



NatureScot's Natural Capital Tool

Making the invisible, visible

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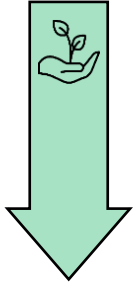
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AGI Scotland Annual Conference

February 2026



Why are we developing a natural capital tool?



Nature is declining at an alarming rate – **global biodiversity loss and climate change**

Scotland's biodiversity is also declining and **Scotland ranks in the lowest 15% of countries** in terms of the intactness of its biodiversity

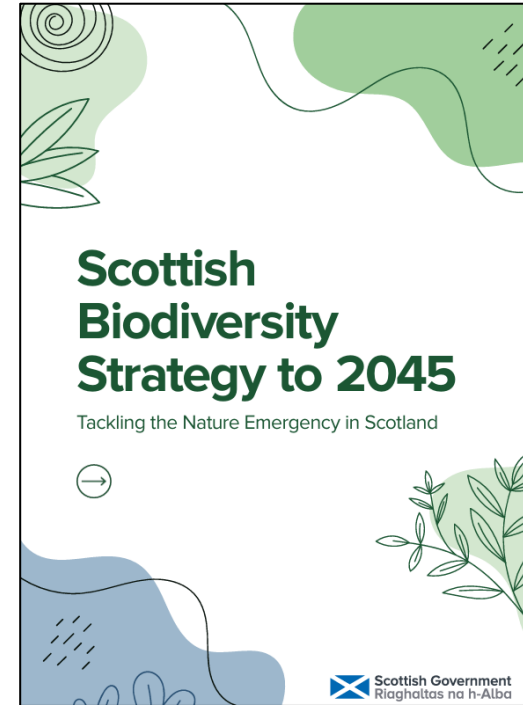
We've failed to engage with nature sustainably and our 'business as usual' approach is not working

One way of addressing this is looking at how land management, political and economic decisions are being made...

Historically, **the benefits we receive from nature have not been included in decision making** processes

Despite natural resources contributing to more than 50% of global GDP, worth **£36 trillion** in economic value

– Dasgupta Review 2021



*'Just like climate change, the loss of species and degradation of our natural environment is an **existential threat to humanity**. And just like climate change, the action needed is **both urgent and transformative**. That's why the Scottish Government is clear that this is an emergency that requires **a swift and energetic response**.'*

- Dr Alasdair Allan: Acting Minister for Climate Action

IPBES have stated the way in which nature is currently valued in decision making is a **key driver of global biodiversity loss** ..but is also an **opportunity to address it**

So how can we make nature visible in decision making?

We need to take a **natural capital approach**

A natural capital approach

Making the invisible, visible

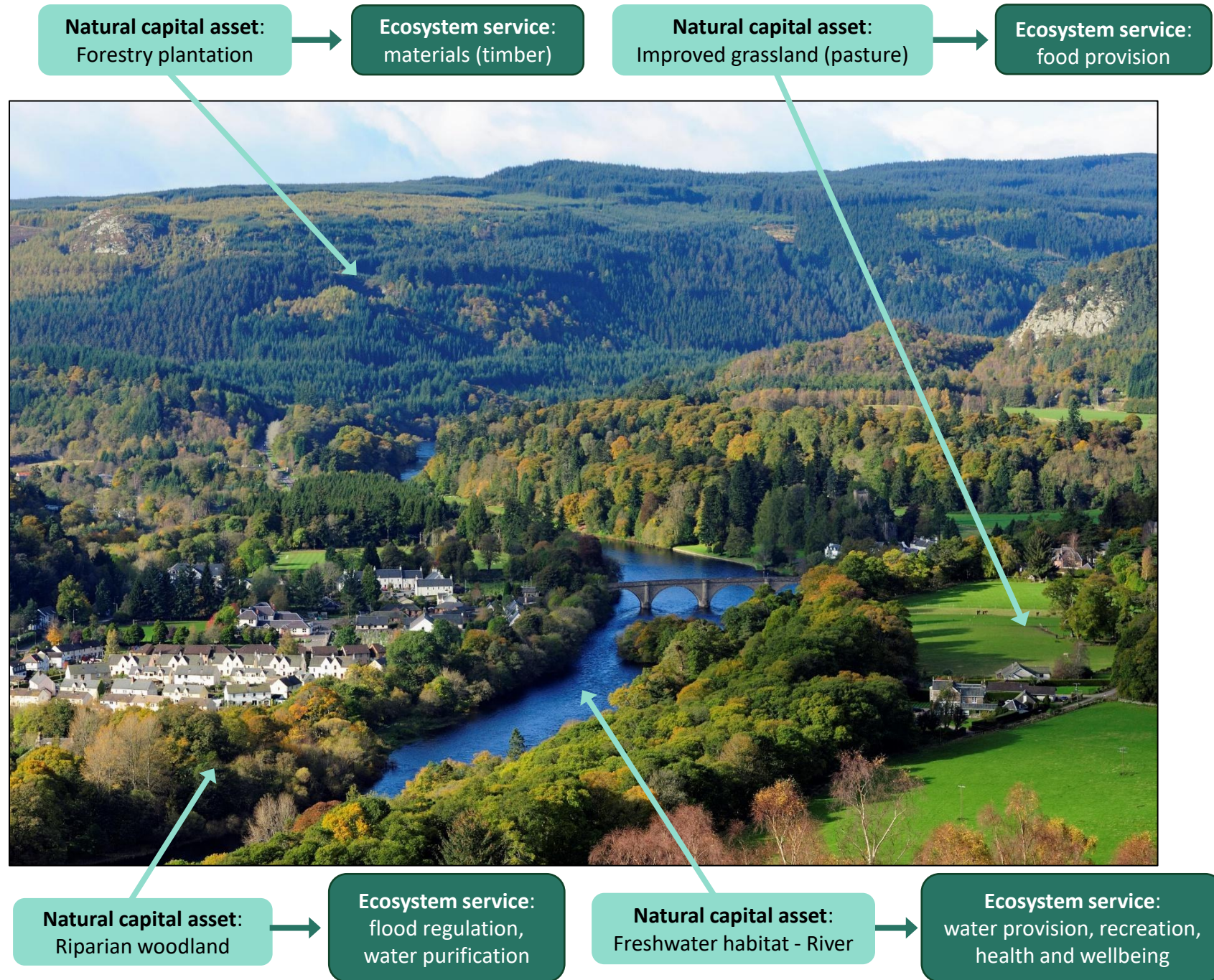
Our habitats and the ecosystems within these, are our **natural capital assets**



These natural capital assets, when they have healthy and functioning ecosystems, provide benefits to people. These are the **ecosystem services**.



Making decisions based on these full range of benefits that nature provides is what we call taking a **natural capital approach**.



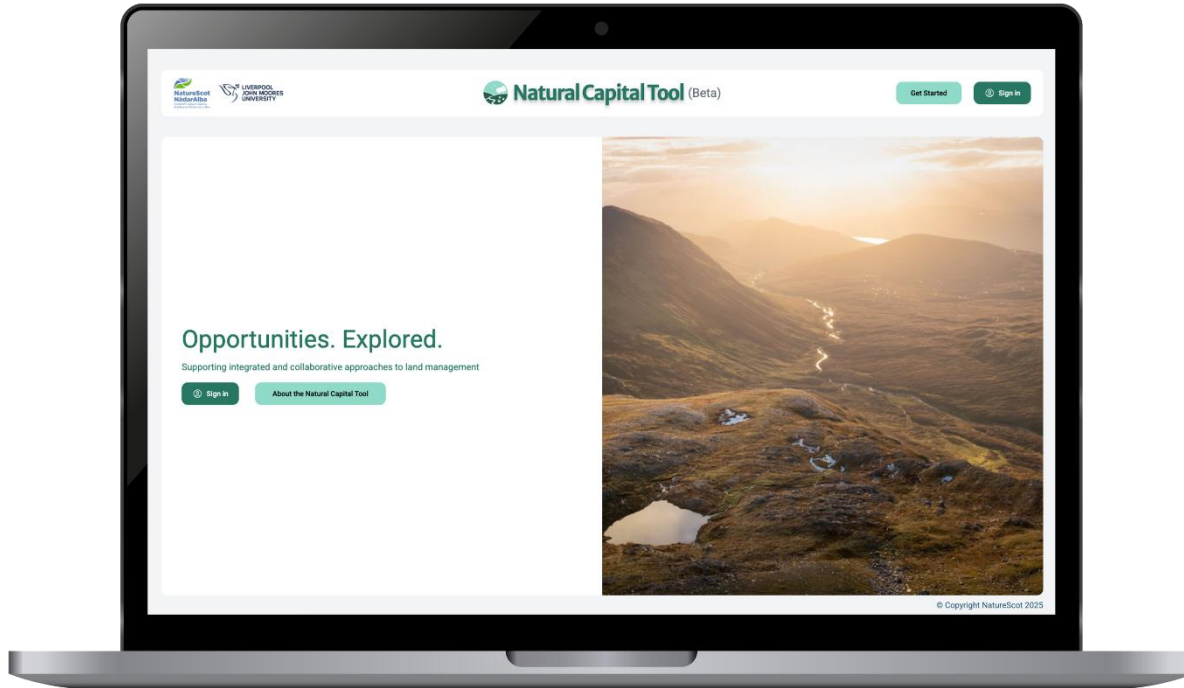
Tool development process: Co-design

Co-design is the act of **creating with stakeholders** specifically within the design development process to ensure the results **meet their needs and are usable.**

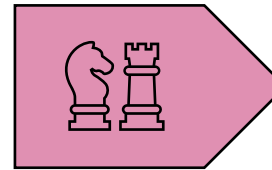


Aims and Objectives

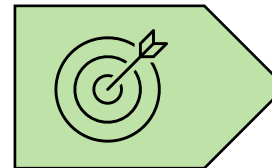
The Natural Capital Tool aims to support land managers and decision makers to:



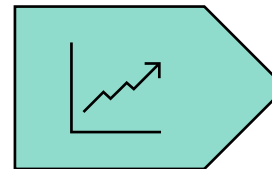
Access relevant datasets and evidence by **democratising natural capital information** and making it **accessible for all**



Save time and money through improved decision making, allowing users to take a **strategic approach** to land management



Prioritise interventions so that the environmental benefits from nature can be provided to the **communities, habitats and wildlife** that need it most



Examine the **gains and losses in ecosystem services and habitat connectivity** associated with different land use interventions

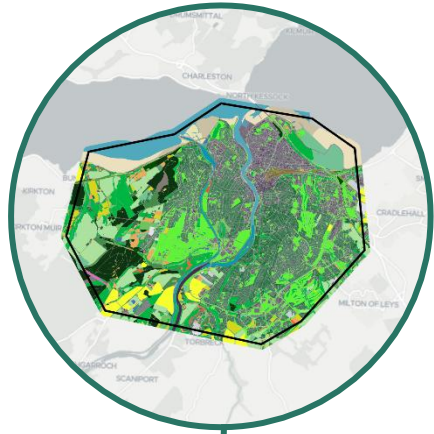


Align with **emerging nature finance markets** by helping users to collaborate at the landscape scale and aggregate investment opportunities

Tool Functionality

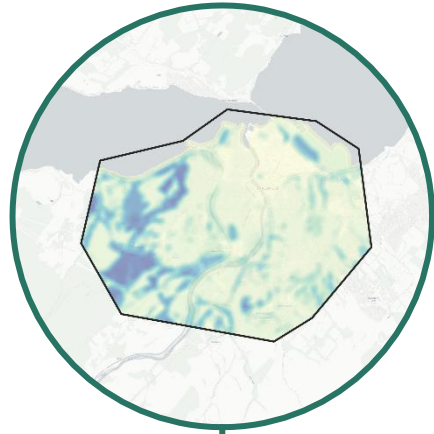
Baseline Information

Future scenario / project planning



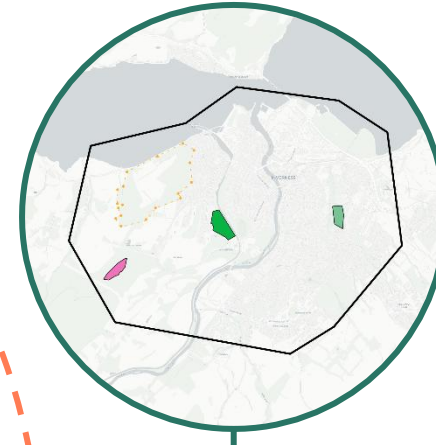
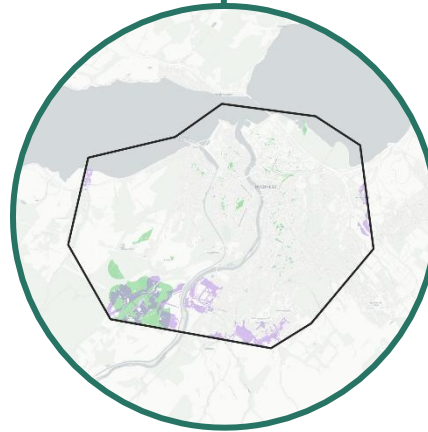
Natural capital baseline mapping

Habitat network mapping



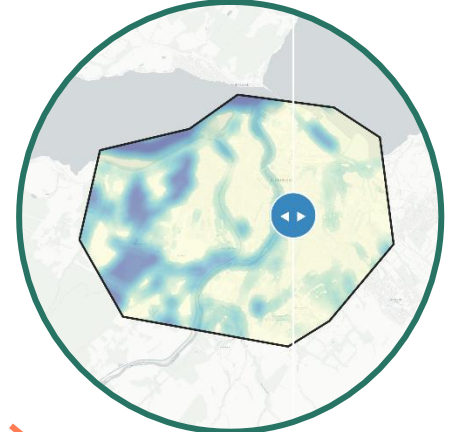
Ecosystem service modelling

Landscape scale opportunity mapping



Scenario planning

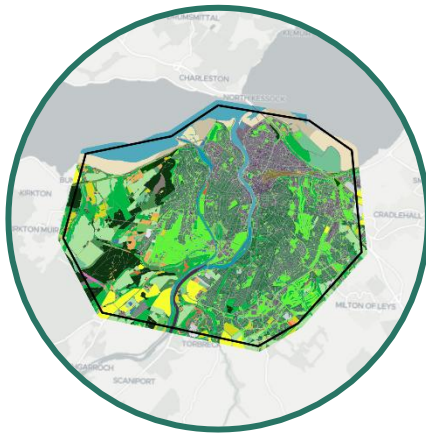
Ecosystem service uplift prediction



Tool Functionality: Natural Capital Baseline Mapping

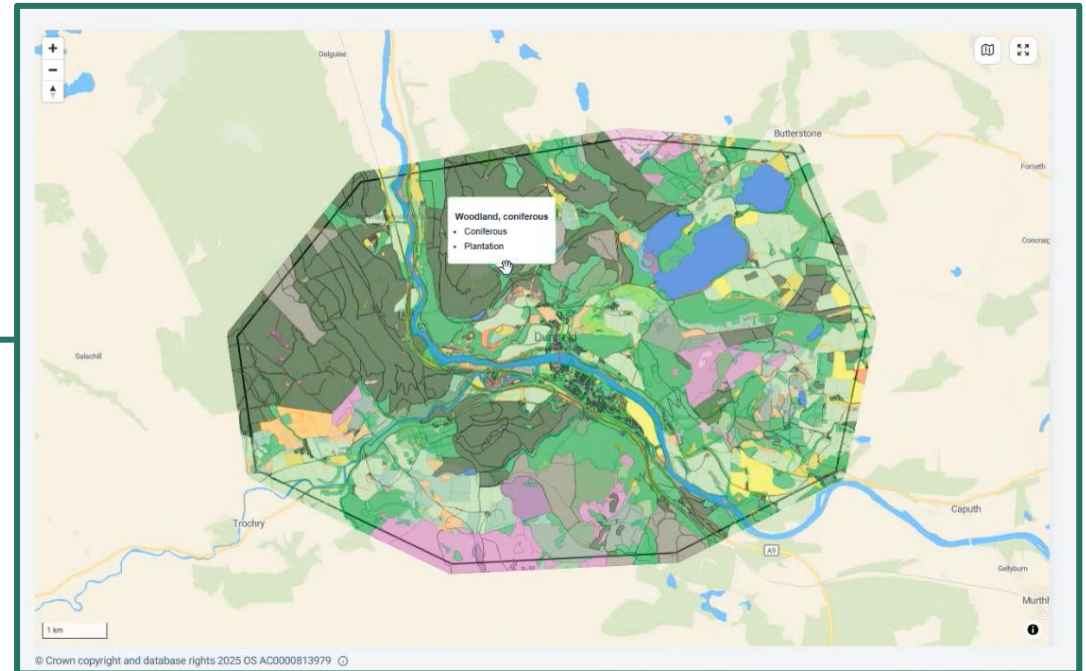
Habitat baseline

shows natural capital assets



Geospatial data layers:

- OS MasterMap Topography Layer
- OS MasterMap Greenspace Layer
- OS Open Greenspace
- Habitat Map of Scotland (HabMoS)
- Scotland Landcover Map (SLAM)
- CORINE land cover
- Crop Map of Scotland
- National Forest Inventory
- Terrain data (DTM)
- Designated sites

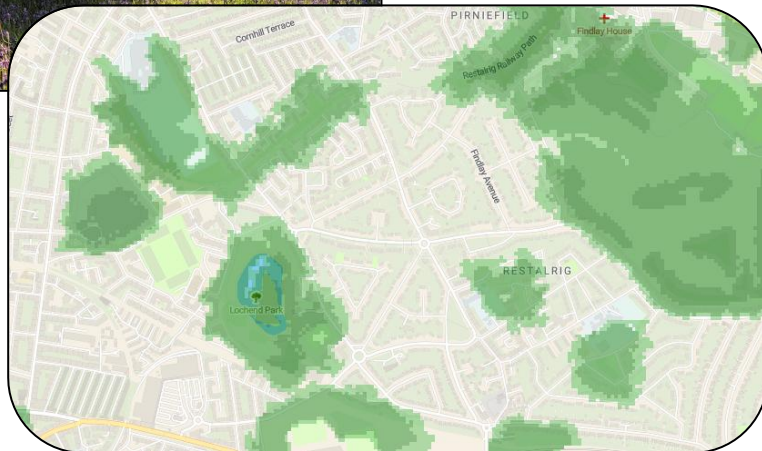


Tool Functionality: Habitat Networks

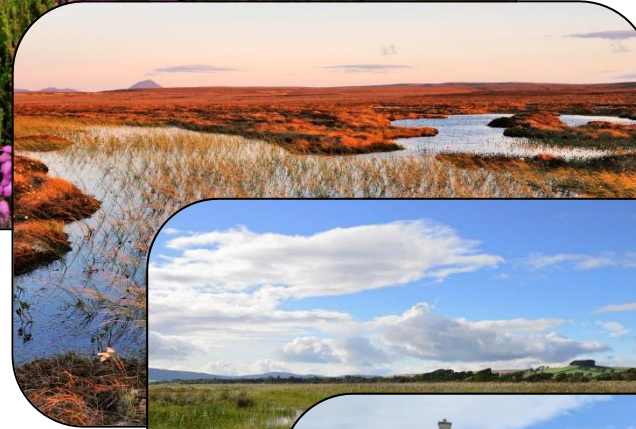
Created **six habitat network models** which show where existing habitat is located and surrounding areas that species from that habitat can move through



Woodland



Heathland



Mire, Bog, and Fen



Wetland



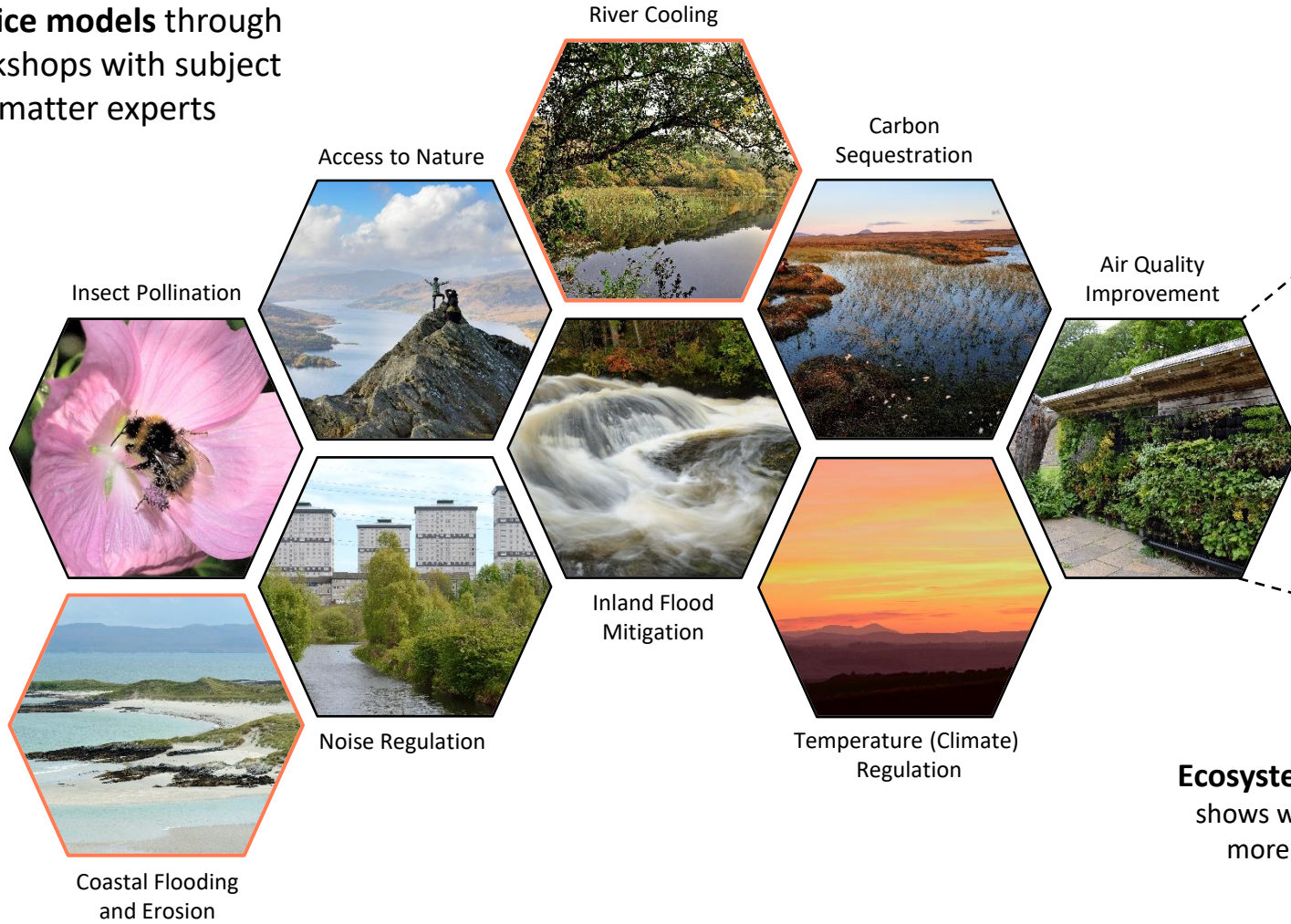
Grassland



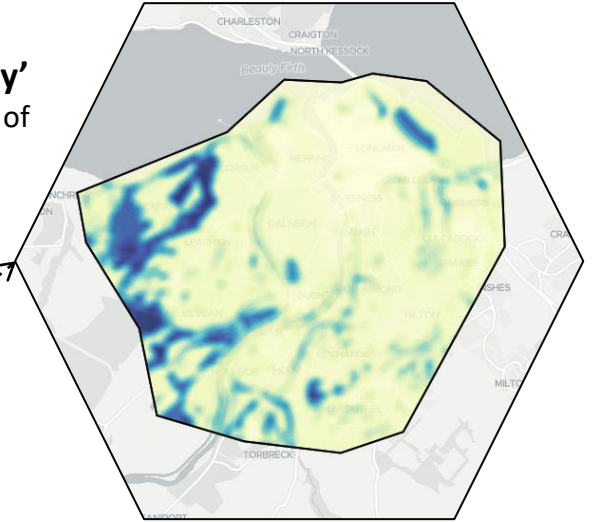
Pond

Tool Functionality: Ecosystem Service Modelling

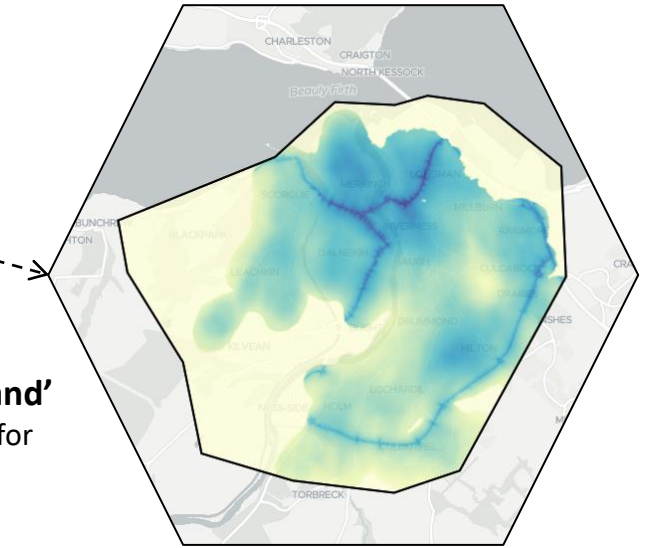
Developed **seven ecosystem service models** through workshops with subject matter experts



Ecosystem service 'capacity' shows where there is provision of ecosystem services



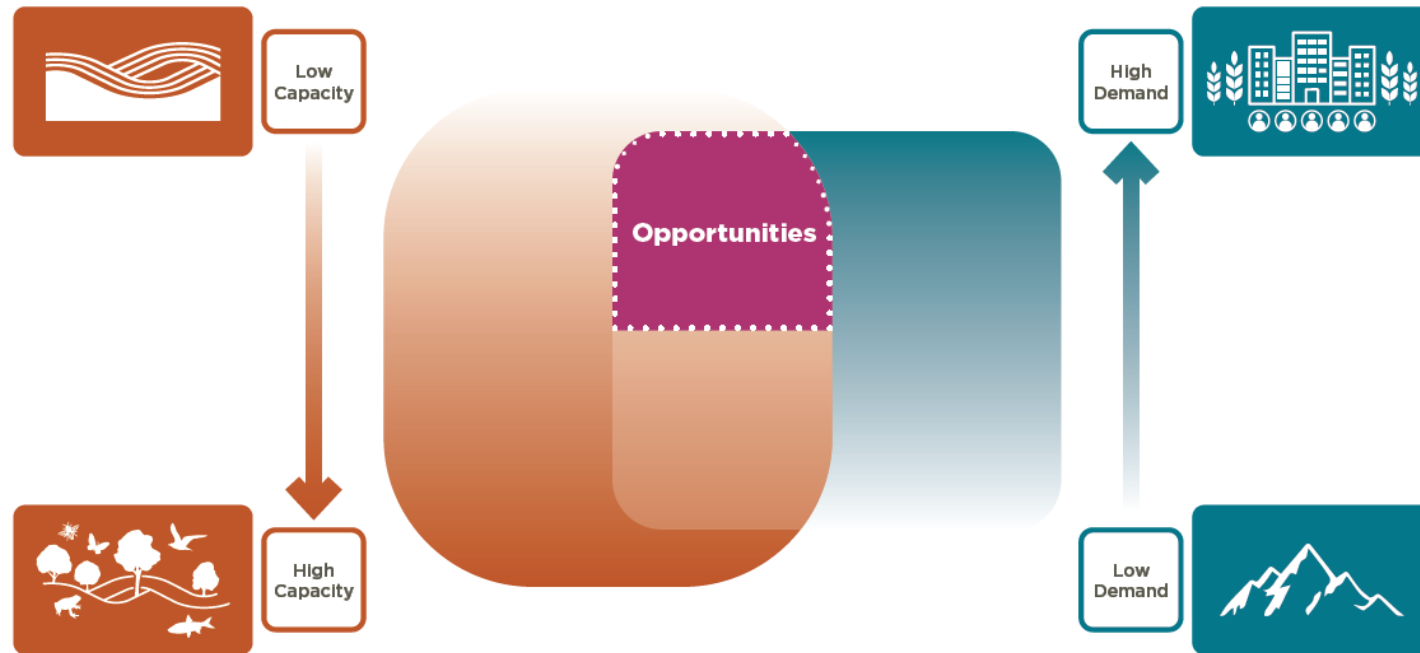
Ecosystem service 'demand' shows where there is need for more ecosystem services



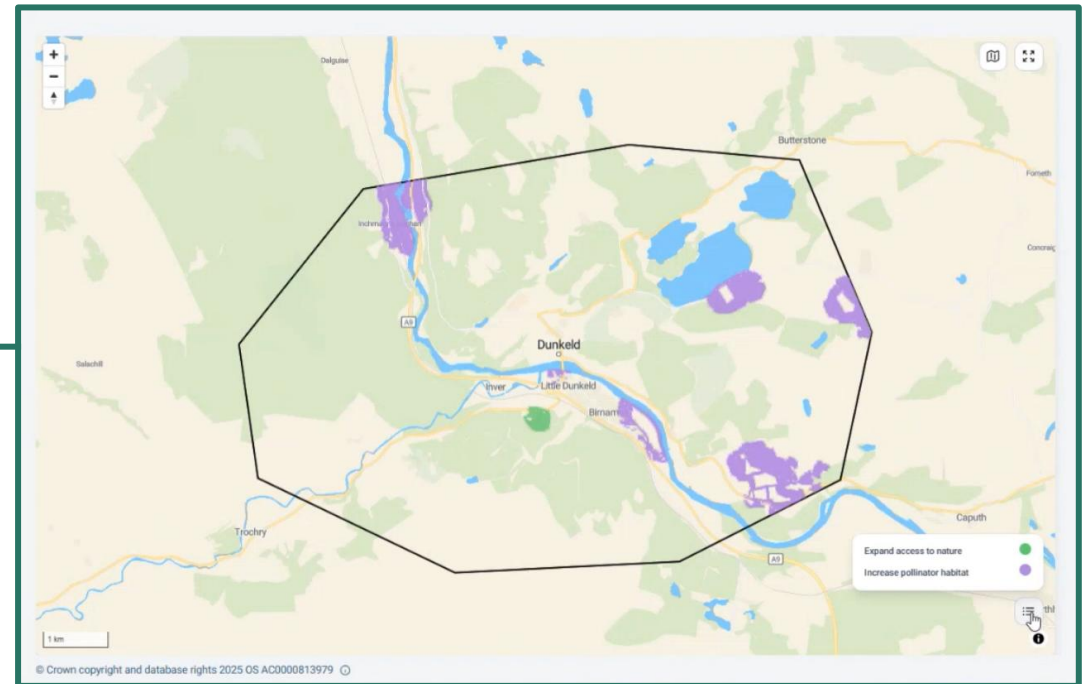
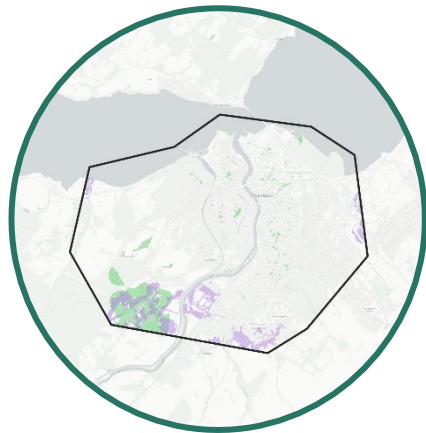
Tool Functionality: Opportunity Mapping

Identify **opportunities** by highlighting areas:

- That have **high demand** for the ecosystem service
- that currently have **low capacity** to deliver on that service



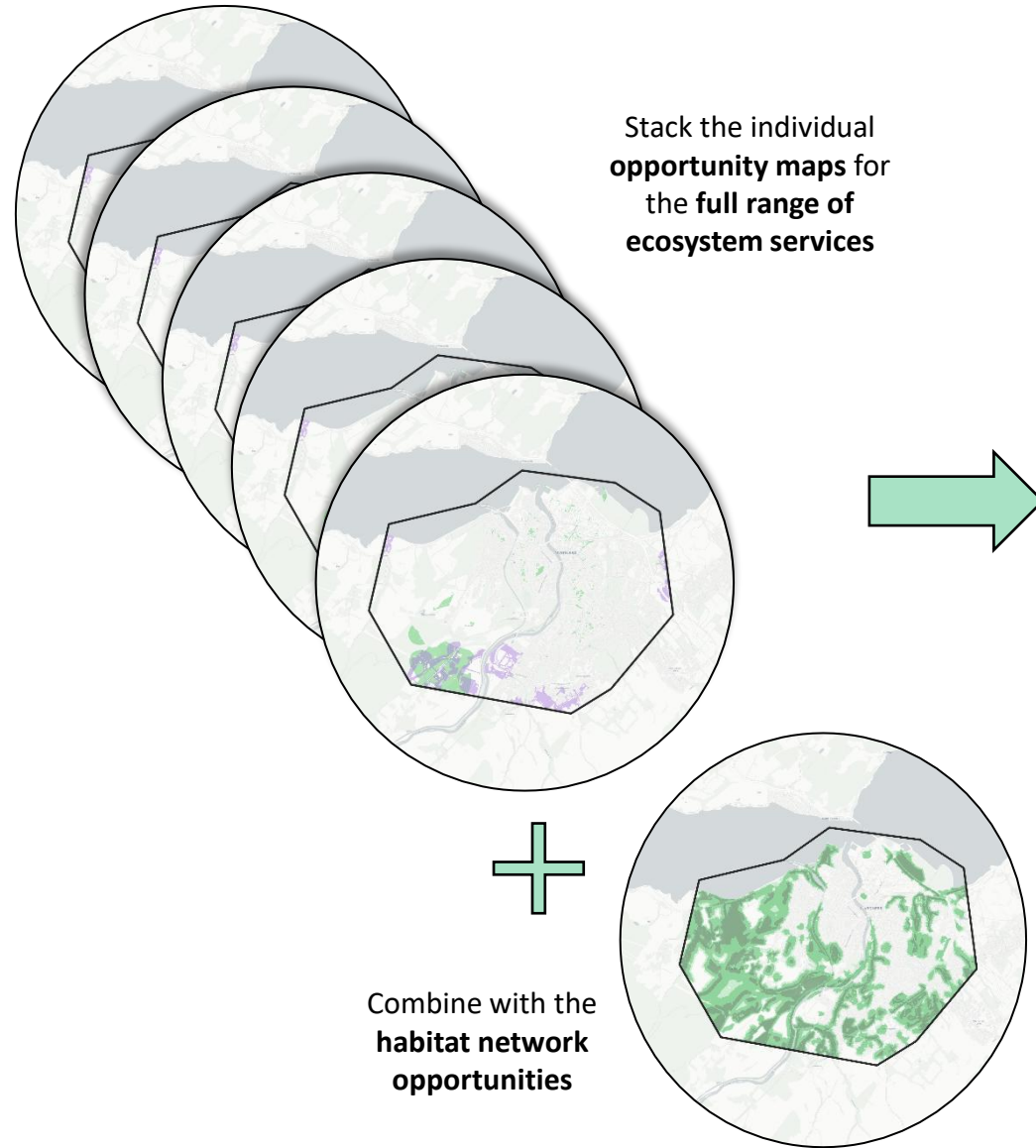
Tool Functionality: Opportunity Mapping



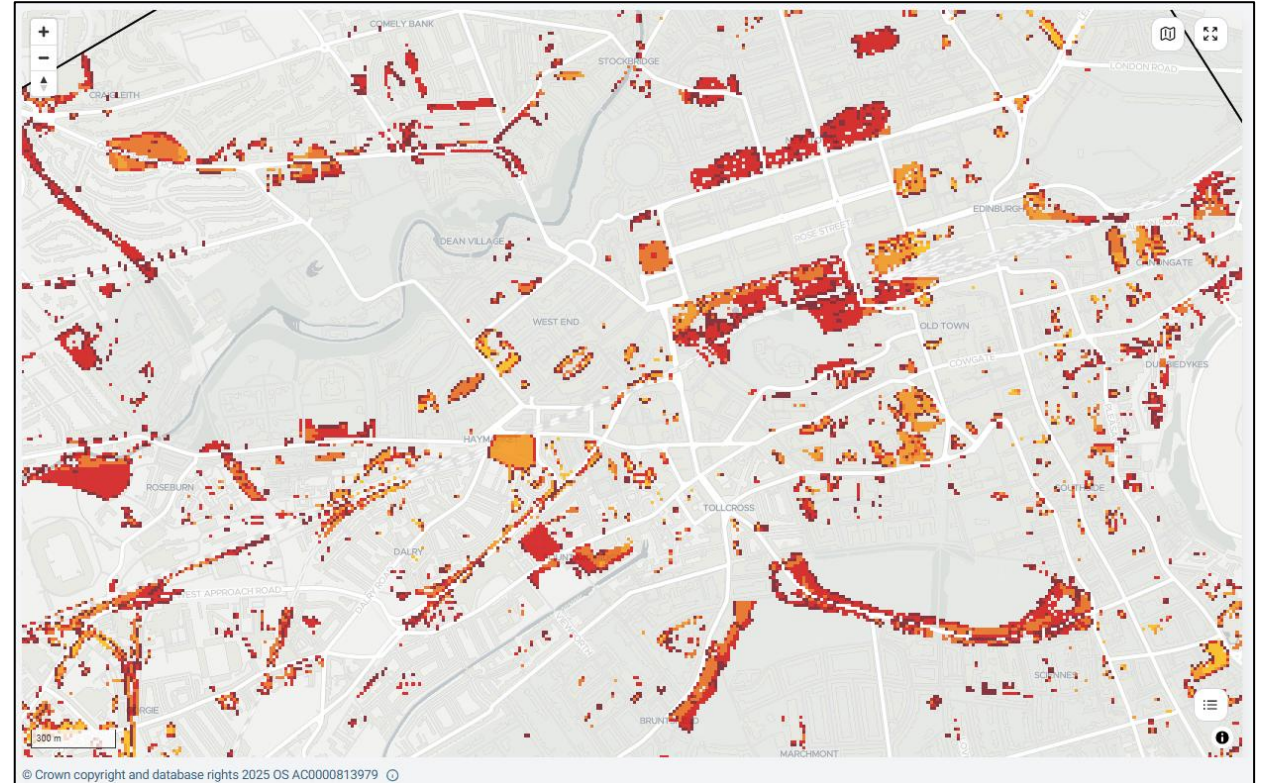
Opportunities to increase pollinator habitat are shown in **purple**, and access to nature opportunities are shown in **green**

These highlight areas of **high demand** and **low capacity** for that ecosystem service

Tool Functionality: Opportunity Mapping – Multiple Benefits



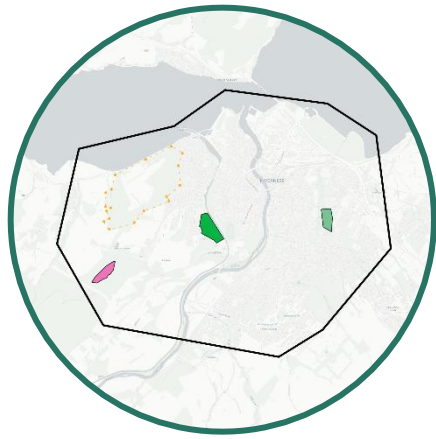
Identify opportunities which have multiple benefits for both people and nature



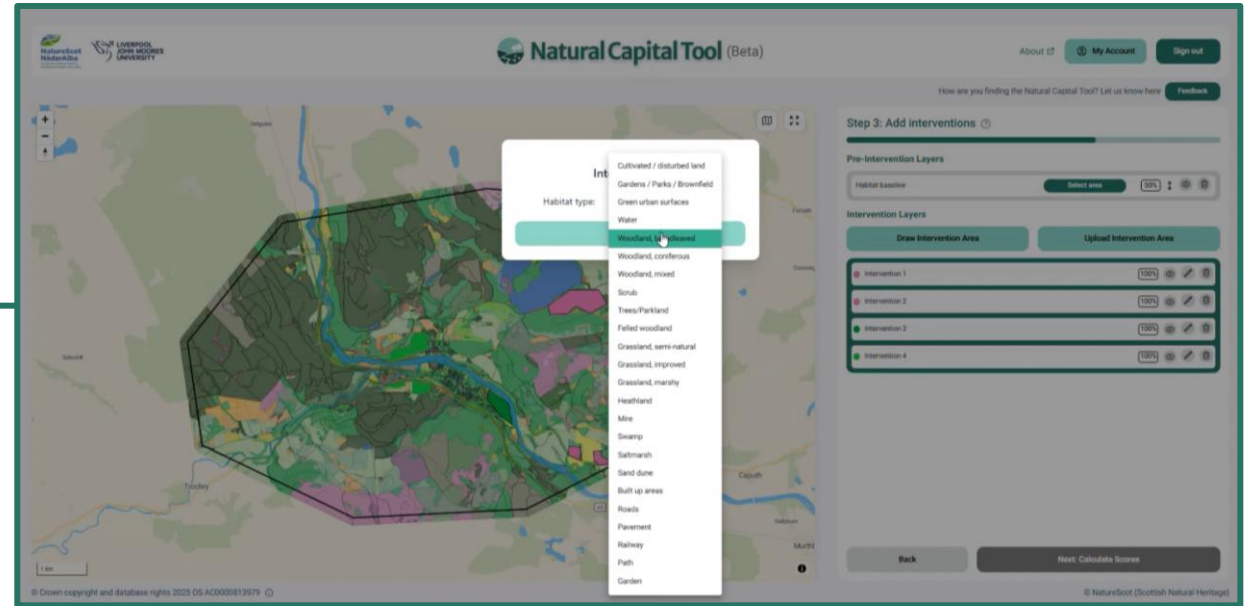
Multiple benefits - woodland



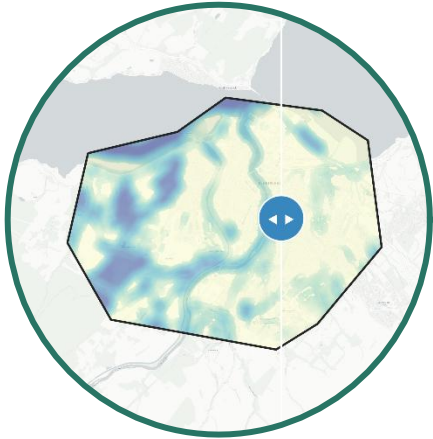
Tool Functionality: Scenario Planning



Once you have explored the maps and identified opportunities, you can start **planning your project and interventions**



Tool Functionality: Uplift Calculations



Running **uplift calculations** to look at the potential gains and losses of ecosystem services

Step 4: Results ?

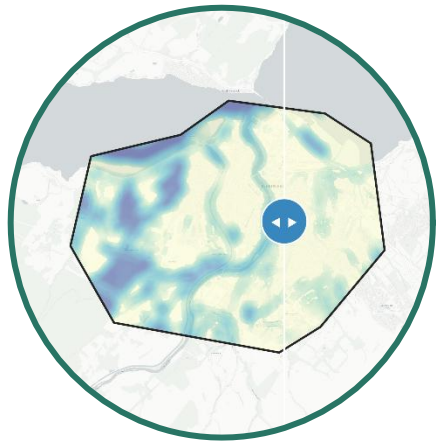
Score Map Habitat Map

Relative Biophysical Economic

Service	Baseline ⓘ	Projected ⓘ	Change
Climate regulation	463.93	471.69	1.67%
Pollinator habitat	0.31	0.31	1.27%
Noise regulation	108,360	114,426	5.60%
Air purification	12,657	12,815	1.25%
Nature access	1,356	1,396	2.98%
Carbon sequestration	22,873	23,289	1.82%
Flood mitigation	0.19	0.19	0.42%

Relative change from baseline (%)
 Positive values are gains
 Negative values are losses

Tool Functionality: Uplift Calculations



We also include:

- **Biophysical and economic valuation** where applicable (currently only for Timber and Carbon Sequestration)
- Recreation (access to nature), air pollutant removal (air quality improvement) and water storage (flood mitigation) are coming soon

Step 4: Results ?

Score Map

Habitat Map

Relative

Biophysical

Economic

Service	Baseline	Projected	Change	Unit
Air pollutant removal [^]	351.45	359.85	8.40	t/y
NH ₃	9.29	9.83	0.54	t/y
NO ₂	9.48	9.62	0.14	t/y
O ₃	314.88	320.74	5.86	t/y
PM _{2.5}	4.03	4.64	0.61	t/y
PM ₁₀	8.66	10.06	1.40	t/y
SO ₂	9.13	9.59	0.46	t/y
Carbon sequestration	25,246	28,428	3,183	m ³ /y
Recreation	3,604,835	1,095,967	-2,508,868	visits
Timber	8,651	9,749	1,098	m ³ /y

Tool Functionality: Automated Reporting

Automated report function which allows the user to generate bespoke reports based on the interventions conducted

The report displays:

- **Summary and site overview** - map with interventions, total land area changed (ha), no. of interventions, and relative uplift scores
- **Ecosystem service uplift scores** - the user can toggle between relative, biophysical, and economic values

Natural Capital Tool Report - Edinburgh North Demo

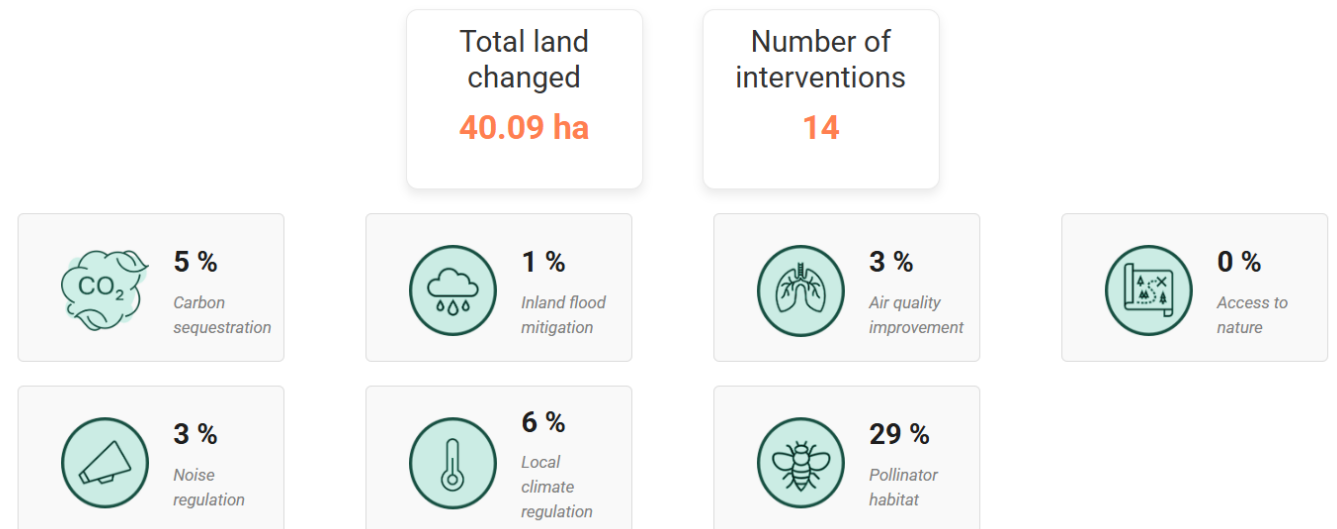
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Opportunities. Explored.

Supporting integrated and collaborative approaches to land management

Summary



Tool Functionality: Automated Reporting

Automated report function which allows the user to generate bespoke reports based on the interventions conducted

- **Habitat networks** - summary of habitat networks present in the target area
- **Table of relevant funding and resources** to explore intervention implementation
- **UN Sustainable Development Goals** - the SDGs the user's interventions contributed to

5. Funding opportunities

The following are public capital funding opportunities potentially available to you depending on your chosen intervention. We have summarised capital funds associated with woodland, semi-natural grassland, and wetland creation and peatland restoration, as well as smaller interventions, such as hedgerows. Each fund has specific criteria and eligibility requirements, so please follow the associated links to read these in more depth. Please note that we do not guarantee that the following funds are accepting applications at the time of reading this report.

Fund	What they fund	Scale	Caveats
Forestry Grant Scheme	Woodland creation - emphasis on broadleaved woodland - and associated fencing/tree shelters	Holding-scale	Not applicable for areas of existing woodland
Agri-Environment Climate Scheme	Protect areas of ancient wood pasture	Holding/multi-farm scale	Veteran trees must currently be present
Nature Restoration Fund	Broadleaved woodland creation and restoration - in line with the aims of the Scottish Biodiversity Strategy	Encourage landscape-scale, multi-sector collaborations	Will not fund habitat creation/restoration projects that are eligible for AECS funding
Water Environment Fund	Wetland creation and restoration to bring societal benefit, primarily flood mitigation services	Landscape-scale projects and local authorities	Must be riparian planting and form part of a wider project to improve river condition and bring societal benefit

This is a summary of the **public funding opportunities** that are available to you - this is not an exhaustive list of all existing funding opportunities. For other sources of available funding, please visit the [NatureScot - Other Sources of Funding](#) page.

Landscape-scale funding opportunities

The following are funds that invest in the development of environmental projects at the landscape-scale to encourage collaboration and produce investment-ready projects. These are not capital funds and focus on preparing projects to apply for capital funds.

Fund	What they fund	Scale	Further details
Facility for Investment Ready Nature in Scotland (FIRNS)	Funds the development of environmental projects with the aim of attracting responsible private funding	Landscape-scale	Will not fund individuals/companies that apply without collaborators - focuses on engaging multiple relevant stakeholders
Neighbourhood Ecosystem Fund	Funds restoration projects focused on producing benefits for the local community	Community-led projects	Provides communities with the funds needed to conduct initial surveys to pursue ecosystem restoration

For more details and support regarding funding and funding applications, please visit the [NatureScot - Other Sources of Funding](#) page.

6. UN Sustainable Development Goals

Your interventions are possibly contributing to 8 of the UN Sustainable Development Goals:



How does the tool deliver for people and nature?



Farming, Crofting and Agriculture

Support **farmer clusters** and **common grazings committees** in fulfilling high nature value potential and contributing to wider nature targets like 30 x 30 and Nature Networks.

Community Groups and Community Landowners

Empower communities with the **data and evidence** to start projects and gain funding. Can also support development of **Community Place Plans**.



Strategic Planning and Development

Support developers with **scoping projects** and Local Authorities with **Local Development Plans, Local Place Plans** and the **prioritisation of resources and time**.



Protected Areas and Nature Networks

Support the **identification of Nature30 sites** and the **development of Nature Networks**. It can identify the best places to deliver nature networks to maximise **benefits for both nature and society**.



Landscape scale partnerships

Provide a **standardised data platform** to connect stakeholders from **different sectors**. Identifying opportunities across landscapes and catchments to **coordinate efforts and take a holistic and integrated approach to decision making**.



Funding and Nature Finance

Signposts to a range of funding opportunities (both public and private). The tool can be used to **develop funding proposals** and get projects **investment ready**.



**Thank
you for
listening!**

Would you like access to the tool?

If you would like to try the Natural Capital Tool for yourself, please scan this QR code and complete the form.



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