



**Landscapes for Lessers**

**Phase 2 Project Report**

**L. Mapstone**

**CCW Science Report No. 896**

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## **CRYNODEB GWEITHREDOL**

Mae'r adroddiad hwn yn disgrifio'r gwaith a wnaed yn ystod ail gam y prosiect 'Landscapes for Lessers' gan yr Ymddiriedolaeth Gwarchod Ystlumod, ar y cyd â Chyngor Cefn Gwlad Cymru. Hefyd, nodir y cynigion ar gyfer bwrw ymlaen â'r trydydd cam.

Yn adran 4 yr adroddiad, nodir yr adnoddau sydd ar gael, a hefyd nodir y sail resymegol ar gyfer cyflawni'r trydydd cam (gan gynnwys y drefn ar gyfer cyflwyno'r prosiect). Caiff y casgliadau a ddeilliodd o waith ymchwil manwl i'r adnoddau y dylid eu defnyddio yn ystod y trydydd cam eu nodi, a chaiff unrhyw wybodaeth berthnasol ei nodi ar ffurf cyfres o fapiau yn Atodiad A. Mae'r adnoddau wedi'u rhannu'n dri categori: gwybodaeth ffisegol; cylch gwaith daearyddol y sefydliadau a'r cyrff perthnasol a'r rhywogaethau allweddol eraill; a mentrau a geir ledled Cymru yn ymwneud â chynefinoedd a thirweddau. Efallai y gall yr olaf o'r rhain ein galluogi i weithio ar y cyd ag eraill yn ystod y trydydd cam – rhywbeth a allai fod o fudd mawr i'r prosiect. Er mwyn ein galluogi i gyflawni'r trydydd cam, rydym wedi rhannu Cymru yn dair o 'ardaloedd cyflawni' allweddol, ac mae'r rhain wedi'u rhannu ymhellach yn 'unedau cyflawni' ar sail yr adnoddau. Hefyd, nodir y sail resymegol sydd wrth wraidd y drefn arfaethedig ar gyfer cyflwyno'r trydydd cam, a cheir mwy o fanylion am fanyleb y prosiect, gan gynnwys amcanion, canlyniadau a thargedau arfaethedig. Ymhellach, nodir rhai enghreifftiau ymarferol yn ymwneud ag adnewyddu safleoedd clwydo ystlumod pedol lleiaf.

Mae'r Strategaeth Codi Arian sy'n gysylltiedig â'r trydydd cam wedi'i llunio ar ffurf adroddiad cyfrinachol ar gyfer cyllidwyr posibl, ond ceir crynodeb o'r ddogfen yn Atodiad G. Cynhwysir gwybodaeth am fudd-ddeiliaid a sefydliadau eraill sydd wedi cyfrannu at y prosiect, neu sydd wedi mynegi diddordeb ynddo, mewn adroddiad cyfrinachol arall ar gyfer y Grŵp Llywio.

## **EXECUTIVE SUMMARY**

This report describes the work undertaken for the Landscapes for Lessers project in Phase 2 by the Bat Conservation Trust in partnership with the Countryside Council for Wales and proposals for undertaking Phase 3.

Section 4 of the report gives details the matrix of resources available and the rationale for project delivery (including the order of project roll-out) for Phase 3. The findings of extensive research into appropriate resources that should be utilised during Phase 3 of the project are described and relevant information illustrated via a series of maps in Appendix A. Resources have been divided into three categories: physical information; geographical remits of relevant organisations and bodies and other key species; and habitat and landscape initiatives throughout Wales. The latter have been identified as providing opportunities for partnership working in Phase 3 that could be of great benefit to the project. To enable the delivery of Phase 3, Wales has been split into three key 'delivery areas' which have been further sub-divided into a number of 'delivery units' based

on the matrix of resources. The rationale for the suggested order for project roll-out for Phase 3 is also provided with further details of the project specification including suggested objectives, outcomes and targets. Some practical examples of roost renovation for the lesser horseshoe bat are also provided.

The Funding Strategy associated with Phase 3 has been produced as a confidential report to potential funders, but a summary of the document is provided in Appendix G. Information on stakeholders and other organisations that have contributed to or expressed an interest in the project is provided in a separate confidential report to the Steering Group.

## 1. INTRODUCTION

### 1.1 Project description, aims and objectives

*Landscapes for Lessers* is a conservation project working at the landscape level throughout Wales. **Its overall aim is to provide a better landscape for lesser horseshoe bats to inhabit and to make the species more resilient to the predicted effects of climate change.** The project will identify areas where conservation actions are required, specify the actions and work with landowners and other stakeholders to deliver effective conservation benefits for the lesser horseshoe bat and for other Wales Biodiversity Action Plan species.

The project will do this by identifying existing and novel solutions to addressing the current threats to the lesser horseshoe bat (*Rhinolophus hipposideros*). It proposes a holistic approach to horseshoe bat conservation focussing on the maintenance, creation of, and improvements to roost sites, flight lines and foraging habitats at a landscape scale. This project uniquely links work in rural, semi-urban and urban environments, providing many opportunities for innovation and inclusion in conservation. It will utilise partnership working to promote the conservation of the lesser horseshoe bat wherever applicable and ensure that this project takes opportunities to encourage complementary conservation of other species or habitats to benefit conservation and biodiversity.

**Specific goals of the project are to**

- **assess the current resource and target actions to where they will be most effective. This will include both strengthening the network of protected sites and also identifying populations at risk of isolation**
- **increase the number of available roost sites and improve the condition of existing roost sites**

- **improve habitat quality and increase connectivity to allow colonies to grow and disperse**

## **1.2 Current status of the lesser horseshoe bat**

The current distribution of the lesser horseshoe bat ranges across the Western Palaearctic from ‘Ireland to Iran, southwards through Arabia to Ethiopia’. The species has suffered severe historic declines across Europe and the UK and is known to be an ‘*infrequent species in the northern part of its range*’. The species ‘*has gone extinct in the Netherlands, most of Belgium and western Germany*’. The population trend at the European level is considered to be decreasing (IUCN 2007). In the UK, at the beginning of the last century the species was known to be present within ‘*Yorkshire, Derbyshire and Kent*’ whereas today it is ‘*restricted to Wales, West Midlands and South West England*’ (Schofield & McAney 2008). The UK currently supports an internationally important population of this species and the English and Welsh populations now represent strongholds, with Wales supporting a ‘*significant proportion of the remaining populations*’ (Haycock 2008). The most recent population estimate for Wales is 28,000 individuals (Matthews & Halliwell 2009) which is considered to be approximately half the UK population (currently estimated as 50,000 individuals: Schofield pers.comm. 2008). The largest lesser horseshoe roost in the UK is located in Wales, at Buckland Coach House, Powys, and is known to support up to 750 individual lesser horseshoe bats.

In recent years in the UK, the National Bat Monitoring Programme (NBMP) has reported significant increases in the number of lesser horseshoe bats observed in both colony count and hibernation surveys suggesting a national increase. The latest report from the NBMP shows an increase of 3.9% per annum in Wales (NBMP Annual Report 2007, forthcoming). Increases in recent years are probably linked to weather patterns. A series of warmer winters is likely to have increased overwinter survival. However the last two summers have been cool and wet, providing sub-optimal conditions for breeding and survival. Any detrimental impacts could be exacerbated by the prolonged cold spells in the winter of 2008/2009. It is therefore doubtful as to whether such increases can be sustained in the longer-term in the face of the numerous pressures acting on this species.

In 2006, UK BAP targets were set for increasing the range and population of the lesser horseshoe bat. These were:

- Achieve an increase in the range of lesser horseshoe bats in the UK by 86 occupied 10km squares to 394 squares by 2030;
- Increase *R. hipposideros* population index by 25% from the 2005 baseline level by 2020; and
- Increase the range of the lesser horseshoe bat in Wales by 53 occupied 10km squares from 83 to 136 squares by 2030.

### **1.3 Legal protection**

The lesser horseshoe bat receives strong protection under both European and domestic legislation including the Berne and Bonn Conventions; the European Communities Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992 (92/43/EEC) (commonly known as the Habitats Directive); the Conservation of (Natural Habitats & c) Regulations 1994 (as amended) (commonly known as the Habitat Regulations); and the Wildlife and Countryside Act 1981 (as amended) (Betts 2008). Wales supports eight Special Areas of Conservation (SACs) (designated under the Habitats Directive) that have the lesser horseshoe bat as the primary or a qualifying feature for designation.

### **1.4 Current threats and pressures**

The lesser horseshoe bat is subject to continuing pressures that put the species at risk of decline. These include growing urbanisation and other land-use changes, building demolition and renovation, inappropriate lighting and changing farming and forestry practices. In response to these on-going threats, the lesser horseshoe bat has been designated as a species of principal conservation importance in the UK Biodiversity Action Plan (BAP) and is also on the section 41 and 42 lists of the Natural Environment and Rural Communities Act (NERC) 2006 for species of principal importance for the purpose of conserving biodiversity in both England and Wales respectively.

### **1.5 The *Landscapes for Lessers* Project**

The project comprises three phases plus an interim stage; this report outlines the findings of Phase 2 of the project. An overview of each phase is provided below:

#### Phase 1 – Pilot Study

Phase 1 was a pilot project looking at lesser horseshoe bats in Pembrokeshire (undertaken by Annie Haycock in 2007). The study provided a synthesis of information gathered on lesser horseshoe bats in this county. Of the eleven known maternity roosts in Pembrokeshire, five were considered likely to benefit from improvements to the actual roost site, whilst the improvements to adjacent habitats (ranging from less than 1km to 3km) were recommended for the majority of sites surveyed.

Proposed roost improvements included renovation of deteriorating roofs and measures to provide better access. Appropriate management of hedgerows that link roosts and foraging areas (and also provide shelter and feeding areas) were highlighted as the most important habitat enhancement that could be undertaken within a 3km zone around a maternity roost. The study also identified parts of mid to north Pembrokeshire that, due to woodland habitat, were likely to support further lesser horseshoe bat maternity roosts. This hypothesis was confirmed by a new record gathered from this area during Phase 1 of the project. Agri-environment schemes such as Tir Gofal were considered to be potentially the main mechanism for delivering improvements to habitats, though not applicable in all cases. It was also acknowledged that financial incentives to

roost owners may be required for roost maintenance, creation or enhancement, but no sources of funding for this were identified.

### Phase 2 – Desk Study and Project Development

Phase 2 was completed by the Bat Conservation Trust on behalf of CCW. This phase involved a planning exercise to determine how active conservation work (see Phase 1) could be rolled out throughout Wales and provided the basis for a funding bid for Phase 3 of the project. Phase 2 has worked to build up a network of stakeholders with an interest in the project. This has been achieved firstly by setting up a Steering Group which has made an invaluable contribution to the development of the project. Secondly, other organisations and individuals have been identified that may be involved in the implementation stage, whether because of a specific interest in the conservation of the lesser horseshoe bat, or because the project could deliver other benefits of relevance to their objectives. Phase 2 commenced at the end of 2007 and finished in February 2009.

### Interim Stage – Funding Bid

This phase is funded by CCW and Environment Agency Wales and commenced in 2009 to develop a bid for large scale funding for the implementation of Phase 3.

### Phase 3 – Wales-wide Implementation

Subject to funding, Phase 3 from late 2009 onwards will comprise the Wales-wide Implementation Project using a number of dedicated project staff. The results of the desk study outlining the proposed project delivery and order of project roll-out is provided in Section 3 of this report.

## **1.6 Report Structure and Context**

This report describes the work done under Phase 2 of the Project.

Further details of Phase 1 of the project can be found in the final report for the pilot study (Haycock 2008) and a summary is given as Appendix B to this report.

Section 1 of this report gives an overview of the *Landscapes for lessers* project and describes the phases of the project and provides background information on the lesser horseshoe bat.

Section 3 describes how Phase 2 was undertaken.

Section 4 provides the results of the desk study undertaken during Phase 2 of the project. A summary of the objective, targets and outcomes is given as Appendix H.

Additional information is given in other Appendices.

The Funding Strategy for Phase 3 (Appendix G) is a non-confidential summary of a confidential document presented to the Countryside Council for Wales and Environment Agency Wales.

Papers for the Project Steering Group (Minutes, Terms of Reference and Membership, including contact details) have been collated in a separate Report to the Steering Group).

## **2.0 OBJECTIVES OF PHASE 2 OF THE PROJECT**

The aims of Phase 2 are as follows:

1. To demonstrate the effectiveness of a landscape-scale approach to the conservation of the lesser horseshoe bat in Wales;
2. Identify additional benefits (e.g. other priority species or habitats and key initiatives) that the project may deliver and may attract additional partners to the project;
3. To identify partners and sources of funding;
4. Draw up detailed proposals to provide a basis for funding applications for Phase 3 of the project (i.e. enable it to be rolled out throughout Wales).

## **3.0 DELIVERY OF PHASE 2**

### **3.1 Advisors to the project**

#### **3.1.1 Project launch**

Phase 2 of the project was launched on the 22nd May 2008 at Coleg Powys, Newtown, Powys, with the following presentations: -

- Introduction to the Landscapes for lesser project by Jean Matthews, CCW and Louise Mapstone, BCT
- Roosting and foraging ecology of the lesser horseshoe bat (Henry Schofield, Vincent Wildlife Trust).
- The South West BatScapes project and lessons learnt (Dan Merrett, BCT Count Bat Project Co-ordinator and former BatScapes Officer)
- Incorporating lesser horseshoe into new build (Carol Williams, BCT Bats and the Built Environment Officer)
- Landscape-scale conservation – water voles in north Wales (Rob Strachan, Environment Agency Wales, Biodiversity Officer)
- The Pumlumon landscape scale project (Iestyn Thomas, Montgomeryshire Wildlife Trust, People and Wildlife Officer)

Further details and copies of some of the talks are available on request from CCW or BCT.

### **3.1.2 Steering Group**

The Steering Group for Phase 2 of the project was drawn up to include stakeholders in a range of sectors including: agriculture, building and development, wetland, woodland, bat groups, government ecologists and others. The Steering Group includes CCW, BCT, Environment Agency Wales, the Vincent Wildlife Trust, Association of Local Government Ecologists, National Trust, The Wildlife Trusts, Bat Groups, Farmers' Union of Wales, Royal Institute of British Architects (RIBA), Forestry Commission Wales, Farming and Wildlife Advisory Group, Welsh Assembly Government (WAG) and Tir Gofal.

Each member of the Steering Group was asked to sign up to Terms of Reference drawn up between CCW and BCT and agreed at the start of the first Steering Group meeting.

The second Steering Group meeting was held on 11th December 2008 at the Welsh Show Ground in Builth Wells, Powys. A presentation was given on the findings of the desk study for Phase 3 of the project, rationale used to determine delivery areas and an outline of the draft proposed project specification. Following the presentation, there was a discussion on the proposed aims, targets and outcomes of Phase 3 of the project and a presentation on suggested costs and funding options for the project which was followed by a further useful discussion. Following the meeting, Henry Schofield of the Vincent Wildlife Trust (VWT) led field excursions to two well known lesser horseshoe roosts on VWT reserves in the local area.

### **3.1.3 Other species and landscape project contacts**

As part of the work within Phase 2 of the project a number of other organisations have been contacted that may be interested in partnership work within the delivery Phase 3 of the project. Potential project partners have been identified through Steering Group recommendations, a web-based search and from networking with appropriate organisations at conferences.

To date the following key organisations or contacts have expressed an interest in potential tie-in work within the project:

- The Dormouse Project Officer for the North Wales Wildlife Trust;
- Conservation Manager of Gwent Wildlife Trust contact for the Usk to Wye Vision project;
- Head of Conservation Wales for Butterfly Conservation regarding the Pencoed and Ely Valley Landscape Project;
- Head of Species Delivery for the RSPB in Wales;
- CCW regarding work on Habitat Networks in Wales;
- People and Wildlife Officer for Montgomeryshire Wildlife Trust for the Pumlumon Project; and
- Forgotten Landscapes Officer at Torfaen County Borough Council regarding the Forgotten Landscapes Project.

Further details of these personnel and other projects are provided in Section 4.

### **3.2 RAISING THE PROFILE OF THE LANDSCAPES FOR LESSERS PROJECT**

The Landscapes for Lessers project has been promoted through a number of channels.

#### **3.2.1 Website development and stakeholder sign-up form**

A dedicated webpage on the BCT website has been designed to highlight the need for the project, its aims and objectives and current threats to the lesser horseshoe bat. An on-line stakeholder sign-up form has also been produced for interested visitors to complete. The website can be accessed via [www.bats.org.uk/141](http://www.bats.org.uk/141)

#### **3.2.2 Press release**

A press release on the project was circulated to relevant Welsh media contacts on the day of the project launch on the 22nd May 2008. A copy of the press release was placed within all delegate packs during the launch and can also be accessed via [http://www.bats.org.uk/news.php/20/new\\_welsh\\_project\\_to\\_help\\_lesser\\_horseshoe\\_bat](http://www.bats.org.uk/news.php/20/new_welsh_project_to_help_lesser_horseshoe_bat)

#### **3.3.3 Advertising the project to the appropriate audience**

The project has been promoted at a number of key bat and other biodiversity events, meetings and conferences, including:

- Welsh Bat Workers Day 5<sup>th</sup> April 2008;
- Welsh Bat Conference 20<sup>th</sup> -22<sup>nd</sup> June 2008;
- Bat Group Forum in Leeds on 17<sup>th</sup> May 2008;
- A presentation stand was created and manned at the following conference events:
  - the UK Biodiversity Action Planning (BAP) Conference at the University of Aberystwyth 10th to 11th September 2008;
  - BCT annual conference at the University of Reading on 12th to 14th September 2008;
- A training day run by Dialogue Matters on the ‘Ecosystem Approach’ on the 8th July 2008, where the project was used as an example of how a landscape approach could deliver for more than one species (see [http://www.dialoguematters.co.uk/ecosystems\\_approach\\_workshop.htm](http://www.dialoguematters.co.uk/ecosystems_approach_workshop.htm)); and
- to other species and habitats contacts whilst promoting potential partnership work within Phase 3 of this project.

## **4 DESK STUDY ON THE DELIVERY OF PHASE 3**

### **4.1 Introduction**

The desk study outlines the resources and rationale used to determine how to repeat the pilot study undertaken in Pembrokeshire (Phase 1) of the *Landscapes for Lessers* project throughout the range of the lesser horseshoe bat in Wales.

The findings of extensive research into appropriate resources that should be utilised during Phase 3 of the project are described in detail and relevant information illustrated via a series of maps in Appendix A.

Resources have been divided into three categories: physical information; geographical remnants of relevant organisations and bodies and other key species; and habitat and landscape initiatives throughout Wales. The latter have been identified as providing opportunities for partnership working in Phase 3 that could be of great benefit to the project. To enable the delivery of Phase 3, Wales has been split into three key ‘delivery areas’ which have been further sub-divided into a number of ‘delivery units’ based on the matrix of resources. The rationale for the suggested order for project roll-out for Phase 3 is also provided with further details of the project specification including suggested objectives, outcomes and targets. Some practical examples of roost renovation for the lesser horseshoe bat are also provided.

### **4.2 Aims of the desk study**

- To describe the resources that influence the number and location of unit divisions in Wales required to implement Phase 3;
- Demonstrate the rationale for the proposed unit divisions in Wales and order of project roll-out in Phase 3;
- Propose objectives, outcomes and targets for project staff during Phase 3 of the project (and identify other resources to be obtained in Phase 3);
- Provide details of costed case-studies of lesser horseshoe bat roost restoration; and
- Outline in more detail a worked example of how Phase 3 could deliver benefits at the site level.

### **4.3 Methods**

Three main methods were used to collate appropriate resources for the desk study. These were:

- Discussions with members of the steering group (during the steering group meetings and subsequent correspondence);
- Web-based searches; and
- Contacts made whilst identifying potential partners to the project (via telephone exchanges and at relevant conferences).

## **4.4 Results**

For ease of reference the description of the resources used are split into three groups:

- 1) Physical Information (e.g. habitat information, topography, bat distribution etc.);**
- 2) Geographical remits of relevant organisations and bodies (e.g. bat groups and administrative boundaries for LBAPs); and**
- 3) Other relevant species and habitat initiatives including other landscape scale projects.**

Since the majority of resources chosen to help identify unit divisions are geographical, they are most effectively illustrated via a series of maps. These are provided in Appendix A.

Details and rationale for the resources used to determine project delivery in Phase 3 are provided in sections 6.1.1 to 6.1.3 below. The maps within Appendix A should be referred to when reading the descriptions of the resources.

### **4.4.1 Physical information - Habitat, Bat Distribution and Topographical Data**

#### 4.4.1.1 Ecological Connectivity Work by CCW

The work of Dr Jim Latham (Woodland Ecologist for CCW) on Habitat Networks has been used to help determine the delivery units for Phase 3. In this work, CCW has drawn up a number of maps of networks for a range of habitats across Wales. The aim of the networks is to *‘provide a guide to general ecological connectivity... to help plan and implement biodiversity action’*. The CCW Habitat Networks are *‘made up of a group of sites, or patches of habitat, that are functionally connected.’* i.e. mobile species can move between patches of habitat using the *‘intervening habitats’*. For example, two patches of woodland could be considered to be within a network if they are joined by a band of scrub or field of unimproved grassland, as many woodland species, including bats *‘will be able to move across these habitats and make use of both woodland patches’*. CCW have produced a range of network maps from computer models that have used assumptions on the *‘amount of habitat that a typical species needs, and ability of a species to move through different habitat types’*. The habitat networks are not based on any particular species but *‘use values selected to represent a broad range of biodiversity’* (Latham 2008).

Network maps are currently available for the following habitats:

- Broadleaved woodland;
- Ancient woodland;
- Unimproved grassland (all types combined);
- Calcareous grassland;
- Marshy grassland;
- Heathland;
- Fens; and
- Bogs.

Due to the importance of connected landscape features and broadleaved woodland to the lesser horseshoe bat, two specific ‘Habitat Network’ maps were used to help determine delivery for units and areas for phase 3 of this project:

1) Overall Ecological Connectivity in Wales (Figure 1, Appendix A): is based on networks for broad-leaved woodland, unimproved grassland, heathland, bog and fen. Networks for all habitats are in green, getting ‘*progressively dark green depending on the number of networks involved*’.

2) Broad Leaved Woodland Habitat Networks (Figure 2, Appendix A): illustrates woodland and areas of other habitats around them ‘*that species may move between woodland patches*’. The ‘*dark green areas are core networks for species demanding a large minimum habitat area with low dispersal ability*’ and light green areas are ‘*for species with low minimum habitat area and moderate dispersal ability*’. It is considered that like many species the lesser horseshoe bat will lie somewhere between these two extremes.

Further work using these habitat networks at the local level is currently on-going in south east Wales (see section 4. 4.3 for details).

#### 4.4.1.2 Current Known Lesser Horseshoe Bat Distribution in Wales

Figure 3 in Appendix A provides an illustration of the current distribution of the lesser horseshoe bat in Wales according to available data sets. The distribution map highlights known records at a 5km resolution. The map combines data on maternity roost records from the National Bat Monitoring Programme (NBMP) and ‘CCW important roosts’ that includes all known hibernation roosts. The map has been provided at a 5km square resolution by the Bat Conservation Trust (BCT), to avoid duplication of records whilst still providing the current known distribution of the species at the national scale. This map is not comprehensive and it is likely that other records exist that have not yet been collated. Further collation of records to allow the creation of a more accurate distribution map of the species in Wales is a target of Phase 3 of the project (see target 7 in Section 4.6.2).

#### 4.4.1.3 Location of Vincent Wildlife Trust Reserves

The Vincent Wildlife Trust (VWT) has kindly provided locations of all their Welsh reserves. These are illustrated on Figure 4 in Appendix A. All of the VWT reserves contain lesser horseshoe bat maternity roosts and the VWT is a key member of the steering group for the project.

#### 4.4.1.4 Statutory Sites

##### Sites of Special Scientific Interest (SSSI) and other nursery roosts

Figure 5 in Appendix A illustrates all one hundred and eighty-eight currently known bat nursery roost sites within Wales (based on data available to CCW). Thirty-four of these maternity roosts are designated as Sites of Special Scientific Interest (SSSI) and Special Areas of Conservation (SAC), four are solely SSSIs with five sites proposed as SSSIs and two being candidate SSSIs. One hundred and forty-three sites are known maternity roosts but not designated. The records appear clustered. For example there is a key aggregation within central Gwynedd with other clusters along the north Wales coast, in south Pembrokeshire, Swansea, the Vale of Glamorgan, Monmouthshire, east Brecon Beacons and south Powys. There are limited records of nursery roosts within Ceredigion, Carmarthenshire and mid Powys.

#### Special Areas of Conservation (SACs) for lesser horseshoe bats in Wales

Eight SACs support the lesser horseshoe bat in Wales (Joint Nature Conservancy Council (JNCC) website, May 2008). European EU Life + funding puts particular emphasis on SACs. The lesser horseshoe bat is the primary feature for European designation within the following sites:

- Meirionnydd Oakwoods and Bat Sites;
- Glynllifon;
- Tanat and Vyrnwy Bat Sites / Safleoedd Ystlumod Tanat ac Efyrrwy;
- Usk Bat Sites / Saefloedd Ystlumod Wysg; and
- Wye Valley and Forest of Dean Bat Sites / Safleoedd Dyffryn Gwy a Fforest y Ddena.

The lesser horseshoe bat is present as a qualifying feature, but not a primary reason for site selection at the following sites:

- Gwydyr Forest Mines / Mwyngloddiau Fforest Gwydir;
- Pembrokeshire Bat Sites and Bosherton Lakes / Safleoedd Ystlum Sir Benfro a Llynnoedd Bosherton; and
- Wye Valley Woodlands / Coetiroedd Dyffryn Gwy.

The location of these sites is provided in Figure 6 in Appendix A. Table 1 below provides a list of the SACs with each associated Unitary Authority.

Name of SAC	Unitary Authority
Meirionnydd Oakwoods and Bat Sites	Gwynedd
Glynllifon	Gwynedd
Tanat and Vyrnwy Bat Sites / Safleoedd Ystlumod Tanat ac Efyrrwy	Denbighshire; Powys
Usk Bat Sites / Saefloedd Ystlumod Wysg	Monmouthshire

Wye Valley and Forest of Dean Bat Sites / Safleoedd Dyffryn Gwy a Fforest y Ddena	Monmouthshire & Gloucestershire
Gwydyr Forest Mines / Mwyngloddiau Fforest Gwydir	Conwy
Pembrokeshire Bat Sites and Bosherton Lakes / Safleoedd Ystlum Sir Benfro a Llynnoedd Bosherton	Pembrokeshire
Wye Valley Woodlands / Coetiroedd Dyffryn Gwy	Monmouthshire, Gloucestershire & Herefordshire

**Table 1. List of SACs containing lesser horseshoe bats in Wales.**

CCW are planning to review the current SSSIs series in North Wales shortly which should highlight any gaps in the SSSI series that could be designated as SSSIs. This work may also inform proposed SAC designations.

Further work is required to extend existing SACs and create new ones. For example, the Pembrokeshire SACs only designate the roosts and it would be advantageous to extend protection to surrounding habitat. There is also room for extending the Wye and Usk SACs in the South East of Wales (Matthews pers. comm. 2009). This work could possibly be funded through EU Life + funding.

#### 4.4.1.5 Physical Map

Figure 7 in Appendix A provides a physical map of the whole of Wales. Used in conjunction with the CCW Habitat Network maps (Figures 1 and 2) and the bat distribution maps (Figures 3 and 5) this resource helps determine areas where the species may be present and where effort may be targeted in Phase 3 to encourage range expansion.

#### 4.4.1.6 River Catchment Maps in Wales

Broad-leaved woodland is the key foraging habitat for the lesser horseshoe bat. The species also forages ‘along hedgerows, tree-lines and well-wooded riverbanks’ (Schofield 2008). The project officers should consider the location of river networks and associated habitats when targeting conservation efforts in their delivery areas. The CCW GIS department have provided GIS data on all the rivers in Wales which is illustrated in Figure 8 in Appendix A.

Further information is also available from the Environment Agency Wales representative of the **Landscapes for Lessers** Phase 2 steering group. The Environment Agency Wales is an important potential source of funding for this project.

#### 4.4.1.7 Threats from Proposed Development

The potential impact of proposed development on the lesser horseshoe bat has been discussed with the steering group and all three regional contacts within CCW. The two principal threats to the species are considered to be:

1. the redevelopment of redundant farm and other outbuildings; and
2. fragmentation of important foraging and commuting areas for bats via linear developments such as road schemes.

The redevelopment of redundant farm buildings appears to be an incremental threat to the species in Wales. It is however hard to quantify the extent of this threat at a national level. For this reason, whilst it is important that Phase 3 considers this threat within each of the delivery units (see section 4.0 for the project specification), this has not been a key resource for determining broad delivery areas or units at the national level within this desk-study.

A brief review of the current Unitary Development Plans (UDP) as per the position in July 2008 (<http://wales.gov.uk/desh/publications/planning/developmentplans/plancoveragemap/udpcoverage08e.pdf>) was undertaken in February 2009. A total of 10 UDPs were examined to see how well bats were represented in the plans. None of the UDPs reviewed made a specific reference to lesser horseshoe bats but four mentioned bats in the UDP (with two of these relating only to specific sites). In two instances bats were mentioned in the associated Supplementary Planning Guidance. It is of note that Neath Port Talbot and Bridgend UDPs mentioned bats with reference to habitat requirements and barn conversions. Many plans referenced the need for the consideration for protected species (without mentioning specific species or species groups). Further details of the review can be found in Appendix C. UDPs and Local Development Plans (LDP)s are constantly reviewed and re-drafted. These will form an important resource for the project officers within each delivery area in Phase 3 (see section 4.5).

Transport Wales have provided information on the recently re-prioritised proposed key trunk road developments throughout Wales over the next five years. This is provided in Figure 9 in Appendix A and is split into four categories:

- Phase 1: High ranking schemes programmed to commence from 2008 to April 2011;
- Phase 2: High ranking schemes programmed to commence between April 2011 and April 2014;
- Phase 3: High ranking schemes that require further investigation before work can commence and are unlikely to commence before April 2014; and
- Schemes currently on hold.

The locations of the proposed schemes in Phases 1 and 2 of Transport Wales' re-prioritisation exercise have been used to help shape the delivery areas, delivery units and order of project roll-out for Phase 3.

Billington and Rawlinson (2006) highlighted the fact for both the lesser horseshoe bat and the greater horseshoe bat (*Rhinolophus ferrumequinum*) the installation of artificial lighting within foraging areas or along flight-lines can be damaging to these species. A study into the impact of artificial lighting on foraging and commuting behaviour of lesser horseshoe bats is currently ongoing at the University of Bristol. This project currently has two sites in Wales. It is hoped that Phase 3 of the project can provide support for this and other academic studies (see Objective 6 in section 4.6.2).

Other possible threats highlighted include the proposed development of wind farms, pipelines and riparian management practices within key sites for this species in Wales (e.g. SACs and SSSIs). These threats have not been used to determine delivery areas for Phase 2, but should be considered by the project officers in Phase 3 of the project.

#### **4.4.2 Geographical remit of relevant organisations and bodies**

##### 4.4.2.1 Local Biodiversity Action Plans

A search on the Biodiversity Action Plan Reporting website (BARS) (<http://www.ukbap-reporting.org.uk>) and UK BAP website (<http://www.ukbap.org.uk>) was undertaken in May and August 2008 (and updated in January 2009). The searches determined the geographical boundaries for all the Local Biodiversity Action Plan (LBAP) partnerships within Wales and an analysis was conducted of the types of plans within these LBAPs. The results of this analysis are provided in Table 6 in Appendix D. It is of note that there is currently some inconsistency between the information provided on these two websites. The geographical remit of each LBAP is provided in Figure 10 in Appendix A. A summary of the analysis is as follows:

- There are a total of twenty-four LBAPs in Wales;
- Ten LBAPs have a general BAP for bats;
- Sixteen LBAPs have a specific BAP for the lesser horseshoe bat;
- Seventeen LBAPs have a specific BAP for species other than the lesser horseshoe bat; and
- At the time of writing, the only LBAP with no BAP relating to bats is Ceredigion.

A further search on BARS revealed that the following LBAPs have identified threats specific to the lesser horseshoe bat: Swansea, Rhondda Cynon Taff, Wrexham, Neath Port Talbot and Monmouthshire.

##### 4.4.2.2 Remit of local Biological Records Centres in Wales

There are four Local Records Centres (LRCs) in Wales:

- Cofnod based in Bangor covers North Wales: Snowdonia, Gwynedd, Anglesey, Conway, Wrexham, Flintshire and Denbighshire;
- Biodiversity Information Service for Powys and Brecon Beacons National Park based in Brecon covers mid Wales: Brecon Beacons National Park and Powys;
- West Wales Biodiversity Information Centre, based in Carmarthenshire and covers West Wales: Pembrokeshire, Ceredigion and Carmarthenshire; and
- SEWBRc based in Cardiff covers South Wales: Swansea, Neath-Port Talbot, Cardiff, the Valleys and Monmouthshire.

It is proposed that the Local Record Centres (LRCs) will be an integral part of this project in Phase 3. The head of Cofnod has already been approached and is keen to participate in the project in Phase 3. It will be important to ensure that there is good communication and information exchange between the project officers and the LRCs.

#### 4.4.2.3 Remits of the Wildlife and Advisory Group (FWAG) delivery regions

A FWAG representative and a Tir Gofal Officer sit on the steering group. Liaison between all the Landscapes for Lessers project officers with Tir Gofal and FWAG officers will be an important part of conservation delivery on the ground in Phase 3.

#### 4.4.2.4 Lesser Horseshoe bat delivery areas for Tir Gofal

Tir Gofal (TG) is a Welsh agri-environment scheme that is run by the Welsh Assembly Government (WAG). The scheme provides funding to farmers to improve the ecological, environmental, historical and cultural features of the land they farm and own. This is a voluntary scheme and farmers enter a ten year agreement with WAG with a break clause after five years. The scheme applies to the whole farm. Entering into these agreements allows a payment to be made to the farmer to undertake certain works associated with agreed prescriptions some of which are mandatory, others are voluntary.

Species packages for twenty-seven key Biodiversity Action Plan species (including the lesser horseshoe bat) have been recently created for use by Tir Gofal project officers when negotiating new Tir Gofal Agreements between farmers and the Welsh Assembly Government (WAG) and these form a new refinement to the agreements.

Maps highlighting the areas that the lesser horseshoe bat and dormouse “species packages” cover are provided in Figure 13 in Appendix A. The guidance note for the lesser horseshoe bat is provided in Appendix E of this report and outlines management suggestions that should be incorporated into Tir Gofal Agreements in farms within the target areas (but see <sup>1</sup> below).

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<sup>1</sup> Tir Gofal is being phased out from 2009 and a new agri-environment scheme is being developed in Wales.

Information on Tir Gofal Packages for other relevant species is provided in section 4.4.3.8 below.

#### 4.4.2.5 Bat Groups in Wales

At the time of writing there are a total of sixteen bat groups in Wales. The geographical remits of each group are provided in Figure 14 in Appendix A. Six bat groups currently have websites (see Table 2). The project officers in Phase 3 will need to work closely with local bat groups to achieve a number of the objectives outlined in section 4.6.2.

Bat Group	Website
Cardiff	<a href="http://www.sewbrec.org.uk/cardiff-bat-group_page">http://www.sewbrec.org.uk/cardiff-bat-group_page</a>
Gwent	<a href="http://www.gwentbatgroup.co.uk/">http://www.gwentbatgroup.co.uk/</a>
Gwynedd	<a href="http://gwyneddbats.org.uk/">http://gwyneddbats.org.uk/</a>
North Ceredigion	<a href="http://users.aber.ac.uk/aes/">http://users.aber.ac.uk/aes/</a>
Pembrokeshire	<a href="http://www.pembsbats.org.uk/">http://www.pembsbats.org.uk/</a>
Valleys	<a href="http://www.valleysbatgroup.org.uk/">http://www.valleysbatgroup.org.uk/</a>

**Table 2: Current websites for Welsh Bat Groups.**

#### 4.4.2.6 Forestry Commission Wales Woodland Officers

The Forestry Commission have provided details outlining the geographical remit of the Woodland Officer Areas in Wales. It will be important for each Landscapes for Lessers project officer to work collaboratively with the relevant woodland officers for their region during Phase 3 of the project.

#### 4.4.2.7 National Trust Properties

Figure 16 in Appendix A provides the location of all National Trust properties and land-holdings within Wales. The following sites have been highlighted as being known significant roosts for the lesser horseshoe bat on National Trust land in Wales:

- Key SSSI and SAC sites in Meirionydd Oakwoods SAC in Gwynedd (including Hafodgaregog, Hafodyllan and Cefncoch Gold Mine at Dolmelganllwn, the latter being a hibernation site);
- Chirk Castle in Wrexham;
- Bodnant Gardens in Conway;
- Stackpole SSSI/SAC nursery roost, Colby Lodge in Pembrokeshire; and

- A number of sites in The Gower many of which are hibernation sites.

Further information on other National Trust sites in Wales known to support lesser horseshoe bats is available from the National Trust and should be investigated further as part of Phase 3 of the project. The National Trust are keen to engage with the project and their properties provide good opportunities for roost renovation during Phase 3 (see the project specification in section 4.6).

#### 4.4.2.8 RSPB reserves

Following discussions with the head of species delivery at RSPB in Wales it is understood that two RSPB reserves in Wales are known to support lesser horseshoe bat colonies: Mawddach in Gwynedd and Lake Vyrnwy Reserves in Montgomeryshire.

#### **4.4.3 Other relevant species and habitat initiatives including other landscapes scale projects**

The following projects and associated contacts have been identified as expressing an interest in potential tie-in work with the project in Phase 3. Contact details for key personnel have been provided to the Project Steering Group.

##### 4.4.3.1 Greater Horseshoe Bat Connectivity Project

This is an internal CCW project and is running from April 2008 to February 2010. The project aims to test the predictions of the habitat use by 'focal species' within CCW's Habitat Networks using the greater horseshoe bat as an example. The project should also contribute to the greater horseshoe bat BAP targets and other bat BAP species that utilise the same habitat (in a similar way to this project). Key locations for this project are yet to be determined.

##### 4.4.3.2 Usk to Wye Project

This project is run by the Conservation Officer for the Gwent Wildlife Trust and is currently in the very early planning stages. The key aim of the project is to '*ensure the enhancement and creation of networks of semi-natural habitat in the face of rapid climate change*'. The project will build on the successes of the Gwent Grassland Initiative which has drawn together a network of enthusiastic landowners in the area keen to undertake conservation enhancements. The project will also work with the Woodland Trust who have recently purchased Wentwood Forest. The study area supports a number of known lesser horseshoe bat roosts (including sites owned and managed by the Vincent Wildlife Trust). The lesser horseshoe bat (along with dormouse and the Welsh daffodil) is one of the focal species for the project. Applications for funding are currently underway and, if successful, it is hoped that a project officer could commence work on this project in Spring 2009.

#### 4.4.3.3 The Forgotten Landscapes Project

The Forgotten Landscapes Project (key contact: Forgotten Landscapes Project Planning Officer at Torfaen CBC) aims to help *'conserve and restore the built features and create the historic character of the landscape and natural landscape features around Blaenavon'* in Torfaen. The project area involves a 40 square kilometre area around Blaenavon which includes a SAC and 5 SSSIs. One of the key themes of the project is to *'conserve and enhance the built and natural features of the landscape area'* which includes conserving important built structures that could be used as lesser horseshoe roosts and *'link or expand existing habitat areas'* to increase ecological connectivity. Caves are also included within the project as important natural features. In October 2008, the project was awarded Heritage Lottery Funding. Work on this project will commence in October 2009 and finish in 2013. This will be a key project for the project officer in South Wales to link into, as it will involve the restoration of buildings and ancient monuments.

#### 4.4.3.4 The Bontuchel Dormouse Project

The following summary of the project has been provided by the dormouse project officer ahead of the L4L second steering group meeting in December 2008 *'The dormouse project has been running in North Wales since 2007. The main aims of the project are to identify new dormouse sites (by making and erecting boxes), monitor existing sites, and identify areas in which connectivity can be improved between sites and to raise awareness about dormice in North Wales. Since the start of the project over 10 new sites have been discovered, many of these are extensions from the sites where we already knew dormice were present, but a number of these sites are in completely new areas. The aim for next year is to continue to identify new sites but also to start undertaking habitat management within woodlands and also hedgerows to improve the links present between dormouse woodlands.'*

The project lies in Conwy and Denbighshire and joint working opportunities have the potential to deliver for both the lesser horseshoe bat and dormouse (both BAP species). Further information on this project can be located via <http://www.wildlifetrust.org.uk/northwales/dormouse.html>

#### 4.4.3.5 Pencoed and Ely Valley Landscape Project

This is a project run by Butterfly Conservation in Wales (contact: Head of Conservation Wales for Butterfly Conservation Wales). The project aims to improve key landscapes for the Marsh Fritillary butterfly in South Wales. Funding has been obtained for this project to commence in April 2010 to either 2013 or 2015. This species is one requiring grassland habitats such as unimproved neutral grassland, marshy grassland and maritime cliff and slope. This project offers some joint working opportunities within the unitary authorities of Rhondda and Bridgend.

#### 4.4.3.6 Pondscapes

A key contact organisation for this project is North East Wales (NEW) Wildlife. The project aims to increase the connectivity for great crested newts through pond creation and restoration, throughout the project area in Wrexham and Flintshire. Whilst ponds can be a useful foraging resource for many bat species they are not considered a key habitat type for the lesser horseshoe bat. However partnership working with this project would be beneficial as it links with the LBAPs and is looking at how to link spatial planning with the conservation status of the great crested newt.

#### 4.4.3.7 The Pumlumon Landscape Project

This project is run by the Montgomeryshire Wildlife Trust (contact: People and Wildlife Officer for Montgomeryshire Wildlife Trust). The project has a wide ranging remit with an overall vision to ‘*enhance the natural capital of the project area to allow the production of key ecosystem services that will provide the local community with a sustainable economic future*’. The project comprises a total of 40 000 ha within Montgomeryshire and aims to use a holistic Ecosystem Services approach to delivery. The project aims to support and provide funding for ‘habitat and species management’ within the project area that could be useful in Phase 3 of the project as this may include habitat enhancement or creation suitable for the lesser horseshoe bat. Montgomeryshire Wildlife Trust has expressed an interest in joint working with the Landscapes for Lessers project and will be an important contact for the project officer delivering Phase 3 of the project in Montgomeryshire.

#### 4.4.3.8 Tir Gofal Species Packages for species other than the lesser horseshoe bat

In addition to the lesser horseshoe bat, a number of the proposed conservation measures for the other twenty-six key species with Tir Gofal species packages could also deliver benefits for the lesser horseshoe bat. A list of those species considered to have some similarities in habitat requirements are provided below and maps delineating the areas covered by the ‘species packages’ are provided in Figures 17 to 21 in Appendix A. The following species packages are considered to have some loose habitat similarities with relevance to the lesser horseshoe bat:

- greater horseshoe bat (Figure 17);
- dormouse (*Muscardinus avellanarius*) (Figure 18);
- tree sparrow (*Passer montanus*) (Figure 19);
- welsh clearwing moth (*Synanthedon scoliaeformis*) (Figure 20); and
- brown hairstreak butterfly (*Thecla betulae*) (Figure 21).

Some of the other species that could be of relevance and that are referred to on section 42 of the Natural Environment and Rural Communities Act (NERC) 2006 are listed below:

- pied flycatcher (*Ficedula hypoleuca*)

- lesser spotted woodpecker (*Dendrocopus minor*); and
- pine marten (*Martes martes*).

#### 4.4.3.9 CCW work on Habitat Networks in South East Wales

CCW has been running a project that has been contracted to Baker Shepherd Gillespie (ecological consultants) and Exegesis (GIS consultants) to identify broad connectivity of a key group of habitats within the south east of Wales. The project is using information provided by CCW's national habitat networks and additional new data from specific local areas. No species data has been used in this assessment. The findings will be published by CCW in spring / summer of 2009 and it is recommended that the project officer for South and Mid Wales refers to this as a resource when looking to implement conservation measures in this part of Wales in Phase 3 of the project.

#### **4.4.4. Other resources**

It is suggested that additional resources are collated throughout Phase 3 of the project to help target conservation effort in Phase 3. These include:

- A digital terrain map;
- Map of geological layers to help locate potential underground hibernation sites;
- Wildlife sites and Wildlife Trust Reserves;
- Forestry Commission Estates map for each Delivery Area for Phase 3; and
- Unitary Development Plans (UDPs) and Local Development Plan (LDPs).

Further proposed details of the creation of a Geographic Information Systems (GIS) resource as part of Phase 3 of the project are provided in Section 7.0 of this report. CCW's GIS department has provided GIS data for Wales that should be utilised further in Phase 3. Some of this information is illustrated in Figures 6 and 8 in Appendix A. Relevant layers available include: all roads, protected sites (including SSSIs, SACs and National Parks), lakes, rivers, woodland, urban areas, settlements, towns, railways, administrative boundaries and districts. Phase 1 habitat maps are also available.

#### **4.4.5 Other Organisations**

Other organisations with a remit or responsibilities that overlap with Phase 3 (in addition to those on the steering group of Phase 2 of the project) should be encouraged to participate in the project to meet mutual objectives. Examples are provided below.

- The Crown Estate: manager of underground sites (some designated as SSSI/SAC) used by hibernating lesser horseshoe bats;
- Woodland Trust/Coed Cadw: owner/manager of sites used by hibernating lesser horseshoe bats, including SSSI/SAC;

- Coed Cymru: Officers are based within County Councils and provide advice on native woodland management and initiatives on sustainable use;
- Dwr Cymru / Welsh Water;
- Ministry of Defence (MoD): landowner/manager of lesser horseshoe bat roosts;
- University of Wales: MSc projects on lesser horseshoe bats have been undertaken by students at Bangor and Swansea;
- Field Studies Council: educational opportunities, also land owner of roost at Orielton;
- “Visit Wales”: promotion of green tourism generally and through exemplar sites, e.g. Penmaenucha’ Hall Hotel, Gwynedd;
- CADW and RIBA (a member of RIBA is on the Steering Group);
- the Coal Authority; and
- All potential funders of Phase 3.

#### **4.5 Recommendations for Project Delivery**

The resources outlined in section 4.4 have been used to determine the unit divisions for project delivery within Phase 3. It is envisaged that Phase 3 will comprise three overall ‘delivery areas’ (DAs). These will comprise the following geographic regions:

- North Wales;
- West Wales; and
- South and Mid Wales.

Each DA will be the responsibility of a single project officer. Suggested objectives, outcomes and targets are provided in section 4.6.2 of this report. Some of the objectives will be shared between the project officer team, in line with each individual’s skills and competencies. Each DA is broken down further into smaller ‘delivery units’ (DUs) for ease of delivery.

The matrix of resources for each delivery area and unit is provided in Table 3.

Table 4 describes the geographical remit (i.e. the authorities to be included) for each of the proposed delivery units within each of the three delivery areas, with rationale for the proposed order for project roll-out for these DUs within each DA.

A map providing the remit of the DAs and DUs is provided in Figure 22 Appendix F.

**Table 3: Matrix of Resources available for each Delivery Area (DA) and Delivery Unit (DU).**

Delivery Unit	Resources Available and Rationale for Delivery Unit
<b>DELIVERY AREA: NORTH WALES</b>	
<b>Delivery Unit 1</b> Gwynedd, Snowdonia & Anglesey	<p><b>LHB Distribution &amp; sites</b></p> <ul style="list-style-type: none"> <li>• 2 SACs (Glynllifon, Meirionydd Oakwoods) &amp; very strong lesser horseshoe bat (LHB) distribution.</li> <li>• 2 VWT reserves.</li> <li>• Nearby Mawddach woodlands – RSPB reserve with 4 woodlands with the lesser horseshoe bat (LHB) roosts.</li> </ul> <p><b>Habitat Networks : Connectivity &amp; Woodland</b></p> <ul style="list-style-type: none"> <li>• Overall Connectivity: is very strong throughout this unit.</li> <li>• Woodland Network: seems strong throughout most of this unit.</li> <li>• Physical Terrain: areas with poor woodland connectivity correlated with upland areas.</li> </ul> <p><b>Tir Gofal for the LHB</b></p> <ul style="list-style-type: none"> <li>• Large part of this delivery area is in a Tir Gofal (TG) delivery area for the LHB.</li> </ul> <p><b>Bat Group</b></p> <ul style="list-style-type: none"> <li>• Gwynedd Bat Group: 2 Steering Group members are active members of this bat group.</li> </ul> <p><b>LRC</b></p> <ul style="list-style-type: none"> <li>• Cofnod LRC: is well established and the office falls within this area.</li> </ul> <p><b>LBAP</b></p> <ul style="list-style-type: none"> <li>• Gwynedd LBAP has a particularly strong section on LHB in the LBAP with 21 actions for LHB.</li> </ul> <p><b>Proposed Trunk Roads</b></p> <ul style="list-style-type: none"> <li>• 4 proposed road schemes in Transport Wales’ (TW) Phase 1 (2008-2011) and 2 road schemes in TW Phase 2 (2011-2014).</li> </ul> <p><b>FC &amp; FWAG Remits</b></p> <ul style="list-style-type: none"> <li>• Lies within the North Wales FWAG region contact: Glenda Thomas.</li> <li>• Lies within the remit of the following Forestry Commission Woodland Officers: Stuart Gray and Andy Best.</li> </ul> <p><b>Tir Gofal for other species</b></p> <ul style="list-style-type: none"> <li>• Unit lies within dormouse, Welsh clearwing moth and tree sparrow species package areas.</li> </ul> <p><b>National Trust</b></p> <ul style="list-style-type: none"> <li>• Owner land / manager of key SSSI and SAC sites in Meirionydd Oakwoods SAC. Including Hafod Garegog and Hafod-y-llan. Cefn Coch Gold Mine at Dolmelynlyn is also an important hibernation site.</li> </ul> <p><b>Other Projects</b></p> <ul style="list-style-type: none"> <li>• A PhD at Bristol University on the effects of lighting on the LHB has a study site in Montgomery.</li> </ul>
<b>Delivery Unit 2</b> Conwy & Denbighshire	<p><b>LHB Distribution &amp; Habitat Networks</b></p> <ul style="list-style-type: none"> <li>• Unit has a strong distribution of LHB in the east, west and northern sections that correlate (including 2 SACs: the Tanat &amp; Vyrnwy Bat Sites and Gwydr Forest Mines) with woodland networks and physical features.</li> </ul> <p><b>Tir Gofal for LHB</b></p> <ul style="list-style-type: none"> <li>• Tir Gofal, a good section of this delivery unit is covered by TG LHB species</li> </ul>

	<p>package.</p> <p><b>Bat Group</b></p> <ul style="list-style-type: none"> <li>• Clwyd Bat Group: group has done a lot of historical work on the lesser horseshoe bat monitoring and should provide valuable information for the project.</li> </ul> <p><b>Proposed Trunk Roads</b></p> <ul style="list-style-type: none"> <li>• 4 proposed road schemes in TW Phase 1 (2008-2011) and 2 road schemes in TW Phase 2 (2011-2014).</li> </ul> <p><b>FC &amp; FWAG Remits</b></p> <ul style="list-style-type: none"> <li>• Lies within the North Wales FWAG region, contact: Glenda Thomas.</li> <li>• Lies within the remit of the Forestry Commission Woodland Officer: Andy Best.</li> </ul> <p><b>Other projects</b></p> <ul style="list-style-type: none"> <li>○ North Wales Bontuchel Dormouse Project – has shown an interest in partnership working and fits well with the objectives of the Landscapes for Lessers (L4L) project.</li> </ul> <p><b>Tir Gofal for other species</b></p> <ul style="list-style-type: none"> <li>• Unit lies within dormouse and trees sparrow delivery areas.</li> </ul> <p><b>National Trust</b></p> <ul style="list-style-type: none"> <li>• Owner / land manager - lesser horseshoe nursery roost at Bodnant Gardens.</li> </ul>
<p><b>Delivery Unit 3</b> Wrexham &amp; Flintshire</p>	<p><b>LHB Distribution &amp; Habitat Networks</b></p> <ul style="list-style-type: none"> <li>• key distribution in this delivery unit lies to the west. Connectivity and woodland networks extend further south suggesting the range of the LHB could expand south east, no apparent terrain constraint.</li> </ul> <p><b>Tir Gofal for LHB</b></p> <ul style="list-style-type: none"> <li>• The whole of this area is covered by the Tir Gofal area for the LHB.</li> </ul> <p><b>Bat Group</b></p> <ul style="list-style-type: none"> <li>• Clwyd Bat Group, group has done a lot of historical lesser horseshoe bat monitoring and should provide valuable information for the project.</li> </ul> <p><b>LBAP</b></p> <ul style="list-style-type: none"> <li>• Wrexham LBAP, is a strong LBAP for LHB with a number of specific identified threats to the LHB.</li> </ul> <p><b>FC &amp; FWAG Remits</b></p> <ul style="list-style-type: none"> <li>• Lies within the North Wales FWAG region, contact: Glenda Thomas.</li> <li>• Lies within the remit of the Forestry Commission Woodland Officer: Andy Best.</li> </ul> <p><b>Other Projects:</b></p> <ul style="list-style-type: none"> <li>• Pondsapes Project: an interesting project looking at creation of ponds at the landscape level for great crested newts in Wrexham and Flintshire some potential to learn from the projects ‘approach’.</li> </ul> <p><b>Tir Gofal for other species</b></p> <ul style="list-style-type: none"> <li>• Unit lies within dormouse and tree sparrow delivery areas.</li> </ul>
<p><b>DELIVERY AREA: WEST WALES</b></p>	
<p><b>Delivery Unit 1</b> Pembrokeshire</p>	<p><b>LHB Distribution &amp; Sites</b></p> <ul style="list-style-type: none"> <li>• Phase 1 project, hence good information on existing LHBs in the area</li> <li>• Strong LHB distribution &amp; 1 SAC (Pembrokeshire Bat Sites and Bosherton Lakes). Currently the distribution is mainly in the south, however there are</li> </ul>

	<p>strong woodland networks to the north suggesting that a priority could be to expand the range to the north.</p> <p><b>Phase 1 of Landscapes for Lessers</b></p> <ul style="list-style-type: none"> <li>• Contractor for Phase 1 undertook this project in Pembrokeshire and hence has a good overview of how the project can be implemented in this region and sits on the Steering Group.</li> </ul> <p><b>Tir Gofal for LHB</b></p> <ul style="list-style-type: none"> <li>• Tir Gofal: the southern section of this delivery unit is covered by the TG LHB species package</li> </ul> <p><b>Bat Groups</b></p> <ul style="list-style-type: none"> <li>• Pembrokeshire Bat Group, 2 members of the SG are members of this bat group.</li> </ul> <p><b>Proposed Trunk Roads</b></p> <ul style="list-style-type: none"> <li>• 2 schemes in TW Phase 1 (2008-2011).</li> </ul> <p><b>FC &amp; FWAG Remits</b></p> <ul style="list-style-type: none"> <li>• Lies within the South Wales FWAG regional contact: Huw Thomas</li> <li>• Lies within the remit of the Forestry Commission Woodland Officer: Simon Mead.</li> </ul> <p><b>Tir Gofal for other species</b></p> <ul style="list-style-type: none"> <li>• Lies within the species package target area for: the greater horseshoe bat, dormouse, tree sparrow and brown hairstreak butterfly.</li> </ul> <p><b>National Trust</b></p> <ul style="list-style-type: none"> <li>• Owner / land manager- Stackpole SSSI/SAC nursery roost, Colby Lodge &amp; other sites.</li> </ul>
<p><b>Delivery Unit 2</b> <i>Ceredigion &amp; Carmarthenshire</i></p>	<p><b>LHB Distribution &amp; sites</b></p> <ul style="list-style-type: none"> <li>• Currently very limited number of LHB roosts, but suitable habitat is present here particularly in Carmarthenshire (as illustrated by Habitat Networks). Ecological connectivity is poor in east Carmarthenshire due to the terrain of the Cambrian Mountains. It is suggested that this area is a good unit to focus on increasing connectivity between the Swansea and Pembrokeshire LHB populations.</li> </ul> <p><b>Habitat Networks: Connectivity and woodland</b></p> <ul style="list-style-type: none"> <li>• Local connectivity work on how to locally implement the CCW Habitat Network concept has been undertaken in Carmarthenshire.</li> </ul> <p><b>Tir Gofal for LHB</b></p> <ul style="list-style-type: none"> <li>• Delivery Unit is not within the LHB Tir Gofal area.</li> </ul> <p><b>Bat Groups</b></p> <ul style="list-style-type: none"> <li>• A steering group (SG) member is a member of the Carmarthenshire Bat Group.</li> </ul> <p><b>Proposed Trunk Roads</b></p> <ul style="list-style-type: none"> <li>• There is 1 scheme in TW Phase 1 (2008-2011) in Carmarthenshire.</li> </ul> <p><b>FC &amp; FWAG Remits</b></p> <ul style="list-style-type: none"> <li>• Lies within the South Wales and Mid Wales FWAG region, contacts: Huw Thomas &amp; Glenda Thomas respectively.</li> <li>• Lies within the remit of the following Forestry Commission Woodland Officers: Simon Mead, Andy Willis, Alan Hubbuck and Peter Jones.</li> </ul> <p><b>Tir Gofal for other species</b></p> <ul style="list-style-type: none"> <li>• Unit lies within the greater horseshoe bat, dormouse, tree sparrow and brown</li> </ul>

	<p>hairstreak butterfly delivery areas.</p> <p><b>National Trust</b></p> <ul style="list-style-type: none"> <li>The area contains the National Trust Llanerchaeron Estate that is supportive of the project and is looking to implement lesser horseshoe and other bat species conservation measures on their estate.</li> </ul>
<p><b>Delivery Unit 3</b> <i>Swansea</i></p>	<p><b>Distribution &amp; Habitat Networks</b></p> <ul style="list-style-type: none"> <li>Discrete area with good LHB population &amp; VWT reserve, good connectivity and woodland networks.</li> </ul> <p><b>Tir Gofal for LHB</b></p> <ul style="list-style-type: none"> <li>Tir Gofal: most of area covered by LHB species package.</li> </ul> <p><b>Proposed Trunk Roads</b></p> <ul style="list-style-type: none"> <li>2 schemes in TW Phase 1 (2008-2011).</li> </ul> <p><b>FC &amp; FWAG Remits</b></p> <ul style="list-style-type: none"> <li>Lies within the South Wales FWAG regional contact: Huw Thomas</li> <li>Lies within the remit of the Forestry Commission Woodland Officer: Alan Hubbuck.</li> </ul> <p><b>Tir Gofal for other species</b></p> <ul style="list-style-type: none"> <li>lies within the species package target area for the greater horseshoe bat, dormouse and the tree sparrow.</li> </ul> <p><b>National Trust</b></p> <ul style="list-style-type: none"> <li>Several important lesser horseshoe sites are known on National Trust land in the Gower, particularly for hibernating lesser horseshoe bats.</li> </ul>
<p><b>DELIVERY AREA: MID AND SOUTH WALES</b></p>	
<p><b>Delivery Unit 1</b> <i>Monmouthshire</i></p>	<p><b>LHB Distribution &amp; Sites</b></p> <ul style="list-style-type: none"> <li>Significant LHB population: 3 SACs and 2 VWT reserves.</li> </ul> <p><b>Habitat Networks &amp; Physical Features</b></p> <ul style="list-style-type: none"> <li>The unit supports good woodland networks with low terrain, ideal for the lesser horseshoe bat and provides the opportunity to link and contribute to the conservation of both the Welsh and English LHB populations.</li> </ul> <p><b>Tir Gofal for LHB</b></p> <ul style="list-style-type: none"> <li>The whole of Monmouthshire is covered by the LHB Tir Gofal target area.</li> </ul> <p><b>LBAP</b></p> <ul style="list-style-type: none"> <li>LBAP has 21 plus actions for LHB in the LBAP and has identified threats specifically to the LHB.</li> </ul> <p><b>Proposed Trunk Roads</b></p> <ul style="list-style-type: none"> <li>1 proposed schemes in TW Phase 1 (2008-2011).</li> </ul> <p><b>FC &amp; FWAG Remits</b></p> <ul style="list-style-type: none"> <li>Lies within the South Wales FWAG region contact: Huw Thomas.</li> <li>Lies within the remit of the Forestry Commission Woodland Officer: Andy James Wright.</li> </ul> <p><b>Other Projects</b></p> <ul style="list-style-type: none"> <li>This area includes the Usk to Wye Project (for which the LHB is a focal species) which aims to enhance and create a network of semi-natural habitats throughout the project area and represents good opportunities for joint working with Phase 3 of this project.</li> <li>The Vincent Wildlife Trust has proposed to undertake a study of the meta-population dynamics of lesser horseshoe bats at a number of their reserves. This will involve radio-tracking bats from maternity sites around the Usk in the hope of discovering any exchange between roosts and overlap of foraging</li> </ul>

	<p>areas.</p> <p><b>Tir Gofal for other species</b></p> <ul style="list-style-type: none"> <li>• Monmouthshire lies within the greater horseshoe bat, dormouse and tree sparrows delivery areas.</li> </ul>
<p><b>Delivery Unit 2</b> <i>Montgomeryshire</i></p>	<p><b>Lesser horseshoe bat (LHB) Distribution &amp; sites</b></p> <ul style="list-style-type: none"> <li>• A good population of LHB already present in the east of the area.</li> <li>• 3 VWT reserves in this area.</li> <li>• 1 SAC: Tanat &amp; Vyrnwy Bat Sites.</li> <li>• Within remit of Lake Vyrnwy: RSPB reserve with a lesser horseshoe bat roost.</li> </ul> <p><b>Habitat Networks – Connectivity &amp; Woodland</b></p> <ul style="list-style-type: none"> <li>• Overall connectivity is good on the western border but this coincides with an upland area but this does not include the woodland component of this overall connectivity network (see Figures 1 and 2 in Appendix A).</li> <li>• Broad leaved woodland networks are present throughout the unit (except in the west due to topography). There is plenty of woodland connectivity, particularly around the River Seven, but the known lesser horseshoe population appears to be relatively small. The (LHB) could be under recorded or absent and it is suggested that this area is a targeted for conservation delivery.</li> </ul> <p><b>Tir Gofal for the LHB</b></p> <ul style="list-style-type: none"> <li>• Eastern section has a significant coverage by LHB Tir Gofal species package.</li> </ul> <p><b>Bat Group</b></p> <ul style="list-style-type: none"> <li>• Montgomeryshire Mammal Group has recently been set up. A member of the L4L Phase 2 SG is a founding member of this bat Group and could be a valuable contact for the Project Officer in this area. This group is in the early stages and does not currently have any members that are licensed bat workers.</li> </ul> <p><b>Proposed Trunk Roads</b></p> <ul style="list-style-type: none"> <li>• Two proposed schemes one in TW Phase 1 (2008-2011) and one in TW Phase 2 (2011 to 2014).</li> </ul> <p><b>FC &amp; FWAG Remits</b></p> <ul style="list-style-type: none"> <li>• Lies within the mid Wales FWAG region contact: Bethan Roberts.</li> <li>• Lies within the remit of the following Forestry Commission Woodland Officers: Ken Smith and Peter Jones.</li> </ul> <p><b>Other projects</b></p> <ul style="list-style-type: none"> <li>• The Pumlumon Project, has expressed interest in partnership working.</li> <li>• A PhD at Bristol University on the effects of lighting on the LHB has a study site in Montgomery.</li> </ul> <p><b>Tir Gofal for other species</b></p> <ul style="list-style-type: none"> <li>• Unit lies within the dormouse, tree sparrow and Welsh clearwing moth delivery areas.</li> </ul>
<p><b>Delivery Unit 3</b> <i>Neath Port Talbot Bridgend Vale of Glamorgan</i></p>	<p><b>LHB Distribution &amp; Sites</b></p> <ul style="list-style-type: none"> <li>• LHB sparsely distributed due to upland areas in the north, but there are also fairly good woodland networks and connectivity in this region. This suggests that this area should be targeted for expansion of the population.</li> </ul> <p><b>Habitat Networks</b></p> <ul style="list-style-type: none"> <li>• Work on local delivery of the CCW habitat networks has been undertaken in</li> </ul>

<p><i>Rhondda Cynon Taff</i>  <i>Newport</i>  <i>Merthyr Tydfil</i>  <i>Caerphilly</i>  <i>Gwent</i>  <i>Torfaen</i></p>	<p>Glamorgan (this could be used by the project officer to help with local delivery in this area).</p> <p><b><i>Tir Gofal for LHB</i></b></p> <ul style="list-style-type: none"> <li>• The Vale of Glamorgan is covered by the LHB Species Package.</li> </ul> <p><b><i>LRC</i></b></p> <ul style="list-style-type: none"> <li>• LRC in Cardiff.</li> </ul> <p><b><i>LBAP</i></b></p> <ul style="list-style-type: none"> <li>• 2 LBAPs have identified threats to LHB.</li> </ul> <p><b><i>Proposed Trunk Roads</i></b></p> <ul style="list-style-type: none"> <li>• Two to three proposed schemes one in TW Phase 2.</li> </ul> <p><b><i>FC &amp; FWAG Remits</i></b></p> <ul style="list-style-type: none"> <li>• Lies within the mid Wales FWAG region contact: Huw Thomas.</li> <li>• Lies within the remit of the following Forestry Commission Woodland Officers: Alan Hubbuck and Andy James Wright.</li> </ul> <p><b><i>Other projects:</i></b></p> <ul style="list-style-type: none"> <li>• Forgotten Landscapes Project in Blaenavon aims to increase the ecological connectivity and restore historic buildings around Blaenavon and this project is keen to work in partnership with the L4L project.</li> <li>• Butterfly Conservation’s project Pencod and Ely Valley Landscape Project (aimed at improving landscapes for the marsh frillitary).</li> </ul> <p><b><i>Tir Gofal for other species</i></b></p> <ul style="list-style-type: none"> <li>• Tir Gofal species package key areas for greater horseshoe bat, dormouse and tree sparrow extend into this delivery unit.</li> </ul>
<p><b>Delivery Unit 4</b>  <i>Brecon Beacons and Brecknockshire</i></p>	<p><b><i>LHB Distribution &amp; Sites</i></b></p> <ul style="list-style-type: none"> <li>• Strong LHB population in the east of the unit including VWT reserves part of the Usk bat sites.</li> </ul> <p><b><i>Habitat Networks – Connectivity &amp; Woodland</i></b></p> <ul style="list-style-type: none"> <li>• The habitat networks suggest that there is potential to expand the range of LHB outwards with particular emphasis on expanding north.</li> </ul> <p><b><i>Tir Gofal for LHB</i></b></p> <ul style="list-style-type: none"> <li>• This area is covered by Tir Gofal for the LHB (eastern section).</li> </ul> <p><b><i>Bat Groups</i></b></p> <ul style="list-style-type: none"> <li>• The Brecknock Bat Group has considerable experience in working with VWT and with lesser horseshoe bats, and could be a very valuable asset to Phase 3 of the project.</li> </ul> <p><b><i>LRC</i></b></p> <ul style="list-style-type: none"> <li>• LBRC in Brecon.</li> </ul> <p><b><i>LBAP</i></b></p> <ul style="list-style-type: none"> <li>• The Brecon Beacons LBAP has a large number of actions for LHB.</li> </ul> <p><b><i>Proposed Trunk Roads</i></b></p> <ul style="list-style-type: none"> <li>• Two proposed schemes one in Phase 1 (2008-2011) and one in Phase 2 (2011-2014).</li> </ul> <p><b><i>FC &amp; FWAG Remits</i></b></p> <ul style="list-style-type: none"> <li>• Lies within the mid Wales FWAG region contact: Bethan Roberts.</li> <li>• Lies within the remit of the following Forestry Commission Woodland Officers: Andy Willis, Ken Smith and Peter Jones.</li> </ul> <p><b><i>Tir Gofal for other species</i></b></p> <ul style="list-style-type: none"> <li>• Unit lies within the greater horseshoe bat, dormouse and tree sparrow delivery areas.</li> </ul>

<p><b>Delivery Unit 5</b> <i>Radnorshire</i></p>	<p><b><i>LHB Distribution &amp; Habitat Networks</i></b></p> <ul style="list-style-type: none"> <li>• LHB population not as strong as other areas, this is due to the fact this is more of an upland area.</li> </ul> <p><b><i>Proposed Trunk Roads</i></b></p> <ul style="list-style-type: none"> <li>• One road scheme in TW Phase 2.</li> </ul> <p><b><i>FC &amp; FWAG Remits</i></b></p> <ul style="list-style-type: none"> <li>• Lies within the mid Wales FWAG region contact: Bethan Roberts.</li> <li>• Lies within the remit of the following Forestry Commission Woodland Officers: Ken Smith and Andy Willis.</li> </ul>
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Table 4 below provides a summary of the rationale for the order of project roll-out for each delivery unit within each of the three delivery areas. Delivery units are sequentially numbered. Geographical remits of each of these proposed areas and units are provided in Figure 22 in Appendix F. The availability of funding may affect the project roll-out and ranking of each delivery unit.

**Table 4: Rationale for delivery units and order of project roll-out**

<p><b>Delivery Area 1: NORTH WALES</b></p>	
<p><b><i>Delivery Unit 1</i></b>  <b><i>Gwynedd, Snowdonia &amp; Anglesey</i></b></p>	<p>This area has a very strong population of lesser horseshoe roosts including 2 SACs (Glynllifon and Meirionydd Oakwoods), VWT reserves and National Trust properties with lesser horseshoe bats. The majority of the area lies within a delivery area for the lesser horseshoe bat TG species package. Overall ecological connectivity shown on the CCW Habitat Networks work is very strong. The unit also includes the well-established Cofnod LRC in Bangor and it will be important for the project officer responsible for this unit to develop a good working relationship with this LRC. The Gwynedd LBAP is also particularly strong for the lesser horseshoe bat and two members of the Gwynedd Bat Group sit on the steering group for the <i>Landscapes for lessers</i> project. This area also has four proposed trunk roads that will be starting work between 2008 and 2011 and two between 2011 and 2014, some of which cross through key lesser horseshoe areas. Since the unit has good resources and also potential threats to the populations through fragmentation via proposed road developments, it is considered that this unit should be a priority for the project officer in North Wales.</p> <p>Glynllifon Mansion houses a major roost used all-year round is also present in this delivery unit. The mansion is being developed as a hotel and conference centre. CCW has installed cameras for a web connection. The owners are looking for opportunities to promote bat conservation at the site</p>

	and to develop other initiatives, e.g. joint promotion with the Bat Cave at Chester Zoo.
<b><i>Delivery Unit 2</i></b> <b><i>Conwy &amp; Denbighshire</i></b>	This unit also has a strong population of LHBs in the eastern section (including the 2 SACs: Tanat & Vyrnwy Bat Sites and Gwydyr Forest Mines) that correlates well with woodland networks and the physical terrain. A large amount of this unit is covered by the Tir Gofal species package for the LHB. The Clwyd bat group has a lot of experience in lesser horseshoe bat monitoring that could be an asset to the project. Part of Conwy is also covered by the Gwynedd Bat Group. The unit is also within the remit of the North Wales Bontuchel Dormouse Project that has expressed an interest in joint partnership working and conservation delivery with the project. The unit also has a large number of proposed trunk road schemes: four between 2008 and 2011 and two between 2011 and 2014. Hibernation sites in the Conwy Valley are notified as SAC, but there are other important sites that should be included in any new SAC or extension of the existing SAC. For these reasons this unit has been ranked as the second priority for the North Wales officer.
<b><i>Delivery Unit 3</i></b> <b><i>Wrexham &amp; Flintshire</i></b>	This area supports a good population of lesser horseshoe bats. The ecological connectivity and woodland networks show suitable habitat to the south indicating that the range of the lesser horseshoe bat could expand south east. This region is also covered by the Clwyd bat group and the Wrexham LBAP clearly identifies a number of specific threats to the lesser horseshoe bat. This unit is ranked below unit 2 due to the fact it is not threatened in the same way by proposed road schemes and does not have the same opportunities for partnership working and multispecies delivery as unit 2.
<b>DELIVERY AREA 2: WEST WALES</b>	
<b><i>Delivery Unit 1</i></b> <b><i>Pembrokeshire</i></b>	This is a self-contained unit and has very good baseline data, being the area covered by the Phase 1 pilot study for the project. The number of resources is strongest in the south of the delivery unit which more or less corresponds with the target area for the lesser horseshoe bat Tir Gofal species package. Currently, the key population is in the south (including the SAC Pembrokeshire Bat Sites and Bosherton Lakes), but there are strong woodland networks in the north, suggesting this area should be targeted. Two active members of the L4L steering group are members of the Pembrokeshire bat group and it is hoped this will help gain support from other bat workers for the project in the area. Enhancement of landscapes to

	<p>the north could also benefit the dormouse which is covered by the Tir Gofal delivery area. Hence enhancements in the north could deliver multispecies benefits.</p>
<p><b><i>Delivery Unit 2</i></b> <b><i>Ceredigion &amp; Carmarthenshire</i></b></p>	<p>Currently this unit supports few lesser horseshoe roosts, but the ecological connectivity and woodland network maps suggest that suitable habitat is present in Carmarthenshire and that this area would be a good unit to focus conservation effort, to aid in connecting the lesser horseshoe bat populations within Pembrokeshire and Swansea, hence expanding the range of this species within south west Wales. The unit does not support the same number of resources as many of the other units, but a member of the steering group is on the Carmarthenshire bat group that could help with getting support from the bat group for the work of the project. This unit has fewer resources and hence is ranked below DU 1.</p>
<p><b><i>Delivery Unit 3</i></b> <b><i>Swansea</i></b></p>	<p>This is a discrete unit geographically with a strong lesser horseshoe population and good woodland network connections. The Gower is also known to support hibernation sites for the lesser horseshoe bat within National Trust properties. Two proposed trunk road schemes are due to commence between 2008 and 2011. It is considered that the priority for conservation should be focussed in the north of this unit to tie in with proposals to link this population with those in Pembrokeshire alongside improvements already made during work in Carmarthenshire (DU 2). Consideration should also be given to the importance of hibernation sites for the species in this unit many of which are on National Trust land.</p>
<p><b>DELIVERY AREA 3: MID AND SOUTH WALES</b></p>	
<p><b><i>Delivery Unit 1</i></b> <b><i>Monmouthshire</i></b></p>	<p>Monmouthshire is clearly an independent delivery unit for this delivery area. The unit supports a range of good resources including: a significant lesser horseshoe bat population (including 3 SACs: Usk Bat Sites, Wye Valley &amp; Forest of Dean Bat Sites and Wye Valley Woodlands); good woodland networks; a strong LBAP and the local authority ecologist is a member of the steering group. The whole of the county also lies within the target area of Tir Gofal LHB species package. The unit contains the project area for the Usk to Wye project (for which the LHB is a focal species) that aims to enhance and create a network of semi-natural habitats throughout the project area. The Vincent Wildlife Trust is also proposing a study on the metapopulation dynamics of the lesser horseshoe bats in the Usk. These strong resources should enable habitat improvement on the ground to take place reasonably quickly and enable a link to be made with conservation</p>

	efforts for English populations to the east. For this reason this unit has been ranked as the priority for the Mid and South Wales Delivery Area.
<b><i>Delivery Unit 2</i></b> <b><i>Montgomeryshire</i></b>	There is a strong population of LHB in the east of this unit. The woodland networks indicate plenty of woodland connectivity around the River Severn, but limited records of lesser horseshoe bats (which could be due to under recording). It is considered to be a key unit to prioritise for conservation delivery since the distribution of bats here seems to be fragmented.
<b><i>Delivery Unit 3</i></b> <b><i>Neath Port Talbot</i></b> <b><i>Bridgend</i></b> <b><i>Vale of Glamorgan</i></b> <b><i>Rhondda Cynon Taff</i></b> <b><i>Newport</i></b> <b><i>Merthyr Tydfil</i></b> <b><i>Caerphilly</i></b> <b><i>Gwent</i></b> <b><i>Torfaen</i></b>	The LHB distribution in this area is reasonably poor in the north due to upland areas, despite fairly good woodland networks and connectivity. The LBAPs for Neath Port Talbot and Rhondda Cynon Taf both specifically identify threats for the LHB. Work on the local delivery of the CCW Habitat Network concept has also been undertaken in Glamorgan. The Forgotten Landscapes Project around Blaenavon, aims to increase ecological connectivity including the restoration of historic buildings and is keen to work in partnership with this project. Hence this unit is ranked third within the Mid and South Wales Delivery Area.
<b><i>Delivery Unit 4</i></b> <b><i>Brecon Beacons National Park and Brecknockshire</i></b>	This unit has a strong lesser horseshoe population including part of the Usk Bat Sites SAC and some VWT reserves. VWT is a key member of the SG for the L4L project and has undertaken considerable work with the Brecknock bat group on lesser horseshoe bats that could be very valuable for the project. The LBAP for Brecon is strong for the LHB and the eastern section of the Brecon Beacons lies within a Tir Gofal LHB species package target area. The habitat networks suggest that there is potential to expand the range of the LHB outwards with particular emphasis on expanding north to reduce fragmentation.
<b><i>Delivery Unit 5</i></b> <b><i>Radnorshire</i></b>	The LHB population in this unit is not as strong as those surrounding it. This is likely to be due to the fact this is a more upland area and that Radnorshire and the borders of Wales are generally under-recorded (Crompton <i>pers comm.</i> 2009). Crompton (2009) also suggests a landscape division here (due to the Cambrian mountains and South Ceredigion coastal plains) between north and south populations of the lesser horseshoe bat in Wales. It is suggested that this area would benefit from conservation efforts to connect populations in the north and south, but does not benefit from as many resources as other units hence has been ranked as the lowest unit in

	this Delivery Area in terms of priority.
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#### **4.6 Project Specification: Suggested Objectives, Outcomes and Targets**

This section outlines the proposed project specification for Phase 3 of the *Landscapes for Lessers* project, suggested objectives, outcomes, targets and resources required. Members of the steering group have provided comments and suggestions on these proposals.

##### **4.6.1 Project Specification**

- Under Phase 3 of the project, Wales to be split into three delivery areas: North Wales, West Wales and Mid and South Wales. The geographical limits of these areas are defined as follows:
  - NORTH WALES: Anglesey, Gwynedd, Snowdonia National Park, Conwy, Denbighshire, Flintshire and Wrexham;
  - WEST WALES: Pembrokeshire, Carmarthenshire, Ceredigion and Swansea; and
  - MID and SOUTH WALES: Montgomeryshire, Radnorshire, Brecknockshire, Brecon Beacons National Park, Monmouthshire, Torfaen, Newport, Gwent, Caerphilly, Merthyr Tydfil, Rhondda Cynon Taff, Bridgend, Vale of Glamorgan and Cardiff.
- Project timeline would be 4 years. The first year would depend on when funding was available. If European funding bids are successful then the project is likely to commence in 2011 / 2012.
- Project staff to comprise:
  - A single full-time project manager;
  - Two full-time project posts; and
  - One full-time post to undertake both the GIS and administration support required for this project. (Part of this role may be undertaken by a Local Record Centre in Wales, further discussions with LRCs will be undertaken during the preparation of a funding application).
  - Both the full-time project manager and two full-time project posts would be required to deliver on one of the three project areas: North Wales, Mid and South Wales or West Wales. The allocation of the areas to these individual staff members will be determined by their location and the skills they can bring to the project. It may be that areas could be shared by two individuals that are job-sharing a single post.
- In addition the full-time project manager would be responsible for overall co-ordination of the project to ensure a 'joined-up' landscape scale approach is being maintained. The project manager would also directly line-manage the two project posts.

- The GIS / admin support post would provide admin support and GIS capability where required.
- Suggested Job Specifications are provided in Appendix I.

#### **4.6.2 Suggested Project Objectives, Outcomes and Targets**

**OBJECTIVE ONE: Project officers to work with local record centres (LRCs) to undertake an audit of lesser horseshoe bat records throughout Wales to ensure the L4L project is working from the most up-to-date baseline information. Work with end-users of the data (e.g. Local Planning Authorities (LPAs), Welsh Assembly Government (WAG) and CCW to produce a database and a GIS resource for the project enabling appropriately targeted conservation efforts within each delivery area / unit.**

- The project officers to work with the LRCs (with the help from an administration assistant where appropriate) to design the database to ensure consistent collation of all lesser horseshoe records throughout the project. Project officers will need to help identify gaps in existing data sources and work with local contacts to provide additional baseline information. Important sources of information include: local records centres, bat groups, the National Biodiversity Network and development licence applications.
- This information should be collated into an appropriate database which could then be added to a GIS layer to help provide a more accurate picture of the population range of the lesser horseshoe bat throughout Wales.
  - Target 1: Each project officer to develop and demonstrate close working relationships with the local records centres and all bat groups in their area.
  - Target 2: To ensure each delivery area has a complete collection of all available existing records for the lesser horseshoe bat by the end of year 1.
  - Target 3: Ensure any new records created during the project throughout years 1 to 4 are passed onto the relevant LRC and encourage bat groups to do the same.
  - Target 4: GIS / administration assistant / LRCs to work closely together with the desk study for Phase 2, to identify features of importance to the lesser horseshoe bat and produce a basic GIS overlay resource / map (using resources gathered or identified in Phase 2) to target suitable conservation delivery on the ground throughout Wales within Phase 3 by the end of year 1.
  - Target 5: the GIS resource to be used by project staff to help target practical conservation action on the ground within each delivery area throughout years

2, 3 and 4 of the project. (i.e. to guide land-use planning policy and the implementation of agri-environment schemes).

- Target 6: Additional relevant information is collected during the project that can be added to the GIS resource throughout years 2, 3 and 4 of the project.
- Target 7: Enable the creation of a more up-to-date distribution map of lesser horseshoe bats at the 10km square resolution in Wales to enable more effective targeting of conservation effort around the known distribution and aid in any revision of the BAP targets for this species in Wales.

*OUTCOME: An improved database of lesser horseshoe bat records for Wales and good working relationships created with LRCs and bat groups to ensure a continual flow of data exchange throughout and beyond the life of the project. This information should aid in the development of future BAP reporting and target setting for this species in Wales. The creation of a GIS resource that highlights features of importance for the lesser horseshoe bat will help target appropriate areas for conservation action as well as aid land-use planning policy and the implementation of agri-environment schemes. The GIS resource could also be extended to include requirements for other species and habitats on the UK BAP.*

**OBJECTIVE TWO: To determine the status and location of as many known lesser horseshoe bat roosts as possible within Wales and encourage site monitoring.**

- Project officers and the project manager to ensure there is information on the status of roosts and to spend time developing a working relationship with key roost owners in their delivery areas. The project officers should act as central point for this information and make good use of local bat groups and other (ideally local) volunteers to help undertake a site visit to aid in gaining this information. The timing of the visit should ideally be within the relevant season for bat surveys for the type of site, e.g. nursery roosts between April and September. Emergence counts should be encouraged where sufficient people are available to undertake this work (i.e. between 29 May and 17 June or up to 30th June for inclusion in CCW and NBMP monitoring schemes). Winter sites should be monitored as part of the National Bat Monitoring Programme (NBMP) scheme, following protocol of at least one count in Jan or Feb. The aim is to encourage assistance by local contacts (e.g. cavers, National Trust employees and tenants etc). Care should be taken to ensure there is a consistent approach to recording information for all roosts in line with Phase 1 of this project including the attitude of roost owners in respect to future enhancement proposals. For each roost, the location, likely type and status of roosts, attitude of owners (to future enhancement proposals) and provision of suggestions for roost and surrounding habitat improvement should be noted.

- Target 8: Identify the status and location of all key roosts within each delivery area taking particular care to consider how the colony is using the site and role of different roosts (particularly night roosts). This should be undertaken in years 1 and 2 and completed by the end of year 2. Data will be submitted to CCW to contribute to the requirement to monitor protected sites and Annex II species and in the consideration of sites for future notification.
- Target 9: Promote or undertake monitoring of sites following existing protocols (CCW summer roost surveillance and National Bat Monitoring Programme hibernation surveys) using local contacts. Aim to encourage new helpers in the scheme, increasing the skill level of the voluntary sector.

*OUTCOME: A clear prioritisation of current lesser horseshoe sites so that associated foraging and commuting habitats can be restored / enhanced throughout the project. Initial surveys and continuing site monitoring will ensure that there is good data with which to assess the effectiveness of the conservation actions. This will be a key part of the long term success of the project.*

**OBJECTIVE THREE: Start to enable the creation of a number of new roosts (or improve existing roosts) and improve foraging and commuting habitat for the lesser horseshoe bat throughout the known range and beyond (especially within areas covered by SAC designation or the Tir Gofal Species Package for the lesser horseshoe bat).**

- In each delivery area, enhance or recreate a number of lesser horseshoe roosts throughout Phase 3 of the project. Relationships with roost owners will be key to the progress of this objective.
  - Target 10: Following evaluation of roosts under Objective 2 all project officers to work to produce a prioritised schedule of roost enhancement for delivery to the steering group by the end of year 1 throughout Wales. This could comprise one big roost enhancement project (of an existing roost or conversion of a derelict building) or several smaller projects.
  - Target 11: Creation of 2 to 3 new roosts (or enhancement of existing roosts / foraging areas) within each delivery area within years 2, 3 and 4 of the project.
- To find opportunities for a minimum of one other mitigation / enhancement scheme to be undertaken within each project delivery area within years 2, 3 and 4 of the project (e.g. hedgerow re-instatement, set-aside schemes that bolster insect productivity etc).
  - Target 12: to enable at least one additional mitigation / enhancement scheme for the lesser horseshoe bat to be undertaken within each delivery area within years 2, 3 and 4 of the project.

*OUTCOME: Increase in the availability of roosting, commuting and foraging habitat for the lesser horseshoe bat.*

**OBJECTIVE FOUR: To link conservation delivery on the ground with other existing and new landscape scale initiatives (including existing CCW projects) so that conservation measures proposed also provide benefits for other species and habitats and the new UK Biodiversity Action Plan (BAP) list (Section 42 list of the CRoW Act) including other species of bats.**

- Each project officer should endeavour to make links with other landscape initiatives within their delivery area based on those identified in Phase 2 but also make the most of new opportunities as they arise. Project officers should also take advantage of and seek to establish working relationships with relevant LBAP partnerships and consider linkage to local landscape modelling research (such as that piloted by CCW's Habitat Networks).
  - Target 13: Project Officers to work with other organisations and identify a suite of mutual beneficial outputs for the lesser horseshoe bat and other species and habitats through joint working with other species or habitat projects and report back on progress on this target at the end of the year to the steering group.
  - Target 14: Ensure that at least one of the new enhanced bat roosts or other lesser horseshoe bat mitigation proposed is undertaken where possible in liaison with another landscape scale initiative that demonstrates biodiversity gain for additional species or habitats and forms part of a broader initiative for promoting biodiversity in Wales.
  - Target 15: To ensure where possible new roosts and roost renovation benefit multiple species of bats as well as the lesser horseshoe bat.

*OUTCOME: An integrated approach to biodiversity conservation at the local level in line with the objectives of the new BAP process and efficient use of funders resources.*

**OBJECTIVE FIVE: To increase awareness of the conservation requirements of the lesser horseshoe bat within a number of sectors and promote best practice.**

- Provide talks, training and best practice guidance on horseshoe bats to a number of sectors that have influence over land-use change. Target audiences include: farmers, Tir Gofal officers, architects and planners, historic buildings sector and the road construction industry.
- Target 16: At least two talks in each delivery area to each of the target audiences per year of the project. This could include holding an open-day event to promote the project (e.g. a farm open day on a farm implementing recommendations of the lesser

- horseshoe bat Tir Gofal Species package in association with the regional FWAG officer).
- Ensure the L4L project officer team produces good practice guidance notes (aimed at being used Wales-wide) to a number of sectors relevant to the continued conservation of the lesser horseshoe bat (including the Welsh Mines Preservation Trust). These should be promoted at appropriate sector events (e.g. farm shows, planners' conferences etc.) and targeted in areas where lesser horseshoe bat roosts are known. Guidance and advice should be advertised via press releases and articles in relevant sector magazines.
  - This could include guidance on appropriate monitoring of mitigation undertaken for the lesser horseshoe bat as part of development proposals. This work could be undertaken in partnership with CCW and The Welsh Assembly Government (WAG) and provide a valuable output of Phase 3 of the Landscapes for Lessers project.
    - Examples could include:
      - A guidance note on how to effectively use sensitive farming practices to bolster insect productivity around areas that are strong holds for the lesser horseshoe bat for Tir Gofal Officers and Farmers.
      - Guidance note on hedgerow creation / reinstatement specifically for lesser horseshoe bats providing practical examples for farmers, Tir Gofal officers and other land owners particularly close to known roosts.
    - Target 17: Produce at least 2 good practice guidance notes for each year of the project.
    - Target 18: Promote these good practice guidance notes to appropriate target audiences through mail shots and at least two relevant events per year.
    - Target 19: Arrange a conference at the end of the project inviting stakeholders from across Europe to share the results, experiences and lessons learned. The conference should comprise a mixture of presentations, field visits and workshops.

*OUTCOME: Improved best practice implementation of conservation measures for the lesser horseshoe bat throughout Wales, the UK and Europe. Increased awareness of the need to conserve and provide for the lesser horseshoe with specific advice on practical measures for roosts and habitats.*

**OBJECTIVE SIX: To support, and provide information for, an applied academic study on the lesser horseshoe bat within Wales to support good practice.**

- Support & provide information for an academic population study for lesser horseshoe bats within an area that is known to have a good population. For example the Vincent Wildlife Trust is currently proposing a study into the metapopulation dynamics of

lesser horseshoe bats in their reserves in the Usk. There is also an on-going research project at the University of Bristol on Bats and Lighting.

- Target 20: The project contributes data, knowledge and other support to at least one academic study throughout the four year period of the project.

*OUTCOME: Recommendations from these supported studies can be fed back into the project and delivered via conservation measures on the ground.*

**OBJECTIVE SEVEN: To produce regular reports to partners, the steering group and funders ensure these are available in Welsh.**

- The Steering Group from Phase 2 should be retained and where appropriate membership altered throughout the project. The project co-ordinator should continue to arrange an annual steering group meeting to promote review and monitor the progress of the project and modify targets where applicable.
  - Target 21: Meet the funders reporting requirements as specified
  - Target 22: Retain the Phase 2 steering group and ensure an annual meeting for information exchange for each year of the project.
  - Target 23: Produce an annual report to inform the steering group, funders, roost owners and other interested parties on progress towards the objectives throughout the project.

*OUTCOME: Effective two-way communication with land-use sectors and resources appropriately prioritised.*

A summary of the draft aims and targets for Phase 3 of the Landscapes for Lessers project is provided in Appendix H.

## **4.7 Resources**

This section outlines the resources required to implement the project in Phase 3. Details of proposed job specifications and costs are provided in Appendices 6 and 5 respectively of the Project Report. The estimated costs for running the entire project over four years are in the region of £1.5 million.

### **4.7.1 Staffing**

- Project staff to comprise:
  - A single full-time project manager;
  - Two full-time equivalent project posts; and
  - One full-time equivalent post to undertake both the GIS and administration support required for this project. (N.B. this post may be shared with a local record centre in Wales. Proposed Job Specifications are provided in Appendix 6 of the Project Report).

#### **4.7.2 Line Management, Administration, Support Costs**

- There are a number of additional support costs that will be incurred as part of Phase 3 of the project. These will include computer and office costs, line management, HR, insurance and rental costs.

#### **4.7.3 Expert Advice**

- Expert advice on the project will also be required from the Bat Conservation Trust, Vincent Wildlife Trust, CCW and other relevant organisations / individuals.

#### **4.7.4 Project Budget**

This is split into two sections:

##### 4.7.4.1 Resources required for the project

- There will need to be a project budget to include the cost of running Phase 3. These will include a travel budget, cost of any data required, GIS software, project promotion, leaflets and other printing costs for best practice guidance and project reports. Bat survey equipment will also be required and will include Personal Protective Equipment (PPE), ladders, bat detectors, torches, mobile phones, digital cameras, two way radios, volunteer expenses and cost of Health and Safety advice for the full-time staff on this project.

##### 4.7.4.2 Resources required for Conservation Action

- A budget is required to enable direct conservation action on the ground through roost creation, improvement or habitat enhancement as dictated by the targets set for the project. The Vincent Wildlife Trust has kindly provided a number of costed examples of renovations to existing buildings and the creation of completely new roost buildings for the lesser horseshoe bat within their reserves. Details of these have been provided in the confidential Funding Strategy Report. Costs of renovations have ranged from £5 000 to £60 000.

#### **4.7.5 Project Set-Up Costs**

Research has shown a budget is required for the preparation of a bid to gain EU funds for Phase 3 of this project. Ideally this would require funds being available to allow a bid to be put together in 2009 to achieve funding for the project to commence in 2010. Further information is provided in the Funding Strategy.

## **5.0 EXAMPLE OF SUGGESTED PROJECT DELIVERY AT ORIELTON STABLE BLOCK SSSI IN PEMBROKESHIRE.**

### **5.1 Introduction**

This section provides an example of how improvements to a roost and its surrounding area could be implemented through Phase 3 of the project. The lesser horseshoe roost at Orierton has been chosen for this example as it forms part of the work undertaken under Phase 1 of the project and comprises a historically well-known roost. All information provided is after Haycock (2007).

The recommendations made in this section are illustrative only of what the project could deliver at the site level in Phase 3 and there is no obligation of the project or the Orierton Fields Studies Centre (FSC) centre to make the improvements and recommendations specified in this report.

The site is owned by the Field Studies Council and is known to have been associated with lesser horseshoe bats for at least seventy years and monitored for at least twenty-two years. The roost is designated as a SSSI and also forms part of the Pembrokeshire SAC (Pembrokeshire Bat Sites and Bosherton Lakes), hence could be eligible for funding through EU Life +.

The roost is known to support lesser horseshoe, greater horseshoe, brown long-eared (*Plecotus auritus*) and whiskered (*Myotis mystacinus*) bats. A large colony of soprano pipistrelles (*Pipistrellus pygmaeus*) is present in a nearby building. The lesser and greater horseshoe bats are listed on Annex II of the Habitats Directive that enables Special Areas of Conservation (SACs) to be designated for these species and both the Orierton and nearby Stackpole SSSIs form part of the Pembrokeshire Bat Sites and Bosherton Lakes SAC due to the presence of these species. The brown long-eared, common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle are also on the Natural Environment and Rural Communities Act (NERC) 2006 section 42 list of species of principal importance for the purpose of conserving biodiversity in Wales.

This roost was surveyed as part of the Phase 1 Pilot Project. Depending on the timing of funding, it may be appropriate for the project officer to undertake a brief update survey of this roost in liaison with bat workers that currently monitor the site (objective 2, target 8). The Phase 1 report highlights that currently little is known about other roosts used by the bats in this building in the local area. Survey effort could therefore be targeted at finding other roosts within the surrounding area (1-3km from the roost). This could help with targeting proposed habitat enhancement measures around the stable block. Any new records should be fed into the relevant local records centre and database for the project (Objective 1). This information could also be used to potentially extend the coverage of the SAC to include important adjacent foraging and commuting habitat.

## **5.2 The roost**

The roost is currently within the loft of stable buildings used as classrooms and laboratories and accommodation for the Field Studies Centre. Haycock (2007) reports on the need for roost improvement and creation of human access. Phase 3 of the project could contribute capital to the renovation of this roost under a licence from CCW in addition to the creation of appropriate new stand alone bat roosts in the surrounding area (Objective 3, Targets 10 or 11). The licence application and subsequent monitoring could be used to draw up good practice guidance on monitoring and mitigation for the lesser horseshoe bat (Objective 5, Target 17). The project officer would need to liaise very closely with existing bat workers who monitor this site, but the creation of a new roost and inclusion of this roost within Phase 3 of the project could provide opportunities for increasing the skill levels of local bat volunteers in the area (e.g. FSC staff, students and other local volunteers) (Objective 2, Target 3). Care should be taken to ensure that the enhancement proposals for the roost include additional requirements for the other bat species known to be present in the roost or the surrounding area providing multispecies benefits (Objective 4, Target 15).

Nearby hibernacula have also been identified as being used by the bats at Orierton. Consideration should also be given to the enhancement of these roosts and other nearby roosts (e.g. night roosts in the surrounding area) as appropriate.

## **5.3 Surrounding habitat**

The habitat surrounding the roost is described by Haycock (2007; see Appendix I) as comprising woodland that provides adequate shelter for bats leaving the roost. Woodland blocks exist within 1km of the roost (a key area for foraging heavily pregnant and lactating females and juveniles that have just learnt to fly) and are considered to be reasonably well connected. Other habitat within a 1km and a 3km radius around the roost comprise farmland (much of which is in Tir Gofal), unimproved grassland and lakes. There are few hedgerows beyond the woodland blocks immediately surrounding the roost. It is suggested that Tir Gofal agreements be used to ensure hedgerows are improved or re-instated beyond the woodland blocks. This would be particularly important around the Pembroke river as this would allow the creation of a link with the nearby known roost at Stackpole (see location plan in Appendix I). All habitat improvement should also aim to be of value to other bat and BAP species that are relevant to the area (Objective 4, Targets 13, 14 and 15).

## **5.4 Promotion of good practice**

The FSC centre is a long established teaching centre and could be used as a venue for 'awareness raising' events with a range of sectors for practical sessions. Practical tuition sessions could draw on the enhancement of the surrounding area and the roost to showcase good practice (Objective 5 Targets 16, 18). It may also be worth considering the use of the centre for Steering Group

meetings and the end of project European conference (Objective 5, Target 19; Objective 7, Target 22).

## **6.0 REFERENCES**

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## **8 APPENDICES**

**APPENDIX A: MAPS DELINEATING RESOURCES** (This Appendix has been produced as a separate document).

## **APPENDIX B: SUMMARY OF PHASE 1 OF THE PROJECT**

### **Summary of CCW Contract Science Report No. 808 Landscapes for lessers: Pilot Study, A. Haycock (2007)**

#### **EXECUTIVE SUMMARY**

1. Lesser Horseshoe bats are widespread in Europe but in Britain confined to south-west England and Wales. Their known range is fragmented. This study aims to look at the requirements of these bats, in their roosts and in the wider countryside, within Pembrokeshire.
2. Consideration is given of the various maternity roosts as part of a metapopulation, and its implications for conservation and development planning.
3. Information gathered from long-term monitoring of maternity roosts and hibernacula, and from other surveys (mostly pre-development surveys) in south Pembrokeshire is presented
4. Of the eleven known maternity roosts in Pembrokeshire, five would benefit from improvements to the actual roost site, while most of them would benefit from some habitat improvement in one or more of the zones (adjacent, <1km or 1-3km) from the roost.
5. Improvements to the roost itself are usually renovate a roof that is deteriorating, or to provide better access.
6. An extraction of the phase I vegetation survey to show woodland habitats indicate that there are probably large areas of mid and north Pembrokeshire that should support lesser horseshoe maternity roosts
7. The confirmation, in 2007, of a maternity roost in north Pembrokeshire, suggests that there are more sites to be found in the mid and north of the county
8. Probably the most important habitat improvement that can be made both within the 3km zone and in the wider countryside, is the management of hedgerows as wildlife corridors that will provide both sheltered feeding areas and commuting routes linking roosts and other feeding areas.
9. The main mechanism for achieving improvements to habitats is likely to be via agri-environmental schemes such as Tir Gofal.

## **PHASE 1 - CRYNODEB GWEITHREDOL**

1. Mae ystlumod pedol lleiaf yn gyffredin iawn yn Ewrop ond ym Mhrydain maent wedi'u cyfyngu i dde – orllewin Lloegr a Chymru. Darniog yw'r wybodaeth am eu hamrediad. Mae'r astudiaeth yma yn anelu at edrych ar ofynion yr ystlumod hyn, yn eu manau clwydo yn ogystal ag yn ehangoch yng nghefnwlad, o fewn Sir Benfro.
2. Rhoddir ystyriaeth i'r gwahanol glwydi mamaeth fel rhan o fetaboblogaeth ac arwyddocad hynny i gynllunio a datblygiad cadwraethol.
3. Cyflwynir gwybodaeth a gasglwyd o fonitro clwydi mamaeth a hibernacula dros gyfnod hir ac o arolygon eraill (arolygon cyn ddatblygiad gan fwyaf) yn ne Sir Benfro.
4. O'r unarddeg o glwydi mamaeth y gwyddir amdanynt yn Sir Benfro, byddai pump ohonynt yn elwa o welliannau i'r safle clwydo ei hun, tra byddai'r rhan fwyaf ohonynt yn elwa o rywfaint o welliant cynefin yn un neu ragor o'r rhanbarthau ( y rhai cyfagos, <1 cilometr neu 1- 3 cilometr) o'r glwyd.
5. Mae gwelliannau i'r glwyd ei hun fel arfer yn golygu adnewyddu to sy'n dirywio neu ddarparu gwell mynediad.
6. Mae detholiad o gam 1 yr arolwg llystyfiant i ddangos cynefinoedd coetir yn dangos fod yna o bosibl ardaloedd mawr o ogledd a chanol Sir Benfro ddylai gynnal clwydi mamaeth ystlumod pedol lleiaf.
7. Mae cadarnhad yn 2007 fod clwyd famaeth yng ngogledd Sir Benfro yn awgrymu fod yna fwy o safleoedd i'w canfod yn nghanol a gogledd y sir.
8. Mae'n debyg mai'r gwelliant cynefin gorau ellid ei wneud o fewn y rhanbarth 3 cilometr ac yn ehangach yng nghefnwlad yw rheolaeth gwrychoedd fel coridorau bywyd gwyllt fydd yn darparu ardaloedd bwydo cysgodol yn ogystal â llwybrau cymudo fydd yn cysylltu clwydi ag ardaloedd bwydo eraill.
9. Mae'n debyg mai cynlluniau amaeth-amgylcheddol megis Tir Gofal fydd y prif fecanwaith ar gyfer sicrhau gwelliannau i'r cynefi

## **APPENDIX C: UNITARY DEVELOPMENT PLAN REVIEW**

**Appendix C Review of the consideration of lesser horseshoe bats in the Unitary Development Plans for Wales (undertaken by Dr Katie Parsons, former Head of Biodiversity for the Bat Conservation Trust, February 2009).**

### **Introduction**

The map of Unitary Development Plan and Local Plan Coverage (Position at July 2008) revealed 10 Unitary Development Plans (UDPs) and 27 Local Plans including two for National Parks (Snowdonia and Brecon Beacons). Ceredigion and Montgomeryshire are not shown on the map to have a UDP or Local Plan. Investigation of Local Plans revealed that some had already been superseded by more recent Local Plans (e.g. Menai Strait 1987 was superseded by the Ynys Mon (Isle of Anglesey) Local Plan in 1996). In turn, many of the Local Plans are or were in the process of being replaced by UDPs. Progress on several of these has been halted while conversion to LDPs takes place. The Local Plans were not examined further at this stage.

### **Summary of counties with Unitary Development Plans**

The 10 extant UDPs were examined to see how well bats were represented in the plans (see Table below). No plan made specific mention of lesser horseshoe bats. Four plans mentioned bats in the UDP however in two it was solely in reference to specific sites with bats. Neath Port Talbot and Bridgend mentioned bats in reference to habitat requirements and barn conversions. The fact that other plans did not explicitly mention bats does not mean that their conservation is not considered. Some of the plans were very detailed in their consideration of protected species (without mentioning specific species or species groups). In two instances bats were mentioned in Supplementary Planning Guidance (SPGs were checked where available as part of the UDP).

All of the plans had a section on the environment. In some this was a large section containing a broad range of policies relating to the natural environment, built environment, agriculture and water control. In other plans, these topics were divided into two or three separate sections. Most of the UDPs contained policies that should benefit bats, for example those relating to site and species protection, landscape features, trees and woodland among others. Several UDPs had a policy relating to 'green barriers' or 'green wedges' (i.e. greenbelt equivalent). Most UDPs rely upon nature conservation policy to safeguard bats in buildings as the built environment policy did not make reference to biodiversity interest of buildings. In three of the UDPs (Carmarthenshire, Neath Port Talbot and Bridgend) the need to consider protected species in building conversions was highlighted in the section on biodiversity conservation.

County	Date of publication of UDP	Consideration of biodiversity	Specific mention of bats
Denbighshire	July 2002	<p>Section 5 of the UDP considers the 'Natural Environment'. It does not appear as detailed as Carmarthenshire's UDP for example, but the policies cover the same general categories (protection of sites, species, landscape features and woodland among others). There is no mention of LBAPs unlike some other plans.</p> <p>It is worth highlighting one policy in particular:</p> <ul style="list-style-type: none"> <li>• ENV6 – Species Protection – the notes relating to this policy are very similar to those for Carmarthenshire regarding the need for sensitive design, relocation as a last resort and seeking advice from CCW. Supplementary Planning Guidance is referred to and can be accessed from Policy GEN10 of the UDP. SPG 18 on Nature Conservation and Species Protection contains species specific guidance for bats in development.</li> </ul> <p><b>Link to plan:</b>  <a href="http://www.denbighshire.gov.uk/planningudp/english/book.htm">www.denbighshire.gov.uk/planningudp/english/book.htm</a></p>	Yes - In the SPG.
Wrexham	February 2005	<p>Section 5 of the UDP considers 'Environment and Conservation'. This section combines policies on the natural environment and the built environment and has possibly led to a less thorough consideration of biodiversity interests than in some other UDPs. The chapter begins with policies relating to green barriers and agricultural land. Policy EC4 concerns hedgerows, trees and woodlands, EC6 concerns sites of biodiversity interest. The remainder of the chapter predominantly covers the built environment and water control. There is no specific mention of bats and mention of protected species seems rather sparse.</p> <p>A potential policy of concern is Policy EC15 which states <i>"Action will be taken to protect and enhance general amenity through the reclamation and restoration of derelict sites, and through the improvement of untidy sites, dilapidated buildings, and other eyesores, particularly those in sensitive locations."</i> However, the notes relating to this policy state <i>"Regard will be had to the possible nature conservation interest of neglected sites, and to the potential for habitat creation."</i></p>	No

		<p><b>Link to plan:</b>  <a href="http://www.wrexham.gov.uk/english/planning_portal/plan_policy/wxm_udp.htm">www.wrexham.gov.uk/english/planning_portal/plan_policy/wxm_udp.htm</a></p>	
<b>Pembrokeshire</b>	July 2006	<p>Section 6 of the UDP considers 'Environment'. It contains (among others) sub-sections on Nature Conservation, Landscape, Trees, and Building Conservation and Design. There are no specific mentions of bats, but several of the policies should benefit bat conservation, notably:</p> <ul style="list-style-type: none"> <li>• 64 – Sites Protected by Designations,</li> <li>• 65 - Protection of Biodiversity,</li> <li>• 66 – Landscape Diversity and Traditional Landscape Features,</li> <li>• 68 – Development and Landscaping/Habitat Enhancement,</li> <li>• 70 – Green Wedges, and</li> <li>• 71 – Protection of Tree and Hedgerows.</li> </ul> <p>The sub-section on Building Conservation and Design is disappointing in not considering the biodiversity interest of buildings at all. It may be that they are relying on Policy 65 to reflect the needs of bats in buildings as this states:  <i>"Development that would disturb or otherwise harm protected species or their habitats or the integrity of other habitats, sites or features of importance to wildlife and individual species will only be permitted where:</i>  <i>i) the effects will be minimised or mitigated through careful design, work scheduling or other measures; and if appropriate</i>  <i>ii) safe and effective relocation measures are provided by the developer."</i></p> <p>The publication of Supplementary Planning Guidance (SPG) is mentioned in the UDP but was not examined.</p> <p>Bats receive only one specific mention in the entire UDP, in Appendix 1 on Employment Allocations with reference to Carew Airfield where it is stated "There may also be local nature conservation interest on the site, possibly including bat roosts."</p> <p><b>Link to plan:</b>  <a href="http://www.pembrokeshire.gov.uk/content.asp?nav=109&amp;parent_directory_id=646&amp;id=5058">www.pembrokeshire.gov.uk/content.asp?nav=109&amp;parent_directory_id=646&amp;id=5058</a></p>	Yes but only in the appendix with reference to a specific site
<b>Carmarthenshire</b>	July 2006	<p>Section 8 of the UDP considers the 'Built and Historic Environment' and Section 9 considers 'Nature and Landscape Conservation'. There is no specific mention of bats anywhere in the document. There is, however, heavy emphasis within Section 9 on Local Biodiversity Action</p>	No but emphasis on

	<p>Plans (not mentioned in the Pembrokeshire UDP). Lesser horseshoe is a priority species for the Carmarthenshire LBAP.</p> <p>As for the Pembrokeshire UDP, Section 8 does not mention the biodiversity interest of the built environment, whereas it places significant emphasis on sites of archaeological interest. The need to consider protected species such as bats when buildings are converted is however highlighted by policy EN7 (see below).</p> <p>Several policies listed in Section 9 of the UDP should provide protection for bats, notably:</p> <ul style="list-style-type: none"> <li>• EN1 to EN4 – Concern site protection resulting from international, national, regional and local level designation. It is noted that, for internationally or nationally designated sites, proposals beyond the boundary of the site but which might have serious repercussions within the site will be subject to rigorous examination with adverse developments only permitted in the most exceptional circumstances.</li> <li>• EN5 – Protection and enhancement of flora and fauna. The notes relating to this policy contain several points of direct relevance to the protection of bats in cases of development, for example:             <ul style="list-style-type: none"> <li>○ the possibility of using sensitive design to allow the continuation of a species and their habitat on a site,</li> <li>○ relocation is considered a last resort and CCW consents are needed for translocation,</li> <li>○ ecological and habitat survey may be required prior to granting planning permission to inform the planning decision and advice from CCW should be sought,</li> <li>○ development contravening the protection for EPS requires derogations granted by licence from WAG.</li> </ul> </li> <li>• EN6 – Retention of habitats</li> <li>• EN7 – Provision for protected species – specifically relates to the need to make provision for protected species during conversion of existing buildings to a new use.</li> <li>• EN8 – Landscape features of major importance for flora and fauna – lists many linear features as well as woodlands and wetlands.</li> <li>• EN9 – Site protection – species and habitats of biodiversity concern</li> <li>• EN11 – Ancient, broad-leaved and mixed woodlands</li> <li>• EN12 – Woodland management</li> </ul>	LBAPs
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		<ul style="list-style-type: none"> <li>• EN13 – Hedgerows</li> <li>• EN14 – Tree Preservation Orders</li> </ul> <p><b>Link to plan:</b>  <a href="http://www.cartoplus.co.uk/carmarthenshire/english/intro.htm">www.cartoplus.co.uk/carmarthenshire/english/intro.htm</a></p>	
<b>Monmouthshire</b>	June 2006	<p>The UDP for Monmouthshire is set out a little differently from most of the others. Section 2 of the UDP concerns 'The Environment'. The objective of this section is to ensure development occurs in areas that minimise health and safety risks to the population and minimise environmental effects such as flooding. The only part of relevance to bat conservation is that it states that development should take into account biodiversity considerations.</p> <p>Section 11 of the UDP concerns 'Countryside' and is of importance to bats because of the emphasis placed on the protection of landscapes, greenspaces, trees, woodland and traditional field boundaries.</p> <p>Section 12 is concerned with 'Nature Conservation'. Bats are specifically mentioned with reference to the Forest of Dean bat SAC and the Usk bat SAC. Policies within this section are closely allied to the statutory requirements.</p> <p><b>Link to plan:</b>  <a href="http://www.monmouthshire.gov.uk/site/scripts/documents_info.php?documentID=473">http://www.monmouthshire.gov.uk/site/scripts/documents_info.php?documentID=473</a></p>	Yes but only with reference to two SACs
<b>Neath Port Talbot</b>	March 2008	<p>The website for this plan unusually provides links to Supplementary Planning Guidance first before presenting the UDP documents. There is a specific SPG for Biodiversity, a quick search of which revealed four mentions of bats in the following contexts – 1. The need for carrying out work at an appropriate time of year, 2. The possible provision of roosting opportunities on new buildings, 3. Links to the Bat Conservation Trust for further information, and 4. The need for licensing where works result in disturbance or injury to protected species.</p> <p>Section 8 of the UDP is devoted to the 'Environment'. As in Wrexham's UDP, the natural environment, built environment and water control policy are considered together here. Part 1 Policy 2 in particular relates to the enhancement and protection of species and habitats and highlights those with national or international designations. Policy ENV5 on Nature Conservation contains several points of importance to the lesser horseshoe bat including retention of landscape features and avoiding loss or damage to species identified in the</p>	Yes in the UDP and in the SPG

		<p>Neath Port Talbot LBAP.</p> <p>The UDP makes specific mention of bats in two instances. The first, in policy ENV8B on Conversion or Re-use of Buildings in the Countryside states <i>"The conversion, rehabilitation and/or re-use of an existing building will be permitted only where ... (e) satisfactory provision is made to retain and encourage wildlife habitats including bat roosts and bird boxes;..."</i>. The second is a statement <i>" 8.12.7 Habitats for bats and birds are under pressure and becoming scarce and the opportunity should be taken to retain and create nests and roost sites. More detail is provided at 8.8.10."</i> Section 8.8.10 makes reference to European Protected Species and the three tests for derogation.</p> <p>This UDP is fairly text heavy, but it is more detailed (and perhaps has more jargon because of a more explicit link to the legislation) than some others.</p> <p><b>Link to plan:</b>  <a href="http://www.neath-porttalbot.gov.uk/default.aspx?page=1989">http://www.neath-porttalbot.gov.uk/default.aspx?page=1989</a></p>	
<b>Bridgend</b>	May 2005	<p>Section 3 of Bridgend's UDP concerns the 'Environment'. This encompasses the natural and built environments and considerations of water quality and flood risk.</p> <p>Two specific mentions are made of bats in section 3.9.24. This section emphasizes that species protection not only applies to proposals for new development but also to conversions of existing buildings and transportation and utility service developments <i>"...e.g. the construction of underpasses, or the removal of old bridges and small culverts/drains, which may provide valuable nesting sites to small mammals (including bats), birdlife, and wild plants..."</i> It also states that <i>" The provision of nesting boxes for barn owls or roosts for bats, for example, in barn conversions can conserve these species at their existing habitats with a minimal additional cost upon the design of such developments."</i></p> <p><b>Link to plan:</b>  <a href="http://www.bridgend.gov.uk/web/groups/public/documents/plan/001497.hcsp">http://www.bridgend.gov.uk/web/groups/public/documents/plan/001497.hcsp</a></p>	Yes
<b>Vale of Glamorgan</b>	April 2005	<p>Section 3 of the Vale of Glamorgan UDP concerns the 'Environment. No specific mention is made of bats.</p>	No

		<p>Policy ENV8 is concerned with proposals which involve small scale conversions of rural buildings to new uses. Although it makes mention of the need to retain architectural or historic features but no mention is made of biodiversity features. Landscape, woodland, site and protected species conservation is placed further down in this UDP (ENV11 – ENV16) and correspondingly appears to have been accorded less importance than in other UDPs. This UDP appears weaker than some of the aforementioned.</p> <p><b>Link to plan:</b>  <a href="http://www.valeofglamorgan.gov.uk/living/planning/planning_policy/unitary_development_plan.aspx">http://www.valeofglamorgan.gov.uk/living/planning/planning_policy/unitary_development_plan.aspx</a></p>	
<b>Newport</b>	May 2006	<p>Section 2 of the UDP concerns 'Conservation and Environment'. This plan appears to contain policies on the same general themes as the others. No specific mention is made of bats.</p> <p><b>Link to plan:</b>  <a href="http://www.newport.gov.uk/_dc/index.cfm?fuseaction=planning.udp">http://www.newport.gov.uk/_dc/index.cfm?fuseaction=planning.udp</a></p>	No
<b>Blaenau Gwent</b>	July 2006	<p>Section 6 of the Blaenau Gwent UDP concerns the 'Environment'. Policies EN12 to EN17 inclusive are designed specifically for protection of species and habitats. Mention is made of ecological diversity and wildlife corridors. Additional policies in this section consider landscape, green wedges, trees and woodland. No specific mention is made of bats.</p> <p><b>Link to plan:</b>  <a href="http://www.blaenau-gwent.gov.uk/business/7725.asp">http://www.blaenau-gwent.gov.uk/business/7725.asp</a></p>	No

Table 6: Results of the UDP review in Wales February 2009

## APPENDIX D: LBAP ANALYSIS

Table 6 Analysis of LBAP's in Wales as of the UK BAP website [www.ukbap.org.uk](http://www.ukbap.org.uk) (19.05.08) and BARS website <http://www.ukbap-reporting.org.uk> (04.08.08) (and updated in January 2009). N.B. there is some inconsistency between information on these two websites.

LBAP Coverage	Specific plan for Lesser Horseshoe bat?	Other bat plans: drawn up for specific species	General Bat Plan drawn up?
Anglesey	Yes	common pipistrelle (45 pip), noctule	
Blaenau Gwent	Yes	45 pip	
Brecon Beacons National Park	Yes – on BAP website	Greater horseshoe bat (GHB), Bechstein's: on BAP website	Yes: on BARS website
Bridgend	No	Yes: on BARS	Yes: on BARS website
Caerphilly	Yes	Daubenton's, whiskered, Brandt's, Natterer's, noctule, brown long-eared, 45 pip, GHB.	
Carmarthenshire	Yes	45 pip, GHB	Yes: on BARS website
Cardiff	No		General action plan for bats (species not specified)
Ceredigion	No	No	None
Conwy	Yes – on UK BAP website		
Denbighshire	Yes	45 pip (only on UK Bap website) Brandt's (only on BARS website)	Yes on BARS website
Flintshire	Yes		
Vale of Glamorgan	No	45 pip: only on UK BAP website	General action plan for bats (species not specified) – only on UK BAP website
Gwynedd	Yes		
Merthyr Tydfil	No	Yes on BARS website only	None
Monmouthshire	Yes: on BARS website only	GHB: on BARS website only	None
Neath Port Talbot	Yes: on UK BAP website	Barbastelle, 45 pip, GHB on UK BAP only	General action plan for bats (species not specified)
Newport	No	No	Generic action plan for bats on UK BAP website only
Pembrokeshire Coastal National Park	Yes: on UK BAP website only	barbastelle, Bechstein's, 45 pip – on UK BAP website only	
Powys	Yes	45 pip	
Rhondda Cynnon Taf	No	45 pip	General action plan for bats (species not specified)
Snowdonia National Park	Yes	45 pip, Natterer's bat, noctule bat	
Swansea	Yes	45 pip, barbastelle, Bechstein's, GHB	
Torfaen	Yes : on UK BAP website only	45pip, Barbastelle, GHB: on UK BAP website only	General action plan
Wrexham	Yes – no avail on BARS		

## APPENDIX E: GUIDANCE NOTES FOR THE TIR GOFAL LESSER

### HORSESHOE BAT SPECIES PACKAGE

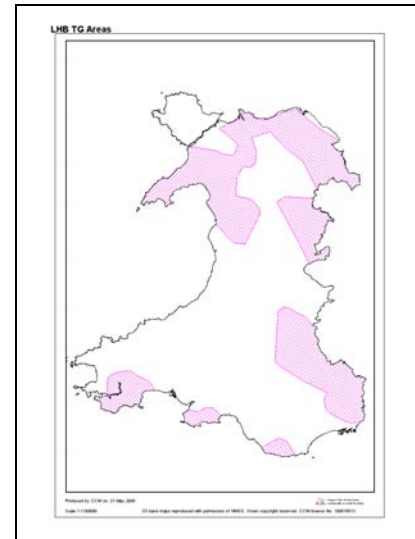
#### Lesser horseshoe bat

##### Conservation Status

- Principal Biodiversity Species
- Protected Species, Schedule 5 Wildlife & Countryside Act 1981 (as amended)
- European Protected Species, Schedule 2 of the Conservation (Natural Habitats &c.) Regulations 1994 (as amended)

##### Ecological requirements

- A variety of roost sites providing a range of temperatures. These long-lived animals return to the same sites at the same time each year.
- Roost entrances are large, unlit and unobstructed, but close to the cover of trees or shrubby vegetation.
- Maternity roosts are usually in warm, dark, undisturbed large loft areas of old buildings. Used from late spring to late summer. Smaller buildings used as night roosts and stopovers between summer and winter roosts.
- Underground winter hibernation sites, e.g. caves, disused mines, cellars with cool stable temperatures.
- Lesser horseshoes commute and forage in dense vegetation, hedgerows and broad leaf and woodland edge and glades.
- They also use small fields of permanent pasture with tall hedgerows, marshy areas and watercourses.
- Stock and land managed to encourage dung flies and other insect prey. Avoid use of insecticides in woodland glades. Key foraging areas are within 1 km of nursery roosts.
- The species' stronghold in Wales is lowland woodlands and river valleys in north Wales, the Welsh borders and coastal areas of the south.



##### **Tir Gofal Mandatory Categories**

###### TG1A-C: SEMI-NATURAL BROADLEAVED WOODLAND

- Mature trees (retain and buffer hedgerow trees, in-field trees, waterside trees and dead wood).

###### 3A-B[O]: ORCHARDS

- Orchard trees (see TG1A-C management advice)
- Fertilisers (use organic fertilisers, preferably FYM and slurry, preferably cattle)
- Grazing (especially cattle, especially organic, winter grazing adjacent to hibernacula, reduced use of avermectin anthelmintics)

###### 3A-C[P]: PARKLAND

- Parkland trees (see TG1A-C management advice)
- Fertilisers (see TG3A-B[O] management advice)
- Grazing (see TG3A-B[O] management advice)

###### TG7-TG11: GRASSLANDS

- Fertilisers (see TG3A-B[O] management advice)
- Grazing (see TG3A-B[O] management advice)

###### TG31A1-TG31D: CONVERT ARABLE LAND TO GRASSLAND

- Buffer zones (creation of conservation headlands, buffer strips, uncropped field corners, beetle banks, low input crop management, no prophylactic use of insecticides, no broad-spectrum insecticides, rough grass field margins)

###### TG32A1-TG32B4: CONVERSION OF IMPROVED GRASSLAND TO SEMI-IMPROVED GRASSLAND

- Buffer zones (see TG31A1-TG31D management advice)

TG35C-D: CONVERSION OF SEMI-IMPROVED GRASSLAND TO UNIMPROVED GRASSLAND

- Buffer zones (see TG31A1-TG31D management advice)

TG36A-E: INCREASE WATER LEVELS ON SUITABLE HABITATS AND FEATURES

- Wet areas (ditch, dyke and wetland retention, restoration, and management; pond retention, creation and restoration; buffer strips around ponds and streamside margins, exclude stock)

TG37A-D: ESTABLISH NEW BROADLEAVED WOODLANDS AND SCRUB

- Farm woodland (retain, manage, plant new broadleaved, create linkages)

TG38-TG39: ESTABLISHMENT OF STREAMSIDE CORRIDORS / NEW REEDBEDS AND OTHER SWAMPS

- Wet areas (see TG36A-E management advice)

**Tir Gofal Voluntary Options and Capital Works to consider on farm visit**

Key prescriptions in bold type

**TG18 Hedgerow management** (maintenance, restoration, replanting, new planting, inter-planting, laying, coppicing, hedge bank restoration, buffer strips, no removal).

**TG76 Traditional farm building restoration** (retain roosts during restoration, sympathetic management; seek advice on all works from CCW), a licence may be necessary

Rotational set aside (rough grass field margins cut no more than once every five years, establish nectar and pollen mixes for prey items).

**90B: SPECIAL PROJECTS**

Install grilles in underground sites to prevent disturbance to hibernating bats; creation of new roosts in suitable habitat. Seek advice from CCW

Contact for further information:

**Welsh Bat Officer,**

Bat Conservation Trust

020 7627 2629 [www.bats.org.uk](http://www.bats.org.uk)

**Countryside Council for Wales**

Enquiries Tel: 0845 130 6229,

Email: [Enquiries@ccw.gov.uk](mailto:Enquiries@ccw.gov.uk)



*Example of good lesser horseshoe bat habitat – J. Matthews*

**Further reading**

Anon. (2005). *Woodland management for bats*. Forestry Commission England and Wales, Bat Conservation Trust, Countryside Council for Wales and English Nature.

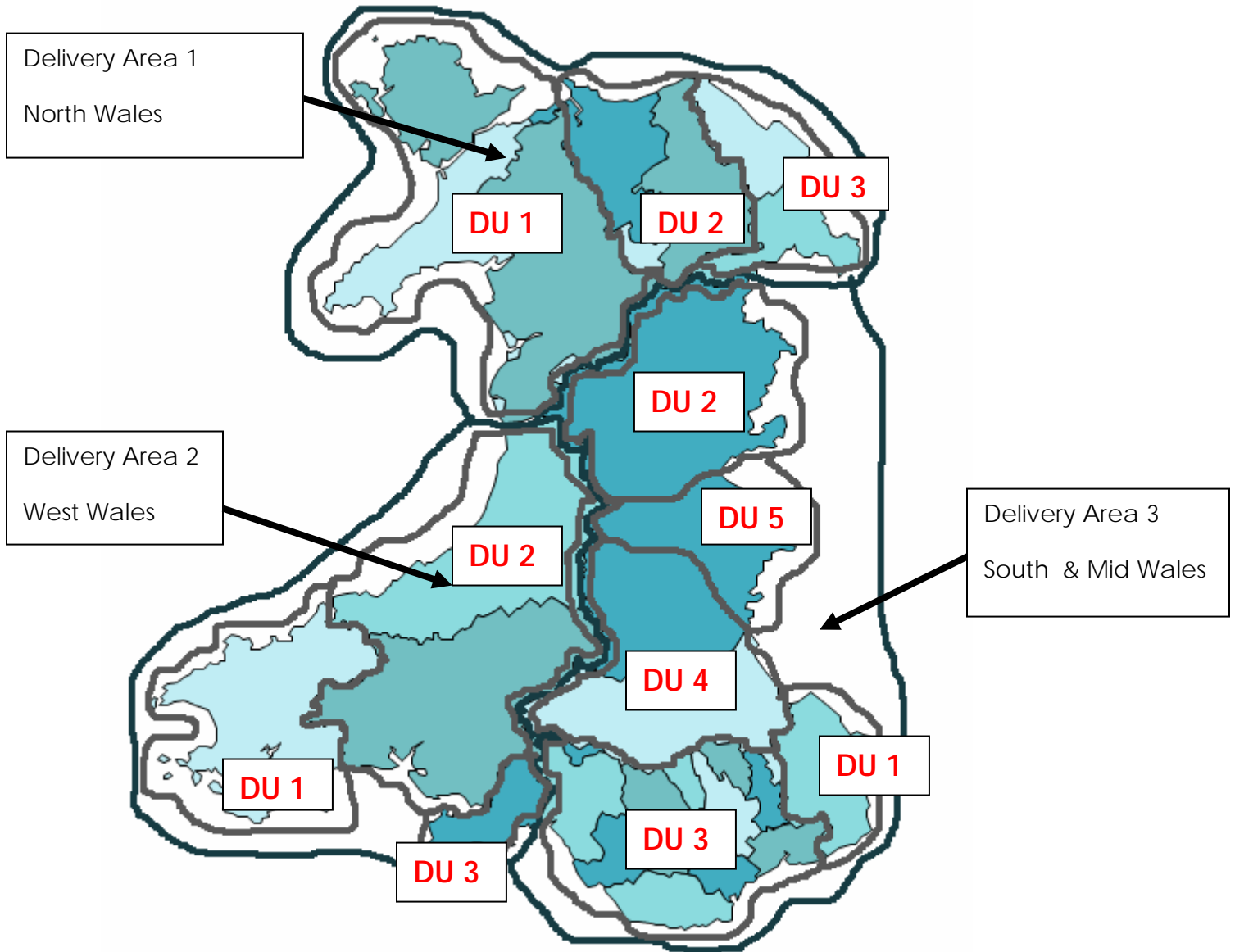
Entwistle, A.C., Harris, S., Hutson, A.M., Racey, P.A., Walsh, A., Gibson, S.D., Hepburn, I and Johnston, J. (2001). *Habitat management for bats. A guide for land managers, land owners and their advisers*. JNCC, Peterborough.

Bat Conservation Trust. (2003). *Agricultural practice and bats: A review of current research literature and management recommendations*. Defra Research Report BD2005.

Winspear, R. (ed.) (2007). *The farm wildlife handbook*. The RSPB, Sandy

## APPENDIX F: PROPOSED MAP OF DELIVERY AREAS AND UNITS FOR PHASE 3

Figure 22: Proposed Delivery Areas and Delivery Units for Phase 3 of the Landscapes for Lessers Project.



## **APPENDIX G: SUMMARY OF THE FUNDING STRATEGY FOR PHASE 3**

This is a summary of a report presented as a confidential document to the potential funders of the bid development stage of the project (Interim Stage between Phase 2 and Phase 3).

The Landscapes for Lesser's Project Fundraising Strategy aims to provide a strategy to successfully fund Phase 3 of the project.

During Phase 2 of the project a number of possible sources of funding were analysed including EU, Government, Local Authority, Landfill Community Trust and Charitable Trust. These income sources were analysed against the project objectives and outcomes and the most suitable sources of funding identified.

The project has been costed out at approximately £1.5 million over 4 years. The ideal funding solution would be to secure:

1. A major 4 year grant from EU LIFE+ Nature
2. Match funding for the major grant through contributory grants from Statutory Organisations and Charitable Trusts.

These would need to fund all the staff and support costs and some of the practical conservation action costs. In addition, specific project outcomes could be packaged up in a proposal to particular funders, for example a proposal for funding for monitoring of mitigation could be put to WAG.

The main constraint with this scheme is the amount of fundraising time needed to apply to these funding sources. The time and costs of the various funding bids are estimated in the Strategy, so these costs can be compared with the resources available. The timescales of each funding source are also given - a successful EU Life+ Nature bid would allow the project to start in the first six months of 2011.

Depending on the amount raised from the major grants, further local funding for local practical conservation work could then be applied for by the project staff, when the project is up and running. This would take up project staff time, but gives flexibility given that the sites and work needed cannot be identified until the audit of sites has started. For site specific work, depending on the location of the work, local funding could come from sources including Landfill Communities funds, Local Authorities, Aggregates levy, National Park Sustainability grants, Tir Gofal, Better Woodlands for Wales and local developers e.g. for an eco-development on a woodland edge.

## **APPENDIX H: SUMMARY OF OBJECTIVES, OUTCOMES AND TARGETS FOR PHASE 3**

**OBJECTIVE ONE:** Project officers to work with local record centres (LRCs) to undertake an audit of lesser horseshoe bat records throughout Wales to ensure the L4L project is working from the most up-to-date baseline information. Work with end-users of the data (e.g. Local Planning Authorities (LPAs), Welsh Assembly Government (WAG), CCW) to produce a database and a GIS resource for the project enabling appropriately targeted conservation efforts within each delivery area / unit.

- Target 1: Each project officer to develop and demonstrate close working relationships with the local records centres and all bat groups in their area.
- Target 2: To ensure each delivery area has a complete collection of all available existing records for the lesser horseshoe bat by the end of year 1.
- Target 3: Ensure any new records created during the project throughout years 1 to 4 are passed onto the relevant LRC and encourage bat groups to do the same.
- Target 4: GIS / administration assistant / LRCs to work closely together with the desk study for Phase 2, to identify features of importance to the lesser horseshoe bat and produce a basic GIS overlay resource / map (using resources gathered or identified in Phase 2) to target suitable conservation delivery on the ground throughout Wales within Phase 3 by the end of year 1.
- Target 5: the GIS resource to be used by project staff to help target practical conservation action on the ground within each delivery area throughout years 2, 3 and 4 of the project. (i.e. to guide land-use planning policy and the implementation of agri-environment schemes).
- Target 6: Additional relevant information is collected during the project that can be added to the GIS resource throughout years 2, 3 and 4 of the project.
- Target 7: Enable the creation of a more up-to-date distribution map of lesser horseshoe bats at the 10km square resolution in Wales to enable more effective targeting of conservation effort around the known distribution and aid in any revision of the BAP targets for this species in Wales.

**OBJECTIVE TWO:** To determine the status and location of as many known lesser horseshoe bat roosts as possible within Wales and encourage site monitoring.

- Target 8: Identify the status and location of all key roosts within each delivery area taking particular care to consider how the colony is using the site and role of different roosts (particularly night roosts). This should be undertaken in years 1 and 2 and completed by the end of year 2. Data will be submitted to CCW to contribute to the requirement to monitor protected sites and Annex II species and in the consideration of sites for future notification.
- Target 9: Promote or undertake monitoring of sites following existing protocols (CCW summer roost surveillance and National Bat Monitoring Programme hibernation surveys) using local contacts. Aim to encourage new helpers in the scheme, increasing the skill level of the voluntary sector.

**OBJECTIVE THREE: Start to enable the creation of a number of new roosts (or improve existing roosts) and improve foraging and commuting habitat for the lesser horseshoe bat throughout the known range and beyond (especially within areas covered by SAC designation or the Tir Gofal Species Package for the lesser horseshoe bat).**

- Target 10: Following evaluation of roosts under Objective 2 all project officers to work to produce a prioritised schedule of roost enhancement for delivery to the steering group by the end of year 1 throughout Wales. This could comprise one big roost enhancement project (of an existing roost or conversion of a derelict building) or several smaller projects.
- Target 11: Creation of 2 to 3 new roosts (or enhancement of existing roosts / foraging areas) within each delivery area within years 2, 3 and 4 of the project.
- Target 12: to enable at least one additional mitigation / enhancement scheme for the lesser horseshoe bat to be undertaken within each delivery area within years 2, 3 and 4 of the project.

**OBJECTIVE FOUR: To link conservation delivery on the ground with other existing and new landscape scale initiatives (including existing CCW projects) so that conservation measures proposed also provide benefits for other species and habitats and the new UK Biodiversity Action Plan (BAP) list (Section 42 list of the CRoW Act) including other species of bats.**

- Target 13: Project Officers to work with other organisations and identify a suite of mutual beneficial outputs for the lesser horseshoe bat and other species and habitats through joint working with other species or habitat projects and report back on progress on this target at the end of the year to the steering group.

- Target 14: Ensure that at least one of the new enhanced bat roosts or other lesser horseshoe bat mitigation proposed is undertaken where possible in liaison with another landscape scale initiative that demonstrates biodiversity gain for additional species or habitats and forms part of a broader initiative for promoting biodiversity in Wales.
- Target 15: To ensure where possible new roosts and roost renovation benefit multiple species of bats as well as the lesser horseshoe bat.

**OBJECTIVE FIVE: To increase awareness of the conservation requirements of the lesser horseshoe bat within a number of sectors and promote best practice.**

- Target 16: At least two talks in each delivery area to target audiences per year of the project. This could include holding an open-day event to promote the project (e.g. a farm open day on a farm implementing recommendations of the lesser horseshoe bat Tir Gofal Species package in association with the regional FWAG officer).
- Target 17: Produce at least 2 good practice guidance notes for each year of the project.
- Target 18: Promote these good practice guidance notes to appropriate target audiences through mail shots and at least two relevant events per year.
- Target 19: Arrange a conference at the end of the project inviting stakeholders from across Europe to share the results, experiences and lessons learned. The conference should comprise a mixture of presentations, field visits and workshops.

**OBJECTIVE SIX: To support, and provide information for, an applied academic study on the lesser horseshoe bat within Wales to support good practice.**

- Target 20: The project contributes data, knowledge and other support to at least one academic study throughout the four year period of the project.

**OBJECTIVE SEVEN: To produce regular reports to partners, the steering group and funders ensure these are available in Welsh.**

- Target 21: Meet the funders reporting requirements as specified
- Target 22: Retain the Phase 2 steering group and ensure an annual meeting for information exchange for each year of the project.
- Target 23: Produce an annual report to inform the steering group, funders, roost owners and other interested parties on progress towards the objectives throughout the project.

## **APPENDIX I: PROPOSED JOB SPECIFICATION FOR PROJECT STAFF FOR PHASE 3**

### *Project Manager*

#### *Essential Skills*

- Relevant Degree in Biological or Environmental Sciences
- Bat knowledge and experience of working the field of biodiversity for at least three years (ideally be a CCW bat licence holder) and be passionate about lesser horseshoe bats.
- Be an excellent communicator, good standard of written and spoken English.
- Excellent at relationship building, ability to network with wide range of partnership organisations and willing to lead training events and talks.
- Project Management and Organisational skills (including financial management and funder reporting)
- Full UK Driving Licence
- Willingness to work evenings, weekends and other unsocial hours (for which TOIL will be provided)
- High level of self-motivation and self-reliance and be a good team-player
- Good computer literacy

#### *Desirable*

- Experience of line-managing people
- Experience of public speaking
- Experience of working with local records centres in Wales
- Experience of working with steering groups and volunteers.
- Experience in mitigation / conservation enhancement for the lesser horseshoe bat.
- Basic Welsh language skills

### *Project Officers*

#### *Core Skills*

- Relevant degree in Biological or Environmental Sciences
- Bat survey skills and knowledge (ideally be a CCW bat licence holder) and be passionate about lesser horseshoe bats.
- Excellent communicator with a range of stakeholders
- Be organised, self-reliant, flexible and able to work alone and in a small team
- Be organised and have data management skills

- Full UK Driving Licence
- Willingness to work evenings, weekends and other unsocial hours (for which TOIL will be provided)
- Good computer literacy

### ***Team skills***

- Ability to undertake public speaking and give presentations to a range of audiences
- Strong report and scientific writing skills (e.g. to enable the production of best practice guidance for a range of stakeholders)
- Welsh language capabilities
- Data management and analysis
- Experience with GIS systems
- web design skills
- experience of working with local records centres in Wales
- Experience in mitigation / conservation enhancement for the lesser horseshoe bat.
- Experience of working with volunteers in the conservation field.

### ***Administration / GIS assistant***

#### ***Essential***

- Organisational / administration skills
- Willingness to travel to liaison meetings in Wales
- Experience of GIS systems
- Self reliant but able to work with a long-distance team
- An interest in bat and nature conservation
- Good computer literacy

#### ***Desirable***

- Experience of working with bats and bat knowledge
- Relevant degree
- Basic Welsh language skills