

THE AGREEMENT ON THE CONSERVATION OF POPULATIONS OF EUROPEAN BATS [EUROBATS]

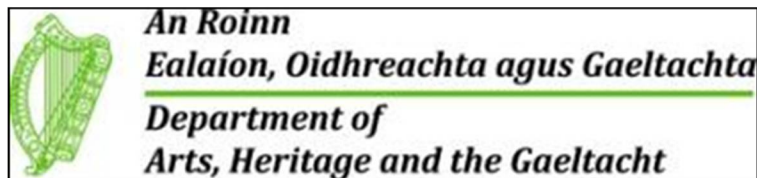
REPORT ON THE IMPLEMENTATION OF THE AGREEMENT IN *IRELAND*

A. General Information

Name of party - Ireland
Date of Report – 16 June 2014
Period Covered - June 2010 – May 2014

Competent Authority - National Parks and Wildlife Service
Department of Arts, Heritage and the Gaeltacht
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Ireland

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Appointed member of the Advisory Committee - Dr Ferdia Marnell

Abbreviations

BCIreland Bat Conservation Ireland
BCT Bat Conservation Trust
CIBR Centre for Irish Bat Research
DAF Department of Agriculture and Food
EBRS European Bat Research Symposium
FS Forest Service
NBDC National Biodiversity Data Centre
NGO non-governmental organisation
NIEA Northern Ireland Environment Agency
NPWS National Parks and Wildlife Service
SAC Special Area of Conservation
VWT The Vincent Wildlife Trust

B. Status of bats within the territory of the Party

1. Summary details of resident species

There has been no change in the number of bat species confirmed to be breeding in Ireland. This remains at eight:

- (a) Common Pipistrelle – *Pipistrellus pipistrellus*
- (b) Soprano Pipistrelle – *P. pygmaeus*
- (c) Brown Long-eared Bat – *Plecotus auritus*
- (d) Leisler’s Bat – *Nyctalus leisleri*
- (e) Whiskered Bat – *Myotis mystacinus*
- (f) Daubenton’s Bat – *M. daubentoni*
- (g) Natterer’s Bat – *M. nattereri*
- (h) Lesser Horseshoe Bat – *Rhinolophus hipposideros*

Pipistrellus nathusii was first reported in Ireland in 1997 and has since been recorded from most counties. It is considered a resident, although no breeding roosts have been located to date; maternity roosts are known from Northern Ireland.

Two further species have been recorded in Ireland – *Myotis brandtii* and *Rhinolophus ferrumequinum*.

A single specimen of *Myotis brandtii*, confirmed by genetic testing, was found in 2003 in Ireland, but despite extensive survey work since, including a resurvey by the Centre for Irish Bat Research of all known roosts of *Myotis mystacinus* (a species easily mistaken for Brandt’s), no further specimens have been found. This species is now considered to be a vagrant in Ireland.

In winter 2012, a single specimen of *R. ferrumequinum* was discovered in south-east Ireland. A ring was placed on the animal and he has been re-located a number of times since in the same area, but no further individuals of this species have been found. It is not clear where this individual came from; the nearest known populations are some distance away in south Wales.

2. Status and Trends

Ireland completed and submitted its Article 17 report under the EU Habitats Directive in June 2013. This process, which was done with the assistance of the national bat NGO – Bat Conservation Ireland - required a thorough assessment of the conservation status and population trends of all nine resident bat species. In particular the distribution, range, habitat usage, population and future prospects of each species had to be assessed. As a result, up to date distribution maps were prepared and the extent of range calculated. For the first time, population estimates are now available for almost all Irish bats. Population estimates range from less than 5,000 individuals for *Pipistrellus nathusii* and c.14,000 for *Rhinolophus hipposideros*, to over 1 million individuals of *P. pipistrellus* and *P. pygmaeus*. More data are still required before population sizes can be estimated for *Myotis mystacinus* and *M. nattereri*.

The detailed technical documents which underpin the assessments for all listed habitats and species in Ireland are available online here:

<http://www.npws.ie/publications/article17assessments/>

A summary document will be published shortly and made available at the same web location.

The Article 17 assessments were underpinned by a comprehensive National Bat Monitoring Programme, funded by the National Parks & Wildlife Service. Each of the individual schemes within the programme are managed under contract by BCIreland and, where feasible, these are run on an all-Ireland basis with the cooperation and assistance of the Northern Ireland Environment Agency. Robust population trend data is collected on an annual basis for six of Ireland's bat species.

i) Lesser Horseshoe Bat Monitoring

NPWS, with help from the VWT at some sites, conducts annual monitoring at maternity and hibernation roosts of *Rhinolophus hipposideros*. Records for some roosts go back to the 1980s. Since 2006, approximately 100 known winter sites (containing c. 45% of the national population) and 100 known summer sites (with c. 60% of the national population) have been surveyed each year. Although most of the sites included in the annual monitoring programme are known to be important for this species, a proportion of the sites were included where only a small number of droppings or individual bats had previously been recorded. Most of these minor roosts are at the edge of the bat's range in Ireland and by monitoring these on a regular basis (i.e. every 3 years) it is hoped to chart any changes in the species distribution.

A recent review of the lesser horseshoe bat database and statistical analyses of population fluctuations across both winter and summer roosts have been conducted for NPWS by BCIreland. TRIM, GAM models and Power analyses were all employed. Encouragingly, the overall trends in summer and winter sites show a large degree of overlap. Over the period of the data, summer roosts have shown significant increases. Trend analysis for a longer time series is possible with winter counts since data for a number of sites extend back to the mid-1980s. Results suggest that an increasing trend has been apparent since that time, although a low number of sites in the early years means that trends must be interpreted with caution. More recently, since 2008, numbers in winter have declined somewhat.

The national population is estimated to be in the order of 14,000 individuals.

The full report can be accessed here:

http://www.npws.ie/publications/archive/Lesser%20Horseshoe%20Bat%20Report%20November%202012_.pdf

ii) Car-based Monitoring Scheme

A car-based survey for bats was initiated in Ireland in 2003. This scheme has expanded year on year and now 27 30km squares, including 4 in Northern Ireland, are surveyed twice annually (see Fig. 1). Robust data is being collected for 3 widespread and common species - *Pipistrellus pipistrellus*, *P. pygmaeus* and *Nyctalus leisleri* – and a recent synthesis of the data from 2003 – 2011 allowed population trends for these species to be examined for the first time.

<http://www.npws.ie/publications/irishwildlifemanuals/IWM60.pdf>

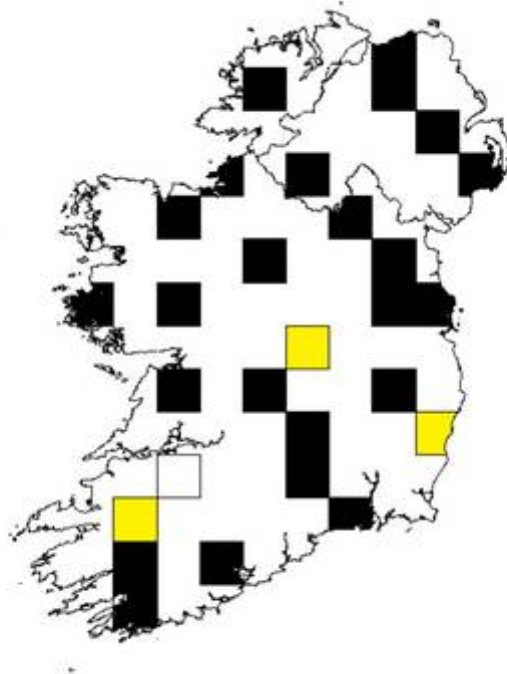


Fig. 1 Location of 30km Car Survey Squares. Black squares were surveyed twice in 2013, Yellow squares were surveyed once. White squares were not surveyed.

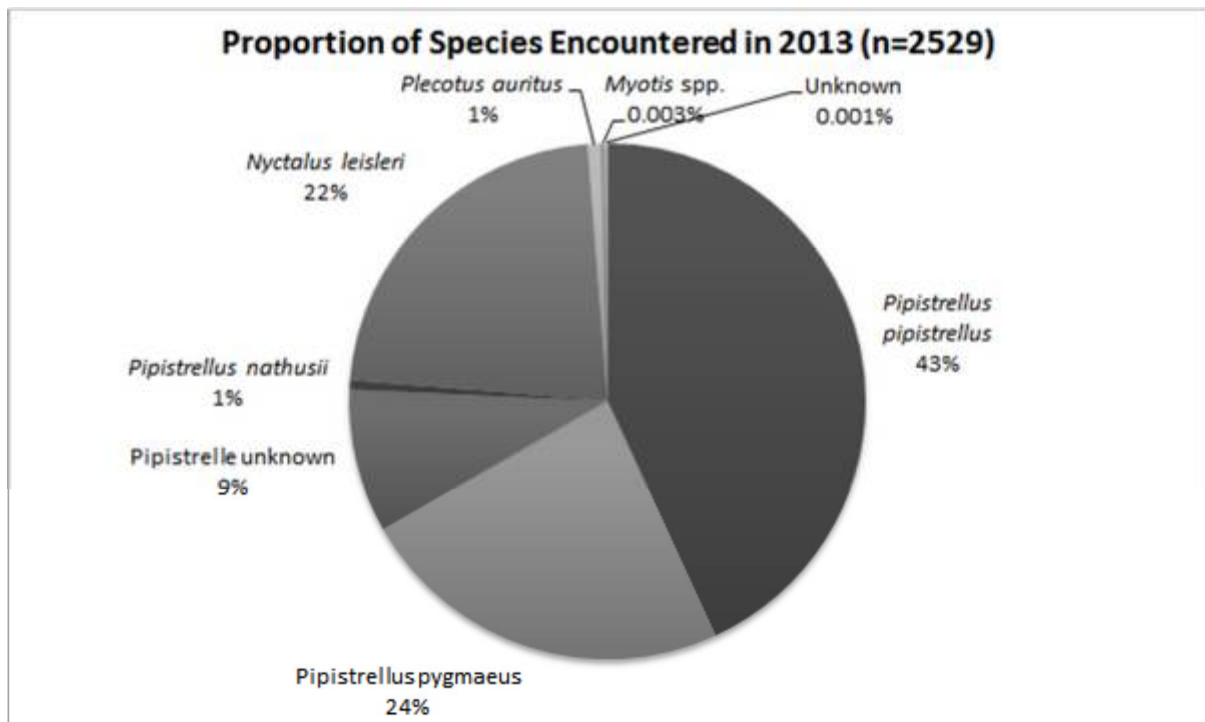


Fig. 2 Proportion of different bat species encountered during the car transect survey in 2013. Total number of bat encounters, 2529.

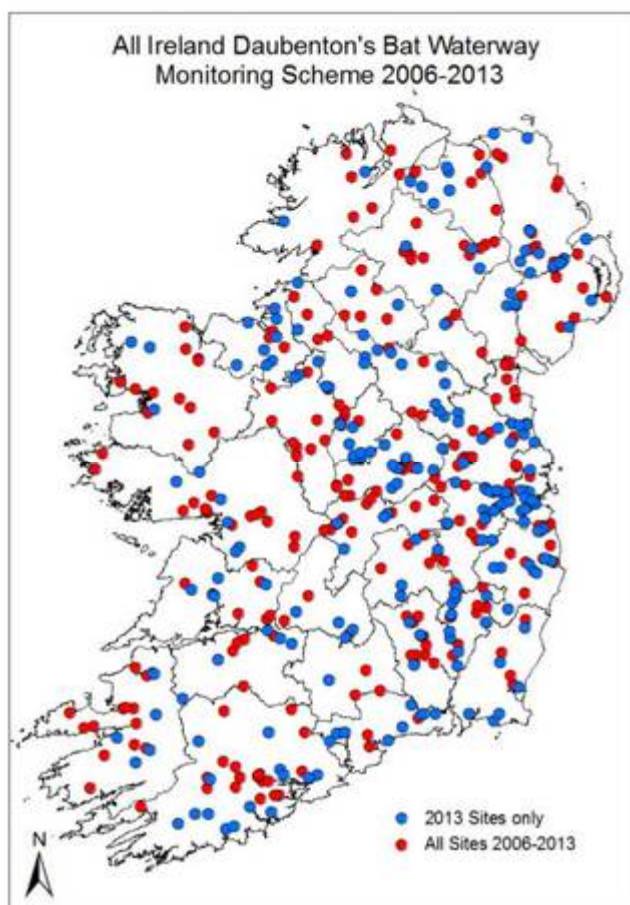
These trends and data were further examined for the 2013 Article 17 assessment and the results indicate that:

- a) *P. pipistrellus* showed some increases from 2003 – 2007 and has been stable since. The national population is estimated to be between 1,074,000 and 2,410,000 individuals.
- b) *P. pygmaeus* has shown a significant positive trend since the scheme was begun. Population estimate is 502,000 – 1,129,000.
- c) Trends have shown a significant increase for *N. leisleri* since the inception of the car based monitoring scheme. Current population is estimated at 63,000 – 113,000.

Distribution data for *P. nathusii* is also recorded by this scheme. After an apparent initial phase of expansion across the country, most recent monitoring data suggests that numbers of this species have stabilised or slightly decreased. Although this species has now been recorded for most Irish counties, no breeding roosts have been located in the Republic of Ireland and the north-east of the island remains its stronghold. A tentative population estimate of 3,000-5,000 animals has been calculated based on the limited available data.

iii) Waterways Bat Monitoring Scheme

A waterways survey was rolled out across the island of Ireland in 2006, with the cooperation of the Northern Ireland Environment Agency (NIEA). It has continued every year since and in 2013 a total of 224 waterway sites were surveyed by 172 survey teams (Fig. 3). 36 waterways sites



were located in Northern Ireland and 182 waterway sites in the Republic of Ireland. 32 (6.6%) of the waterway sites surveyed in 2013 have been surveyed each year since 2006 while 73 (15%) of the waterway sites surveyed in 2013 have been surveyed for at least seven of the eight years of the scheme. Overall, 485 waterway sites across the island have been surveyed at least once over the eight years of the monitoring scheme. The data gathered so far shows that this species is common and widespread throughout Ireland with a stable population trend. The national population is estimated to be between 57,000 and 79,000.

As with the car-based survey, the waterways survey is coordinated by BC Ireland. See <http://www.npws.ie/publications/irishwildlifemanuals/IWM61.pdf> for the latest report on this project.

Fig. 3 All waterway sites surveyed between 2006 – 2013.

iv) Brown long-eared Bat Monitoring Scheme

The Brown Long-eared Bat Roost Monitoring Scheme was introduced in 2007 and continued until 2010. There was no funding available in 2011 to implement the scheme, but during this season, volunteer teams undertook a minimum of one survey at 34 roosts to ensure continuity in the data until additional funding was sought. The scheme was reinstated in 2012.

Over the seven years, a total of 68 buildings have been monitored and a total of 485 surveys have been undertaken. This project is continuing under contract in 2014. One of the encouraging results from the project is the number of roost owners who have engaged positively with the project, and are now monitoring their own roosts annually as part of the national scheme.

The modelled population trend indicates that the species has increased since 2007 with the national population estimated to be in the order of 62,000 – 97,000 bats.

This monitoring project is also managed for NPWS by BCIreland. For the latest on this project see: <http://www.npws.ie/en/PublicationsLiterature/NPWSUnpublishedReports/>

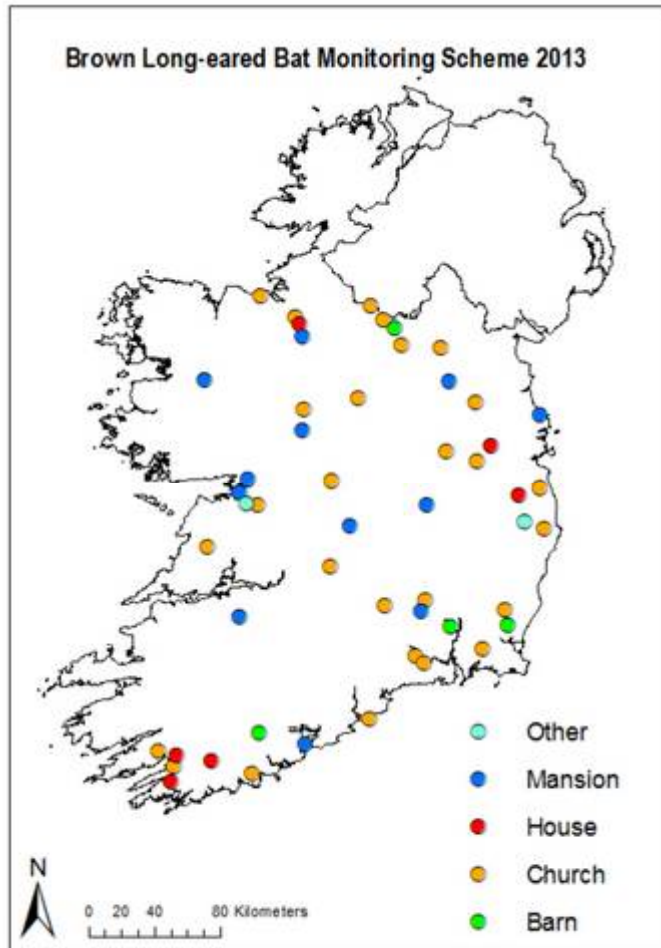


Fig. 4 Location and type of roosts monitored for brown long-eared bats in 2013.

v) Woodland *Myotis* species

The Centre for Irish Bat Research (CIBR) conducted detailed survey work on our rarer *Myotis* spp. – *M. nattereri* and *M. mystacinus* - between 2008 – 2011 inclusive (see list of recent publications in 12. below). They also explored in detail the reports of *M. brandtii*, establishing that only one record of the species could be confirmed. CIBR demonstrated that *M. nattereri* and *M. mystacinus* are reasonably widespread across Ireland, but not very common. No further records of *M. brandtii* have been confirmed despite extensive survey work. The species is now considered a vagrant in Ireland. Further research and field testing is still required to establish the best methods of monitoring *M. nattereri* and *M. mystacinus* in Ireland.

3. Habitats and Roost Sites

Grilling has been carried out at a number of important *Rhinolophus hipposideros* roosts which had been suffering from disturbance. Re-roofing and other repair works, including draft exclusion, the installation of hot boxes and predator proofing, have also been carried out at number of *Rhinolophus* maternity roosts in Kerry, Clare and Mayo.

The VWT continue to manage 12 reserves for *R. hipposideros* in Ireland. While most of these are roost-only sites, habitat management, including tree planting and hedgerow maintenance, is conducted around the roost at a number of sites as well.

Several important winter and summer roosts for this species occur in old buildings within woodlands owned by Coillte – the national forestry agency. Regular meetings take place at a local level between Coillte staff and NPWS staff to ensure that woodland management at these sites is sensitive to the roosting, foraging and commuting requirements of the bats.

4. Threats

A three year Threat Response Plan for vesper bats in Ireland has been implemented. The plan ran from 2009 – 2012. In this plan, roost loss and disturbance, unsympathetic management of foraging and commuting habitats, water pollution, and windfarms were identified as the main threats to bats in Ireland. While measures were already in place to address aspects of these threats, further action was needed in certain areas. The Threat Response Plan set out those actions, identified who was responsible for implementing them and provided a time frame for delivery. Continuation of the current monitoring and education programmes, together with implementation of the additional actions identified in this document, should ensure the long term favourable conservation status of bats in Ireland. The Threat Response Plan can be read or downloaded as a pdf here:

<http://www.npws.ie/en/PublicationsLiterature/SpeciesActionPlans/>

A separate threat has been identified as of particular concern for the lesser horseshoe bat. The summer roosts of this species in Ireland are normally in old, derelict houses or farm buildings. Many of these buildings are falling into disrepair and as they do so they become less suitable for the bats and bat numbers can decline. In some cases, particularly when the roof is lost, the roosts may be abandoned. NPWS is re-surveying and photographing all the summer monitoring roosts this summer (June 2014) with a view to cataloguing roost condition, identifying priorities for intervention and planning for the long term conservation status of lesser horseshoes in Ireland in the face of this threat.

5. Data collection, analysis, interpretation and dissemination

Data collection is ongoing. A standardised recording form has been developed and a centralised database for bat roost information is managed by BCIreland. All data from the various monitoring schemes are inputted to this database. This data is in turn passed onto the National Biodiversity Data Centre (NBDC) where it is managed for public dissemination and awareness (e.g. Fig. 5).

The distribution data can be accessed from the BCIreland website at:

<http://www.batconservationireland.org/index.php>

and from NBDC here: <http://mammals.biodiversityireland.ie/specieslist.php?OrderId=3>

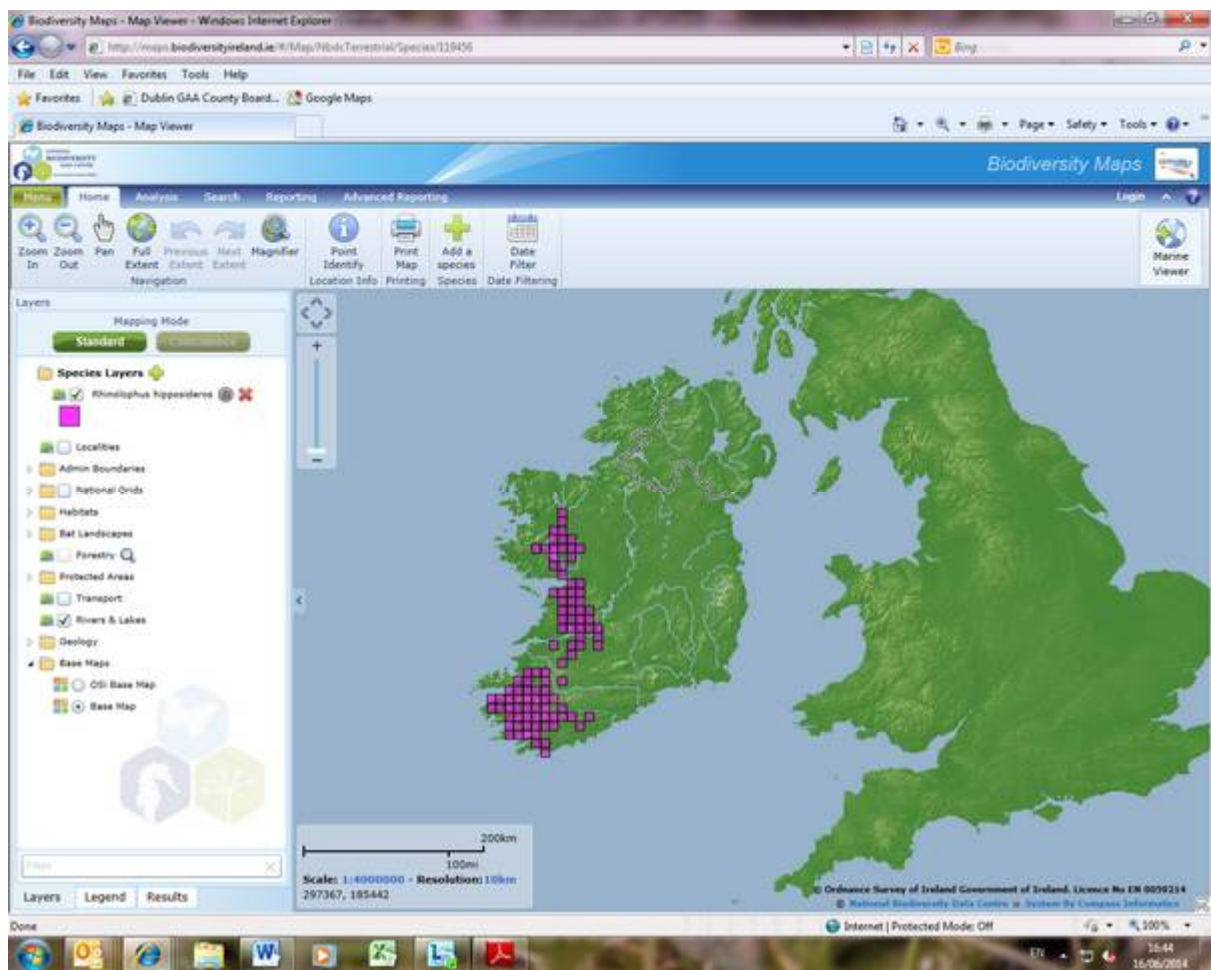


Fig. 4 Screenshot from the National Biodiversity Data Centre's website showing the distribution of lesser horseshoe bat records.

C Measures Taken to Implement Article III of the Agreement

6. Legal Measures

All bats in Ireland are protected under the Wildlife Acts [1976 and 2000] which make it an offence to deliberately kill or injure any bat species or to damage its roosts. This act is policed throughout the country by Conservation Rangers from the NPWS of the Department of the Arts, Heritage and the Gaeltacht.

Approximately 12 - 15 licences are issued each year under the *Wildlife Acts (1976 and 2000)* to facilitate bat research and bat surveys e.g. to undertake mist netting or radio-tagging studies. As provided for under the EU Habitats Directive, derogations for the disturbance or destruction of bat roosts are issued, subject to strict criteria, under Article 25 of *European Communities (Natural Habitats) Regulations, 1997*.

7. Sites identified and protected

44 SACs are designated for the protection of the lesser horseshoe bat in Ireland. Some of these SACs contain multiple roosts. The VWT employs a full-time field officer in Ireland and continues to manage a number of maternity roosts of the lesser horseshoe. See also B. 3 above. A number of swarming sites identified during fieldwork by CIBR are being considered for protection under national legislation.

8. Consideration given to important bat habitats

Detailed radio-tracking studies were conducted by CIBR at maternity roosts of *M. nattereri* and *M. mystacinus*. The data arising has provided valuable insights into the foraging habitats chosen by the species and allowed a habitat favourability model to be produced for the country.

Publications on this research by CIBR include:

- Lundy MG, Buckley DJ, Boston ESM, Scott DD, Prodohl PA, Marnell F, Teeling EC, Montgomery WI (2012) Behavioural context of multi-scale species distribution models assessed by radio-tracking. *Basic and Applied Ecology* 13(2): 188-195.
- Buckley DJ, Lundy MG, Boston ESM, Scott DD, Gager P, Prodohl P, Marnell F, Montgomery WI, Teeling EC (2012) The spatial ecology of the whiskered bat (*Myotis mystacinus*) at the western extreme of its range provides evidence of regional adaptation. *Mammalian Biology - Zeitschrift fur Saugetierkunde* 78(3): 198-204

A joint project by CIBR and BC Ireland studied landscape use by bats in Ireland. This study was funded by local authorities and NIEA and was designed to inform high level planning decisions e.g. county development plans. The report can be accessed here:

http://www.batconservationireland.org/pubs/reports/Landscape_Conservation_Irish_Bats.pdf

9. Activities carried out to promote the awareness of the importance of the conservation of bats

The leaflet “*Bats in Houses – guidance for householders*” published by NPWS in 2009 has been widely distributed and is also available to download from the NPWS website:

<http://www.npws.ie/en/WildlifePlanningtheLaw/Batsinhouses/>. This leaflet provides detailed information for roost owners on living with bats, how to plan repairs or maintenance works, bats and the law etc. A complimentary leaflet by BC Ireland is also available online:

http://www.batconservationireland.org/pubs/reports/BCIrelandGuidelines_Building.pdf

Reports from the various Bat Monitoring projects are published regularly on the NPWS website: <http://www.npws.ie/en/PublicationsLiterature/IrishWildlifeManuals/>

NPWS have also published guidelines for developers and bat surveyors detailing how bats should be treated before, during and after development works. This publication – Bat Mitigation Guidelines for Ireland can be read or downloaded here: <http://www.npws.ie/en/PublicationsLiterature/IrishWildlifeManuals/2006-2008/>

NPWS have also published a comprehensive review of Irish vesper bats, authored by Dr Kate McAney of the Vincent Wildlife Trust. It can be read or downloaded here: <http://www.npws.ie/en/PublicationsLiterature/IrishWildlifeManuals/2006-2008/>

Several events are organised by NPWS staff and local bat groups around the country for European Bat Night each year. Both NPWS and BC Ireland organise bat walks and bat talks at regular intervals.

BC Ireland is actively involved in raising public awareness of bats and their conservation value. In addition to their bats walks and talks, they provide training on bat survey techniques and engage with the press and media. They also publish guidelines on various issues such as white-nose syndrome, windfarms, landscape management etc [see their website: www.batconservationireland.org].

10. Responsible bodies nominated for the provision of advice on bat conservation and management.

NPWS of the Department of the Arts, Heritage and the Gaeltacht is the statutory body responsible for the provision of advice on bat conservation and management. Over the phone advice is available for the public together with several publications on the protection and conservation of bats (see: www.npws.ie). Local NPWS offices organise bat walks and bat talks at regular intervals.

The Heritage Council, a statutory body, has funded the production of a booklet on the conservation and management requirements of all bat species in Ireland. Local authority Heritage Officers may also provide advice at a county level and are involved in local bat projects.

The Forest Service (FS) provide guidance to foresters in relation to bats. The FS, together with NPWS, have published an Irish version of the EUROBATS leaflet on Bats and Forests.

BC Ireland provide a seasonal help-line for the provision of advice on bat related issues. They also organise bat walks, bat detector training courses and run bat identification weekends as well as a bi-annual bat conferences. The next conference will be in October 2014. See:

<http://www.batconservationireland.org/php/events.php>

11. Additional action undertaken to safeguard populations of bats.

NPWS maintains a close working relationship with other government agencies, such as the Forest Service, and with non-governmental organisations involved in bat conservation, in particular The VWT and BC Ireland. The Heritage Council provides grant-aid for the renovation of historic buildings. The Heritage Council requires bat surveys to be undertaken in advance of any such works and where roosts occur mitigation is required to ensure that the roosts are protected.

12. Recent and ongoing programmes, including research programmes, relating to conservation and management of bats.

Centre for Irish Bat Research

In 2012 the Centre for Irish Bat Research completed a multi-annual contract worth almost €700,000 from NPWS. The joint team from University College Dublin and Queens University Belfast was commissioned to set up a new centre of excellence for bat research in Ireland. The research team included four principal investigators: Dr Emma Teeling and Professor Tom Hayden of UCD and Professor Ian Montgomery and Dr Paulo Prodohl of Queens University Belfast together with two post-doctoral researchers and two PhD students. The two PhD students have now completed their studies but active bat research continues at the Centre with funding coming from various sources.

A list of the recent publications from this team will give an indication of the breadth and scope of the ongoing bat research in Ireland:

- Scott DD, Fitzpatrick S, Bailie DA, Boston ESM, Lundy MG, Buckley DJ, Teeling EC, Montgomery WI, Prodohl PA (2013) Isolation and characterization of eight polymorphic microsatellite loci for Natterers bat, *Myotis nattereri* (Vespertilionidae, Chiroptera). *Conservation Genetic Resources* 5(3): 643-645.
- Dool, SE, Puechmaille SJ, Dietz C, Juste J, Ibanez C, Hulva P, Roue SG, Petit EJ, Jones G, Rossiter SJ, Teeling EC (2013) Phylogeography and postglacial recolonisation of Europe by *Rhinolophus hipposideros*: evidence from multiple genetic markers. *Molecular Ecology* 22(15): 4055-4070.
- Jones G, Teeling EC, Rossiter SJ. (2013) From the ultrasonic to the infrared: molecular evolution and the sensory biology of bats. *Frontiers in Integrative Physiology* 4:17
- Teeling EC, Hedges SB (2013) Making the impossible possible: rooting the tree of placental mammals. *Molecular Biology and Evolution* 30(9): 1999-2000.
- Puechmaille SJ, Allegrini E, Boston EMS, Dubourg-Savage MJ, Evin A, Le Bris Y, Knochel A, Lecog M, Lemaire M, Rist D, Teeling EC (2012) Genetic analyses reveal further cryptic lineages within the *Myotis nattereri* species complex. *Mammalian Biology - Zeitschrift für Säugetierkunde* 77(3): 224-228.
- Teeling EC, Dool S, M.S. Springer (2012) Phylogenies, fossils and functional genes: The evolution of echolocation in bats. In *Evolutionary History of Bats: Fossils, Molecules, and Morphology*, eds. G. F. Gunnell and N. B. Simmons. Cambridge: Cambridge University Press pp. 1-21.
- Lundy MG, Buckley DJ, Boston ESM, Scott DD, Prodohl PA, Marnell F, Teeling EC, Montgomery WI (2012) Behavioural context of multi-scale species distribution models assessed by radio-tracking. *Basic and Applied Ecology* 13(2): 188-195.
- Boston EC, Puechmaille S, Buckley DJ, Lundy M, Scott D, Prodohl P, Montgomery WI, Teeling EC (2012) Empirical assessment of non-invasive population genetics in bats: comparison of DNA quality from faecal and tissue samples. *Acta Chiropterologica* 14(1): 45-52.
- Lundy MG, Harrison A, Buckley DJ, Boston ES, Scott DD, Teeling EC, Montgomery WI, Houghton DR (2012) Prey field switching based on preferential behaviour can induce Levy flights. *Proceedings of the Royal Society* 10(78): 20120489
- Goodman SM, Puechmaille S, Friedli-Weyeneth N, Gerlach J, Ruedi M, Schoeman C, Stanley WT, Teeling EC (2012) Phylogeny of the Emballonurini bats (Family Emballonuridae): new genus of Emballonura and species of Coleura. *Journal of Mammalogy* 93(6): 1440-1455

- Buckley DJ, Lundy MG, Boston ESM, Scott DD, Gager P, Prodohl P, Marnell F, Montgomery WI, Teeling EC (2012) The spatial ecology of the whiskered bat (*Myotis mystacinus*) at the western extreme of its range provides evidence of regional adaptation. *Mammalian Biology - Zeitschrift für Säugetierkunde* 78(3): 198-204
- Ruedi M, Friedli-Weyeneth N, Teeling EC, Puechmaille S, Goodman SM. (2012) Biogeography of Old World emballonurine bats (Chiroptera: Emballonuridae) inferred with mitochondrial and nuclear DNA. *Molecular Phylogenetics Evolution* 64(1): 204-211
- Davies KTJ, Cotton JA, Kirwan J, Teeling EC, Rossiter SJ. (2012) Parallel signatures of sequence evolution among hearing genes in echolocating mammals: an emerging model of genetic convergence. *Heredity*, 108(5): 480 – 489.

Bat Conservation Ireland

CIBR teamed up with BC Ireland to undertake a study of landscape use by bats in Ireland. This study was funded by local authorities and NIEA and was designed to inform high level planning decisions e.g. county development plans. The report can be accessed here:

http://www.batconservationireland.org/pubs/reports/Landscape_Conservation_Irish_Bats.pdf

A full list of BC Ireland's reports and publications is available on their website here:

http://www.batconservationireland.org/php/pubs_reports.php

13. Consideration being given to effects of pesticides on bats.

No recent developments in this area.

D Functioning of Agreement

14. Co-operation with other Range States

Ireland is co-operating with other Range States and with other Member States of the EU in research and conservation matters. In particular, there is close cooperation between NPWS and NIEA in Northern Ireland with both the waterways and car transect bat monitoring schemes conducted on an all-Ireland level. NPWS and NIEA have also worked together to develop a joint species action plan for bats and the Red Data List of Irish Mammals.

Ireland was pleased to host the 17th EUROBATS Advisory Committee meeting in Dublin in May 2012. This was attended by 78 delegates from 42 countries.

A EUROBATS Intersessional Working Group on the Implementation of the Agreement, convened by the scientific focal point for Ireland, Dr Ferdia Marnell, together with Mr Tony Hutson, is ongoing, involving co-operation with bat experts in, amongst other countries, Greece, Germany, France, Ukraine, Czech Republic and Estonia. Dr Marnell is also actively involved in a number of other Intersessional Working Groups, involving cooperation with experts from across the EUROBATS region.

15. Measures taken to implement MoP Resolutions

Resolutions 2.2 and 5.4 - Bat Monitoring

Ireland has a comprehensive National Bat Monitoring programme in place. This programme involves several different schemes and uses methods approved in the EUROBATS Bat Monitoring Guidelines.

Resolution 2.4 - Transboundary Programme – underground habitats

Underground habitats are particularly important for *Rhinolophus hipposideros* in Ireland. NPWS maintains a database of roost monitoring data for this species and up to date information on the most important underground sites was forwarded to the relevant Working Group in early 2014.

Resolutions 2.7 and 3.3 – Format of National Reports

National reports have been prepared accordingly to the new formats.

Resolution 3.8 and 6.7 - Foraging habitats

Recent work from CIBR on the foraging habitats and diet of *M. nattereri* and *M. mystacinus* has been forwarded to the relevant IWG. A study on landscape use by bats in Ireland using Species Distribution Modelling was undertaken by CIBR and BC Ireland. The study was funded by local authorities and was designed to inform high level planning decisions e.g. county development plans. The report can be accessed here:

http://www.batconservationireland.org/pubs/reports/Landscape_Conservation_Irish_Bats.pdf

Resolution 4.4 and 6.12 - Transboundary programme – forest practices

NPWS and the Irish Forest Service worked together to produce a version of the EUROBATS leaflet on Forestry and Bats for Ireland. This leaflet is widely circulated and has proven very popular at agricultural shows and science fairs. It is also available to download online here:

[http://www.npws.ie/publications/leaflets/Forestry_leaflet\[1\].pdf](http://www.npws.ie/publications/leaflets/Forestry_leaflet[1].pdf)

Local NPWS staff liaise on an ongoing basis with colleagues in Forestry to ensure that woodland management adjacent to important bats sites is undertaken sensitively.

Resolutions 4.6 and 5.5 – Guidelines for the Issue of Permits for the Capture and Study of wild bats

Licences are issued taking into consideration these guidelines.

Resolution 4.7 and 6.11 - Wind turbines and bat populations

Wind energy is a rapidly growing sector in Ireland. The EUROBATS guidance on wind turbines has been circulated widely and BC Ireland have recently produced its own guidelines for ecologists and developers:

<http://www.batconservationireland.org/pubs/reports/BCIreland%20Wind%20Farm%20Turbine%20Survey%20Guidelines%20Version%202%20208.pdf>

The scale of the threat posed by wind turbines in Ireland is still unclear but a current PhD study in UCD is examining the issue.

Resolution 4.9 and 5.7 - Protection of overground roosts

NPWS has published *Bat Mitigation Guidelines for Ireland* and this is the standard reference document used by developers and bat surveyors across the country. In addition NPWS has published a leaflet specifically for home-owners:

http://www.npws.ie/publications/leaflets/Bats_in_Houses_leaflet.pdf

And BC Ireland have produced a guide to Bats in Buildings aimed specifically at planners, engineers and architects:

http://www.batconservationireland.org/pubs/reports/BCIrelandGuidelines_Building.pdf

Resolution 5.2 – Bats and rabies in Europe

Rabies has not been identified in bats in Ireland. There is no proactive sampling regime in place, but all bat workers are advised to handle bats in the expectation that they may have rabies and are encouraged to get rabies vaccinations and to use gloves.

Resolution 6.5 - Guidelines on Ethics for Research and Field Work Practices

The text of this Resolution has been forwarded to the Natural History Museum and to research institutes. The former already has in place a comparable system and therefore complies with the relevant recommendations. All Irish Universities have ethical committees to oversee their laboratory and field work practises.

Resolution 6.6 - Guidelines for the Prevention, Detection and Control of Lethal Fungal Infections in Bats

The bat conservation and research community are well aware of the threat posed by *Geomyces destructans*. BC Ireland have produced guidance for bat workers and cavers:

http://www.batconservationireland.org/pubs/WNS_factsheet_Jan2010.pdf

Resolution 6.13 - Bats as Indicators for Biodiversity

Ireland has actively supported the development of an indicator for biodiversity based on bat data. Our scientific focal point plays an active role in the Indicator Working Group and our lesser horseshoe bat data has been prepared for inclusion in the pan-European indicator under development.
