



NHS Scotland UKHab Report

NHS Scotland

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Prepared for:

NatureScot on behalf of Public Services Delivery Scotland (PSD Scotland)

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1. Introduction

This document provides an overview of the habitats within the NHS Scotland Estate with over 0.2 ha of greenspace. This was completed to feed into the NHS Scotland Estate Natural Capital Accounts.

This report includes:

- An asset register detailing all of the habitats present on the Estate and their extent.
- The biodiversity units associated with these habitats.
- A comparison of habitat types across NHS Boards.
- Key insights around the presence of these habitats.

2. Asset register

The habitat data was gathered through a number of sources:

- For Ayrshire and Arran, Borders, Dumfries and Galloway, Fife, Forth Valley, Grampian, Lanarkshire, Orkney, Shetland and the Western Isles, AECOM completed the UKHab surveys using a combination of desk-based analysis and ground truthing. More information on this can be found in Appendix B.
- For Greater Glasgow and Clyde, Highland, Lothian and Tayside habitat surveys were made available by NHS Scotland.

A summary of the habitats across the NHS Scotland Estate can be found in Table 1.

The results show:

- The area is 1,178 ha across 249 sites.
- Urban habitats such as Buildings, Developed Land and Other Developed land make up around half of the Estate.
- The remainder is primarily modified Grassland, Other neutral grassland and Other woodland; broadleaved. These habitats provide spaces for recreation and provide ecosystem services such as air quality regulation and flood regulation.
- The habitats provide 5,237 Biodiversity Units (calculated by the Statutory Metric).
- Table 2 provides a breakdown by Board.

Table 1: Asset Register for NHS Scotland Estate

Habitat Code	Habitat Type	Total (ha)
c1c	Cereal crops	26.24
c1f	Horticulture	0.22
f2a	Lowland fens	0.24
f2e	Reedbeds	0.16
f2f	Other wetlands	0.82
g1b	Upland acid grassland	1.44
g1c	Bracken	0.04
g3a	Lowland meadows	0.14
g3c	Other neutral grassland	91.81
g3c8	Holcus-Juncus neutral grassland	0.14
g4	Modified grassland	256.34
h1b	Upland heathland	0.03
h2a	Hedgerow (priority habitat)	1.81
h2b	Other hedgerows	0.01
h3	Dense scrub	0.22
h3b6	Other hazel scrub	0.02
h3d	Bramble scrub	0.23
h3e	Gorse scrub	0.75
h3f	Hawthorn scrub	0.02
h3g	Rhododendron scrub	0.17
h3h	Mixed scrub	17.84
h3j	Willow Scrub	0.40
r1	Standing open water and canals	0.33
r1g	Other standing water	0.65
r2	Rivers and streams	0.01
r2b	Other rivers and streams	0.39
u1	Built-up areas and gardens	45.04
u1b	Developed land; sealed surface	113.42
u1b5	Buildings	177.42
u1b6	Other developed land	260.49
u1c	Artificial unvegetated, unsealed surface	2.70
u1d	Suburban/ mosaic of developed/ natural surface	9.59
u1f	Sparsely vegetated urban land	3.41
w1b	Upland mixed ashwoods	1.86
w1d	Wet woodland	3.48
w1f	Lowland mixed deciduous woodland	18.49

Habitat Code	Habitat Type	Total (ha)
w1g	Other woodland; broadleaved	88.42
w1h	Other woodland; mixed	45.72
w2b	Other Scot's Pine woodland	4.31
w2c	Other coniferous woodland	3.87

Total area (ha)	1,178.68
No. of sites	249
Area Biodiversity Units	5,237.61

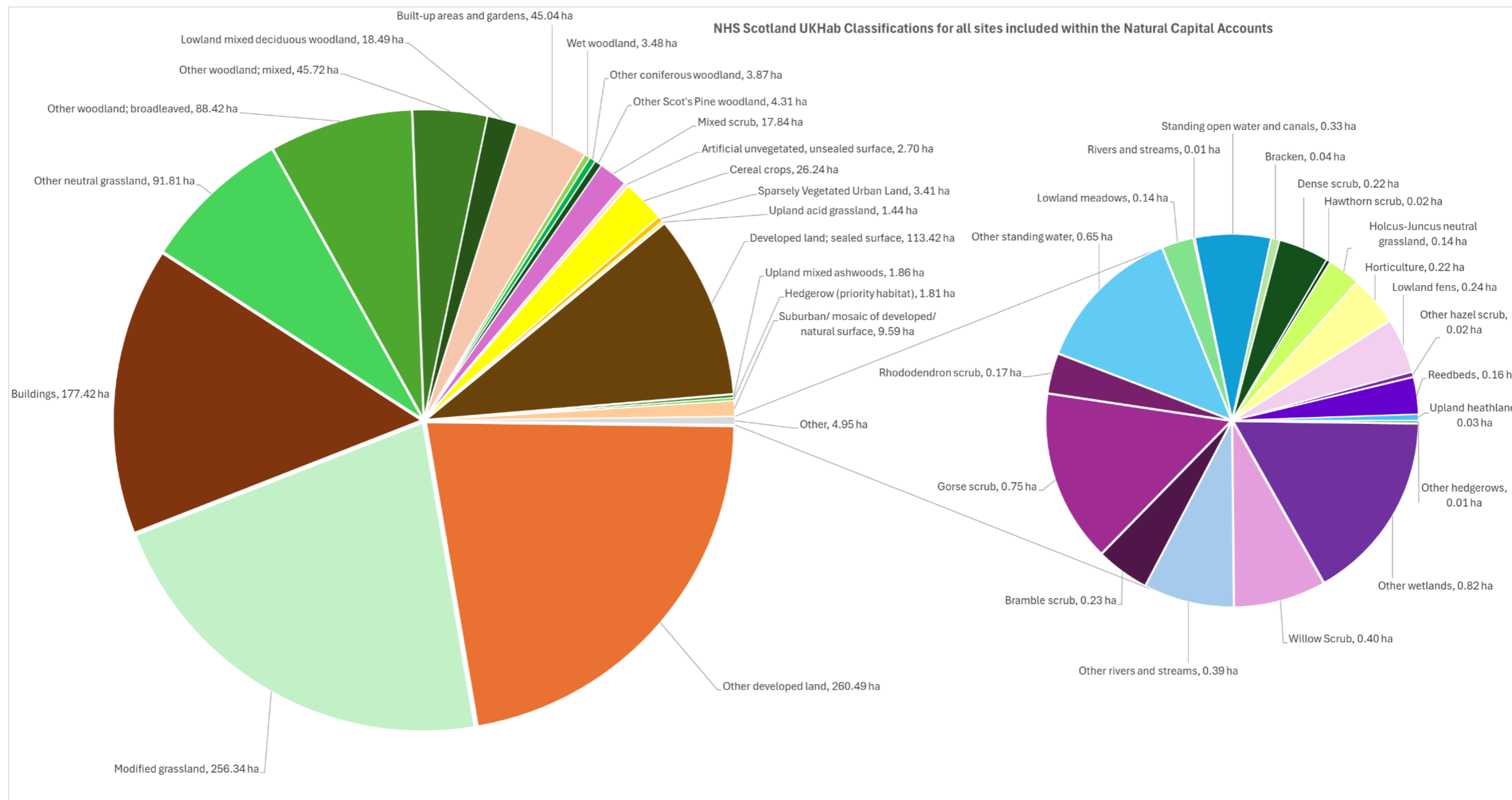


Figure 1: UKHab Classifications for all sites included within the Natural Capital Accounts

Table 2: Broad Habitat Type, Area Biodiversity Units and Number of Sites for each NHS Board and Scotland (Total)

Broad Habitat Type / Board Information	Ayrshire & Arran	Borders	Fife	Lanarkshire	Grampian	Orkney	Forth Valley	Western Isles	Dumfries & Galloway	Shetland	Lothian	Highland	Tayside	Greater Glasgow & Clyde	Scotland (Total)
<i>No. of sites</i>	14	10	15	21	30	7	12	8	13	2	34	36	22	25	249
Cropland	0.00	0.00	26.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	26.46
Wetland	0.39	0.00	0.04	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.40	0.00	1.22
Grassland	35.12	7.79	37.17	13.36	18.97	3.83	31.23	6.07	17.14	0.54	38.79	52.73	32.76	54.43	349.92
Heathland and shrub	0.37	0.30	1.33	0.36	0.47	0.29	0.27	0.04	0.29	0.00	5.01	4.98	2.72	5.06	21.48
Rivers and lakes	0.00	0.00	0.00	0.00	0.01	0.00	0.55	0.14	0.00	0.00	0.44	0.00	0.00	0.23	1.37
Urban	53.63	13.39	50.65	47.36	37.77	6.35	42.91	6.74	23.97	1.05	89.38	77.45	43.87	117.56	612.07
Woodland and forest	24.88	4.15	12.06	7.56	15.97	0.35	16.57	0.31	6.28	0.08	22.43	21.39	8.79	25.33	166.16
Total area (ha)	114.40	25.64	127.50	68.64	73.19	10.81	91.92	13.29	47.68	1.67	156.05	156.76	88.54	202.61	1,178.68
Area Biodiversity Units	644.69	105.91	505.19	184.96	330.49	44.85	485.54	69.56	200.42	5.24	626.44	381.93	735.83	916.55	5,237.61

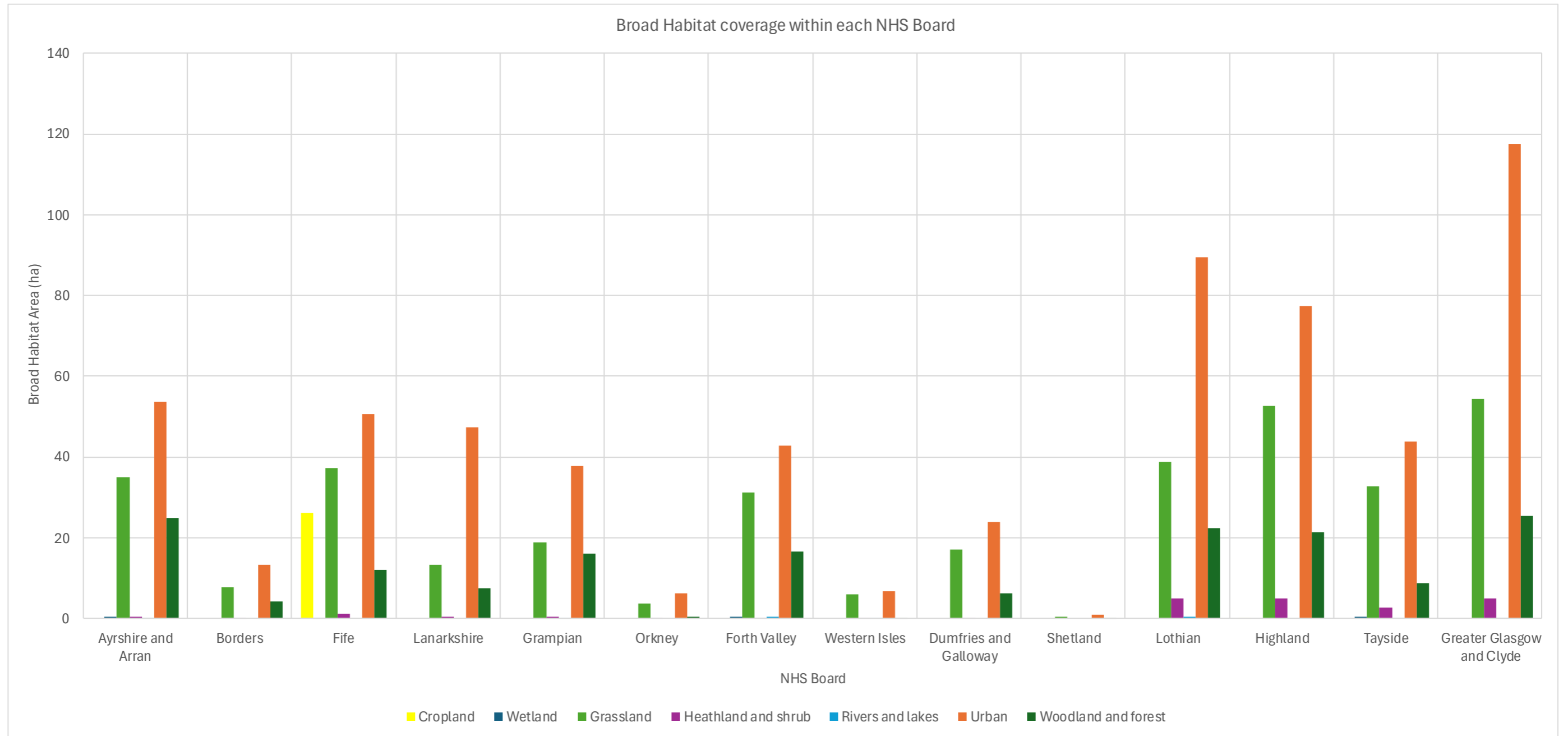


Figure 2: Graph showing a breakdown of Broad habitat coverage (ha) within each NHS Board

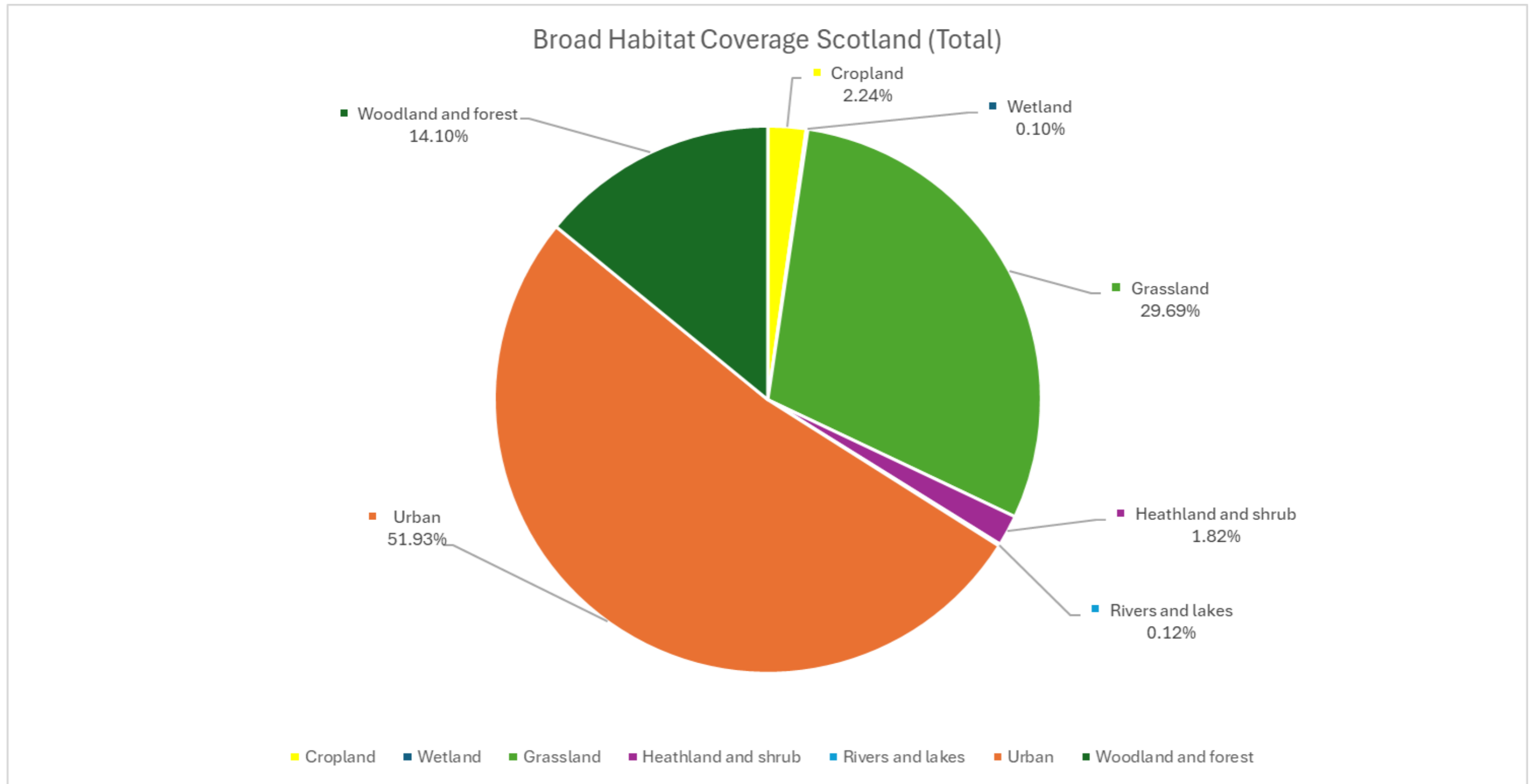


Figure 3: Graph showing a breakdown of Broad habitat coverage (%) for Scotland (Total)

3. Key Insights

Some key insights on the overall Board results include:

- Grassland is the most dominant greenspace category for each Board. This provides an important recreational space for local communities and patients.
- Cropland is only present in Fife. There is a 26 ha area of cropland at Stratheden Hospital. This area is rented by Lucky Ewe from NHS Fife. Lucky Ewe provide work placements in the countryside. Stratheden hosts the Flourish Gardens, which are crop growing, and include an orchard, gardening activities and polytunnels. Workshops are also hosted for patients and the local community at the site.
- There are several areas of significant biodiversity value across the Estate (such as those habitats included in the Scottish Biodiversity List Priority Habitats). This includes areas of Lowland mixed deciduous woodland (18.49 ha) and wet woodland (3.48 ha). These areas should be maintained to preserve the biodiversity value they provide to communities.
- There is a large amount of mowed and amenity grassland. These habitats require ongoing maintenance, are species poor and provide low biodiversity value. If some of these spaces are replaced with trees through local tree planting initiatives and wildflower meadows/ more species rich grassland, it can result in higher air pollution regulating benefits which are especially important in urban areas. These habitats can also provide greenhouse gas regulating benefits and improve biodiversity. Changing these habitats could mean the Estate is managed better to deliver more ecosystem service benefits.

Appendix A : Asset Register breakdown for each NHS Board

The following section presents a Detailed breakdown of habitat type by UKHab code for each NHS Board and Scotland (Total). Please note that for NHS Lothian, Greater Glasgow and Clyde, Highland and Tayside, habitat reports were provided by NHS Scotland completed by EnviroCentre. These reports provided the habitat data for these Boards which was fed into the Accounts.

Table A 1: Detailed breakdown of habitat type by UKHab code for each NHS Board and Scotland (Total)

Habitat Name	UKHab Code	Ayrshire & Arran	Borders	Fife	Lanarkshire	Grampian	Orkney	Forth Valley	Western Isles	Dumfries & Galloway	Shetland	Lothian	Tayside	Highland	Greater Glasgow & Clyde	Scotland (Total)
Other developed land	u1b6	31.60	8.07	25.54	25.94	19.14	3.01	27.55	3.34	14.46	0.56	0.00	42.08	0.00	59.20	260.49
Modified grassland	g4	19.80	7.54	26.22	12.71	16.49	1.73	21.36	1.65	14.05	0.36	35.93	36.00	26.37	36.14	256.34
Buildings	u1b5	16.83	4.40	15.09	13.70	12.74	2.17	11.14	2.22	7.26	0.39	0.00	26.00	16.62	48.86	177.42
Other neutral grassland	g3c	15.32	0.26	10.95	0.65	2.48	1.90	9.87	3.04	3.09	0.18	2.86	16.73	6.22	18.29	91.81
Other woodland; broadleaved	w1g	13.49	0.82	5.39	5.34	7.63	0.35	12.50	0.31	4.85	0.08	15.91	8.26	5.78	7.72	88.42
Other woodland; mixed	w1h	5.08	2.56	6.21	0.96	3.61	0.00	0.81	0.00	1.34	0.00	5.90	11.23	2.47	5.56	45.72
Lowland mixed deciduous woodland	w1f	4.59	0.74	0.00	1.24	0.81	0.00	3.10	0.00	0.06	0.00	0.00	0.00	0.00	7.95	18.49
Built-up areas and gardens	u1	5.21	0.92	10.02	7.72	5.88	1.16	4.22	1.19	2.25	0.10	0.00	0.00	0.00	6.37	45.04
Wet woodland	w1d	0.85	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.24	3.48
Other coniferous woodland	w2c	0.51	0.04	0.00	0.02	0.05	0.00	0.15	0.00	0.04	0.00	0.62	1.91	0.54	0.00	3.87
Other Scot's Pine woodland	w2b	0.35	0.00	0.08	0.00	3.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.31
Other wetlands	f2f	0.39	0.00	0.04	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82
Willow Scrub	h3j	0.20	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.00	0.00	0.00	0.16	0.00	0.40
Mixed scrub	h3h	0.17	0.30	1.28	0.18	0.45	0.28	0.27	0.04	0.26	0.00	3.19	4.86	1.79	4.76	17.84
Rivers (priority habitat)	r2a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other rivers and streams	r2b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.39
Bramble scrub	h3d	0.00	0.00	0.02	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.23
Cereal crops	c1c	0.00	0.00	26.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.24
Gorse scrub	h3e	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.27	0.75
Rhododendron scrub	h3g	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.04	0.03	0.17
Other standing water	r1g	0.00	0.00	0.00	0.00	0.01	0.00	0.52	0.08	0.00	0.00	0.05	0.00	0.00	0.00	0.65
Lowland meadows	g3a	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14

Habitat Name	UKHab Code	Ayrshire & Arran	Borders	Fife	Lanarkshire	Grampian	Orkney	Forth Valley	Western Isles	Dumfries & Galloway	Shetland	Lothian	Tayside	Highland	Greater Glasgow & Clyde	Scotland (Total)
Upland acid grassland	g1b	0.00	0.00	0.00	0.00	0.00	0.07	0.00	1.38	0.00	0.00	0.00	0.00	0.00	0.00	1.44
Rivers and streams	r2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Standing open water and canals	r1	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.00	0.00	0.00	0.00	0.00	0.23	0.33
Artificial unvegetated, unsealed surface	u1c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	1.65	0.42	0.07	2.70
Bracken	g1c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04
Dense scrub	h3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.22
Developed land; sealed surface	u1b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.23	7.72	26.46	0.00	113.42
Hawthorn scrub	h3f	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
Holcus-Juncus neutral grassland	g3c8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.14
Horticulture	c1f	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.22
Lowland fens	f2a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.24
Other hazel scrub	h3b6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
Other temporary ponds	r1f6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reedbeds	f2e	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.16
Sparsely vegetated urban land	u1f	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	3.05	3.41
Upland heathland	h1b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.03
Upland mixed ashwoods	w1b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86	1.86
Hedgerow (priority habitat)	h2a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81	0.00	0.00	0.00	1.81
Suburban/ mosaic of developed/ natural surface	u1d	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.59	0.00	0.00	0.00	9.59
Other hedgerows	h2b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Total		114.40	25.64	127.50	68.64	73.19	10.81	91.92	13.29	47.68	1.67	156.05	156.76	88.54	202.61	1178.68

Appendix B UKHab Methodology



Figure B1: Habitat data methodology

Step 1 – GIS analysis to assign habitats

GIS Analysis was undertaken to assign a UKHab code to the existing Ordnance Survey Master Map (OSMM) Topography Polygons including the Habitat Map of Scotland¹ (HabMos) and the habitats derived from the best Scotland-wide habitat data available from NatureScot (Scotland Land Cover Map 2022 – EUNIS Level 2²). A methodology was applied for Buildings and Water using OSMM land use Themes. For all other land use types, a percentage majority of the open-source data was applied. This provided an initial UKHab Code which then went through a manual Quality Assurance (QA) check. This desktop QA included a review of satellite imagery as well as StreetView and codes were updated where required. UKHab classification of habitats was carried out to UKHab Level 4 where possible. Linear habitat features were also identified within this desktop review. Table B1 outlines the habitat conversion used.

Table B 1: EUNIS to UKHab conversion

EUNIS habitat name	UKHab	Distinctiveness
C - Surface standing and running waters	r1 Standing open waters and canals	High
C - Surface standing and running waters	r2 rivers and streams	High
D1 - Raised and blanket bogs	f1a blanket bog	High
D1.2 - H7130 - Blanket bogs	f1a5 Blanket bog (H7130)	High
D2 - Valley mires, poor fens and transition mires	f2c upland flushes, fens and swamps	High
D2.33 - H7140 - Transition mires	f2c8 transition mires and quaking bogs; upland (H7140)	High
D4 - Base-rich fens and calcaerous spring mires	f2c upland flushes, fens and swamps	High
D4.24 - H7240 - Alpine pioneer formations	f2c5 alpine pioneer formations (H7240)	High

¹ <https://opendata.nature.scot/datasets/habitat-map-of-scotland/explore>

² <https://opendata.nature.scot/maps/snh::scotland-land-cover-map-2022-eunis-level-2/about>

EUNIS habitat name	UKHab	Distinctiveness
E1 - Dry grasslands	g1b upland acid grassland	High
E3 - Seasonally wet and wet grasslands	f2b5 Purple moor-grass meadows	High
E5 - Woodland fringes and clearings and tall forb stands	g1b upland acid grassland	High
E5.31 - Sub-Atlantic [Pteridium aquilinum] fields	g1c bracken	Medium
F2 - Arctic, alpine and subalpine scrub	h1c Mountain heaths and willow scrub	High
F2.25 - H4060 - Alpine and Boreal heaths	h1c5 Alpine and subalpine heaths (H4060)	High
F4 - Temperate shrub heathland	h1b upland heathland	High
F4.13 - [Molinia caerulea] wet heaths	h1b6 wet heathland with cross-leaved heath; upland (H4010)	High
F4.2 - H4030 - Dry heaths	h1b5 dry heaths; upland (H4030)	High
G1 - Broadleaved deciduous woodland	w1g other broadleaved woodland	Medium
G3 - Coniferous woodland	w2c other coniferous woodland	Low
G3.4 - Scots pine woodland	w2b other scot's pine woodland	Medium
G3.F - Highly artificial coniferous plantations	w2c other coniferous woodland	Low
G4.F - Mixed deciduous and coniferous woodland	w1h other woodland; mixed	Medium
G5 - Line of trees, small anthropogenic woodlands, early-stage woodland and coppice	w2c 206 other coniferous woodland (felled)	Low
G5.8 - Recently felled areas	w2c 206 other coniferous woodland (felled)	Low
H91C0 - Caledonian forest	w2a5 Caledonian forest (H91C0)	Medium
HF4.11 - 4010 - Wet heaths	h1b6 wet heathland with cross-leaved heath; upland (H4010)	High
J3.2 - Built-up	u1 Built-up areas and gardens	Very Low

Step 2 – Ecologist review of GIS assigned habitats

Detailed QA was then carried out of all greenspace polygons and linear habitats, by ecologists experienced with mapping a wide range of habitats in Scotland to UKHab. UKHab secondary codes were assigned where it was possible to do so. Polygons assigned to an urban 'u' category were accepted without QA given the high degree of accuracy afforded by OSMM / GIS spatial analysis, as agreed between the GIS, Ecology, and Natural Capital teams working on this project. Other data sources referred to during QA comprised: freely available aerial and street-level imagery (including, where deemed useful, historic imagery), Native Woodland Survey of Scotland³ (NWSS), Ancient Woodland Inventory⁴ (AWI) and the Carbon and Peatland 2016 Map⁵. Habitat categories assigned by the GIS process were amended by ecologists during this QA stage wherever the data sources indicated a need, including occasionally splitting original polygons into different habitats.

Where this QA process considered that further review was appropriate, a second stage of QA was carried out by a second habitat specialist. If necessary, habitat categories were amended during this second QA stage, with justification.

Step 3 – Identification of locations for ground truthing (where applicable)

Where a habitat could not be assigned to UKHab Level 4 with sufficient certainty during the QA process⁶, it was marked for ground-truthing and prioritised for ecologist visits to the site.

Note that for NHS Lothian, Greater Glasgow and Clyde, Highland and Tayside, UKHab reports were provided by NHS Scotland completed by EnviroCentre. These reports provided the UKHab data for these Boards which was fed into the Accounts.

³ https://open-data-scottishforestry.hub.arcgis.com/datasets/6d27b064fcb471da50c8772ad0162d7_0/explore

⁴ <https://opendata.nature.scot/maps/ancient-woodland-inventory>

⁵ <https://opendata.nature.scot/datasets/snh::carbon-and-peatland-2016-map/explore>

⁶ With the exception of u1 – Built-up areas and gardens, which is discussed in Section A2.



Delivered in collaboration, on behalf of the NHS Scotland Climate Emergency and Sustainability Strategy 2022 – 2026, by:



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