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Case study
Biodiversity

Collating and sharing knowledge

The National Biodiversity Data Centre

The Challenge

- Collate biodiversity data from across Ireland
- Make this data easily accessible

The Benefits

- Ireland's first ever single archive of national biodiversity data
- Valuable datasets are easier to access and interpret
- Data centre operations are cost efficient

The Customer

The National Biodiversity Data Centre (Data Centre) was founded in 2007 by the Heritage Council of Ireland, with funding from the Department of the Environment, Heritage and Local Government. Operated by Compass Informatics, it collates, manages, analyses and disseminates data on Ireland's biological diversity.

The Challenge

The Data Centre's original mission was to collate all available data on biodiversity, in line with national and European legislation. At the time, Ireland's biodiversity data was scattered across the country and much of it was hidden in little known archives, museums and libraries. The centre aimed to bring all of these data sets together and create a single national biological data archive for Ireland.

Soon, however, it became clear to the Data Centre that it needed to embrace a broader mission. *"At first, we were only looking at one side of the equation,"* says Liam Lysaght, director of the Data Centre. *"We were focused on collecting data, but we also had to present the data and make it universally accessible to everyone."* The centre therefore started to consider ways to not only collate and store data, but also to share it. It wanted to make the country's vast and rich data resources easily accessible to public and private organisations, as well as individuals and groups.

The Solution

Compass Informatics proposed and developed a mapping and data management system for the Data Centre. This solution is based on Esri ArcGIS Server technology and provides a central platform for presenting data from over 1.6 million observation points around the country. Users access the mapping and data management system via a web-based portal and can view any data they are interested in, displayed on a digital map of the country.

In addition to the biodiversity data, ArcGIS serves up a wealth of relevant contextual data, such as information on forestry, land contours, aerial photography, protected areas, geology and water and soil quality. Users can zoom in to view particular areas of the country in detail, view one data set or multiple layers of data and save, send or print map views.

From tracking web site usage, the centre has been able to ascertain that its GIS platform is used most widely by professionals, during the working day. It provides a great deal of information that is of immense value to public bodies involved in implementing European birds and habitats legislation, planning new developments and considering land-use changes, for example. It is also of great interest to professional recorders and academic researchers who use it to help validate and support their own particular conservation and wildlife projects.

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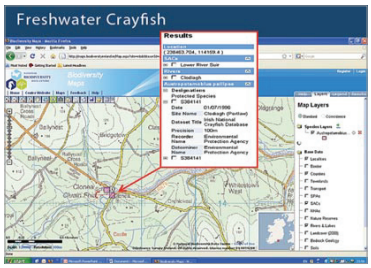
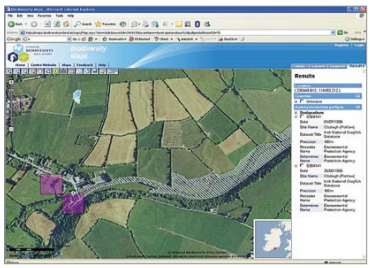
> "Our use of GIS has really helped to bring natural science in Ireland into the 21st century."

Liam Lysaght, Director, The National Biodiversity Data Centre of Ireland



Details of each of the 1.6 million observations contained in the database can be accessed directly through the GIS.



Presenting the distribution information against background layers, such as here showing the occurrence of observations at the edge of one of Ireland's Natura 2000 protected sites, provides great added value to the data.

Benefits

The development of the Data Centre's mapping and data management system has been instrumental to the organisation's success. Within the space of just a couple of years, the organisation has achieved its goal of setting up a single national record centre for biodiversity data in Ireland. *"Previously there was no system in place for acquiring data on different aspects of Ireland's biodiversity,"* Lysaght says. *"We have been able to identify strategically important data sets, digitise them and bring them together to create new national databases."*

Most significantly, the use of ArcGIS Server has enabled the National Biodiversity Data Centre to make these incredibly valuable datasets accessible to anyone via the web site www.biodiversityireland.ie. The interactive maps, served up to the site by ArcGIS, are easy to use and provide a complete view of Ireland's biodiversity resources. Currently, users can view information on over 10,000 different species, ranging from fungi to mammals and plants.

Because biodiversity data can now be accessed by anyone on a 'self-serve' basis, the Data Centre can work cost effectively. Lysaght explains: *"If we didn't have a vehicle for disseminating information, then much of our time would be absorbed by responding to ad hoc data requests and providing hard copy reporting. I estimate that, if we didn't have our GIS platform, as much as 50% of our time could be spent serving up data. The use of GIS creates a huge efficiency for our organisation."*

But this isn't all. The use of GIS has delivered another unexpected benefit for the organisation. Because ArcGIS Server presents biodiversity data alongside additional contextual information about the landscape and natural environment, users can analyse and interpret data in ways that really weren't possible before. *"The level of interpretation that we have been able to bring to Ireland's biodiversity data has far exceeded our expectations,"* says Lysaght.

In the future, the Data Centre believes it will be able to play a stronger role in working with government to influence public policy in areas such as regional development and strategic planning. Already, the organisation feels that it has raised awareness of biodiversity in government. *"Our use of GIS has really helped to bring natural science in Ireland into the 21st century,"* believes Lysaght.

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