



The Wildlife Trusts' Greenhouse Gas Inventory - Operations and Grazing

Financial Year 2022-2023

The Wildlife Trusts' Greenhouse Gas Inventory

Financial Year 2022 - 2023 – Operations and Grazing

Target	Collectively, The Wildlife Trusts are working to achieve net zero by 2030
Accounting Year	FY 2022-23
Baseline Year	FY 2019-20

The Wildlife Trusts - working together on climate action

Climate action is embedded right across The Wildlife Trusts' strategic goals to bring nature back ([Strategy 2030](#)). A synthesis of The Wildlife Trusts' collective response to climate change, related to both net zero and adaptation, can be found in our collective [Position Statement](#).

Together we are working towards net zero greenhouse gas (GHG) emissions by 2030 across our scope 1, 2 and 3 operational emissions, as well as putting in place robust adaptation measures across all our work areas.

As a grassroots movement working across every part of the UK, on Alderney and the Isle of Man, The Wildlife Trusts are major landowners, habitat managers, energy users, consumers of water, venue and event providers, educators, vehicle fleet operators, and employers (to name just a few). Whilst these elements all contribute to achieving our charitable objectives, we want to minimise their negative environmental impacts, and pursue more sustainable alternatives.

About this Report

This mitigation report sits under one of two parts to the work on climate change we are undertaking as The Wildlife Trusts federation, the other being our adaptation work programme, stemming from our 2022 '[Changing Nature](#)' report.

On our journey to net zero, our priority is to cut GHG emissions right across the work we do, and free ourselves from fossil fuel use and dependencies.

This annual report presents the GHG emissions from our operations in Financial Year (FY) 1 April 2022 to 31 March 2023. Emissions are given as tonnes of carbon dioxide equivalent, or tCO₂e, which is the standard unit used to compare and account for emissions.

We are taking an evidence-led approach to understand, reduce, and report our GHG emissions across our value chain, and measure progress towards our collective net zero 2030 target. As such, the scope and approach to this has and will continue to evolve, as we develop more efficient data collection systems and completeness of our activities and align to evolving best practice guidelines.

From this reporting year FY2022-23, we are evolving our approach to GHG accounting. This report covers GHG emissions associated with our operations and livestock. Emissions from our conservation grazing activities have been collected separately from emissions from operational activities and are included in a separate section in this report. Estimating the

emissions and removals from our habitats is an ongoing area of research and will be accounted and reported separately (see further details in Appendix 1).

This report also brings together some of the high-level highlights and challenges of decarbonisation progress across The Wildlife Trusts over the reporting period.

The Wildlife Trusts in 2022-23

The Wildlife Trusts are a federation of 46 Wildlife Trusts across the UK, Isle of Man and Alderney, and a central body, the Royal Society of Wildlife Trusts (RSWT).

In FY2022-23, The Wildlife Trusts collectively¹:

- Managed 97,000 hectares of land and coast.
- Managed 2,600 nature reserves.
- Responded to 2,347 planning applications supporting a total of 2,676 hectares of land being improved for nature.
- Employed 2,758 full-time equivalent staff.
- Were supported by 39,776 volunteers providing 1,327,291 volunteer hours.
- Hosted 6,119 visits from schools, colleges, universities, care homes and youth groups.
- Arranged 6,875 corporate volunteering days covering 38,915 hours.

The Wildlife Trusts' Operations Greenhouse Gas Emissions FY2022-23

In FY2022-23, across our operational activities (not including livestock), The Wildlife Trusts were collectively responsible for **19,757.5 tCO₂e**. See **Table 1** and **Figure 1** for a breakdown of GHG emissions by scope and activity. Details of the methodology used can be found in Appendix 1.

Our direct scope 1 and indirect scope 2 GHG emissions accounted for 2,799.1 tCO₂e, which was 14% of our total operational GHG emissions. Of these, fleet and equipment fuel, remains the highest emissions source, contributing 8.1%. Diesel fuel contributes the majority of emissions used for fleet and equipment (1,598.9 out of 2,101.6 tCO₂e). Wildlife Trusts use diesel fuels in multi-terrain vehicles/4x4s, agricultural vehicles and boats, as well as for some power tools and machinery, to access more rural sites and aid habitat management.

Our scope 3 activities accounted for 85.8% of our GHG emissions in the reporting year. In FY2022-23, we started reporting on purchased goods and services and purchased capital goods which have not been included previously. This new reporting is to bring us in line with best practice. These categories account for 62.5% of our GHG emissions. Inclusion of these categories has resulted in significantly higher overall scope 3 emissions compared to previous years. This does not necessarily demonstrate an increase in emissions, given these purchases occurred previously, but instead demonstrates our work to more accurately report on emissions across The Wildlife Trusts.

Employee commuting accounted for 9.1% of our total emissions, up from 7.4% in FY 2021-22. This demonstrates an increase in commuting as staff have returned to offices and sites

¹ The Wildlife Trusts, Strategy 20230 Impact Measures Report - 2022/2023 Financial Year. Available at: <https://www.wildlifetrusts.org/about-us/publications>

following the COVID-19 pandemic. However, commuting has not returned to pre-pandemic levels and therefore emissions from this activity are lower than reported in FY2019-20.

Table 1. Greenhouse gas emissions from our operations FY2022-23 by scope and emissions category.

Scope and category	Activity Type	GHG Emissions (tCO ₂ e)	% of total	
Scope 1	Total	2,101.6	10.6	
	Building fuel (stationary combustion)	501.2	2.5	
	Fleet and equipment fuel (mobile combustion)	1,598.9	8.1	
	Fugitive emissions (refrigerants)	1.5	0.0	
Scope 2	Total	697.5	3.6	
	Purchased electricity (location-based)	662.1	3.4	
	Purchased electricity (market-based)	35.5	6.4	
Scope 3	Total	16,958.3	85.8	
Category	1	Purchased goods	2,925.2	14.8
	1	Purchased services (excluding water)	7,390.8	37.4
	1	Water use and wastewater treatment	22.3	0.1
	2	Capital goods	2,032.2	10.3
	3	Fuel-and energy-related activities (not included in scope 1 or scope 2)	948.3	4.8
	4	Upstream transportation and distribution	0.0	0.0
	5	Waste generated in operations	280.5	1.4
	6	Business travel (employees)	642.1	3.2
	6	Casual staff and volunteers travel	383.9	1.9
	7	Employee commuting	1,805.8	9.1
	7	Employees working from home	522.5	2.6
	8	Upstream leased assets	4.6	0.0
	9	Downstream transportation and distribution	excluded	n/a
	10	Processing of sold products	excluded	n/a
	11	Use of sold products	excluded	n/a
12	End-of-life treatment of sold products	excluded	n/a	
13	Downstream leased assets	excluded	n/a	
14	Franchises	excluded	n/a	
15	Investments	excluded	n/a	
Total reportable emissions (scopes 1 – 3)		19,757.5	100%	
Out of scope	Biogenic emissions (scope 1)	553.4		

Greenhouse gas emissions (tCO₂e)

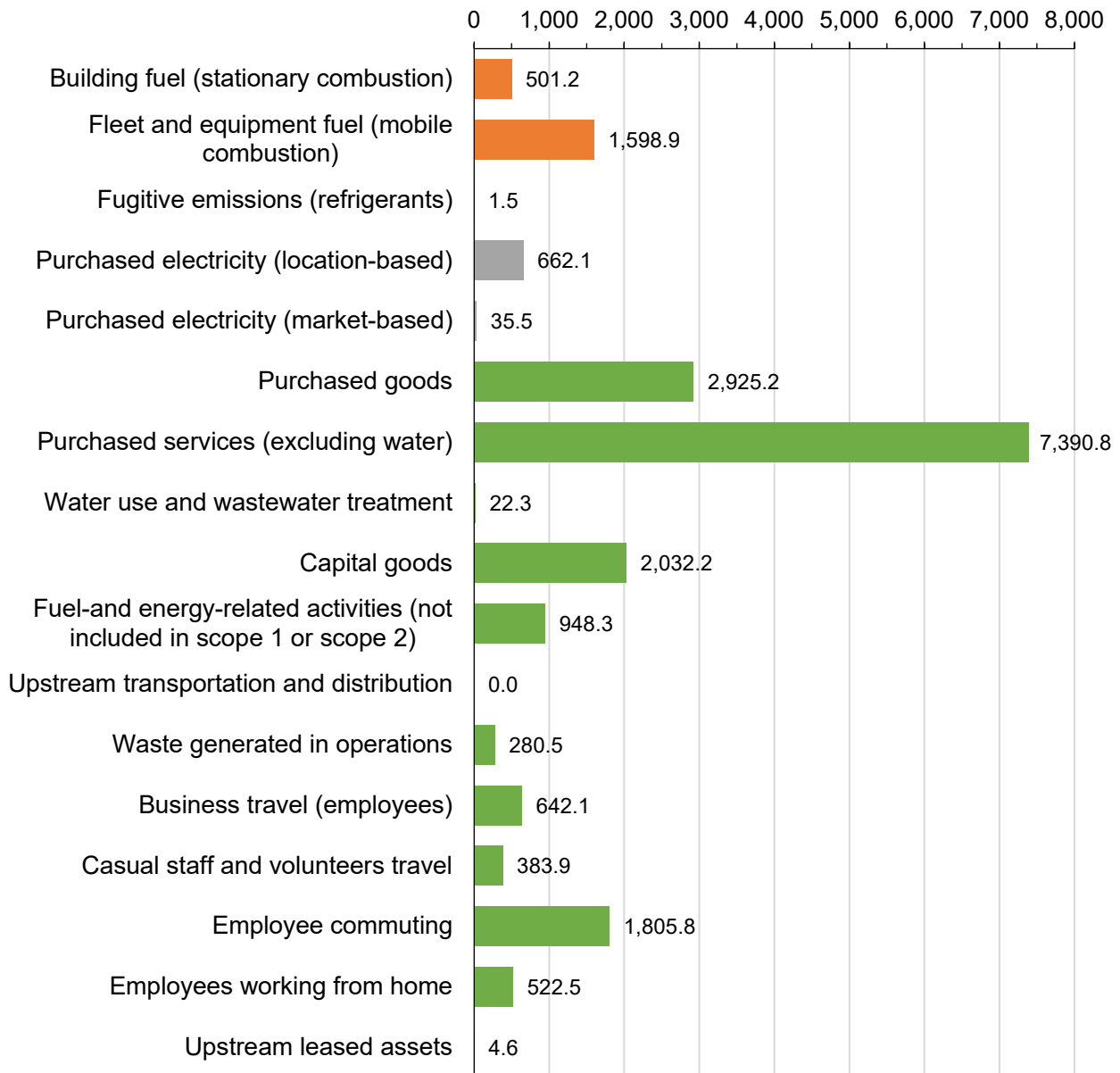


Figure 1. GHG emissions FY2022-23 from all Wildlife Trust operations* by scope and category.

*Note: FY2021-22 data was used for one Trust as they were unable to report for FY2022-23. FY2020-21 or 2021-22 data was used for certain categories in the accounts for three Trusts where they were unable to collect data for these categories in FY2022-23. No data could be reported or carried forward for one Trust in FY2022-23.

Progress against carbon reduction trajectory

The Wildlife Trusts first undertook a collective GHG account in FY2019-20, which serves as our baseline year against which to compare progress towards our net zero target.

Since FY2019-20, the scope of our GHG account has expanded to include fugitive emissions, working from home, waste, purchased goods and services (previously reported in a limited way as material use), purchased capital goods, upstream leases, upstream transportation and distribution, and fuel-and energy-related activities. Iterative improvements have also been made to data collection and accuracy.

Table 2 sets out our GHG emissions in the context of our commitment to work towards net zero GHG emissions by 2030, across all scopes, and set against our 2019-20 baseline. Emissions for purchased goods and services and purchased capital goods are split out in a separate column. The total emissions and change against baseline figures do not include these categories to enable a clearer comparison to the baseline.

Excluding purchased goods and services, and purchased capital goods, total emissions have decreased by 14% in FY2022-23 compared to the 2019-20 baseline. With the inclusion of purchased goods and services and purchased capital goods, scope 3 emissions have obviously increased the most since the baseline, whereas scope 1 and 2 emissions have both fallen, with scope 2 (purchased electricity) decreasing by 42%.

Table 2. Progress against our net zero by 2030 target.

Year	Absolute GHG emissions, scopes 1-3*			Absolute GHG emissions by scope (tCO ₂ e)		
	Operational emissions (tCO ₂ e)*	Change against baseline (%)	Purchased goods/ services and capital goods	Scope 1	Scope 2	Scope 3 [^]
Baseline 2019/20	8,575	-	No data	2,345	1,205	5,026
Most recent reporting year: FY2022-23	7,409	-14%	12,348	2,102	698	16,958
Target year: 2030/31	858	- 90%		235	120	503

*Excluding emissions from purchased goods/services and capital goods which are shown in a separate column. This figure also excludes conservation grazing of livestock, which was separated as a distinct reporting entity from FY2022-23, please see the relevant section below.

[^]Including purchased goods/ services and capital goods. Note the expansion of our reported scope 3 emissions coverage since 2019-20. The purchased goods/services and capital goods categories were added in FY2022-23. See Appendix 1 for further details.

Decarbonisation highlights and challenges, FY2022-23

In FY2022-23, The Wildlife Trusts continued their programme of decarbonisation, including:

- **Setting and reporting against net zero targets** adopted as a top ten 'foundational' requirement as part of our collective strategy: Enabling Priority 1 – Getting our own house in order. In November 2022, 44 out of 47 Trusts had a carbon reduction strategy and action plan in place.
- Setting up the **Climate Conversations Community of Practice**. This is an internal forum for The Wildlife Trusts to share news and updates relating to climate action (mitigation and adaptation), provide support and knowledge exchange, collate insights, evidence and case studies from Trusts, and develop and deliver movement-wide climate action initiatives. The community has met monthly throughout 2022 and 2023.
- The **Siemens electric vehicle charger assessment for The Wildlife Trusts** in June 2022. This pro bono report supported the Trusts' electric vehicle charging ambition including a feasibility study of two sites and information on practical next steps for implementation.
- The **Siemens Pre-Energy Strategy Support** pro bono project carried out in 2023 provided tools to help individual Trusts to contribute to the common vision of net zero GHG emissions by 2030, focussing on scope 1 and 2 emissions. Outcomes included a list of energy efficiency, generation and management options with clearly defined benefits and constraints, as well as financial and emissions implications; two case studies demonstrating the potential benefits of site-specific application measures; and an energy dashboard that enables Trusts to visualise their contribution and potential energy savings.
- **Energy audits** being undertaken across Trusts, which have highlighted some easier and cheaper methods for Trusts to reduce their energy demand and increase efficiencies.
- Exploring the purchase and use of **4x4 EVs**, including test days for certain models for Trusts.
- A project to improve the completeness, accuracy and efficiency of our **GHG inventory process**. This included a review completed by the consultancy Bemari in November 2022 of the carbon accounting approach and methodology for scope 2 and 3 emissions, and recommendations for improvement. Our GHG accounting approach has been updated in response to these recommendations and to align with best practice.

The Wildlife Trusts' Livestock Greenhouse Gas Emissions FY2022-23

During 2022-23, The Wildlife Trusts continued to explore, develop and refine their approach to estimating and reducing GHG emissions arising from their conservation grazing operations. A group of Wildlife Trusts, working with RSWT, commissioned the *Wild Business* consultancy to carry out a systematic literature review of evidence relating to GHG emissions from grazing animals, to inform the federation's approach to the issue. This was completed in January 2023, providing recommendations concerning ways in which conservation land management objectives might be met using a variety of different grazing strategies².

A second phase of the project has subsequently been piloting the application of the review's findings to a number of conservation grazing operations across England, reflecting a variety of different habitat types, scales and types of grazing operation.

There is still ongoing uncertainty about which GHG estimation tools and calculators are most (and least) suited to conservation grazing and how these should be applied to generate appropriate results. As part of The Wildlife Trusts' Conservation Grazing and Greenhouse Gases initiative, a new bespoke calculator intended specifically for use by the managers of conservation grazing operations was developed internally and used to generate GHG emission estimates for a number of case-study conservation grazing operations and for a range of possible future grazing scenarios at each location. It has also been used as the basis of an amended method of estimating The Wildlife Trusts' annual livestock-related GHG emissions for inclusion in this report.

The headline results of the application of this new calculator to Wildlife Trusts' grazing livestock data since April 2020 are given in **Table 3**. Livestock data collected for 2020-21 and 2021-22, using a previous (less accurate) method were converted into the format required for the new calculator and were processed to provide the most consistent year-on-year comparisons possible.

There are several challenges to be overcome, concerning the collection, quality and consistency of data relating to The Wildlife Trusts' conservation grazing operations, but the 2022-23 data collection exercise secured returns from 39 of the 47 Trusts, three of which used no domestic grazing animals during the year. Data from previous years' returns were used for the other eight Trusts, on the assumption (in the absence of any evidence to the contrary) that their grazing operations had been maintained at an approximately consistent size from the previous year.

On the basis of data available and this year's trial analysis, we have concluded that:

- Total combined GHG emissions from the grazing animals that contributed to the management of Wildlife Trust landholdings in FY2022-23 were approximately **14,500 tCO₂e** (GWP₁₀₀, see **Table 3** for more details).
- 91% of livestock-related emissions in FY2022-23 were in the form of methane (486 tonnes; 13,208 tCO₂e) and 9% nitrous oxide (4.7 tonnes; 1,272 tCO₂e).
- The total amount of livestock grazing on The Wildlife Trusts' landholdings across the UK and Crown Dependencies has decreased by about 14.5% between April 2020 and March 2023, in terms of both the number of animals and the amount of grazing

² Ramsay, J., Wheeler, H. & C.J. Sandom (2023) *Reducing Greenhouse Gas Emissions from Conservation Grazing: a literature review and exploration of options*. Report for The Wildlife Trusts. Available on request from evidence@wildlifetrusts.org

pressure (the number of Livestock Units) each year. This reduction has been mostly in the form of fewer sheep grazing Wildlife Trust landholdings.

- Consequently, associated emissions of GHG have fallen – methane by about 11.5% and nitrous oxide by about 3.7%. It is not yet clear what the implications of this are for the wildlife and nature conservation value of the semi-natural habitats being grazed.
- Combined, these emission reductions suggest that between April 2020 and March 2023, the long-term global warming impact of Wildlife Trust conservation grazing operations (over a 100 year time period) has reduced by about 10.9% and their short-term impact (over a 20 year timeframe) by about 11.3%.
- Wildlife Trusts with larger conservation grazing operations have been responsible for a proportionally greater part of these emission reductions than Wildlife Trusts with fewer grazing animals. In fact, Wildlife Trusts with smaller than average conservation grazing operations have typically increased the number of grazing animals they use, and also their associated emissions. These increases have partially negated the grazing-related emission reductions achieved by some of the Trusts that had bigger than average grazing operations in FY2020-21.
- It is likely that the reductions observed are at least partly a consequence of more precise recording and reporting of the time conservation grazing livestock spend on Wildlife Trust land.
- While total emissions have reduced, there has been a slight movement towards conservation grazing operations containing proportionally fewer sheep and more cattle, leading to a 1.8% increase in emissions per annual Livestock Unit (Livestock Unit year) of grazing activity. This appears to be why the rate of reduction in estimated emissions is lower than the rate of reduction in reported animal numbers. While grazing pressure has reduced, on average the remaining animals have become less efficient per unit of grazing activity (including a higher proportion of relatively high-emitting animals).
- The observed 2.2% increase in nitrous oxide emissions between FY2021-22 and FY2022-23 is almost certainly a consequence of switching to the new estimation method. Prior to FY2022-23, no data was available concerning the length of time animals spent indoors during the year, or how their waste was managed during that time. It is almost inevitable that the inclusion of these factors in estimates for FY2022-23 will have led to this increase, despite the relatively small time spent indoors by our grazing animals (accounting for only about 1.6% of the federation's total grazing capacity in FY2022-23, measured in animal years or Livestock Unit years of available grazing capacity).

We are continuing to develop our approach to estimating and reducing the GHG emissions associated with our conservation land management, including carrying out more detailed analysis and extension of our research collaborations.

Further detail on the methods used and the continuing development of our approach to livestock-related emissions are given in **Appendix 1**.

Table 3. A summary of the estimated greenhouse gas emissions from The Wildlife Trusts' conservation grazing operations from April 2020 to March 2023 inclusive.

Livestock Units (LU) – a measure of grazing pressure, allowing stocking rate comparison between livestock types³.

Global Warming Potential (GWP) – the index used to translate the level of emissions of various gases into a common measure to compare the relative radiative forcing (warming influence) of different gases over a specific time period⁴. GWP₂₀ and GWP₁₀₀ consider time periods of 20 and 100 years respectively.

	Year	Conservation grazing operation		Greenhouse gas emissions (tCO ₂ e)						Carbon intensity (using GWP ₁₀₀ for CH ₄) (tCO ₂ e per LU year)
		Annual grazing pressure		Long-term Global Warming Impact (using GWP ₁₀₀ for methane)			Short-term Global Warming Impact (using GWP ₂₀ for methane)			
		Headage (animal years)	Livestock Units (LU years)	Methane (CH ₄)	Nitrous oxide (N ₂ O)	Combined CH ₄ & N ₂ O	Methane (CH ₄)	Nitrous oxide (N ₂ O)	Combined CH ₄ & N ₂ O	
Values (units)	2020-21	19,012	5,916	14,932	1,322	16,254	44,357	1,322	45,679	2.75
	2021-22	18,977	5,734	14,413	1,245	15,658	42,815	1,245	44,060	2.74
	2022-23	16,254	5,060	13,208	1,272	14,481	39,237	1,272	40,509	2.80
Changes (%)	2020-21 to 2021-22	-0.2%	-3.1%	-3.5%	-5.8%	-3.7%	-3.5%	-5.8%	-3.5%	-0.3%
	2021-22 to 2022-23	-14.3%	-11.7%	-8.4%	2.2%	-7.5%	-8.4%	2.2%	-8.1%	2.1%
	2020-21 to 2022-23	-14.5%	-14.5%	-11.5%	-3.7%	-10.9%	-11.5%	-3.7%	-11.3%	1.8%

³ Natural England (2013). Entry Level Stewardship: Environmental Stewardship Handbook, Fourth Edition - NE349. Available at: <https://publications.naturalengland.org.uk/publication/2798159> (Accessed: 15/07/2024)

⁴ UNFCCC Glossary. Available at: https://unfccc.int/resource/cd_roms/na1/ghg_inventories/english/8_glossary/Glossary.htm (Accessed: 15/07/2024)

Appendix 1. Description of methodologies and data used

The Wildlife Trusts are aligning our GHG Inventory so far as practically possible with best practice set out by the Greenhouse Gas Protocol. In 2022, an external audit of our accounting method was undertaken, and this report reflects we are now acting on its recommendations to meet best practice.

All Wildlife Trusts and RSWT use a consistent operational control boundary and tool to do this. Our operational boundary includes both Wildlife Trust activities and those of our subsidiaries such as our consultancies.

The Wildlife Trusts expanded the boundary of our GHG inventory in FY2022-23, to increase the completeness of material scope 3 activities and include fugitive emissions from refrigerants. Efforts to improve the accuracy and efficiency of data collection methods were also made across several areas, including introducing a market-based method for calculating purchased electricity emissions which will reflect the reduction in emissions as Trusts switch to renewable energy suppliers.

The categories included within the scope of The Wildlife Trusts' GHG Inventory for FY2022-23, and indicative data sources can be found in **Table 4** to **Table 6**, exclusions are listed in **Table 7**. Where primary data was not available to calculate emissions, sensible estimates were employed.

Table 4. Descriptive information about our GHG Inventory approach.

Information	Response
Chosen consolidation approach (equity share, operational control or financial control)	Operational control
Description of the businesses and operations included in the company's organisational boundary	Material activities of the main charities and their subsidiaries, including trading arms.
The reporting period covered	Financial year 2022-23
A list of scope 3 activities included in the report	See Table 6
A list of scope 1, scope 2, and scope 3 activities excluded from the report with justification for their exclusion	See Table 7
The year chosen as base year and rationale for choosing the base year	FY2019-20, the first year a GHG inventory was undertaken and pre-COVID baseline
Once a base year has been established, the chosen base year emissions recalculation policy. If base year emissions have been recalculated, the context for any significant emissions changes that triggered the recalculation.	To be decided

Table 5. Scope 1 and 2 activities included in The Wildlife Trusts' Greenhouse Gas Inventory FY2022-23.

Scope and category	Description of the types and sources of data used	Data quality*	Description of methodologies, allocation methods, and assumptions used to calculate emissions
Scope 1			
Building fuel (stationary combustion)	Supplier invoices of fuels used for heating, generators, and cooking. Including gas, oil, liquefied petroleum gas (LPG), diesel, petrol.	H	Consumption data (kWh, litres) x emissions factor
Fleet and equipment fuel (mobile combustion)	Fuel card and supplier invoices for fuels used in fleet vehicles, machinery, and other mobile activities.	H	Consumption data (litres) x emissions factor
Fugitive emissions (refrigerants)	Supplier invoices of refrigerant top ups in air conditioning units or refrigerators in reporting year.	H	Consumption data (kg) x emissions factor
Biogenic (out of scope)	Supplier invoices for quantities, in tonnes, and types of feedstock (e.g. logs, chips, pellets, grass/straw) for heating. Biodiesel methyl ester or hydrotreated vegetable oil (HVO) fuel for vehicles, in litres.	H	Consumption data (tonnes) x emissions factor
Scope 2			
Purchased electricity (location-based)	Supplier invoices of purchased electricity, cooling and heating.	H	Consumption data (kWh) x emissions factor (average UK grid)
Purchased electricity (market-based)	Supplier invoices of purchased electricity, cooling and heating.	H	Consumption data (kWh) x emissions factor (tariff specific)

Table 6. Scope 3 activities included in The Wildlife Trusts' Greenhouse Gas Inventory FY2022-23.

Scope and category	Description of the types and sources of data used	Data quality*	Description of methodologies, allocation methods, and assumptions used to calculate emissions
Scope 3			
1: Purchased goods and services	Spend data of all purchased goods and services.	M	Either consumption data (weight, volume, etc.) x emissions factor Spend (£) x spend-based emissions factor
1: Water use and wastewater	Supplier invoices of mains water use and wastewater treatment, in cubic meters (m3).	H	Consumption data (kWh) x emissions factor Assume water treatment is the same as water supply unless otherwise stated.
2: Capital goods	Invoices for spend on capital assets purchased during the reporting period, following organisation's rule for capitalisation.	M	Spend (£) x spend-based emissions factor Full cost reported, not amortised.
3: Fuel and energy-related activities (not included in scope 1 or scope 2)	Function of fuel and energy use in other categories, including electricity transmission and distribution and well-to-tank emissions covering heat, travel, bioenergy, travel mileage and public transport emissions covered by the Inventory.	H	Fuel consumption x emissions factor
4: Upstream transportation and distribution	Use of couriers including inbound and outbound logistics: Distances, weight as proportion of containment and mode of transport. Data supplied by couriers.	M	Activity (transport type, total distance travelled and weight transported) x emissions factor

Scope and category	Description of the types and sources of data used	Data quality*	Description of methodologies, allocation methods, and assumptions used to calculate emissions
5: Waste generated in operations	<p>Waste weights generated in operations entering different waste streams.</p> <p>This includes landfill, incineration, commercial recycling by material type, and composting.</p>	M	<p>Estimated on bin volume equated to weight, typical proportion filled and number of lifts in reporting year. Or Waste service provider reports</p> <p>Weight (tonnes) x emissions factor</p>
6: Business travel (employees)	<p>Distance and mode of travel incurred by employees to deliver organisation's operations.</p> <p>Activity data obtained from the expense system.</p>	H	Activity (km and mode of travel) x emissions factor
6: Casual staff and volunteers travel	<p>Distance and mode of travel by casual staff (non-permanent, contract) and volunteers deployed to deliver Wildlife Trust activities.</p> <p>Done through various methods, e.g. estimations, surveys, rarely actual activity data.</p>	L	Estimate of activity (km and mode of travel) x emissions factor
7: Employee commuting	Staff survey to estimate distance and mode of travel by employees' commuting from their homes to their registered place of work.	M	Extrapolated estimate of activity (km and mode of travel) x emissions factor
7: Employees working from home	Staff survey to estimate additional fuel and energy emissions associated with staff working from home.	M	<p>Extrapolated estimate of total working from home hours x emissions factor</p> <p>Function to distinguish additional energy use more readily based on household occupancy and devices.</p>

Scope and category	Description of the types and sources of data used	Data quality*	Description of methodologies, allocation methods, and assumptions used to calculate emissions
	Based on average working from home hours per month reported by each employee and extrapolated.		
8: Upstream leased assets	Supplier invoices or activity data for the use of leased assets including energy use in buildings with no control over supplier, and electricity use for leased electric vehicles where not already included in scope 2.	M	Consumption data (unit dependent on fuel/energy type used) x emissions factor

***Data quality key:**

- High - activity and consumption data used
- Medium - some proxies / estimates
- Low - estimates and proxies only
- None - no data available

Emissions Factors

Emissions factors are used to calculate GHG emissions for an activity. We use emissions factors to convert either consumption (weights, volumes etc.) or spend-based data (£) into estimated GHG emissions.

Two datasets are leveraged to calculate this GHG Inventory:

1. Government conversion factors for company report⁵

The majority of emissions factors used in our GHG Inventory calculations are taken from the Government's annually published conversion factors for company reporting of GHG emissions. For the reporting year FY2022-23, the 2023 dataset was used.

2. UK and England's carbon footprint consumption emissions factors⁶

These spend-based emissions factors are leveraged for scope 3 categories 1, purchased goods and services, and 2, purchased capital assets. Many spend-based emissions factor datasets sit behind pay walls. Instead, The Wildlife Trusts drew upon the UK and England's carbon footprint consumption emissions factors published by Defra to provide an estimate of emissions associated with our procurement activities. For the reporting year FY2022-23, the 2020 dataset was used which was the most recent dataset available at the time. The categories used (Standard Industrial Classification codes) and emissions factors may be updated by Defra annually so this will affect how we use this dataset in future.

We recognise that these factors will vary from other spend-based emissions factors and will have a bearing on the resulting emissions estimates. Defra's carbon footprint consumption emissions factors are based on average emissions from the activities covered. We recognise that the suppliers chosen by Wildlife Trusts may result in different emissions to the Defra averages for the goods and services they provide. Additionally, certain goods and services purchased by Wildlife Trusts, such as those contributing to reserve management, may not be well represented in the emissions factors included by Defra. We therefore have to select the most appropriate categories and associated emissions factors, which may result in some inaccuracies. We consider the current method an appropriate compromise at this point in our accounting journey to estimate emissions from different areas of our procurement activities, whilst not investing heavily to access paid-for datasets. However, we endeavor to improve the accuracy of emissions estimates for purchased goods and services in future.

⁵ Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy (2024). Government conversion factors for company reporting of greenhouse gas emissions. Available at: <https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting> (Accessed: 27/03/2024).

⁶ Department for Environment, Food & Rural Affairs (2024). Official Statistics: UK and England's carbon footprint to 2021. Available at: <https://www.gov.uk/government/statistics/uks-carbon-footprint> (Accessed: 15/05/2024).

Table 7. Exclusions from The Wildlife Trusts' Greenhouse Gas Inventory FY2022-23.

Scope 3 category	Comment
Downstream scope 3 emissions	
9: Downstream transport and distribution emissions associated with the distribution of publications and retail products from retailer to consumer	Unlikely to be material to our GHG inventory.
10: Processing, use and end-of-life treatment of sold products e.g., emissions associated with the assumed post-sale third-party processing of publications and retail products sold by The Wildlife Trusts or a Wildlife Trust	Unlikely to be material to our GHG inventory.
11: Use of sold products	Unlikely to be material to Wildlife Trusts GHG inventory.
12: End-of-life treatment of sold products	Unlikely to be material to our GHG inventory.
13: Downstream leased assets	Activity either at federation or individual Trust level is not considered to be of scale for this to be sufficiently relevant.
14: Franchises	Not applicable, though subsidiary companies of Wildlife Trusts are included within the inventory boundary.
15: Investments emissions associated with the business activities of the companies in which The Wildlife Trusts or Wildlife Trust has invested.	We do not actively manage its own investments.

Biogenic emissions and removals from habitats and livestock

Livestock

We will continue to measure and report annually emissions generated from livestock grazed on land we own or manage to deliver nature conservation benefits. Prior to FY2022-23, these were grouped within our operational emissions reporting, but from FY2022-23, livestock emissions have been reported separately alongside, rather than nested within, our operational GHG inventory.

The data collected from each Wildlife Trust in FY2022-23 concerning the grazing animals used in their conservation grazing operations was as follows:

- Species of animal (cattle, sheep, goats, horses and ponies, pigs, deer, water buffalo, bison).
- Lactation state (dairy/non-dairy) for cattle.
- Breed size (small, medium, large) for cattle, sheep and horses and ponies.
- Animal age (calves and lambs under one year, or older animals) for cattle and sheep.
- Number of animal days spent on pasture or range (for each animal category).
- Number of animal days spent off pasture or range (for each animal category).
- Waste management approach used for each animal category while off-pasture (farmyard manure, outdoor yard or indoor solid floor, indoor slatted floor, deep bedding).

Data format and collection was tied as closely as possible to established grazing management record keeping and reporting for other purposes.

Emissions of methane and nitrous oxide were estimated using emission factors taken from the UK Greenhouse Gas Inventory report, 1990 to 2021 (Brown *et al*, 2023)⁷.

Livestock Unit equivalence values were used to adjust emissions factors to suit different species and breed sizes not included within the UK Greenhouse Gas Inventory methods, using Countryside Stewardship Higher Tier guidance for 2022 (Rural Payments Agency, 2022) as the primary source of Livestock Unit equivalences⁸.

Calculation of estimated emissions was undertaken using a bespoke conservation grazing GHG emissions calculator, based on the principles that:

- The primary purpose of grazing animals employed in conservation grazing is to remove vegetation by eating it and the scale and effectiveness of their contribution to conservation land management efforts can be largely measured in those terms.
- A Livestock Unit of grazing pressure is typified by a 650 kg productive dairy cow requiring 13 kg of dry matter intake per day to maintain its weight and condition, and it is possible to use this relationship to equate grazing impact, feed intake and GHG emissions between different species, breeds and types of grazing animal.

⁷ Brown, P., Cardenas, L., Del Vento, S., Karagianni, E., MacCarthy, J., Mullen, P., Passant, N., Richmond B., Thistlethwaite, G., Thomson A., Wakeling D. & Willis, D. (2023). UK Greenhouse Gas Inventory, 1990 to 2021: Annual Report for submission under the Framework Convention on Climate Change. Available at: https://naei.beis.gov.uk/reports/reports?report_id=1108

⁸ Rural Payments Agency UK (2022). Countryside Stewardship: Higher Tier Manual for agreements starting on 1 January 2022. Annex 8C - Convert livestock numbers into Livestock Units. Available at: <https://www.gov.uk/government/publications/countryside-stewardship-higher-tier-manual-for-agreements-starting-on-1-january-2022>

- Ruminants emit more greenhouse gases than non-ruminants for a given amount of food intake (because their digestion depends more on the action of methanogenic microbes).
- There are differences in the way different species digest vegetation and the consequences of this for GHG emissions, but other than the difference between ruminants and non-ruminants, these are fairly minor.
- The quality and quantity of feed intake both have a significant impact on GHG emissions.
- Larger animals eat more than smaller animals.
- Younger (faster growing) animals eat relatively more than older (slower growing) animals.
- Lactating animals eat relatively more than non-lactating animals.
- Animals that eat more produce more waste (leading to more waste-related emissions).
- The way in which animal waste is managed can have a significant impact on the emissions generated from it.
- Feed quality in conservation grazing situations is largely determined by the habitat type(s) within the grazing range, so cannot normally be manipulated expressly to reduce GHG emissions without consequences for conservation of the habitat.
- In the absence of specific data concerning the nutrient value and fiber content of different food plants and the effect of fine-grained feeding behaviour of conservation grazing animals on their food intake, these cannot be taken into account as a variable in the calculator.

Data collected for FY2020-21 and FY2021-22 were converted (as accurately as possible) into the format required for the new (2023) calculator and revised GHG emission estimates were generated for those two years to provide consistent estimates over the three-year period.

We will continue to refine our monitoring approach and to pursue options to reduce emissions where it is possible to do so. In particular:

- The site-based case studies being prepared with us by *Wild Business* will be completed in October 2024.
- The Wildlife Trusts' bespoke emissions calculator will be peer reviewed and refined further (including exploring further the use of the GWP* methodology for estimating the impacts of changing rates of livestock-related methane emissions).
- Versions of the bespoke calculator for future years will attempt to generate a clearer picture of how grazing-related emissions are allocated between animals owned by Wildlife Trusts and those owned by independent grazing partners.
- We will further explore the potential for modelling and testing alternative strategies for delivering conservation land management goals with fewer GHG emissions, including:
 - Reducing total numbers of cattle and sheep.
 - Increasing the use of hardier (typically smaller) cattle breeds.
 - Increasing the use of mixed grazing herds, including more ponies.
 - Using technology such as Nofence collars to increase the impact of grazing animals on vegetation and their related 'habitat management efficiency'.
 - Exploring the practical options for pasture-fed animals to receive methane-reducing feed supplements while still out on pasture; and (in some situations)

- Moving to a greater reliance on grazing by wild and/or semi-wild grazing animals, such as deer.
- We will consider how conservation grazing approaches intended to limit associated GHG emissions might also bring benefits in terms of increased biological abundance and/or biodiversity.

Habitats

The Wildlife Trusts are working with the Greenhouse Gas Protocol in their development of [international guidance on accounting for land-based emissions and removals](#), which are due for final publication in late 2024.

In 2022, The Wildlife Trusts calculated a baseline estimate of the entire federation's annual land-based biogenic emissions and removals from habitats we own or manage. This has not yet been published externally, and our current focus for 2023-24 is on narrowing the large uncertainty range of this estimate. Any calculation and reporting, at the federation or individual Wildlife Trust level, will remain separate to those of our operational GHG emissions reported here and emissions from our conservation grazing.

The Wildlife Trusts are a federation of 47 charities, 46 individual Wildlife Trusts and a central charity, the Royal Society of Wildlife Trusts. Together we have more than 900,000 members, 39,000 volunteers and 3,600 staff across the UK. We share a vision of nature in recovery, with abundant, diverse wildlife and natural processes creating wilder landscapes where people and nature thrive.



Wildlife Trusts care for – and have restored – some of the most special places for wildlife in the UK. Collectively we manage more than 2,600 nature reserves, operate 123 visitor and education centres and own 29 working farms. We undertake research, we stand up for wildlife and wild places under threat, and we help people access nature.

We work with businesses who are committed to being nature positive and take action to help restore 30% of land and seas for nature by 2030.

The Wildlife Trusts

 info@wildlifetrusts.org

 wildlifetrusts.org

 [@WildlifeTrusts](https://twitter.com/WildlifeTrusts)

 [@wildlifetrusts](https://www.facebook.com/wildlifetrusts)

 [@thewildlifetrusts](https://www.instagram.com/thewildlifetrusts)