

## Project Profile

### Resilient Floodplains, Gwent

#### Overview

BSG Ecology and the Floodplain Meadows Partnership (FMP) were commissioned by Natural Resources Wales (NRW) to identify locations in Gwent with potential for restoring and enhancing floodplains.

A GIS model was developed to help identify potential areas where floodplain restoration could deliver most benefit by predicting where creation and / or restoration of floodplain habitats is potentially both physically possible and can deliver multiple ecosystem services.

#### Challenge

Floodplain re-creation and restoration has been identified in NRW's South East Area Statement as a priority, along with the State of Natural Resources Report and Welsh Government Natural Resources Policy for achieving greater ecosystem resilience and ecological connectivity and supporting climate change mitigation and adaptation.

As a first step in addressing these priorities, the Resilient Floodplains Gwent project needed to:

- Understand the current extent and condition of floodplains in south-east Wales
- Locate areas with potential for floodplain habitat creation/restoration
- Identify where enhancing floodplains would deliver the greatest benefit.

The challenge was to develop a desk-based method that can facilitate the decision-making process in identifying areas where restoration and enhancement of floodplains would deliver the greatest benefit at the regional scale.

#### Solution

Working in conjunction with experts at the Floodplain Meadows Partnership, BSG Ecology used geospatial analysis to model levels of biophysical suitability for different floodplain habitats based on soil type, chemistry and hydrology, existing habitat, and the presence of plant indicator species.

Prioritisation for floodplain restoration was then modelled for grassland, woodland, and wetland by overlay analysis of datasets representing three factors:

- The level of biophysical suitability for the target habitat.
- Coincidence of areas likely to deliver ecosystem services including floodwater storage, floodplain reconnection, improved water quality and enhanced habitat connectivity.
- Potential for influence over land management (e.g., land under existing agri-environment agreements).

The model identified land where habitat creation or restoration is likely to deliver multiple benefits, and therefore contribute most effectively to Sustainable Management of Natural Resources. Areas of highest priority were then selected to generate a list of 29 priority sites for further detailed study.

#### Outcome

The main outputs of the project have been two sets of geospatial data. The first shows levels of biophysical suitability for creation of floodplain habitats; the second shows levels of priority for creation of habitats based on where multiple benefits (for example, enhanced connectivity, floodwater storage, etc.) could potentially be delivered. The prioritised dataset has been used to determine a list of priority sites covering approximately 400 ha for habitat creation or restoration that this project has recommended to be taken forward for further detailed study.

The methods used in this project demonstrate a way in which restoration and creation of floodplain habitats can be assessed and prioritised at scale, informing the decision-making process on where to build ecosystem resilience in the face of climate change.