What Are Natural Services? & How Can I Provide Them?

Sussex Wildlife Trust

Introduction

Managing land involves far more than just the production of food. Land management is increasingly about creating a flexible, multi purpose area within a wider landscape.

At the same time, conservation management has also changed. Conserving isolated species in protected nature reserves, is not working and many species and habitats are still declining.

Only by creating a network of healthy, interconnected habitats within a wider landscape, can we prevent essential species from dying out (i.e. Bees – our chief pollinators).

Bee © M. Monkterry

The landscape is important in it's own right however, and it supplies humans with a whole range of support systems which we rely on for our survival. A healthy landscape means healthy humans too.

What are 'Ecosystem' or 'Natural' Services?

This buzzword refers to the fact that the environment contributes directly to the social, physical and economic wellbeing and survival of people as well as wildlife. Humans depend directly on environmental 'goods' (such as water and wood) and 'services' (such as the storage of Carbon dioxide by trees and vegetation which helps to regulate our climate). Ecosystem services are difficult to observe, value or quantify, or have simply been taken for granted. They have therefore largely been unaccounted for in historical economic studies.

Ecosystem services can be grouped into four categories (Millennium Ecosystem Assessment, 2005):

1. **Supporting services** (Nutrient cycling, oxygen production, soil formation, crop pollination, seed dispersal, pest regulation, waste decomposition)

2. **Provisioning services** (Food, fuel, water, genetic resources, useful natural substances including medicinal plants, fish, game, metals, timber etc.)

3. **Regulating services** (Climate regulation and stabilisation, storm buffers, water and air purification, flood protection, protection of soils from erosion)

4. **Cultural services** (Recreation, aesthetic and psychological value, knowledge)

Why the sudden interest in Natural Services?

For hundreds of years, the fact that the environment contributed heavily to farming, welfare and industry has largely been taken for granted. Following the Industrial revolution, the development and use of artificial chemicals, heavy plant machinery, the built environment etc. spiralled. Fuelled by fossil fuels, humans were increasingly able to manipulate and control their environment in ways previously unimagined. Houses were built in floodplains and protected with engineering controls, new genetic crop varieties were bred to be resistant to disease etc.

This ability to manipulate our environment was no longer just at a local scale, but a regional, national and international level. Catchments deforested in their headstreams, caused flooding and loss of life many miles downstream; Soils and nutrients finding their way into watercourses caused increasing costs to water consumers due to spiralling water treatment costs. At the same time, suddenly we have realised that many natural resources are already running out or being damaged – fish stocks in the sea and rivers have declined, ozone holes appeared, and fossil fuels and water are running out.

We have realised that Ecosystem services are finite, and that we need to start 'replenishing' them and restoring them where we can.

The South Downs, an important landscape for people and wildlife and a filter for most of the drinking wa-

In many parts of the UK it is possible to find healthy, functioning ecosystems which provide significant environmental services for people (i.e. more than 70% of drinking water in Sussex comes from underground aquifers, which the South downs chalk has purified as the water filters through it).

In other areas, habitats have been modified so much, that natural services can no longer occur be provided. Many river floodplains are now so heavily modified that they never flood – even far away from towns and cities. Floodplains are often valued for their nutrient rich soils – deposited there by seasonal floodwaters. Without seasonal floods, soils are no longer replenished on an annual basis and become degraded. This reduces the amount of crops which can be grown, the amount of carbon and water that can be stored, and increases the need to add expensive fertilisers and other inputs.

Where do I fit in?

We need to work out where Natural Services can be provided, and where they can be restored within the local landscape. Your land may be ideal – in fact the chances are, you are already providing ecosystem services.

What environmental services can I provide on my land?

There are a whole range of Natural Services that you can provide – ranging from those which require no action on your part, to large scale habitat and floodplain restoration projects. Here are a few examples:-

A farm pond. Great for wildlife, provides water for crops and stock and also helps mitigate climate change © F Southgate

1) Water purification
Changing winter crop rotations to reduce soil run off in heavy rain; applying slurries during calm weather; creating buffer strips on arable fields; minimising fertiliser and chemical applications particularly near watercourses; installing Sustainable Urban Drainage Systems in your farmyard; or creating a Reedbed (Sewage) Treatment System to filter run off are all ways you can help keep water supplies clean.

2) Carbon sequestration
Planting woodland in appropriate areas helps absorb and 'store' carbon dioxide, and increase the release of oxygen into the atmosphere. It can also slow down floods, help improve soils locally, reduce water temperatures to help fish breed etc. Woodlands can also provide renewable energy and biofuel. In 2008, research from Iowa State University USA showed that the world's farm ponds alone may bury more carbon than the oceans, making them hugely important for climate regulation.

4) Pollination
Create a bumblebee plot or plant a meadow and reduce applications of pesticides and insecticides. This will increase pollination of crops and wild plants. Without pollination, most plants will die.

5) Recreation
There are proven benefits to mental and physical health to people who have access to green spaces. Providing a permissive path actually helps make people happier and have a better life!

6) Nutrient cycling and fixation
Fungi and mushrooms have an important role in re-cycling and converting nutrients into the soil, for re-absorbtion by other plants. Other plants can 'fix' nitrogen from the air into their roots and the soil (i.e. alder, nettles, clover) fertilising the soil naturally and reducing the need for artificial fertilisers. Reduce your use of fungicides and insecticides and you may be helping your soil fertility

Nature's Services and how I can provide them

Where can I get help or funding to provide Natural Services?

The complexity and scale of ecosystem services mean that there is no 'one size fits all' grant scheme. However, many organisations (Sussex Wildlife Trust, Natural England) provide free or subsidised, professional advice on managing and restoring natural services. We can often help with grant funding, and practical works. Something as simple as planting hedgerows can help to provide important natural services.

Government Forestry and Stewardship grant schemes now fund landowners who manage their landscape for water quality, water resources and flood management in target areas. Grants also support landowners to protect drinking water aquifers and rivers. There are private schemes which pay landowners to store carbon in trees. More locally, the Sussex Flow Initiative provides free advice on Natural Flood Management on the river Ouse.

Do I need to actively manage my land to provide ecosystem services?

No, Ecosystem services are so called because the environment provides them for us. In some cases, just decreasing the intensity of land management can greatly increase the ecosystem services you provide. Working with neighbouring landowners can multiply the benefits of natural services however— www.woodlandtrust.org.uk/publications/2013/02/the-pontbren-project/

Contacts

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Natural England
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Sussex Flow Initiative
www.sussexflowinitiative.org

The Economics of Ecosystems and Biodiversity
www.teebweb.org

References & Further Reading

- **RSPB:** Sustainable Drainage Systems,
- **Forestry Commission Grant Schemes** - www.forestry.gov.uk
- **Reedbed (Sewage) Treatment Systems-** www.cat.org.uk/catpubs/article
- **Nitrate Vulnerable Zone's** - www.gov.uk/nitrate-vulnerable-zones
- **English Nature Report 701. (2006).** England's Ecosystem Services.
- **Environment and Health (2004):** Environment Agency position statement.
- **Millennium Ecosystem Assessment**- www.unep.org/maweb/en/index.aspx
- **The Woodland Trust** (Grant Schemes) - www.woodlandtrust.org.uk/plant-trees
- **Buglife B-Lines**— www.buglife.org.uk/campaigns-and-our-work/habitat-projects/b-lines

Sussex wetlands project promotes the sustainable management of rivers and the restoration of wetland habitats for people and wildlife