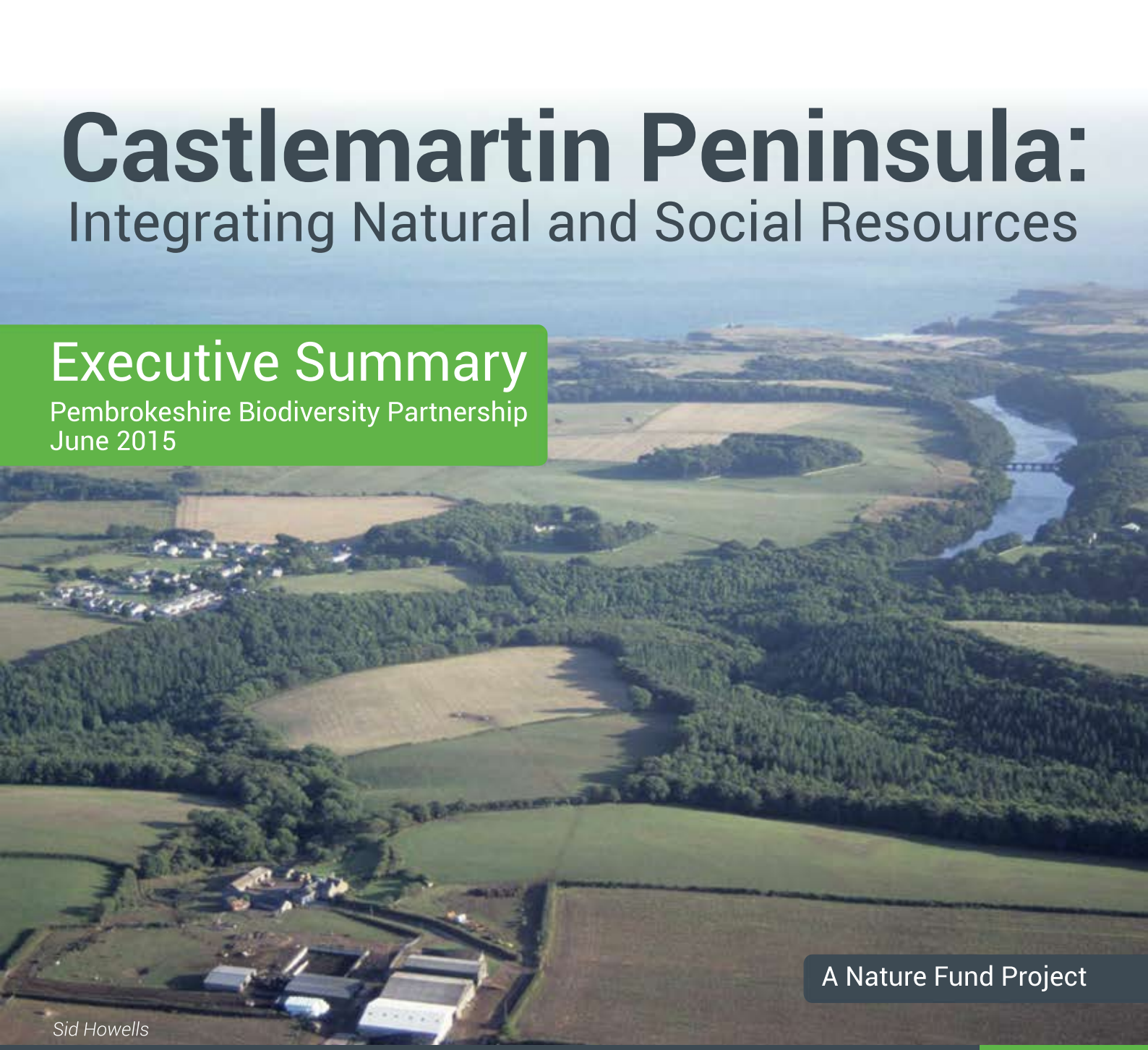
Castlemartin Peninsula:
Integrating Natural and Social Resources

Executive Summary

Pembrokeshire Biodiversity Partnership
June 2015



A Nature Fund Project

Sid Howells

A landscape scale project to build robust ecosystems through ecological enhancement and connectivity on the Castlemartin Peninsula - bringing together communities, land managers, industry and the public sector to build resilience in the local environment and economy.

Graham Bettiss

Cyfoeth Naturiol Cymru Natural Resources Wales

Ymddiriedolaeth Genedlaethol National Trust

PEMBROKE 21C COMMUNITY INTEREST COMPANY

Pembrokeshire Biodiversity Partnership

Parc Cenedlaethol Arfordir Penfro Pembrokeshire Coast National Park

Ariennir gan Lywodraeth Cymru Funded by Welsh Government

Introduction

Project Location

Background

In July 2013, the Welsh Government Minister for Natural Resources and Food announced the Nature Fund to help tackle the continued decline in biodiversity across Wales (as highlighted by the State of Nature Report) whilst benefitting our economy and local communities. The Nature Fund was aimed at encouraging innovative, landscape-scale partnership projects. The collaboration between multiple stakeholders focusing attention on the Castlemartin Peninsula described in this report was one of these 'Nature Fund' projects.

Castlemartin Peninsula, on the south coast of Pembrokeshire, contains a wide range of sites designated for landscape and nature conservation as well as several large industrial operations (such as the Valero refinery) and a Ministry of Defence firing range. The beach at Freshwater West has some of the best surf in Wales while the Special Area of Conservation (SAC) at Bosherston Lily Ponds attracts over 300,000 visits a year. The Peninsula is particularly valued by visitors for its bird life and is an excellent place to see chough and auks. The nearest towns to the Peninsula are Pembroke and Pembroke Dock which include the wards of Monkton and Llanion which are amongst the most deprived wards in Wales.


Chris Oliver


Chris Oliver

Rationale

The Castlemartin Peninsula was identified as an area with multiple, high value nature conservation sites where biodiversity could be maintained and enhanced by building resilience against threats such as fragmentation, climate change, pollution and invasive species whilst providing multiple benefits for the local community and businesses which will help sustain biodiversity in the longer term. The high landscape value of the area, with its functioning and diverse ecosystems underpins two of the mainstays of the local economy: tourism and agriculture. Furthermore, it provides an important component of local distinctiveness and sense of place – valued by local communities and visitors alike.

The opportunity presented by the Nature Fund provided a catalyst for a range of partners to work together – each contributing within their field of expertise towards a common set of project aims. Fundamental to the project was the existing working relationships with many of the landowners in the area which gave potential for works to improve connectivity between high value sites, thereby improving ecosystem resilience across the peninsula as a whole.

In order to promote further action beyond the life of the project, a programme of volunteer training and community engagement was run to increase interest in and local capacity to carry out practical conservation land management tasks. Opportunities for further habitat creation and connectivity works were mapped.

Project Partners

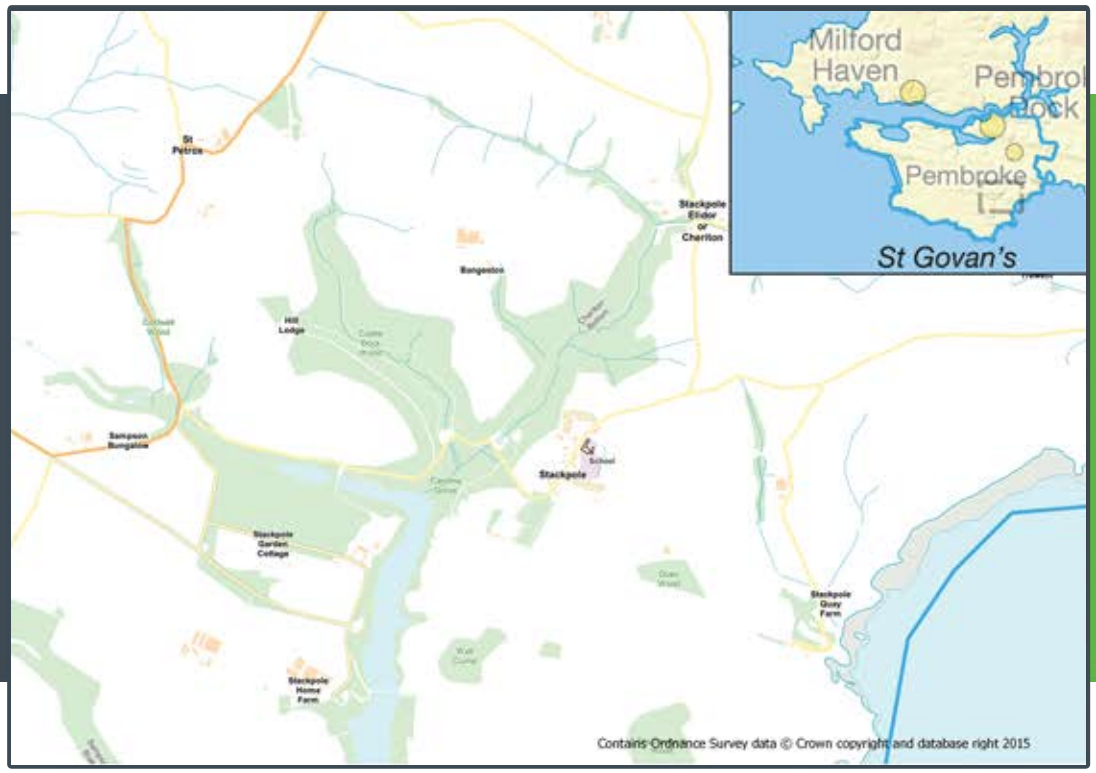
The project was initiated under the umbrella of the Pembrokeshire Biodiversity Partnership with the National Trust as lead partner, providing project management and administration. A collaboration agreement was drawn up between the National Trust, Pembroke 21C Community Interest Company (CIC) and Pembrokeshire Biodiversity Partnership. Other organisations and individuals instrumental in the delivery of the project included local landowners and farming businesses, Natural Resources Wales, Pembrokeshire Coast National Park Authority and Pembrokeshire County Council.

Project Actions

The project consisted of a set of discrete but complementary actions at multiple sites aimed at facilitating sustainable management of the area's natural resources. The actions are reported briefly below and included work to improve both infrastructure and local capacity for sustainable conservation management.

Mike Alexander

Project Actions



Bosherston Lakes

Partners Involved: National Trust; Natural Resources Wales; Private Landowners (three farmers).

Work Undertaken: The lakes at Bosherston are an artificial impoundment created by the damming of three streams during the 18th and 19th centuries. They are now considered a nationally important example of a mesotrophic lake, designated as a Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC). The area is also protected for its landscape value and historic interest. However, the lakes are slowly silting up as a result of soil erosion in the catchment and are vulnerable to increases in water nutrient levels due to runoff from the surrounding farmland. The lower parts of the lake are thought to be increasingly at risk from incursion of saline water during storm events as sea level rises.

Integrated catchment scale actions were used to address the problems affecting the site.
These included:


Bosherston Lakes upper eastern arm with reed bed and scrub encroachment due to siltation.
Paul Culyer

- Trialling of precision farming technology to optimise fertiliser application in the catchment, thereby reducing runoff.
- Working with neighbouring landowners to reduce rainwater runoff.
- Installation of silt traps on the feeder streams to remove sediment before it reaches the lakes – utilising local contractors.
- Control of invasive non-native species in the catchment.
- Commissioning of a study on the feasibility of de-silting the upper eastern arm of the lakes to restore open water habitats and provide a refuge for species in the event of salinity spikes in the lower parts of the lake.

Installing silt trap weirs at Cheriton Bottoms. *Paul Culyer*

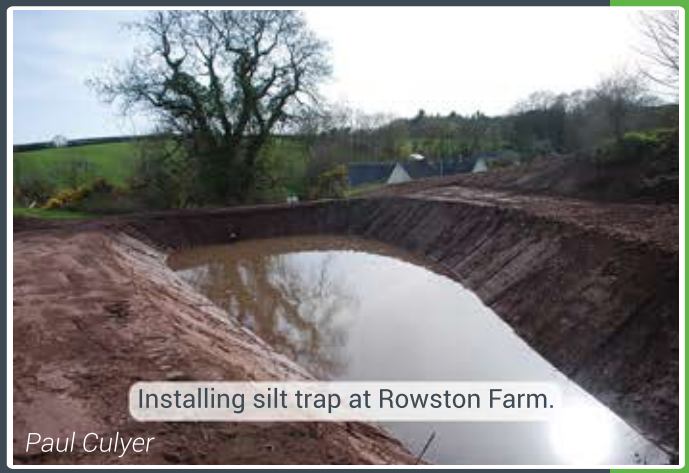
Outcomes: Work to capture, store and re-use rainwater at one of the neighbouring farms protects the lakes from excessive runoff and provides a sustainable source of water for the farm. It is too early to assess the efficacy of the precision farming pilot, but it is likely that the method will result in reduced fertiliser costs to the farmer and reduced nutrient runoff to the lakes.

Work undertaken for the project has led to the development of close working relationships with adjoining landowners which will facilitate further catchment management work.

The lake de-silting feasibility report identifies the constraints for lake restoration and allows the partners to develop detailed plans for such a project. The installation of silt traps on the feeder streams now protects the lakes from much of the historic siltation and provides a sustainable silt management infrastructure for the future.

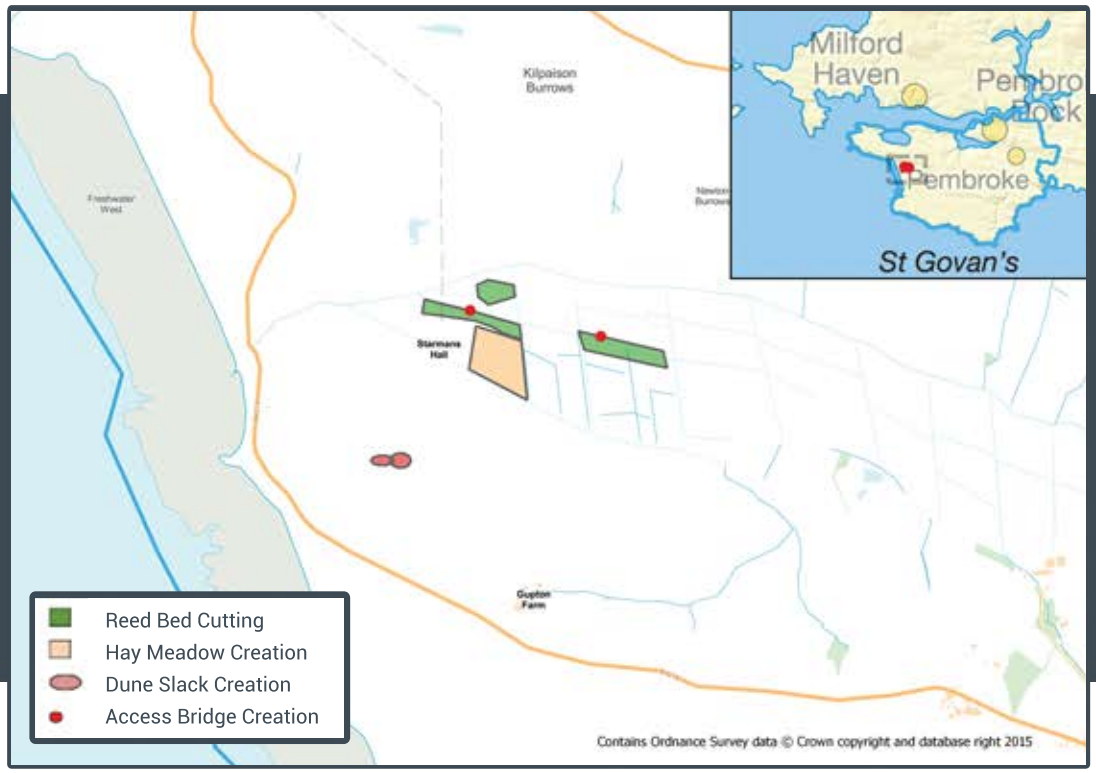
Next Steps: Project partners will begin to work up a detailed proposal for de-silting the lakes, including identification of suitable recipient sites for the excavated material in collaboration with neighbouring landowners. Further catchment management works will also be undertaken.
The results of the precision farming pilot will be assessed and the results made available to other landowners and conservation professionals as appropriate.

Silt trap weirs installed at Cheriton Bottoms. *Paul Culyer*



Installing silt trap at Rowston Farm. *Paul Culyer*

Project Actions



Gupton Farm and Castlemartin Corse

Partners Involved: National Trust; Natural Resources Wales; Local Farmers (x2)

Work Undertaken: Castlemartin Corse is both the best example of a calcareous fen in Pembrokeshire and a 30 hectare relic of a once larger wetland. The Corse is home to important fen and fen meadow plants including the blunt flowered rush *Juncus subnodulosus*. With its rich mosaic of wetland habitats and areas of open water the Corse is becoming increasingly important for its wetland bird assemblage. However many of the habitats have become isolated and opportunities for populations to expand or change their range have become limited.

Gupton Farm comprises areas of fixed sand dunes in the west, former sand dunes which were historically cultivated for cropping in the south, grazed grassland in the east, and a large area of wetland (part of Castlemartin Corse) in the north.

Management of water levels in the area is necessary to maintain the distinctive character of the site. Grazing is also essential to maintain the distinctive flora. However, practical considerations in introducing grazing stock and accessing the site with machinery due to lack of infrastructure have resulted in difficulty in applying optimal management regimes.


Land at Gupton prior to the work.
Graham Bettiss


Proposed hay-meadow before cultivation.
Chris Oliver

Actions to defend the site included:

- Ditch clearance to facilitate water level management and increase habitat diversity.
- Infrastructure work to facilitate grazing as a sustainable means of management and allow future access for reed bed management.
- Creation of dune slacks.
- Creation of hay meadows.
- Cutting of areas of reed bed and creation of linked pools and ditches to create structural diversity within reed beds.
- Cutting of areas of reed bed encroaching upon the fen meadow to allow fen meadow to regenerate and (if the opportunity arises) spread.
- Trialling of precision farming technology to optimise fertiliser application in the catchment, thereby reducing runoff.

Proposed hay-meadow during cultivation. *Chris Oliver*

Access Bridge Creation. *Chris Oliver*

Outcomes: Excavation of existing smaller dune slacks on dune grassland has created increased habitat diversity, a more dynamic landscape and created marginal habitat in order to increase the likelihood of colonisation of species associated with dune grassland and dune slack. Reed bed cutting and creation of pools and ditches improve the ecological status of both the reed beds and the fen meadow, but this will take time to assess.

The creation of a new hay meadow will (once established) provide habitat for a wide variety of invertebrate species (including the rare shrill carder bee recorded near the site). The increase in pollinator species will enhance the ecosystem services they provide to agriculture and create a food source for birds in the area. The bridges will allow access for specialist reed bed cutting equipment as well as livestock in the future. The fencing funded by the Nature Fund has allowed more effective management of the grazing regime. The ditch clearance work has provided opportunities for species such as the fen pond weed to increase its distribution over the site.

As a result of this work, new access will be opened up across Gupton Farm in the near future, allowing the public a chance to enjoy the distinctive wildlife of area for the first time.

The use of local contractors provided a valuable input to the local economy.

Next Steps: Establishment of plant communities in the dune slacks, cleared ditches and hay meadow will be monitored, as will regeneration of the fen meadow and reed beds. The grazing and cutting regimes will be tailored to local circumstances, facilitated by the infrastructure works completed as part of the project.

Project Actions

Trainees at the Teifi Marshes National Nature Reserve. *John Gossage*

Volunteer and Community Engagement

Partners Involved: Pembroke 21C (CIC)

Work Undertaken: A programme of volunteer training and community engagement events was run in order to increase local engagement with nature conservation issues and improve local volunteer capacity to carry out practical conservation tasks beyond the life of the project. This created multiple benefits for nature conservation, individuals and society.

Six trainees were offered four Agored Cymru units at level 1 and four at level 2, progressing from basic tree recognition to an understanding of the flora and fauna of Wales. This was very challenging for them given their previous experience of education and the time available for learning. Every effort was made to focus upon practical activities or visits to conservation sites, but some classroom work and written evidence was unavoidable.

Opportunities were created to benefit the project partners whilst enhancing the trainee's learning experience through practical conservation tasks such as habitat creation at Kilpaison, fencing with the National Trust on the Warren at Stackpole, and rhododendron control at Orielton with the Field Studies Council.

Volunteers undertaking practical work for pollinators. *John Gossage*

Trainees in the classroom. *John Gossage*

Natural Resources Wales, Pembrokeshire Coast National Park Authority, Pembrokeshire Biodiversity Partnership and the Wildlife Trust for South and West Wales in turn provided very helpful learning opportunities in the context of the trainee's study of the flora and fauna of Wales.

In addition to the trainees, a significant number of volunteer hours were recorded on some of the practical tasks from existing and new volunteers.

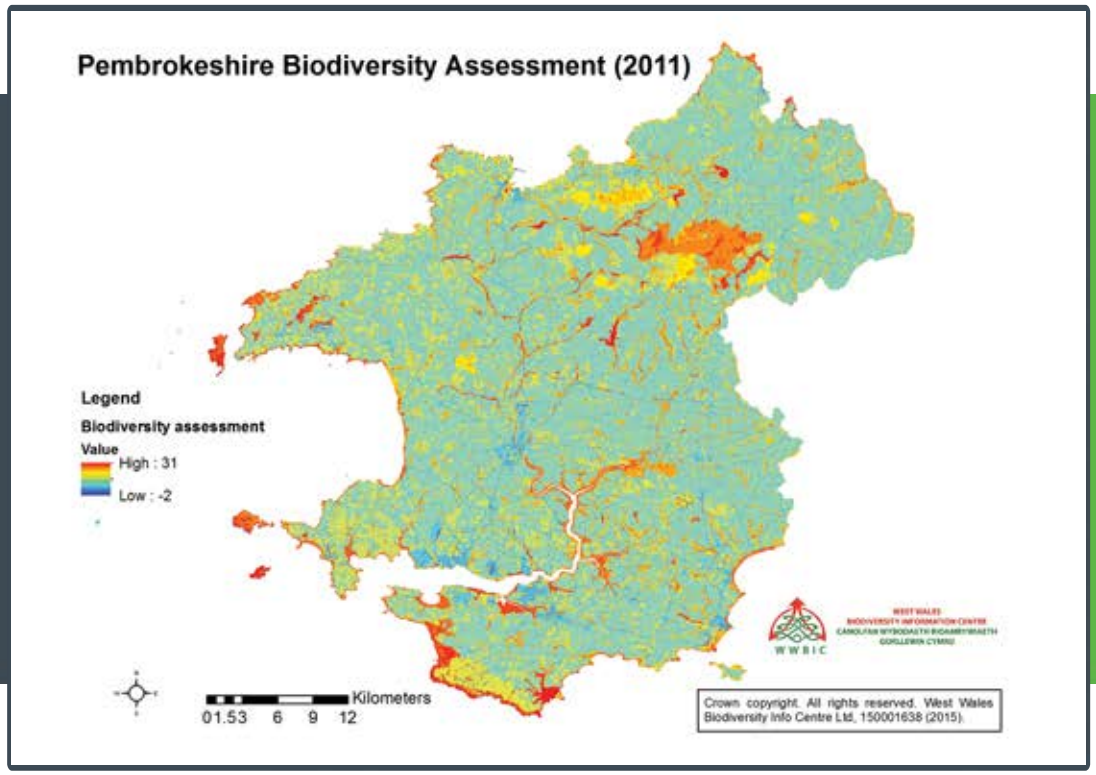
Pembroke 21C CIC arranged to visit the community councils for Hundleton, Angle and Stackpole and promoted the project to user groups at Foundry House Community Centre and at local markets. Posters were distributed to advertise the training and volunteering opportunities and the project was registered with Volunteering Wales.

Outcomes: The training provided benefited the trainees directly in terms of improving skills and knowledge, but also increased local capacity for practical conservation management tasks. The volunteering opportunities created during the project have helped to retain existing volunteers and engage with new groups. Through the community engagement programme, local conservation issues have been highlighted to community councils and at public events. The work also created and safeguarded jobs at Pembroke 21C (CIC), bringing revenue to the local economy.

Next Steps: The project partners will continue to engage with local groups to provide training and volunteering opportunities.

Mike Alexander

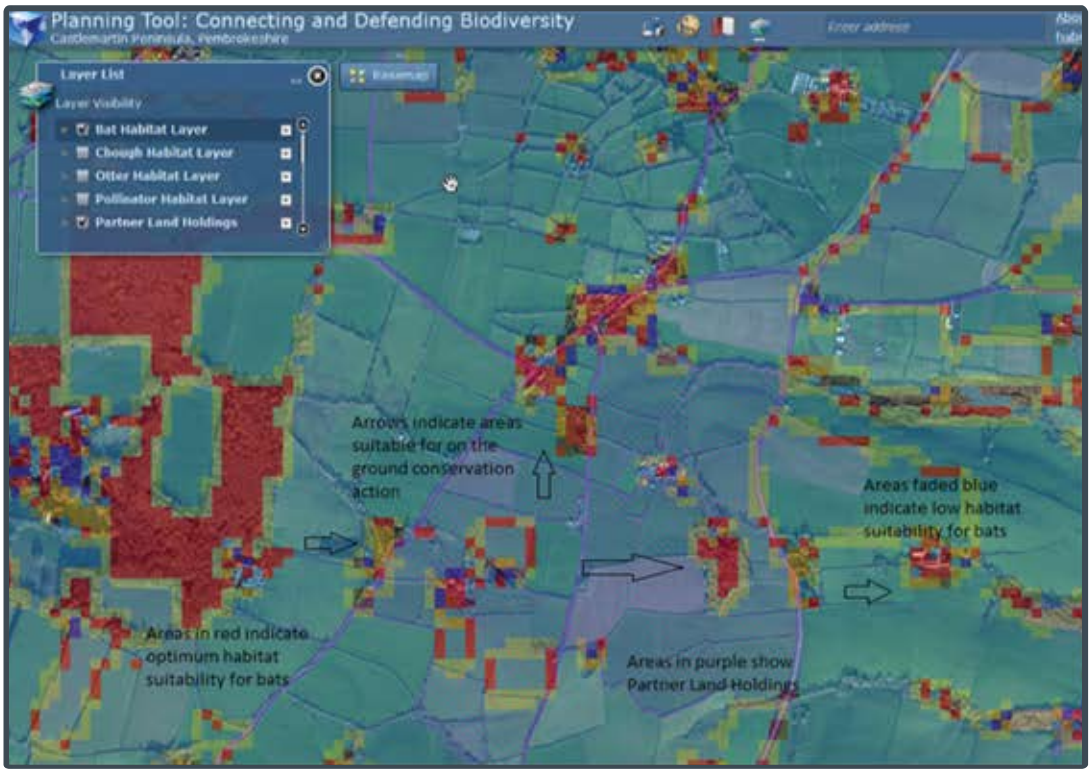
Project Actions

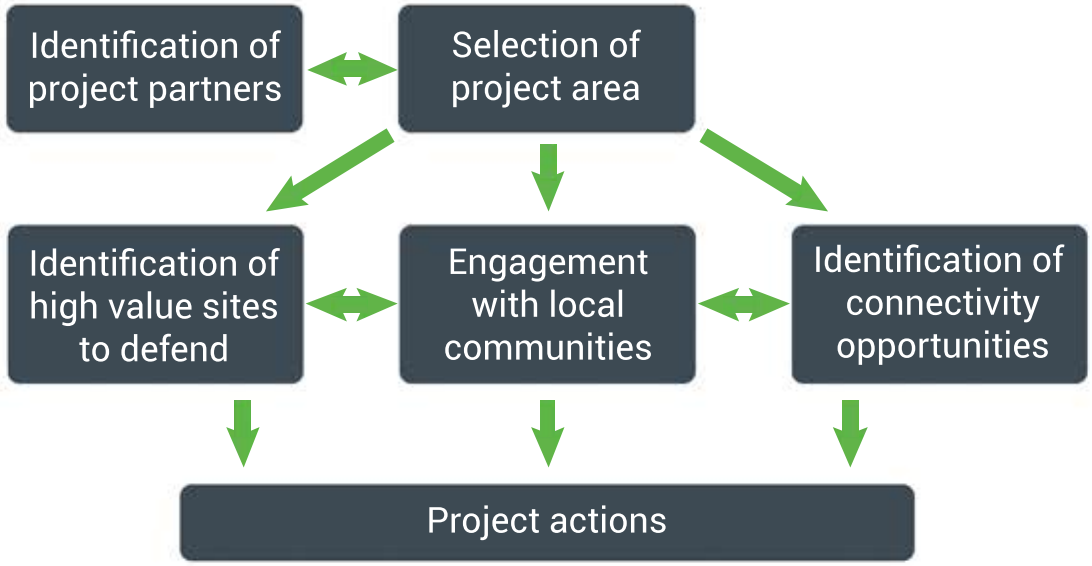


Conservation Opportunities Planning Tool

Partners Involved: Natural Resources Wales; Pembrokeshire Biodiversity Partnership; Pembrokeshire Coast National Park Authority; Pembrokeshire County Council.

Work Undertaken: The Planning Tool was commissioned to develop a web based, landscape-scale tool to identify opportunities for connectivity and defence of high value sites to strengthen ecosystem resilience and promote landscape-scale management. The tool assesses habitat suitability for five species/species groups (otters, bats, chough, pollinators and farmland birds) by applying a weighting to habitats identified in existing (phase 1) surveys. The resultant maps show areas of high habitat suitability in red and poor habitat suitability in blue. Land under the influence of project partners can be displayed to identify deliverable actions on the ground.





The mapping tool was incorporated into a toolkit providing a sequential and repeatable template for developing similar projects in other areas by overcoming some of the commonly encountered barriers to landscape scale collaborative projects.

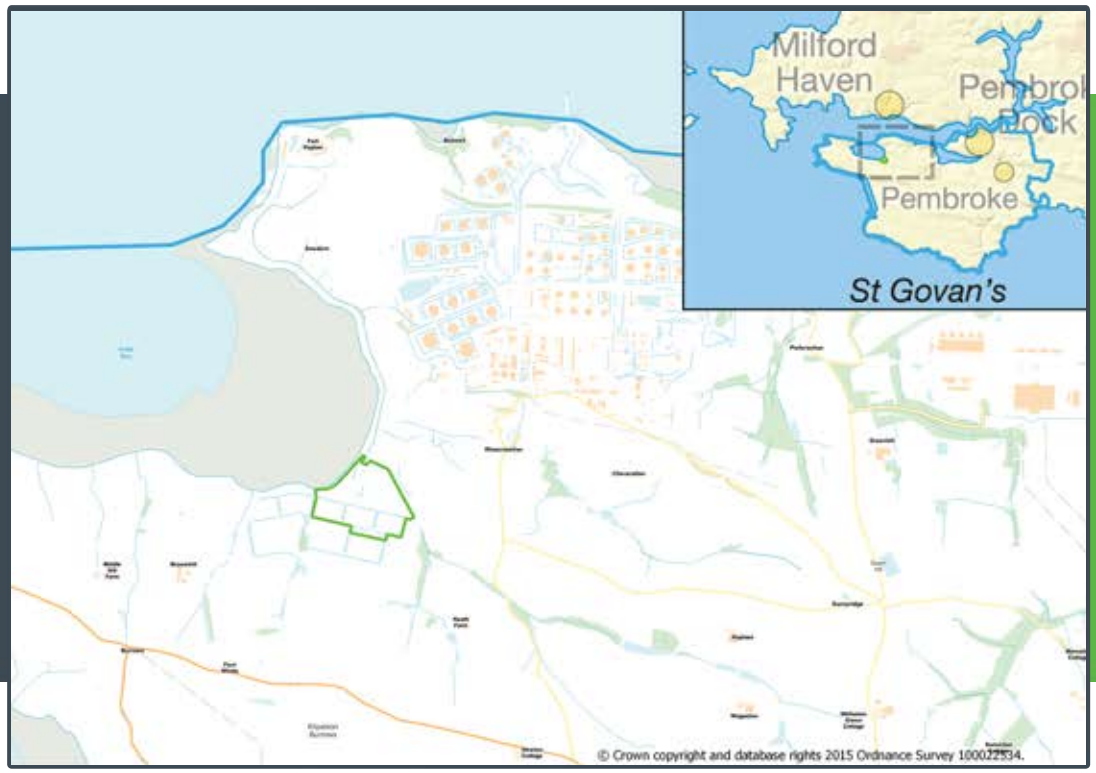
The toolkit approach is to build resilience (connectivity, scale, diversity and condition) in an area's natural resources using project funds for capital intensive work (such as infrastructure and volunteer training) to facilitate long term, sustainable management and identifying connectivity opportunities (such as habitat restoration or creation) between sites. The use of local businesses, increasing local capacity and volunteer engagement is an essential part of the continuation strategy beyond the life of a project and its available funds.

Outcomes: Identified uses of the planning tool include directing conservation action on the ground and to inform land use planning, where development proposals could be considered in the context of landscape connectivity. Development of the tool and toolkit has necessitated close working relationships amongst multiple partners and helped to refine collaborative approaches to further project work by identifying and overcoming some of the main barriers to instigating such projects.

Next Steps: The Pembrokeshire Biodiversity Partnership will seek to extend the coverage of the mapping tool to include the whole County of Pembrokeshire and work with neighbouring biodiversity partnerships to extend coverage further. The toolkit will be disseminated through the Wales Biodiversity Partnership networks and other channels as opportunities arise and used to develop further collaborative projects. The existing mapping layers will be used by project partners to identify opportunities for further work within the project area.


Paul Culyer

Project Actions



Habitat Creation at Valero

Partners Involved: Bumblebee Conservation Trust (BBCT); Natural Resources Wales; Pembroke 21C (CIC); Pembrokeshire Coast National Park Authority; Private Landowner

Work Undertaken: Kilpaison Bunds is a former oil refinery site which had become densely scrubbed over. The presence of earth bunds provided opportunities for creation of nesting and basking habitats for invertebrates, whilst the relatively nutrient poor soils of the bund floors were suitable for creation of flower rich grassland to support a range of pollinators. A former lagoon also provided a restoration opportunity for valuable freshwater habitats.

Some of the work was undertaken by local specialist contractors (such as the lagoon restoration and some scrub clearance). However, scrub clearance on some of the slopes not accessible to machinery and sowing of locally sourced wild flower seed provided opportunities for volunteer involvement to support community training being undertaken as a separate strand of the wider project.

John Gossage, Pembroke 21C CIC, said
"Our trainees really enjoyed working with BBCT on this brownfield site. They are all either unemployed or economically inactive for health reasons, and they are very committed to environmental conservation. One of them participated in the transects that were organised by BBCT last year when shrill carder bees were found at Gupton and Kilpaison."

Contractors clearing scrub.

Sinead Lynch

Volunteers undertaking practical work for pollinators.

Sinead Lynch

Outcomes: An area of valuable habitat for pollinators has been restored/created which extends the functional area of high quality habitat identified in the south and west of the Peninsula - building ecological resilience into the landscape. Volunteers took the opportunity to engage with practical tasks delivering tangible benefits on the ground. The activity supported the training programme by allowing trainees to apply some of the principles they had learned in a practical setting. Removal of scrub facilitated the establishment of a grazing regime for sustainable conservation management. Closer working relationships have been forged with both the landowner and tenant grazier.

Next Steps: During the summer and early autumn of 2015 project partners will aim to undertake monitoring visits at Kilpaison bunds to assess the grassland habitat and record bumblebee species present. Partner organisations will look into scrub clearance for autumn/winter 2015. There may be opportunities for the site owners (Valero) to undertake scrub clearance, as well as further volunteer work parties. Reptile mats will be placed around the site to assess the value of these habitats for some of these Biodiversity Action Plan priority species. The Bumblebee Conservation Trust and other partners will work with Valero to contribute to their site Biodiversity Action Plan.

What Next?


Paul Culyer

Project Outcomes

The obvious outcomes from the project are the creation or protection and enhancement of biodiversity features and other natural resources outlined above and described in detail in the full project report, building resilience at a landscape-scale. Much of this work addresses known threats or provides infrastructure to facilitate sustainable management of the area, reducing the cost of ongoing works. This benefits not only the species and habitats concerned, but also safeguards the associated educational and recreational opportunities for communities of both place and interest which access the area.

The project has generated multiple benefits to the natural environment and society. It utilised local contractors where possible, bringing cash spend to the local economy and promoted sustainable economic growth by supporting agriculture and tourism. The volunteer and community engagement work benefitted the individuals involved (increasing skills and employment opportunities), the wider community (greater engagement with the local environment) and the local environment itself (improved local capacity for sustainable land management). The training and volunteer engagement work also created and safeguarded jobs at Pembroke 21C (CIC), bringing revenue to the local economy.

In addition to these obvious outcomes, the project has forged ever closer working relationships both within the conservation sector and with landowners and has fuelled a desire to establish further collaborative landscape scale conservation projects across the County.

Next Steps

The Project Partners are keen to continue to build upon the successes of this project by planning and executing further work to improve the nature conservation value of the area and increase community capacity to undertake conservation land management. The long term, evidence-based approach underpinning the project toolkit will be used to identify further opportunities within the project area. A new circular walk is planned at Gupton farm to allow the public access to this wildlife rich area for the first time, increasing opportunities for both local communities and visitors to engage with the local natural environment.

The experiences of this project will be shared amongst the Pembrokeshire Biodiversity Partnership and (through the Wales Biodiversity Partnership) nationally. It is hoped that the project toolkit can be utilised to plan further landscape-scale collaborative conservation projects.