**Notes in data use**

The type of data used for the spatial prioritization of the map grid cells were:

* Mutually exclusive presence / absence data, such as the dominant land cover type.
* Non-exclusive presence / absence data, such as statutory designations.
* Non-exclusive scaled quantitative data that provided an indication of the relative importance of different features (for example hedgerow lengths or catchment quality) or service provision (such as quantified estimates of ecosystem services).

**Land cover and habitat type**

Landcover types were derived from a compilation of several landcover data sources. Each cell was attributed to a single dominant landcover type.

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| **LANDCOVER DATA** | | | |
| Data source | Data owner | Source link | Usage Notes |
| Land cover map 2015 v1.2 (2017) | CEH | <https://eip.ceh.ac.uk/lcm/lcmdata> |  |
| Corine LC2012 | EU | <http://land.copernicus.eu/pan-european/corine-land-cover> | Only used for validating other types and comparison |
| Priority habitat inventory | NE | <https://naturalengland-defra.opendata.arcgis.com/datasets/priority-habitat-inventory-england-south> | Compilation of BAP priority habitats |
| National forest inventory | FC | <https://data.gov.uk/dataset/national-forest-inventory-woodland-england-2015> | Largely based on satellite imagery up to 3 yrs old. Woodland categorization only. |
| Plymouth Coastal Observatory habitat data. | PCO | <http://southwest.coastalmonitoring.org/data-types/habitat-mapping/> | Coastal landcover data |
| Open mosaic on previously developed land | NE & Buglife | <https://data.gov.uk/dataset/8509c11a-de20-42e8-9ce4-b47e0ba47481/open-mosaic-habitat-draft> | DRAFT data |
| Woodland pasture and parkland | NE | <https://data.gov.uk/dataset/61e6f611-af12-471e-8732-76b4d66dbb1f/wood-pasture-and-parkland-bap-priority-habitat-inventory-for-england> | Recent addition to priority habitats |
| CROME (2017) | RPA |  |  |

**Historic land cover**

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| **HISTORIC LANDCOVER** | | | |
| Data source | Data owner | Source link | Usage Notes |
| EA-10-Historic Grazing Marsh | EA | <https://eip.ceh.ac.uk/lcm/lcmdata> |  |
| EA\_11 Historic Saltmarsh | EA | <http://land.copernicus.eu/pan-european/corine-land-cover> | Only used for validating other types and comparison |
| EA 12 Landclaim | EA | <https://naturalengland-defra.opendata.arcgis.com/datasets/priority-habitat-inventory-england-south> | Compilation of BAP priority habitats |
| Historic OS 6inch series | OS |  |  |

**Species presence data**

Point data of species observations or recordings have **not** been used in the analysis. It was considered that the observational records showed high spatial bias resulting from the very uneven recording effort across the county. In the future it may be possible to use such point information to inform models of a species distribution that in turn could be used for spatial prioritization.

**Habitat features**

In addition to dominant land cover types, additional data on habitat features contained within cells was also used. These included linear and point features, such as open river, hedgerows, and the presence of ancient and venerable trees. Such data was non-exclusive (a cell could contain several features of the same or different types) and could be recorded as the presence/absence of a feature (such as a river bank) or scaled according to a measure of the abundance of a feature, such as the total length of hedgerows within a cell or number of recorded ancient/venerable trees.

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| **HABITAT & LANDCOVER FEATURES** | | | | | | |
| Data source | Data owner | | | Source link and reference | | Usage Notes | |
|  |  | | |  | |  | |
| OS Open Map Local Vector | | OS | <https://www.ordnancesurvey.co.uk/opendatadownload/products.html> | | Rail network and % built-up area | | | |
| OS Open Roads Vector | | OS | <https://www.ordnancesurvey.co.uk/opendatadownload/products.html> | | Road network and type | | | |
| OS Open Rivers | OS | | | <https://www.ordnancesurvey.co.uk/opendatadownload/products.html> | |  | |
| Open Greenspace | OS | | | <https://www.ordnancesurvey.co.uk/opendatadownload/products.html> | | golf courses & playing fields | |
| Hedges | ERCCIS | | | ERCCIS Hedges and Field Boundaries Project hedges layer: [erccis@cornwallwildlifetrust.org.uk](mailto:erccis@cornwallwildlifetrust.org.uk) | |  | |
| Ancient Tree Inventory | Woodland Trust | | | <https://ati.woodlandtrust.org.uk> | |  | |
| China clay pits | | OSM | <https://www.openstreetmap.org/#map=6/54.910/-3.432> | | Complemented by aerial photography and remote sensing data | | | |
| Priority habitats inventory | NE | | | <https://naturalengland-defra.opendata.arcgis.com/datasets/priority-habitat-inventory-england-south> | | No main habitat category | |
|  |  | | |  | |  | |

**Habitat and biodiversity designations**

A range of statutory and non-statutory designations, primarily derived from the biodiversity richness of an area, were used as further indicators of biodiversity. These designations are generally non-exclusive, and the same areas can be classified under several different designations. For example, many SSSI areas were also designated as SAC or SPA areas. Undue bias towards multiple-designated areas was prevented by either suitable weighting scores or by creating synthesis layers brining together several different designations.

Statutory designated areas were defined as all areas designated as SSSI, SAC, SPA, national or local nature reserves.

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| **HABITAT & BIODIVERSITY DESIGNATIONS** | | | | |
| Data source | Data owner | Source link and reference | Usage Notes |
| Ancient woodlands | NE | <https://data.gov.uk/dataset/9461f463-c363-4309-ae77-fdcd7e9df7d3/ancient-woodlands-england> |  |
| County wildlife sites | ERCCIS | <https://erccis.org.uk/CountySites> |  |
| AONB (2018) | NE | <https://naturalengland-defra.opendata.arcgis.com/datasets/areas-of-outstanding-natural-beauty-england> |  |
| SSSI (2018) | NE | <https://naturalengland-defra.opendata.arcgis.com/datasets/sites-of-special-scientific-interest-england> |  |
| SPA (2018) | NE | <https://naturalengland-defra.opendata.arcgis.com/datasets/special-protection-areas-england> |  |
| SAC (2018) | NE | <https://naturalengland-defra.opendata.arcgis.com/datasets/special-areas-of-conservation-england> |  |
| National Nature Reserves (2018) | NE | <https://naturalengland-defra.opendata.arcgis.com/datasets/national-nature-reserves-england> |  |
| Local Nature Reserves (2018) | NE | <https://naturalengland-defra.opendata.arcgis.com/datasets/local-nature-reserves-england> |  |
| Important Plant Areas | Plantlife | <http://www.plantlifeipa.org/home> |  |
| RSPB reserves | RSPB | <https://www.arcgis.com/home/item.html?id=6076715cb76d4c388fa38b87db7d9d24> |  |
| Marine Conservation Zones |  |  |  |
|  |  |  |  |
| Tree preservation orders | CC |  |  |

**Habitat condition and quality indicators**

Very little spatial data is available on the current condition of habitats in Cornwall. Where available, catchment ecological quality data was used as indicators of aquatic habitat condition and SSSI condition data was used as indicator of habitat condition within those sites. Areas participating in Higher level or Organic countryside stewardship schemes were also considered indicative of good condition of arable and grassland areas.

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| **HABITAT CONDITION INDICATORS** | | | | |
| Data source | Data owner | Source link and reference | Usage Notes |
| SSSI (2018) | NE | <https://naturalengland-defra.opendata.arcgis.com/datasets/sites-of-special-scientific-interest-england> | SSSI habitat condition |
| Countryside stewardship participation | NE | <https://naturalengland-defra.opendata.arcgis.com/datasets/countryside-stewardship-scheme-2016-management-areas-england> | Higher and Organic level only |
| Countryside Right of Way Act 2000 Access layer | NE |  |  |
| Heritage Coasts |  |  |  |
| Moorline |  |  |  |
| National Character Areas |  |  |  |
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**Ecosystem service benefits**

A comprehensive list of data sources used in the calculation of ecosystem services is detailed under their individual methodologies.

No ecosystem services dependent upon public access to the land (*eg* recreation, tourism, health benefits) or

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| **ECOSYSTEM SERVICE** | | |
| Service | Description |
| Flood mitigation | Mitigation of flood surface water and river/sea flood risk on downstream potential vulnerable populated areas |
| Aquaculture water quality | Mitigation of water pollution upstream of major aquaculture sites |
| Drinking water quality | Mitigation of water pollution in drinking water sensitive areas |
| Bathing water quality | Mitigation of water pollution upstream of beaches |
| Soil loss mitigation | Mitigation of soil loss risk derived from ESDAC soil erosion by water estimates: <https://esdac.jrc.ec.europa.eu/content/soil-erosion-water-rusle2015> ) |
| Soil carbon | Soil carbon stock in top 30cm from National Soil Map [www.landis.org.uk/data/natmap.cfm](http://www.landis.org.uk/data/natmap.cfm) |
| Pollination | Pollinator friendly habitats close to agricultural arable areas. |
| Air quality mitigation | Mitigating landcover in air quality monitoring zones |
|  |  |

**Facilitating factors & other non-biodiversity benefits**

Data sources were used to identify key factors that could restrict alternative uses (reduce opportunity costs) or bring additional non-biodiversity benefits, such as sites of geological or heritage value. These layers might be considered facilitating factors that would help realise biodiversity benefits and/or reduce opportunity costs as they restrict alternative land uses. Additional factors that could be considered include:

* Additional indicators of sympathetic land ownership or management.
* Unsuitability for alternative land uses including topography such as steep slopes, aspect, elevation and wind exposure.

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| **HERITAGE AND OTHER DESIGNATIONS** | | | | |
| Data source | Data owner | Source link and reference | Usage Notes |
| World Heritage Site | EH | <https://data.gov.uk/dataset/3ac5c299-6805-476b-af9b-90aadec5e7b4/world-heritage-sites-gis-data> | Not used |
| Heritage coast | NE | <https://naturalengland-defra.opendata.arcgis.com/datasets/heritage-coasts-england> | Not used |
| Scheduled monuments | EH | <https://historicengland.org.uk/listing/the-list/data-downloads/> | Not used |
| Battlefields | EH | <https://historicengland.org.uk/listing/the-list/data-downloads/> | Not used |
| Parks & gardens register 2012 | EH or EA | <http://www.geostore.com/environment-agency> |  |
| Parks & garden dataset | National Trust | National Trust (2013). National Trust Garden and Parks. Available: http://  [www.nationaltrust.org.uk/visit/places/gardens-and-parks/](http://www.nationaltrust.org.uk/visit/places/gardens-and-parks/). |  |
|  |  |  |  |
| Doorstep greens | NE | <https://data.gov.uk/dataset/6a80e5a7-017e-49ba-a981-5cd0c727086f/doorstep-greens-polygons> |  |

**Constraints and Costs**

Factors that could restrict the potential biodiversity value or impede the protection of sites can be attributed a negative weighting. These can include existing infrastructure and/or buildings, future planning commitments, certain kinds of recreational use (golf courses, playing fields) or suitability for alternative land use such as the agricultural land grade.

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| **HABITAT CONDITION INDICATORS** | | | | |
| Data source | Data owner | Source link and reference | Usage Notes |
| Agricultural land classification | NE | <http://naturalengland-defra.opendata.arcgis.com/datasets/agricultural-land-classification-alc-grades-post-1988-survey-polygons-england> | Not used |
| Allocation areas | CC |  |  |

**Soil and Geology data**

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| **HABITAT CONDITION INDICATORS** | | | | |
| Data source | Data owner | Source link and reference | Usage Notes |
| Agricultural land classification | NE | <http://naturalengland-defra.opendata.arcgis.com/datasets/agricultural-land-classification-alc-grades-post-1988-survey-polygons-england> | Not used |
| Soil HOST classes | CEH | https://www.ceh.ac.uk/services/hydrology-soil-types-1km-grid  1km | Boorman, D B, Hollis, J M & Lilly, A 1995. Hydrology of soil types: a hydrologically based classification of the soils of the United Kingdom. Institute of Hydrology Report No. 126. 137pp. |
| Soil Loss by Water Erosion in Europe | ESDAC | https://esdac.jrc.ec.europa.eu/content/soil-erosion-water-rusle2015  European Soil Data Centre (ESDAC), esdac.jrc.ec.europa.eu, European Commission, Joint Research Centre | Panagos, P., Borrelli, P., Poesen, J., Ballabio, C., Lugato, E., Meusburger, K., Montanarella, L., Alewell, .C. 2015. [The new assessment of soil loss by water erosion in Europe](http://www.sciencedirect.com/science/article/pii/S1462901115300654" \t "_blank). Environmental Science & Policy. **54**: 438-447. DOI: 10.1016/j.envsci.2015.08.012 |
| Slope Length and Steepness factor (LS-factor) | ESDAC | https://esdac.jrc.ec.europa.eu/content/ls-factor-slope-length-and-steepness-factor-eu  25m resolution | Panagos, P., Borrelli, P., Meusburger, K. (2015) [A New European Slope Length and Steepness Factor (LS-Factor) for Modeling Soil Erosion by Water](http://www.mdpi.com/2076-3263/5/2/117" \t "_blank). Geosciences, **5**: 117-126. |
| Soil Erodibility in Europe High Resolution dataset (500m) (K factor) | ESDAC | https://esdac.jrc.ec.europa.eu/content/soil-erodibility-k-factor-high-resolution-dataset-europe  500m res | Panagos, P., Meusburger, K., Ballabio, C., Borrelli, P., Alewell, C. Soil erodibility in Europe: A high-resolution dataset based on LUCAS, Science of Total Environment, 479-480 (2014) pp. 189-200 |
| Rainfall erosivity in Europe (R factor) | ESDAC | https://esdac.jrc.ec.europa.eu/content/rainfall-erosivity-european-union-and-switzerland  500m | Panagos, P., Ballabio, C., Borrelli, P., Meusburger, K., Klik, A., Rousseva, S., Tadic, M.P., Michaelides, S., Hrabalíková, M., Olsen, P., Aalto, J., Lakatos, M., Rymszewicz, A., Dumitrescu, A., Beguería, S., Alewell, C. 2015. Rainfall erosivity in Europe. Sci Total Environ. **511:**  801-814. DOI: 10.1016/j.scitotenv.2015.01.008 . Download the article: [10.1016/j.scitotenv.2015.01.008](http://www.sciencedirect.com/science/article/pii/S004896971500011X" \t "_blank) |
| G-BASE Geochemical baseline survey of the environment: soil and stream sediments | BGS | [www.bgs.ac.uk/gbase](http://www.bgs.ac.uk/gbase) |  |
| National Soil Data Inventroy | NSRI Cranfield |  | Copyright Cranfield University 2018 |
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**Sea level rise and erosion data**

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| **HABITAT CONDITION INDICATORS** | | | | |
| Data source | Data owner | Source link and reference | Usage Notes |
| Coastal flood boundary – extreme sea levels | EA |  | Areas of erosion risk |
| National Coastal Erosion Risk Mapping | EA |  |  |
|  | WSP data |  |  |
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**Flood risk and water quality and activity data**

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| **Water quality and flood risk data** | | | | |
| Data source | Data owner | Source link and reference | Usage Notes |
| Risk of Flooding from Rivers and Sea v1.7 | EA 2017 | Effective resolution = 50m |  |
| Risk of Flooding Surface Water - Extent | EA 2018 | https://data.gov.uk/dataset/8b82987d-3616-4e46-8edb-2973e8b82ad7/risk-of-flooding-from-surface-water-extent-1-percent-annual-chance |  |
|  | EA | ?????? |  |
| Rapid Reaction Catchments | EA |  |  |
| National Receptor Database | Environment Agency 2017 | https://data.gov.uk/dataset/0eda736c-b85b-4ad4-a308-6fe5fbd08dc8/national-receptor-dataset-afa171 |  |
| WFD lake water bodies |  |  |  |
| Water Framework Directive Catchment data API | EA | <https://environment.data.gov.uk/catchment-planning/ui/reference> | Aquatic habitat condition. |
| Nitrogen Vulnerable zones | EA 2017 |  |  |
| Eutrophic sensitive areas | EA 2013 |  |  |
| Eutrophic coasts |  |  |  |
| Eutrophic Lakes |  |  |  |
| Eutrophic rivers |  |  |  |
|  |  |  |  |
| Shellfish waters | NE |  |  |
| Drinking water surface water safeguard zones v2 | EA 2016 |  |  |
| Areas affecting bathing waters | EA 2016 |  |  |
| Beaches | OpenStreetMap |  |  |
| Mastermap Water | OS | https://www.ordnancesurvey.co.uk |  |

**Air Quality**

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| **HABITAT CONDITION INDICATORS** | | | | |
| Data source | Data owner | Source link and reference | Usage Notes |
| Air Quality Monitoring Zones | DEFRA |  |  |
|  |  |  |  |

**Topography and weather data**

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| **HABITAT CONDITION INDICATORS** | | | | |
| Data source | Data owner | Source link and reference | Usage Notes |
| OS Terrain 50m | OS | https://www.ordnancesurvey.co.uk |  |
| OS Terrain 5m | OS | https://www.ordnancesurvey.co.uk |  |
| Wind speed data | NCAP???? |  |  |
|  |  |  |  |
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Other sets – use tbc

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| **HABITAT CONDITION INDICATORS** | | | | |
| Data source | Data owner | Source link and reference | Usage Notes |
| Recreational woodlands |  | Woodland trust – woods for people & Forestry Commission’s inventory of the UK woodland’s estate |  |
| Footpaths & Bridleways |  | OSM |  |
| Monitor of Engagement with the Natural  Environment survey database |  | Natural England (2012). Monitor of Engagement with the Natural Environment  survey. Available: <https://www.gov.uk/government/collections/monitor-of-engagement-with-the-natural-environment-survey-purpose-and-results> |  |
| Cadastral parcels | Land registry |  |  |
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Agriculture

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| **HABITAT CONDITION INDICATORS** | | | | |
| Data source | Data owner | Source link and reference | Usage Notes |
| Agricultural land grade | NE |  |  |
| County Farms in Cornwall | CC |  |  |
| Agricultural census data – ward level | DEFRA | DEFRA (2012) June survey of agriculture. Technical report, Departement for  Environment, Food and Rural Affairs. Available: <http://www.defra.gov.uk/statistics/foodfarm/landuselivestock/junesurvey/junesurveyresults/> |  |
| Farm management handbook – gross margin estimates |  | Agricultural Economic Unit (2005) Farm Management Handbook. Exeter, UK:University of Exeter, |  |

Population etc

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| --- | --- | --- | --- |
| **HABITAT CONDITION INDICATORS** | | | |
| Data source | Data owner | Source link and reference | Usage Notes |
| Population | ONS by SOA, mid 2015 | <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/lowersuperoutputareamidyearpopulationestimates> Unformatted data used | Areas of erosion risk |
| Super Output Areas |  | <http://geoportal.statistics.gov.uk/datasets/lower-layer-super-output-areas-december-2011-full-clipped-boundaries-in-england-and-wales> |  |
| OS Boundary |  | Admin areas |  |
| Depreivation indices | DCLG |  |  |
|  |  |  |  |

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