Article

"Nature jobs" using environmental goods and services sector data: 2019

Assessing what the environmental goods and services sector (EGSS) framework shows about nature jobs in the UK for 2010 to 2019 and opportunities for further research.

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1 . Main points

- "Nature jobs" can cover a range of activities, and UK environmental goods and services sector (EGSS) data can be used to explore these jobs.

- There were 21,600 full-time equivalent (FTE) employees in nature jobs in 2019.

- The number of FTE employees in nature jobs has fallen since 2010.

- The share of all EGSS employment that is nature-related is small across the whole time series.

- These data are experimental and are an initial estimate of nature jobs.

There are many ways to explore defining and measuring a nature job, and there is no internationally agreed approach. These estimates use our environmental goods and services data to explore some existing evidence on nature jobs. These are partial estimates, and they are also experimental.

2 . Challenges of defining a "nature job"

With increasing policy and public interest in information on "green jobs", we are undertaking a programme of further research that draws on our previous work.

There is no agreed definition of "nature jobs". They could be considered a subset of green jobs, which are also difficult to define as we explored in our Challenges of defining a "green job" article. The article explained that a sectoral approach could be taken to defining "green" to simplify data collection and analysis. The final report from the Green Jobs Taskforce took this approach, including sectors such as restoration of nature, planting trees, and nature-based solutions to reduce climate impacts.

The House of Commons Environmental Audit Committee's Green Jobs report noted the importance of nature jobs, aligning with the Green Jobs Taskforce's approach, and discusses nature jobs throughout.

The International Labour Organization (ILO) also argues that green jobs should include those in nature restoration and adaptation against climate change impacts. These were included alongside non-nature-related activities in the ILO's suggested definition of green jobs in 2016, as part of their wider work programme on this topic.

The Office for National Statistics (ONS) produces annual estimates of the environmental goods and services sector (EGSS) under an international framework, the UN System of Environmental-Economic Accounting (SEEA), which improves the availability and comparability of data on the links between the environment and the economy. As this framework includes some nature-related activities, this offers some useful insight into nature jobs in the UK. While this is not proposed as a definition of nature jobs, we outline evidence that is currently available and where there may be gaps for further research.

3 . The environmental goods and services sector (EGSS) framework

The environmental goods and services sector (EGSS) estimates could potentially be adapted or expanded in the future to define "nature jobs" in the UK context.

Within the UN System of Environmental-Economic Accounting (SEEA), the EGSS is defined as: "areas of the economy engaged in producing goods and services for environmental protection purposes, as well as those engaged in conserving and maintaining natural resources".

This definition was used to identify 17 areas of economic activity producing goods and services for primarily environmental reasons. The EGSS excludes any goods and services produced for purposes that, while they may be beneficial to the environment, primarily satisfy technical, human and economic needs, or that are health and safety requirements. Also, activity related to minimising the impact of natural hazards and activity related to the extraction, mobilisation and exploitation of natural resources are not included.

For example, the production of renewable energy is included in the EGSS as it is produced for primarily an environmental reason. An activity like growing trees specifically to supply wood would be excluded as this takes place for an economic reason.

The Office for National Statistics (ONS) produces estimates of the EGSS for the UK on an annual basis. The latest data are for 2010 to 2019. Data are provided for four variables: output, gross value added, employment, and exports. This article focuses on employment, which is measured in full-time equivalent (FTE) employees, rather than the number of jobs available. The EGSS can show the number of filled or partly filled jobs in a given sector, but it does not provide information on vacancies.

The ONS used the SEEA guidance to devise the activities captured within the EGSS for the UK economy. Estimates are provided by activity for the four different variables.

Data are also provided by the classifications of environmental activities for environmental protection activities (CEPA) and resource management activities (CReMA). In addition, data are provided by standard industrial classification (SIC). The CEPA and the CReMA are internationally comparable classifications devised by Eurostat. The SIC is used to classify a business into an industry and is based on the business' primary reported activity.

Together, the three classification systems can be investigated to identify areas that are likely to be relevant for nature jobs within the EGSS framework.

Some nature jobs are likely not captured in the EGSS. This could either be because the framework does not adequately account for them, or this could be because current data sources do not offer the granularity needed to identify and measure them.

4 . Using environmental goods and services sector data to identify "nature jobs"

There are 17 activities in the environmental goods and services sector (EGSS) as estimated by the Office for National Statistics (ONS).

These activities are: energy saving and sustainable energy systems; environmental charities; environmental consultancy and engineering services; environmental related construction; environmental education; environmental low emissions vehicles, carbon capture and storage, and inspection and control; in-house environmental activities; insulation activities; management of forest ecosystems; managerial activities of government bodies; organic agriculture; production of industrial environmental equipment; production of renewable energy; recycling; waste; wastewater; and water quantity management.

These activities, alongside relevant classifications of environmental protection activities (CEPA) and classifications of resource management activities (CReMA), and standard industrial classifications (SIC), can be used to identify how many full-time equivalent (FTE) employees in the UK EGSS could be working in "nature jobs".

Management of forest ecosystems

This activity includes economic activity related to forests available for wood supply, but not currently cultivated, and forests not available for wood supply, such as those in nature reserves and national parks. This could include maintaining a forest for local wildlife and recreation. Activities such as growing trees for supplying wood and subsequent logging are excluded from this EGSS activity as their primary purpose is not environmental.

In the UK EGSS account, estimates for this activity are classified wholly into SIC A, which is agriculture, forestry and fishing, and CReMA 11, which is the management of forest ecosystems.

The source data for estimates of employment in the management of forest ecosystems in EGSS is the ONS' Business Register and Employment Survey (BRES). SICs 021 and 024 are used, which are silviculture (the care and cultivation of forests) and other forestry activities and support services to forestry, respectively.

Organic agriculture

This activity covers agricultural production that does not use artificial fertilisers and pesticides, and does use crop rotation and other techniques to maintain healthy soil and control weeds, pests and diseases.

In the UK EGSS account, estimates for this activity are also classified wholly into SIC A and CEPA 4. CEPA 4 is the protection and remediation of soil, groundwater and surface water.

Employment estimates are based on the Department for Environment, Food and Rural Affairs' (Defra) total labour force data for agriculture in the UK. The share of the labour force that work on organic agriculture is based on the proportion of total agriculture output that is organic, as estimated by the ONS.

In-house environmental activities and managerial activities of government bodies

In-house environmental activities include activities that businesses undertake in-house to protect the environment against the damaging or depleting impact of the business' activity.

Managerial activities of government bodies include any public administration to protect the environment and manage natural resources. This includes resource quality monitoring schemes, issuing permits, or devising relevant policy.

Some of this activity is classified into CEPA 6, which is the protection of biodiversity and landscapes. This suggests that employees in these areas could be working in a nature job.

The rest of these two activities, which is less relevant for nature jobs, is classified into a mix of CEPA and CReMA categories. In-house environmental activities also map across to a mix of SICs. For managerial activities of government bodies, all activity is classified into SIC O, which is public administration. These shares of the activities are all excluded from the estimate of nature jobs in this article.

Estimates of employment for in-house environmental activities are based on data from the ONS' Business Register and Employment Survey (BRES). Data for waste, wastewater and recycling industries are used alongside estimates of output from the ONS' Environmental Protection Expenditure (EPE) Survey to estimate FTE employees.

Estimates of employment for managerial activities of government bodies are based on data from the public sector employment (PSE) estimates. The cost per FTE employee is applied to total labour costs for those employees in environmental areas, as sourced from general government annual expenditure, to estimate the total FTE employees.

The data for in-house environmental activities and the managerial activities of government bodies are presented as one combined category. The estimates for in-house environmental activities are very small and would be disclosive so cannot be published without aggregation.

5 . An initial estimate of the scale of "nature jobs" in the UK

This subsection shows estimates of full-time equivalent (FTE) employees in "nature jobs" in the UK, using the activities outlined in the previous section. Challenges of using this approach are explored further in Section 8. They generally relate to classifications and the availability of source data, rather than the suitability of the EGSS framework.

Figure 1 shows the estimated number of FTE employees in nature jobs from 2010 to 2019, and the shares of the total that are attributed to each of three activities.

Figure 1: EGSS estimates of nature jobs in the UK have declined since 2010

The number of full-time equivalent employees by selected EGSS activities, UK, 2010 to 2019

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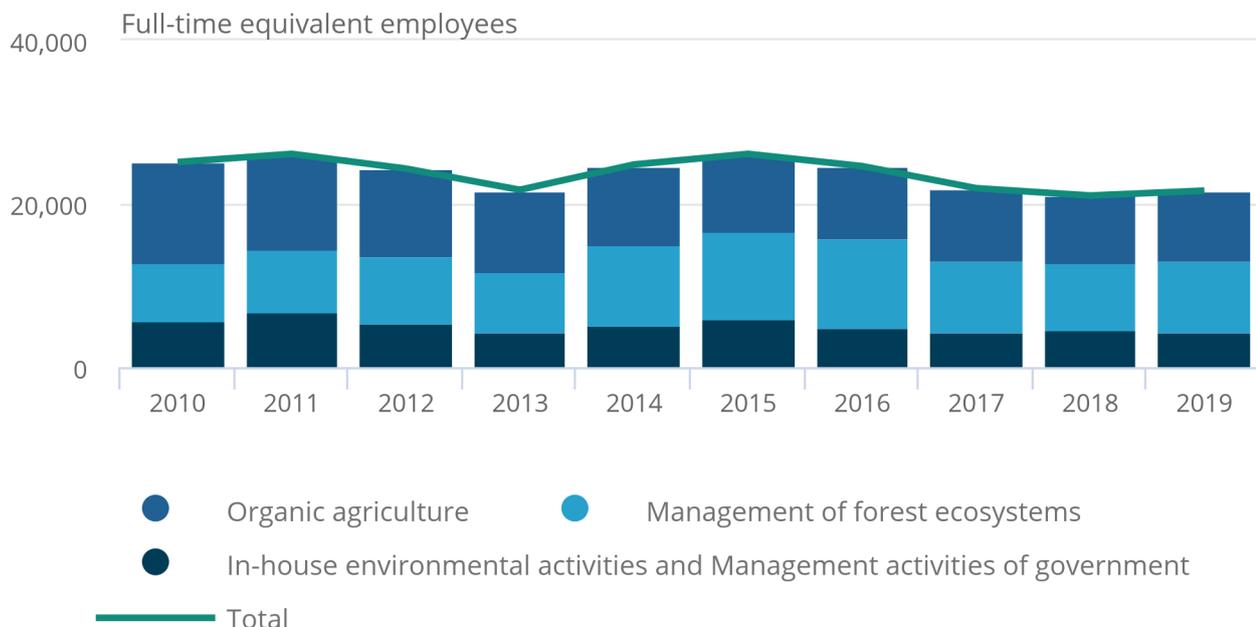
Source: Office for National Statistics – EGSS estimates

Notes:

1. The sum of the activities may not equal the total because of rounding.

Using the method previously described, there were 21,600 FTE employees in nature jobs in the UK in 2019. This is likely to exclude some nature jobs that are not captured in the current estimates.

Overall, the number of FTE employees in nature-related jobs in the four EGSS activities has fallen since 2010, ranging between 21,000 and 26,100 across the available time series.

For all activities except management of forest ecosystems, the number of employees in 2019 was lower than in 2010. In 2019, around 40% worked in the management of forest ecosystems and another 40% worked in organic agriculture.

The largest fall from 2010 to 2019 was for organic agriculture, which declined by 3,700 FTE employees or by around 30%. This reflects a general decrease in the proportion of agricultural land that is organic rather than a decrease in all agricultural workers.

Given that the estimate of nature jobs is relatively small, it is important to note that these movement may reflect uncertainty in the underlying source data rather than genuine movements.

Figure 2 shows how the trend in nature-related employment compares to the total EGSS estimates.

Figure 2: The share of all EGSS employment that is nature-related stayed between 5.1% and 7.3% in the time period 2010 to 2019

The percentage of full-time equivalent employees in nature-related jobs compared to total EGSS employment, UK, 2010 to 2019

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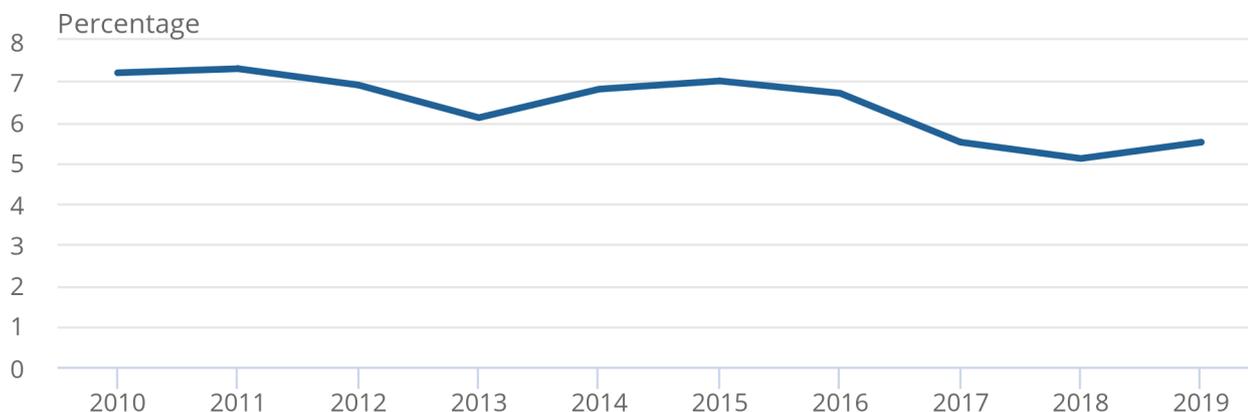
Source: Office for National Statistics – EGSS estimates

The trend on Figure 1 is also observed on Figure 2, with a decline in 2013 and from 2015 to 2018. Nature jobs as a share of total EGSS jobs increased slightly in 2019, by 0.4 percentage points, but this remained below the 2011 peak. This is not just because of a decline in employment in nature jobs but also because of an increase in EGSS employment not classified under this definition of nature jobs.

The UK environmental goods and services sector (EGSS): 2019 bulletin presents the latest full EGSS estimates and shows which activities contribute the most to total EGSS output and employment. These data are consistent with those in this article.

For comparison, the EGSS activity with the highest employment in 2019 was waste, with 115,800 FTE employees or 29.3% of all EGSS employment. Environmental related construction and water quantity management, at 11.2% and 10.8%, respectively, are also substantial shares of total EGSS employment. This compares with 5.5% of the total for this estimate of nature jobs.

While nature employment fell from 2015 to 2018, employment across the rest of the EGSS increased. However, between 2018 and 2019, the number of nature jobs increased by around 3% and the number of non-nature jobs in the EGSS fell by around 5%.

6 . Environmental goods and services sector dataset

Environmental goods and services sector (EGSS) estimates
Dataset | Released 21 March 2022
First estimates of the UK environmental goods and services sector (EGSS) for 2019 and revised estimates for 2010 to 2018. Included are estimates of output, gross value added, employment and exports.

7 . Glossary

Environmental goods and services sector (EGSS)

The EGSS framework, which follows the UN System of Environmental-Economic Accounting (SEEA), measures areas of the economy engaged in producing goods and services for environmental protection purposes, as well as those engaged in conserving and maintaining natural resources.

Full-time equivalent (FTE) employees

This is a widely used measure of employment. It includes the conversion of part-time employees to full-time equivalents (for example, two employees that work a half week are one full-time equivalent employee), which are added to the full-time employees for a final estimate of employment.

"Green jobs"

There is no agreed definition of "green jobs". The Office for National Statistics (ONS) produces two estimates of employment that can be used for measuring possible interpretations of green jobs, using the EGSS and the Low Carbon and Renewable Energy Economy (LCREE) Survey. The ONS has a wider workplan on green jobs.

"Nature jobs"

As with green jobs, there is no agreed definition of "nature jobs". "Nature" could be thought of as a subset of "green". Further work on the definition and measurement of nature jobs is planned by the ONS as part of our wider green jobs workplan.

The classification of environmental protection activities (CEPA) and classification of resource management activities (CReMA)

These classifications, known as CEPA and CReMA, were devised by Eurostat. They are used to allocate activity that is relevant for environmental protection and resource management and are therefore relevant for environmental-economic accounting.

8 . Data sources and quality

Methodology for the UK environmental goods and services sector (EGSS) account including nature-related activities

The source data that are used to estimate the size of the environmental goods and services sector (EGSS) are varied. Major sources include supply and use tables (SUTs), the Low Carbon and Renewable Energy Economy (LCREE) Survey, the Annual Business Survey (ABS), and the Business Register and Employment Survey (BRES). These are all from the Office for National Statistics (ONS).

These, alongside additional activity-specific sources, are used to compile estimates of output, gross value added, employment, and exports for the 17 EGSS activities. Estimates for some of these activities are more robust than others because of the available source data.

For "nature jobs", the estimates in this article use a range of sources including SUTs, the BRES, the ABS, central government annual expenditure data, international trade in services data and the Environmental Protection Expenditure (EPE) Survey. We also use external information from the Department for Environment, Food and Rural Affairs (Defra), HM Revenue and Customs (HMRC), and the University of Newcastle (which provides information for organic agriculture).

Further information on the EGSS is available in the Quality and Methodology Information (QMI) report and the methodology annex. EGSS estimates are experimental and are therefore subject to further development.

The "Metadata" tab in the methodology annex shows how estimates for each EGSS activity are allocated to their respective classification of environmental protection activities (CEPA) and classification of resource management activities (CReMA), and standard industrial classification (SIC). Some activities are wholly allocated to one of each category. For example, water quantity management is wholly allocated to CReMA 10 and SIC E. Others are allocated across multiple classifications in each category.

Using the EGSS framework for nature jobs

The EGSS framework is well-established and has been used for some years by a range of countries to compile estimates, so estimates are theoretically comparable between countries. The framework also allows for the alignment of different aspects of the environmental accounts. For example, our environmental protection expenditure estimates have some overlaps with EGSS estimates.

The framework is designed to use National Accounts data so that the accounts can be used alongside wider economic statistics. This helps contextualise these data and widen the options for analysis, and it improves the robustness of the estimates.

As there is no specific means of collecting data for nature jobs, the UK EGSS estimates offer an appropriate way of deriving initial estimates. As we show here, the EGSS framework allows for the identification and measurement of nature jobs that can then be analysed in the context of the wider UK economy or across countries.

It is likely that some nature jobs have been omitted from the estimates in Section 5. This generally reflects challenges concerning classifications and data availability rather than the environmental goods and services sector (EGGS) framework itself.

Classification challenges

An example of a classification challenge is that within any given SIC, it is likely that not all jobs are nature-related, even if the SIC appears to be nature-related.

The closest SIC at the section level to being fully nature-related, of the 21 sections available, is Section A: agriculture, forestry and fishing. However, this is broad - even if narrowed down to forestry, non-nature jobs (in EGSS terms) like logging commercial timber could be included.

SICs used in the EGSS are chosen based on their relation to the activities that make up the EGSS. There are some SICs that are currently not used in our EGSS estimates that could be relevant for nature jobs, such as SIC 9104 (botanical and zoological gardens and nature reserve activities). These SICs tend to be very granular, which means that finding robust sources of data for employment estimates is difficult.

One advantage of EGSS estimates is that they are consistent with the National Accounts and can be used for wider analysis, through the use of the estimates classified into SICs.

To produce our EGSS estimates, we need to allocate our estimates to multiple classification systems. It is challenging to identify how to classify estimates into classifications of environmental protection activities (CEPA) and classifications of resource management activities (CReMA), which could be used alongside SICs for international comparisons. Often, an activity may be appropriate for more than one CEPA or CReMA, but how to split the activity out is not clear.

There is currently a development project, run by Eurostat, on revising the CEPA and CReMA framework. A progress update was provided at a London Group on Environmental Economic Accounting meeting in October 2021. We will review our EGSS estimates in terms of their CEPA or CReMA allocation when the Eurostat project is complete, with possible implications for how nature jobs could be classified within the EGSS.

While not used in the EGSS, the standard occupational classification (SOC) could also be used to identify nature jobs. This could allow for the use of existing labour market data from the ONS to estimate nature jobs.

Potentially relevant SOCs include 3550 (conservation and environmental associate professionals) and 2141 (conservation professionals). As with SICs, these are very granular, so data are less robust.

Data challenges

Using the EGSS to estimate nature jobs requires high-quality data. Some EGSS activities are more robust than others because of the underlying source data.

The activities "in-house environmental activities", "managerial activities of government bodies", "organic agriculture" and "management of forest ecosystems" were used to estimate nature jobs in the UK in Section 5. There are comparatively good source data available for these EGSS activities and no significant quality concerns.

However, while our current EGSS estimates cover relevant areas for nature jobs, they were not designed specifically to measure these and therefore are likely to be incomplete. Further research would be required to identify gaps in coverage for nature jobs, particularly those in emerging areas that would not have been apparent when the EGSS methodology was first developed. This research could also show where there are jobs that are relevant for the EGSS but not nature.

Some EGSS activities are expected to include nature jobs but were not included in Section 5, such as environmental charities. This is because we do not currently have the available breakdown in the underlying data to specifically identify nature jobs.

We also explored alternative sources of data, some of which are outlined below.

Forest Research produces annual UK estimates of employment in the forestry industry. The ONS' Annual Business Survey (ABS) is the source of employment data used. It includes some aspects of forestry not captured by the EGSS as they do not meet its definition. For example, logging is captured by Forest Research's report, but it is excluded from EGSS.

Department for Environment, Food and Rural Affairs (Defra) data are used in the compilation of the EGSS "organic agriculture" activity, included in the estimates in Section 5. Defra also publishes staffing information for itself and its associated arms-length bodies, which could be used in estimates of nature jobs. The EGSS "managerial activities of government bodies" activity already captures employment in relevant governmental organisations, using ONS data on public sector employment.

Sub-national and other data

Different organisations operating in different countries of the UK may be able to provide more regional information. There could also be organisations that could provide information on activities or sectors of interest for which we do not currently have adequate data, such as water management. However, this information is not easy to locate, and comparisons would be challenging because of a lack of harmonisation between sources and methods.

9 . Future developments

This article has explained how the environmental goods and services sector (EGSS) framework can be used to identify and estimate employment in "nature jobs", and potentially measure these in the future.

Opportunities for further research have emerged from this article. They include:

- working on ways to separate out jobs captured in the EGSS estimates in Section 5 that may not be nature jobs

- how to bring in estimates of some jobs that would be considered nature-related but are not included in Section 5

- wider investigation and application of the EGSS framework to provide evidence on emerging needs, such as nature jobs, and identifying a sufficiently robust data source to do so

The Office for National Statistics (ONS) has a wider workplan on "green jobs", offering scope for further work on nature jobs, including looking at further sources of data and exploring a definition of this subcategory of green jobs.

If you would like to provide feedback on this article, please email environment.accounts@ons.gov.uk.

10 . Related links

UK environmental goods and services sector (EGSS): 2019
Bulletin | Released 21 March 2022
First estimates of the UK environmental goods and services sector (EGSS) for 2019 and revised estimates for 2010 to 2018. Included are estimates of output, gross value added, employment and exports.

"Green jobs", current and upcoming work: March 2022
Article | Released 7 March 2022
How the ONS has contributed to understanding "green jobs" through regular estimates and research articles, and what our future work on "green jobs" will include.

The challenges of defining a "green job"
Article | Last revised 7 April 2021
This article reviews the options available to define "green jobs" and explores the challenges in doing so. The ONS contributions to defining and measuring "green jobs" are explained, together with alternatives from the relevant literature.