



CIEEM

# Natural Capital and Ecosystem Services information and guidance

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[www.cieem.net](http://www.cieem.net)

# Introduction

The application of Natural Capital and Ecosystem Services as a framework to better understand the value of the environment is an emerging field that is rapidly being adopted into international initiatives and domestic policy. To support the work of its members, CIEEM provides this brief introduction to the topic and list of key references for natural capital and ecosystem services in the UK and Ireland. The list is intended to signpost the most up-to-date information and guidance documents, where they exist.

The Institute's Code of Professional Conduct specifically requires members to maintain professional knowledge, work to expected standards, and have 'regard to the relevant published technical guidance and standards'. This information should help members become familiar with the topic and signposts members to current guidance and information. However, this area of professional practice is evolving quickly, and new guidance and approaches are being developed all the time. CIEEM therefore reminds members that, depending on the specific nature of their work, other guidance documents and sources besides those listed may also be relevant. Some approaches have been designed to operate in specific geographic regions or nations and where possible, CIEEM has identified those regions where each approach is most likely to be applicable. CIEEM recommends that the use and scope of any tool or approach is discussed and agreed with relevant stakeholders prior to its selection.

CIEEM intends that the list will evolve over time, as new or updated information, case studies and guidance documents are published. As the topic is a fast-moving area, the list will therefore be subject to a formal review and update approximately every six months, although documents may be added or removed at any time. Members need to be aware of this and keep themselves up to date with changes. In due course CIEEM may consider if specific CIEEM guidance on natural capital and ecosystem services would be valuable.

CIEEM's Professional Standards Committee would welcome written representations from members to add, change or update the list to keep it current and relevant. In seeking a change / addition to the list, members should email [enquiries@cieem.net](mailto:enquiries@cieem.net) setting out why they consider the change is necessary. For additions, please include a complete reference and if possible, a link to the guidance. The list has been produced by CIEEM's Professional Standards Committee, together with assistance from individuals with relevant expertise. In accordance with CIEEM's Principles of Preparing Good Guidance (CIEEM, 2021), CIEEM would welcome representations from members on the need for and scope of any CIEEM-specific guidance in this area of professional practice.

# What are natural capital and ecosystem services?

*"Natural capital includes certain stocks of the elements of nature that have value to society, such as forests, fisheries, rivers, biodiversity, land and minerals. Natural capital includes both the living and non-living aspects of ecosystems.*

*Stocks of natural capital provide flows of environmental or 'ecosystem' services over time. These services, often in combination with other forms of capital (human, produced and social) produce a wide range of benefits.*

*These include use values that involve interaction with the resource and which can have a market value (minerals, timber, freshwater) or non-market value (such as outdoor recreation, landscape amenity). They also include non-use values, such as the value people place on the existence of particular habitats or species."* (HM Treasury Green Book, page 63<sup>1</sup>).

A natural capital approach is about thinking of nature as an asset, or set of assets, which provide benefits to people. The ability of natural assets to provide goods and services is determined by their quality, quantity and location. These in turn can be affected by background pressures, management practices and drivers of demand.

An ecosystem logic chain approach with four elements (assets, services, benefits, value) is often adopted for understanding and accounting for the value of nature to stakeholders. Reporting can happen at each of the four points but many standards emphasise the importance of understanding the whole logic chain. However, as value does not necessarily represent the condition of the assets, Natural England suggests that the focus should be on the first half of the chain i.e. the quantity, quality, and location of your assets, their health. Stocks have higher value if they are in good health due to their ability to contribute benefits now and into the future.

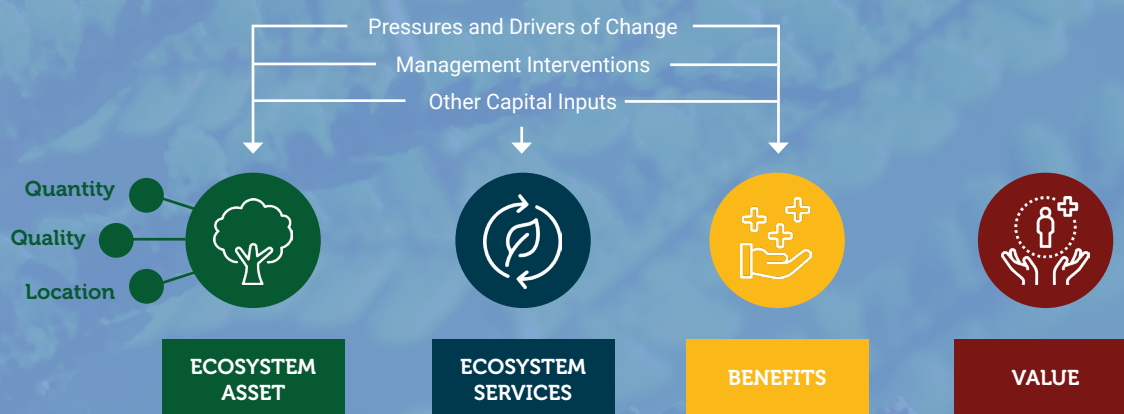


Figure 1: Generalised natural capital logic chain

<sup>1</sup>The Green Book: appraisal and evaluation in central government - GOV.UK ([www.gov.uk](http://www.gov.uk))

# Why should I care about natural capital and ecosystem services?

A natural capital approach to policy and decision-making considers the value of the natural environment for people and the economy. The approach is increasingly being adopted in a number of regulatory contexts which will be highly relevant to CIEEM members. For example, local authorities are using natural capital concepts to demonstrate local economic and human health and well-being benefits of green infrastructure and biodiversity net gain to support the case for future investments and to inform preparation of Local Nature Recovery Strategies.

HM Government published a 25-year plan to improve the environment in 2018, which included recommending the use of a Natural Capital Approach to value nature and the environment. One aspect of this plan is the desire to move towards delivering “Environmental Net Gain”. This is defined as development that, having achieved Biodiversity Net Gain, goes on to deliver gains in the natural environment and the ecosystem services this provides. NatureScot is also promoting a Natural Capital Approach for valuing nature and recently undertook a study of its own landholdings to demonstrate an experimental methodology. In Wales, the Well-being of Future Generations Act 2015 requires development to be sustainable and enhance healthy functioning ecosystems. The Environment (Wales) Act 2016 puts a duty upon public authorities to promote the resilience of ecosystems.

For more information see:

- [CIEEM, CIRIA and IEMA joint guidance on Biodiversity Net Gain for UK construction and developments<sup>2</sup>](#).
- [CIEEM briefing paper on Environmental Net Gain<sup>3</sup>](#)

<sup>2</sup> [Biodiversity Net Gain guidance published | CIEEM](#)

<sup>3</sup> [CIEEM-Environmental-Net-Gain-Briefing-Apr2021-FINAL-1.pdf](#)

| Influence       |     |     |    |     | Author   | Title: Guidance (G)/ Tool (T)/ Case study (C)/ Information (I)              | Link  | Brief summary   | Notes / Comment  |
|-----------------|-----|-----|----|-----|--|---|---|---|--|
| SCO             | ENG | WAL | NI | IRL |  |   |   |   |  |
| <b>Guidance</b> |     |     |    |     |  |   |   |   |  |
| X               | X   | X   | X  |     | Defra  | Enabling a Natural Capital Approach (ENCA) Guidance (G)                     | <a href="https://www.gov.uk/government/publications/enabling-a-natural-capital-approach-enca">Enabling a Natural Capital Approach (ENCA) - GOV.UK (www.gov.uk)</a>  | <p>A natural capital approach to policy and decision making considers the value of the natural environment for people and the economy.</p> <p>ENCA resources are data, guidance and tools to help you understand natural capital and know how to take it into account.</p> <p>Aims to:</p> <ul style="list-style-type: none"> <li>• Build capacity</li> <li>• Reduce costs</li> <li>• Provide a platform that can be updated</li> <li>• Identify new evidence/ areas for development</li> </ul>   | Published 22 Jan 2020, last update 20 Aug 2021. Would anticipate regular updates   |
| X               | X   | X   | X  |     | British Standards Institute  | BS8632:2021 Natural Capital Accounting for Organizations. Specification (G) | <a href="https://shop.bsigroup.com/products/natural-capital-accounting-for-organizations-specification?p">https://shop.bsigroup.com/products/natural-capital-accounting-for-organizations-specification?p</a> | <p>BS8632:2021 provides specifications and guidance on the process of preparing natural capital accounts. It includes minimum requirements for defining the scope of an account and the material impacts and dependencies and for documenting the data and process used to prepare the natural capital account.</p> <p>It prescribes two key accounting outputs of natural capital accounts – each with supporting schedules: a natural capital balance sheet (showing the organization's dependency on the natural capital assets) and a natural capital income statement (showing the positive and negative impacts of the organization).</p> | Competence in environmental accounting methods would be required to prepare accounts in the way specified within this Standard   |
| <b>Tools</b>    |     |     |    |     |  |   |   |   |  |
|                 | X   |     |    |     | Defra (the Department for Environment Food and Rural Affairs), Natural England, University of Oxford, Forestry Commission and Environment Agency | The Environmental Benefits from Nature Tool - Beta Test Version (JP038) (T) | <a href="http://publications.naturalengland.org.uk/publication">http://publications.naturalengland.org.uk/publica-</a>  | <p>Beta test version of an Excel-based Tool designed to measure the ability of habitats to deliver ecosystem services. It can be used to measure the net changes in natural capital and the ecosystem services it provides as a result of land-use change or development. Tool requires baseline biodiversity information, i.e. habitat survey using UK Habitat classification, and is designed to work alongside a biodiversity net gain approach, following Natural England's Biodiversity Metric 3.x.</p>  | <p>Tool is in Beta test form in 2021 (v1.0) No date for final release has been confirmed.</p> <p>Tool has been designed to operate in England, but may be applicable in other UK nations in certain circumstances.</p> |

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| SCO       | ENG | WAL | NI | IRL |   |  |   |  |   |
| X         | X   | X   | X  |     | WSP, Ecosystem Knowledge Network and Northumbria University | Nature Tool (T)  | <a href="http://nature-tool.com">NATURE TOOL (nature-tool.com)</a>  | <p>Tool to assess the impact of land-use and management changes on natural capital performance. Allows up to 17 ecosystem services plus physical and mental health benefits to be assessed and aggregated based on policy priorities.</p> <p>The tool is free to use, applicable across the UK and designed for the application by non-specialists without requiring excessive data or time.</p> | NATURE Tool has been released as BETA version on 27 <sup>th</sup> July 2021 |
|           |     |     |    |     | <b>Case study</b>   |  |   |  |   |
|           |     |     |    |     | Bunloit Rewilding   | Natural Capital Report (C)   | <a href="#">Report</a>  | Bunloit Estate in the Highlands has conducted a comprehensive natural capital audit.   | 2021  |
|           |     |     |    |     | NatureScot  | Testing a Natural Capital Approach on NatureScot Land Research Report 1144 (C) | <a href="https://www.nature.scot/doc/naturescot-research-report-1144-testing-natural-capital-approach-naturescot-land">https://www.nature.scot/doc/naturescot-research-report-1144-testing-natural-capital-approach-naturescot-land</a> | <p>NatureScot tested this approach on land that it owns or substantially manages, mainly as National Nature Reserves. Where possible they have tried to attribute a monetary value to benefits from nature.</p> <p>This natural capital account is the first to be produced for NatureScot land. It uses an experimental methodology which needs further refinement.</p>                         | 2019  |
|           |     |     |    |     | <b>Information</b>  |  |   |  |   |
|           |     |     |    | X   | Natural Capital Ireland                                     | Resources: Quick Reads; videos; blogs; etc. (I)                                | <a href="https://www.naturalcapitalireland.com/">https://www.naturalcapitalireland.com/</a>   | Natural Capital Ireland is a group of organisations and individuals from academic, public, private and NGO sectors, interested in the development and application of the natural capital agenda in Ireland   | Ongoing   |

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| SCO             | ENG | WAL | NI | IRL |  |   |   |   |  |
| X               |     |     |    |     | Scottish Forum on Natural Capital                                    | Resources: Briefings, presentations, news, etc (I)                        | <a href="https://naturalcapitalscotland.com">https://naturalcapitalscotland.com</a>       | The Forum is an initiative bringing together public, private and voluntary sector organisations to protect and rebuild Scotland's natural capital. Strives to enable businesses and policymakers gain a better understanding of how we rely on - and have an impact on - our natural capital. | Ongoing. Useful <a href="#">navigation</a> and <a href="#">resources</a> sections.   |
| <b>Guidance</b> |     |     |    |     |  |   |   |   |  |
| X               | X   | X   | X  |     | Natural Capital Committee  | How to do it: a natural capital workbook (G)                              | <a href="#">Workbook</a>  | Practical guide aimed at anyone who wants to use natural capital approaches in making decisions about the natural environment. It is intended to support decision-makers, including planners, communities and landowners, but has particular relevance for place-based decisions.             | 2017<br><br>Other publications from the NCC available here - <a href="https://www.gov.uk/government/collections/natural-capital-committee-documents">https://www.gov.uk/government/collections/natural-capital-committee-documents</a> |
| X               | X   | X   | X  |     | Natural Capital Committee  | Economic Evaluation and its application in natural capital management (G) | <a href="#">Natural Capital Valuation</a>   | Lays out the types of decisions for which natural capital values might be useful and some principles to guide the choice of approaches to valuation.  | 2017   |
| X               | X   | X   | X  |     | Valuing Nature Programme   | Valuing Nature Programme (I)  | <a href="https://valuing-nature.net/about">https://valuing-nature.net/about</a>           | Five year, £6.5m programme which aims to better understand and represent the complexities of the natural environment in valuation analyses and decision making. It will consider the economic, societal and cultural value of ecosystem services.   | 2018 onwards   |
| X               | X   | X   | X  |     | Biodiversity and Ecosystem Services Sustainability (BESS) Programme. | Guidelines on best practice in ecosystem service mapping (G)              | <a href="#">Guidelines</a>  | Principles to consider when starting any ecosystem service mapping or assessment project. Also links to projects which are good examples of some of the principles  | 2017<br><br><a href="#">Biodiversity and Ecosystem Services Sustainability Programme (BESS)   Ecosystems Knowledge Network</a>   |
|                 | X   |     |    |     | Natural England  | Quick Start Guides: The Ecosystem Approach (G)                            | <a href="#">Quick Start Guides: The Ecosystem Approach   Ecosystems Knowledge Network</a> | A basic introduction with four Guides:<br><br>#1 Ecosystem Approach<br>#2 Ecosystem Services<br>#3 Integrated Delivery Plan<br>#4 Ecosystem Service Valuation   |  |
|                 | X   |     |    |     | Natural England  | Quick Start Guides: Natural Capital (G)                                   | <a href="#">Natural Capital Quick Start Guide #1.pdf (ecosystem-sknowledge.net)</a>       | A basic introduction for anyone who wants to understand the meaning of natural capital and the possible merits of implementing the concept.   |  |

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| SCO       | ENG | WAL | NI | IRL |   |  |   |  |   |
| X         | X   | X   | X  |     | DEFRA   | Payments for Ecosystem Services: A Best Practice Guide (G)               | <a href="#">PES Best Practice Guide - 2015 edition.pdf (ecosystemsknowledge.net)</a>  | A helpful introduction to what the approach is and how it might be applied in the UK. Annex outlines examples of schemes in the UK and elsewhere.  | 2015  |
| X         | X   | X   | X  |     | Natural Capital Committee                     | Corporate natural capital accounting (CNCA) (G)/(C)                      | <a href="https://www.gov.uk/government/publications/natural-capital-committee-research-corporate-natural-capital-accounting">https://www.gov.uk/government/publications/natural-capital-committee-research-corporate-natural-capital-accounting</a> | Guidelines with practical steps for organisations seeking to undertake their own accounts. Plus 4 pilots with major landowners: National Trust, Lafarge Tarmac, The Crown Estate & United Utilities  | 2015  |
|           |     |     |    |     | Natural Capital Coalition                     | Natural Capital Protocol (G)/(T)/(C)                                     | <a href="#">Natural Capital Coalition Natural Capital Protocol - Natural Capital Coalition</a>  | A decision making framework that enables organizations to identify, measure and value their direct and indirect impacts and dependencies on natural capital. Includes primer, framework, templates, toolkit and case studies   | 2017  |
| X         |     |     |    |     | Scottish Government                           | Interim Principles for Responsible Investment in Natural Capital (G)/(I) | <a href="https://www.gov.scot/publications/interim-principles-for-responsible-investment-in-natural-capital/">https://www.gov.scot/publications/interim-principles-for-responsible-investment-in-natural-capital/</a>                               | Set out the Scottish Government ambitions and expectations for a values-led, high-integrity market for responsible private investment in natural capital to stakeholders   | 2021  |
|           |     |     |    |     | IES (Institution of Environmental Sciences)   | Ecosystem services assessment: How to do one in practice (G)             | <a href="#">ecosystem_services.pdf (the-ies.org)</a>  | Guidance on how to make an ecosystem services assessment. Addresses assessment of likely ecosystem service outcomes across a range of contexts.  | 2013  |
|           |     |     |    |     | Consortium lead by Birmingham City University | National Ecosystem Approach Toolkit (G)/(T)/(C)                          | <a href="#">National Ecosystem Approach Toolkit - The NEAT Tree (ecosystemsknowledge.net)</a>   | The NEAT Tree provides you with tools and experience to build this relationship with nature into your decisions in a transparent, participatory and evidence-driven way. Not only will these lead to better outcomes, it will allow you to demonstrate that the principles of the Ecosystem Approach have been built into your work. |   |
|           |     |     |    |     | <b>Tools</b>                                  |  |   |  |   |
|           |     |     |    |     | BirdLife International and others             | Toolkit for Ecosystem Service Site-based Assessment (TESSA) (T)          | <a href="https://www.birdlife.org/world-wide/science/assessing-ecosystem-services-tessa">https://www.birdlife.org/world-wide/science/assessing-ecosystem-services-tessa</a>   | Accessible guidance on low-cost methods for how to evaluate the benefits people receive from nature at particular sites.   | TESSA is particularly useful in terms of real stakeholder engagement and when the implementers of the assessment have little resource or pre-existing data. |
|           |     |     |    |     | Stanford University                           | InVEST (T)   | <a href="https://naturalcapitalproject.stanford.edu/software/invest">https://naturalcapitalproject.stanford.edu/software/invest</a>   | A suite of open-source software models for mapping and valuing ecosystem services provided by land and seascapes.  | Considered market leader where rich data is available<br><br><a href="#">Factsheet Information Sheet InVEST.pdf (ecosystemsknowledge.net)</a>               |



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| SCO       | ENG | WAL | NI | IRL |                                  |  |   |   |   |
|           |     |     |    |     | Integrated Modelling Partnership | ARIES (Artificial Intelligence for Ecosystem Services) (T)     | <a href="#">ARIES - ARTificial Intelligence for Ecosystem Services   Artificial Intelligence for Ecosystem Services (integratedmodelling.org)</a> | A networked collaborative software technology designed for rapid ecosystem service assessment and valuation. It gives equal emphasis to ecosystem service supply, demand and flow in order to quantify actual service provision and use by society (as opposed to quantifying potential service benefits). It aims to provide a suite of models that support science-based decision-making. | ARIES (Artificial Intelligence for Ecosystem Services)   Ecosystems Knowledge Network                           |
|           |     |     |    |     | CIRIA                            | BEST (Benefits of SuDS Tool) (T)(G)(C)                         | <a href="#">BEST (susdrain.org)</a>   | BeST (Benefits of SuDS Tool) provides guidance to help practitioners estimate the benefits of Sustainable Drainage Systems (SuDS) without the need for specialist economic input.<br><br>Tool, guidance and case studies  | Second version issued in 2019   |
|           |     |     |    |     | Kings College/ UNEO-WCMC         | Co\$ting Nature (T)  | <a href="#">Co\$ting Nature - www.policysupport.org</a>   | Web based policy-support tool for natural capital accounting and analysis of the ecosystem services provided by natural environments. The tool estimates the current provision of water, carbon and tourism services and identifies the beneficiaries, then analyses current environmental pressures, future threats and conservation priority.   | <a href="#">Introduction available here Co\$ting Nature   Ecosystems Knowledge Network</a>                      |
|           |     |     |    |     | Environment Systems Ltd?         | SENCE (Spatial Evidence for Natural Capital Evaluation) (T)    | <a href="#">ecosystem services mapping (envsys.co.uk)</a>   | Provides information to support evidence based decision-making on ecosystem services. It is based on the idea that any area of land is capable of contributing to one or more ecosystem services. That capability is based on factors including habitat, soil and geology, landform and hydrology, how land is managed and how it is culturally understood                                  | <a href="#">Information Sheet SENCE.pdf (ecosystemsknowledge.net)</a>   |
| X         | X   | X   | X  |     | CEH                              | Land Cover Map 2015 (T)  | <a href="https://www.ceh.ac.uk/services/land-cover-map-2015">https://www.ceh.ac.uk/services/land-cover-map-2015</a>                               | LCM2015 is derived from satellite images and digital cartography and provides land cover information for the entire UK. Land cover is based on UK Biodiversity Action Plan Broad Habitats classes. It is available in different formats to suit the requirements of users.  |   |
|           |     |     |    |     | <b>Case study</b>                |  |   |   |   |
| X         |     |     |    |     | Natural Capital Laboratory (NCL) | Digital Natural Capital Account (C)                            | <a href="https://aecom.com/uk/natural-capital-laboratory/">https://aecom.com/uk/natural-capital-laboratory/</a>                                   | NCL is a joint venture between AECOM, the Lifescope Project, Emilia and Roger Leese, and the University of Cumbria to rewild 100 acres of land in the Highlands of Scotland. The project is acting as a real-world nature-based solution and exploring how we can manage the land to help tackle the climate and biodiversity crises.   | 5 year project. Interesting website with capital asset register and physical and monetary asset flows and maps. |

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|-----------|-----|-----|----|-----|---------------------------|--|--|--|---|
| SCO       | ENG | WAL | NI | IRL |                           |  |  |  |   |
|           |     |     |    |     | <b>Information</b>        |  |  |  |   |
| X         | X   | X   | X  |     | Valuing Nature Programme  | Valuing Nature Programme (I)   | <a href="https://valuing-nature.net/about">https://valuing-nature.net/about</a>  | Five year, £6.5m programme which aims to better understand and represent the complexities of the natural environment in valuation analyses and decision making. It will consider the economic, societal and cultural value of ecosystem services.  | 2018 onwards  |
|           | X   |     |    |     | Natural England           | Natural Capital Indicators: for defining and measuring change in natural capital (NERR076) (I) | <a href="http://publications.naturalengland.org.uk/publica-">http://publications.naturalengland.org.uk/publica-</a>  | Indicator set  | Edition 2 published 2020  |
|           | X   |     |    |     | Natural England           | National Natural Capital Atlas: Mapping Indicators (NECR285) (I)                               | <a href="http://national-natural-capital-atlas.naturalengland.org.uk">National Natural Capital Atlas: Mapping Indicators - NECR285 (naturalengland.org.uk)</a>                     | Maps the state of England's natural capital in terms of its quantity, quality and location.  | 2020  |
|           | X   |     |    |     | Natural England           | Natural Capital Atlases: Mapping Indicators for County and City Regions (NECR381) (I)/ (T)     | <a href="http://natural-capital-atlases.naturalengland.org.uk">Natural Capital Atlases: Mapping Indicators for County and City Regions - NECR381 (naturalengland.org.uk)</a>       | <p>These atlases provide an "off the shelf" natural capital evidence base for each county or city region. They can be added to and built on.</p> <p>Set of downloadable documents on includes guidance on how to start using your atlas e.g. for stakeholder engagement, strategic planning e.g. NRNs, targeting specific conservation actions, GIS User guidance – how to download the data and add in your local data and map presentation Resources</p> | 2020<br><br><a href="https://naturalengland.blog.gov.uk/2020/07/08/forty-four-natural-capital-atlases-released-across-england/">https://naturalengland.blog.gov.uk/2020/07/08/forty-four-natural-capital-atlases-released-across-england/</a> |
| X         | X   | X   | X  |     | Landscape Institute       | Natural Capital Accounting - Technical Information Note 02/2018 (I)                            | <a href="https://www.landscapeinstitute.com/~/media/Files/18-2-Natural-Capital-Accounting-1.pdf">18-2-Natural-Capital-Accounting-1.pdf (windows.net)</a>                           | An introduction to the natural capital concept and the accounting process. Plus two case studies of natural capital accounts relevant to the landscape profession.   | 2018  |
| X         | X   |     |    |     | DEFRA/Scottish Government | Developing ecosystem accounts for protected areas in England and Scotland (I)/( C)             | <a href="https://www.defra.gov.uk/science/search/">Defra_UK - Science Search</a>   | Pilot ecosystem accounts for a selected suite of protected area landscapes that consist of a variety of habitats and produce multiple ecosystem services.  | 2015  |
|           |     |     |    |     | Natural England           | Managing Ecosystem Services Evidence Review (I)/ (T)   | <a href="https://www.naturalengland.org.uk">Managing Ecosystem Services Evidence Review (Formally Ecosystem Services Transfer Toolkit NECR159) - JP033 (naturalengland.org.uk)</a> | The MESER tool is a literature review of the effect of land management actions on the provision of ecosystem services. It is in the form of an interactive web portal with an accompanying User Guide.   | 2017  |

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| SCO       | ENG | WAL | NI | IRL |  |   |   |   |                 |
| X         | X   | X   | X  |     | Sharps et al   | Comparing strengths and weaknesses of three ecosystem services modelling tools in a diverse UK river catchment (I)                | <a href="https://www.sciencedirect.com/science/article/">https://www.sciencedirect.com/science/article/</a>   | Compared three spatial ecosystem service tools: ARIES, InVEST and LUCI. Models were run for water supply, carbon storage and nutrient retention services. All three tools performed similarly, but have different strengths.  | 2017            |
|           |     |     |    |     | Vorstius and Spray   | A comparison of ecosystem services mapping tools for their potential to support planning and decision-making on a local scale (I) | <a href="https://www.sciencedirect.com/science/article/abs/pii/">https://www.sciencedirect.com/science/article/abs/pii/</a>   | Comparison and review of ecosystem services mapping tools. 3 tools (SENCE, InVEST, EcoServ-GIS) applied in a small Scottish catchment. Tools have different foci and compromise between usability and scientific accuracy. Users need to weigh requirements for their project to decide on the best tool.   | 2015            |
|           |     |     |    |     | Bagstad et al  | A comparative assessment of decision-support tools for ecosystem services quantification and valuation (I)                        | <a href="https://www.sciencedirect.com/science/article/abs/pii/">https://www.sciencedirect.com/science/article/abs/pii/</a>   | Review of 17 ecosystem services tools against eight evaluative criteria. Most tools are currently too resource-intensive for routine use in public- and private-sector decision making.   | 2013            |
|           |     |     |    | X   | INCASE project (Irish Natural Capital Accounting for Sustainable Environments) | Resources: literature review (2019); feasibility report (2020); videos; workshops; papers; regular updates. (I)                   | <a href="https://www.incaseproject.com/about">https://www.incaseproject.com/about</a>   | INCASE is developing natural capital accounts for four catchments; project will map the stocks and flows of ecosystem and geosystem services, highlight challenges, knowledge and data gaps, and recommend a framework to operationalise Natural Capital Accounting in Ireland.   | 2019-2023       |
|           |     |     |    | X   | MAIA (EU H2020 project)  | A range of resources including papers; toolkits; mapping tools; videos; etc. (I)  | <a href="https://maiaportal.eu/about">https://maiaportal.eu/about</a>   | MAIA (Mapping and Assessment for Integrated ecosystem Accounting) aims to promote the mainstreaming of natural capital accounting in EU Member States and Norway. In MAIA, we use the United Nations System of Environmental Economic Accounting – Ecosystem Accounting (SEEA-EA) as the methodological basis for natural capital accounting (NCA). The project is being implemented in 11 countries, with 20 partners. | 2019-2022       |
|           |     | X   |    |     | Environment Systems Ltd  | Natural Capital Accounting (I)  | <a href="https://www.envsys.co.uk/projects/natural-capital-accounting/">https://www.envsys.co.uk/projects/natural-capital-accounting/</a>   | A website compiled to inform the SoNaRR (State of Natural Resources Report) commissioned by the Welsh Government. Incorporates mapping and a country-wide assessment of the health and resilience of ecosystems and assessment of the extent to which Wales is sustainably managing its natural resources.  |                 |
|           |     | X   |    |     | William Stiles (Farming Connect 2021)  | Using a natural capital approach to value land management approaches (I)  | <a href="https://business-wales.gov.wales/farmingconnect/news-and-events/technical-articles/using-natural-capital-approach-value-land-management-approaches">https://business-wales.gov.wales/farmingconnect/news-and-events/technical-articles/using-natural-capital-approach-value-land-management-approaches</a> | Simple introduction to the Natural Capital concept for agricultural businesses in Wales   |                 |

| Influence |     |     |    |     | Author              | Title: Guidance (G)/ Tool (T)/ Case study (C)/ Information (I)  | Link  | Brief summary   | Notes / Comment |
|-----------|-----|-----|----|-----|---------------------|---|---|---|-----------------|
| SCO       | ENG | WAL | NI | IRL |                     |   |   |   |                 |
|           |     | X   |    |     | Rothero et al. 2018 | Natural capital, ecosystem services and restoration potential of semi-natural habitats in Welsh floodplains. Natural Resources Wales Evidence Report No: 265 (I, C) | <a href="https://www.floodplainmeadows.org.uk/sites/www.floodplainmeadows.org.uk/files/NRW%20Evidence%20Briefing%20FINAL.pdf">https://www.floodplainmeadows.org.uk/sites/www.floodplainmeadows.org.uk/files/NRW%20Evidence%20Briefing%20FINAL.pdf</a> | A preliminary study to establish the extent of different land uses and semi natural habitats in Welsh floodplains. It pilots a method for mapping the potential for recreation of species-rich grasslands able to deliver a larger range of ecosystem service benefits than intensive agricultural land uses, for a single catchment (Wye catchment). |                 |



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