

Biodiversity Quality assessment - Leicestershire

Karen Headley and Sue Timms, LRERC, 2020

Updated with City and Rutland Addendum, April 2022

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Project description

Each 1km square in Leicestershire (excluding the City) has been given a quality rating on a scale of 1 - 6, based on a rapid desk-based assessment of recent aerial photos (2015-2017). As a narrow time-range has been used, this will provide a true baseline 'snapshot' in time that can be used for monitoring in future.

The assessments were made by Karen Headley.

The dates that the aerial photos were taken across the County are shown on the appended map (1).

The method involves an assessment of habitat diversity and the relative amount of positive and negative indicators of habitat quality.

- **Negative indicators** include arable land, improved grassland, built environment.
- **Positive indicators** include ridge and furrow, small grassland fields and good hedges, woodland, scrub/grassland mosaics and rough grassland, mature parks and gardens, wetlands and open water.

Some examples of 1km squares meeting the assessment scores are appended (2).

To help with the assessment and to reduce subjectivity, a 5 x 5m grid (i.e. 4% of 1km²) was used as an overlay in tricky cases. For example, if about two-thirds or 16 of the small 5 x 5m squares overlaid land with positive indicators, it was given a score of 4.

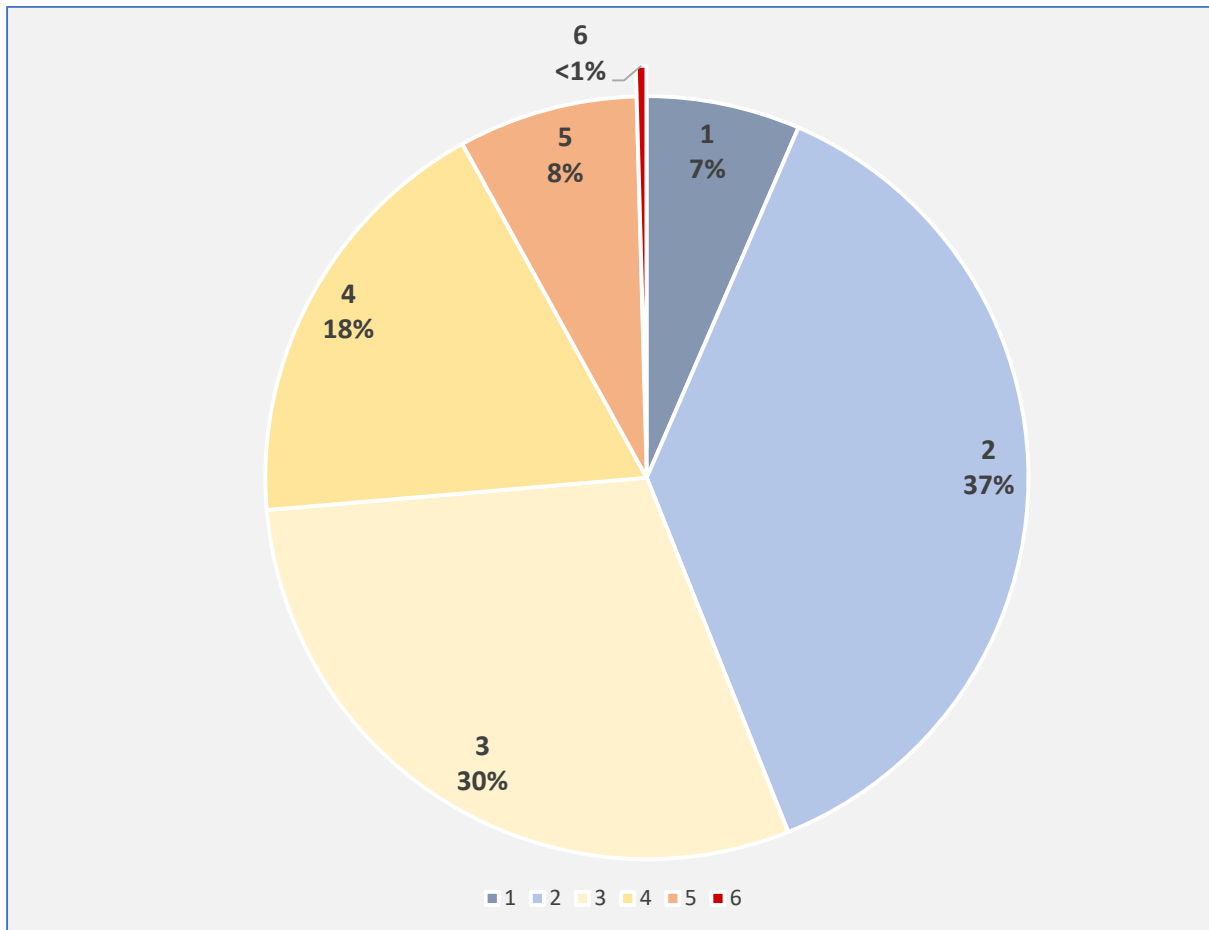
Bio score	Percentage -ve indicators	Number -ve 5 x 5 m squares	Number +ve 5 x 5m squares	Percentage +ve indicators	Bio score
1	90-100	22.5 ⇔ 25	0 ⇔ 2.5	0-10	1
2	70-90	17.5 ⇔ 22.5	2.5 ⇔ 7.5	10-30	2
3	50-70	12.5 ⇔ 17.5	7.5 ⇔ 12.5	30-50	3
4	30-50	7.5 ⇔ 12.5	12.5 ⇔ 17.5	50-70	4
5	10-30	2.5 ⇔ 7.5	17.5 ⇔ 22.5	70-90	5
6	0-10	0 ⇔ 2.5	22.5 ⇔ 25	90-100	6

Results

The mapped results of the assessment are appended (see 3).

These are the totals for each score - there are 2277 km squares in Leicestershire, including partial squares.

Quality	Bio score	Number	%
low ↓ high	1	148	7
	2	853	37
	3	676	30
	4	417	18
	5	173	8
	6	10	<1



Presence of designated sites and other features

Presence of a SSSI, LWS, major wildlife corridor, priority BAP habitat, woodland, organic or higher-level stewardship should add value, and wherever possible these have been noted when encountered during the assessment.

A GIS layer or spreadsheet of data is available on request.

Some SSSIs and LWS are known to be in poor condition, and most designations are based on old data collected outside the narrow 2016-18 time-range of the aerial photos used. Therefore, in order to maintain the strict baseline, the principle has been to look at what is actually visible on the aerial photos, rather than what is known to have been designated in the past. It is best to think of the presence of designations as adding a '+' to the assessment score, rather than raising the score to a higher level.

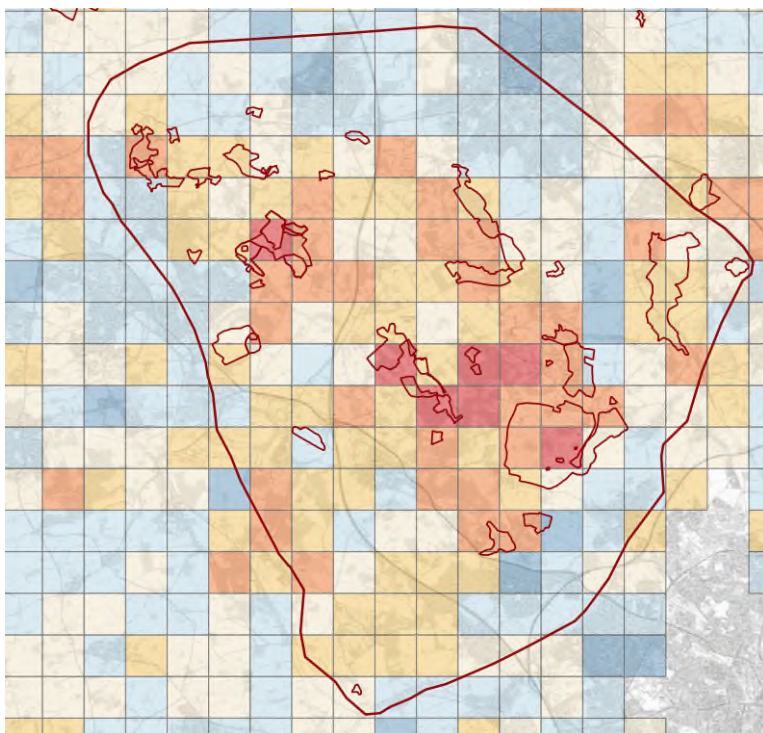
SSSIs and 'Living Landscapes'

The map in appendix 4 shows the assessments with 'Living Landscape boundaries.

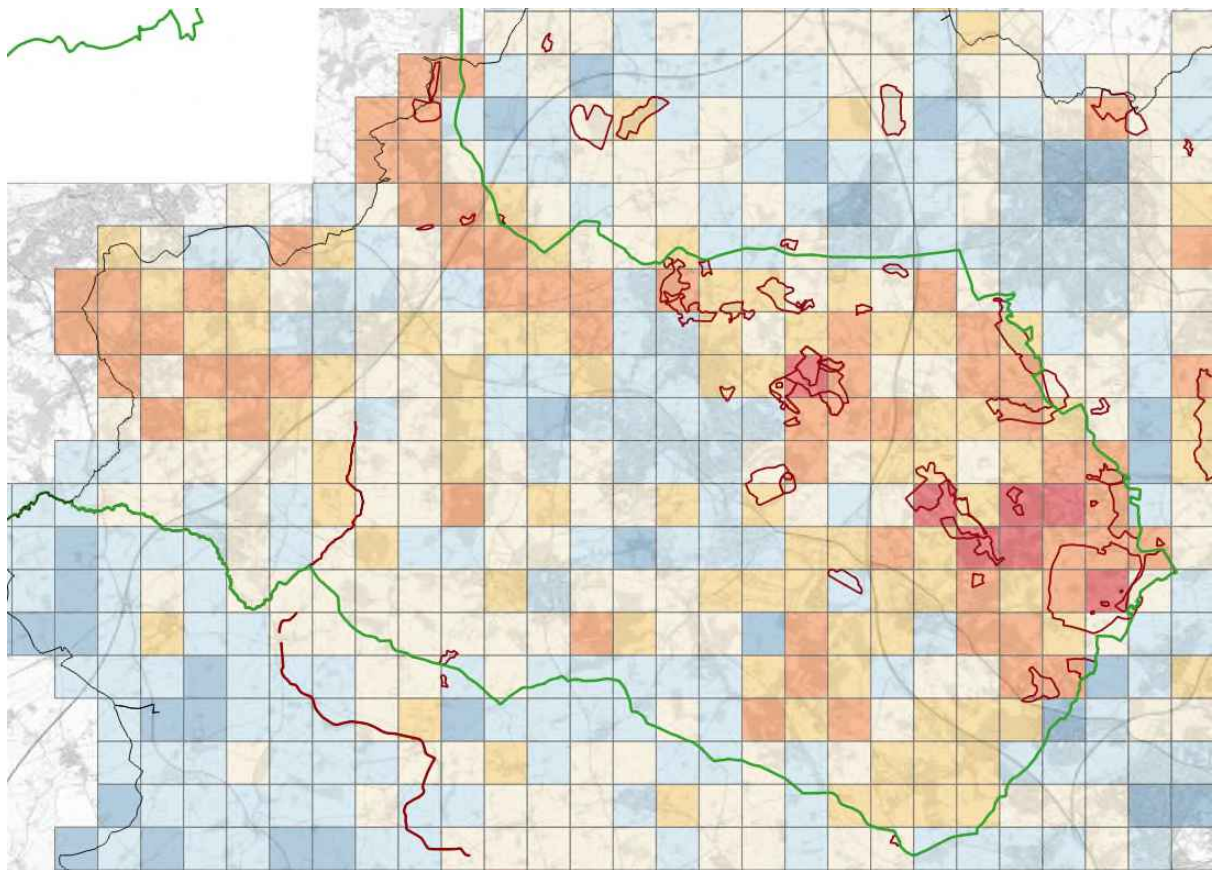
There is a *visual correlation between the Living Landscape areas and a concentration of 1km squares that have scored 4, 5 and 6 on the assessment – i.e. 1km squares with more than 50% positive habitat indicators. The National Forest, Charnwood Forest, Leighfield Forest and the Soar/Wreake Valley are shown in more detail in the maps below; I have also included the boundaries of SSSIs, which are also concentrated into Living Landscape areas. The correlation between high biodiversity values and scores is not particularly evident in the upper Soar, south of Leicester, and the Wreake.

*(*Note that this visual correlation has not been tested statistically).*

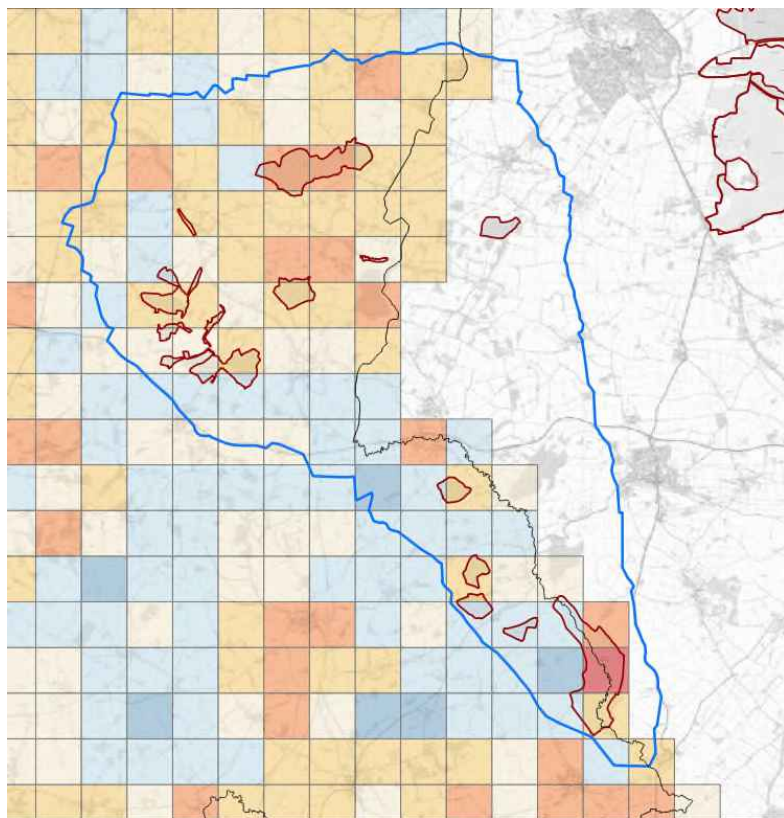
Charnwood Forest



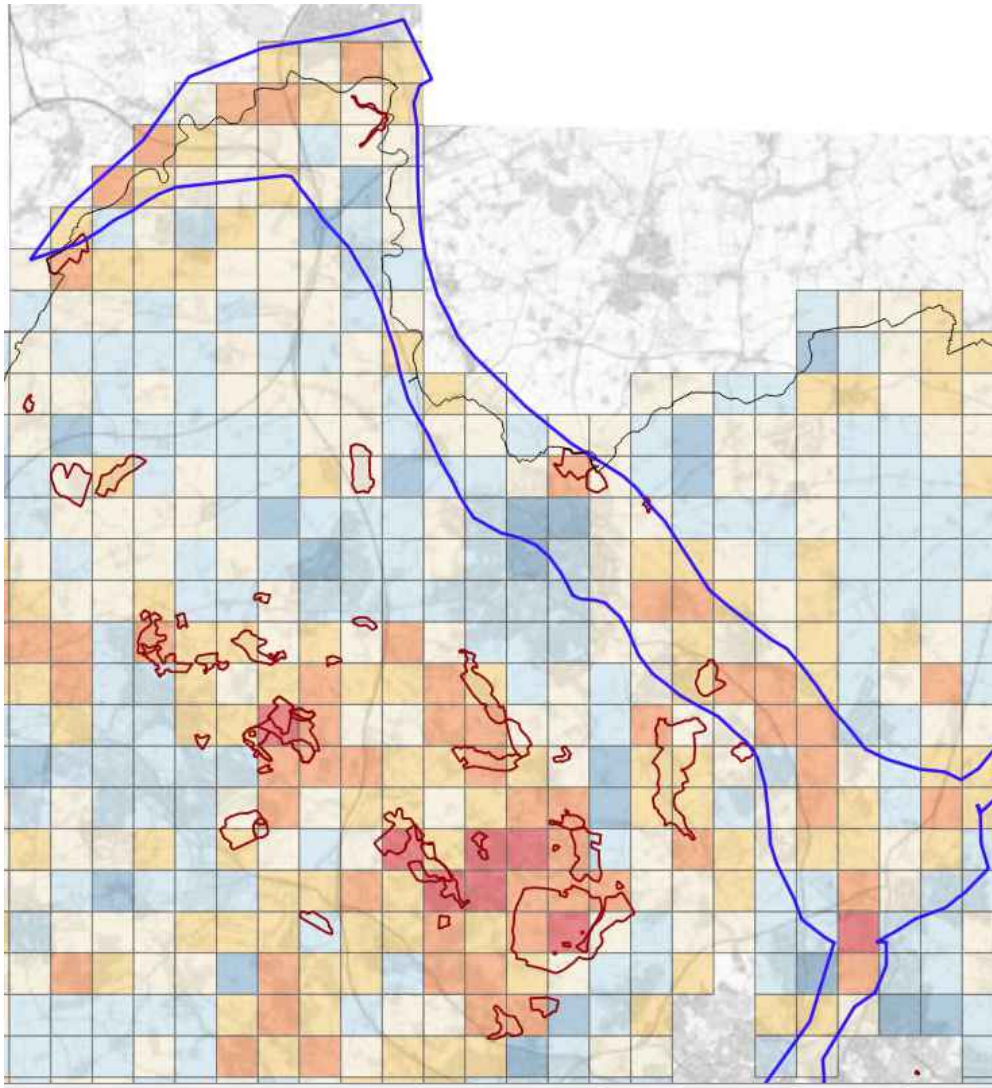
The National Forest



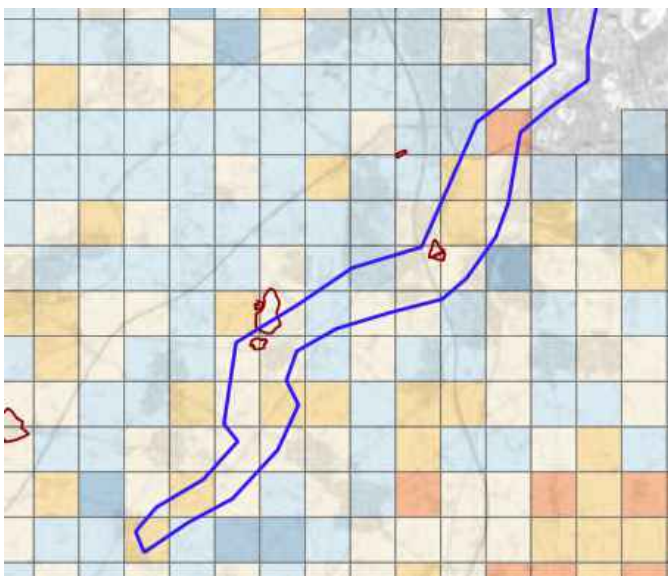
Leighfield Forest



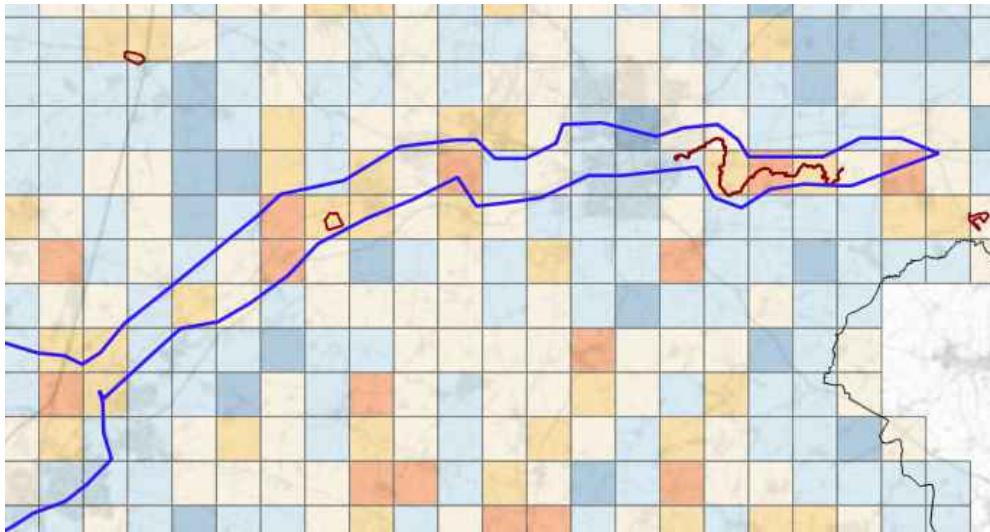
Lower Soar (downstream of Leicester)



Upper Soar (upstream of Leicester)



R Wreake



Other hotspots

Several areas have a high concentration of positive habitat indicators but are not designated as 'Living Landscapes'. These are also shown on the map in appendix 4.

- **The Belvoir Estate and Leicestershire Wolds** – There is a concentration of habitats around the castle and estate, including extensive mature plantations, sheep grazing and a large number of veteran trees. Terrace Hills SSSI, Knipton Reservoir and Croxton Park SSSI are to the south, and are also part of the Belvoir Estate. The escarpment is very steep near Stathern, and there is large amount of species-rich grassland at Mill Hill, a LRWT Reserve. To the SW, the escarpment is less steep, but continues through Harby Hill SSSI to the Leicestershire Wolds, and Holwell Mouth SSSI and further concentrations of species-rich grassland at the Broughton Hills and around the Old Dalby test-track.
- **South Harborough** - the area South and West of Kilby-Foxton SSSI section of the Grand Union Canal in Harborough, which includes Stanford Park SSSI in the south, Saddington Reservoir SSSI to the NE, Misterton Marshes SSSI to the west, and Laughton Hills to the east. This area seems to be characterised by a high landscape diversity – small grazing fields, hedges, etc – rather than large areas of habitats, and it is also an area where we have few Local Wildlife Sites and have done few habitat surveys. I think it may have been overlooked as a biodiversity 'hotspot' (or possibly a 'warmspot'!) which we may want to investigate.
- **NW of Leighfield Forest**, on the Harborough/Melton border. This includes Billesdon and Cold Newton, towards the south, where there is species-rich grassland on steeply sloping grazing land; small parklands such as Quenby, Rolleston, Baggrave and Lowesby; and Burrough Hill in the north. There are many LWS, but no SSSIs.

More detailed maps of these three areas are appended (see appendix 5); I have added in SSSIs (dark red outlines) and *Local Wildlife Sites to these (green outlines) and included a copy of the OS 1:25,000 map of the area for reference.

**Note that this includes potential and candidate LWS as well as notified.*

Appendices

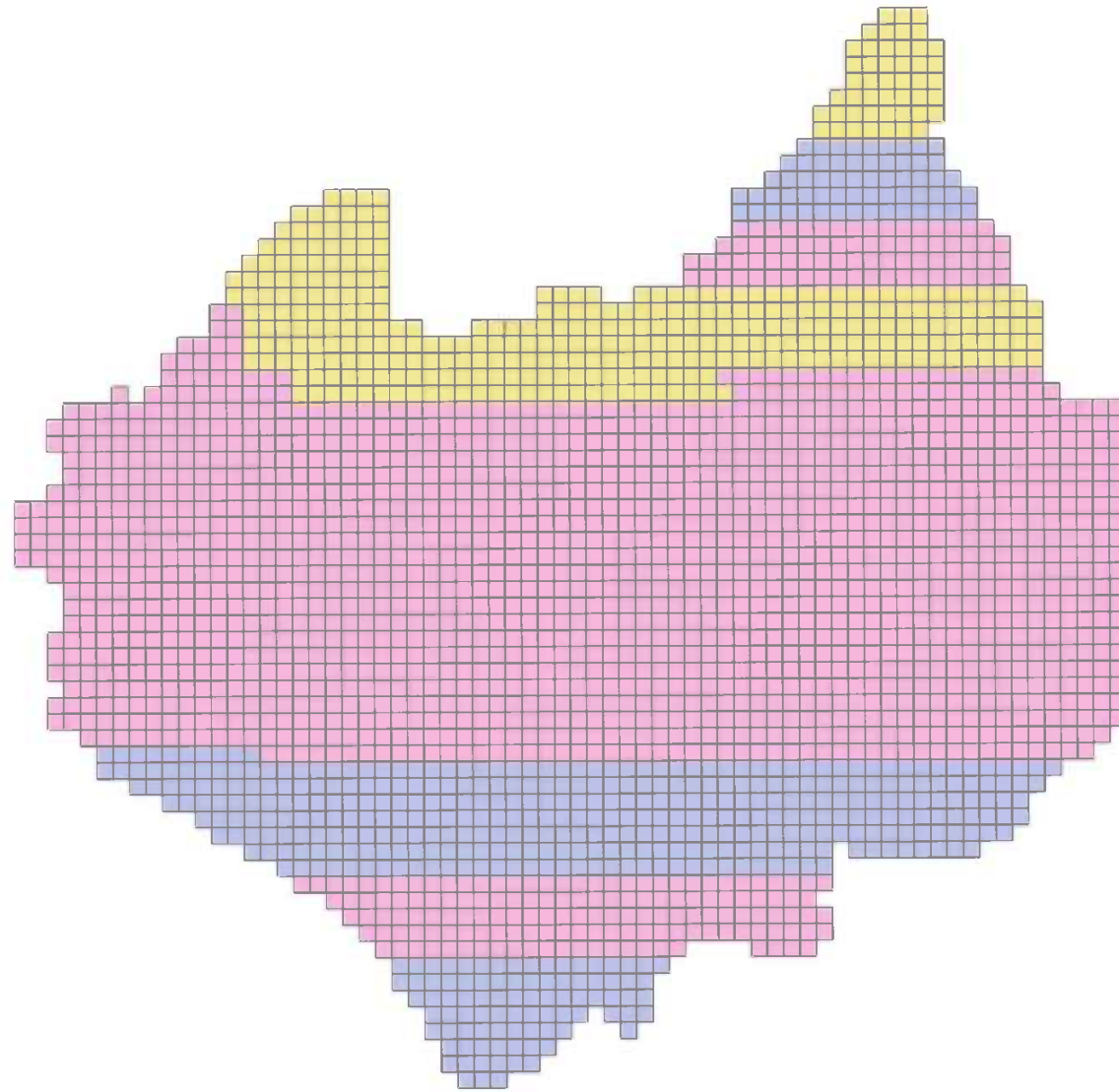
1. Map: Aerial photo dates flown
2. Example of 1km squares for each 'bio score'
3. Map: Results
4. Map: Living Landscapes and other 'hotspots'
5. Maps: detail of other 'hotspots':
 - Belvoir Estate and Leicestershire Wolds
 - South Harborough
 - NW of Leighfield Forest

Addendum: Rutland and Leicester

Note: The assessments for Rutland and for Leicester City were made during 2020 and 2021, following the same methodology. The data has been added to the Leicestershire map, which is also reproduced here.

Aerial photos - date flown

Year



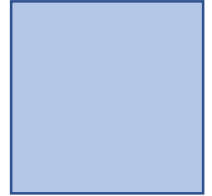
Appendix 2: Examples of 1km squares for each 'bio-score'

Score 1 very low habitat quality (0 – 10% positive habitat indicators)



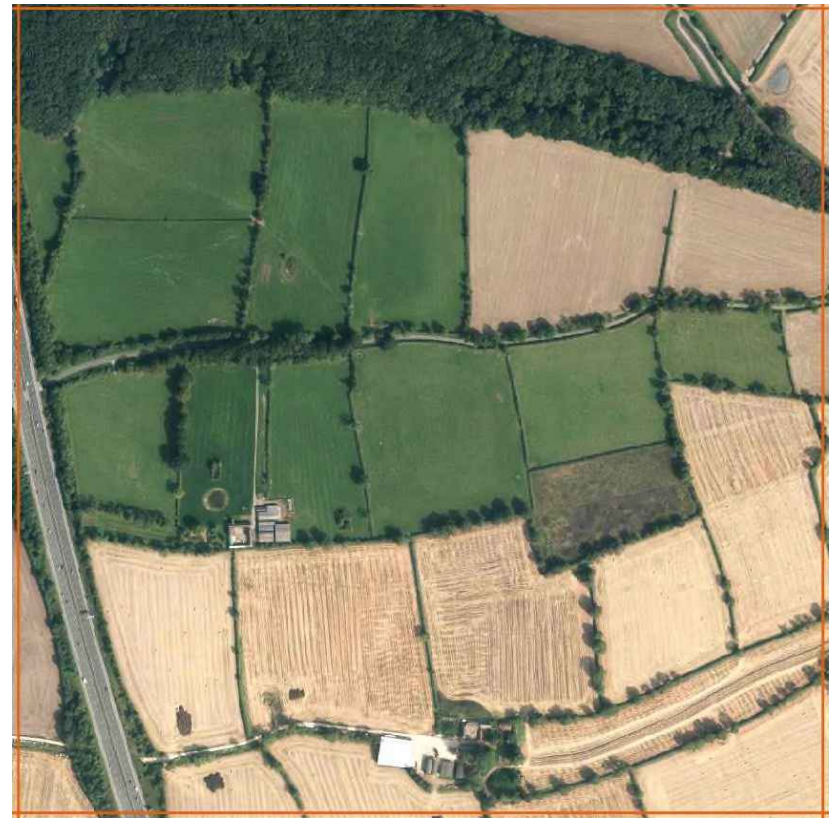
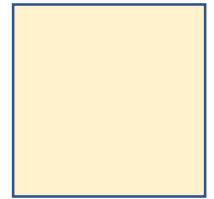
Appendix 2: Examples of 1km squares for each 'bio-score'

Score 2 low habitat quality (10 – 30% positive habitat indicators)



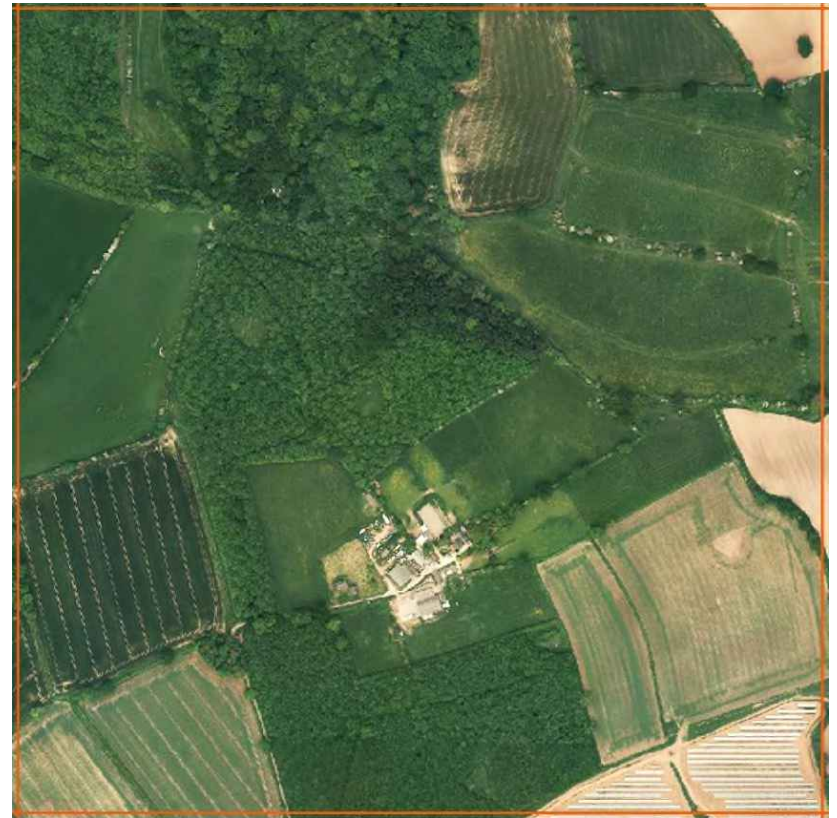
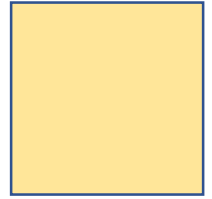
Appendix 2: Examples of 1km squares for each 'bio-score'

Score 3 low/medium habitat quality (30 – 50% positive habitat indicators)



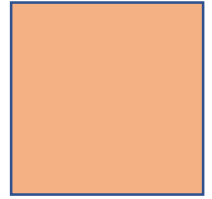
Appendix 2: Examples of 1km squares for each 'bio-score'

Score 4 medium/high habitat quality (50 – 70% positive habitat indicators)



Appendix 2: Examples of 1km squares for each 'bio-score'

Score 5 high habitat quality (70 – 90% positive habitat indicators)



Appendix 2: Examples of 1km squares for each 'bio-score'

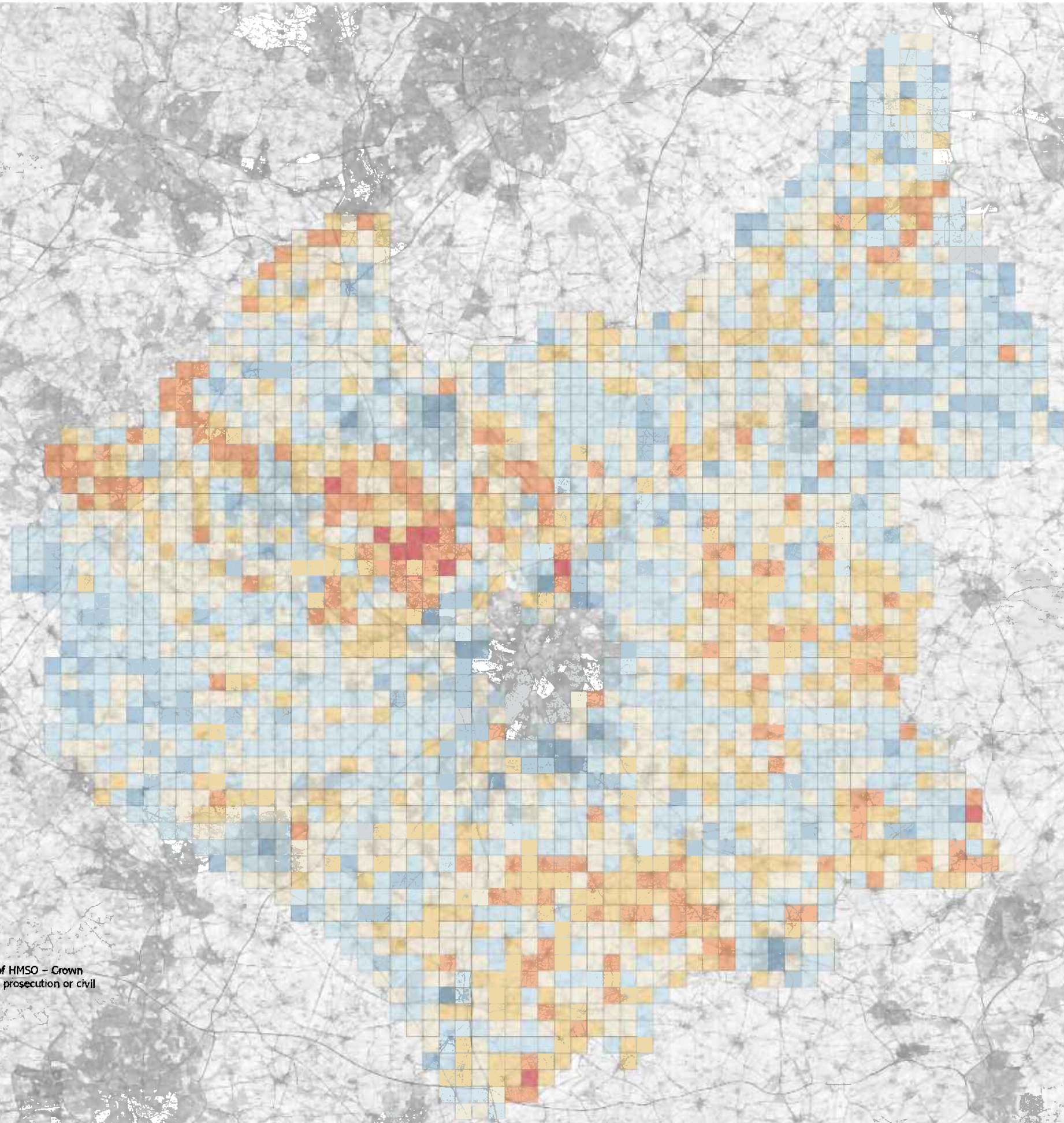
Score 6 very high habitat quality (90 – 100% positive habitat indicators)



Biodiversity Quality Assessment













- 6 - very high (100-90% +ve habitat)
- 5 - high (70-90% +ve habitat)
- 4 - medium/high (50-70% +ve habitat)
- 3 - low/ medium (30-50% +ve habitat)
- 2 - low (10-30% +ve habitat)
- 1 - very low (0-10% +ve habitat)

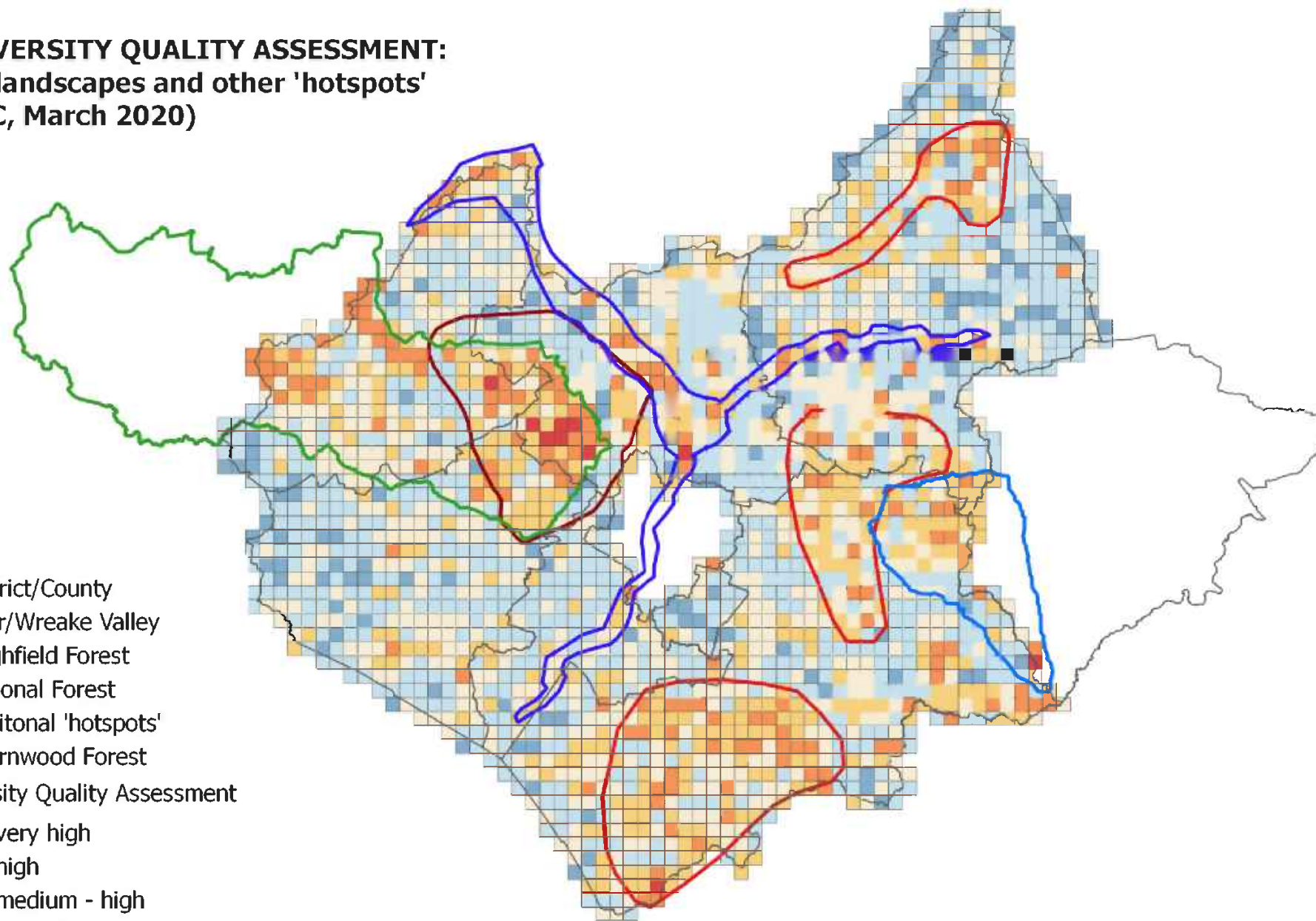
LRERC, March 2020



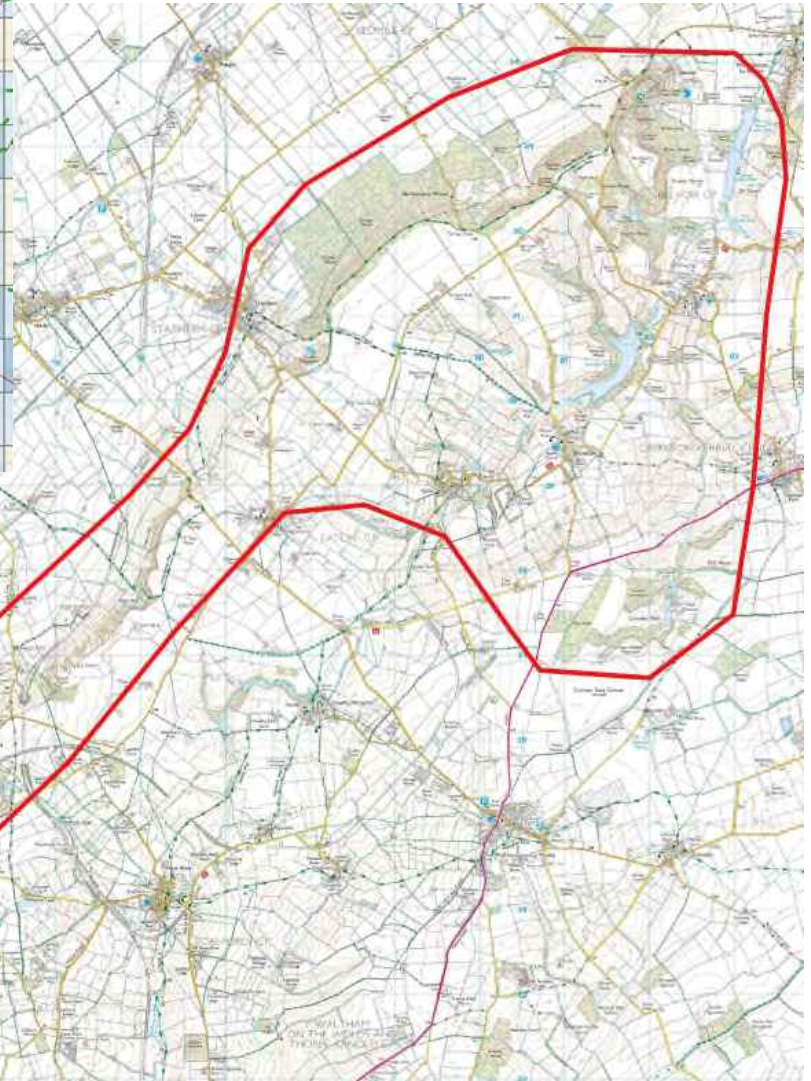
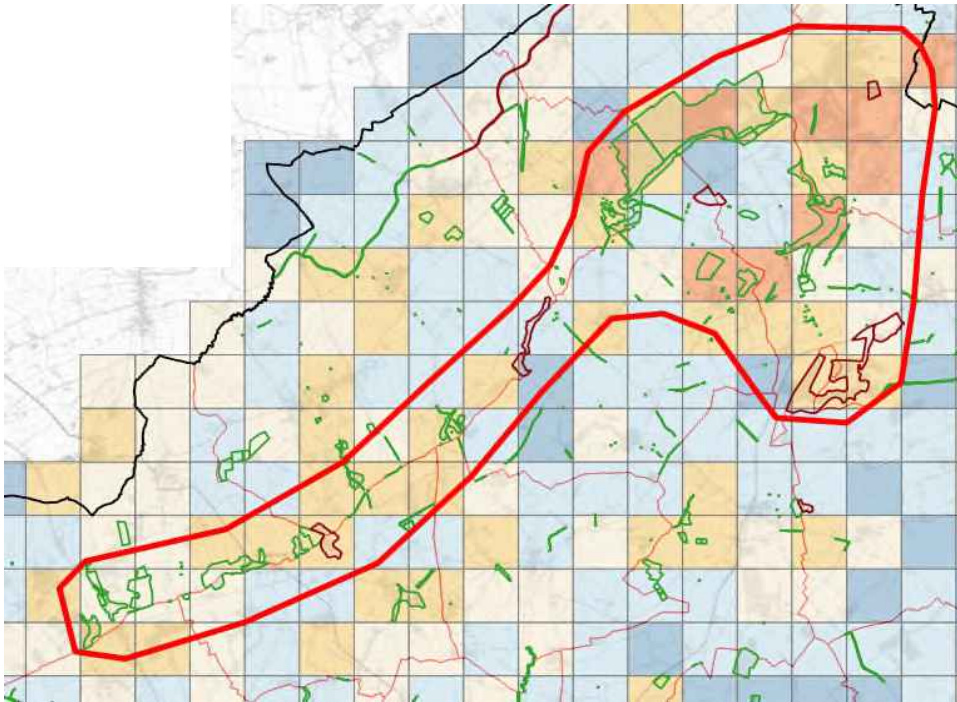
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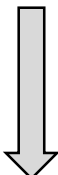
**BIODIVERSITY QUALITY ASSESSMENT:
Living landscapes and other 'hotspots'
(LRERC, March 2020)**

-  District/County
 -  Soar/Wreake Valley
 -  Leighfield Forest
 -  National Forest
 -  Additional 'hotspots'
 -  Charnwood Forest
- Biodiversity Quality Assessment**
-  6 - very high
 -  5 - high
 -  4 - medium - high
 -  3 - low - medium
 -  2 - low
 -  1 - very low

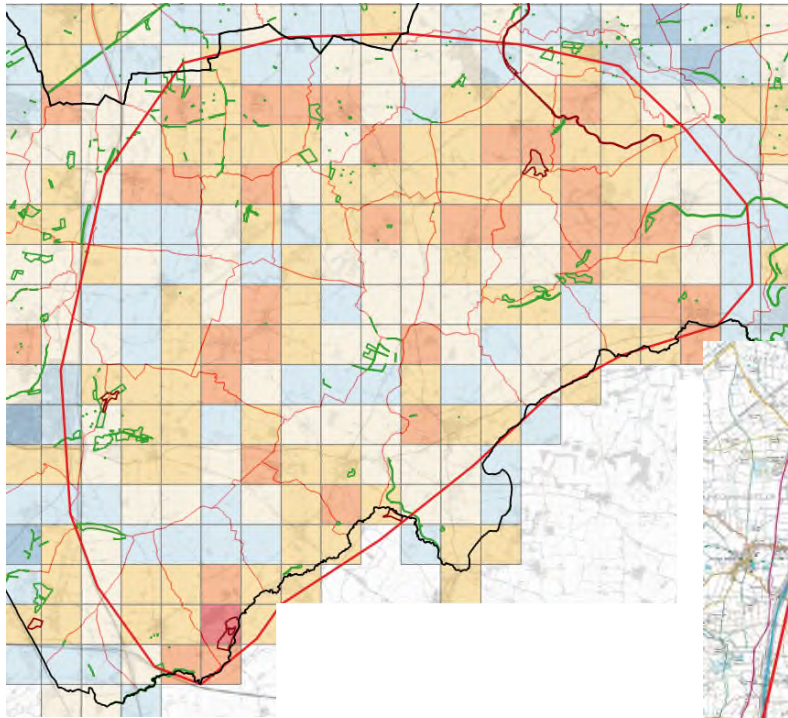


Other 'hotspots':
**1. Belvoir Estate & Leicestershire
Wolds**

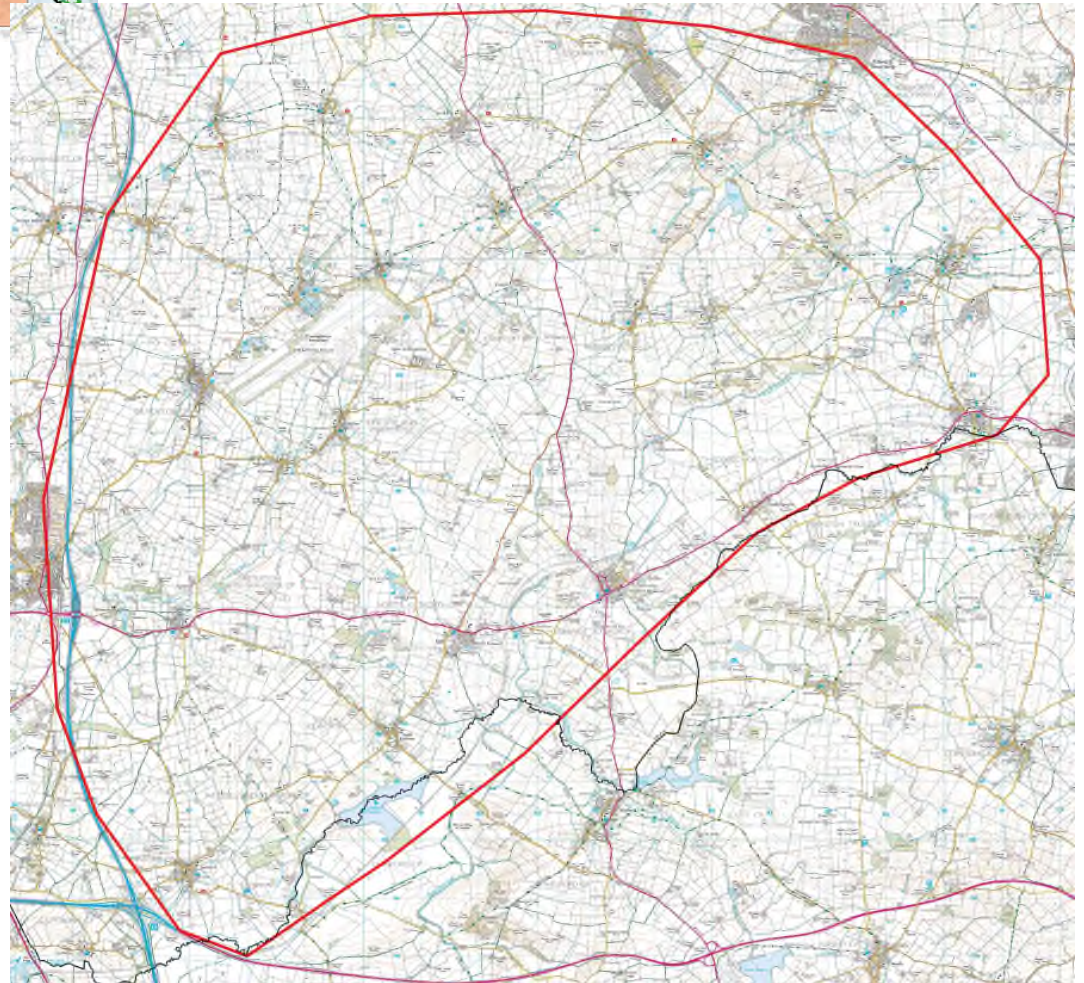


Quality	Bio score
low	1
	2
	3
	4
	5
high	6

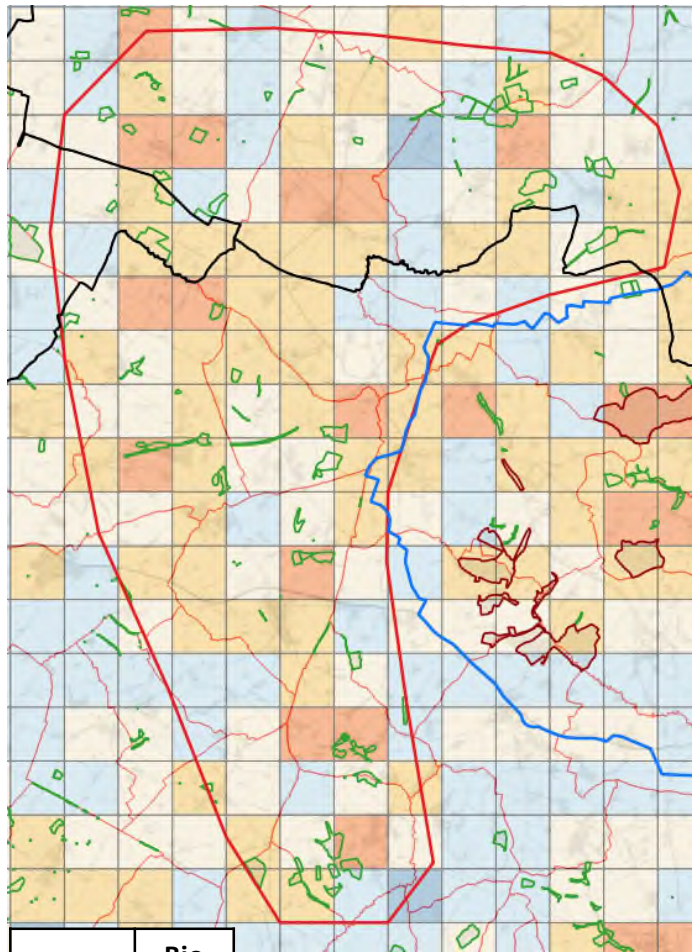




Other 'hotspots':
2. South Harborough

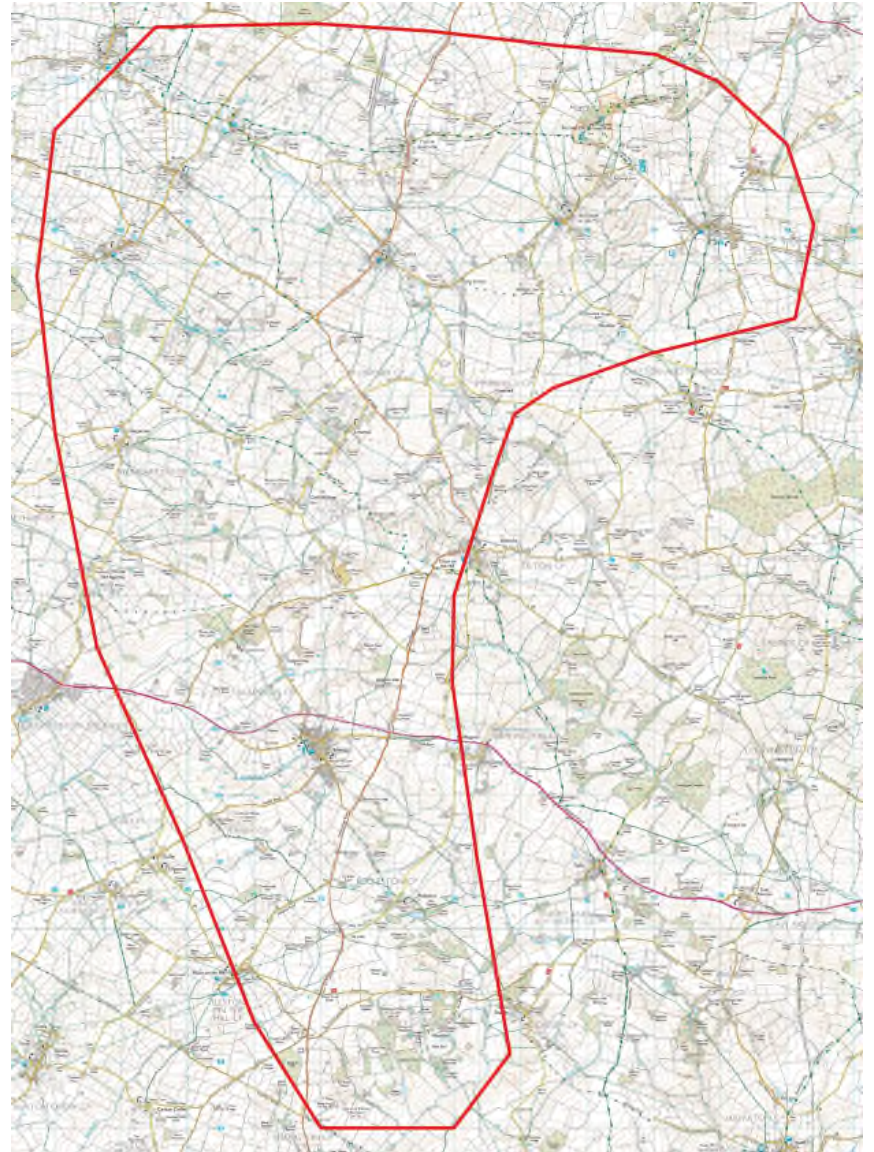


Quality	Bio score
low	1
	2
	3
	4
	5
	high

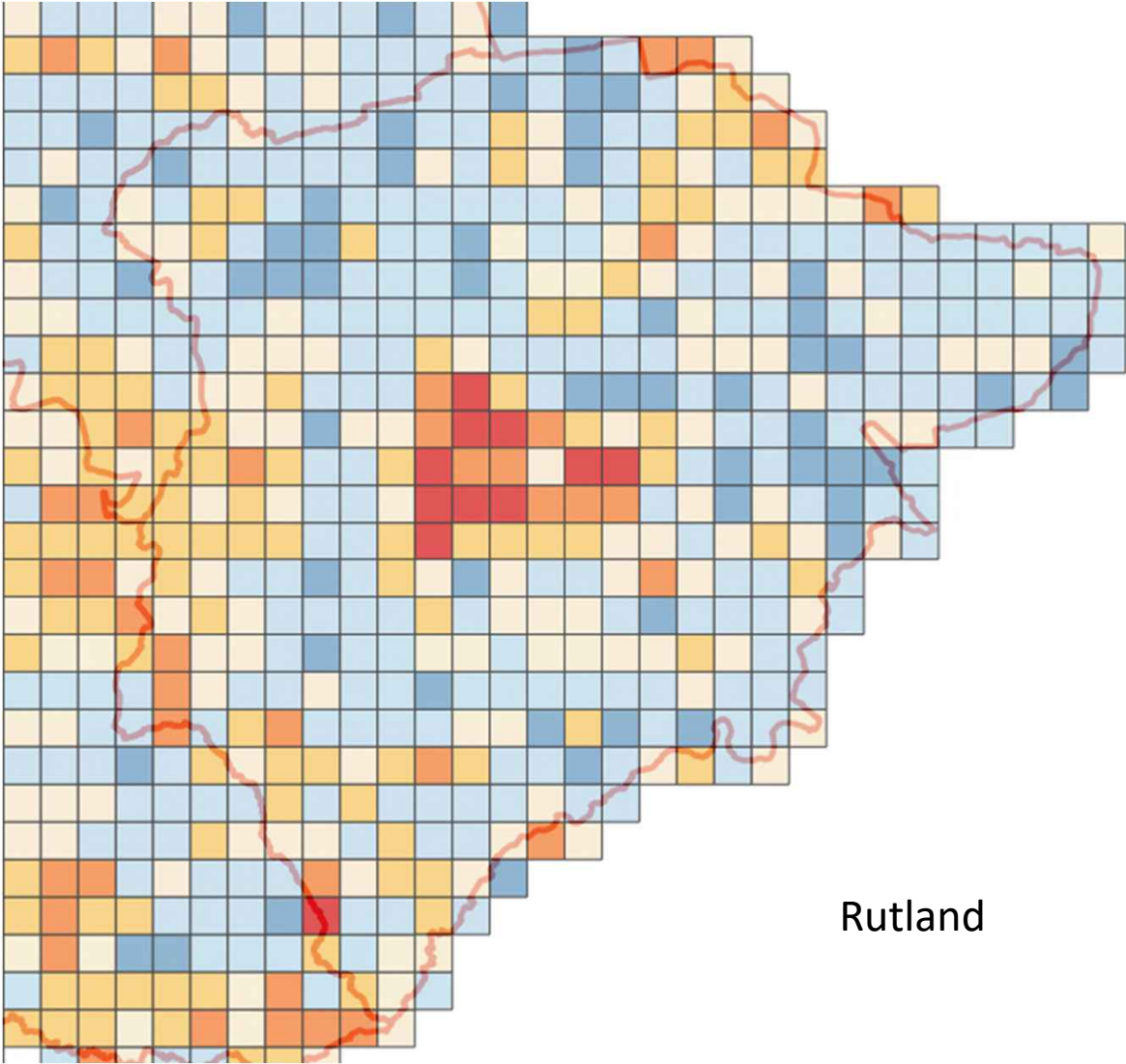


Quality	Bio score
low	1
	2
	3
	4
	5
	high

Other 'hotspots':
3. NW of Leighfield Forest



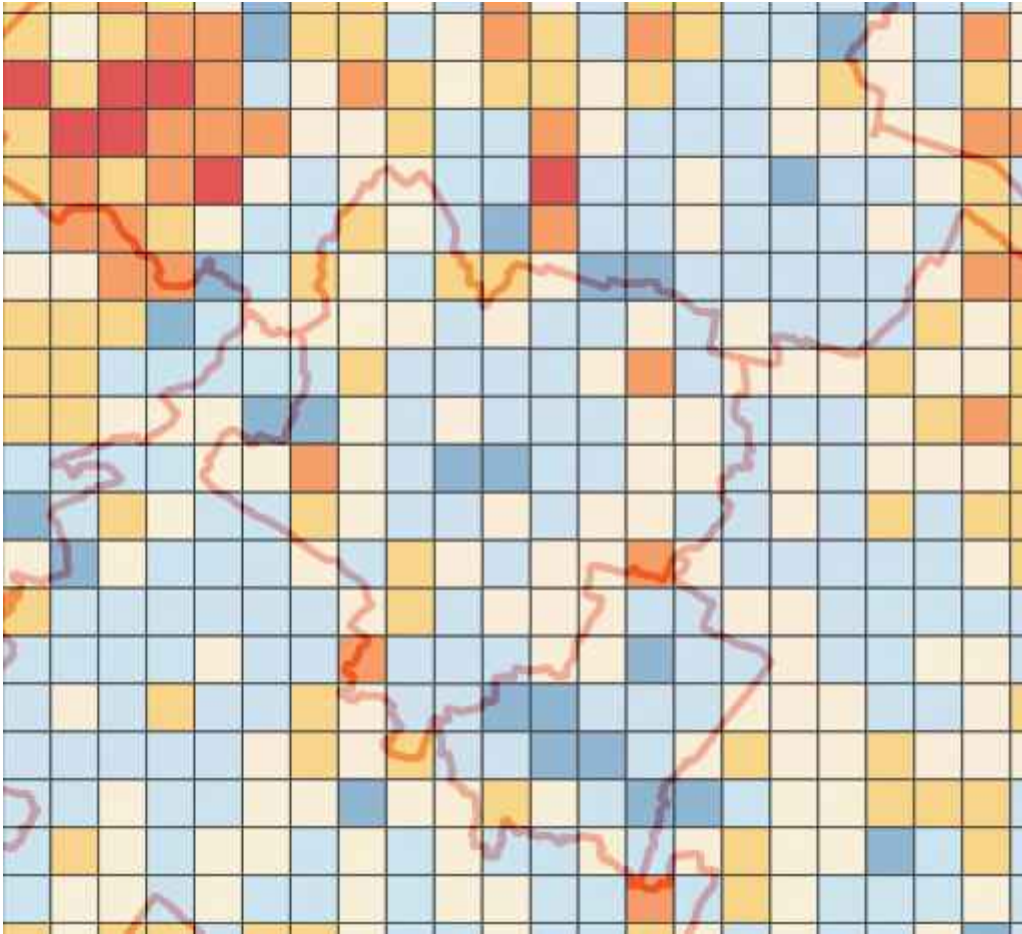
Addendum: Rutland and Leicester (assessment made in 2020/21)



Rutland

Quality	Bio score
low ↓ high	1
	2
	3
	4
	5
	6

Addendum: Rutland and Leicester (assessment made in 2020/21)



Leicester

Quality	Bio score
low ↓ high	1
	2
	3
	4
	5
	6

Biodiversity Quality Assessment

- 6 - very high (100-90% +ve habitat)
- 5 - high (70-90% +ve habitat)
- 4 - medium/high (50-70% +ve habitat)
- 3 - low/medium (30-50% +ve habitat)
- 2 - low (10-30% +ve habitat)
- 1 - very low (0-10% +ve habitat)

LRERC, December 2020

