



Llywodraeth Cymru
Welsh Government

Sourcing Spatial Data

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Long-Term Forest Planning and Professionalism



Introduction - Understanding spatial data

- You probably learned a lot about spatial data about the same time you started walking
- The benefits of factoring location into your analytics are many
- Spatial analysis can be a powerful tool make better informed decisions
 - Where is it
 - What's nearby
 - How are they connected
 - How is it affected by other things
- All of this can be used to make a long term forest management plan stronger and more useful

Introduction – what will be covered

- Where to source spatial data for use in forest management plans (FMPs) and how to use it
 1. Landscape designations and protected species downloads
 2. Land-use and land-cover spatial data
 3. European and global forest cover
 4. Other useful spatial data in forest planning
 5. Where to use this spatial data
- The type of spatial data that can be useful in creating FMPs
- Current Glastir Woodland Creation (GWC) Opportunity Map (OM) functionality
 - Data layers included
 - Recent updates to the data layers



1. Landscape designations and protected species downloads

a) Welsh Government Geo-portal - Lle.

- Repository for spatial data across Wales, supported by Welsh Government and Natural Resources Wales (NRW)
- Includes many spatial datasets around forestry, as well as protected landscapes, habitats, and species

<http://lle.gov.wales/map>

Lle
A Geo-Portal for Wales

About

The Lle Geo Portal has been developed as a partnership between Welsh Government and Natural Resources Wales. Lle serves as a hub for data and information covering a wide spectrum of topics, but primarily around the environment.

Resources

[Browse Catalogue](#) (237)

Service (2) Application (1) Publication (1) Website (3)

Spatial data (166)

Lle - Map Browser BETA

Search...

Layers Tools Legend

Background

Ordnance Survey Vector (viaEuropa)

Active layers (6) Add / Remove Data

- National Forest Inventory 2016
- NRW Woodland sub-compartment data
- Felling Licence Applications
- Dedicated Woodlands
- Better Woodlands for Wales Case Boundaries
- Ancient Woodland Inventory 2011 - AWI

NRW Woodland sub-compartment data

forest:	413
comptment:	5318
subcompt:	A
subcomptid:	380019450
block:	26
pri spcode:	SS
prispecies:	Sitka spruce
sec spcode:	SS
secspecies:	Sitka spruce
ter spcode:	SS
terspecies:	Sitka spruce
priptarea:	48
secptarea:	25
terptarea:	21
cult code:	10
cultivatn:	NO CULTIVATION
pri lucode:	PIIF
pri landuse:	High Forest

1. Landscape designations and protected species downloads

b) National Biodiversity Network (NBN) Atlas

- “UK’s largest collection of biodiversity information”
- Search for European Protected Species, and obtain detailed information on occurrence location, protection status, and further literature.
- Search by species of location

<https://nbnatlas.org/>

Group	Species	Species : Common Name	Records
All Species	4538		8
Animals	2521	1. <i>Abies paraolepensis</i>	1
Mammals	33	2. <i>Abies alba</i> : European Silver-Fr	1
Birds	186	3. <i>Abies cephalonica</i> : Greek Fir	1
Reptiles	3	4. <i>Abies procera</i> : Noble Fir	1
Amphibians	3	5. <i>Abies balsamica</i>	1
Fish	45	6. <i>Abies alba</i>	1
Mollusca	124	7. <i>Abies grossularifolia</i> : Magpie	245
Arthropoda	2010	8. <i>Abies sylvatica</i> : Clouded Magpie	14
Crustaceans	87	9. <i>Abies balsamica</i> : Spruce	54
Insects	1775	10. <i>Abies balsamica</i> : Dark Spruce	8
Plants	1482	11. <i>Abies balsamica</i>	1
Bryophytes	241	12. <i>Abies balsamica</i>	1
Gymnosperms	0	13. <i>Abies balsamica</i>	5
FernsAndAlgae	0	14. <i>Abies balsamica</i>	3
Angiosperms	0	15. <i>Abies balsamica</i>	5
Mosses	0	16. <i>Abies balsamica</i>	5
Fungi	0	17. <i>Abies balsamica</i>	7
		18. <i>Abies balsamica</i>	17

Arvicola amphibius (Linnaeus, 1758)
EUROPEAN WATER VOLE

species Accepted Name authority: UK Species Inventory

Overview Gallery Names Classification Records Literature Sequences Datasets

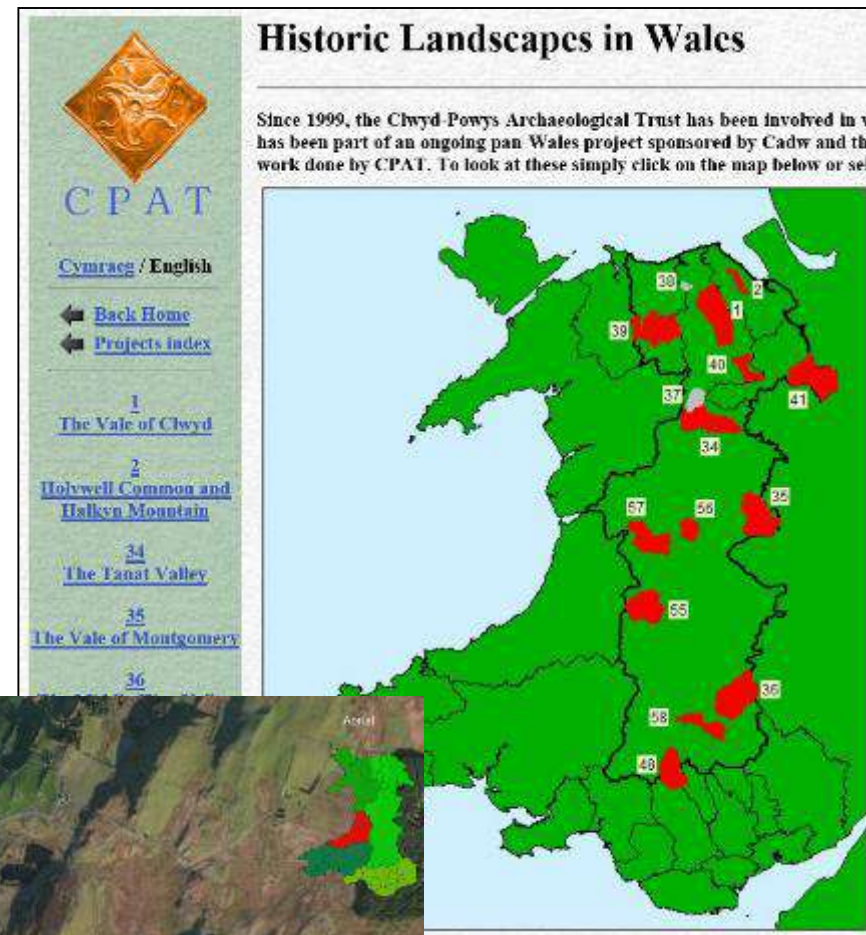


1. Landscape designations and protected species downloads

c) Welsh Archaeological Trusts (WATs)

- Archwilio - shows historic environment features and scheduled ancient monuments
- Clwyd-Powys Archaeological Trust (CPAT) shows some of the Historic Landscape Areas (HLAs) across Wales which must be consulted against for some forestry operations

<https://www.archwilio.org.uk/>



<http://www.cpat.org.uk/projects/longer/histland/histland.htm>

1. Landscape designations and protected species downloads

d) Multi Agency Geographic Information Centre (MAGiC)

- Shows spatial data from the UK's natural environment, and is run by DEFRA
- Can be a little haphazard in Wales but worth browsing as has a long record of data

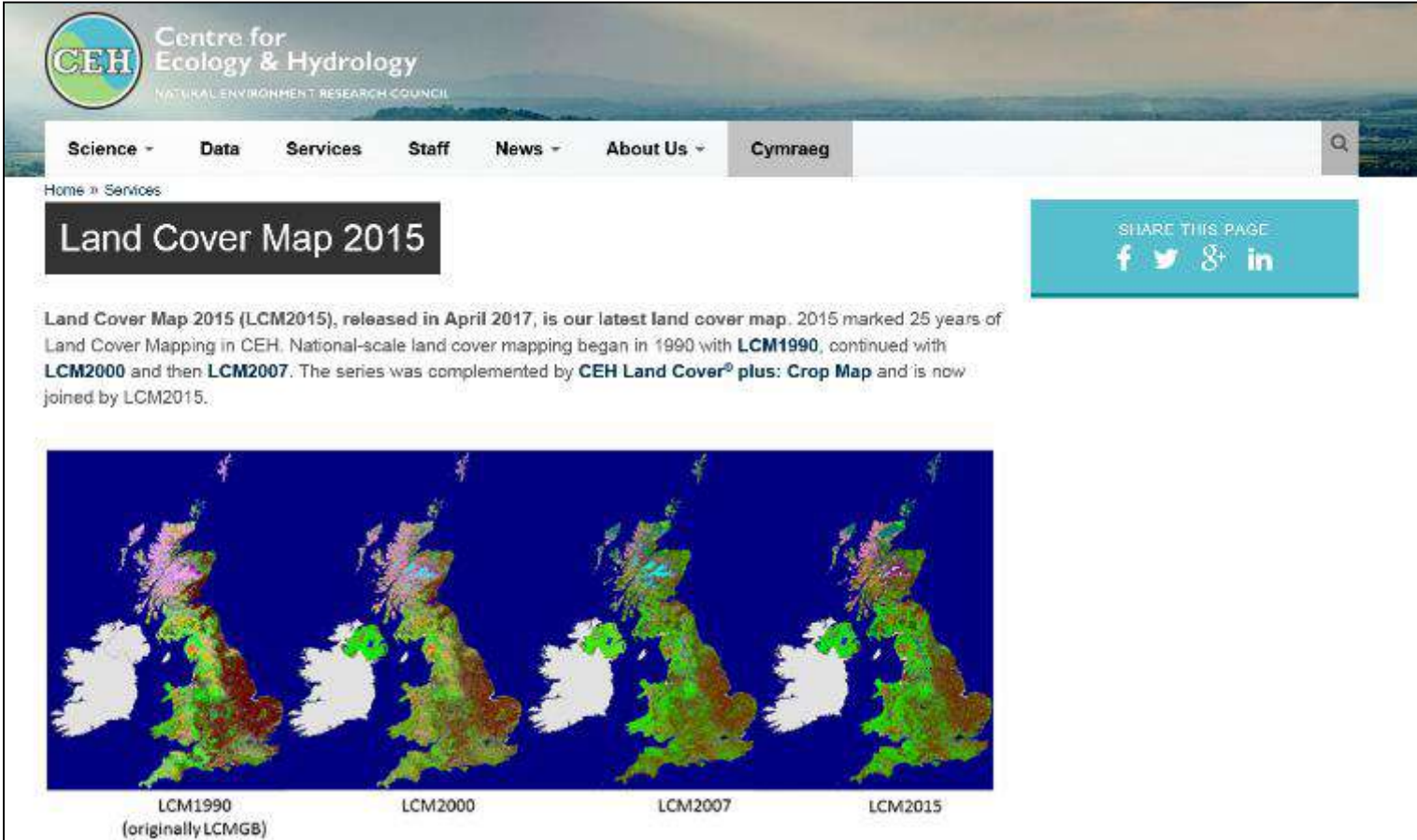
The screenshot displays the MAGIC (Multi Agency Geographic Information Centre) interactive mapping interface. The main map shows the Aberystwyth area in Wales, with various landscape designations and protected species data overlaid. The interface includes a 'Table of Contents' on the left, a search bar, and a 'Get Started' button. The map shows various landscape designations and protected species data overlaid on a street map of Aberystwyth and surrounding areas. The interface includes a 'Table of Contents' on the left, a search bar, and a 'Get Started' button. The map shows various landscape designations and protected species data overlaid on a street map of Aberystwyth and surrounding areas. The interface includes a 'Table of Contents' on the left, a search bar, and a 'Get Started' button.

<http://magic.defra.gov.uk/MagicMap.aspx>

2. Land-use and land-cover spatial data

a) Centre of Ecology and Hydrology (CEH) Land Cover Map (LCM)

- Has 4 iterations of land cover, detailing 22 habitat types most recently from 2015
- Option to download some course resolution data for free (1km squares) or pay for higher resolution data (vector)



The screenshot shows the CEH website's 'Land Cover Map 2015' page. The header includes the CEH logo and navigation menus for Science, Data, Services, Staff, News, About Us, and Cymraeg. A breadcrumb trail reads 'Home » Services'. The main heading is 'Land Cover Map 2015'. A teal 'SHARE THIS PAGE' button with social media icons is visible. The text below the heading states: 'Land Cover Map 2015 (LCM2015), released in April 2017, is our latest land cover map. 2015 marked 25 years of Land Cover Mapping in CEH. National-scale land cover mapping began in 1990 with LCM1990, continued with LCM2000 and then LCM2007. The series was complemented by CEH Land Cover[®] plus: Crop Map and is now joined by LCM2015.' Below this text is a row of four maps of the United Kingdom, labeled LCM1990 (originally LCMGB), LCM2000, LCM2007, and LCM2015, showing the progression of land cover data over time.

<https://www.ceh.ac.uk/services/land-cover-map-2015#data>

2. Land-use and land-cover spatial data

b) Phase 1 habitat survey and Agricultural Land Classification (ALC)

- Both available on the Welsh Government Lle portal
- ALC shows quality of land and Phase 1 habitat survey shows current ground cover



Predictive Agricultural Land Classification (ALC) Map

Nov 27 2017

The predictive ALC model for Wales is based on the principles of the Agricultural Land Classification System of England & Wales, the Revised Guidelines & Criteria for Grading the Quality of Agricultural Land (MAFF 1988).

The [Predictive ALC Map](#) also allows users to view other predictive information, including ALC grades by individual limitation according to: climate, soil depth, droughtiness, rock outcrops, wind exposure, top soil stone, gradient, workability & wetness, and surveyor experience.

Further information on Agricultural Land Classification can be found [here](#).



Habitat Mapping for Wales

Oct 18 2016

Natural Resources Wales has a remit to pursue the sustainable management of natural resources. Habitat maps are a key evidence base for this remit, underpinning the understanding of the distribution and extent of habitats in Wales.

Habitat mapping allows the conservation needs of each habitat to be explored and facilitates better management of the environment by supporting the designation of protected sites and providing a baseline for reporting against the status of sites and habitat features.

NRW maintains a comprehensive data archive of terrestrial, intertidal and marine habitats across Wales. Please see our open data habitat maps available through Lle:

<http://lle.gov.wales/News>

3. European and global forest cover

a) European forest cover

- Analyses imagery from the Sentinel suite of satellites at 20m resolution

The screenshot displays the Copernicus Land Monitoring Service interface. At the top, there is a navigation bar with 'Global', 'Pan-European', 'Local', 'Reference data', and 'FAQ' options. Below this is a search bar and a 'Ask the service desk' button. The main content area features a map of Europe with a green overlay representing tree cover density. A legend on the left side of the map, titled 'HRH_TreeCoverDensity_2015', provides a color-coded scale for tree cover density percentages: 1-20% (lightest green), 21-40%, 41-60%, 61-80%, and 81-100% (darkest green). It also includes categories for 'All Non Tree Areas', 'Unclassifiable', and 'Outside Area'. The map includes a scale bar (0 to 2000 km) and the Copernicus logo. A 'User corner' on the right side of the map contains links for 'FAQ', 'Ask the service desk', 'Contract opportunities', 'EAGLE', 'Land use cases', 'Publications', and 'Technical library'. The page title is '2015'.

DATA IDENTIFICATION

High Resolution Layer: Tree Cover Density (TCD) 2015

Framework service contract for the Copernicus Land monitoring services - High Resolution land cover characteristics for the 2015 reference year. Production of the geospatial products of the Copernicus land Continental component land monitoring service: Lot 2 - Forest products for EEA39. Tree Cover Density layer (ranging from 0-100%) in 20m spatial resolution and European projection for the reference year 2015 (+/- 1 year).

<https://land.copernicus.eu/pan-european/high-resolution-layers/forests/tree-cover-density/status-maps/2015?tab=mapview>

3. European and global forest cover

b) World forest cover

- Analyses Radiometry from data collected in the 1990s, published in 2001 at 1km resolution
- There are more up to date versions but these have not been published through the FAO



The screenshot displays the FAO GeoNetwork web interface. At the top, the logo reads "FAO // GeoNetwork" with the tagline "Find and analyze geo-spatial data". Below the logo is a navigation menu with links for Home, FAO Core Data Sets, GIS Gateway, Feedback, Links and Partners, About, and Help. A search bar is present with a "Search" button and a "Reset" link. On the left, there is a "WHAT?" search input and a "WHERE?" section with a map thumbnail and a "Search" button. Below this is a list of categories including Administrative and Political Boundaries, Agriculture and Livestock, Applied Ecology, Base Maps, Remote Sensing and Toponomy, Biological and Ecological Resources, Climate, Fisheries and Aquaculture, Forestry, Human Health, Hydrology and Water Resources, Infrastructures, Land Cover and Land Use, Population and Socio Economic Indicators, Soils and Soil Resources, and Topography. The main area is a "Map viewer" showing a world map with forest cover data. The "Layer tree" on the left of the map viewer includes "Base Layer", "Gaul Administrative Unit Lay", "Euc Mobile World Image", and "Overlays" with "The World's Forests 2000" checked. Below the map viewer are "Print" and "Legend" buttons. At the bottom, there is a section for "THE WORLD'S FORESTS 2000" with an abstract, keywords, and buttons for "Metadata", "Download", and "Interactive Map". A scale bar shows 2000 km and 1:2500000. On the right side of the page, there is a vertical URL: <http://www.fao.org/geonetwork/srv/en/main.home>

4. Other useful spatial data in forest planning

a) Data.gov.uk

- Lots of duplication with Lle, but these datasets often cover the GB or the UK
- Can download in a range of formats to suit the user's requirements (WMS/WFS/SHP)
- Includes links to GB level tree health information (FC open data)

DATA.GOV.UK™
open data government

Spatial Data Catalogue

The data below is freely available for you to use under the licence terms indicated. WMS/WFS URLs for individual layers are persistent (will not change). WFS URLs are subject to change in future.

Organisation: Layer:

Format:

WMS: Copy

WFS: Copy

Title: Licence:

Canal and River Trust
Aqueduct

CRT Licence

Forestry Commission Open Data

Phytophthora Ramorum Wood Biofuel Processors GB

No Expiry specified 5/1/2017 Spatial Dataset 8 flows

https://data.gov.uk/search?filters=%5Btopic%5D=Environment

4. Other useful spatial data in forest planning

b) National Library of Scotland

- Has an excellent archive of historic mapping covering GB
- Useful in forest planning such as ancient woodland determination

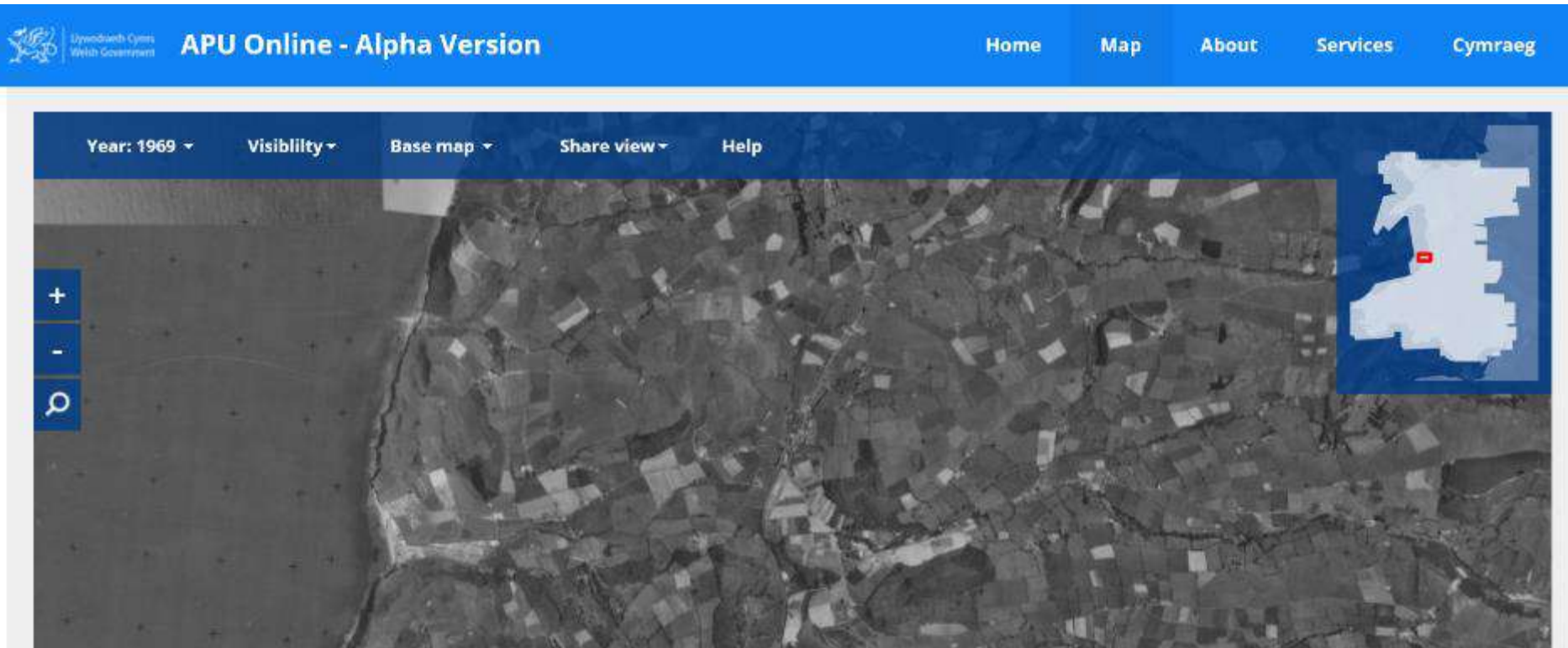
The screenshot displays the National Library of Scotland's online map interface. At the top left, the logo for the National Library of Scotland is visible, along with the text "Map images". Navigation links include "Find by place", "Explore georeferenced maps", and "Side by Side". A search bar on the top right contains the text "Keyword search". Below the navigation, a dark blue banner reads "Maps home > OS Six-inch Scotland 1892-1960; or England and Wales, 1842-1962" and includes a "View basket" button. The main map area shows a historical OS Six-inch map of ABERYSTWYTH overlaid on a modern ESRI World Imagery background. The map is titled "LOWER VAENOR" and "UPPER VAENOR". The interface includes a search panel on the left with the following options: "Find a place:", "Search Gazetteer" (UK selected, World unselected), "Type a placename..." or "or", "Search by National Grid Reference:", "Type Grid Ref...", "Search County:" (Choose), "Choose an historic map overlay:", "1. Select a category:" (Great Britain), "2. Select a map / map series:" (OS Six Inch, 1888-1913), "Zoom to this map / map series:", "Change transparency of overlay:" (set to 100%), and "Show my location?" (unchecked). A note at the bottom of the search panel states: "These overlay lists automatically update to those covering the map" and "View the individual sheets of this OS six-inch mapping by selecting 'Find by place' above". The map itself shows the town of ABERYSTWYTH and surrounding areas like ISA'N-DRE and UCHAN-DRE. The bottom right corner of the map area contains the text "Cardiganshire VI.N.W., Revised: 1904. Published: 1906".

4. Other useful spatial data in forest planning

c) Welsh Government Aerial Photography Unit (APU)

- A register of aerial photography flown across Wales by the RAF, OS, and commercially since 1945
- Useful to determine the recent history of a woodland in order to better develop its long term future

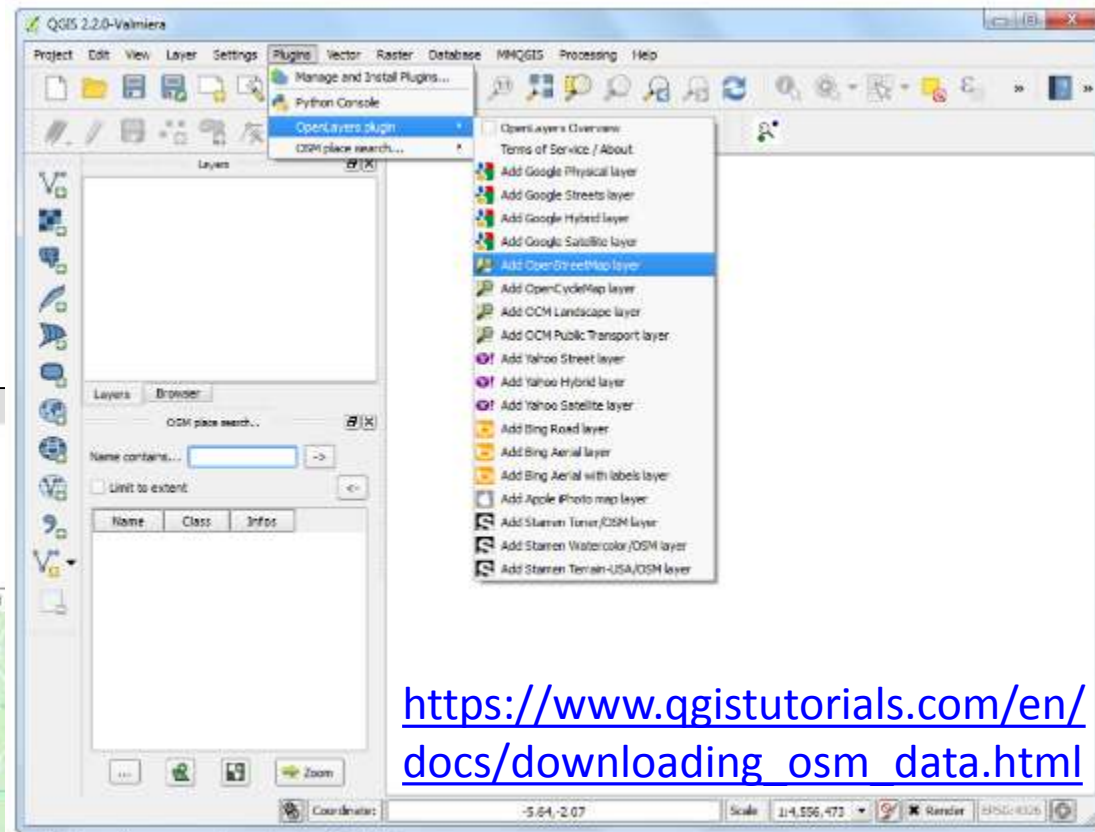
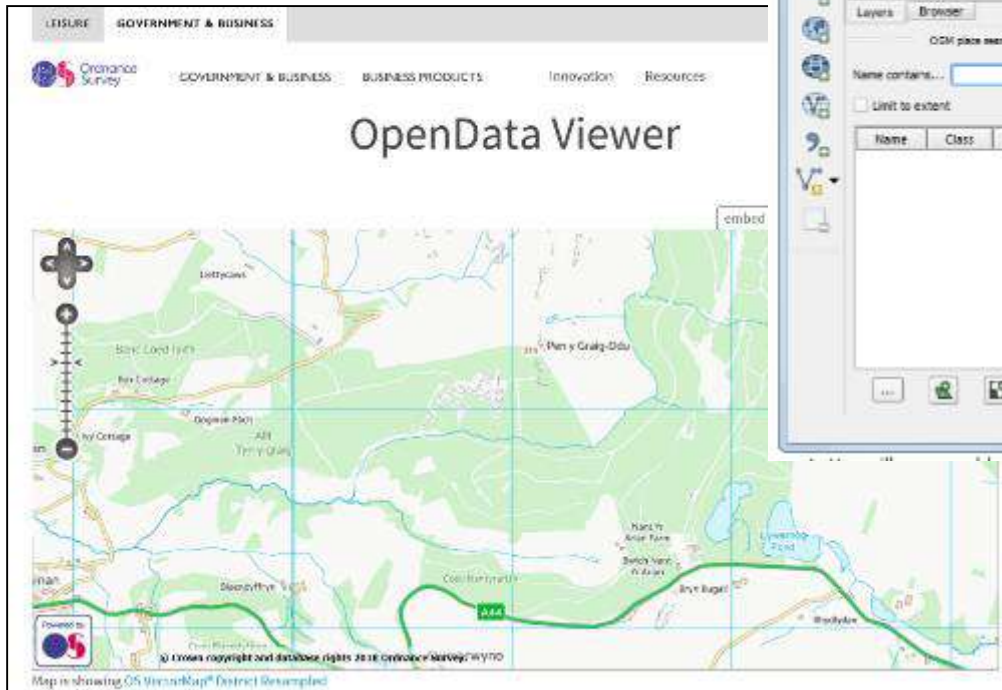
<http://aerialphotos.wales.gov.uk/map/?>



4. Other useful spatial data in forest planning

d) Basemapping – Ordnance Survey/ Open Street Map etc.

- Ordnance Survey Master Map (OSMM) most comprehensive GB mapping but can be expensive
- Open Street Map, Google and others offer open source mapping which can be uploaded as a WMS to GIS applications



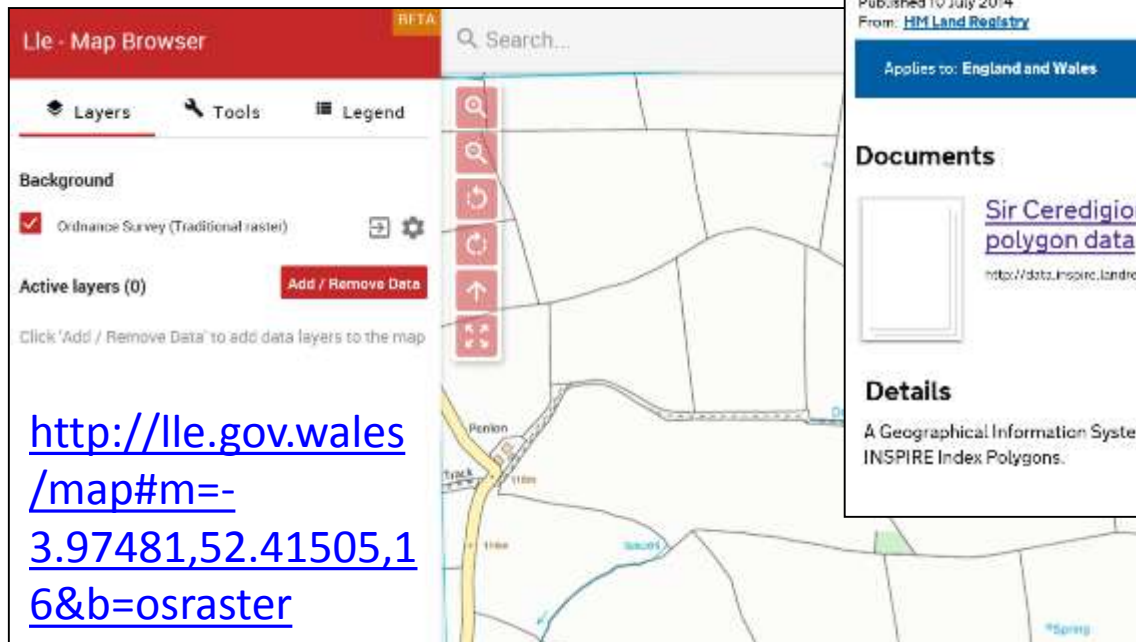
https://www.qgistutorials.com/en/docs/downloading_osm_data.html

<https://www.ordnancesurvey.co.uk/opendata/viewer/index.html>

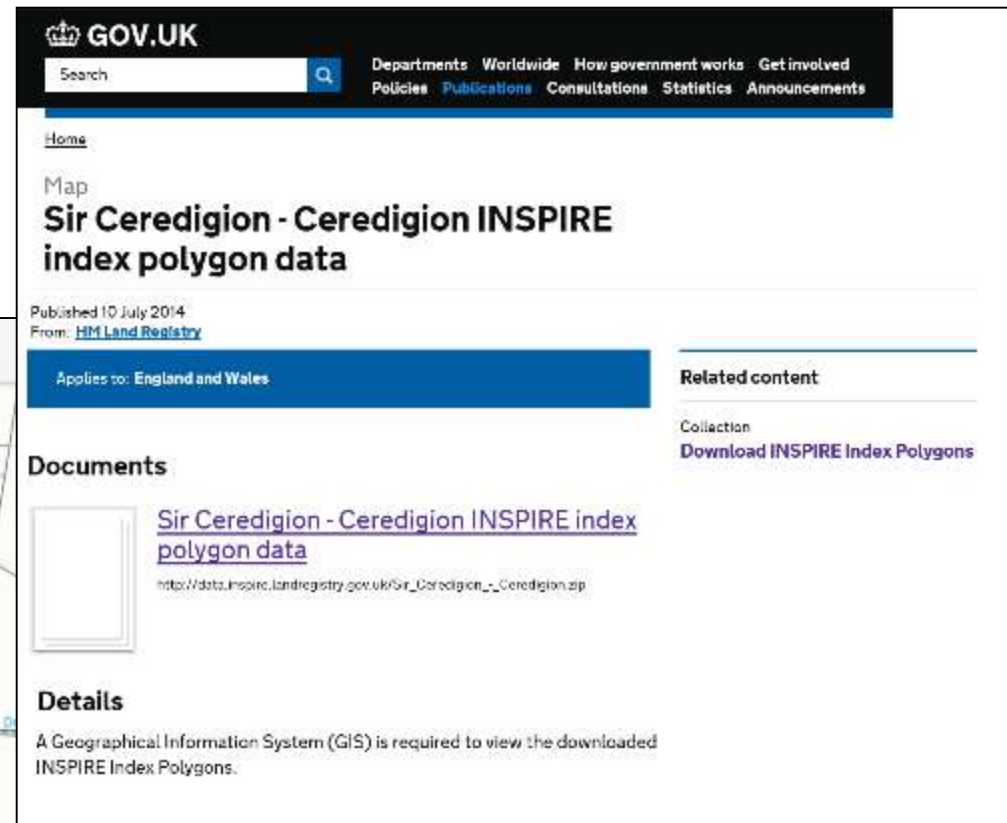
4. Other useful spatial data in forest planning

e) Land parcel information

- HM Land Registry hold parcel information which can be downloaded in vector format, however this is drawn by ownership and so not every field will be identifiable
- Alternatively, an OS image is available on Lle (OS traditional raster) which shows all field parcels and can be traced



The screenshot shows the 'Lle - Map Browser' interface. It features a search bar at the top with the text 'Search...'. Below the search bar are navigation icons for Home, Search, Refresh, and a vertical stack of icons for zooming and panning. The main map area displays a traditional raster map of land parcels. On the left side, there is a 'Layers' panel with a 'Background' section where 'Ordnance Survey (Traditional raster)' is checked. Below this is an 'Active layers (0)' section with an 'Add / Remove Data' button. A note at the bottom of the panel says 'Click 'Add / Remove Data' to add data layers to the map'. The URL <http://lle.gov.wales/map#m=-3.97481,52.41505,16&b=osraster> is displayed at the bottom left of the screenshot.



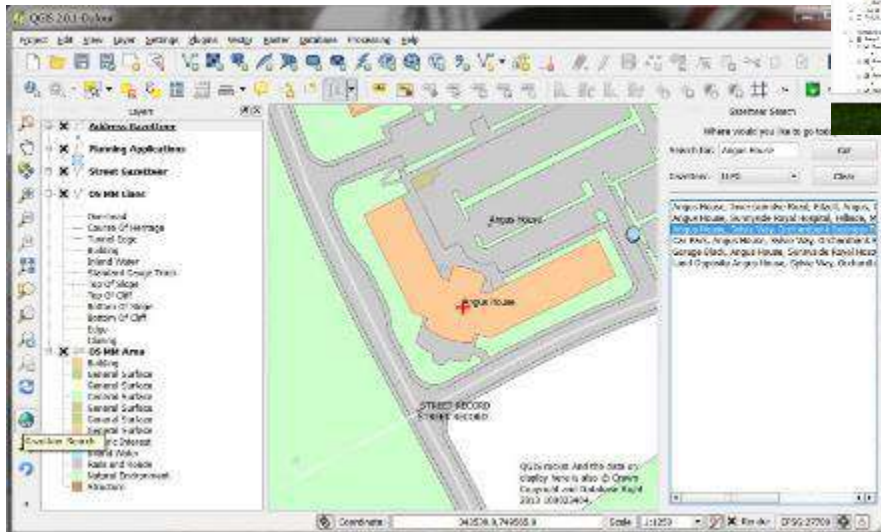
The screenshot shows the GOV.UK website page for 'Sir Ceredigion - Ceredigion INSPIRE index polygon data'. The page header includes the GOV.UK logo, a search bar, and navigation links for 'Departments', 'Worldwide', 'How government works', 'Get involved', 'Policies', 'Publications', 'Consultations', 'Statistics', and 'Announcements'. The main content area features a 'Home' link, a 'Map' section with the title 'Sir Ceredigion - Ceredigion INSPIRE index polygon data', and a 'Published 10 July 2014' date. Below this is a 'From: HM Land Registry' link. A blue bar indicates 'Applies to: England and Wales'. The 'Documents' section contains a link to 'Sir Ceredigion - Ceredigion INSPIRE index polygon data' with the URL http://data.inspire.landregistry.gov.uk/Sir_Ceredigion_-_Ceredigion.zip. The 'Details' section states 'A Geographical Information System (GIS) is required to view the downloaded INSPIRE Index Polygons.' On the right side, there is a 'Related content' section with a 'Collection' link to 'Download INSPIRE Index Polygons'.

<https://www.gov.uk/government/collections/download-inspire-index-polygons>

5. Where to use this spatial data

a) GIS applications

- ESRI supply commercial products and Arc GIS is their main platform, though cloud based systems are growing
- Quantun GIS is an open source competitor, and is growing in popularity
- Alternatively, there are many online browsers which do not need ability to use a GIS, such as the Lle/ MAGiC



The type of spatial data that can be useful in creating FMPs

- **Example: SSSI** – “I’m considering investing in a parcel of land, would increasing woodland cover benefit the neighbouring SSSIs?”
- ‘MAGiC’ can be used to identify the SSSI name, and from there the NRW designated search page to find detailed documentation regarding designation and favourable management practices

Home > Guidance and advice > Environmental topics > Wildlife and Biodiversity > Find protected areas of land and seas

Designated sites

Find protected areas of land and sea

Designated Sites Search

Name:

Country:

Designation Type:

Results

Ceredigion

- Site Of Special Scientific Interest
- CAEAU CRUG BYCHAN, TY GWYN A LLWYN YSOAW
- AFON RHEIDOL GER CAPEL BANGOR
 - Downloads
 - SSSI 0238 Citation CY0017e7b
 - SSSI 0236 Citation EN0015297
 - SSSI 0236 Map001c1d6
 - SSSI 0236 PDO CY0012cd0
 - SSSI 0236 PDO EN001a099
 - SSSI 0236 SMS CY001949d
 - SSSI 0236 SMS EN001aa3a
- ALLT WEN A TRAETH TANYBWLCH
- BANC LLETY-SPENCE
- BANC Y MWLDAN

<https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/find-protected-areas-of-land-and-seas/designated-sites/?lang=en>

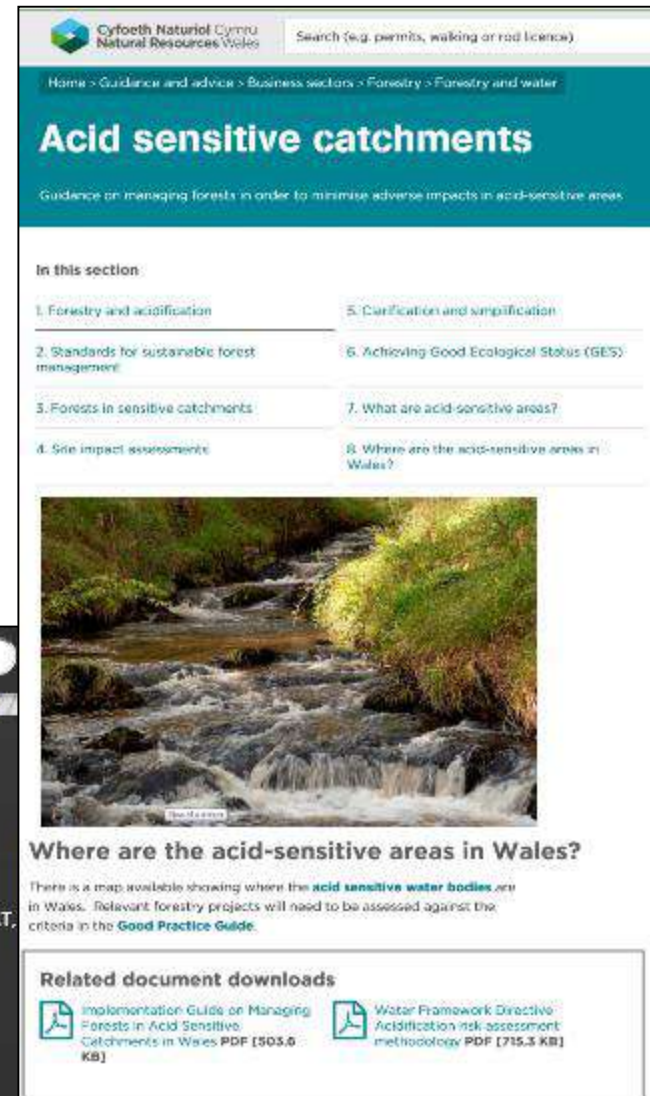
MAGiC

Table of Contents

- National Nature Reserves (Scotland)
- National Nature Reserves (Wales)
- National Parks (England)
- Ramsar Sites (England)
- Proposed Ramsar Sites (England)
- Ramsar Sites (Scotland)
- Ramsar Sites (Wales)
- Sites of Special Scientific Interest (England)
- Sites of Special Scientific Interest (England)
- SSSI Impact Risk Zones - to assess planning applications for likely impacts by an SSSI or RAMSAR site & Ramsar sites (England)
- Sites of Special Scientific Interest (Scotland)
- Sites of Special Scientific Interest (Wales)
- Sites of Special Scientific Interest (Wales) - parcel

The type of spatial data that can be useful in creating FMPs

- **Example: Acid sensitive catchments** – “If my forest is in an acid sensitive catchment, I may not be able to clear-fell or plant?”
- Use the Glastir Woodland Creation (GWC) opportunity map to identify sensitive catchment locations
- If inside one, use the NRW website to find guidance documents on next steps



The screenshot shows the 'Acid sensitive catchments' page on the Cyfoeth Naturiol Cymru website. The page title is 'Acid sensitive catchments' and the subtitle is 'Guidance on managing forests in order to minimise adverse impacts in acid-sensitive areas'. The page is organized into sections with a table of contents:

In this section:	
1. Forestry and acidification	5. Clarification and simplification
2. Standards for sustainable forest management	6. Achieving Good Ecological Status (GES)
3. Forests in sensitive catchments	7. What are acid-sensitive areas?
4. Site impact assessments	8. Where are the acid-sensitive areas in Wales?

Below the table of contents is a photograph of a river flowing through a forest. Below the photograph is the heading 'Where are the acid-sensitive areas in Wales?' followed by a paragraph: 'There is a map available showing where the **acid sensitive water bodies** are in Wales. Relevant forestry projects will need to be assessed against the criteria in the **Good Practice Guide**.'

At the bottom of the page, there is a section for 'Related document downloads' with two links:

- [Implementation Guide on Managing Forests in Acid Sensitive Catchments in Wales PDF \[505.6 KB\]](#)
- [Water Framework Directive Acidification risk assessment methodology PDF \[715.3 KB\]](#)



The screenshot shows the 'Glastir Woodland Creation - Opportunities Map' interface. The title bar includes the Welsh Government logo and the text 'Glastir Woodland Creation - Opportunities Map'. Below the title bar is a search bar for 'Grid ref / Place / Postcode Search'. The main area is a map of Wales with a blue overlay indicating acid-sensitive water bodies. A sidebar on the right contains a list of 'Scoring Layers' and 'Constraints to Planting'.

Scoring Layers

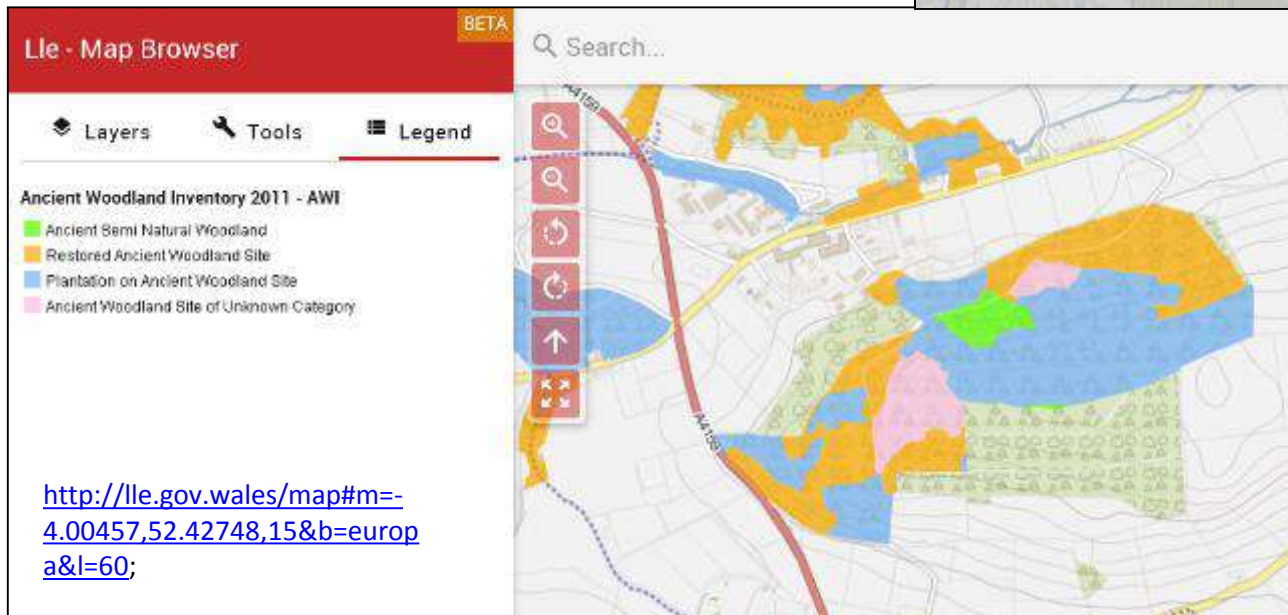
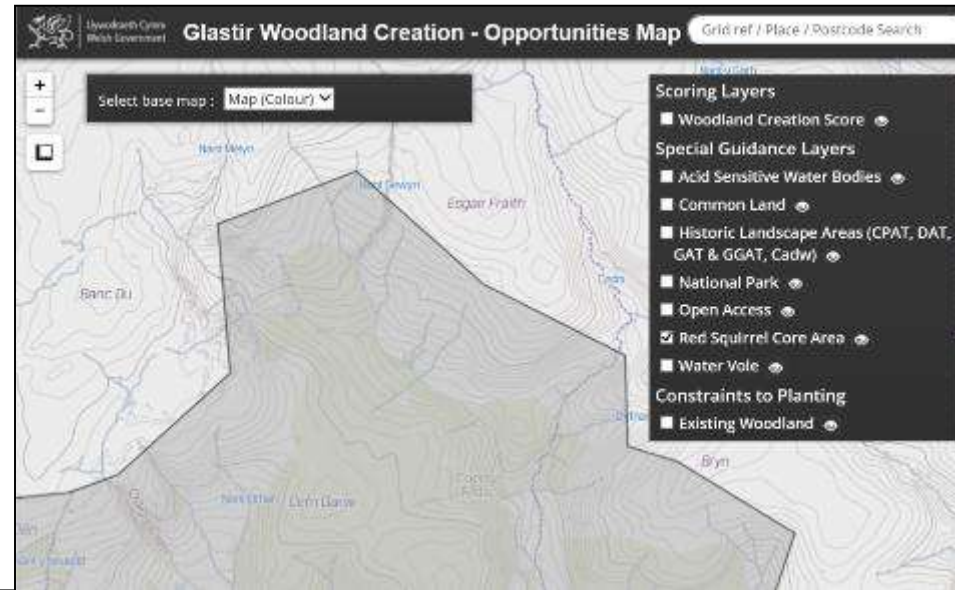
- Woodland Creation Score
- Acid Sensitive Water Bodies
- Common Land
- Historic Landscape Areas (CPAT, DAT, GAT & GGAT, Cadw)
- National Park
- Open Access
- Red Squirrel Core Area
- Water Vole

Constraints to Planting

- Existing Woodland

The type of spatial data that can be useful in creating FMPs

- **Example: AWI** – “My larch forest is infected with *Phytophthora ramorum*, would I be eligible to replant conifers through the Glastir schemes?”
- Use the Lle map to identify whether the forest is in the Ancient woodland inventory (AWI) as a Plantation on Ancient Woodland Site (PAWS)



- Use the GWC opportunity map to see whether the area is within a ‘red squirrel core area’, which may affect the species composition desired upon replanting

Glastir Woodland Creation (GWC) Opportunity Map

Purpose:

- Inform land owners and management planners of WG strategic objectives with regard to woodland creation
- Allow management planners to identify areas of sensitivity with regard to habitats, species and archaeology
- Provide links to additional information for management planners in the form of documentation and guidance



GWC opportunity map layers:

Table 1: Layers included in the opportunity map

Scoring Layer	Information Layer (Potentially unsuitable sites)
Communities First Areas	Areas of Outstanding Natural Beauty (AONBs)
Nitrate Vulnerable Zones (NVZs)	Upland Special Protection Area (SPA) with 500m buffer
Habitat Suitability (from habitat surveys)	Sites of Special Scientific Interest (SSSIs) with 300m buffer (biological only)
Air Pollution Areas	Potential Habitat for Fritillary Butterflies
Woodland Habitat Networks (WHNs)	Potential Habitat for Grassland Fungi
University of East Anglia: Woodland creation potential	Priority habitat (from habitat surveys)
New Flood Plain and Riparian Woodland (NFPW)	Potential Habitat for Open-ground Dependent Birds
Noise Pollution Areas	Potential Habitat for Great Crested Newts (GCN)
	Regionally Important Geodiversity Site (RIGS)
	Scheduled Ancient Monument (SAM) with 100m buffer
	Sensitive Arable Plant Records
	World Heritage Site
	Historic Environment Features
	Historic Landscape Area (CPAT, DAT, GAT, GGAT) – soon to be special guidance layer
	Historic Parks and Gardens
	Deep peat and modified deep peat (FR Total peatland survey 2012)

Each *scoring layer* carries a suitability score scaled from 0 (not a preferred area for woodland creation, though there may still be suitable areas) to 5 (preferred area for creation). If the data layer was directly produced to advocate woodland creation, a double scoring (maximum of 10) is given (Woodland Habitat Networks, and New Floodplain and Riparian Woodland layers).

Lle online map browser for management planners

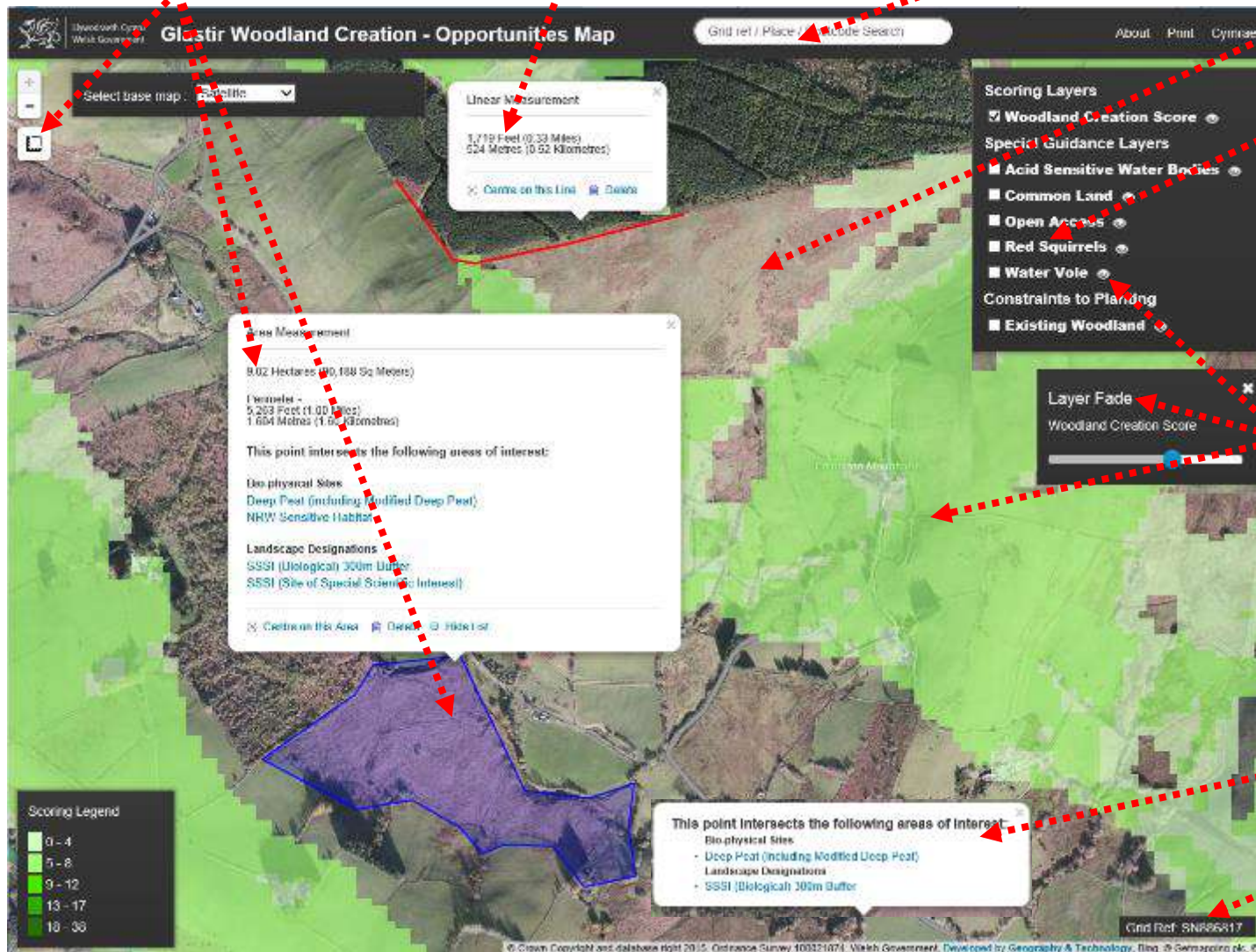
<http://lle.gov.wales/apps/woodlandopportunities>

Draw and measure areas of potential new planting

Create linear measurements to estimate fencing

Search by postcode, town name, or grid reference

Transparent area on map indicating a sensitive site with regard to woodland creation



Guidance layers with further documentation hyperlinked at the NRW website

Green scoring layer with legend (bottom left corner). Layer transparency can be adjusted using the eye symbols within contents list

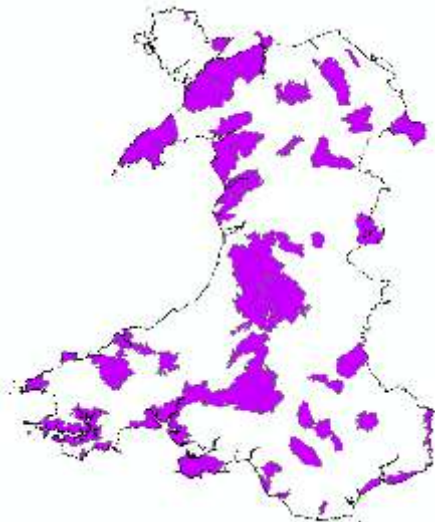
Sensitive sites identifier tool, select any area and info is displayed. Links to NRW.

Grid Reference of cursor shown to aid in Glastir applications forms

Updates to GWC OM: Layers changed to 'guidance' and not 'sensitive'

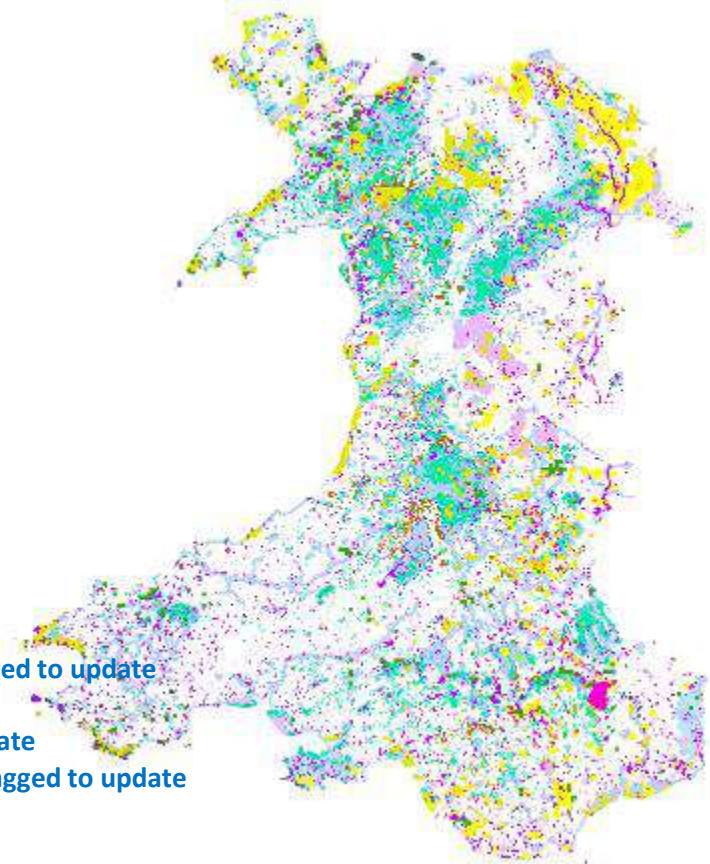


**National parks 4,103km²
(19% of Wales)**



**Historic Landscape Areas (HLAs)
5,979km² (28% of Wales)**

- Sensitivity
- Area of Outstanding Natural Beauty (AONB)
 - - - ~~National Park~~
 - - - ~~National Park 800m Buffer~~
 - SSSI (Site of Special Scientific Interest)
 - SSSI (Biological) 300m Buffer
 - Upland SPA (Special Protection Area)
 - Upland SPA (Special Protection Area) 500m Buffer
 - - - ~~Historic Landscape Area-GPAT~~
 - - - ~~Historic Landscape Area-DAF~~
 - - - ~~Historic Landscape Area-GAT~~
 - - - ~~Historic Landscape Area-GGAT~~
 - Historic Environment Feature
 - Historic Park and/or Garden
 - World Heritage Site
 - SAM (Scheduled Ancient Monument)
 - SAM (Scheduled Ancient Monument) 100m Buffer
 - Deep Peat (including Modified Deep Peat)
 - Potential habitat for Great Crested Newts (GCN) Flagged to update
 - Potential habitat for fritillary butterflies Updated
 - Potential habitat for grassland fungi Flagged to update
 - Potential habitat for open-ground dependent birds Flagged to update
 - Priority habitat
 - Regionally Important Geodiversity Site (RIGS)
 - Sensitive Arable Plant Records (Post 1995)



Aim to change perception across large transparent areas

Accessing detailed information on 'Priority habitats' layer: Option 1: download the spatial data in .shp format



1. Search for "Lle" in Google
2. Navigate to the 'Spatial data' section
3. Select 'Glastir Woodland Creation - Sensitivity Layer - Priority Habitats'



NB: this dataset comprises data from several surveys, using the Phase 1 as a base layer, so there may be differences in your EoI area.

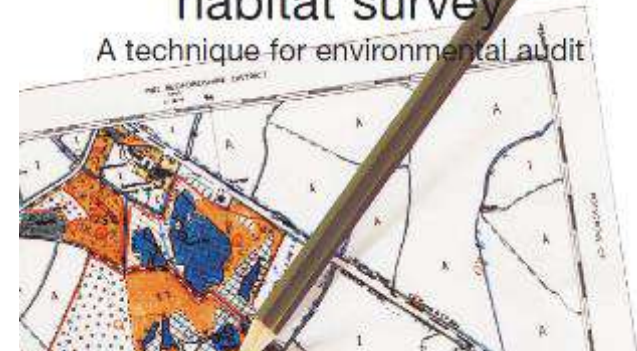
Accessing detailed information on 'Priority habitats' layer:

Option 1: download the spatial data in .shp format



Handbook for Phase 1 habitat survey

A technique for environmental audit



Lle
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Glastir Woodland Creation - Sensitivity Layer - Priority Habitats

Natural Resources Wales

Summary Preview Endpoints (2) **Downloads (4)**

Click download links to open them in the browser, right click and 'Save as' to download to your machine

Format	Download Link
GeoJSON	http://lle.gov.wales/sensitivelayers/1.0.0/request-GetFeature?type=Name=inspire-wg:GWC_NRW_SensitivityLayerHabitats&outputformat=application/GeoJSON
GML	http://lle.gov.wales/sensitivelayers/1.0.0/request-GetFeature?type=Name=inspire-wg:GWC_NRW_SensitivityLayerHabitats&outputformat=application/GML
KML	http://lle.gov.wales/sensitivelayers/1.0.0/request-GetFeature?type=Name=inspire-wg:GWC_NRW_SensitivityLayerHabitats&outputformat=application/KML
Shapefile	http://lle.gov.wales/sensitivelayers/1.0.0/request-GetFeature?type=Name=inspire-wg:GWC_NRW_SensitivityLayerHabitats&outputformat=application/Shapefile

Legend:

- Priority Habitats
- Priority Habitats - Broadleaved Woodland
- Priority Habitats - Coniferous Woodland
- Priority Habitats - Mixed Woodland
- Priority Habitats - Scrub
- Priority Habitats - Woodland
- Priority Habitats - Woodland - Broadleaved
- Priority Habitats - Woodland - Coniferous
- Priority Habitats - Woodland - Mixed
- Priority Habitats - Woodland - Scrub

NAME	CODE	DESCRIPTION
W001_010	HE 1	Broadleaved woodland
W001_011	HE 2	Coniferous woodland
W001_012	HE 3	Mixed woodland
W001_013	HE 4	Woodland - Broadleaved
W001_014	HE 5	Woodland - Coniferous
W001_015	HE 6	Woodland - Mixed
W001_016	HE 7	Woodland - Scrub
W001_017	HE 8	Woodland - Broadleaved
W001_018	HE 9	Woodland - Coniferous
W001_019	HE 10	Woodland - Mixed
W001_020	HE 11	Woodland - Broadleaved
W001_021	HE 12	Woodland - Coniferous
W001_022	HE 13	Woodland - Mixed
W001_023	HE 14	Woodland - Broadleaved
W001_024	HE 15	Woodland - Coniferous
W001_025	HE 16	Woodland - Mixed
W001_026	HE 17	Woodland - Broadleaved
W001_027	HE 18	Woodland - Coniferous
W001_028	HE 19	Woodland - Mixed
W001_029	HE 20	Woodland - Broadleaved
W001_030	HE 21	Woodland - Coniferous
W001_031	HE 22	Woodland - Mixed
W001_032	HE 23	Woodland - Broadleaved
W001_033	HE 24	Woodland - Coniferous
W001_034	HE 25	Woodland - Mixed
W001_035	HE 26	Woodland - Broadleaved
W001_036	HE 27	Woodland - Coniferous
W001_037	HE 28	Woodland - Mixed
W001_038	HE 29	Woodland - Broadleaved
W001_039	HE 30	Woodland - Coniferous
W001_040	HE 31	Woodland - Mixed
W001_041	HE 32	Woodland - Broadleaved
W001_042	HE 33	Woodland - Coniferous
W001_043	HE 34	Woodland - Mixed
W001_044	HE 35	Woodland - Broadleaved
W001_045	HE 36	Woodland - Coniferous
W001_046	HE 37	Woodland - Mixed
W001_047	HE 38	Woodland - Broadleaved
W001_048	HE 39	Woodland - Coniferous
W001_049	HE 40	Woodland - Mixed
W001_050	HE 41	Woodland - Broadleaved
W001_051	HE 42	Woodland - Coniferous
W001_052	HE 43	Woodland - Mixed
W001_053	HE 44	Woodland - Broadleaved
W001_054	HE 45	Woodland - Coniferous
W001_055	HE 46	Woodland - Mixed
W001_056	HE 47	Woodland - Broadleaved
W001_057	HE 48	Woodland - Coniferous
W001_058	HE 49	Woodland - Mixed
W001_059	HE 50	Woodland - Broadleaved
W001_060	HE 51	Woodland - Coniferous
W001_061	HE 52	Woodland - Mixed
W001_062	HE 53	Woodland - Broadleaved
W001_063	HE 54	Woodland - Coniferous
W001_064	HE 55	Woodland - Mixed
W001_065	HE 56	Woodland - Broadleaved
W001_066	HE 57	Woodland - Coniferous
W001_067	HE 58	Woodland - Mixed
W001_068	HE 59	Woodland - Broadleaved
W001_069	HE 60	Woodland - Coniferous
W001_070	HE 61	Woodland - Mixed
W001_071	HE 62	Woodland - Broadleaved
W001_072	HE 63	Woodland - Coniferous
W001_073	HE 64	Woodland - Mixed
W001_074	HE 65	Woodland - Broadleaved
W001_075	HE 66	Woodland - Coniferous
W001_076	HE 67	Woodland - Mixed
W001_077	HE 68	Woodland - Broadleaved
W001_078	HE 69	Woodland - Coniferous
W001_079	HE 70	Woodland - Mixed
W001_080	HE 71	Woodland - Broadleaved
W001_081	HE 72	Woodland - Coniferous
W001_082	HE 73	Woodland - Mixed
W001_083	HE 74	Woodland - Broadleaved
W001_084	HE 75	Woodland - Coniferous
W001_085	HE 76	Woodland - Mixed
W001_086	HE 77	Woodland - Broadleaved
W001_087	HE 78	Woodland - Coniferous
W001_088	HE 79	Woodland - Mixed
W001_089	HE 80	Woodland - Broadleaved
W001_090	HE 81	Woodland - Coniferous
W001_091	HE 82	Woodland - Mixed
W001_092	HE 83	Woodland - Broadleaved
W001_093	HE 84	Woodland - Coniferous
W001_094	HE 85	Woodland - Mixed
W001_095	HE 86	Woodland - Broadleaved
W001_096	HE 87	Woodland - Coniferous
W001_097	HE 88	Woodland - Mixed
W001_098	HE 89	Woodland - Broadleaved
W001_099	HE 90	Woodland - Coniferous
W001_100	HE 91	Woodland - Mixed
W001_101	HE 92	Woodland - Broadleaved
W001_102	HE 93	Woodland - Coniferous
W001_103	HE 94	Woodland - Mixed
W001_104	HE 95	Woodland - Broadleaved
W001_105	HE 96	Woodland - Coniferous
W001_106	HE 97	Woodland - Mixed
W001_107	HE 98	Woodland - Broadleaved
W001_108	HE 99	Woodland - Coniferous
W001_109	HE 100	Woodland - Mixed

2 Habitat definitions

http://jncc.defra.gov.uk/PDF/pub10_handbookforphase1habitatsurvey.pdf

This section provides definitions for each of the habitats which have been distinguished for the purpose of Phase 1 survey. The definitions given are based on those used by the NCC for surveying SSSIs (see Appendix 7). Appendix 8 shows the National Vegetation Classification (NVC) communities to be expected in each Phase 1 habitat category.

A Woodland and scrub

Al Woodland

Woodland is defined as vegetation dominated by trees more than 5m high when mature, forming a distinct, although sometimes open, canopy. Dominant species should be coded and the understorey and ground layer target noted. Distinct blocks of woodland, whether broadleaved or coniferous, should be mapped separately wherever possible.

The definitions of the main categories are:-

- broadleaved woodland: 10% or less conifer in the canopy,
- coniferous woodland: 10% or less broadleaved in the canopy,
- mixed woodland: 10-90% of either broadleaved or conifer in the canopy. The approximate proportions of the two types should be target noted.

The following should, amongst others, be included in the semi-natural category:-

- woods with planted standards in semi-natural coppice;
- mature plantations (more than about 120 years old) of native species growing on sites where those species are native and where there are semi-natural woodland ground flora and shrub communities;
- self-sown secondary stands of exotic species (for example sycamore, pine on southern heaths, holm oak on Isle of Wight);
- alder carr, and willow carr where the willows are more than 5m tall (although Salix cinerea should always be classified as scrub);
- well-established sweet-chestnut coppice (that is, over 25 years old);
- woods which have been completely underplanted, but where the planted trees do not yet contribute to the canopy;
- stands of young trees or coppice regrowth, even when less than 5 m.

Plantation woodland

All obviously planted woodland of any age should be included in this category, with the exception of those types mentioned previously.

<http://lle.gov.wales/catalogue/item/Glastir%20Woodland%20Creation%20-%20Sensitivity%20Layer%20-%20Priority%20Habitats/?lang=en>

Accessing detailed information on 'Priority habitats' layer:

Option 2: view the data in WMS format

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Summary Preview Endpoints (2) Downloads (1)

<http://lle.gov.wales/services/wms/nrw>

Resolution	Type	Endpoint
Web Feature Service (WFS)	WFS	http://lle.gov.wales/services/wfs/nrw?request=GetWFS&WFS=Name&version=1.3.0
Web Map Service (WMS)	WMS	http://lle.gov.wales/services/wms/nrw?request=GetWMS&WMS=Name&version=1.3.0

Add WMS Server

URL: 3. http://lle.gov.wales/services/wms/nrw?

Examples: http://www.myserver.com/arcgis/services/mymap/MapServer/WMServer?
http://www.example.com/servlet/com.esri.wms.EsriMap?ServiceName=Name&

Version: Default version

Server Layers

Get Layers

- Welsh Government INSPIRE WMS
 - Welsh Government INSPIRE WMS
 - WFD_LAKES
 - Water Framework Directive Transit
 - Water Framework Directive Operal
 - Water Framework Directive Coast
 - TRADITIONAL_ORCHARDS
 - Special Protection Areas
 - Sensitive Area Maps (Nitrate River
 - sac
 - Water Framework Directive Transit
 - Water Framework Directive River V
 - Water Framework Directive River C
 - Water Framework Directive River E
 - Water Framework Directive Lake W
 - Water Framework Directive Lake W
 - Water Framework Directive Coast
 - NRW - Water Management

Name: WMS
Version: 1.3.0
Abstract: Licensing for INSPIRE data is available from <http://www.ordnancesurvey.co.uk/business-and-government/public-sector/mapping-agreements/inspire-licence.html>

Add Data

Look in: Folder Connections

- Home - My Documents\ArcGIS
- Folder Connections
 - DA
 - EA
 - FA
 - KA
 - MA
 - PA
 - SA
- Toolboxes
- Database Servers
- Database Connections
- GIS Servers
- My Hosted Services
- Ready-To-Use Services
- Trading Connections

Name: Add

Show of by: Cancel

Bookmarks Insert Selection Geoprocessing Customize Windows Help

1 32,058

Wales

Drawing

4.

W Article 17 SAC Habitat Features - Large Shallow In-
W Article 17 SAC Habitat Features - Intertidal Reefs
W Article 17 SAC Habitat Features - Estuaries
W - Special Areas of Conservation
river_body_management_areas
W_RISK_FLOODING_RIVER_SEA
W_RECORDING_FLOOD_OUTLINES

- NRW - Ramsar
- NRW - Grey Seal Pupping Haul Dred Sites
- NRW_PHI_VEG_VORONOI
- NRW_OTHER_STATUTORY_LAND_2014
- NRW_OPEN_COUNTRY_2014
- NRW - National Nature Reserves
- NRW_Nitrate_Vulnerable_Zones_2013
- National Trails
- NRW - National Parks
- National Forest Inventory Map (2014)
- NRW - Marine Conservation Zone
- NRW - Marine Disposal Sites
- NRW - MARINE LICENCE APPS
- NRW - Marine Licence Applications

Identify

Identify from: <Visible layers>

- Wales
 - NRW_PHI_VEG_VORONOI
 - WMS Features(1)

Location:

NRW_PHI_VEG_VORONOI

fid	OBJECTID	Label
NRW_PHI_VEG_VORONOI_64-ff1aa35_150d8358d425_4906	59875	B.5

Add Data

Look in: GIS Servers

- Add WMTS Server
- Add WMS Server
- Add WCS Server

2.

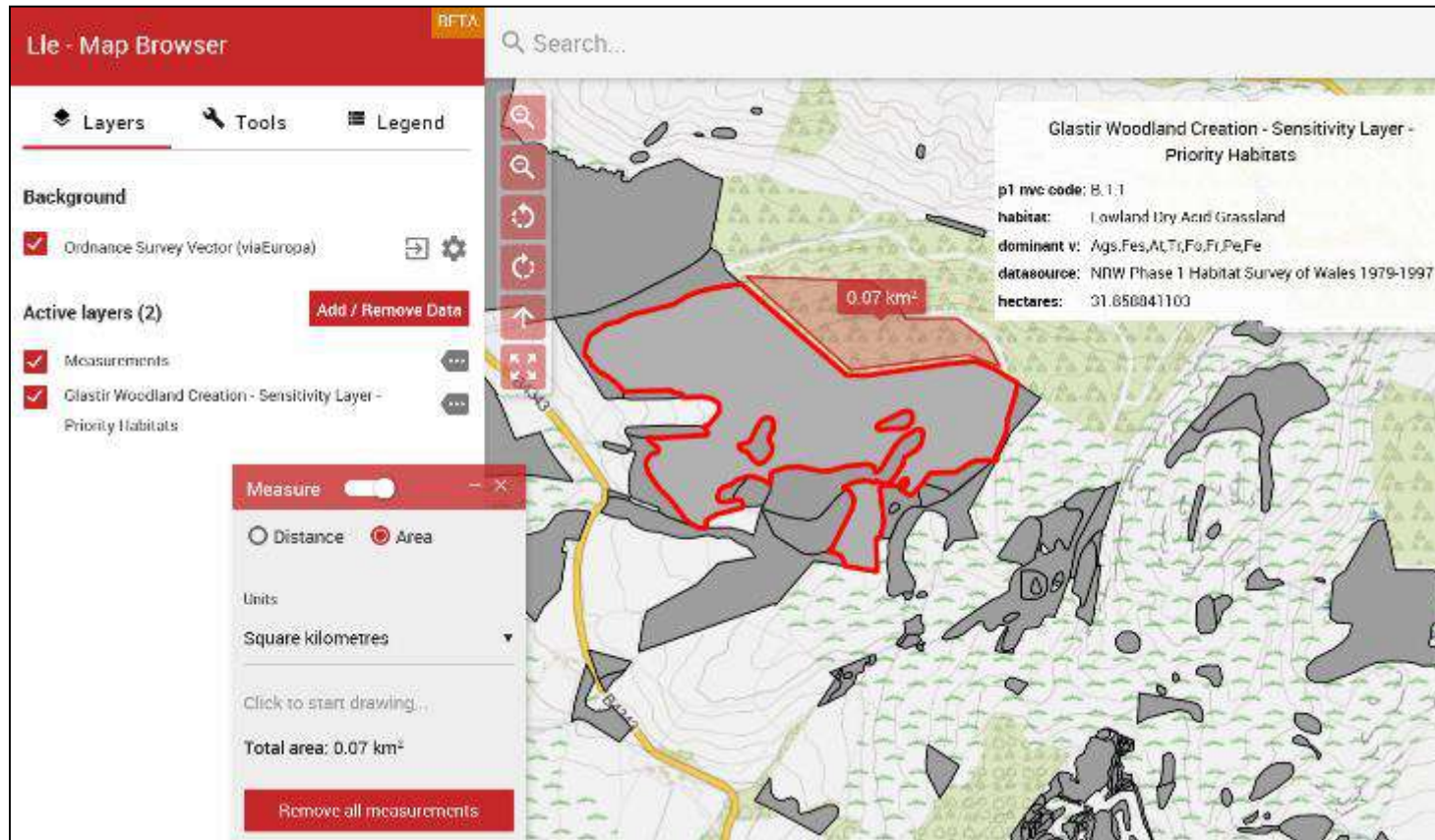
Accessing detailed information on 'Priority habitats' layer:

Option 3: view the data on the Lle web browser

- The Phase 1 habitat survey (major part of this dataset) was finalised in 1997, so habitats may have changed significantly
- This datasets should be used as a guide prior to a field visit

- Photographs can be used to prove a change in habitat and to advocate woodland creation

- Each area can be interrogated for habitat type and areas of interest can be drawn



Conclusions

- A plethora of data available to assist with your FMPs
- A range of ways to interact with the data from complex GIS analysis, to simple web map viewers – both have the ability to improve any management plan
- Lle holds most of the relevant spatial data but processes can be convoluted – if in doubt – ask for advice
- NRW are in the process of creating their own map browser which may simplify process complexity
- Believe it or not – most of this spatial data has been made available to help you, don't let it hinder you, embrace it and use it to enhance your management plans!



Thank you for your attention

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Glastir

