Case study

Rediscovering Ireland's Ordnance Survey heritage

OS200 Project Team

Two centuries after Ireland became the first whole country in the world to be mapped at a scale of six inches to the mile, ArcGIS Pro is being used to shed light on exactly how this ambitious survey project was carried out. Researchers from the University of Limerick and Queen's University Belfast have conducted geospatial analysis on thousands of letters, memoirs, name books and other resources from 1824 to 1842 to reveal fresh insight into Ireland's Ordnance Survey heritage and social and cultural history.

The Challenge

- Draw together disparate source materials in various states
- Analyse 19th-century maps, letters, sketches, memoirs and namebooks geospatially

The Benefits

- A platform for collaborative research
- Improved understanding of early survey processes
- Fresh insight into landscape change over time
- Powerful visualisations for engaging with the public
- Support for future research into 19th-century Ireland

The Challenge

Two hundred years ago, in 1824, British military surveyors began the process of surveying and mapping Ireland. The country became the first in the world to be mapped in its entirety at the scale of six inches to a mile, but the surveyors didn't just produce maps. They also wrote hundreds of letters, kept detailed statistical accounts, drew sketches of the landscape and noted variations of place names in thousands of name books.

To mark the bicentenary of when the Ordnance Survey mapping of Ireland began, a project was launched, called OS200, to bring the original source materials relating to the mapping of Ireland together in a digital format for the first time. The aim was to present these historic and fascinating source materials in their geographic context, so that they could be more easily discovered and used for research purposes.

The Solution

The OS200 project team comprised geographers, linguists, historians, archaeologists, librarians and digital specialists from the University of Limerick and Queen's University Belfast. The project was funded by the Irish Research Council and Arts & Humanities Research Council and supported by partners including Tailte Éireann and Ordnance Survey Northern Ireland.

First, surviving source materials relating to the 19th century survey were compiled, digitised and geospatially referenced. These materials included namebooks from five counties, 40 volumes of letters, 1600 sketches and drawings, and written statistical accounts comprising around 4.8 million words. The project team also captured information from the margins of the original map sheets, such as the dates when places were surveyed and by whom.

Next, the project team used Esri's ArcGIS Pro solution to knit together the source materials to form a single, all-Ireland map layer of data. It then employed the geospatial analysis capabilities of ArcGIS Pro to analyse geographic patterns in the source materials and uncover insight into the survey process and social and cultural history of Ireland. For example, using ArcGIS Pro, the project team was able to reveal the individual contributions of specific surveyors, and where and when they worked, in different parts of Ireland.

The project team also used ArcGIS Pro to create illuminating visualisations that brought aspects of Ireland's history to life. For instance, the project team inserted a sketch of a tower, that no longer exists, into a 3D map of the area, to show how the historic structure would have fitted into its landscape two hundred years ago.

To raise awareness of OS200, the project team created a project website with ArcGIS Experience Builder, which features images of original sketches and letters. The project team also presented the results of ArcGIS Pro analysis on huge information panels that have been displayed at public events, including exhibitions at the Royal Irish Academy in Dublin and the Public Records Office Northern Ireland in Belfast.

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We do a lot of presentations for local historical groups, and it’s the visualisations that we have created in ArcGIS Pro that people always want to talk about!”

Dr Catherine Porter, Associate Professor of Geography, University of Limerick

The Benefits

A platform for collaborative research

ArcGIS Pro has proven an effective platform for conducting a research project of this complexity. “One of the challenges we often have in digital humanities is sharing information,” explains Dr Catherine Porter, Associate Professor of Geography at the University of Limerick. “ArcGIS Pro has made it easy for us to share information across partner institutions and work collaboratively.”

Improved understanding of early survey processes

The use of ArcGIS Pro in this project has contributed to an improved understanding of how Ireland was mapped by the Ordnance Survey two centuries ago. “Researchers are learning more and more about the work of the surveyors themselves, the surveying process and what went on, on the ground. “In this way, they are now able to explore the complex and, at times, uncomfortable histories surrounding this military-led operation in Ireland.”

Fresh insight into landscape change over time

By using ArcGIS Pro to connect text and sketches in memoirs and letters with precise locations, the project team has been able to map landscape observations such as the whereabouts of bogs and woodlands that no longer exist. As Porter says, “ArcGIS Pro has enabled the project team to dig deeper into the data, uncover previously-unknown connections between descriptions in sources and specific locations, and gain a better understanding of change over time.”

Powerful visualisations for engaging with the public

The project team has created powerful visualisations with ArcGIS Pro that help to convey information to a wide range of stakeholders, including the public. “Our ArcGIS Pro visualisations are a vitally important part of our exhibitions in Dublin and Belfast and bring the project to life,” Porter says. “We do a lot of presentations for local historical groups, and it’s the visualisations that we have created in ArcGIS Pro that people always want to talk about!”

Support for future research into 19th-century Ireland

It is anticipated that ArcGIS Pro will support future research and reveal even greater insight into social and economic conditions, people and culture in the 19th century. “The survey period of 1824 to 1842 is particularly important in the context of Ireland’s history because it was just before the famine,” Porter explains. “A lot of people died or emigrated at that time, and local knowledge was lost, so OS200 is building our understanding of what Ireland was like two centuries ago.”

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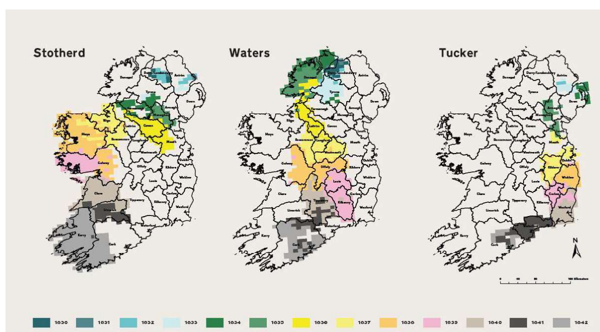

Mapping men, the OS 6” sheets surveyed by Richard J. Stotherd (left), M.A. Waters (middle) and Henry Tucker (right), revealing their trajectories across Ireland from north to south.

Na cairteoirí, bileoga 6” an SO a ndearna Richard J. Stotherd (ar chlé), M.A. Waters (sa lár) agus Henry Tucker (ar dheis) an tsuirbhéireacht dóibh. Léiríonn sé seo a gcúrsa ó thuaidh agus ó dheas.

A geographic analysis, produced with ArcGIS Pro, showing the areas surveyed by three primary surveyors between 1830 and 1842

Learn more at: esri-ireland.ie