

The visible settings of LANDMAP

Visual and Sensory landscape areas

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Scope

We mapped the Zones of Theoretical Visibility (**ZTV**) for each of our 1,991 LANDMAP Visual and Sensory landscape areas. Each area has multiple, often hundreds, of observer points from which ZTV calculations were made. Each observer point was set at 1.5 metres above DTM (a bare earth digital terrain model), and direct line of sight calculations were made out to a maximum distance of 35km in any direction from each observer point. The observer point data for each landscape area was combined to produce a single map for each Visual and Sensory landscape area that shows the combined extent of direct line of sight visibility.

Use

The data provides a ready-reckoner to see the general extent and pattern of visibility from different landscape areas. If used with other landscape and visual assessment information, planners and developers can be alerted to potential visibility with nearby sensitive landscapes. This is useful in strategic planning to inform site selection at an early stage, typically before more detailed, site-and project-specific ZTV mapping is created.

Caveats

The map images are only ready-reckoners for strategic use. The map images are based upon bare-earth terrain modelling and don't factor in the screening effects of vegetation and the built environment. They are only intended to be used as ready-reckoners to provide an initial outline of the extent of visibility. A more detailed understanding of the patterns of visibility is likely when the GIS data is overlaid with other relevant datasets, such as topography, rivers, transport routes, habitat types or settlements.

This visibility mapping exercise does not assess visual quality or visual sensitivity. Further information on these approaches to landscape assessment is provided in the following guidance.

[Read our separate guidance on assessing landscape sensitivity](#)

[Read our LANDMAP Methodology guidance for the Visual and Sensory layer](#)

[Read about the Guidelines for Landscape and Visual Impact Assessment](#)

This work does not replace the need for more specific ZTV mapping or visualisation, done as part of Environmental Impact Assessment for a specific development proposal on a specific site.

No single observer point is likely to see the entire visible setting for that landscape area. More detailed ZTV mapping would be needed to understand the local variations.

This work only maps the visible settings of LANDMAP Visual and Sensory landscape areas as seen from observer points 1.5 metres above ground. The extent of visibility of a development is also affected by development height. See also our related work where the settings of designated landscapes have been mapped to include HOBV (height before object becomes visible).

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Accessing the maps and data

You can view the boundaries and survey record of a LANDMAP Visual and Sensory area by visiting the Wales environmental information portal and selecting the LANDMAP Visual and Sensory dataset from the landscape section. The link to a map of the visible settings of each LANDMAP Visual and Sensory landscape area is available from the survey record in question 62. There you can download or bulk download visible settings map images.

[View quality assured LANDMAP data on the Wales environmental information portal](#)

You can also [find out more about LANDMAP on our web page](#)

You can download the GIS data to use in your own mapping software and overlay with other datasets. As there are 1,991 LANDMAP Visual and Sensory landscape areas, we have organised the data by county or National Park, to make it easier for you to find which parts to download. If you know the specific LANDMAP area Unique Identification Code (UID), for your area(s) of interest, which is in the title for each map image, we have included a search box in Datamap Wales to save you scrolling.

[Find the LANDMAP visible settings GIS data to download at Datamap Wales \(search for 'Visible Settings'\)](#)

Related work

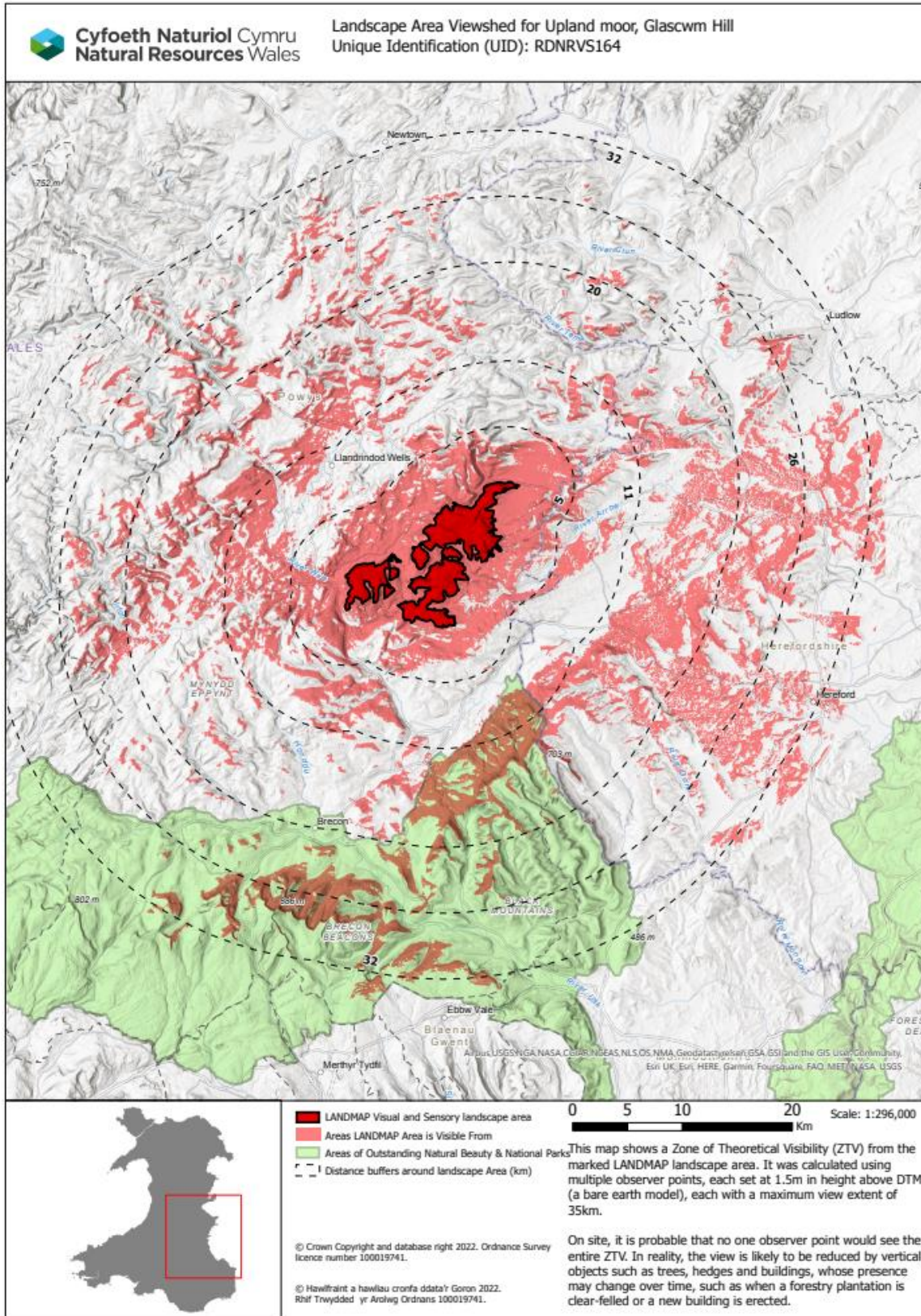
We have also mapped the visible settings of our statutory designated landscapes (National Parks and Areas of Outstanding Natural Beauty). If your planning or development proposal falls within the 35km mapped setting of any designated landscape, you should check our related mapping, which contains ZTV, HOBV (height before object becomes visible) and mapped key viewpoints.

We'll add a link to this related work when it is on-line.

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An example of the map images

Each map image is designed to be displayed at A4 portrait size, suitable for copying into reports. We include the whole extent of visible setting but alter the scale of map images to best suit the page fit. Designated Landscapes are shown in green.



The patterns of visibility range from extensive in all directions, where the LANDMAP landscape area is a hilltop, to confined, possibly linear, where the LANDMAP landscape area is an enclosed valley bottom. Some landscape areas are a mix. It is quite common to see shafts of longer distance visibility extend out from landscape areas otherwise enclosed by higher land.

Buffer distances shown on the map images

Each map includes buffer distances at 5km, 11km, 20km, 26km and 32km, which relate to different height categories for wind turbines.

[Read our Guidance Note GN 046 on using LANDMAP in Landscape and Visual Impact Assessment, which includes a table setting out wind turbine height categories and corresponding search and study area distances](#)

[Read our commissioned research on the relationship between wind turbine height and the distances for different magnitudes of visual effect](#)

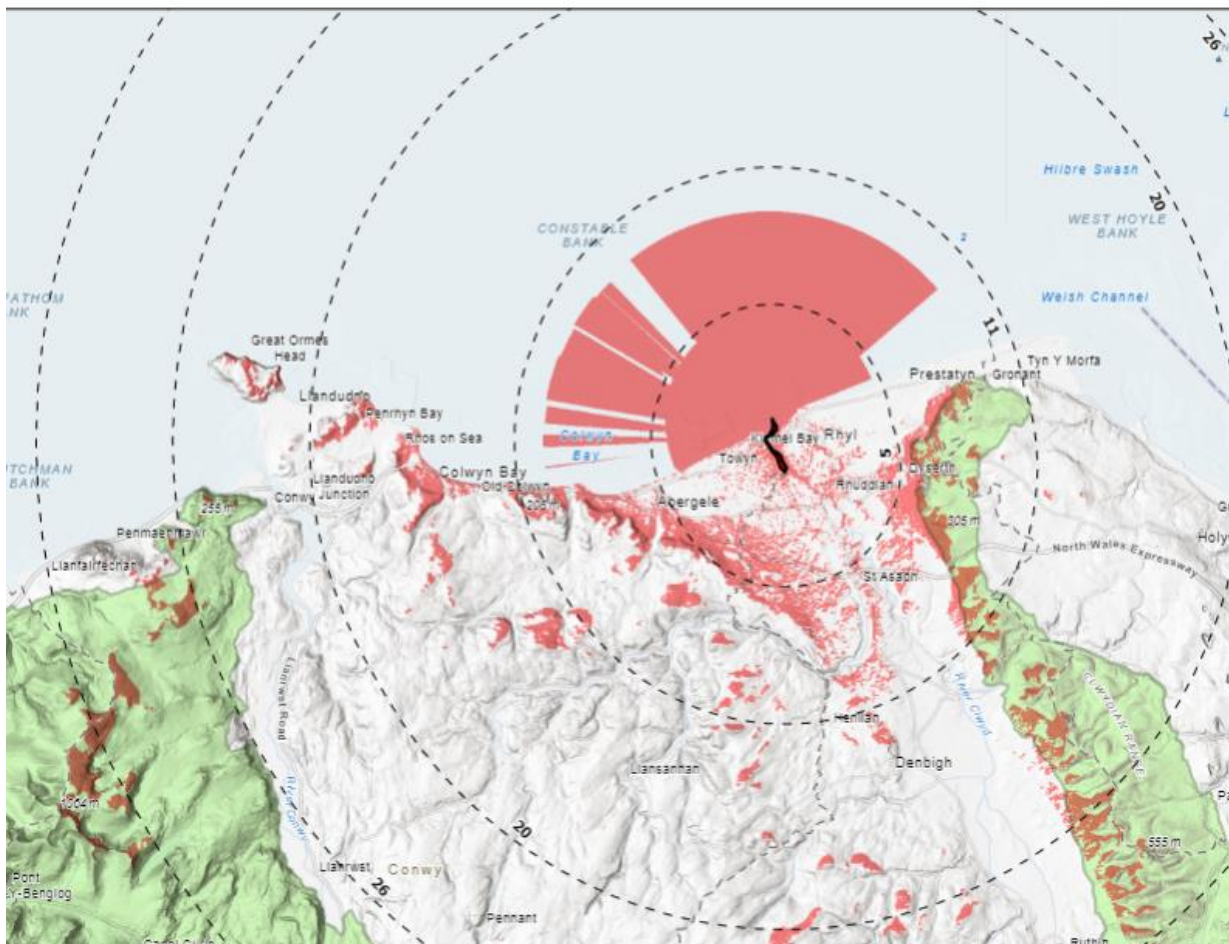
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Answering some queries on the visibility

Why is the visibility curtailed to less than 35km from very low lying LANDMAP areas?



Landscape Area Viewshed for Clwyd estuary
Unique Identification (UID): CNWVS014

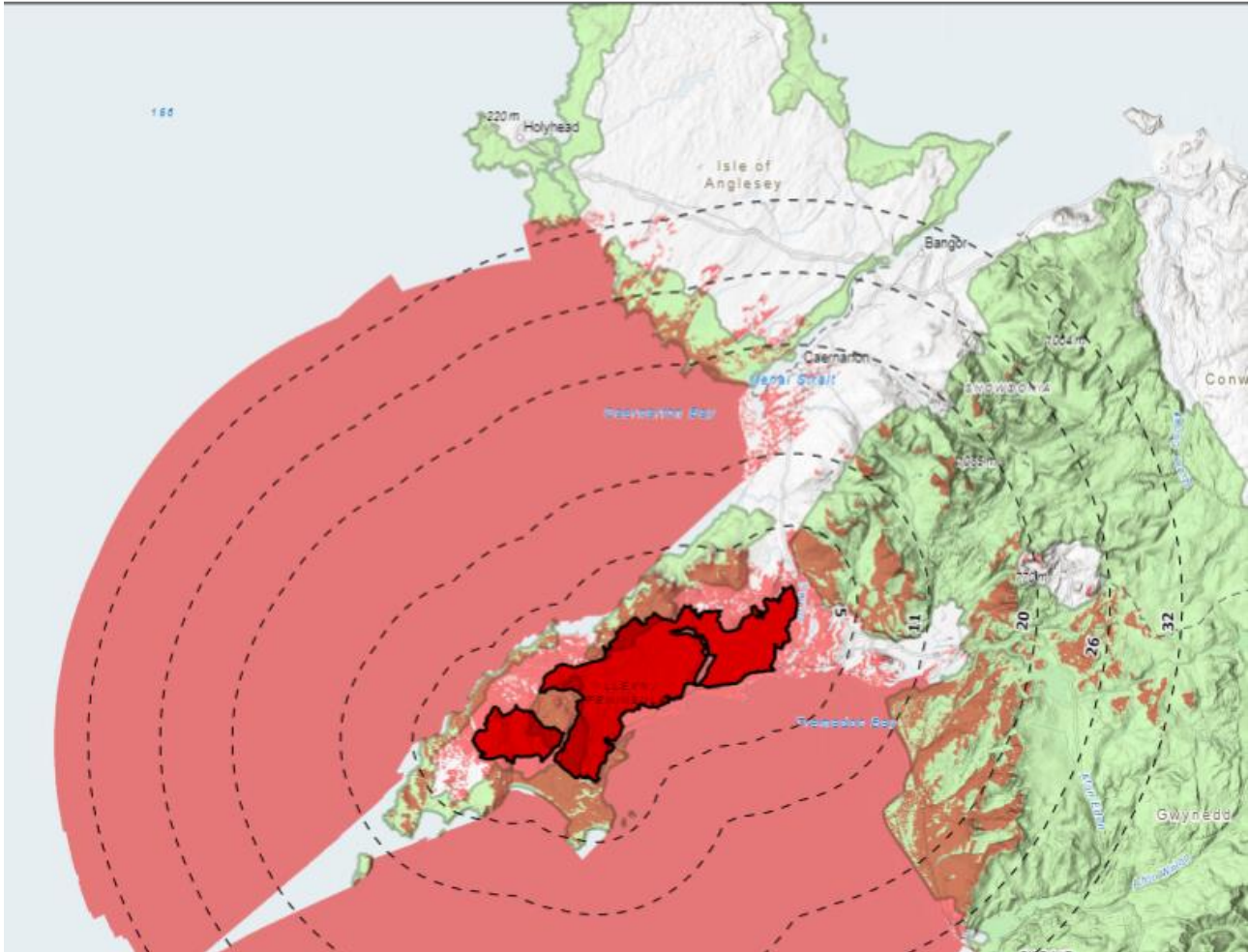


When the observer points and the visible setting are from very low elevations, such as 1.5 metres above an estuary, with sea-horizon views, the effect of curvature of the Earth makes the horizon line closer. The horizon distance will change rapidly with increases in observer point elevation. You can see this difference if you view an object in the sea, such as a ship, from the beach and then from a high clifftop, noting where it sits in relation to the horizon.

More distant but upstanding objects may protrude above the horizon line, but the LANDMAP visible settings maps do not map this.

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Why does the map show visibility beyond where I know there to be higher intervening land?

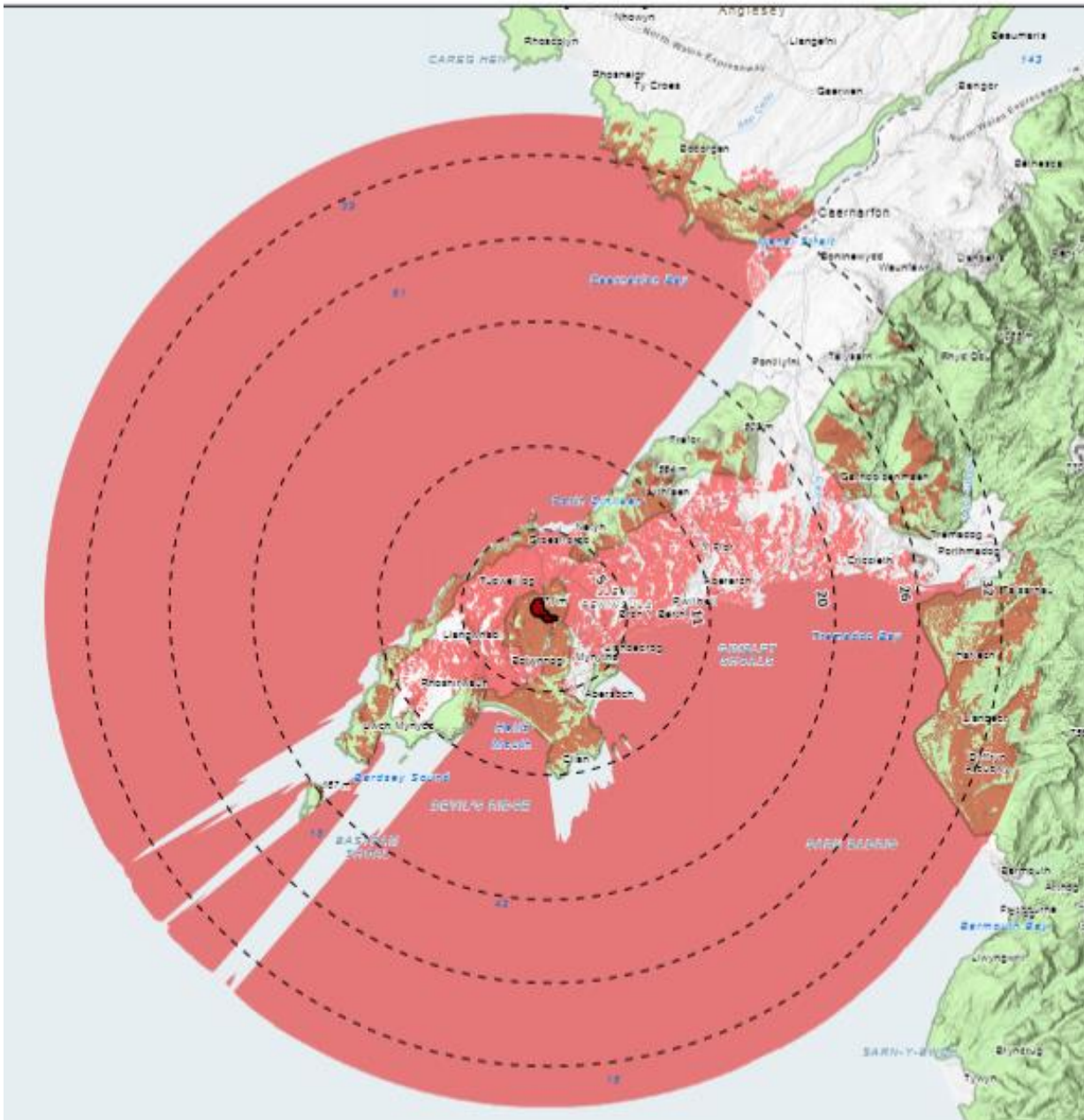


Visibility mapping has been calculated using from many individual observer points within the landscape area. It only takes one observer point on much higher or more exposed ground to extend the area of visibility shown on the map. The screening effect of intervening landform is therefore not always picked up. In this example, while the topography generally slopes to the south-east, some observer points allow north-westerly views. Users should therefore read the maps with an understanding of the local pattern of topography.

Remember these visibility maps are just for strategic use, to aid early stages of spatial planning. Examples like this show how they may not provide enough understanding of visibility on their own, but they can be used when considering a need for further visibility mapping work. This is especially so when planning for proposals that are higher than the 1.5m elevation we used in our maps, or where specific sites are in mind.

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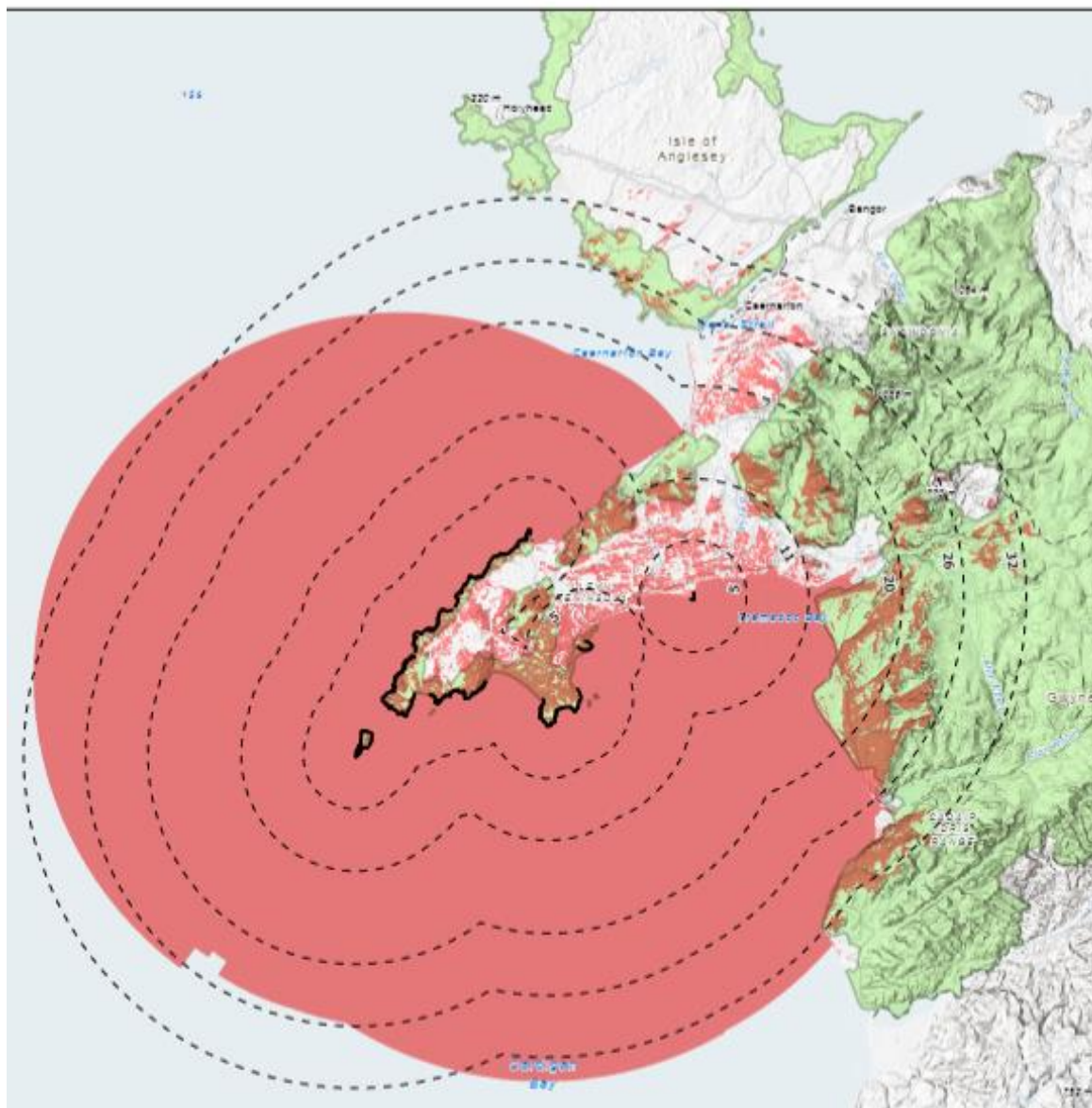
On a clear day I can see much further than the maps show. Why is there a difference?



Our data has only recorded visibility out to a maximum of 35km from an observer point. So, in the example above, the elevated location of Carn Fallryn might have views extending in clear weather to Holyhead Mountain and Cadair Idris. But these places are more than 35km away.

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Why is it hard to get an idea of the pattern of visibility from some of the maps?



We used the landscape areas as shown in LANDMAP's Visual and Sensory GIS dataset. While often ideal for this exercise, some LANDMAP areas are very large, very long and thin, or have multiple areas. This can complicate the visibility pattern when displayed as a single map image, as different patterns may occur in different parts of the landscape area. Our map images just show the total extent of visibility mapped.

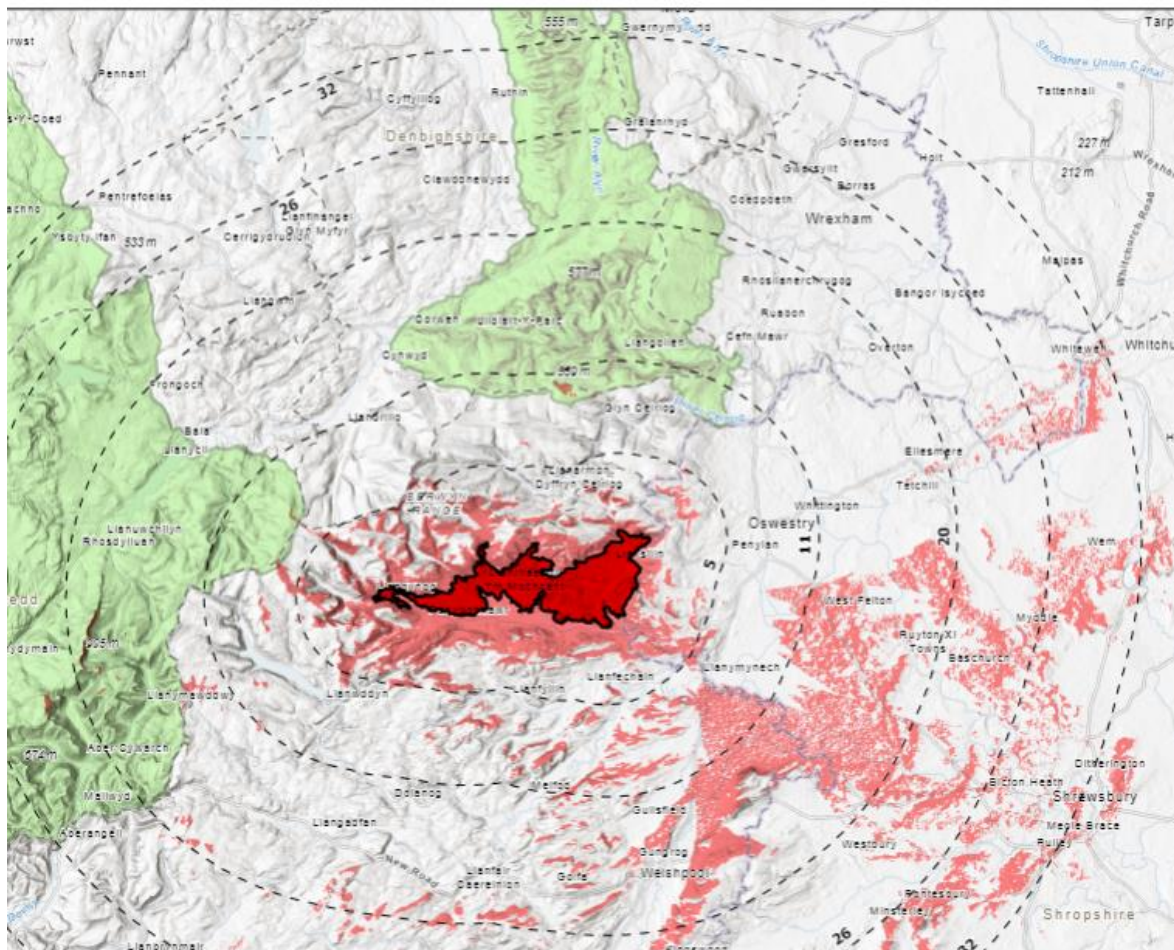
Consider these map images as just an initial view of the data. To explore it more, you would need to download the GIS dataset and overlay it with other datasets, such as topography, to make more sense of it. We have published the datasets on Datamap Wales to download and use in your own mapping software (search for 'visible settings').

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Have we mapped the visibility of Welsh landscapes into England, and vice-versa?



Landscape Area Viewshed for Llanrhaedr Farmlands
Unique Identification (UID): MNTGMVS351



Yes, we show the visible setting of Welsh landscapes extending into England. However, our scope did not extend to mapping the visible settings of England's landscapes into Wales.

The exception is for our separate suite of visibility maps showing the settings of National Parks and Areas of Outstanding Natural Beauty. For these, we also included mapping the visible setting of Shropshire Hills AONB, wholly in England but whose visible setting extends into Wales and included the full extent of the Wye Valley AONB, which is partly in England.

In addition, we mapped the extent of visibility from a number of key viewpoints looking into or out from National Parks and Areas of Outstanding Natural Beauty. Some of those views include visibility extending into England, or the viewpoint location may be in England in the case of the Shropshire Hills AONB.

You can access this related work – see in this guidance [‘Accessing the maps and data’](#)

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