**Gregory Borne**

**Land Journal**

**New Technology can Support Natural Capital Valuation**

According to the latest figures from the UKs Office of National Statistics. In 2021, the total asset value of ecosystem services in the UK was just over £1.5 trillion, an increase of 3% since 2017. Importantly the ONS provisos this figure with the statement ‘… as a result of changing methods and an expanding portfolio of ecosystem services measured, this latest account cannot be compared with previous accounts on a like-for-like basis’ [(ONS 2023).](https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/uknaturalcapitalaccounts/2023)  The field of natural capital accounting is evolving rapidly and keeping with these development is essential. The following article will briefly explore some of the key developments in this field exploring some of the research and, platforms that can help inform, policy and practice.

Ecosystem Services and Natural Capital have emerged a key concepts in embedding a more realistic understanding on natures value. How we understand value and reconceptualising economic principles sits firmly within the United Nations Sustainable Development Goals (UN 2023). The importance of chartered surveyors and the profession more broadly has already been established, for example the [Value of natural capital: the need for chartered surveyors](https://www.rics.org/news-insights/research-and-insights/value-of-natural-capital-the-need-for-chartered-surveyors). And what’s clear is that as well as the burgeoning academic literature that has addressed these issues a number of nascent policy and practitioner based platforms have emerged in recent years that demonstrate significant potential in assisting in the valuation of natural capital and ecosystem services. Research and technology in this area has advanced considerably over the past few years and this has led to a greater understanding of valuation techniques that have fed into the development of automated platform for natural capital and ecosystem service valuation. These tools may be of considerable benefit to Chartered Surveyors working across disciplines. And with that in mind in what follows I briefly explore some of the newer models that have been developed and in deed are still evolving

**Natural Capital and Ecosystem Services**

The [UKs Environment and Audit Committee](https://committees.parliament.uk/committee/62/environmental-audit-committee/news/196804/how-will-the-uk-attract-investors-to-support-its-nature-positive-future/) recognise that Natural Capital is ‘the stock of renewable and non-renewable natural assets (e.g. ecosystems) that yield a flow of benefits to people (i.e. ecosystem services). The term ‘natural capital’ is used to emphasise it is a capital asset, like produced capital (roads and buildings) and human capital (knowledge and skills)’. At the most fundamental level ecosystem services represent the benefits that humans derive from the natural environment. These include provisioning services (such as food and water), regulating services (such as climate regulation and water purification), cultural services (such as recreational and aesthetic benefits), and supporting services (such as nutrient cycling and soil formation).

At the international and national level perhaps one of the most significant advancements has been the development of the System of Environmental Economic Accounting (SEEA). This accounting system was adopted by the United Nations Statistical Commission at its 52nd session in March 2021. Based on this framework the collaborate open source platform, Artificial Intelligence for Environment and Sustainability (ARIES) has been developed. The platform acts as an aggregator allowing users to upload their own data. According to the platform website the tool will enable users to ‘…produce rapid, standardised, scalable and customisbale ecosystem accounts for their area of interest that are consistent with the SEEA Ecosystem Accounting framework’ (SEEA 2023). The website provides a raft of guidance, explanations and updates as the platform evolves explaining that monetary estimates can provide information for decision makers, for policy planning, cost benefit analysis and for raising awareness.

The European Union has also adopted [Natural Capital Accounting tool](https://environment.ec.europa.eu/topics/nature-and-biodiversity/natural-capital-accounting_en#:~:text=The%20EU%20strives%20to%20promote,placing%20monetary%20value%20on%20them.) which is also based on the above UN Statistical framework providing a common set of rules and methods to track changes in ecosystems and their services across policy areas. Also the project [Destination Earth](https://digital-strategy.ec.europa.eu/en/policies/destination-earth) is designed to develop a highly accurate digital model of the earth at the global scale. With the objective of achieving the twin transition ‘..green and digital as part of the European Commissions Green Deal and Digital Strategy’ (EU 2023). The initial focus of the model is …’ the effects of climate change and extreme weather events, socio-economic impact and possible adaptation and mitigation strategies’ (EU 20223). The SEEA framework is adopted internationally and forms a global standard to assess natural capital valuations including within the UK.

Natural capital Accounts Tool

The Environment Agencies Natural Capital Register and Accounts tool (NCRAT), which was originally released in 2021 was recently updated to version 1.2. (2023). The NCRAT is a publicly accessible, excel based natural capital accounting tool. Users can identify natural assets within a particular area and calculate the value of the services that they provide. This updated version also moves the NCRAT in line with Defra’s Enabling a Natural Capital Approach (ENCA).

The [ENCA](https://www.gov.uk/guidance/enabling-a-natural-capital-approach-enca#:~:text=A%20natural%20capital%20approach%20to,to%20take%20it%20into%20account.) is a raft of resources including data guidance and tools for natural capital accounting. These resources were updated in July 2023 and include case studies, assessment templates and links to relevant sources providing an important platform of information. Combined with and informed by the Office of National Statistics Natural capital Accounts, there is an increasingly robust and cross referenced resources and data base that allows practitioners. [The ONS UK natural capital accounts Methodology](https://www.ons.gov.uk/economy/environmentalaccounts/methodologies/uknaturalcapitalaccountsmethodologyguide2022), updated in 2022 is also a useful resource.

In parallel with development at the international and national levels, significant research that informs natural capital valuation continues to provide vital data and resources. Stanford University has developed [the InVEST platform](https://naturalcapitalproject.stanford.edu/software/invest) which is a free suite of open source software models developed to map and value ecosystem services. A recent large scale research project have produced a number of exciting tools, In particular the [**South West Partnership for Environmental and Economic Prosperity (SWEEP)**](https://sweep.ac.uk/)**.** The SWEEP projectwas conducted between 2017-2023 and was a collaboration between the University of Exeter, University of Plymouth and Plymouth Marine Laboratory. The project also extended to over 300 business, policy makers and community partners. Whilst the project was focused on Devon, Cornwall and the Isles of Scilly, findings and subsequent tools as transferable nationally and international.

The project produced number of online interactive tools. For Natural capital calculation the [Natural Environment Valuation Online](https://leep.exeter.ac.uk/orval/) tool (NEVO) values natural capital in areas to a gid of 2km. Also developed at Exeter University the [Outdoor Recreation Valuation Tool](https://leep.exeter.ac.uk/orval/) (ORVal) is an open access platform that enables values to be associated with access to greenspaces. The underlying data that powers Orvil was provided by the Monitor of Engagement with the Natural environment (MENE) Survey conducted by Natural England (2017). The ORVal tool enables users to calculate the social or cultural value provided by ecosystem serves. Additional resources for exploring the cultural dimension of ecosystem services can also be accessed at the [UK Governments Culture and Heritage Capital Portal](https://www.gov.uk/guidance/culture-and-heritage-capital-portal)

This article has provided a snapshot of some important innovations in the areas of Natural capital Valuation over recent years. It is an area that is advancing quickly and chartered surveys and other professionals interested in these valuation approaches now have a repertoire of resources that are easily accessible to draw upon. With that in mind it can be challenging to keep up with the latest development or identify the appropriate methodology and platform to be used at any particular time. [The Ecosystem Knowledge Network](https://ecosystemsknowledge.net/), supported by Defra to inform the ENCA has developed a tool assessor platform that reviews natural capital methodologies and tools. This makes an excellent first port of call for anyone looking to apply natural capital methodologies to their project or simply to explore how valuation techniques are incorporating the natural environment. And whilst the concept of valuing nature has its critics, to not add a value makes a natural resource invisible to those looking to interact with it. As Robert Constanza, one of the key thinkers in the area of natural capital valuation points out, ecosystem service is complex uncertain and there is no one right way to do it. However, there is a wrong way, and that is to not do it at all.

**References**

Office for National Statistics (ONS), released 27 November 2023, ONS website, bulletin, UK natural capital accounts: 2023

SEEA 2023 - <https://seea.un.org/ecosystem-accounting>

Live Link