

Protecting Ireland's endangered birds of prey

The Golden Eagle Trust

The Challenge

- Reverse the decline of the Hen Harrier population in Ireland

The Benefits

- Delivers insight into habitat change and the consequential challenges for the Hen Harrier
- Provides clear evidence to justify land management schemes that improve habitats
- Enables schemes to be highly targeted to maximise their effectiveness
- Informs planning decisions and supports collaboration within government



Hen Harrier
(Image taken by Dr. Marc Ruddock of the Golden Eagle Trust)

Driven almost to extinction by sustained habitat loss and persecution, the Hen Harrier is one of Ireland's most iconic and endangered native upland bird species. An urgent conservation initiative is being spearheaded by The Golden Eagle Trust, on behalf of the National Parks & Wildlife Service, to save this precious bird of prey, and GIS will play a critical role in the success of conservation measures.

The Challenge

The Golden Eagle Trust is a registered charity dedicated to the conservation and restoration of Ireland's native birds and their habitats, including, in particular, declining, threatened and extinct species. It is currently providing a critically important role in addressing the rapid decline in the Hen Harrier, a slim, long-tailed hawk in grave danger of becoming extinct in Ireland during the next 30 years if nothing is done to protect and restore upland landscapes.

Across the country, there are six Special Protection Areas (SPAs), covering an area of 167,117 hectares, that have been designated as breeding areas for the Hen Harrier. However in the five-year period from 2005 to 2010, there was a severe 18% decrease in the number of territorial pairs within these regions. The Golden Eagle Trust was appointed to help identify the pressures and threats for Hen Harriers in the SPAs and gain a better understanding of the population decline. To fulfil this remit, it urgently needed to establish an accurate knowledge of the habitats and land uses within these important breeding areas.

The Solution

The trust acquired Esri's ArcGIS Desktop software from Esri Ireland and began to use it to create a comprehensive, species-specific land-cover and habitat map for all six breeding SPAs. It amalgamated existing data and aerial photography from a wide range of partners, including Ordnance Survey Ireland, the National Parks & Wildlife Service, Forest Service, Coillte, Teagasc, AIRO and Esri Ireland. It then imported GPS data from three previous national breeding Hen Harrier surveys showing the locations of territorial pairs to identify all important regions for nesting and foraging.

In this way, The Golden Eagle Trust created a single source of authoritative habitat data and began to use the powerful analytical capabilities of ArcGIS to analyse land cover. It was able to accurately ascertain the suitability of different habitats within the SPAs for the Hen Harrier and better understand the challenges faced by the birds.

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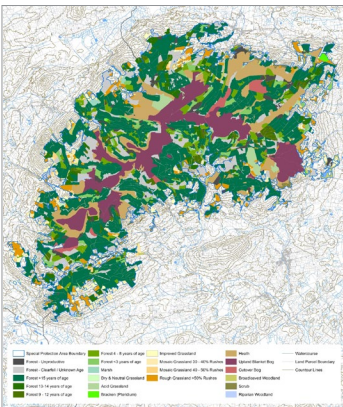
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“ ArcGIS holds the key to helping us halt the decline in Hen Harriers through evidence-based decision making and effective land management. It gives us hope that we can safeguard this iconic bird for future generations. ”

Ryan Wilson-Parr, project ecologist, The Golden Eagle Trust



Hen Harrier Habitat Map of the Slieve Bloom Mountains

Benefits

ArcGIS has given The Golden Eagle Trust unequivocal evidence of why the Hen Harrier is struggling to survive in Ireland. It shows, for instance, that just 20.2% of the SPAs are actually the favoured open heath and grassland that Hen Harriers need to thrive, and 80% of the total forest in the network is unsuitable for these birds. “ArcGIS confirmed that the increasing extent of mature forest in upland breeding areas is a significant driver of decline in the Hen Harrier population in Ireland,” says project ecologist Ryan Wilson-Parr.

The Golden Eagle Trust will now use these insights to assist the Irish government in working towards the implementation of targeted, cost effective approaches to land management for the benefit the Hen Harrier. “Analysis in ArcGIS can provide optimum conservation scenarios for the Hen Harrier in SPAs, identifying the most demographically and economically advantageous options for forest removal, whilst providing the greatest benefit in terms of habitat restoration for the Hen Harrier,” says Wilson-Parr. “ArcGIS also provides insight into how landscapes will change over time and crucially how the Hen Harrier population will likely respond in the long term.”

The trust will also depend on ArcGIS to help it consider the environmental impact of agricultural land use change and new renewable energy development in SPAs. Wilson-Parr explains: “The GIS habitat map will allow a really accurate and evidence-based assessment of new development schemes. It will help us to understand how new projects, in combination with other existing developments and land use, can impact on the Hen Harrier population. It will also show how we can promote sustainable forestry and expand renewables while protecting the Hen Harrier and the habitats on which it depends.”

Wilson-Parr is realistic about the future. “Hard decisions will need to be made about how to balance the needs of local land owners, rural communities and developers, while meeting the governments’ legal obligations to protect the Hen Harrier,” he says. “Having this GIS-based habitat map gives us the evidence government agencies need to justify the substantial conservation effort and important land-use changes required to save this species, while being sensitive to other social and economic pressures.”

Summing up, he says: “ArcGIS holds the key to helping us halt the decline in Hen Harriers through evidence-based decision making and effective land management. It gives us hope that we can safeguard this iconic bird for future generations.”

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