

Carmarthenshire County Council

west wales biodiversity information centre



Biodiversity Assessments
For Forward Planning

case study

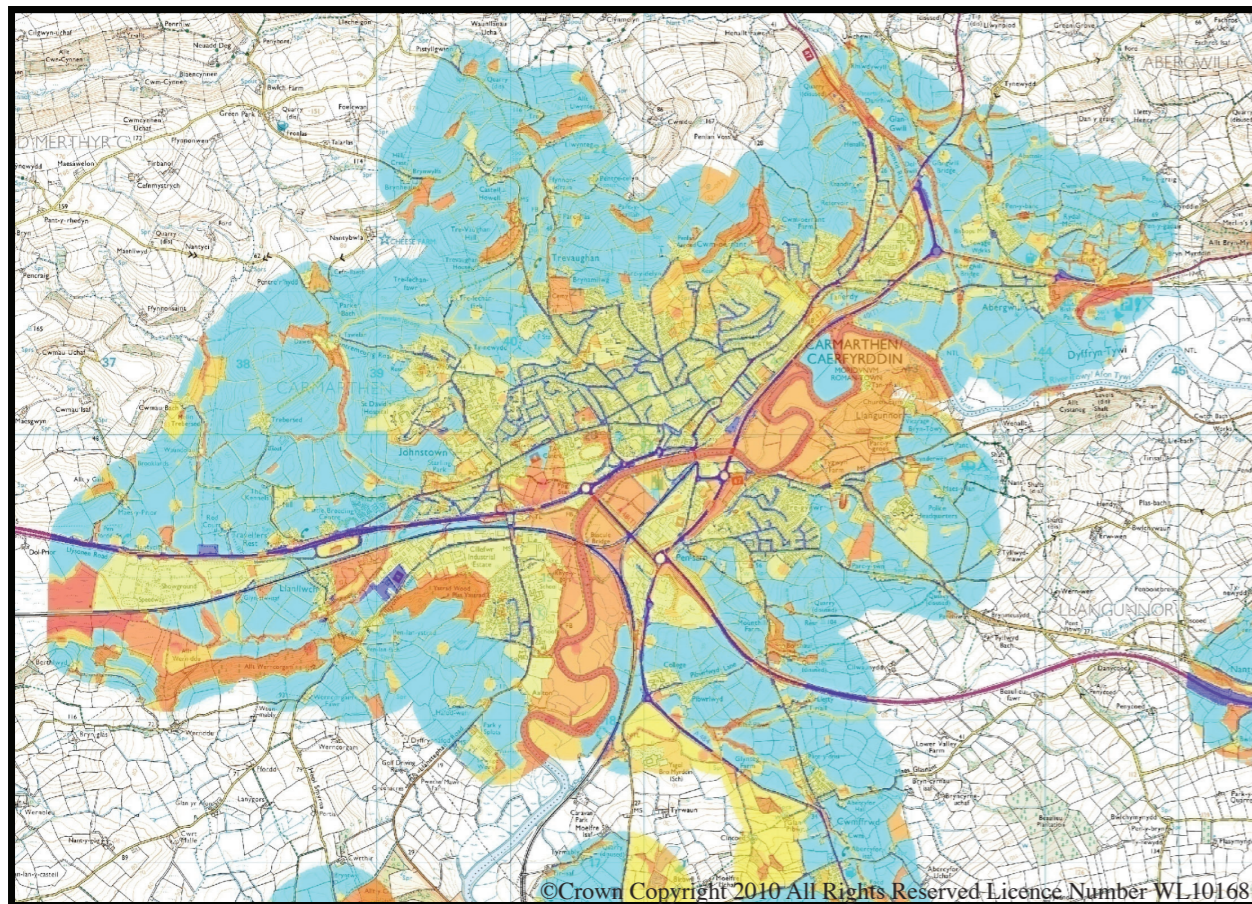
In 2007 Carmarthenshire County Council were looking for a way to incorporate biodiversity in the forward planning process in such a way that the information was useful to everyone involved, not only those staff with a knowledge of ecology.

West Wales Biodiversity Information Centre (WWBIC) is the Local Record Centre for the region. WWBIC, working with Pryce Consultant Ecologists (PCE), developed a method to assess known biodiversity value within and adjacent to the settlement areas and potential expansion areas of Carmarthenshire.

Approaching the challenge

GIS layers would be derived from a combination of the WWBIC database and fieldwork conducted by PCE. The separate layers would be combined to give an overall “known” combined biodiversity layer and WWBIC would provide all layers together with paper maps as the end product. This concept of ‘known’ biodiversity value is limited to data that has been mobilised through the record centre.

Four factors to be taken in to consideration were agreed for the initial GIS layers; species, habitats, designated sites, already held by WWBIC and a new habitat corridor layer to be developed for the project. This was the first challenge. The second challenge was to derive comparable grid data from point (species records), line (corridors) and polygon (habitats and sites) data sources for combining to generate the biodiversity value layer.



Combined Biodiversity in and around the Settlement of Carmarthen

The initial GIS layers

Forward Planning provided to WWBIC a GIS layer of existing settlement limits, and large scale maps of the priority settlement area showing the exact settlement limit plus the potential expansion areas surrounding primary and secondary settlements. WWBIC digitised these expansion area limits and, for tertiary settlements where such limits had not been provided, calculated a buffer area for potential expansion, limited to 250m from the existing limit.

A pilot study was carried out and methods were refined over the course of the project in consultation with all parties for deployment on the other areas.

Species - All records centres in Wales use a designation scale of 1-3 for important species: where 1 denotes a nationally protected or priority species, 2 denotes a species of conservation concern (e.g. red list species), and 3 denotes a local priority species. An additional designation of 4 is used for all other species and this was supplied to CCC but not used in the biodiversity value layer.

Habitats - In order to combine the species layer with layers for habitats, corridors and sites, we needed these layers to be measured in a similar fashion. PCE provided a similar 1, 2, 3 categorisation of Phase 1 habitats based on protected or priority status. These values were ascribed to the polygons in the Phase 1 dataset using a lookup table which provided the value for each Phase 1 code. Polygon values were then printed on the aerial photographs to enable ground-truthing. After ground-truthing, PCE edited and amended the polygon dataset and returned this to WWBIC.

Sites - The designation of a site is not in itself a measure of the biodiversity contained within. However designated sites are expected to be better managed for biodiversity and so were included.

Corridors - Initially in measuring the connectivity of Carmarthenshire settlement habitats we chose to concentrate on upper storey vegetation corridors as this data was most accessible to us i.e. woodland edge, hedgerows and riparian corridors. As the project developed, more features were added to this layer, e.g. fencelines, water courses, roadside verges. In all a total of 54 features were included to create the first model of the Welsh landscape at such a fine resolution (down to 2m.)

The ‘combined biodiversity’ layer

In order to standardise each layer to a similar scale so that they might be combined, we reclassified each grid from their existing scales to a scale of 0 – 9. We then combined the 4 layers in a single weighted overlay model. With equal weighting, the important species locations were not very clear, so in the final analysis we allowed this species layer to have a 40% influence on the final layer - the other layers were accorded 20% influence each.

The end result is thus a single GIS layer or map which shows areas rich in protected species/habitats/sites/important corridors in bright red, contrasting with areas poor in the same shown in blue.