystems	Generally good, but some technical issues to be tackled first

<u>Account</u>	<u>Description</u>	<u>Current status</u>	<u>Main use</u>	<u>Proposed timing</u>	<u>Expected coverage 2015</u>	<u>Assessment of likely quality of initial account</u>
Open water/wetlands and floodplains	Stocks of open water/wetlands and flows of ecosystem services in both monetary and non-monetary terms	Water use account and various disparate data sources	Coherent dataset to inform integrated water management policies	2013-15	Initial account of extent and related flows of ecosystem services plus links with other ecosystems	Variable. Good for some stocks e.g. surface water, but weaker for other ecosystem types
Marine	Assessment of status of stock and value of services	Fish catches (flow) accounts and some information on fish stocks	Important policy area with a wide range of potential applications; development of a pilot account will also provide insight into wider development issues	2013-15	Initial account of flows of services in monetary terms, plus stock accounts where available	Expected to be weak in the first instance, with the best information relating to fish stocks
Urban	Likely to focus on access to green spaces, wildlife and gardening	Little in the way of coherent datasets	Important for well-being agenda	2015-16	NA	Variable. Will depend upon the focus of the accounts and access to the relevant data
Semi-natural grassland	Covers Countryside Survey (CS) categories of neutral, calcareous and acid grasslands	Little in the way of coherent datasets	Important link with enclosed farmland accounts	2016-17	NA	Needs further work before this can be assessed
Mountains, moorland and heath	Consists of several CS categories including bracken, dwarf shrub heath, montane and inland rock	Little in the way of coherent datasets	Needs further assessment	2016-17	NA	Needs further work before this can be assessed
Cross-cutting water supply/water quality account	Physical stock and flows between ecosystems including a quality dimension; valuation issues need further research	Various datasets	Needs further assessment	2016-18	NA	Generally good for stocks and flows, weaker on quality aspects

<u>Account</u>	<u>Description</u>	<u>Current status</u>	<u>Main use</u>	<u>Proposed timing</u>	<u>Expected coverage 2015</u>	<u>Assessment of likely quality of initial account</u>
Coastal margins	Assessment of status of stock and value of services	Little systematic data	Important habitat with significant cultural values	2016-18	NA	Needs further work before this can be assessed
Cross-cutting soil account			Needs further assessment	2017-19	NA	To be considered – policy demand not yet clear.
Improvement and gap filling	On-going activity once initial accounts have been compiled			2014-2020		The above are 'initial accounts': there will be a continuing need for gap filling, further research, updates, improvements, sub-national estimates

4. Gantt chart showing the proposed timetable of work

Natural capital accounting roadmap, 2013-20



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Annex A Description of the eight Broad Habitats from the UK National Ecosystem Assessment

Mountains, moorlands and heaths



Lowland heaths are highly fragmented, while mountains and upland moors and heaths provide the largest unfragmented semi-natural habitats in the UK. Mountains, moorlands and heaths are the source of around 70% of the UK's drinking water, hold an estimated 40% of UK soil carbon, and include some of the country's most iconic landscapes. They cover 18% of the UK land area.

Semi-natural grassland



Semi-natural grasslands once covered a large proportion of the UK's land area, largely the result of low-intensity traditional farming. The extent of semi-natural grasslands is now extremely reduced, with high-diversity grasslands comprising 2% of UK grassland ($\geq 1\%$ of total land area). Semi-natural grasslands are highly valued culturally – the South Downs, dominated by chalk downland, receives around 40 million visitor days a year.

Enclosed farmland



The most extensive form of land use in the UK, accounting for around 40% of land area and producing around 70% of the UK's food. Most is managed for cereal, cattle and sheep production. Half the area of enclosed farmland is arable land, mostly in eastern England; almost all the rest is nutrient enriched grassland, mostly in wetter, western parts of the UK. As well as playing a crucial role in provisioning services, enclosed farmland is also of great cultural significance and is a major determinant of landscape in much of lowland UK.

Woodlands



This habit type includes managed plantations as well as ancient, semi-natural woodlands. Woodlands cover 12% of the UK's land area, making the country one of the least wooded in Europe. At least 80% is less than 100 years old and just 5% is classified as ancient woodland. Much planting in the past century has been of coniferous trees (often non-native). Only in England is woodland dominated by broadleaved species. Much of the woodland estate is managed as a source of timber, but woodlands are increasingly valued for their delivery of other ecosystem services, particularly recreation and carbon storage.

Open waters, wetlands and floodplains



Freshwaters include open waters, wetlands and floodplains. In the UK there are more than 389,000 kilometres of rivers, 200,000 hectares of permanent lakes and nearly half a million small ponds. There are also estimated to be at least 390,000 hectares of fen, reedbed, lowland raised bog and grazing marsh and nearly 1 million hectares of floodplain. Freshwater habitats are a major source of water for a wide range of uses and are important for recreation, including angling, boating and other water sports, and in hazard (notably flood) regulation.

Urban environment



Urban areas in the UK cover just under 7% of land area. They are home to 8 out of 10 people, often living at extremely high population densities. Green space is very limited in extent, and access to it is unequally distributed; it thus assumes disproportionate cultural significance. Urban areas depend very largely on other habitat types for provision of most of their ecosystem services.

Coastal margins



Coastal margins, comprising sand dunes, machair, saltmarsh, shingle, sea cliffs and coastal lagoons, cover just 0.6% of the UK's land area. Culturally, coastal margins are of immense significance. There are over 250 million visits per year to the UK coast, of which around one third are to natural habitats. These areas are also important in coastal defences, sediment transport and as nursery grounds for fish.

Marine



Marine habitats of the UK cover more than three and a half times the land area. They are highly variable, comprising a very wide range of sub-habitats. Inshore marine habitats are of great cultural importance, offering many opportunities for tourism and recreation. Offshore habitats support fisheries and provide a wide range of other ecosystem services, such as avoidance of climate stress and waste breakdown and detoxification.