

Natural Capital Assessment in Northern Ireland: Urban Study

Natural capital accounts have been produced for two sites in Belfast, highlighting the benefits of the natural environment in urban areas, and demonstrating how natural capital approaches can be applied in practice in Northern Ireland.

The breadth and the value of the benefits that natural capital delivers to people is increasingly being recognised in policy throughout the UK. The UK Government's recent *25 Year Plan to Improve the Environment* has shown a commitment to a more joined up approach to environmental management and it is hoped that these ideas will be taken up in Northern Ireland. In NI, the concepts of natural capital, ecosystem services and the ecosystem approach are at the heart of conservation policy, and feature in planning policy. However, the challenge is to demonstrate how natural capital approaches can work in practice so that they become an integral component of decision making.

What is natural capital?

Natural capital is defined as “..elements of nature that directly or indirectly produce value or benefits to people, including ecosystems, species, freshwater, land, minerals, the air and oceans, as well as natural processes and functions” (Natural Capital Committee 2014). These benefits (often referred to as ecosystem services) include food production, regulation of flooding and climate, pollination of crops, and cultural benefits such as aesthetic value and recreational opportunities.

Approach

This report presents a natural capital assessment of two urban sites in the Belfast area, Bog Meadows and Minnowburn. Using a natural capital accounting framework, the assessments aimed to identify and assess existing natural capital assets (asset register), the flow of services from them (physical flow account), and the monetary value of the resultant benefits (monetary flow account). The net ecosystem service benefits were then established, taking into account the costs of maintaining the natural capital assets (natural capital balance sheet).

Results

Bog Meadows is a 19 ha nature reserve situated 1.5 miles south-west of Belfast City Centre. It is a Local Nature Reserve and an important recreational resource with good public access in an area of high social deprivation. The asset register shows a variety of habitats, predominantly grazed unimproved grassland, reedbeds and wet woodland. The site provides a broad range of benefits, with water quality and water flow regulation services, and cultural services such as recreation, educational and aesthetic values being particularly important. The

Ecosystem service	Annual monetary value (£ 2018)	Present value (£)
Carbon sequestration	1,800	99,100
Timber/woodfuel production	300	7,530
Air quality regulation	10,200	261,000
Agricultural production	-700	-18,200
Greenhouse gas emissions from agriculture	-300	-18,100
Recreation	372,000	9,490,000
Physical health	459,000	16,980,000
TOTAL	842,000	26,800,000

physical and monetary flow accounts show that the services of greatest value are physical health, and recreational value, which provide annual benefits estimated to be worth £459,000 and £372,000 respectively. Overall, the total cost associated with maintaining the natural capital assets of Bog Meadows was low (£19,400 per year), compared to the total ecosystem service benefits that it provides (£842,000 per year). **The natural capital account showed that Bog Meadows is providing net benefits worth £26.3M over 50 years.**

Minnowburn is a c.52 ha National Trust site less than 5 miles south-west of the centre of Belfast. It receives a considerable number of local visitors (145,000 visits recorded each year), and contains habitats of national importance for biodiversity. The asset register shows a significant area of the site is broadleaf woodland, with

Ecosystem service	Annual monetary value (£ 2018)	Present value (£)
Carbon sequestration	9,500	534,000
Timber/woodfuel production	2,200	55,600
Air quality regulation	32,400	828,000
Agricultural production	-7,200	-183,000
Greenhouse gas emissions from agriculture	-7,400	-417,000
Recreation	897,000	22,900,000
Physical health	1,798,000	66,500,000
TOTAL	2,724,000	90,200,000

grazed improved grassland, and smaller areas of lowland meadow. A broad range of ecosystem services are provided by this site, the most important of which are for cultural services like aesthetics and recreation. The physical and monetary flow accounts again show physical health and recreation to be the services of greatest value and are providing even greater benefits than at Bog Meadows, worth £1.8M and £0.9M respectively each year. The woodland at the site meant that timber/woodfuel production, carbon sequestration and air pollution regulation were of higher value

than at Bog Meadows (see inset table), although still far lower than physical health and recreation. Agricultural production was in deficit and associated greenhouse gas emissions were a cost to society, but the site is a net sequester of carbon (more carbon is captured by woodland at the site than emitted by agricultural activities). Overall the total cost associated with maintaining the natural capital assets of Minnowburn was low (£40,900 per year), compared to the total ecosystem service benefits that it provides (£2.7M). **The natural capital account showed that Minnowburn is delivering net benefits worth £89.1M over a 50-year period.**

This assessment has shown that the **natural capital accounting** approach can be successfully applied to urban sites in Northern Ireland. Both accounts show that the sites are providing significant goods and services to society, and these are 50-80 times higher than the costs of maintaining the sites. The benefits are, however, all in the form of external values (public goods) rather than private values that could be gained by the land owners, and income for these sites does not cover costs. Natural capital accounting is useful at highlighting the value of the natural environment, which may otherwise remain hidden. It is hoped that the application of natural capital accounts will be used to inform decision making and that the case studies described here can be used to demonstrate best practice, and to showcase the importance of natural capital in Northern Ireland.

A basis for decision-making in Northern Ireland

There are a number of ways that this work can be built upon to inform decision-making and progress natural capital policy in Northern Ireland. It is recommended that a new policy framework is developed to encourage the wider use of natural capital approaches, including assessment and accounting, and that such approaches are required for all major development and investment decisions in Northern Ireland. Natural capital approaches should be integrated into Strategic Planning, Local Development Plans and Environmental Impact Assessments (EIAs) as an integral component of decision making.

In addition, natural capital accounts should be developed for a broader range of sites in Northern Ireland to highlight the benefits of this approach in different contexts. Mapping of ecosystem services and habitat opportunities would identify areas with high and low provision of, and demand for, services. It would reveal areas where natural capital could be improved through the creation and restoration of habitats, showing areas that should be protected, and areas that would be most suitable for development. This could lead to the development of investment strategies and plans for important locations, which would establish a compelling business case for natural capital investment.

The full report can be downloaded from [here](#).