



# Bylchau mewn Tystiolaeth yn ymwneud â Natura 2000 yng Nghymru

## Evidence Gaps Relating to Natura 2000 in Wales

Rhaglen Natura 2000 LIFE yng Nghymru  
LIFE Natura 2000 Programme for Wales

2015



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## 1. Crynodeb

Yn ystod Rhaglen LIFE Natura 2000 Cymru (2012-2015), darganfuwyd bylchau mewn tystiolaeth yn ymwneud â rheoli safleoedd Natura 2000. Casglwyd awgrymiadau yn nigwyddiadau cychwynnol y prosiect, yn ystod gweithdai gyda rhanddeiliaid ac yn ystod cyfweiliadau gydag arbenigwyr rhywogaethau a chynefinoedd a Swyddogion Cadwraeth CNC.

Cafodd yr holl gynigion eu gwerthuso, a chafodd y bylchau hynny y gellid ymdrin â hwy fel rhan o waith y prosiect neu y gellid eu hymgorffori fel rhan o Gynlluniau Gwella â Blaenoriaeth neu'r Cynllun Cadwraeth *After-LIFE* eu pennu. Dangosir y bylchau a erys yn y ddogfen hon. Mae'r rhestr wedi'i chyflwyno i Brosiect Bylchau mewn Tystiolaeth Partneriaeth Bioamrywiaeth Cymru.

## 2. Summary

During the course of the LIFE Natura 2000 Programme for Wales (2012-2015), gaps in evidence in relation to the management of Natura 2000 sites were identified. Suggestions were gathered at the project inception events, during workshops with stakeholders and during interviews with NRW Conservation Officers and species and habitat specialists.

All proposals were appraised and those gaps which could be addressed as part of the work of the project or which could be incorporated as a part of Prioritised Improvement Plans or Thematic Action Plans or the After-LIFE Conservation Plan were identified. Remaining evidence gaps are shown in this document. The list has been submitted to the Welsh Biodiversity Partnership Evidence Gap Project.

### 3. Introduction

#### **LIFE Natura 2000 Programme for Wales**

There are 123 designated habitat and species features on the 92 Special Areas of Conservation (SACs) and 20 Special Protection Areas (SPAs) in Wales. Together these comprise the Natura 2000 network.

The LIFE Natura 2000 Programme for Wales has developed a strategic forward plan to manage and restore Natura 2000 in Wales. Working with stakeholders it has determined the key challenges facing these European protected sites, species and habitats and identified the actions required, priorities, costs and funding opportunities to address them. The Programme is comprised of site-based Prioritised Improvement Plans, Thematic Action Plans for Wales-wide issues and risks and an overarching Prioritised Action Framework.

The Programme was run by Natural Resources Wales (NRW) and funded by the European Union scheme LIFE+ Nature.

The purpose is to enable Wales to make significant progress towards bringing Natura 2000 species and habitats into favourable condition and help meet its commitments under the European Habitats and Birds Directives. The Programme also aims to provide a platform to seek further funding for Natura 2000 related projects from all potential sources, and to integrate Natura 2000 funding into other financial instruments and policy areas.

Full details about the LIFE Natura 2000 Programme and the Natura 2000 network in Wales can be found in the *LIFE Natura 2000 Programme for Wales: Fact and Figures Report 1*.

#### **Identification of evidence gaps relating to Natura 2000**

During the course of the LIFE Natura 2000 Programme for Wales (2012-15), gaps in evidence in relation to the management of Natura 2000 sites were identified. Suggestions were gathered at the project inception events, during workshops with stakeholders and during interviews with NRW Conservation Officers and species and habitat specialists.

All proposals were appraised and those gaps which could be addressed as part of the work of the project or which could be incorporated as a part of Prioritised Improvement Plans, Thematic Action Plans or the After-LIFE Conservation Plan were identified. Remaining evidence gaps are shown in Section 4. The list has been submitted to the Welsh Biodiversity Partnership Evidence Gap Project.

## 4. Evidence gaps addressed as part of the LIFE Natura 2000 Programme

Priority evidence gaps, which related to the production of the LIFE Natura 2000 Programme were addressed using project funds during the period 2012-15. Reports and other outputs are available on the LIFE Natura 2000 Programme website or on request from Natural Resources Wales.

**Table 1: Studies to address evidence gaps delivered by the LIFE Natura 2000 Programme**

Study	Output
Natura 2000 in Wales: Facts and figures	Report
Natura 2000 habitat and species mapping: Analysis of data sources	Report and inventory
Inventory of ecosystem services provided by Natura 2000 in Wales	Summary report and inventory
Feasibility of valuing ecosystem services provided by Natura 2000 in Wales	Report
Conservation needs analysis of Natura 2000 features in Wales – Multi-criteria decision analysis	Report and MCDA matrices
Identification of standard costings for marine investigation actions on Natura 2000 in Wales	Report and inventory
Identification of standard costings for terrestrial actions on Natura 2000 in Wales	Inventory
Assessing and addressing atmospheric nitrogen impacts on Natura 2000 sites in Wales	Report including appendices
Identification of aquatic (highly water dependent) Natura 2000 features	Report
Climate change vulnerability assessment of marine Natura 2000 features	Report and analysis
Approach to prioritisation within the Welsh Natura 2000 series	Report

## 5. Outstanding priority evidence gaps

Priority evidence gaps which were not addressed by LIFE funding, but which are deemed to be necessary to inform the development of actions to bring Natura 2000 species and habitat features into favourable condition, have been logged within the LIFE Natura 2000 Programme outputs as shown in Table 2 below.

**Table 2: LIFE Natura 2000 plans to address evidence gaps**

Type of evidence gap	Plan
Evidence gaps which relate to the identification or delivery of actions on specific Natura 2000 sites	Included in relevant <b>Prioritised Improvement Plan</b> , as Investigation actions
Evidence gaps which relate to the identification or delivery of actions to address specific issues/risks (e.g. air pollution, diffuse water pollution) at a strategic level	Included in relevant <b>Thematic Action Plan</b>
Other high priority evidence gaps	Included in <b>After-LIFE Conservation plan</b>

## 6. Other outstanding evidence gaps

Other identified evidence gaps are listed in Table 5 below. These evidence gaps were not incorporated into in the LIFE Natura 2000 Programme (as shown in section 4 above) because:-

- They did not relate to a specific site or issue/risk; or
- They are considered a lower priority; or
- They are of broad scope or a relate to fundamental research rather than applied investigation to facilitate the delivery of action: or
- They were otherwise considered beyond the immediate scope/resources of the LIFE Natura 2000 Programme at that time.

This list of outstanding evidence gaps is a historical record of suggestions rather than a list of proposals for funding. All evidence gap proposals have been included and no further systematic process of review or prioritisation has been carried out. However, the list may be used as a starting-point to identify potential future priorities for investigations, studies or research relating to Natura 2000.

The list has been submitted to the Welsh Biodiversity Partnership Evidence Gap Project, for addition to the Evidence Gaps Register.

<http://www.biodiversitywales.org.uk/WBP-Evidence-Gaps-Project>

The full list is shown overleaf in Table 5. The terminology used in the column headings are explained in Table 4 below.

**Table 4: Explanation of column headings used in Table 5**

<b>Column heading</b>	<b>Explanation</b>
<b>Ecosystem</b>	General ecosystem to which the evidence gap applies e.g. marine, freshwater
<b>Source</b>	Source of suggestion e.g. workshop, named individual
<b>Location</b>	Location of workshop or event where the suggestion was made.
<b>Type</b>	Broad area of work to which the evidence gap relates.
<b>Notes</b>	Other relevant information

**Table 5: Proposed studies to address evidence gaps relating to Natura 2000 in Wales**

Proposals for studies to address evidence cap	Ecosystem	Source	Location	Type	Notes
Review of recreational impacts and opportunities on freshwater and wetland Natura 2000 (N2K) sites.	Freshwater & wetlands	June 2013 workshop	Llandudno	Determine impact of issue/risk	
Study of Merlin demography on N2K sites e.g. potential changes should pastoral farming be abandoned on a number of sites).	Birds uplands	June 2013 workshop	Shrewsbury	Determine impact of issue/risk	See Brecon Beacons report
Effect of marine fisheries on fish population and age-classes caused and the consequent effect on Special Protection Area (SPA) bird populations.	Birds coastal/marine	June 2013 workshop	Shrewsbury	Determine impact of issue/risk	
Impact of climate change / sea warming on marine SPA features; in particular impacts on prey species abundance.	Birds coastal/marine	June 2013 workshop	Shrewsbury	Determine impact of issue/risk	
Literature review of air pollution impact on lower plants.	Terrestrial	June 2013 workshop J	Llandudno	Determine impact of issue/risk	
Retrospective analysis of condition of lower plant in relation to intensity of air pollution.	Terrestrial	June 2013 workshop	Llandudno	Determine impact of issue/risk	
Evidence of air pollution impacts. Apply APIS data to N2K features.	Terrestrial	June 2013 workshop	Llandudno	Determine impact of issue/risk	
Investigation into how climate change may impact on our native woodland species in, say, 50 years' time.	Terrestrial	June 2013 workshop	Llandudno	Determine impact of issue/risk	
Monitoring to better understand the impact of fishing/angling on the distribution and abundance of N2K fish features, especially Shad and Lamprey.	Freshwater & wetlands	June 2013 workshop	Cardiff	Determine impact of issue/risk	
Monitoring of fishing effort using VMS/BTS for all fishing vessels within Marine Protected Areas.	Marine	June 2013 workshop	Cardiff	Determine impact of issue/risk	
Investigation into the combined effects of pollutants in the marine environment.	Marine	June 2013 workshop	Cardigan	Determine impact of issue/risk	
Risk assessment of marine invasive non-native species on SPA birds.	Birds coastal/marine	June 2013 workshop	Shrewsbury	Determine impact of issue/risk	
Review of disturbance sensitivity for N2K species features. E.g. What each species is sensitive to, at what distance, how can the disturbance be minimised.	Birds estuaries	June 2013 workshop	Shrewsbury	Determine impact of issue/risk	Could be desk study of c.20 days.
Pharmaceuticals – effects of existing and new ones in the marine environment.	Marine	June 2013 workshop	Cardigan	Determine impact of issue/risk	
Impact of plastic litter on N2K seabirds, including offshore feeding birds. Likelihood, extent and severity of harm.	Birds coastal/marine	June 2013 workshop	Shrewsbury	Determine impact of issue/risk	
Level of impact of un-regulated fishing on N2K features. Is it a serious issue, is there scope for regulation?	Birds coastal/marine	June 2013 workshop	Shrewsbury	Determine impact of issue/risk	
Impact of offshore turbines on SPA bird's prey species (fish), e.g. sonic effects, changes in substrate, changes caused by effects on fishing practice.	Birds coastal/marine	June 2013 workshop	Shrewsbury	Determine impact of issue/risk	
Spatial relationship between predatory species populations and N2K species in decline.	Birds estuaries	June 2013 workshop	Shrewsbury	Determine impact of issue/risk	Could be study of c. 20 days.
Evidence for impacts on N2K features of offshore turbines.	Birds coastal/marine	June 2013 workshop	Shrewsbury	Determine impact of issue/risk	
Effect of cooling water entrapment of fish on populations and availability of prey species.	Birds coastal/marine	June 2013 workshop	Shrewsbury	Determine impact of issue/risk	
Effect of competition on Tern species (inter-specific competition on nesting spaces).	Birds coastal/marine	June 2013 workshop	Shrewsbury	Determine impact of issue/risk	
Ecological impacts of hydroelectric schemes.	Freshwater & wetlands	June 2013 workshop	Cardigan	Determine impact of issue/risk	
Cockle mortality investigation on Burry Inlet SPA. Including consideration of socio-economic factors.	Birds coastal/marine	June 2013 workshop	Shrewsbury	Determine impact of issue/risk	



Proposals for studies to address evidence cap	Ecosystem	Source	Location	Type	Notes
American signal crayfish – investigate extent of infiltration.	Freshwater & wetlands	June 2013 workshop	Cardiff	Determine impact of issue/risk	
Collation of ballast records.	Marine	June 2013 workshop	Cardigan	Determine impact of issue/risk	
Collation of existing information and knowledge about marine mammal disturbance issues (what, where, why?). Clarify issues.	Marine	June 2013 workshop	Llandudno	Determine impact of issue/risk	Feasible as desk study.
Investigation into the diversification of woodland planting species to future-proof woodlands against climate change. Risk assessment on possible alternative commercial tree species which are not native, to assess potential biodiversity impacts e.g. invasiveness etc. Identify most suitable species.	Terrestrial	June 2013 workshop	Llandudno	Determine impact of issue/risk	
Investigation into the effect of ash dieback and how this would affect the management of SAC woodlands. (e.g. should sycamore and beech still be controlled?)	Terrestrial	June 2013 workshop	Cardigan	Determine impact of specific issue	
Review of fisheries stocks and management in the Dee Estuary.	Birds coastal/marine	June 2013 workshop	Shrewsbury	Determine impact of specific issue	Desk study.
Review of catchment sensitive farming and communication of this work. Collate best practice.	Freshwater & wetlands	June 2013 workshop	Llandudno	Determine impact/value of management mechanism	
Investigation into the importance of grasslands adjacent to estuary SPAs for SPA bird features. To include survey of species on grassland, population modelling and review of existing information.	Birds coastal/marine	June 2013 workshop	Shrewsbury	Determine impact/value of management mechanism	Could include some winter fieldwork. (See Rachel Taylor for proposals and costings).
Impact of Marine Conservation Zones on fisheries (impact on SPA birds) and cetaceans.	Marine	June 2013 workshop	Shrewsbury	Determine impact/value of management mechanism	
Investigation into sward suitability and optimal management on the 6 N2K sites with Chough.	Birds coastal	LIFE N2K team		Determine impact/value of management mechanism	
Valuation of ecosystems services provided by marine habitats/ecosystems.	Marine	June 2013 workshop	Cardigan	Devise/develop a mechanism	
Identification of suitable land for connectivity work between sites and mechanisms to allow NRW to fund connectivity projects.	Freshwater & wetlands	June 2013 workshop	Cardigan	Devise/develop a mechanism	
Exploration of the compensation mechanisms related to allowing natural processes e.g. erosion.	Freshwater & wetlands	June 2013 workshop	Cardigan	Devise/develop a mechanism	
Development of a 'tool' to support Habitat Regulations Assessments on SPAs in Wales, based on the Bournemouth University bird food model.	Birds coastal	June 2013 workshop	Shrewsbury	Devise/develop a mechanism	
Collation of information on active/planned Several Orders.	Marine	June 2013 workshop	Cardigan	Devise/develop a mechanism	
Review of costs and possible locations for setting up native Oyster beds.	Marine	June 2013 workshop	Cardiff	Devise/develop a mechanism	Desk study.
In-depth analysis of the 'change policy & legislation' mechanism in NRW Actions Database, i.e what policies, which legislation.	Terrestrial	June 2013 workshop	Llandudno	Devise/develop a mechanism	
Research into counter measures for invasive non-native species.	Freshwater & wetlands	June 2013 workshop	Llandudno	Devise/develop a mechanism	
Investigation into the feasibility of specific water level management actions. Engineering solutions to manage hydrological gradients.	Freshwater & wetlands	June 2013 workshop	Cardigan	Devise/develop a mechanism	
Habitat mapping for all marine territorial waters.	Marine	June 2013 workshop	Cardiff	Distribution/mapping location of features	
Provision of definitive GIS dataset(s) of N2K feature distribution and extent within and without N2K sites; linked to Actions Database.	All environments	June 2013 workshop	Various	Distribution/mapping location of features	Noted multiple times.
Identification of areas where marine issues are at greatest intensity using best available data.	Marine	June 2013 workshop	Cardigan	Distribution/mapping of issues	

Proposals for studies to address evidence cap	Ecosystem	Source	Location	Type	Notes
Distribution/intensity of marine fishing activities (e.g. scallop dredging)	Marine	June 2013 workshop	Cardigan	Distribution/mapping of issues	
Distribution of aquaculture.	Marine	June 2013 workshop	Cardigan	Distribution/mapping of issues	
Collation of information on location of issues. Ensure existing information is digitised.	All environments	LIFE N2K team		Distribution/mapping of issues	Fisheries issues are on paper maps.
Investigation into sustainable hydro-power design.	Freshwater & wetlands	June 2013 workshop	Llandudno	Ecological knowledge of several features	
Literature review on migration of river fish.	Freshwater & wetlands	June 2013 workshop	Llandudno	Ecological knowledge of several features	
Investigations into Allis and Twait shad. Genetic investigation, including whether there are hybrids; extent of upstream distribution on Usk.	Freshwater & wetlands	June 2013 workshop	Cardiff	Ecological knowledge of several features	
Genetic study of Shad and Lamprey.	Freshwater & wetlands	June 2013 workshop	Llandudno	Ecological knowledge of several features	
General research into less well understood freshwater fish features and their requirements.	Freshwater & wetlands	June 2013 workshop	Cardiff	Ecological knowledge of several features	
Study into the importance and role of soil biodiversity.	Terrestrial	June 2013 workshop	Cardigan	Ecological knowledge of several features	
Investigation into non-commercial marine fish species dynamics.	Marine	June 2013 workshop	Llandudno	Ecological knowledge of several features	
Investigation into prey species: distribution, abundance and what data is being gathered?	Marine	June 2013 workshop	Llandudno	Ecological knowledge of several features	
Study into genetic variability of meta populations of Southern damselfly.	Freshwater & wetlands	June 2013 workshop	Cardiff	Ecological knowledge of single feature	Field study. Quite a lot of genetic analysis has already been undertaken on Welsh southern damselfly populations by Liverpool University
Study into spring settlement of Merlin.	Birds uplands	June 2013 workshop	Shrewsbury	Ecological knowledge of single feature	Desk study linked to other agencies. RSPB conservation science project.
Full genetic survey of Atlantic salmon.	Freshwater & wetlands	June 2013 workshop	Cardiff	Ecological knowledge of single feature	
Collation of information from offshore areas outside N2K sites commonly used by N2K features – e.g. fish stocks, bottlenose dolphin activity.	Marine	June 2013 workshop	Cardigan	Evidence from outside N2K sites	
Assessment of work being done outside N2K site boundaries to benefit features on sites.	All environments	Inception events – February 2013		Evidence from outside N2K sites	
Collection of evidence of atmospheric deposition impacts on SACs generally rather than on just specific sites.	Terrestrial, Freshwater & wetlands	June 2013 workshop	Cardigan	Evidence from outside N2K sites	
Investigation into long-term prognosis of Gower Ash Woodlands SAC re <i>Chalara</i> and contingency planning.	Terrestrial	June 2013 workshop	Cardigan	Horizon scanning/future predictions	
Investigation into how changes in grazing practice is likely to develop over the next 10 years due to CAP reform etc. and market forces; to include historical review.	Terrestrial	June 2013 workshop	Shrewsbury	Horizon scanning/future predictions	10 day desk study.
Horizon scanning for invasive non-native species and pests /diseases.		June 2013 workshop	Cardigan	Horizon scanning/future predictions	
Investigation into long term management / habitat impacts of woodland management choices, particularly tree species establishing or planted now. Long term habitat suitability for lichen, impact on red squirrels, deadwood inverts etc. (especially in light of tree diseases)	Terrestrial	June 2013 workshop	Cardigan	Horizon scanning/future predictions	

Proposals for studies to address evidence cap	Ecosystem	Source	Location	Type	Notes
Assessment of the current status on sites of all marine features. Complete site-level feature condition reports (favourable/unfavourable).	Marine	June 2013 workshop	Cardiff/ Llandudno	Identify/review status/condition assessment of features on sites	
Study of economic value of ecosystem services and additional benefits which can be derived from N2K actions/improvements e.g. socio-economic etc.	All environments	Inception events February 2013		Improving info on socio-economic & ecosystem services	This could be looked at on an all-Wales basis.
Identification of economic products of N2K management.	All environments	Inception events February 2013		Improving info on socio-economic & ecosystem services	
Exploration into means of integrating measures across N2K, Water Framework Directive, Shellfish and Bathing Waters obligations.	Marine	June 2013 workshop	Llandudno	Improving integration	
Development of understand of what 'more stringent' means for assessment under WFD where Habitats Directive also applies.	Marine	June 2013 workshop	Llandudno	Improving integration	
Collation of information on existing and ongoing initiatives and strategies relating to N2K.	All environments	June 2013 workshop, Inception events February 2013	Llandudno	Improving integration	
Study of options for integrated and interdisciplinary estuary management. Estuaries incorporate a number of other N2K features, and issues tend to affect several features.	All environments	LIFE N2K team		Improving integration	Desk top study.
Field survey of suitable habitat for Marsh fritillary outside SAC boundaries, and appraisal of metapopulation viability, especially for Rhos Talglas in Ceredigion and Corsydd Llyn in Gwynedd.	Invertebrates	NRW invertebrate ecologist		Ecological knowledge of single feature	Corsydd Llyn has 10-year old study which needs repeating. Rhos Talglas has a recent partial study (ADAS) which needs extending. Could be done as a desk study in part.
Research into basic hydrological understanding of sites. This is required and is usually absent at present.	Freshwater & wetlands	June 2013 workshop	Cardigan	Knowledge of physical environment of sites	
Identification of a fixed-figure for desirable sward height for Atlantic salt meadow (North Gower) – to use as a performance indicator.	Marine	June 2013 workshop	Cardigan	Review of monitoring & standards	
Determination of water quality standards for marine N2K features and baseline values.	Marine	June 2013 workshop	Llandudno	Review of monitoring & standards	
Review of environmental standards in estuaries as they impact SAC features (phosphate in particular).	Birds estuaries	June 2013 workshop	Shrewsbury	Review of monitoring & standards	
Identification of the natural state baseline for estuaries, against which it is possible to assess coastal squeeze.	Marine	June 2013 workshop	Cardiff	Review of N2K designated features or boundaries	May be more than 20 days.
Identification of existing partnership work which could be seen as "good/best practice".	Freshwater & wetlands, Terrestrial	June 2013 workshop	Cardigan	Sharing data/knowledge	
Review of how others have managed commercial bait collection.	Marine	June 2013 workshop	Cardigan	Sharing data/knowledge	
Identification of the best public engagement mechanisms to use. Which are the most effective in terms of public understanding and 'buy in'?	Freshwater & wetlands	June 2013 workshop	Cardiff	Stakeholder engagement	
Review of saltmarsh sward height requirements to find optimal balance between SAC saltmarsh and SPA species. Consider intermediate heights, mosaics.	Birds coastal	June 2013 workshop	Shrewsbury	Ecological knowledge of several features	Possible desk study.
Understanding of the contribution of the SAC series in achieving FCS at a Welsh level and understanding of the contribution of individual SACs to meeting that goal.	Terrestrial / Freshwater & wetlands	June 2013 workshop	Cardigan	Identify/review status/condition assessment of features on sites	

Proposals for studies to address evidence cap	Ecosystem	Source	Location	Type	Notes
Specific management requirements for complex wetlands (where to dam/ditch block)	Freshwater & wetlands	June 2013 workshop	Cardigan	Ecological knowledge of several features	
Collation of non-pressure stocks and locality.	Marine	June 2013 workshop	Cardiff	Ecological knowledge of several features	
Better understanding of links between activities/pressures and ecological status.	Marine	June 2013 workshop	Llandudno	Ecological knowledge of several features	
Mark-recapture abundance estimates (using open robust models) for grey seals in SACs across Wales from the photoID catalogue of grey seal pelage which spans two decades	Marine	NRW marine mammal ecologist		Ecological knowledge of single feature	Could be done as desk study. High priority.
Development of a tool to extract sighting frequencies for the grey seal photoID catalogue, to inform connectivity among sites on the Welsh coast.	Marine	NRW marine mammal ecologist		Ecological knowledge of single feature	Could be done as desk study. High priority.
Investigation into the extent of populations of Barbastelle and Bechstein's bats in Wales. Use recently produced habitat suitability models to undertake surveys at priority locations.	Terrestrial	NRW mammal ecologist		Ecological knowledge of several features	Field study. High priority.
Development of pictorial/photographic guides to habitat condition and management for Conservation Officers and Glastir Officers to better illustrate desired habitat outcomes to landowners.	Terrestrial	NRW habitat specialist		Ecological knowledge of several features	Desk study. Similar study has been done by Natural England. High priority.
Ecosystem services: study into the role of upland vegetation structure in regulating water run-off and providing flood protection and drinking water.	Terrestrial	NRW habitat specialist		Ecological knowledge of several features	High priority. Some work already done.
Merlin: Analysis of upland BBS data (probably at UK level to yield sufficient data, but also Welsh level if possible) to test hypothesis that observed declines in merlin can be correlated with long-term declines in upland / marginal passerine populations.	Birds uplands	NRW terrestrial ornithologist		Ecological knowledge of single feature	Desk study. High priority. Availability of merlin data, and limitations of 2008 SCARABBS dataset may limit feasibility of this analysis.
Analyses of 20 year dataset from Cross and Stratford Chough colour-ringing data to provide publicly available information on regional demographic parameters in Welsh Chough, and information on connectivity between breeding and non-breeding sites.	Birds coastal/marine	NRW terrestrial ornithologist		Ecological knowledge of single feature	Desk study. Cross and Stratford have expertise in this area. High priority.