Terrestrial mammals

The recent Red List for Wales's mammals reports that 1 in 3 of the 39 native or formerly native mammals in Wales are threatened with extinction, with 51% in need of urgent action.[1] There are 17 mammal species on the Section 7 list of Priority Species for Wales, all of which, except the Red Squirrel, are found in Greater Gwent.

Mammals occupy a great variety of ecological niches, from predators such as the Otter and Pine Marten, and grazers and browsers such as deer, to important prey species such as voles and mice. They are found in a large variety of habitats including woodland, grassland, upland and wetlands. The use of mammals as an indicator of ecosystem health varies according to the species and ease of recording. For example, Otter spraints have often been used as indicators of water quality and fish populations, as Otter spraint is easily identified with little risk to disturbing the animal.

The variety of mammal species, their ecology and visibility means that mammal recording is equally varied. Some, such as Dormouse, Water Vole and Otter, have their own recording schemes, with coverage discussed in each individual section. Others, particularly small mammals, are less well recorded and only covered by casual recording, or overall surveys such as the Living with Mammals survey (PTES)[2] and the Breeding Bird Survey (BTO)[3] which added a mammal section in 1995.

In this section there are 11 mammals, ranging from the widespread, such as Badger and Otter, to the rarely recorded Harvest Mouse and Water Shrew. There are notable success stories, namely the return of the Otter to many watercourses, and the successful reintroduction of Water Vole to the Gwent Levels. The current situation regarding the return of Beavers to Wales is also summarised.

Note that bats are included in a separate section.

Eurasian Badger *Meles meles* (Linnaeus, 1758)

Andy Karran

Protection: Protection of Badgers Act (1992) [4]

Conservation status: LEAST CONCERN (UK),[5] LEAST CONCERN (Wales) [5]

Data availability: Medium (857 records)

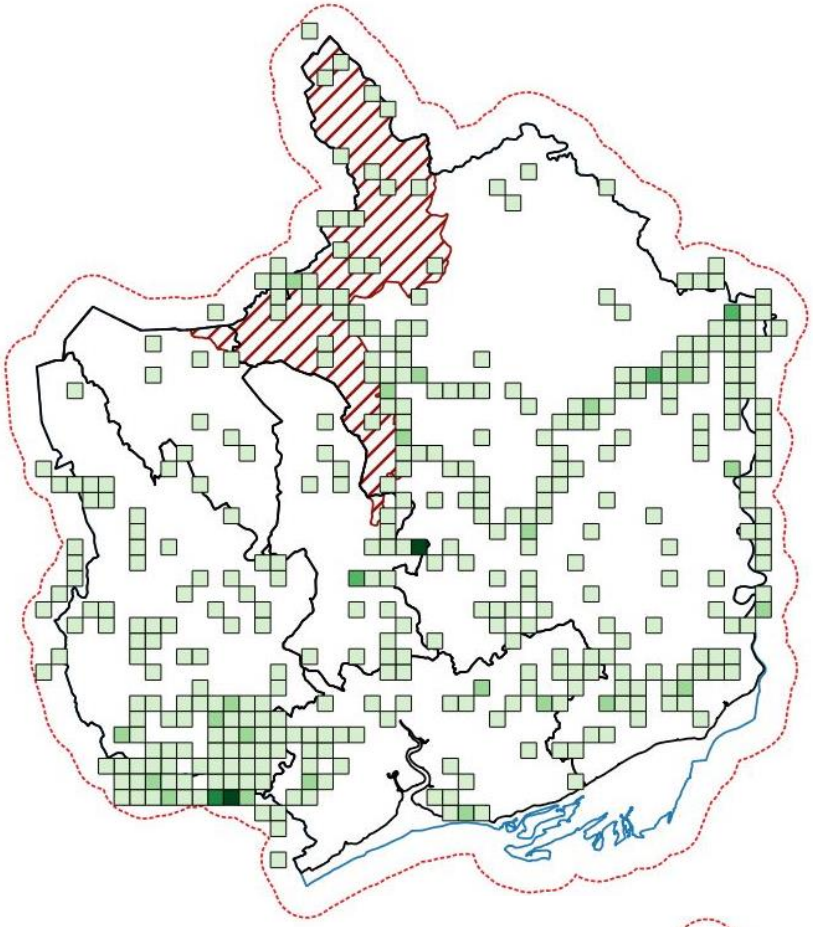
Context: Badgers are included within this report because of their association with bovine tuberculosis (bTB), with Gwent being an area of high bTB incidence.[6] Historically, Badgers have been persecuted by gamekeepers, farmers or for bloodsports, and the population has recovered from a low point at the beginning of the twentieth century.[7] The current UK population is thought to be stable or increasing,[5] although there is some uncertainty due to differing survey methodologies.

Current threats include conflict with development, road casualties and legal culls. There are still numerous reported incidents of Badger persecution,[8] but these are unlikely to be significant in terms of the overall population. Road casualties and bTB are discussed in more detail within this chapter.

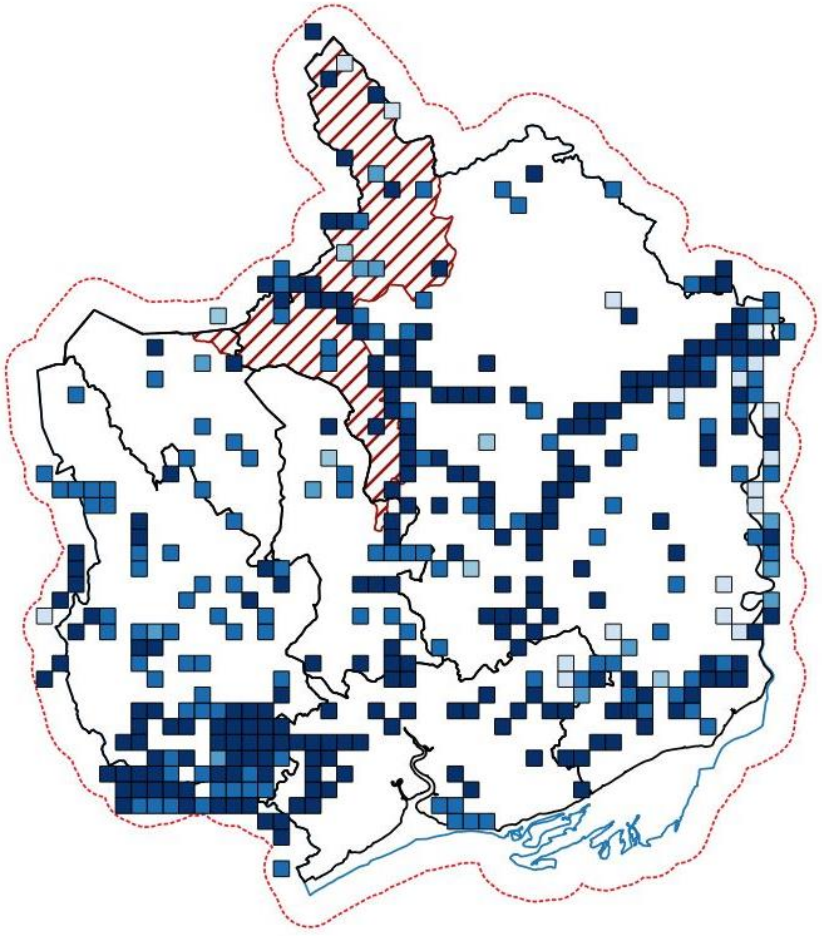
Outlook: The national population and range for Badgers is predicted to remain stable, with the exception of English cull zones.[5] Road deaths are a potential cause for concern, as is the loss of setts through development, habitat changes and fragmentation of territorities.[7] Research is ongoing regarding the impact of climate change.

Greater Gwent range: Badger records are concentrated along main roads and settlements, with an unusual concentration around Caerphilly. Whether this is due to high numbers of urban Badgers or increased recorder effort is unclear – although there is an increasing trend in urban Badgers nationally.[5] There is also a skew due to low resolution records causing a false hotpot on the Torfaen/Monmouthshire border.

Density of Badger records (maximum density 16 records/km^2)



Badger records by latest record/km^2

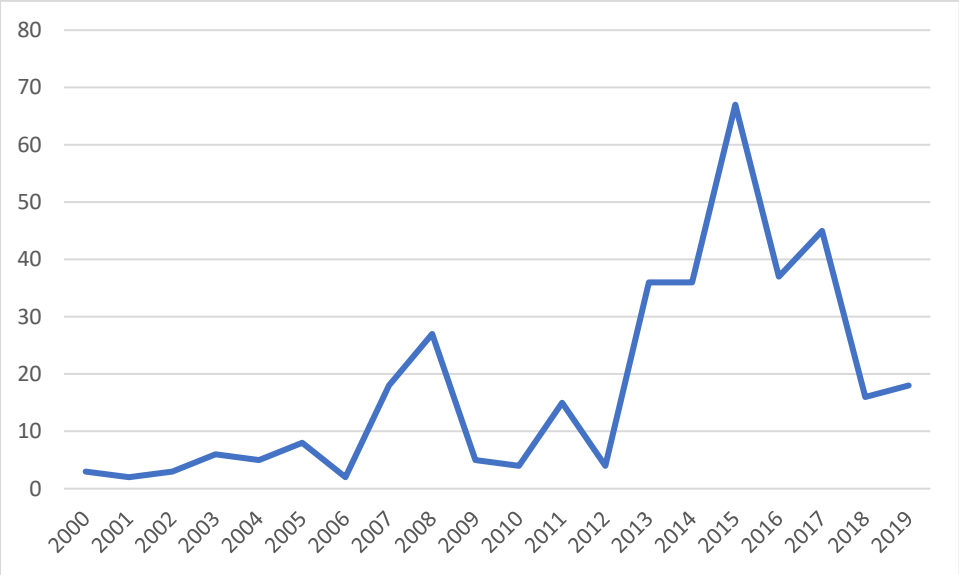


Trends: There is not enough data to give any population trends for Gwent. At a national level, Badger populations are thought to be stable or increasing.[5]

Road casualties: The impact of road deaths on Badger populations is unclear: using data collated in the 1980s, Clark et al.[9] estimated that 50,000 Badgers were killed on roads per annum. Although Harris et al.[7] conclude that this level of mortality does not have an impact on the overall population, creation of new roads and increases in traffic levels since these studies may now be cause for concern. In addition, recent work[10] suggests that Badgers are sensitive to changes in climate, with weather patterns affecting breeding and foraging activity.

Almost half (42%) of the SEWBReC Badger records are of road mortalities (GERC and HBRC records are not used, as they do not include recorder comments), and there are additional 110 road mortality records from Project Splatter. Annual road casualty records since 2000 are shown below. Further work would be needed to analyse whether this pattern is due to increased recorder effort, increased road traffic, or other factors, such as climate, having impacts on Badger movements.

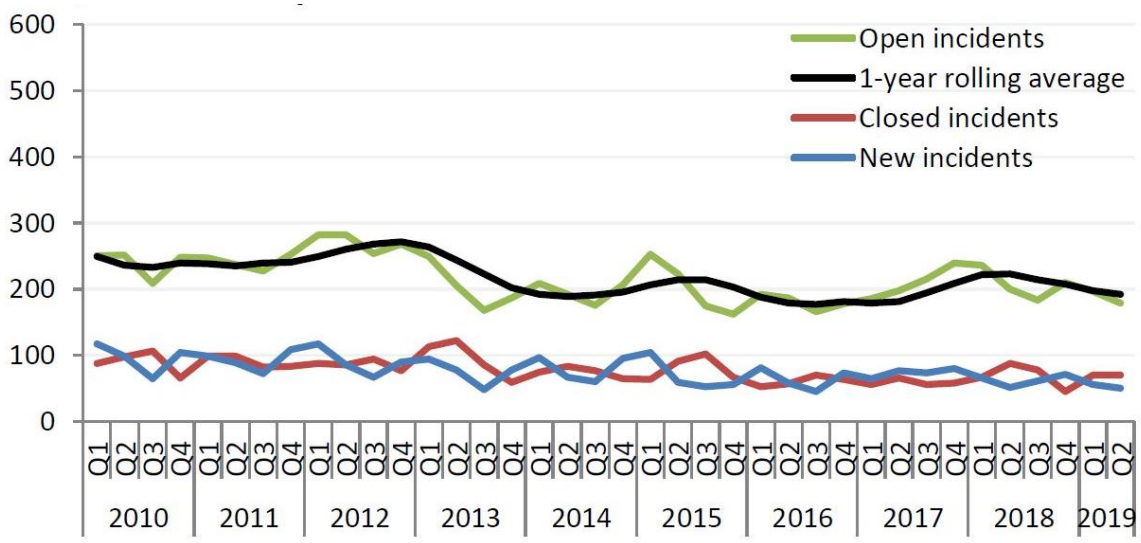
Badger road mortality records per annum (SEWBReC and Project Splatter) from within the study area. Note that Project Splatter records are included from 2013 onwards.



Bovine Tuberculosis (bTB): Badgers are known carriers of bTB and can transmit the disease to cattle, and vice versa. The movement of the disease with Badger populations and the rates and mechanisms of transmission are poorly understood,[11] although transmission within species occurs at higher rates than between species.[12]

Gwent is part of the Welsh Government High bTB Incidence Area (East), which includes Gwent and most of Powys.[6] The latest statistics[13] show that bTB incidents in the area are falling, albeit gradually, although bTB remains more prevalent in the area than the Wales average.

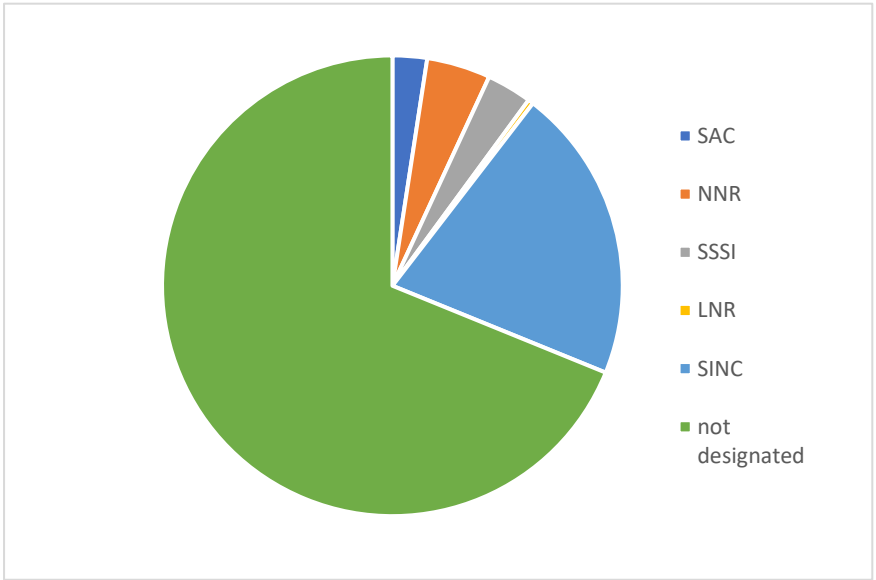
New, closed and open incidents of bTB in High TB Area (East)[13]



Currently, Welsh Government Policy is to continue to monitor the incidence of bTB in Badgers,[14] and a programme for collection and analysis of dead Badgers is in place.[15] A grant covering up to 50% of the costs of Badger vaccination was offered in 2019.[16]

Protection: Only 31% of records are from protected sites. There is a recording bias with regard to Badgers, as many of the records come from road casualties (see below) or potential development sites, which are not protected. As they are not a species of particular conservation concern, there are very few dedicated surveys for Badgers. There is also possible reluctance on the part of some recorders to share locations of Badgers, especially setts, due to persecution.

Badger records from protected sites



European Beaver *Castor fiber* (Linnaeus, 1758)

Allard Martinius

Protection:[3] Annex 3 of the Bern Convention in Europe, Habitats Regulations (1994) Scotland only

Conservation status: UK BAP (Biodiveristy Action Plan) Priority Species, Environment (Wales) Act Section 7 Species. Red List:[5] ENDANGERED (UK), not applicable (Wales)

Data availability: Poor (no records)

Context: The European Beaver is included here due to the work of the Welsh Beaver Project, which is currently investigating the feasibility of reintroducing the Beaver to Wales. Beavers were hunted to extinction in the UK in the sixteenth century, and only around 1,200 animals remained in Europe by the start of the twentieth century. As a result of reintroductions and natural recolonisation, Beavers have returned to much of their former range across mainland Europe. Much of the enthusiasm for restoring Beavers to the UK stems from their role as 'ecosystem engineers': Beavers manipulate their habitat, slowing water flow and increasing biodiversity.[17]

UK reintroductions: In the UK, Beavers were successfully reintroduced to Knapdale, Scotland in 2009 and granted European Protected Species status in Scotland in the same year. The Knapdale population had grown to around 430 animals in 2017.[18] A second Scottish population has become established from escaped or unlicensed release on the River Tay, and was estimated at approximately 433 animals in 2017–18.[19]

In England, an escaped or unlicensed release resulted in a breeding population on the River Otter in Devon. In 2015, the Devon Wildlife Trust were granted a five-year licence to study the existing population and reintroduce additional animals. The population is now estimated to be at least seven breeding pairs.[20] Additional releases of Beavers into enclosed sites have taken place in Kent, Devon, Cornwall,[6] Yorkshire[21] and Gloucestershire,[22] with further releases proposed in Dorset,[23] Somerset and Surrey.[26]

In Wales, the Welsh Beaver Reintroduction Project conducted a feasibility study[25] that concluded: 'Beaver reintroduction to Wales is ecologically feasible, with re-establishment and the management of impacts being possible at a relatively low financial cost. Beavers offer substantial benefits in terms of ecosystem services and biodiversity conservation, while there are social benefits in terms of stimulation of tourism as well as educational and recreational opportunities.' In March 2021, the first two Beavers (an adult male and its offspring) were released under licence to the Cors Dyfi Nature Reserve in Powys, with further individuals from the same family unit expected to follow soon after.

There are recent records[26] of Beaver field signs on the River Dyfi not associated with the controlled release, but it is not known where the animal or animals are from, nor how many there are.

Greater Gwent status: The Welsh Beaver Reintroduction Project has identified six catchments in Wales where Beavers could be reintroduced, but none are within Gwent. The Wye and Severn catchments were eliminated from the habitat surveys at an early stage due to the potential added complications of cross-border licensing and legislation.[27] At present, the nearest known Beavers are a pair within an enclosure in the Forest of Dean.

Outlook: Beaver population and range is predicted to increase at the UK level.[5] In Wales, the Beaver continues to have an ambiguous legal status, and further work would be needed into site selection and detailed reintroduction proposals before licensed releases could take place.[25]

Brown Hare *Lepus europaeus* (Pallas, 1778)

Andy Karran

Protection: Hunting Act (2004)

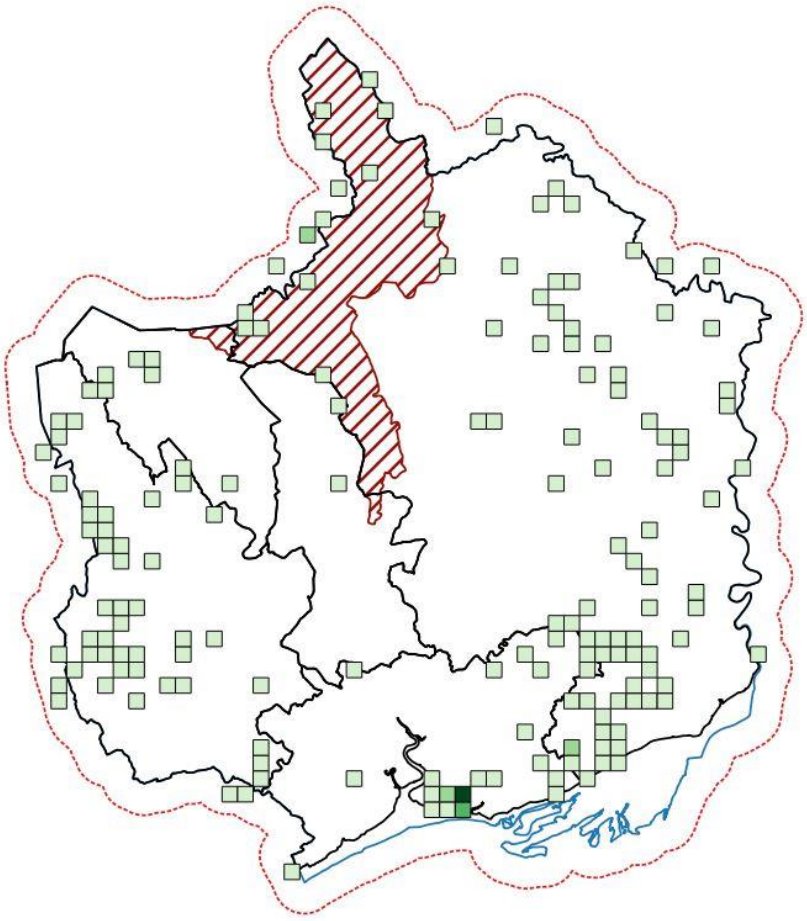
Conservation status: UK BAP Priority Species, Environment (Wales) Act Section 7 Species. Red List:[4] n/a (UK), n/a (Wales)

Data availability: Moderate (294 records)

Context: Brown Hares are thought to have been introduced to Britain in Roman times and were once a common sight on farmland. They were among the first species to be added to the UK Biodiversity Action Plan (UKBAP Priority list), following estimates that the population had declined by around 75% since the second World War.[27] The reasons for the decline are not fully understood, although it is thought to be linked to changes in farming practices, including the use of larger fields, machinery and agrichemicals, and changes in crops. Increasing numbers of predators, particularly foxes, may also be a factor.[7]

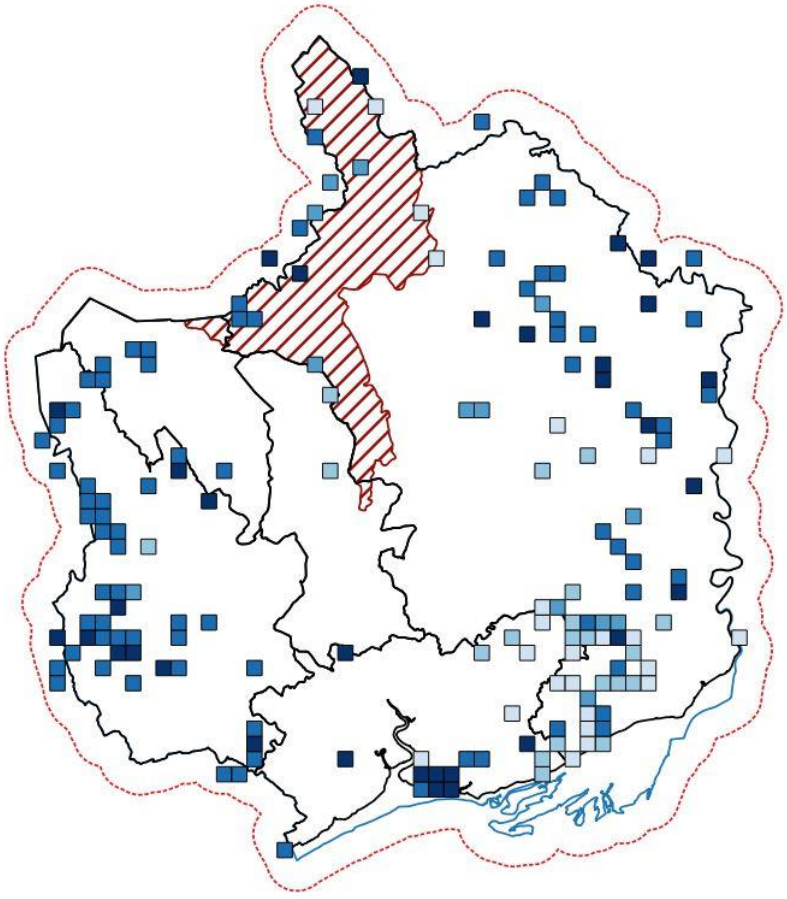
Outlook: Currently the UK population is predicted to remain stable, although there are negative pressures from changes in agricultural practices, pest control and climate change.[4] There is some evidence that agri-environment schemes can have a positive impact,[31] but this was not seen across all farms.

Greater Gwent range: Brown hares are found across Greater Gwent, with distribution broadly corresponding to arable habitats in Monmouthshire, Newport and the west of Caerphilly. Greater Gwent is considered to be on the edge of the optimal habitat for brown hares because of the prevalence of livestock farming:[27] Brown hares are found on pastoral farms but have lower adult survival rates.[28] There are high numbers of recent records from Newport Wetlands, most likely due to recording efforts, whereas the Monmouth/Newport border has few recent records, despite having many historic records.



Density of Brown Hare records (maximum 25 records/km^2)

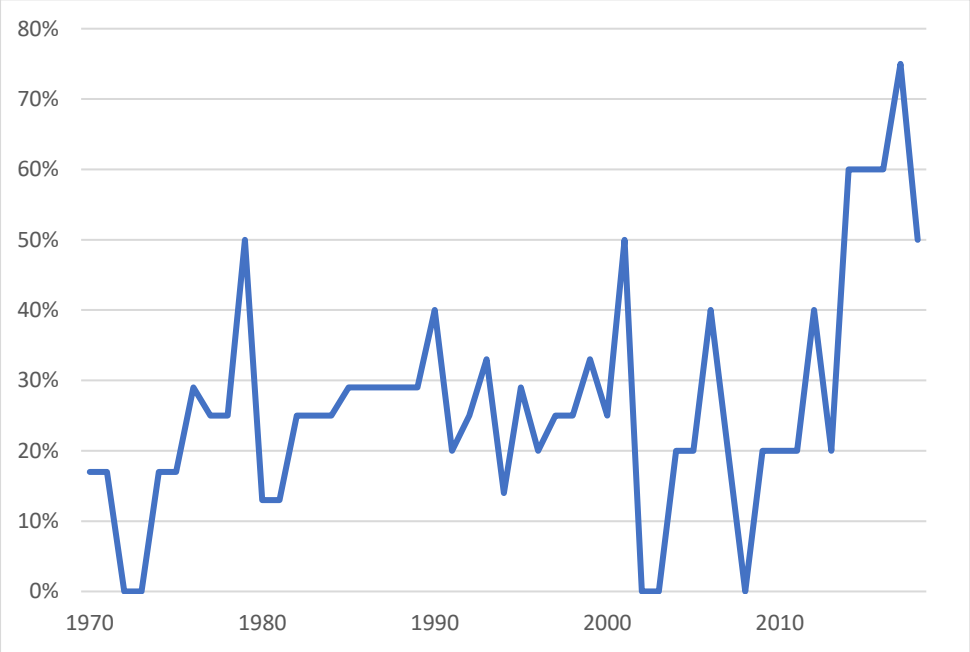
Brown Hare records by decade



Trends: As Brown Hare is a game species, data from the National Gamebag Census of the Game and Wildlife Conservation Trust (GWCT) can be used to measure trends. Nineteen sites across the study area provide data to GWCT, but not all sites report every year; the average number of annual returns since 1970 is 5.8 sites.[29] This provisional trend is based on the percentage of sites reporting the presence of Brown Hare, as bag figures are largely absent from 1993 onwards.

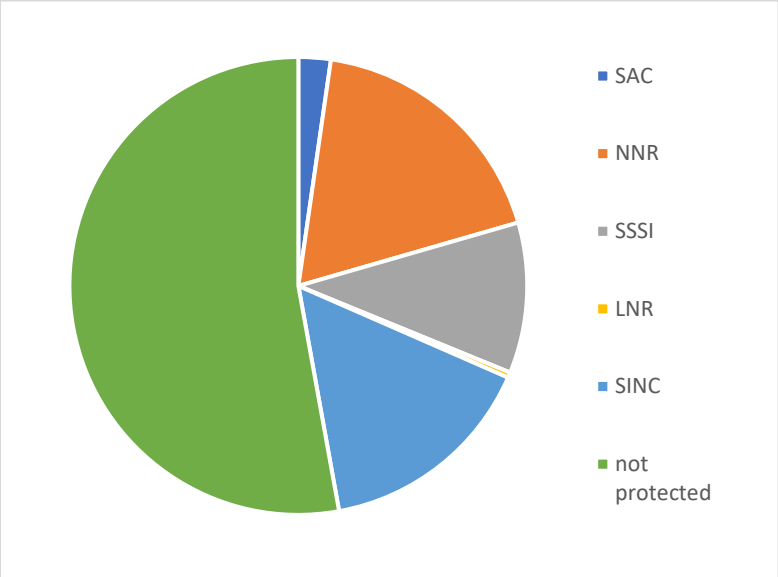
National Gamebag Census returns for the study area show a recent increase in the percentage of sites reporting the presence of Brown Hare, although this is based on a small number of returns. This is reflected in the national returns, where bag density (animals killed per km^2) shows a long-term decline but a recent increase, thought to be related to the introduction of set aside and agri-environment schemes.[30]

Percentage of sites within the study area reporting the presence of Brown Hare, from the National Gamebag Census[29,26]



Protection: Just under half (47%) of records come from protected sites, with high numbers of records from Newport Wetlands NNR. Note that Brown Hare is a game species and can be an agricultural pest. Brown hares are protected during their breeding season on unenclosed land.

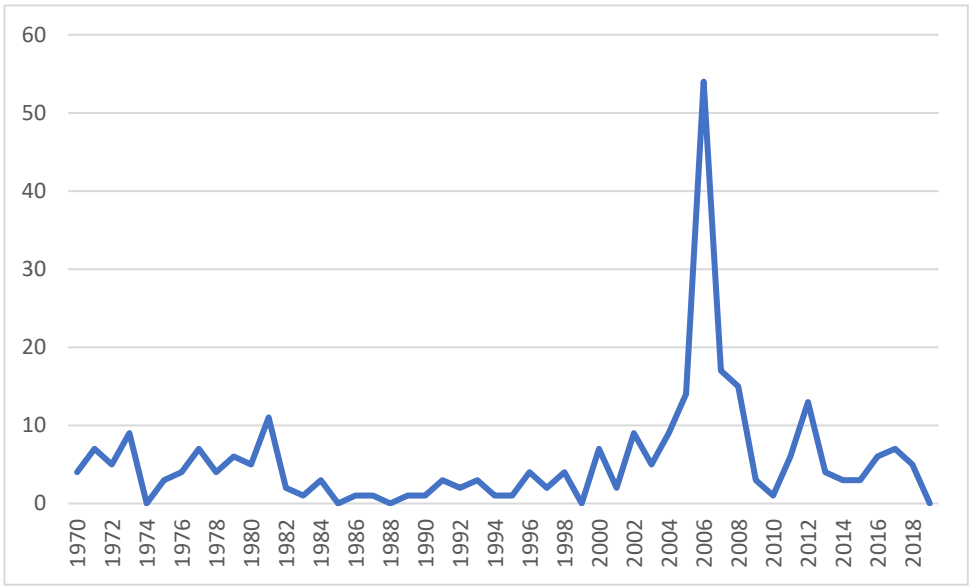
Brown Hare records from protected sites



Brown Hare and Lapwing Survey: In 2006, Gwent Wildlife Trust led an awareness-raising campaign encouraging members of the public to submit Brown Hare records. Fifty-four records were submitted in 2006; prior to this, the average number of records per year was just 3.7, so this represented a 15-fold increase. Records were received from every local authority except Torfaen. Thirty of the records used specially printed survey cards, which showed the species and provided a form for the record, although other records may also have been a result of the increased awareness of the species.

This demonstrates that public awareness programmes can be effective in generating new records and indicates that Brown Hare may be generally under-recorded across Greater Gwent.

Annual numbers of SEWBReC records for Brown Hare; showing the impact of the GWT Brown Hare and Lapwing Survey in 2006



Dormouse *Muscardinus avellanarius* (Linnaeus, 1758)

Lowri Watkins

Protection: Conservation of Habitats and Species Regulations – Schedule 2 (2017). Wildlife and Countryside Act – Schedule 5 (1981, as amended)

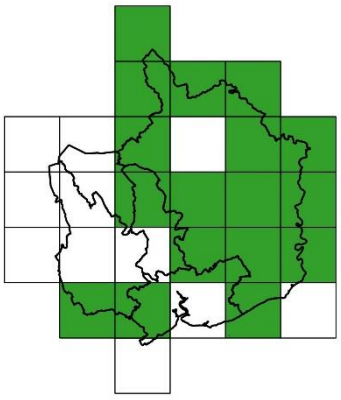
Conservation status: UK BAP Priority Species. Environment (Wales) Act Section 7 Species. Red List:[5] VULNERABLE (UK and Wales)

Data availability: Good (2,044 records)

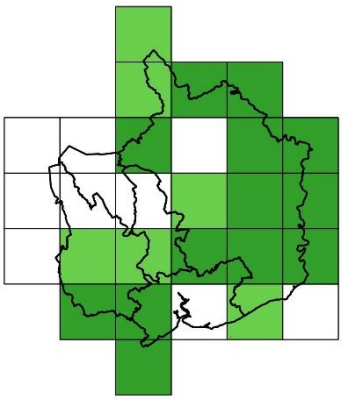
Context: Across the UK, the decline in Dormouse numbers is well documented. It is thought that their range has reduced by half since 1885, and since consistent monitoring began in the mid-1990s, numbers are estimated to have fallen by 55%.[32] Conservation efforts include legislative protection, publication of best practice guidance,[33] raising public awareness (particularly through the Great Nut Hunt), and establishment of the National Dormouse Monitoring Programme (NDMP), as well as site level management by a range of organisations.

Outlook: Matthews et al.[5] predict that although Dormouse range is likely to remain stable, population and habitat are likely to decline. Drivers of change are fragmentation and reduction in woodland species diversity. Climate change is also likely to affect Dormouse populations,[5,32] although the net effect is uncertain, as type of woodland is a factor.

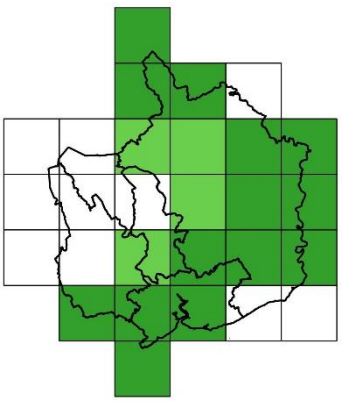
Greater Gwent range: In the 1990s several surveys were carried out to determine the distribution of Dormice in Wales. The Vincent Wildlife Trust[34] combined the results of these to produce a map of 10km squares with recorded field signs, 17 of which are partially or completely within Greater Gwent. Changes in range at this broad scale are shown below.



10km squares with field signs, derived from Jermyn Messenger and Birks (2001)[31]



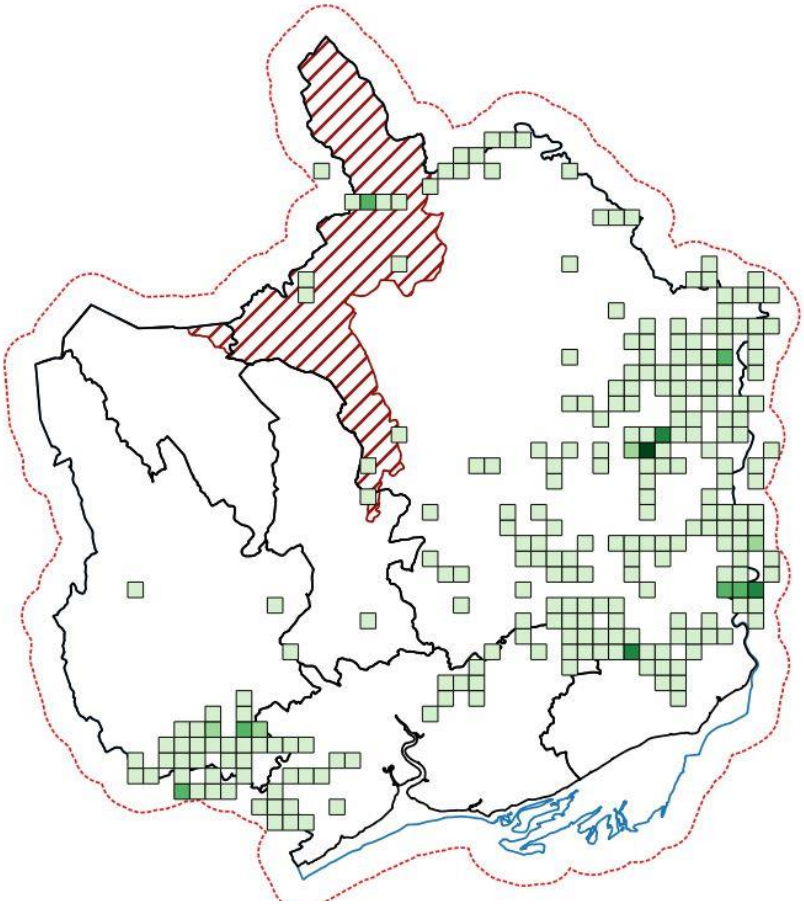
10km squares with records from 2000-2009. Squares with <5 records are lighter green.



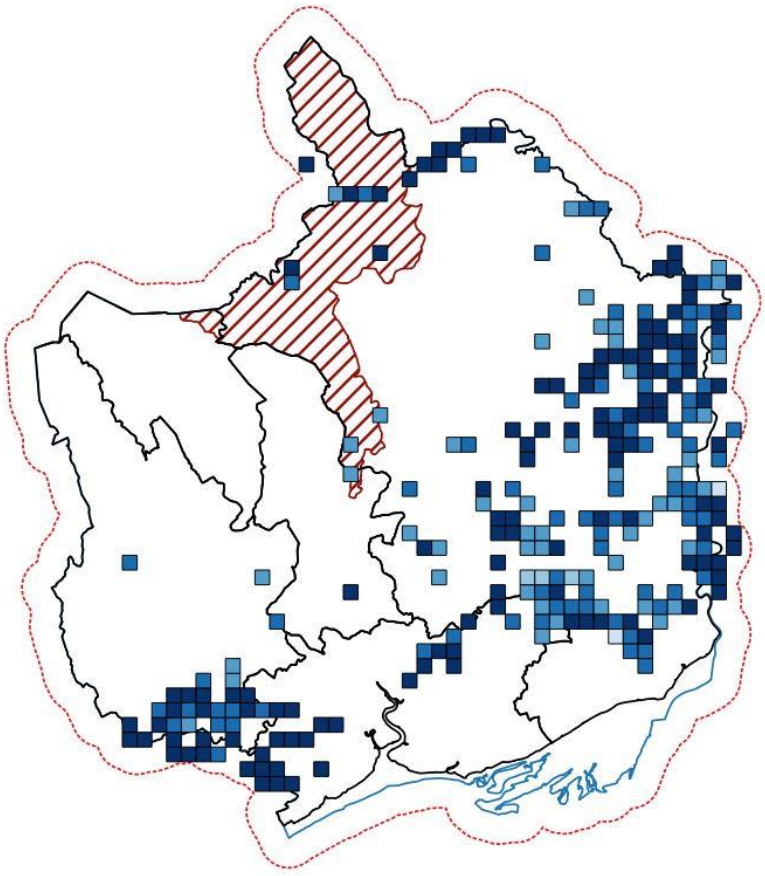
10km squares with records from 2010-2019. Squares with <5 records are lighter green.

At a higher resolution scale, Dormouse distribution is more fragmented. Records are concentrated in central and eastern Monmouthshire, and the south of Caerphilly, extending into Newport. There is a band of records across the northern border between Monmouthshire and Herefordshire, corresponding to records along the A465 (see Habitat Patterns below). Hotspots for records occur at Croes Robert Wood, Caerwent, Graig Wood, Coed Cefn Pwll-du, Harpers Grove and Wyndcliff (corresponding to NDMP locations).

It would also appear that considerable range contraction has also taken place, only half of the grid squares where Dormouse has been recorded have records from the latest decade. Whilst this may in part be due to reduced recording, or concentration of recording towards monitoring key populations, it is still cause for concern.



Density of Dormouse records, (maximum 138 records/km^2)

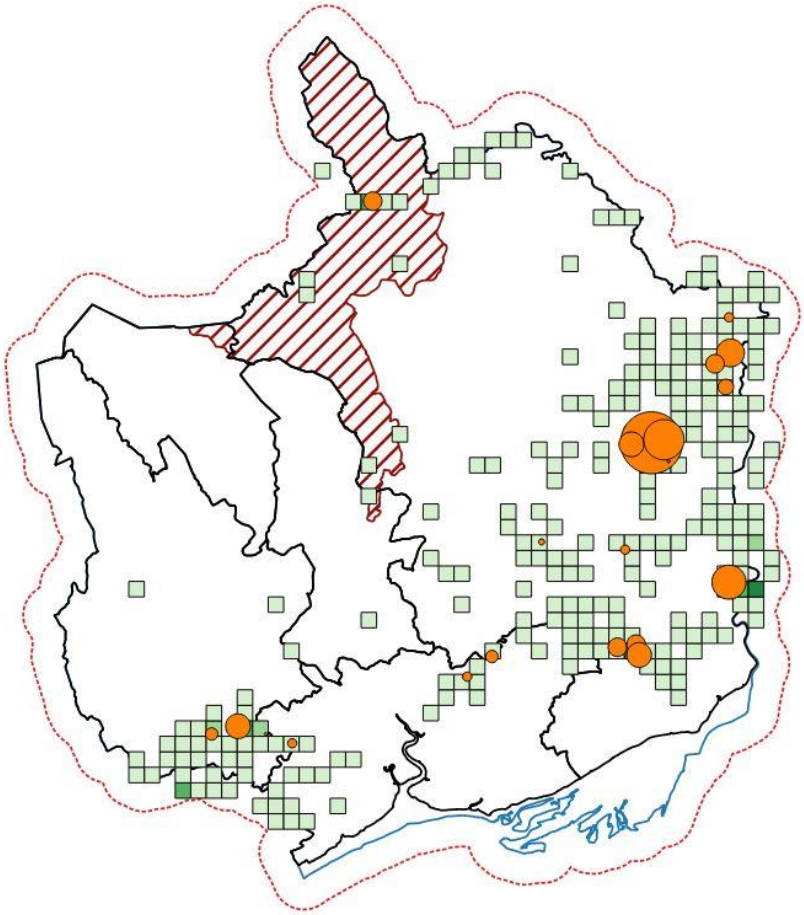


Dormouse records by decade of most recent record

Habitat patterns: The best conditions for Dormice are likely to be 'found in extensive, ancient semi-natural woodland'.[33] In Greater Gwent, 55% of records occur within Ancient Semi-Natural Woodland, Plantation on Ancient Woodland, Restored Ancient Woodland or Ancient Woodland of Unknown Category. Fragmentation of woodland habitat is thought to be a major factor affecting Dormouse distribution,[35] and 69% of Greater Gwent records occur within the Woodland Core Network[36] – the area of greatest woodland connectivity.

Outside of these traditional Dormouse habitats, there are noticeable concentrations of Dormouse records along major roads, notably the M4, A40, A449 and A465 in Monmouthshire and Newport. While this is also a reflection of survey effort, this phenomenon has been noted elsewhere, with evidence suggesting that Dormouse density in roadside verges could be two to three times higher than in the wider landscape.[37]

Population trends: The National Dormouse Monitoring Programme (NDMP) consists of monthly Dormouse nest box counts, with the maximum spring adult count (May or June) per 50 boxes used as an indicator of pre-breeding population size. There are 21 sites across Gwent registered with the NDMP,[38] shown below. However, only eight of these have a continuous data set of more than five years, with four of the poorly monitored sites consistently returning a spring count of zero.

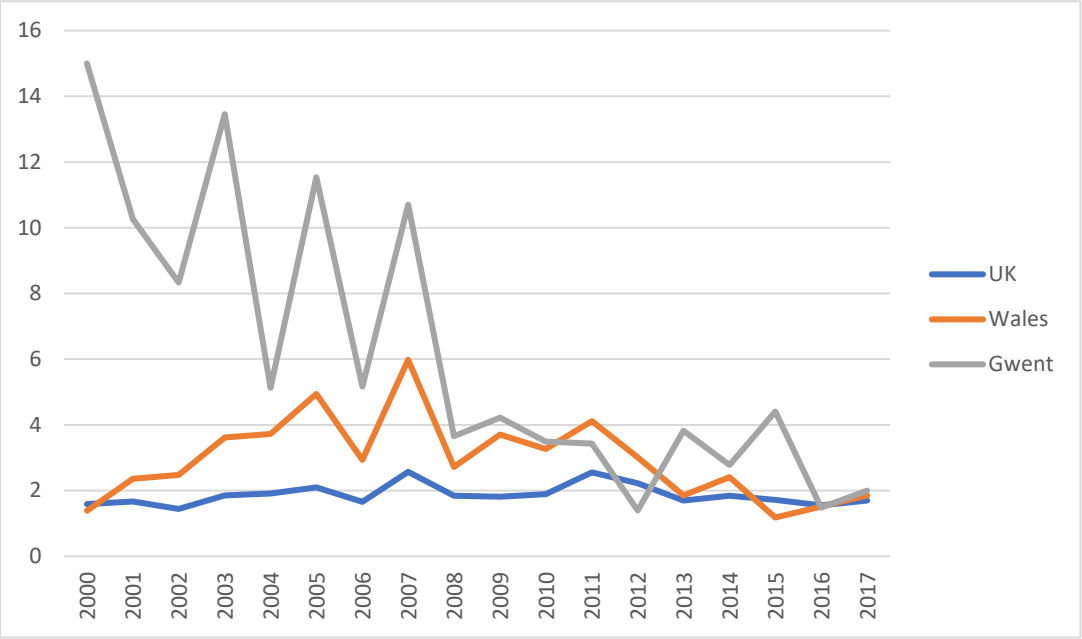


Approximate locations of NDMP sites, with density of Dormouse records. Size of point indicates number of spring returns.

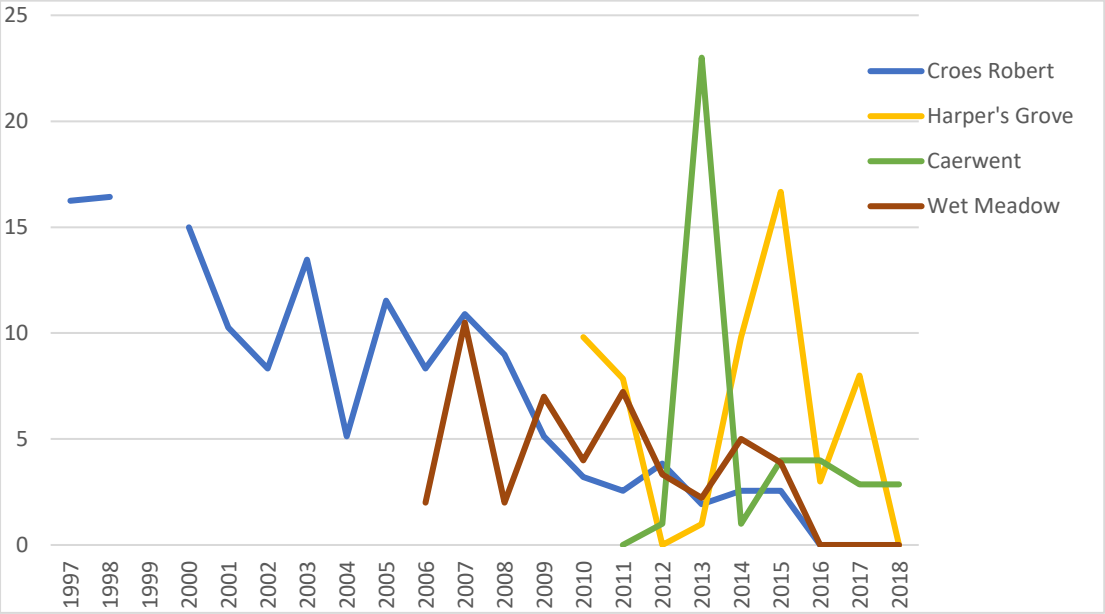
Using the average maximum counts from these eight sites gives a trend for Dormouse populations in Gwent, shown below with the UK and Welsh average. However, the dataset is so small, and skewed by early highs followed by declines at Croes Robert and Wet Meadow Woods (adjacent sites in Monmouthshire), that there is no certainty around these trends. The Gwent average is often well above Welsh and UK averages.

This is illustrated by individual returns from four NDMP sites: Croes Robert Woods, Wet Meadow Woods, Caerwent and Harpers Grove. This shows the high variability between years, as Dormouse populations are very sensitive to weather conditions,[32] as well as variability between different sites. It is also possible that low numbers of boxes could be amplifying this high variation.

Mean maximum spring count of adult Dormice per 50 boxes[38,39]

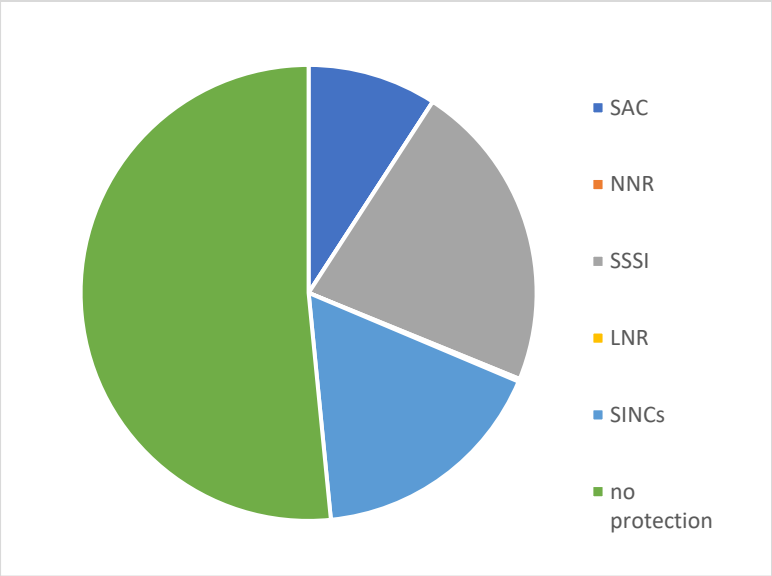


Maximum spring count of adult Dormice per 50 boxes at 4 sites in Gwent[38,35]



Protection: Although individual Dormice and their breeding and resting places are protected by law, most (52%) Dormouse records within Greater Gwent have been found outside of protected areas. SAC records come from the Wye Valley Woodlands SAC, most notably at Wyndcliff, and SSSI records from Croes Robert Wood, Gaer Wood, Coombe Valley Woods and Ruperra Woodlands. SINC (Site of Importance for Nature Conservation) records are from numerous sites throughout Monmouthshire, Newport and Caerphilly – as all Ancient Woodlands are designated as SINCs. Note however, that this does not take centred records or Dormouse mobility into account, and it may be that many more records are associated with or close to protected sites.

Dormouse records from protected sites



Harvest Mouse *Micromys minutus* (Pallas, 1771)

Andy Karran

Protection: none

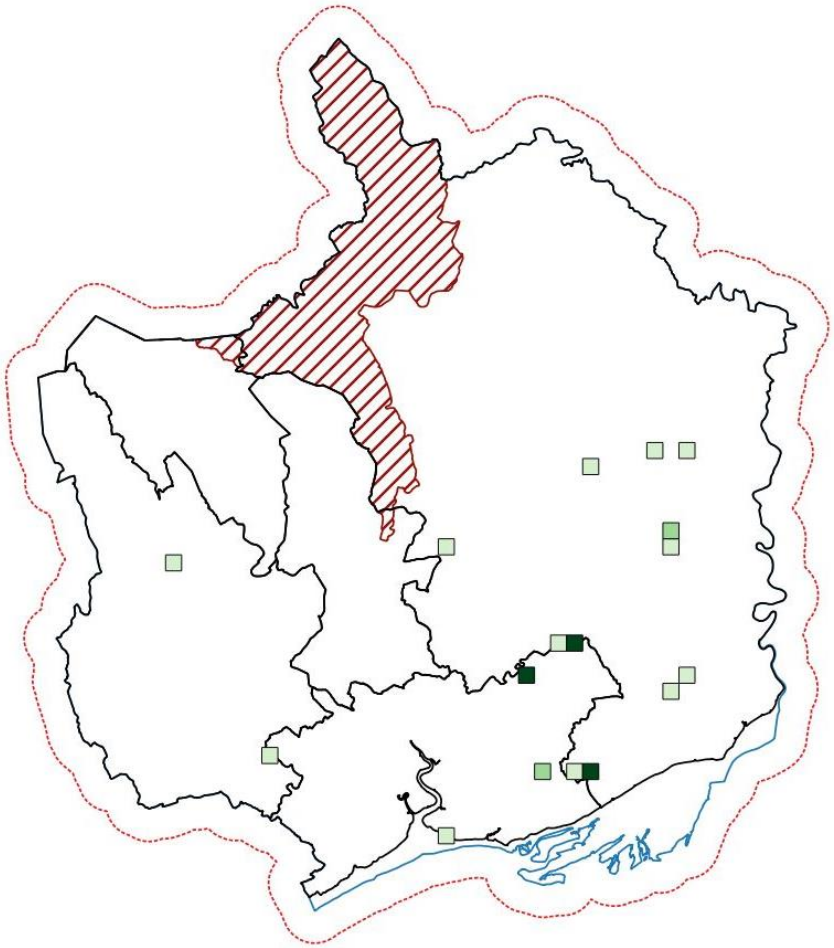
Conservation status: UK BAP Priority Species. Environment (Wales) Act Section 7 Species. Red List:[5] NEAR THREATENED(UK), VULNERABLE (Wales)

Data availability: Poor (45 records)

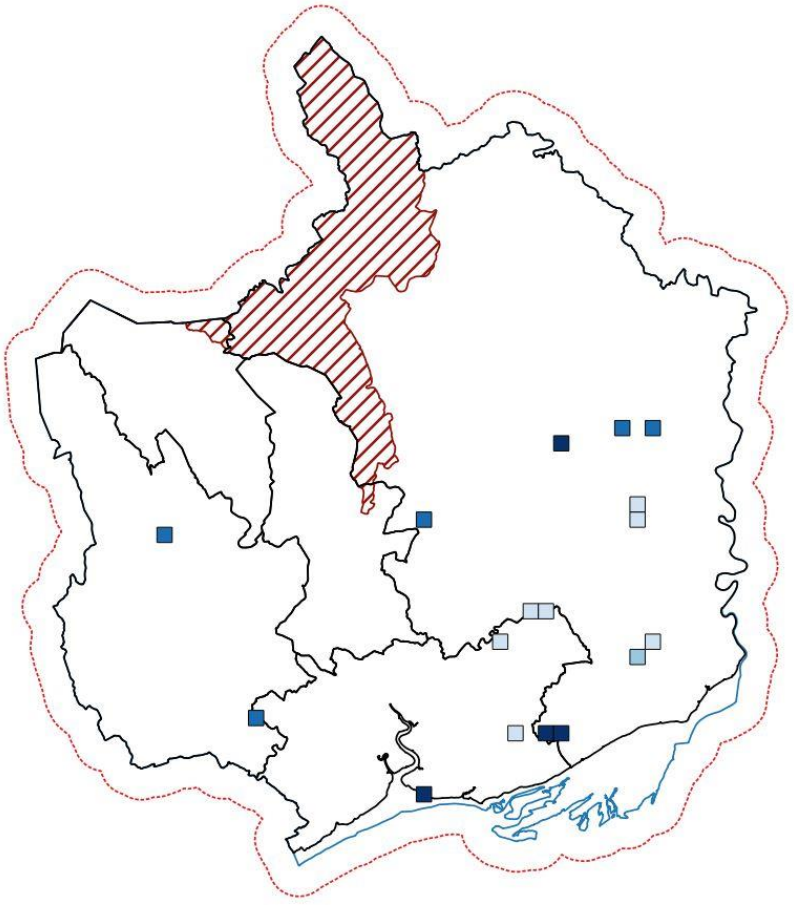
Context: The Harvest Mouse is Britain's smallest rodent and can be found in a range of tall grass habitats, from traditional cereal crops and hay meadows to reedbeds, grassy verges and hedgerows. Populations are difficult to estimate because of the variable success of the different survey methods,[40] uneven distribution of local populations[41] and large seasonal fluctuations.[5] Surveys carried out by the Mammal Society found that 71% of sites that had Field Mouse signs in 1979 had no signs when revisited in the 1990s, and that habitat had been entirely lost in about half of these sites,[42] leading to their allocation as a BAP Priority Species. In Wales, there are very few records: just 139 records for the whole of Wales in 2013.[43]

Outlook: Although there is not enough data to show a historic trend, the outlook for the Harvest Mouse is a predicted population decline, due to changes in agricultural practices and climate change.[5] There is an urgent need for more data to get a better understanding of habitat use and population dynamics, as well as improve survey techniques.

Greater Gwent range: Harvest Mouse records are mostly in the south of the Greater Gwent; Harvest Mice are not found in the uplands. Hotspots occur at Magor Marsh, where there have been regular Harvest Mouse surveys (although it is possible that some of these are duplicates), and around Wentwood, where there is a cluster of records dating from the 1970s. Records are from a range of habitats, including reedbeds and road verges. The majority are records of single nests, although one survey at Magor found seven nests.



Density of Harvest Mouse records, (maximum 9 records/km^2)

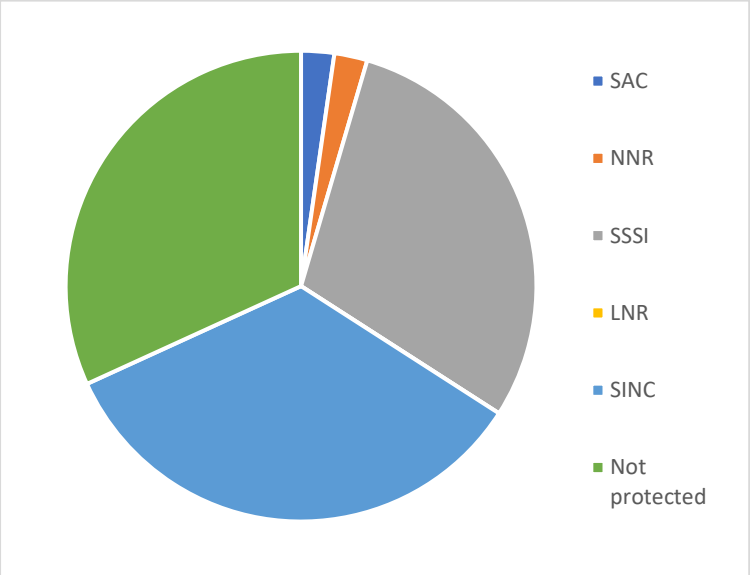


Harvest Mouse records by decade

Trends: There are not enough records to establish a population trend for Harvest Mouse in Greater Gwent. There is not enough data to establish population trends for Britain[5] or Wales.[44] It is probable that populations have been affected by changes in agricultural practices, but the scale and distribution of such impacts is unknown.[5]

Protection: Over two thirds (68%) of records come from protected sites, with most of the more recent records coming from managed nature reserves, where there is more likely to be consistently managed, higher quality habitat and more recording effort, with dedicated surveys in some places.

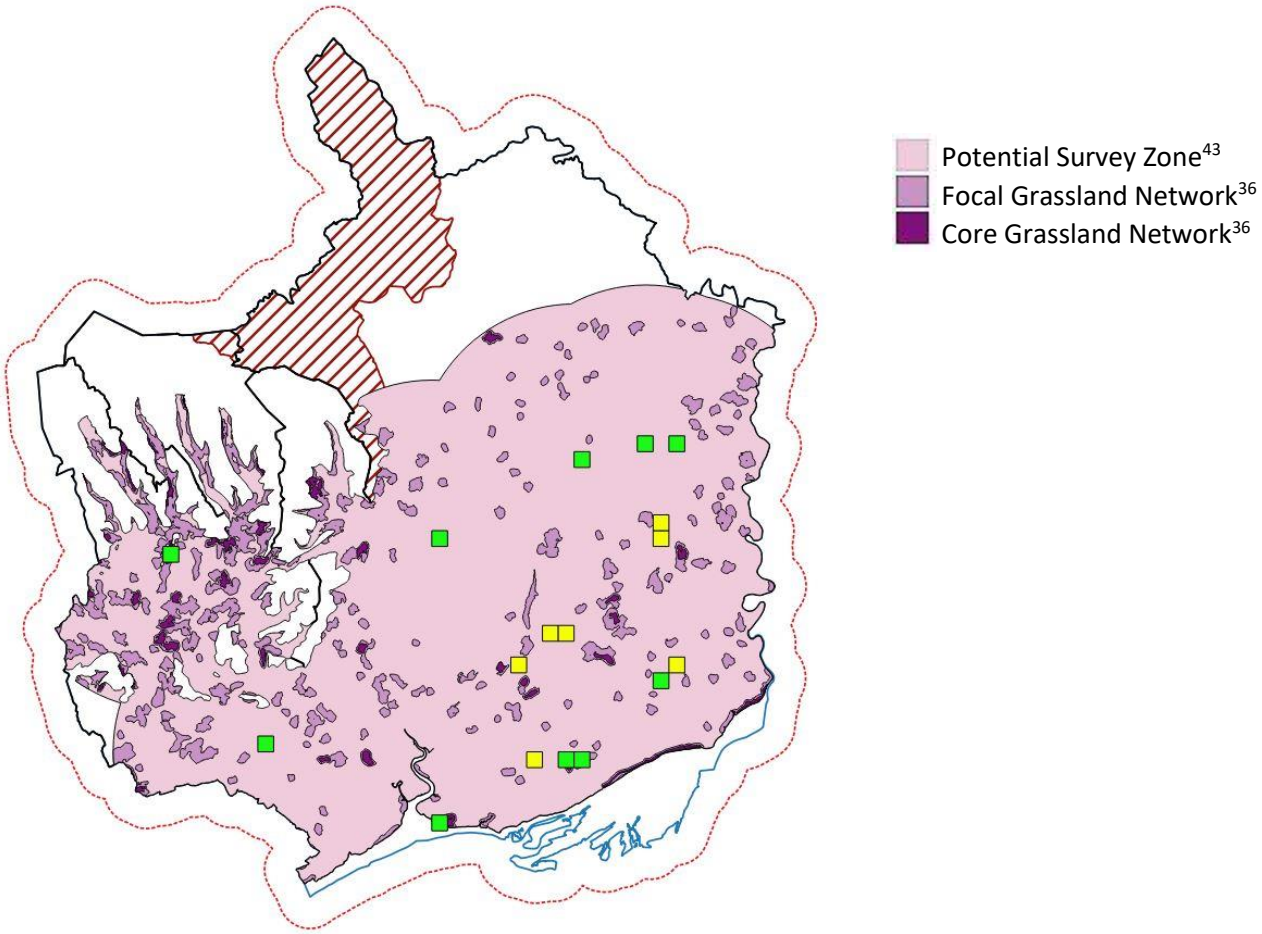
Harvest Mouse records from protected sites



Future surveys: Surveys for Harvest Mice have varying degrees of success.[40,41] Searching for nests is the least time consuming, and has given results at Magor Marsh; but trapping, particularly with Longworth traps has been more successful in other locations.[45] Some studies have more success positioning the trap on the ground,[46] others in the stalk zone.[44] There has also been recent work using bait cups in the stalk zone for camera trapping[47] or collection of faeces for DNA testing.[48] It may be possible that some of these techniques could detect Harvest Mice in new areas.

Tapping (2013)[43] has tried to indicate likely places to find Harvest Mice in Wales, based on recent records and suitable habitat within the Lowland Grassland habitat network. Patches within the Grassland habitat network were ranked according to the area of suitable habitat within them, to give areas where Harvest Mice might be found. However, there are several issues with this work, namely the age of the Phase 1 survey that it is based on and the fact that some Harvest Mouse habitats, such as road verges, were not mapped in the original Phase 1 survey.

The map below shows the boundary of the potential survey zone described by Tapping, with the Core and Focal Grassland habitat networks identified by the Countryside Council for Wales.[36] Recent records (post 1980) are shown in green, with historic records in yellow.



West European Hedgehog *Erinaceus europaeus* (Linnaeus, 1758)

Andy Karran

Protection: Wildlife and Countryside Act (1981 as amended) Schedule 6

Conservation status: UK BAP Priority Species. Environment (Wales) Act Section 7 Species. Red List:[5] VULNERABLE (UK), VULNERABLE (Wales)

Data availability: Good (1,824 records)

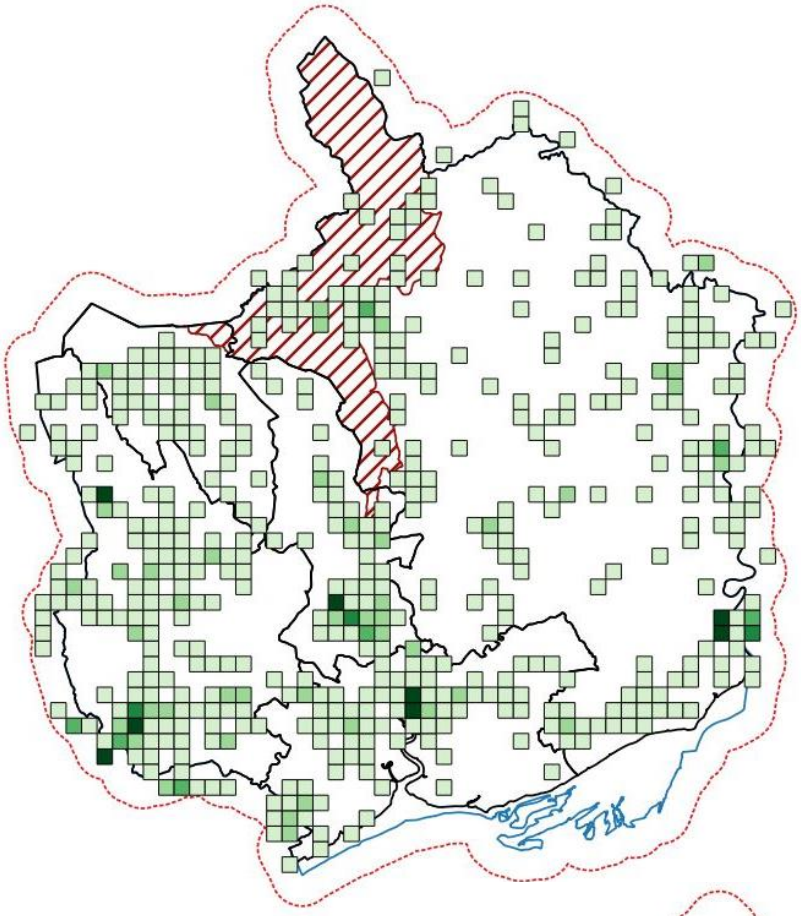
Context: Hedgehogs were added to the UK BAP Priority Species list in 2007, following survey results showing ongoing decline.[49] Current estimates suggest that the population has declined by as much as 73% since 1995,[4] although there is some uncertainty due to differences in survey methodologies. Declines are attributed to several factors including agricultural changes, road casualties, predation by Badgers, and habitat loss and fragmentation. Differences between rural and urban surveys suggest that, for urban Hedgehogs, the decline has recently slowed, and the population may now be increasing; the trend for rural populations is less clear: a recent survey[50] found Hedgehogs at only 22% of rural sample sites.

Hedgehogs are often welcomed into urban gardens, and it seems that urban habitats are increasingly important for the overall population. Densities of Hedgehogs in urban areas can be as much as nine times higher than in rural areas,[51] thought to be due to the increased availability of anthropogenic food, shelter opportunities and reduced predation. It is even suggested that Hedgehogs will make their way to villages in the countryside.[52] Hedgehog Street, an online hub promoting Hedgehog-friendly gardens and improving Hedgehog connectivity, was launched in 2011 by the Peoples Trust for Endangered Species and the British Hedgehog Preservation Society. To date, 90 Hedgehog holes have been created and mapped within the study area.[53]

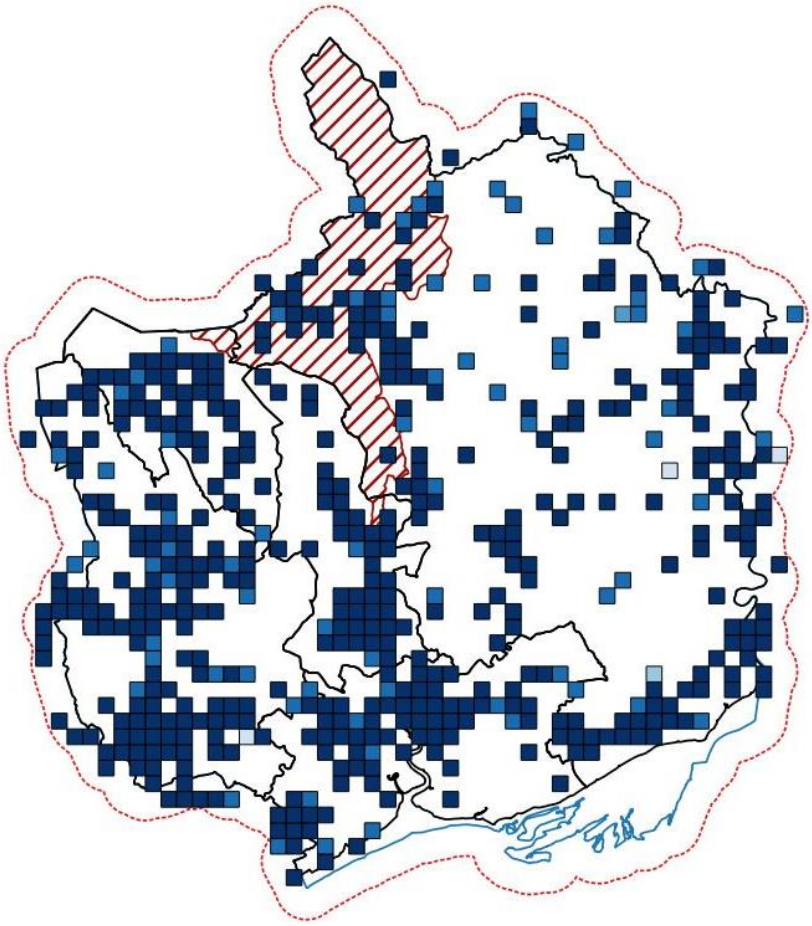
Outlook: The predicted outlook for Hedgehogs is for continued decline[5] due to a decrease in habitat area and quality. The impact of climate change on Hedgehog populations is not fully understood, but it is thought that warmer wetter winters may have a detrimental impact by affecting hibernation.[57] It appears that urban habitats will be increasingly important for Hedgehogs.

Greater Gwent range: Hedgehog records are widely spread across Greater Gwent, with slightly higher concentrations of records in urban areas. This is a result of recorder bias, but it may also be a reflection of the higher density of Hedgehogs in urban and suburban areas. There are a few hotspots in Chepstow (187 records), Cwmbran (87 records) and Deri (30 records). These are likely to be a combination of centred records, duplications and concentrated recorder effort. The map below is set as if 25 is the maximum record count, in order to show some variation in the lower densities.

Density of Hedgehog records (max density ≥25)



Hedgehog records by date

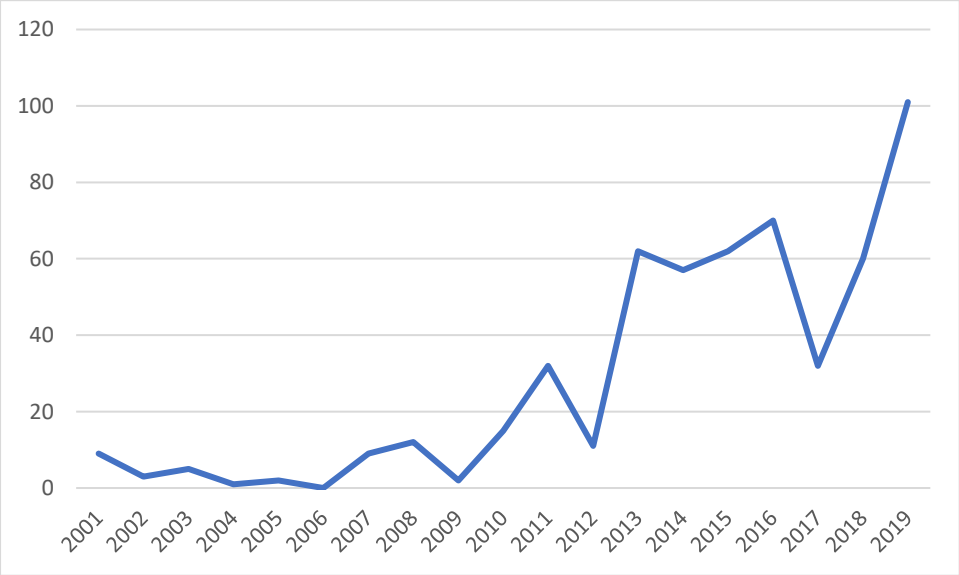


Trends: UK trends are derived from several surveys, including the Mammals on Roads survey, Big Garden Birdwatch, Breeding Bird Survey, Living with Mammals and Hogwatch. All surveys are showing a decline in occurrence and abundance over varying time periods within the last 25 years.[54] Combining the results of these surveys was beyond the scope of this report, and it is likely that there are not enough survey points within the study area to provide a robust trend.

Recorded Hedgehog road casualties within the study area have increased over the last 20 years, but this is likely to be a result of increased public awareness and recording effort. Project Splatter records are included from 2013 onwards.

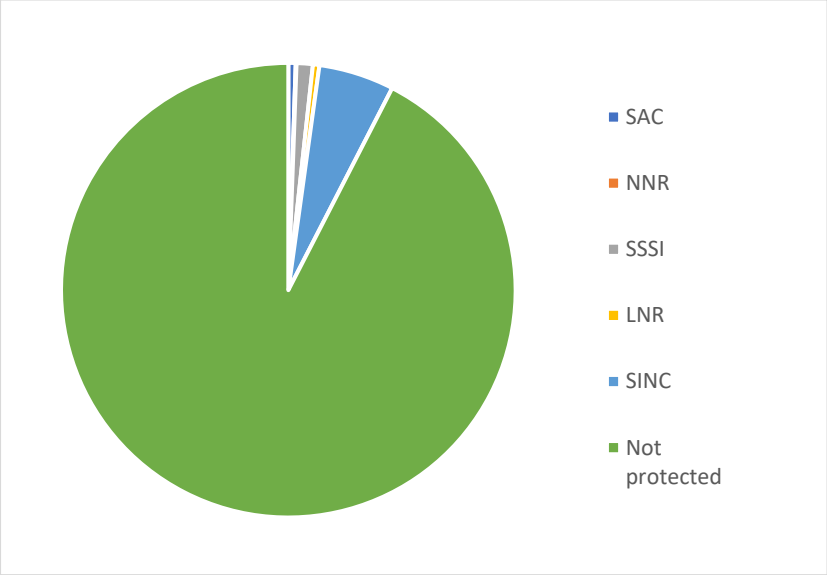
It is also important to note that most of the road casualty records come from within the urban area and urban fringe: 46% of road casualty records fall within the urban and suburban area as defined by LCM 2015, and this rises to 69% and 81% with a buffer of 100m and 250m respectively. This correlates with work carried out by Wright et al. (2020)[55] showing that areas with moderate (peak at 50%) urban cover and high grassland cover had a high probability of Hedgehog road mortalities.

Annual Hedgehog road casualties within the study area from 2001 onwards



Protection: Very few records of Hedgehogs (7%) are from protected sites; this correlate to the fact that most records are from within urban and suburban areas and roads that are less likely to be protected. Additionally, most reserves are unlikely to be surveying or monitoring any resident Hedgehog populations. However, it should be noted that areas of grassland and other green spaces within urban areas but outside of gardens can provide important Hedgehog habitat[52] and be important connectivity routes.[5]

Hedgehog records from protected sites



European Otter *Lutra lutra* (Linnaeus, 1758)

Andy Karran

Protection:[4] The Conservation of Habitats and Species Regulations – Schedule 2 (2017). Wildlife and Countryside Act - Schedule 5 (1981, as amended)

Conservation status: UK BAP Priority Species. Environment (Wales) Act Section 7 Species. Red List:[5] LEAST CONCERN (UK), VULNERABLE (Wales)

Data availability: Good (1,004 records)

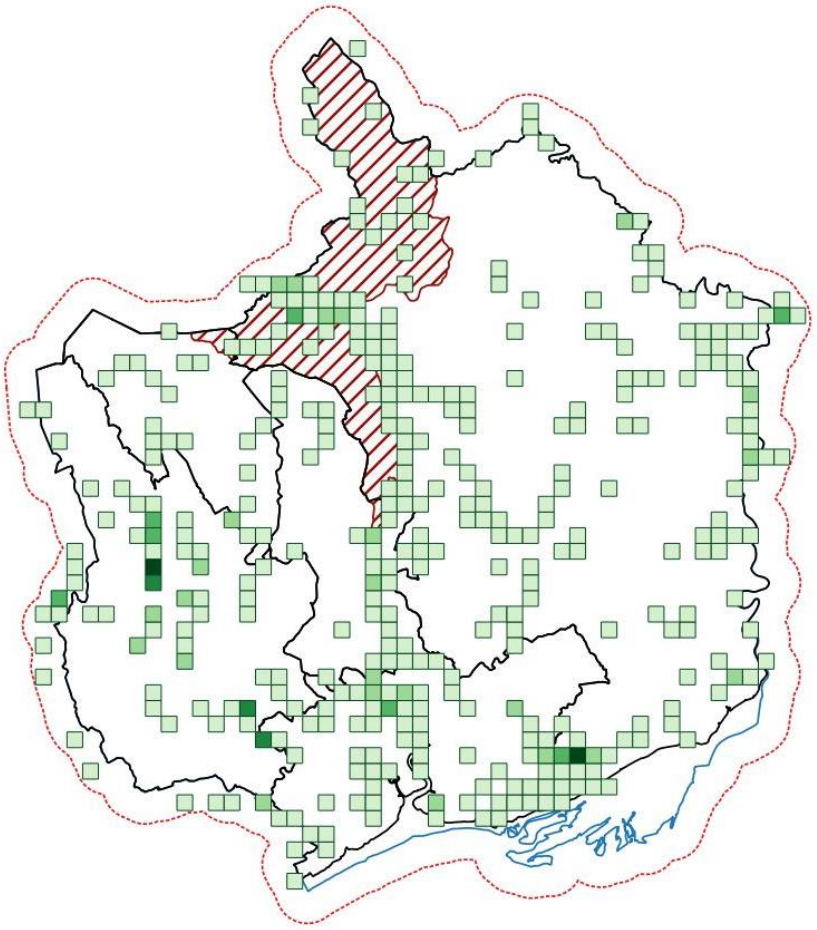
Context: The European Otter suffered severe declines in the middle of the nineteenth century as a result of pollution affecting fish stocks. At the time of the first Otter survey in Wales, in 1977–78, signs of Otters were only found at 20% of survey sites; by 2010, Otter field signs were found at 90% of survey sites.[58] This impressive recovery is attributed to its strong legal protection and improvements in water quality, and Otters have now returned to most of their former UK range.[5] Gwent has a well-established Otter population, with Otters being a primary designation feature for both the Usk and Wye Special Areas of Conservation.[59]

It should be noted that, although there is a high number of Otter records, there are many duplicate records, as several organisations collect Otter records, which are then shared with SEWBReC. Although efforts have been made to remove duplicates, it is possible that some have been missed.

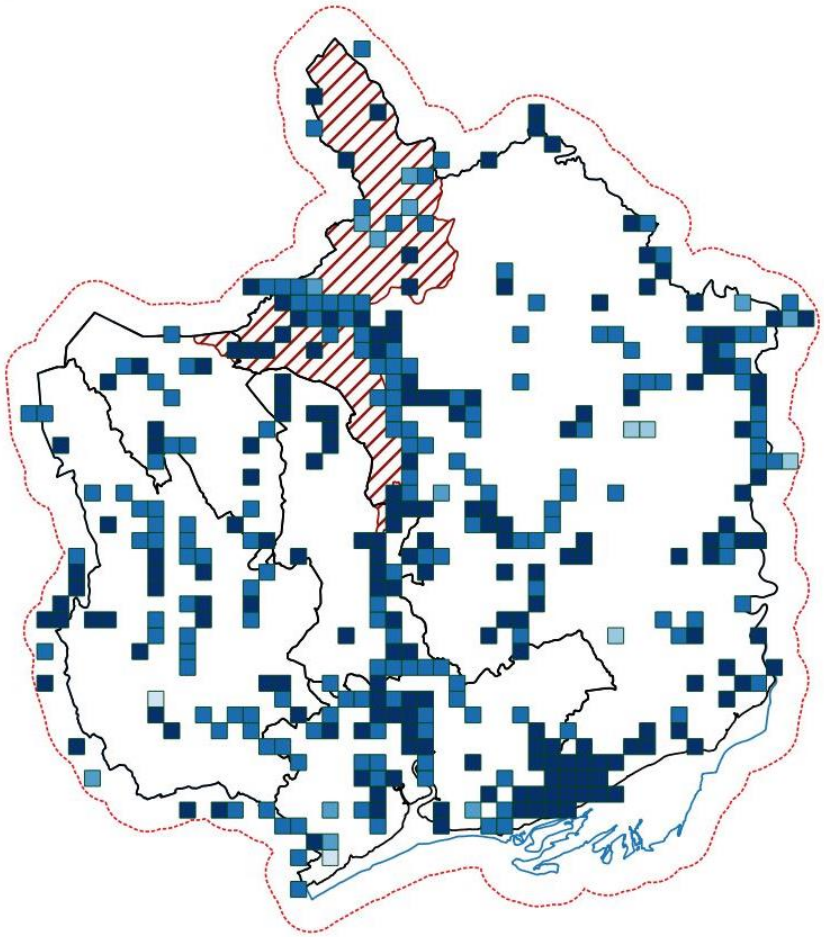
Outlook: At the UK level, the Otter population is predicted to continue to increase and expand its range.[5] The Otter population is thought to be at carrying capacity in a few places, including the Wye Valley, and it is expected that recolonisation will be complete, and cover the whole of Great Britain by 2030.[80]

Greater Gwent range: Otters are evenly distributed across the whole of Gwent, and are concentrated along main rivers, particularly the Usk and Wye, and the Monmouthshire & Brecon Canal. High numbers of records are found at Magor Marsh and Bargoed Country Park, but this is likely to be a result of increased recorder effort at these locations.

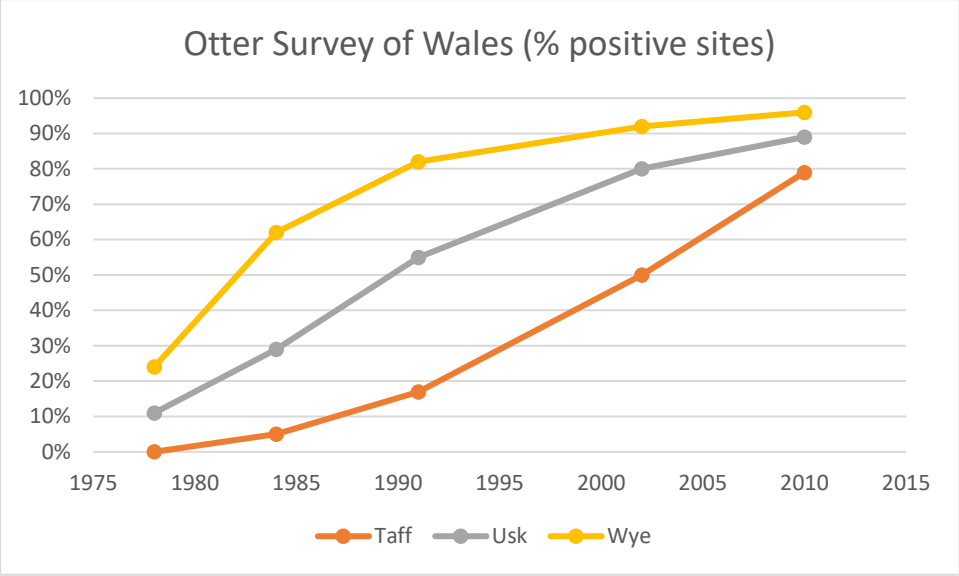
Density of Otter records (Maximum density 21 records/km²)



Otter records by latest record/km²



Trends: Regular national surveys for Otters have been conducted in Wales since 1977, so there is a good dataset showing a steady increase in range. Greater Gwent is covered by three study catchments: the Wye, Usk and Taff, although all three extend beyond Greater Gwent. Results from the Otter Survey of Wales[58] for each catchment are shown below:

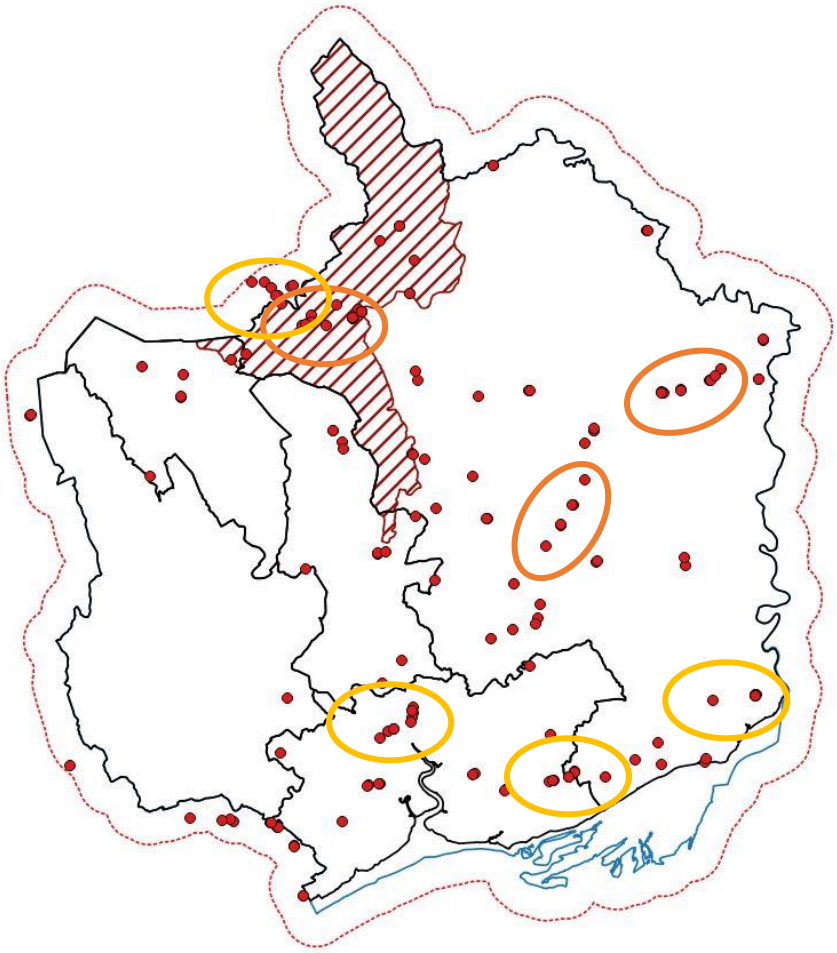


Using sample points from all three catchments that fall within the Greater Gwent gives an occupancy of 87.5% in 2010. Negative sites in Greater Gwent occurred on tributaries of the Afon Lwyd and Rhymney, as well as the western Gwent Levels. Rather than being areas where Otters are absent, it is suggested that these sites are used more sporadically by Otters, so are less likely to be positive for Otter field signs.[58]

Road Casualties: There has been an increase in numbers of recorded Otter road casualties across the UK since the mid-1980s,[60] although this is possibly the result of increased awareness and reporting. It is not clear whether road casualties are having a significant impact on Otter populations – it is suggested that the severity of impact may vary between UK regions.[60] There are, however, clear implications in terms of animal welfare, especially when females with cubs are killed, and the impact of roads is listed as a high-level concern in UK Habitats Directive reporting.[61]

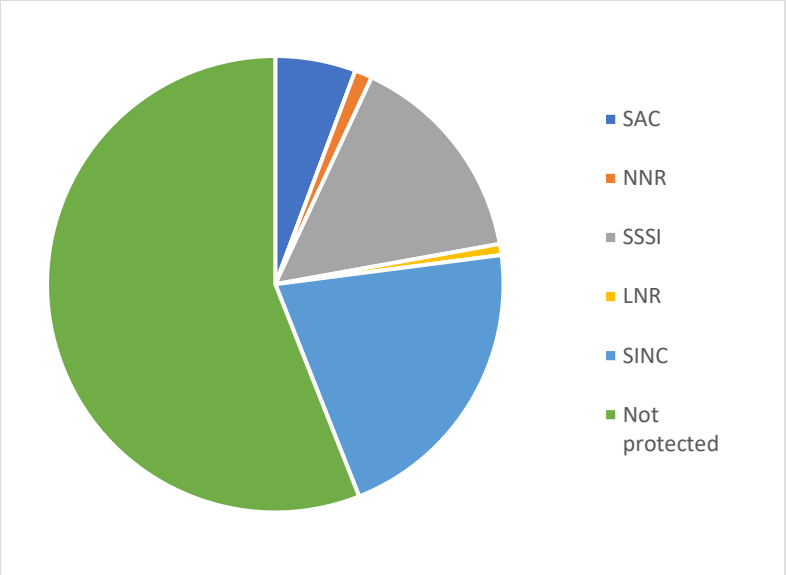
Cardiff University Otter Project (CUOP) was started in 1992 to collect Otters for post-mortem examination.[62] While post-mortem analysis is used in a wide range of research projects, such as toxicology and genetics studies, the locations of road casualties can be used to indicate hotspots and guide mitigation measures. In 2012, CUOP produced a series of reports identifying areas of multiple mortalities and priorities for mitigation.[63,64] SEWBReC records and Project Splatter records contain 156 road casualty records; records from GCER, HBRC and NBN are not specific.

The map below shows locations of Otter road casualty records, together with multiple mortality areas identified by Wilkinson and Chadwick (2012)[63,64] as Medium (orange) and Low (yellow) priorities for mitigation.



Protection: In Greater Gwent, 44% of records occur on protected sites, with the majority from Sites of Special Scientific Interest and Sites of Importance for Nature Conservation. This does not reflect the full protection of Otter habitat: designations of rivers tend to be narrow and often limited to the high-water mark or a fixed distance from it, or even represented by lines instead of area, so records do not always fall within the protected sites even though the site may be used regularly by Otters. Where Otter commuting or laying up habitat is some distance away from the watercourse, this is also unlikely to be within a protected site. However, all Otter breeding and resting sites are protected through the Conservation of Habitats and Species Regulations, regardless of whether they fall within a protected site.

Otter records found on protected sites within Greater Gwent



Pine Marten *Martes martes* (Linnaeus, 1758)

Protection:[4] Habitats Regulations – Schedule 2 (2010). Wildlife and Countryside Act - Schedule 5 (1981, as amended)

Conservation status: UK BAP Priority Species. Environment (Wales) Act Section 7 Species. Red List:[5] LEAST CONCERN (UK), CRITICALLY ENDANGERED (Wales)

Data availability: Poor (14 records)

Terry Whittaker (2020 Vision)

Context: Pine Martens were widespread until the nineteenth century, when persecution by gamekeepers led to their extinction across England and most of Wales. Recovery of the Scottish population began in the middle of the twentieth century, but it was estimated that less than 50 remained in Wales in the 1990s.[65]

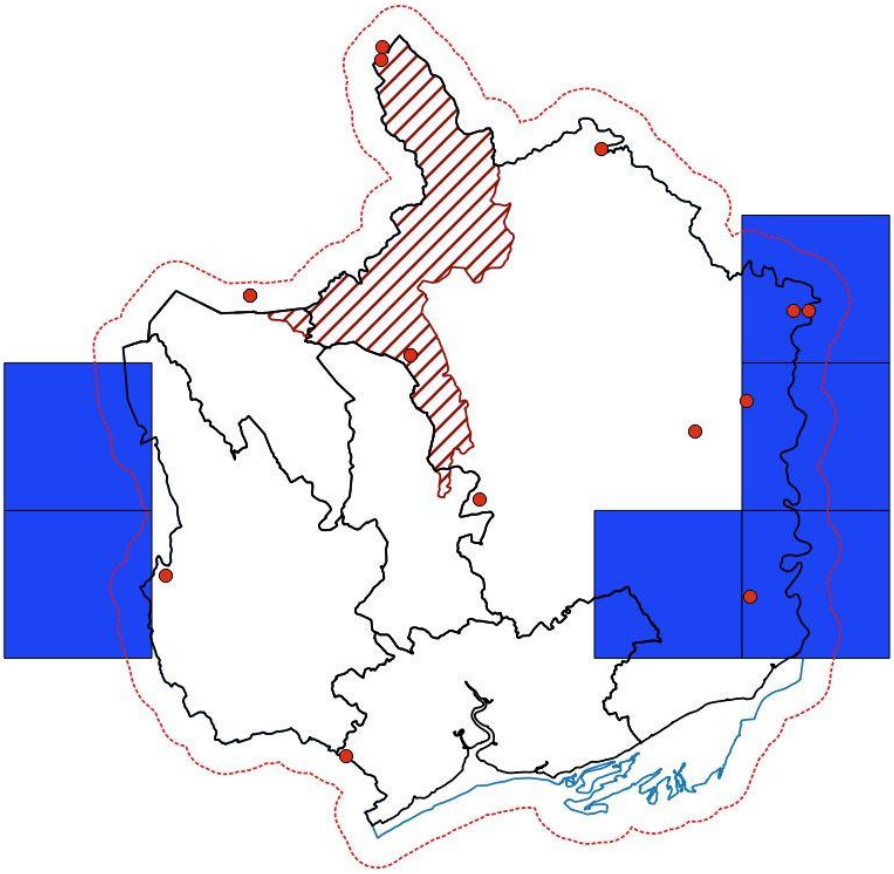
In 2014, Vincent Wildlife Trust carried out a feasibility assessment for reinforcing existing Pine Marten numbers in England and Wales.[66] Subsequently, 51 animals have been translocated from Scotland to mid-Wales in 2015–2017,[67] and 18 animals have been translocated to the Forest of Dean in 2019.[68]

Outlook: At a UK level, the Pine Marten population has Favourable Conservation status,[70] and both population and range are predicted to increase.[5] Threats to Pine Marten populations and barriers preventing range expansion include poor management and fragmentation of woodlands,[5] and road mortalities.[66]

Greater Gwent range: Gwent does have habitat suitable for Pine Martens (Scottish populations show a preference for broadleaf woodland, scrub and grassland).[66] The Forest of Dean Potential Reinforcement Region (PRR), identified by MacPherson (2014), extends into Gwent, along the Wye Valley Woodlands across to Wentwood. There may also be suitable habitat along the Caerphilly/Merthyr border, as part of the Afan PRR.

There are 12 recent records for Pine Marten within Greater Gwent, all scattered across the study area and within the past 30 years, the most recent being in 2005. However, there is considerable doubt around both verification and location of the records, so these should be regarded as evidence of transient individuals at best, rather than any established population.

Map showing locations of Pine Marten records, together with PRR regions identified by MacPherson (2014)



Trends: It is too early to determine the success of the reinforcement projects, although the prospects are positive.[5] The Scottish population has been expanding since the 1980s, demonstrating that the population can recover, albeit slowly, if there is suitable habitat.[69]

Polecat *Mustela putoris* (Linnaeus, 1758)

Andy Karran

Protection: Wildlife and Countryside Act (1981) – Schedule 6

Conservation status: UK BAP Priority Species. Environment (Wales) Act Section 7 Species. Red List:[5] LEAST CONCERN(UK), LEAST CONCERN (Wales)

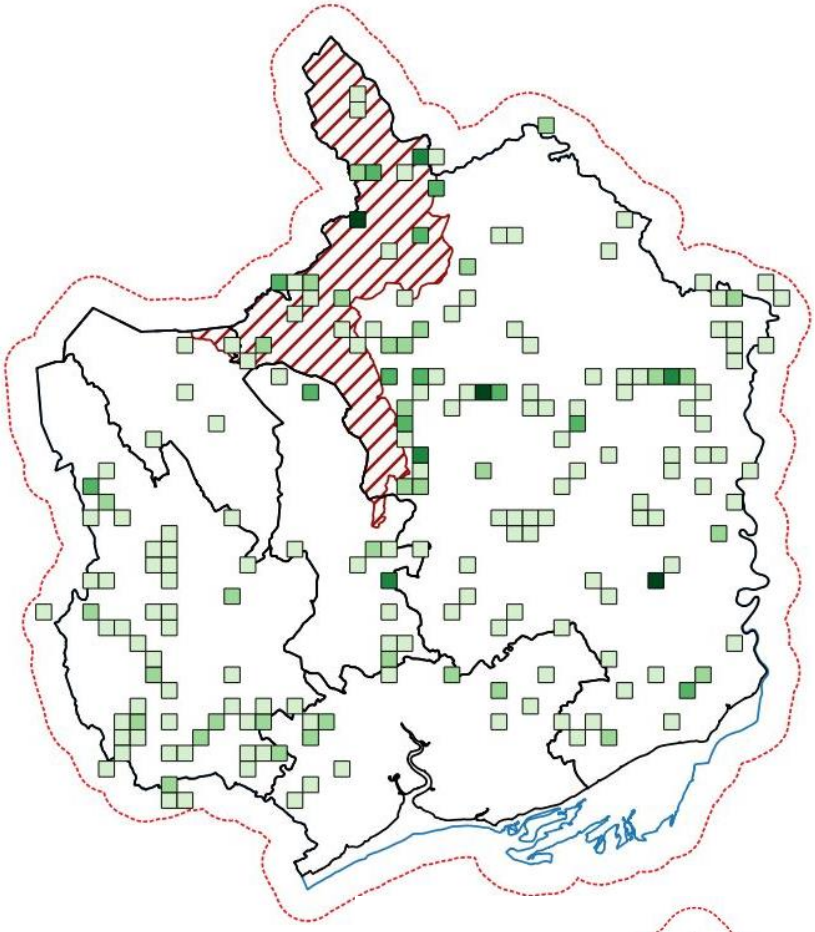
Data availability: Moderate (292 records)

Context: Polecats suffered a severe decline in the nineteenth century and were extinct across most of Britain by 1915.[71] Wales has always been a stronghold for the species, which is now returning to England. While the British population is increasing,[52] there are declines in parts of Europe.[72] There are concerns regarding hybridisation with domestic ferrets, but it appears that the pure Polecat has a competitive advantage over the polecat-ferret hybrid, and Greater Gwent is classified as Polecat Purity Zone 1 (>95% of records conform to the true polecat phenotype) by the Vincent Wildlife Trust.[71] All neighbouring counties are also Polecat Purity Zone 1, except for Gloucestershire, which remains unclassified due to low numbers of records.

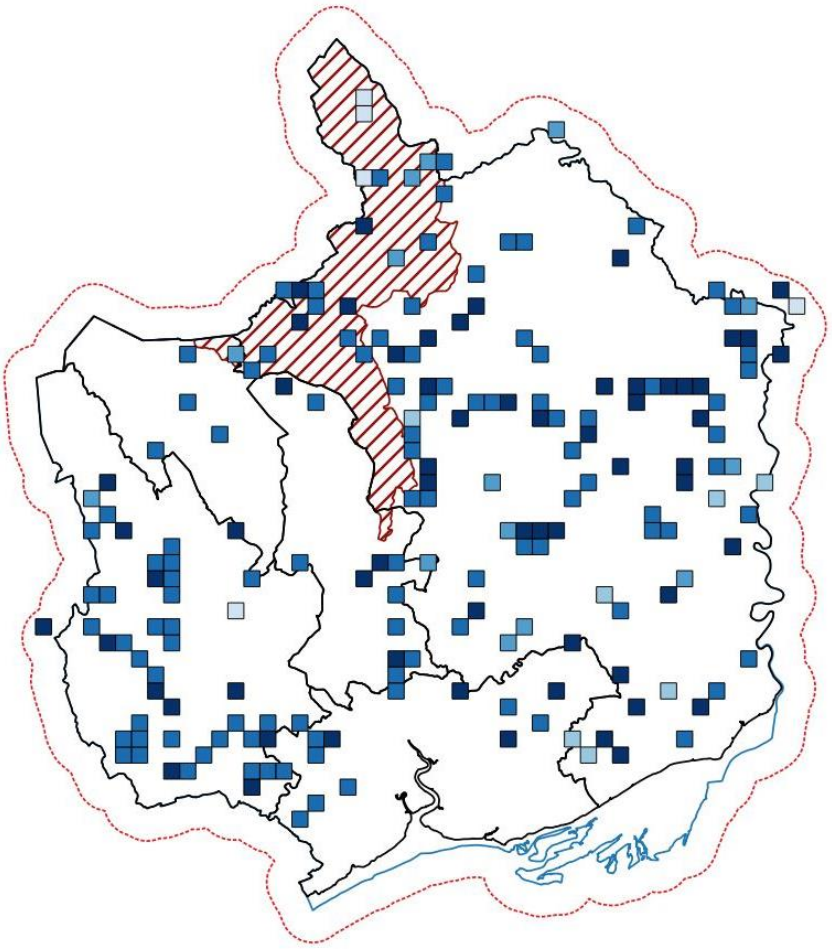
Outlook: The UK Polecat population and range are predicted to increase. They use a wide range of habitats and can adapt to different prey sources.[71] Hybridisation does not appear to be a source of concern in the long term. However, threats include trapping and secondary rodenticide poisoning. Analysis of carcasses collected in the national Polecat survey showed that 79% were exposed to rodenticides; this reperesents an increase of 1.7% since 1992, with residues higher in Polecats from arable areas.[73]

Greater Gwent range: Polecats are found at low densities across the study area, with concentrations along main roads: at least 46% of records are of road casualties. Some hotspots are caused by centring of low-resolution records. There are also few records from Newport, which is to be expected as there is less available habitat and prey within the urban area. Only five records (2%) are for polecat-ferrets, or possible polecat-ferrets, although this can be difficult to determine without close examination of the pelage characteristics.

Density of Polecat records, (maximum 5 records/km²)



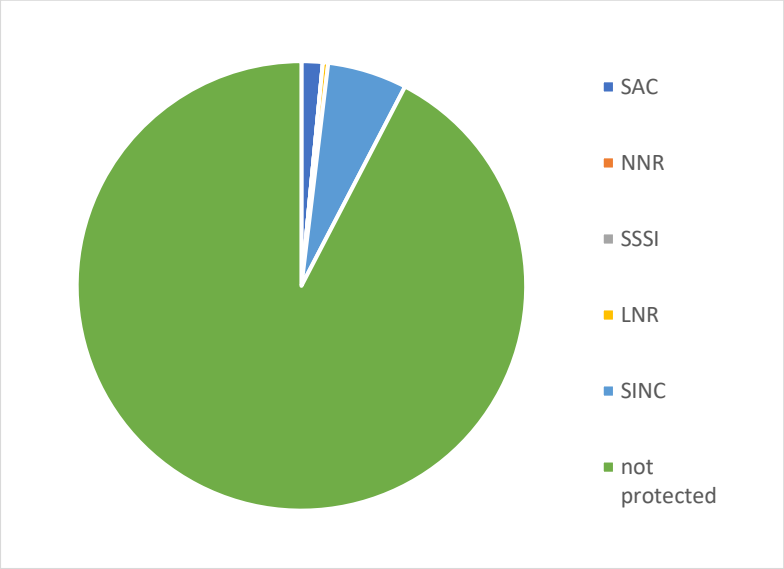
Polecat records by decade



Trends: It is not possible to determine a trend for Greater Gwent. The national Polecat survey carried out by the Vincent Wildlife Trust in 2014–2015 confirmed a stable range in Wales and an increase in range across England,[72] and current estimates for population show an increase in both England and Wales.[5]

Protection: Very few (8%) records are from protected sites, which is not unexpected as they use a wide range of habitats, there are few dedicated surveys for Polecats and many records come from road casualties.

Polecat records found on protected sites



Eurasian Water Shrew *Neomys fodiens* (Pennant, 1771)

Andy Karran

Protection: Protected under Schedule 6 of the Wildlife and Countryside Act (1981, as amended)

Conservation status: Red List:[5] LEAST CONCERN (UK and Wales)

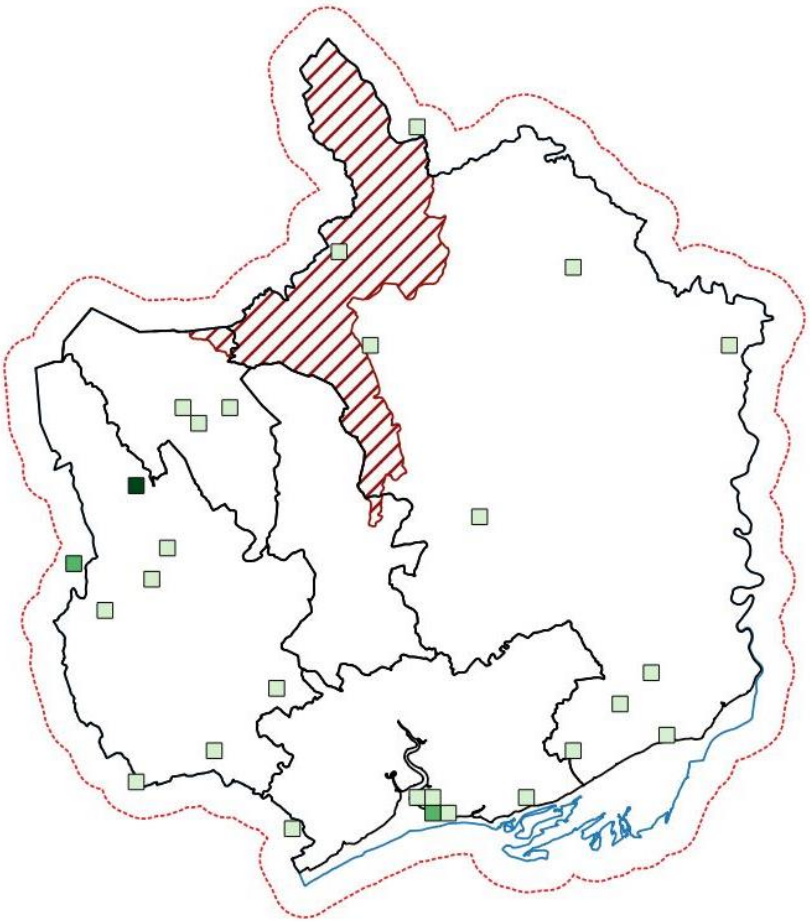
Data availability: Poor (44 records)

Context: Little is known about Water Shrew habitat requirements and population dynamics.[74] Population estimates for the UK are based on the ratio of Common Shrews to Water Shrews, but there is not enough data to determine any trends in population or range.[5] The Mammal Society carried out the first National Water Shrew Survey in 2004 and 2005.[75] Water Shrews can be found in a wide range of aquatic habitats, as well as considerable distances away from water,[74] but their cryptic nature and low population density (as little as 0.78/ha)[5] make them difficult to survey.

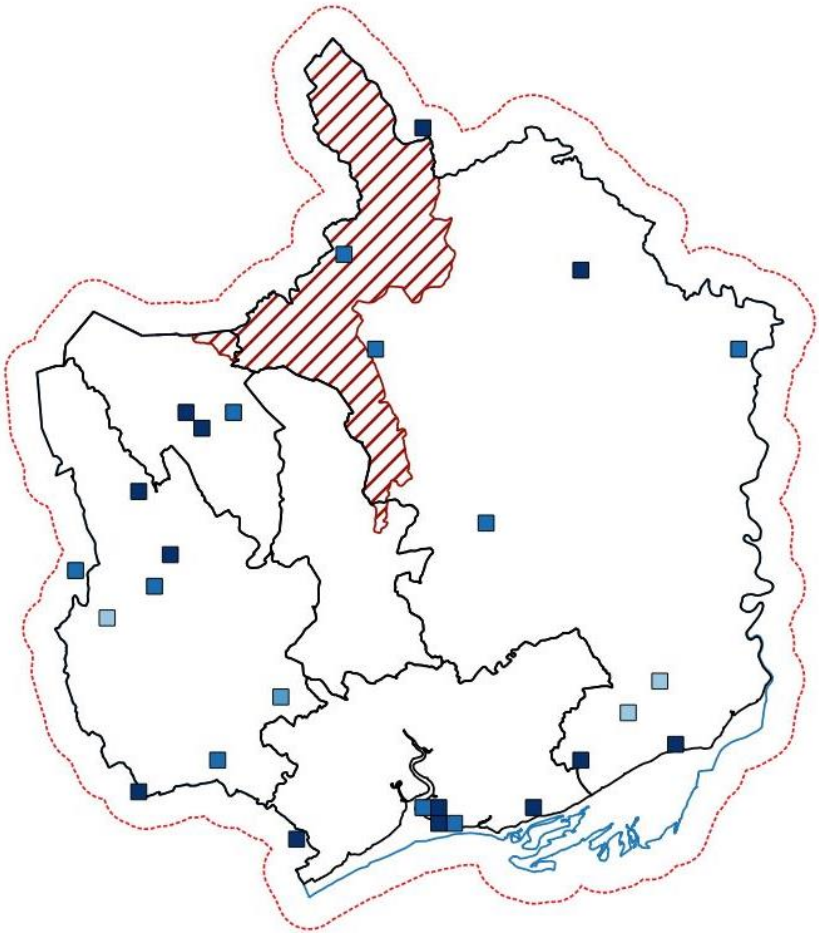
Outlook: There seems to be a possible increase in awareness of Water Shrews in Greater Gwent: over half of Water Shrew records in the study area are from the last decade, although this could be due to a general increase in recording. However, the future trend for Water Shrews is predicted to be a decline caused by reduced habitat quality and quantity and loss of connectivity between habitats.[5]

Greater Gwent range: Six sites within Greater Gwent were surveyed as a part of the National Water Shrew Survey,[74] but none found evidence of Water Shrews. Records from other sources are thinly spread across the study area. Hotspots can be found at Newport Wetlands, Parc Taf Bargoed and New Tredegar, although this is more likely to be a consequence of survey effort and possible duplicate records than actual distribution.

Water Shrew record density (maximum density 6 records/km^2)



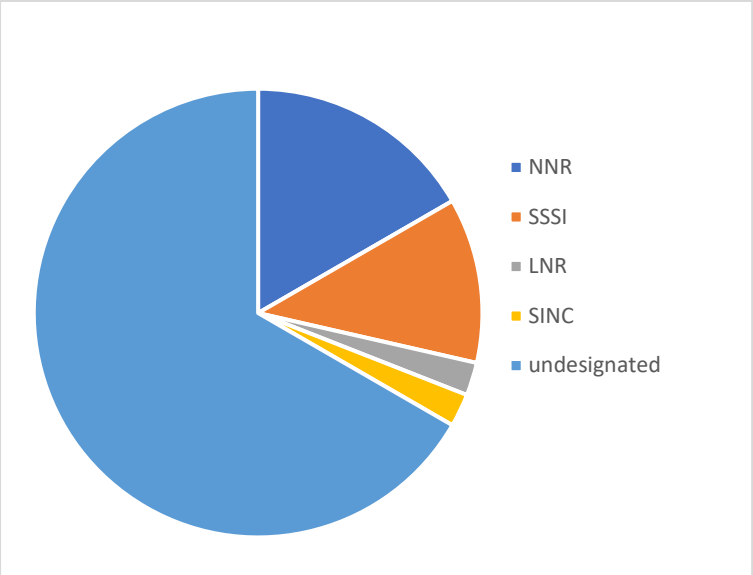
Water Shrew records by date



Population trends: There is not enough data, at either local or national level, to produce population trends.

Protection: Just over 30% of records come from protected sites, with 16% from Newport Wetlands NNR. Two records are from Magor Marsh SSSI, and another two from other parts of the Gwent Levels SSSIs. One record is from Nelson Bog SSSI. The LNR record is from Cwmcelyn Pond, and the SINC record is from Parc Coetir Bargoed.

Water Shrew records from protected sites



European Water Vole *Arvicola amphibius* (Linnaeus, 1758)

Andy Karran

Protection: Wildlife and Countryside Act - Schedule 5 (1981, as amended)

Conservation status: UK BAP Priority Species. Environment (Wales) Act Section 7 Species. Red List:[76] ENDANGERED (UK), ENDANGERED (Wales)

Data availability: Good (3,004 records)

Context: Water Voles were once a common sight but declines in habitat quality in the mid-twentieth century were compounded by predation by introduced American Mink, leading to catastrophic losses. National Water Vole surveys carried out by the Vincent Wildlife Trust estimated a 78% decline in UK population size between 1989–90 and 1996–98,[77] although there is some uncertainty around these population estimates. The Mammal Society suggest a further decrease in population of 50% between 1998 and 2016.[77]

Water Vole range has also contracted: occupancy decreased by 80% between the two national Water Vole surveys,[77] and recent mapping work by the Wildlife Trust and Peoples Trust for Endangered Species suggests further reduction of distribution by 30% between 2006 and 2015,[77] despite numerous reintroductions across the country. The Welsh population is estimated at <10,000, and is considered vulnerable to further declines due to fragmentation.[76]

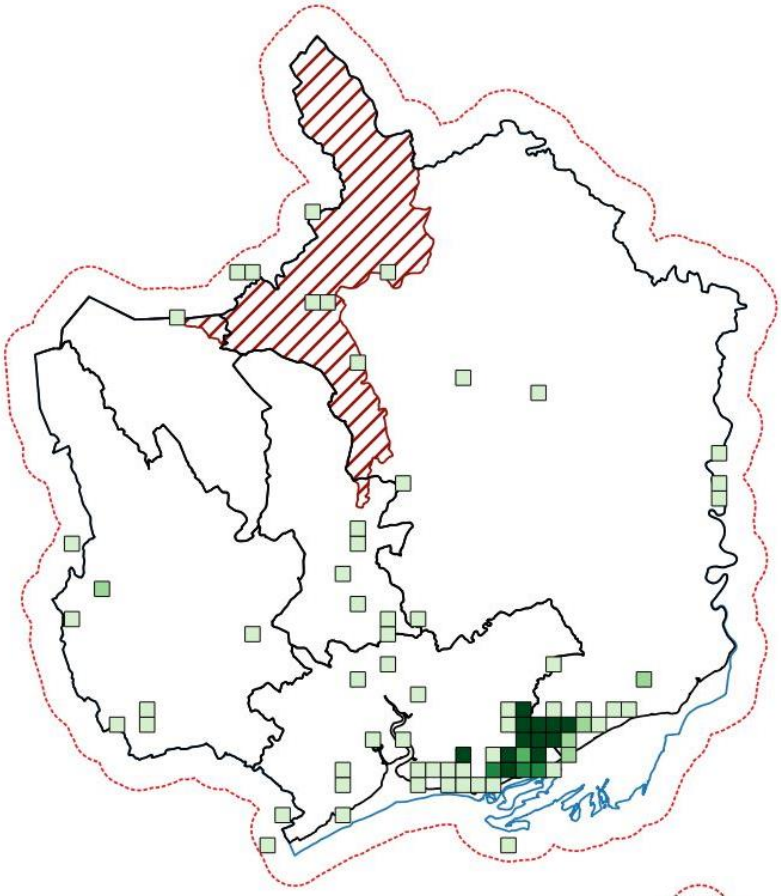
Outlook: At a UK level, the outlook for Water Voles is for continued decline in population.[5] Mink predation is the main threat, but habitat quality and lack of connectivity are also a factor. The National Water Vole Database and Mapping Project[78] reports that reintroductions 'appear to have been highly successful in conserving and/or reintroducing Water Voles to sites – but the data from this project suggest these successes have not yet been expanded at a sufficient scale to reverse the national distribution trends.'

Greater Gwent range: There are very few Water Vole records prior to 2012, when Gwent Wildlife Trust reintroduced Water Voles to Magor Marsh. Records were scattered across the Gwent Levels, along the Usk, Wye and Afon Lwyd and their tributaries, with a group of records at Nelson Bog in Caerphilly. After the reintroduction, Water Voles have dispersed across the Gwent Levels and there are now recent records approximately 16km from the original release site.

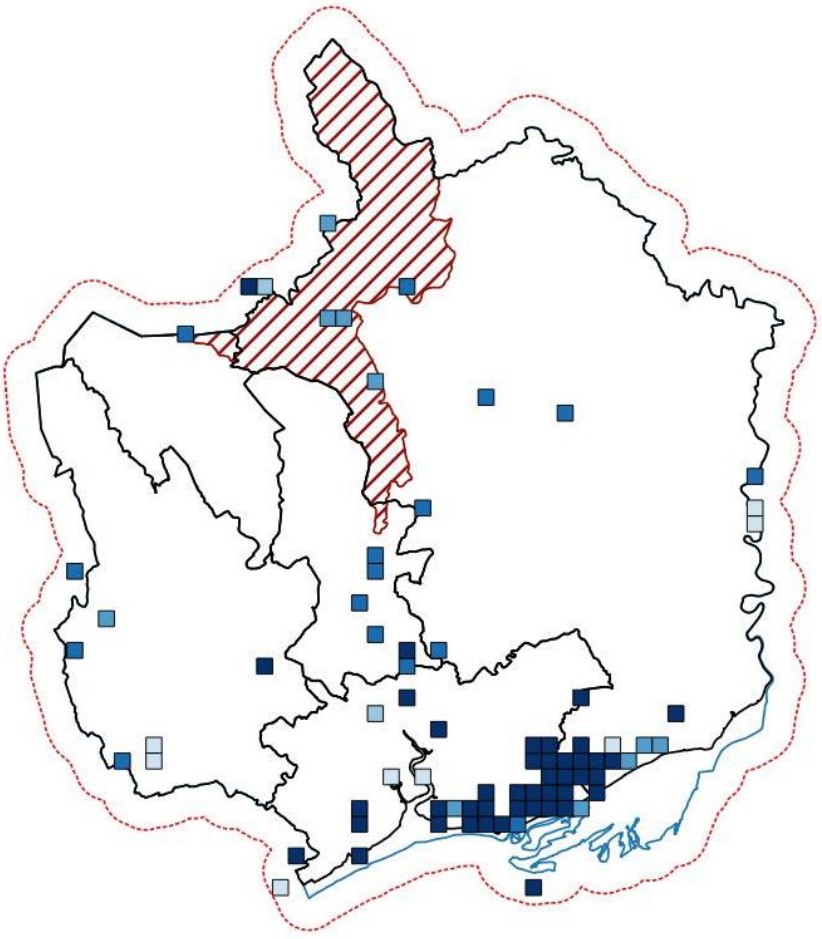
Mink control and habitat improvements have taken place on the River Monnow, and Water Voles were reintroduced onto one of its tributaries, the River Dore, just outside the study area, in 2006.[78] However, there are no recent records for Water Vole from the area, the latest Herefordshire record within the study area was in 1982. It is unclear why this is the case.

Density of records is skewed by the large number of records at Magor Marsh, so an adjusted key is given in order to show relative record densities around Magor Marsh and across the Levels. The maximum density of records at Magor Marsh is 1,936 per km^2.

Density of Water Vole records (maximum set to ≥25)



Water Vole records by decade

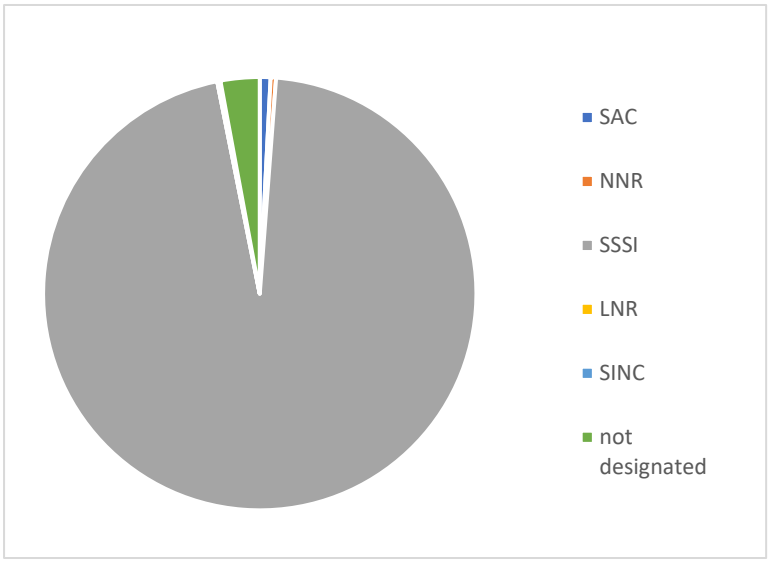


Trends: While the area of occupancy (AOO) for Water Voles in Greater Gwent has increased – there are records from 13 monads in the 1970s and records from 40 monads in the 2010s – it is also important to note that the extent of occupancy (EOO) has decreased, and range is limited to the Gwent Levels, with a few scattered records in the south of Torfaen, Caerphilly and Monmouth.

In terms of population, we can infer a corresponding increase, especially for the Gwent Levels. The National Water Vole Monitoring Programme (NWVMP) was launched in 2015[79] with the aim of revisiting the Vincent Wildlife Trust survey sites, but no results have yet been published.

Protection: The majority of records are from the Gwent Levels SSSIs and Newport Wetlands NNR, with very few (3%) records from elsewhere.

Water Vole records from protected sites



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Bats

Andy Karran

There are 18 species of bat in the UK, 15 of which are found in Greater Gwent. All species are legally protected through the Conservation of Habitats and Species Regulations (2017) (as amended) (Schedule 2) and the Wildlife and Countryside Act (1981) (as amended) (Schedule 5). Many bat species have suffered dramatic declines during the past century, but their strong legal protection, conservation work and greater public awareness mean that some are recovering. However, bats are still threatened by issues such as habitat loss of both roost sites and feeding grounds and fragmentation affecting routes to feeding grounds. They are also known to be vulnerable to wind turbine collisions and barotrauma.[1] Artificial lighting also has a negative impact on bats, causing delays to emergence (leading to reduced access to prey), roost abandonment, reduced breeding success, changes to commuting routes, reduced foraging, and disturbance during hibernation.[2]

Greater Gwent is covered by the Monmouthshire Bat Group (Newport and Monmouthshire) and the Valleys Bat Group (Blaenau Gwent, Torfaen and Caerphilly).

Outlook: Most of the bat species found in Greater Gwent are stable or increasing at the UK level, with a more mixed picture in Wales. There is a lack of data regarding rarer species such as the Serotine and Western Barbastelle. Continuing declines in extent and quality of habitats such as hedgerows and woodlands are likely to affect bat food sources. Although there is increasing awareness of the impact of lighting on bats, light pollution has increased dramatically[3] and is likely to continue to increase with new development. Climate change will affect abundance and availability of insects and may lead to range changes in bats in response. Climate change is predicted to change the extent and distribution of freshwater habitats such as ponds and wetlands, which will affect prey availability for species like Daubenton's Bat.

Current status and trends of bats in Greater Gwent: There are about 20,000 bat records for the study area, but this varies considerably between species. Status is given according to the IUCN Red List criteria, as calculated by Matthews et al.;[1] trends are from 1999 to 2018, as calculated by the most recent National Bat Monitoring Programme (NBMP) results:[3] DD (Data Deficient), LC (Least Concern), NT (Near Threatened), VU (Vulnerable) and EN (Endangered). Note that there is little historic data regarding bat populations[3], so although these trends appear mostly positive, the extent of population losses prior to the start of consistent recording is not well known. Bat populations underwent significant declines, so it is likely that where species are recovering, it is from a very low baseline.

Species	**UK status[1]**	**Wales status[1]**	**UK trend[4]**	**Wales trend[3]**	**Number of records***
Greater Horseshoe Bat (*Rhinolophus ferrumquinum*)	LC	NT	Significant Increase	Increasing to 2011, fluctuating more recently	257
Lesser Horseshoe Bat (*R. hipposideros*)	LC	LC	Significant increase	Significant increase	2,321
Daubenton's Bat (*Myotis daubentonii*)	LC	LC	Stable	Increasing	351
Whiskered/Brandt's Bat (*M. mystacinus/M. brandtii*)	DD	DD	Stable	Fluctuating, considered stable	394
Natterer's Bat (*M. nattereri*)	LC	LC	Significant increase**	Overall significant increase, with recent decline since 2015	288
Common Pipistrelle (*Pipistrellus pipistrellus*)	LC	LC	Significant increase	DD	3,161+
Soprano Pipistrelle (*P. pygmaeus*)	LC	LC	Significant increase**	Significant decline but results not reliable**	1,316+
Nathusius' Pipistrelle (*P. nathusii*)	NT	VU	DD	DD	20
Serotine (*Eptesicus serotinus*)	VU	VU	Stable	DD	150
Noctule (*Nyctalus noctula)*	LC	LC	Stable	DD	919
Leisler's Noctule (*N. leisleri)*	NT	NT	DD	DD	20
Brown long-eared bat (*Plecotus auritus*)	LC	LC	Stable	Increasing to 2015, now thought to be stable	675
Bechstein's bat	LC	EN	DD	DD	13

(*M. bechsteinii*)					
Western Barbastelle (*Barbastella barbastellus*)	VU	VU	DD	DD	21

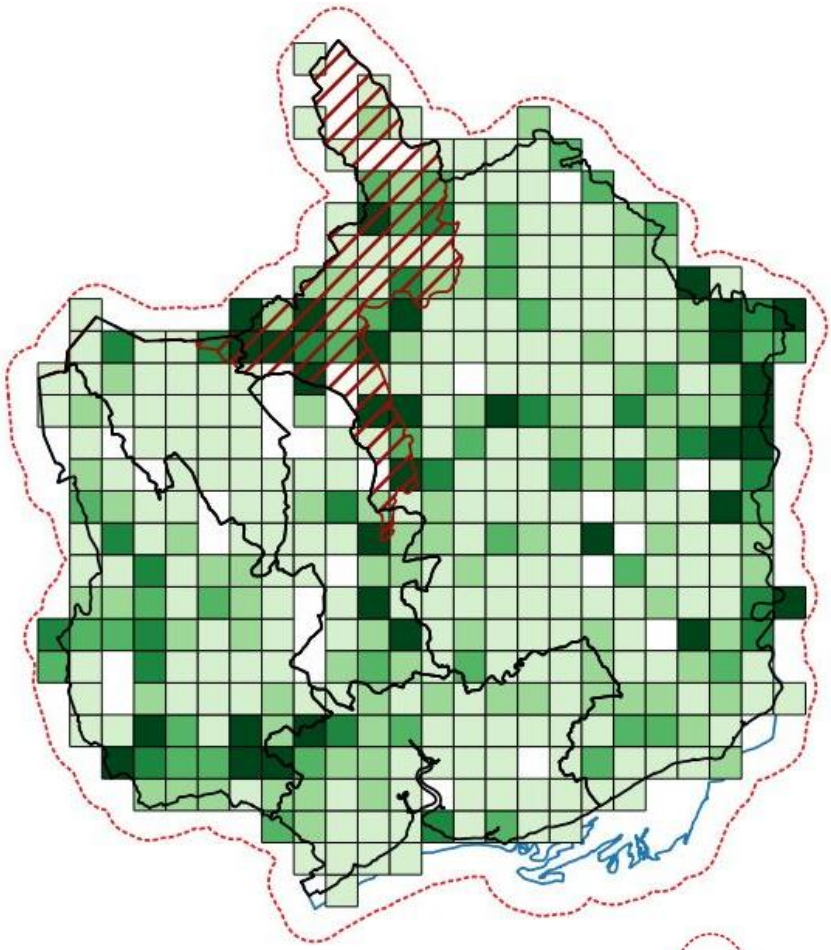
*number of records within Greater Gwent

**treat with caution until further research and monitoring has been carried out

[+] note that there are an additional 230 records prior to the separation of the pipistrelle species

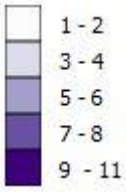
National Bat Monitoring Programme (NBMP): Bat populations are monitored across the UK through the NBMP, co-ordinated by the Bat Conservation Trust. Within the study area, there are 49 roost count sites and 11 hibernation sites registered with NBMP. However, the number of years that records have been returned varies from 1 to 30. Species counted are Common/Soprano Pipistrelle (15 roosts), Brown Long-Eared Bat (1 roost), Brandt's/Whiskered Bat (2 hibernacula), Natterer's Bat (1 hibernaculum), Greater Horseshoe Bat (2 roosts, 4 hibernacula) and Lesser Horseshoe Bat (31 roosts, 11 hibernacula). Note that some monitored sites support multiple species.

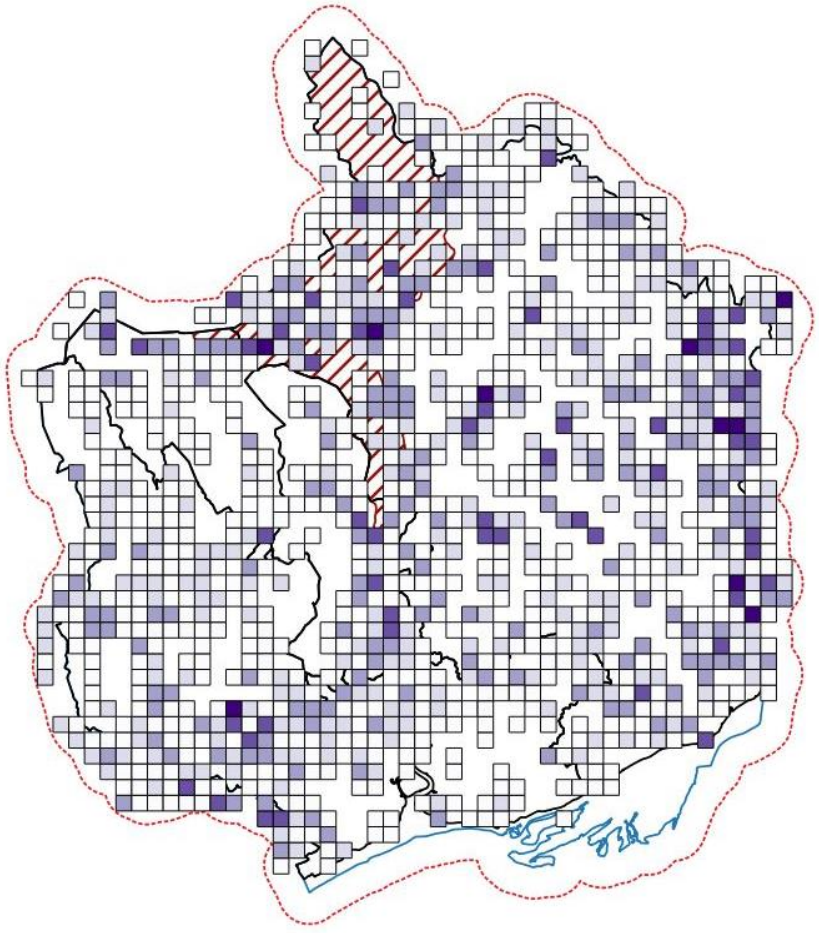
Greater Gwent range: Bats are found across Greater Gwent, with high concentrations of records along the Wye Valley and the Monmouth & Brecon Canal, as well as the Clydach Gorge and the Caerphilly/Newport border area. These areas also have high diversity of recorded bat species. Note that the maximum record density is set to ≥100, as high levels of recording in the Clydach Gorge due to the roadworks (max 858 records per tetrad) would remove any other variation. The map is given in tetrads, to protect specific roost locations.



Record density (all bat species) by tetrad (maximum set to ≥100 records/tetrad)

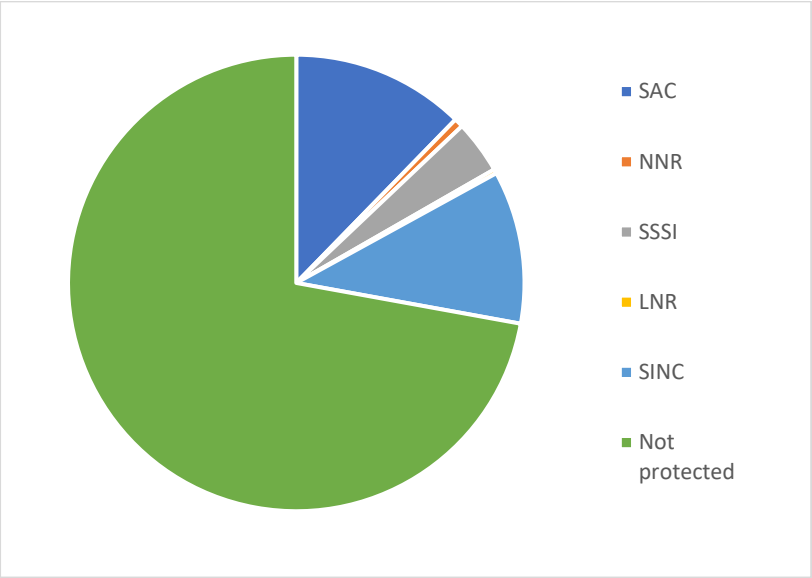
Number of recorded species/km²





Protection: Just under 28% of records come from protected sites, with high numbers of records from designated bat SACs in Monmouthshire and Blaenau Gwent, and the Wye Valley Woodland SACs.

All bat records from protected sites



Bechstein's Bat *Myotis bechsteinii* (Kuhl, 1817)

Protection: Conservation of Habitats and Species Regulations (2017) Schedule 2. Wildlife & Countryside Act (1981 as amended) Schedule 5

Conservation status: Endangered (Wales), Least Concern (UK),[5] UKBAP Priority Species, Wales Section 7 Priority Species

Data availability: Poor (13 records)

Steve Wadley

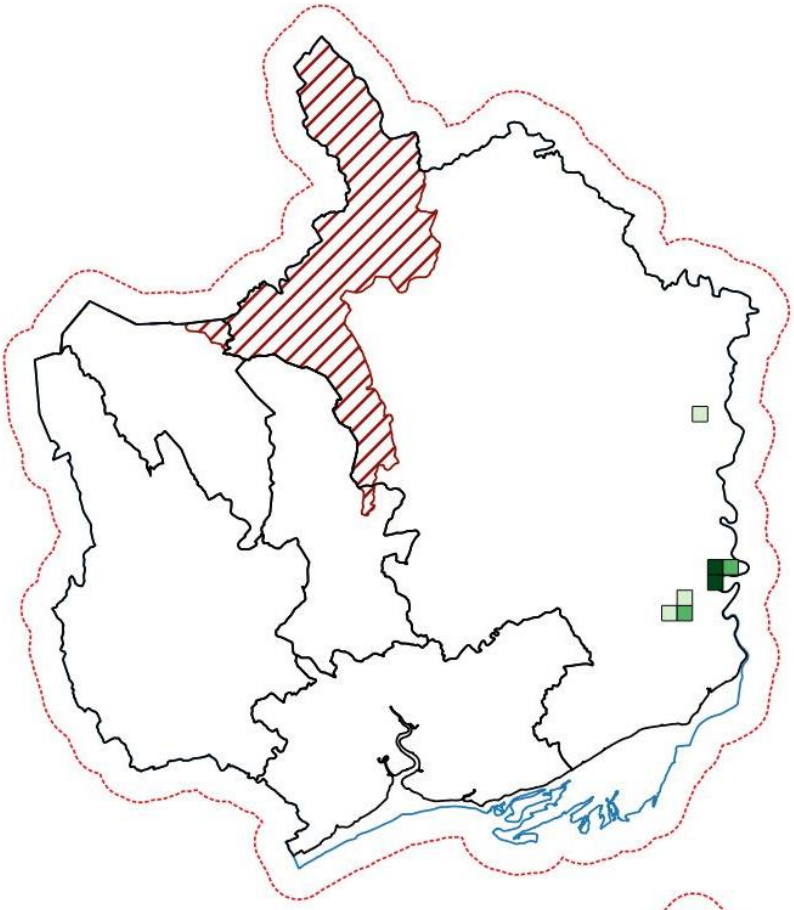
Context: Bechstein's Bat is a rare species, and little is known about them. Their quiet echolocation makes them difficult to detect. Their range is limited to the south of England and the borders of Wales. They prefer broadleaved woodland habitat, particularly ancient woodlands.[6] Prior to 2005 there were thought to be just six breeding populations[7], but now the British population is estimated to be between 10,300 and 55,600,[5] and the Welsh population 120 to 630[8] (with a large amount of uncertainty).

Outlook: Knowledge and recording of the species is improving, particularly through the use of acoustic lures.[6] Given the species' sensitivity to the quality of woodland, particularly understorey cover, declines in woodland conditions may have a negative impact on Bechstein's Bats. Climate change may affect prey availability, but the impacts are difficult to predict.

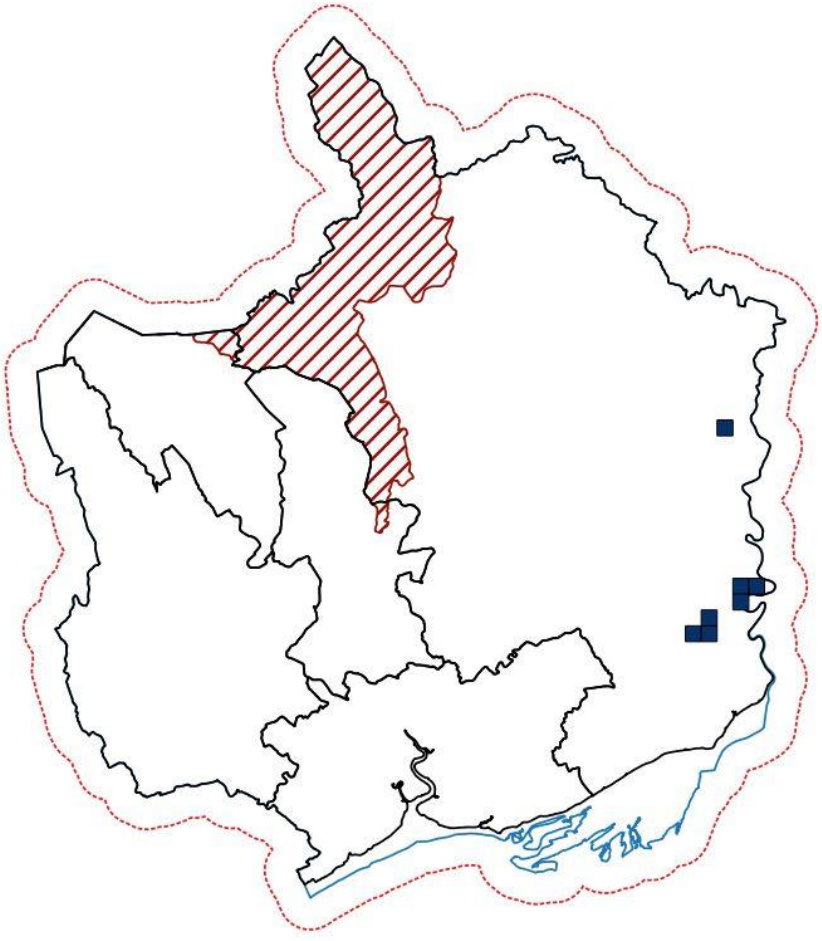
Greater Gwent range: Bechstein's Bats are only found in the east of Greater Gwent, which corresponds to the edge of their British range. There are low numbers of records, as Bechstein's Bats are usually only recorded through specialist trapping under licence. This is most likely an under-representation of Bechstein's Bat distribution, given the difficulties in recording them and the availability of potential habitat within the Wye Valley. The Monmouthshire Bat Group reports trapping up to 25 males at swarming sites, indicating a significant population.[9] It is not known why these records are not with South Wales Biodiversity Records Centre (SEWBReC).

Most significantly, the records include an established colony (recorded twice in different years at the same location) and one pregnant female, the only known breeding colony in Wales. All records are from 2011 onwards, reflecting improved recording methods and recent interest in the species.

Distribution of Bechstein's Bat records across Greater Gwent (max 3 records/km^2)



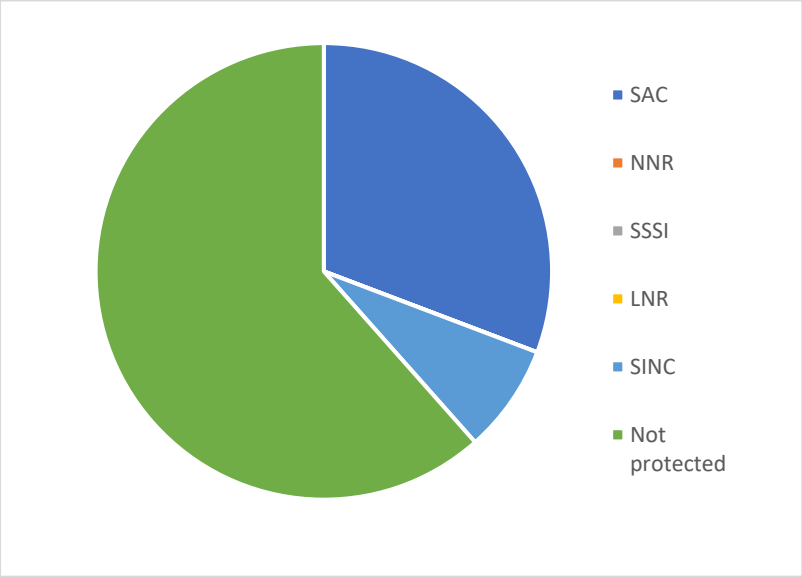
Records of Bechstein's Bat by decade



Population trends: There is not enough data to determine a local or national trend for Bechstein's Bats.[5] Genetic data suggests that there have been recent declines in Great Britain, but levels of inbreeding are less than previously feared.

Protection: 27% of records come from protected sites, with records from the Wye Valley Woodlands SAC and Colonels Wood SINC. It is likely that use of protected woodlands by Bechstein's Bats is higher than indicated, due to their preference for high quality woodland.

Bechstein's Bat records from protected sites



Greater Horseshoe Bat *Rhinolophus ferrumquinum* (Schreber, 1774)

Steve Wadley

Protection: Conservation of Habitats and Species Regulations (2017) Schedule 2. Wildlife & Countryside Act (1981 as amended) Schedule 5

Conservation status: Least Concern (UK), Near Threatened (Wales)[5]

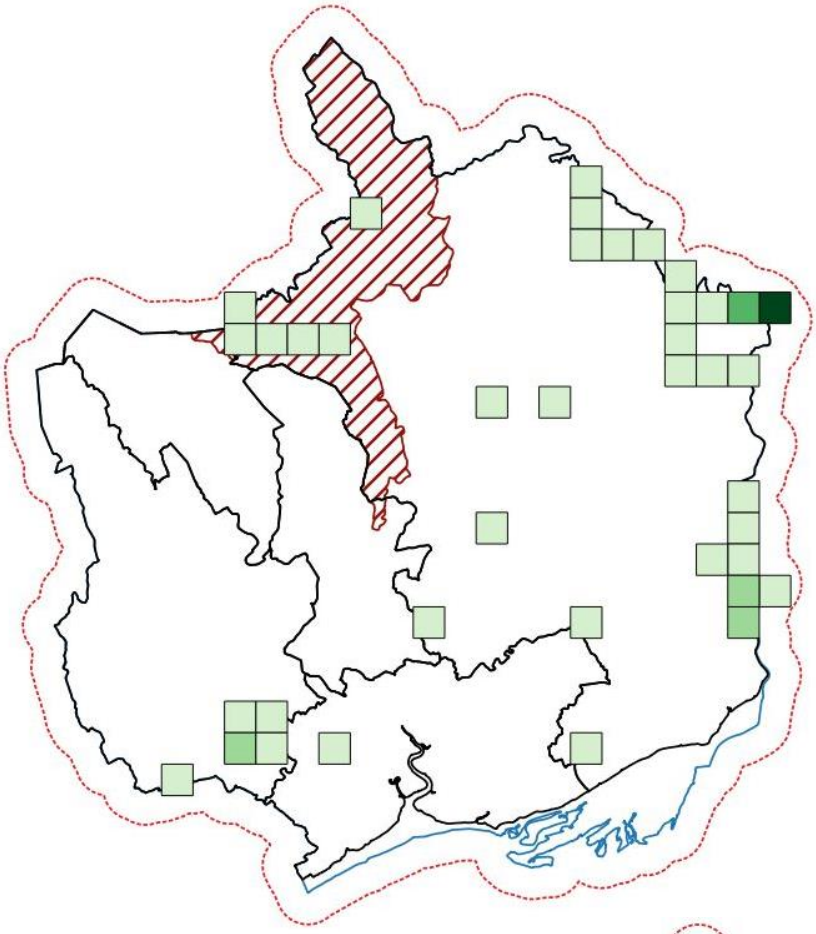
Data availability: Poor (7 records)

Context: Greater Horseshoe Bats are one of the largest British bat species, feeding over woodland edges, hedgerows, pastures and parkland. Maternity roosts are usually in buildings, and hibernation sites are usually caves or tunnels.[5] It is estimated that the number of Greater Horseshoe Bats has declined by over 90% in the last 100 years, due to factors such as roost disturbance and changes in agricultural practices.[10] More recently, both population and range of Greater Horseshoe Bats has been increasing, since the 1990s.[5,11] This is thought to be due to increased legal protection and possibly milder winters.[5] The UK population is estimated at 12,951 individuals,[12] with 2,751 in Wales.[13]

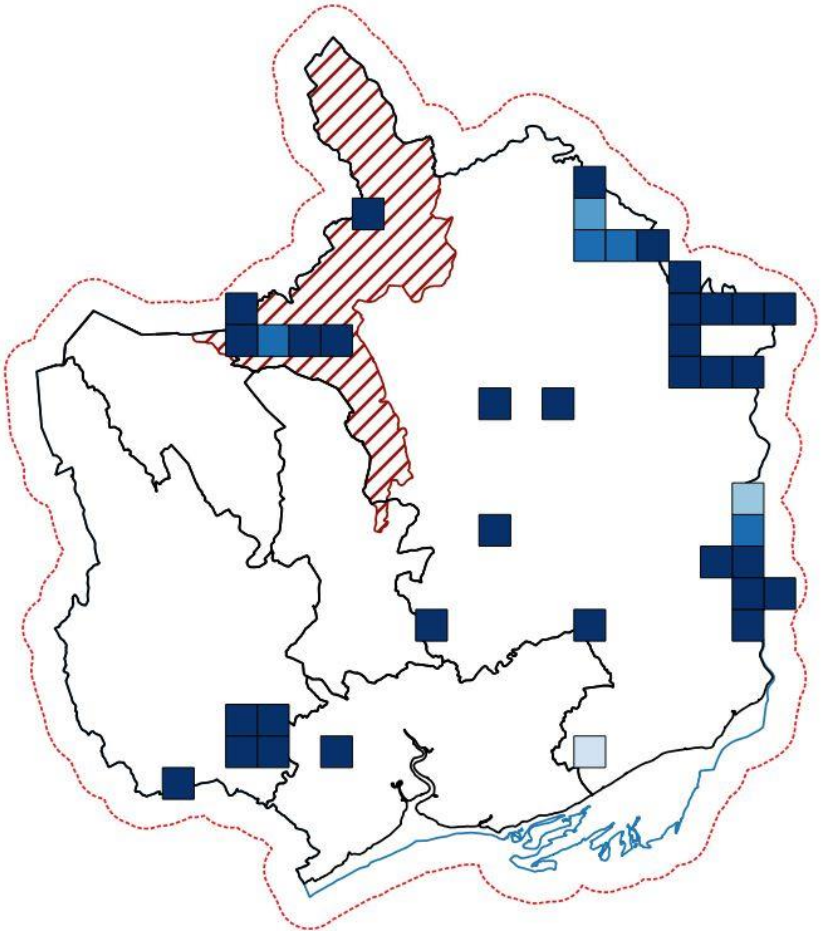
Outlook: Currently, the UK population is predicted to continue to increase in size and range,[5] and the species' favourable conservation status is likely to continue.[12,13] In Greater Gwent, the overall trend appears to be positive, although new developments may impact roosts.[14] Milder winters caused by climate change are likely to favour Greater Horseshoe Bats, although the impact of climate change on their prey species is less clear. Remaining threats include disturbance of roosts and changes in agriculture, such as pesticide use.

Greater Gwent range: There are three known maternity roosts for Greater Horseshoe Bats within Greater Gwent: Monmouth, Caerphilly and Wyndcliffe (discovered in 2017). There are also two important hibernation areas, at Clydach Gorge and the edge of the Forest of Dean. There are more records for the Forest of Dean area, but this may be due to differences in recording effort, as hibernation sites are often difficult to access. There is also a smaller roost within the buffer area in Herefordshire. These give rise to four distinct areas of importance for Greater Horseshoe Bats, with very few records outside of these areas.

Distribution of Greater Horseshoe records across Greater Gwent (max 109 records per tetrad)

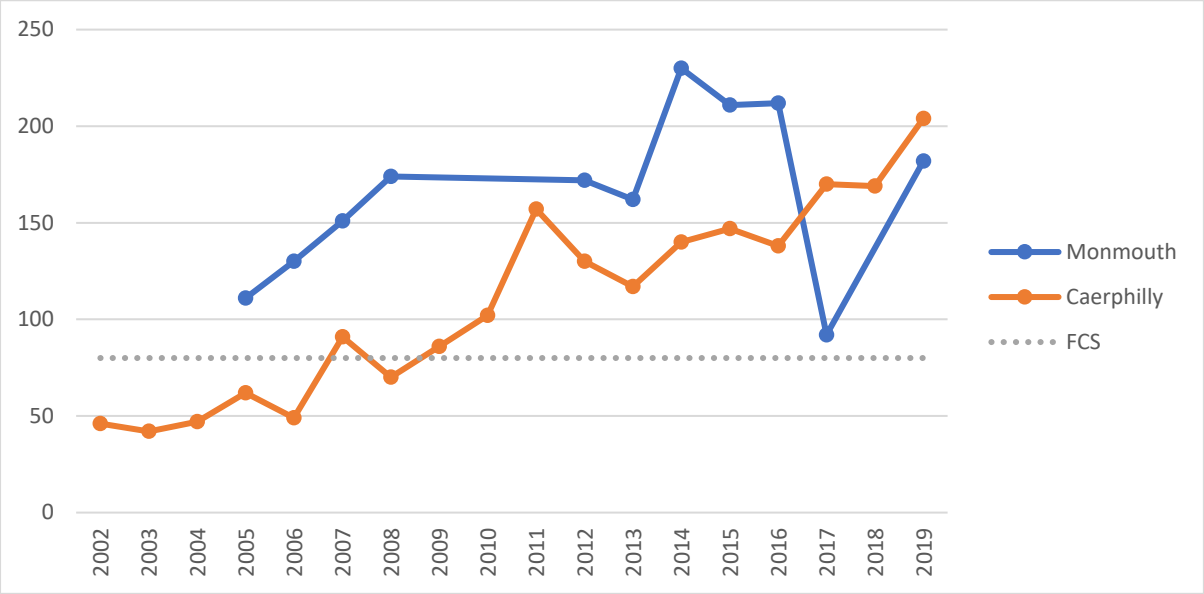


Records of Greater Horseshoe Bats by decade



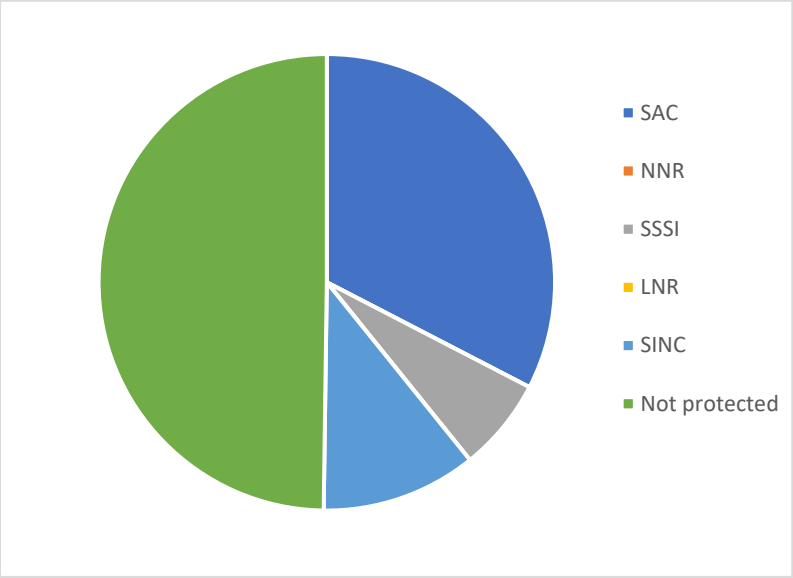
Population trends: Two of the maternity roosts are monitored through the National Bat Monitoring Programme (NBMP). The data for Caerphilly roost shows an upward trend, whereas the Monmouth roost data has no clear trend and is missing data for some years. Both roosts, however, have remained above their favourable conservation status (FCS) of 80 adults[15,16] for the latest decade.

Peak NBMP Counts for Greater Horseshoe Bats at Monmouth and Caerphilly maternity roosts.



Protection: Half (50%) of the Greater Gwent Greater Horseshoe Bat records come from protected sites, with almost a third of records from the Wye Valley Bat SAC and Wye Valley Woodlands SAC. The Monmouth maternity roost is part of the Wye Valley Bat SAC, and the Caerphilly maternity roost is an SSSI. Parts of the hibernation areas are variously protected as SACs, NNR and SSSIs. However, many records are from outside protected areas. This can be explained by the small footprint of the Wye Valley Bat SAC, which is confined to the structure of the roost, so many records associated with the roost will not fall within it, especially less accurate records. Also, Greater Horseshoe Bats can forage some distance from their roost; the Bat Conservation Trust recommends a core sustenance zone of 3km radius.[17]

Greater Horseshoe Bat records from protected sites



Lesser Horseshoe Bat *Rhinolophus hipposideros* (Bechstein, 1800)

Protection: Conservation of Habitats and Species Regulations (2017) Schedule 2. Wildlife & Countryside Act (1981 as amended) Schedule 5

Conservation status: Least Concern (UK & Wales),[5] UKBAP Priority Species, Wales Section 7 Priority Species

Data availability: Good (3,168 records)

Steve Wadley

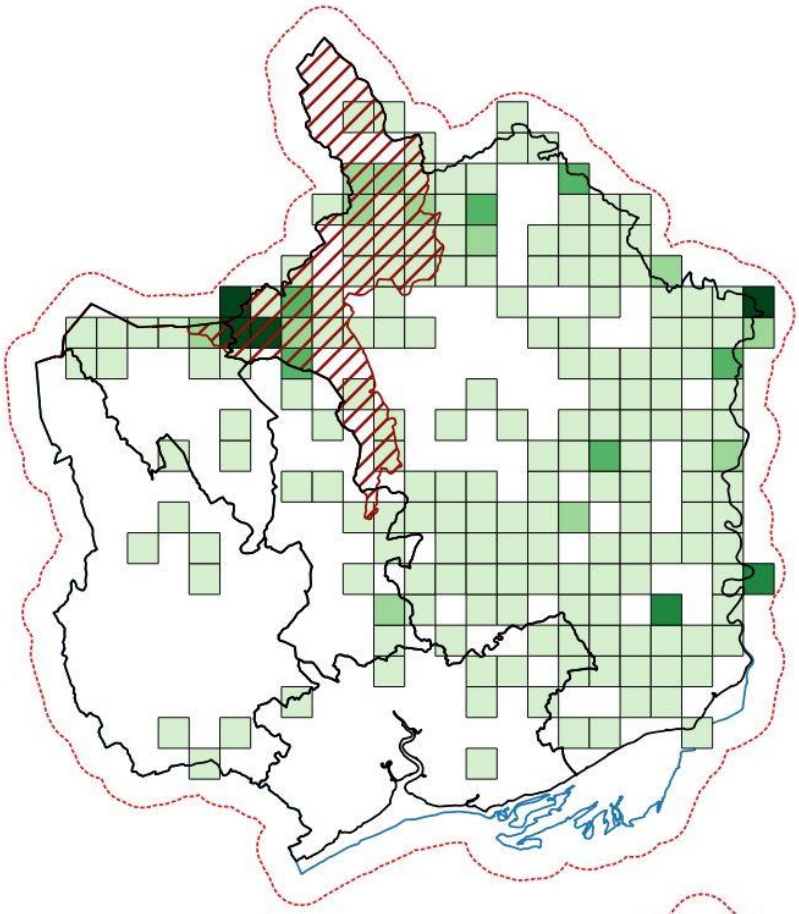
Context: Lesser Horseshoe Bats are one of our smallest bat species, with a limited UK range, restricted to Wales, the west of England and western Ireland.[18] Drastic declines and local extinctions have occurred across northern and western Europe since the 1950s.[3] The reasons for the declines are not fully understood, but have been linked to agricultural intensification, loss of foraging areas and loss of roosts and hibernacula.[18]

Recent studies indicate that the UK population is recovering,[5] and the latest Article 17 reporting[19] gives the Lesser Horseshoe Bat population and range Favourable Status, with a population estimate of 50,400 (significantly higher than previous estimates). Lesser Horseshoe Bats have been the focus of targeted conservation work, particularly by Vincent Wildlife Trusts, who own or manage several roosts. The Our Beacons for Bats project ran from 2010 to 2014 and took place on the border of the study area and beyond; it focused on community engagement, mapping bat foraging and commuting areas, and habitat enhancement.

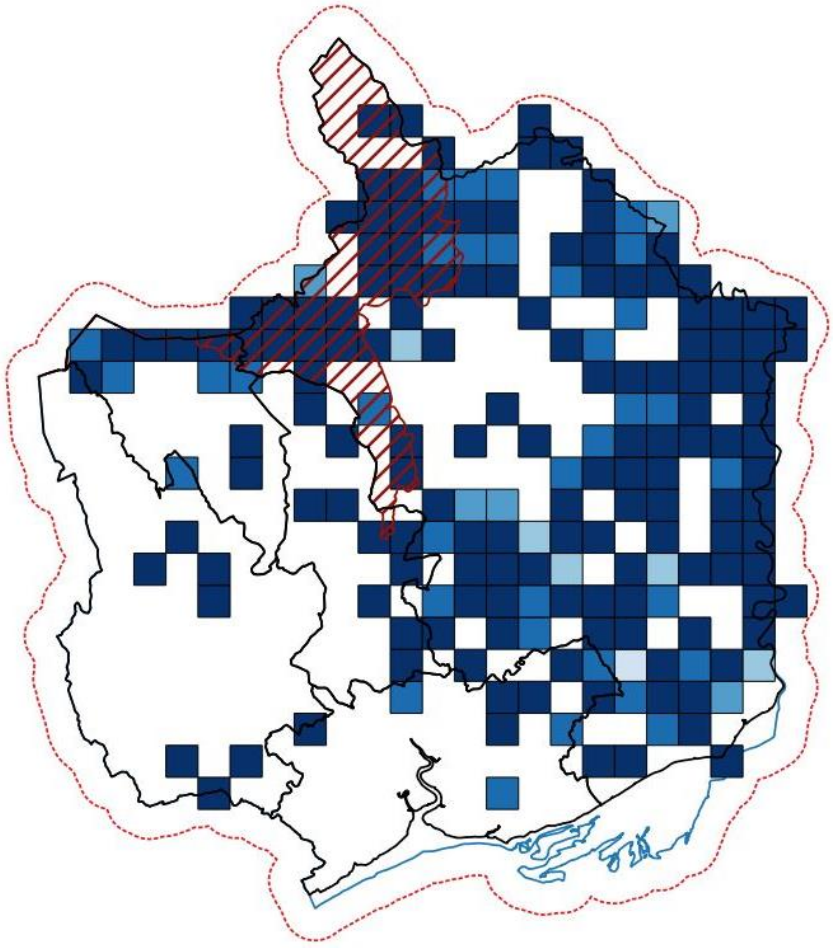
Outlook: Currently, the UK and Welsh population and range are predicted to continue to increase.[5] The Lesser Horseshoe Bat has benefitted from strong legal protection, designation of roosts, hibernacula and foraging grounds as protected sites, and targeted conservation efforts. Future threats include land-use changes, roads, artificial lighting and disturbance.[5] Climate change is likely to affect prey availability and hibernation, but the effects are difficult to predict.

Greater Gwent range: Lesser Horseshoe Bats are found across the north and east of Greater Gwent, with recording hotspots associated with the Clydach Gorge, the Usk Bat Site SAC, the Wye Valley Woodlands and Wye Valley and Forest of Dean Bat Sites SAC.

Greater Gwent contains two SACs designated for their Lesser Horseshoe Bat populations: the Usk Bat Sites SAC, supporting up to 5% of the UK population; and the Wye Valley and Forest of Dean Bat Sites SAC, supporting the greatest concentration in the UK (about 26% of the UK population). It is important to note that both of these protected sites extend significantly beyond Greater Gwent.

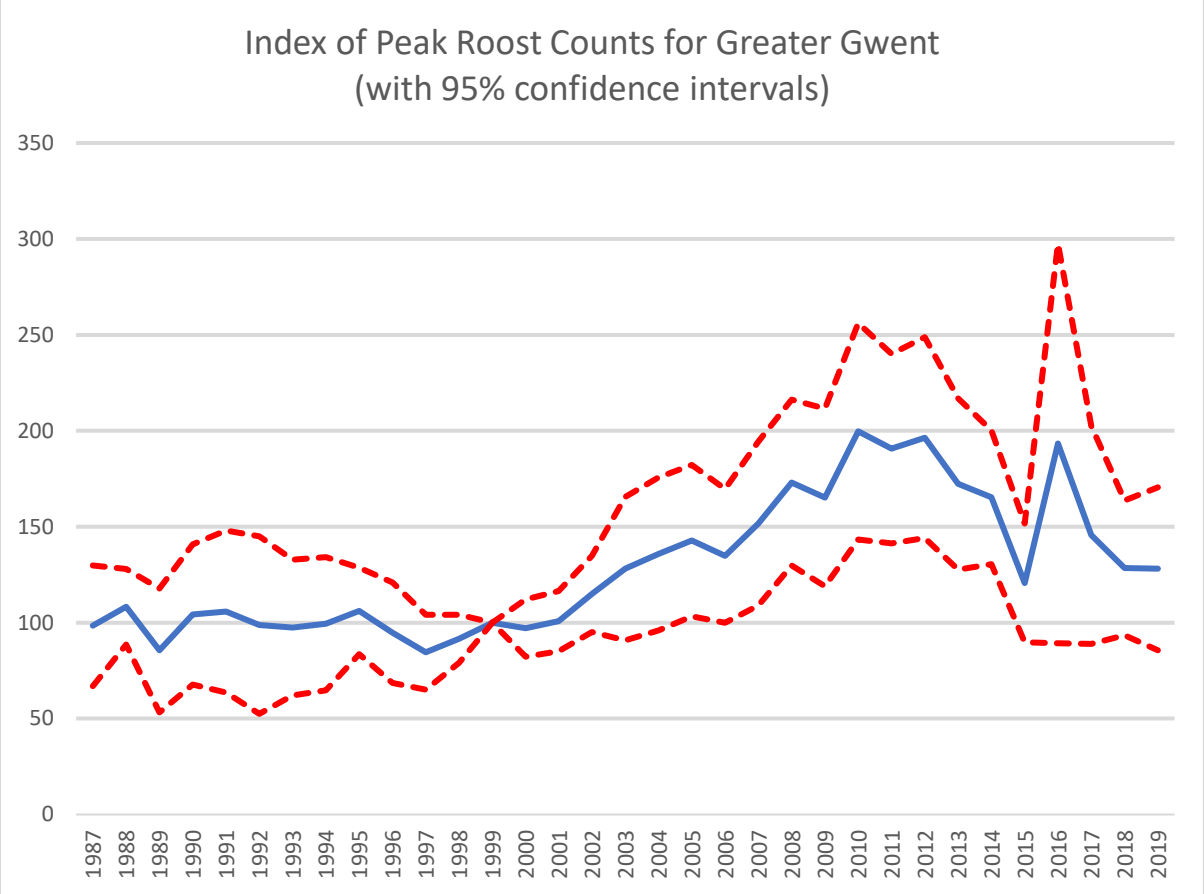


Distribution of Lesser Horseshoe Bat records across Greater Gwent (by tetrad) (maximum ≥ 100/tetrad)



Records of Lesser Horseshoe Bat by decade

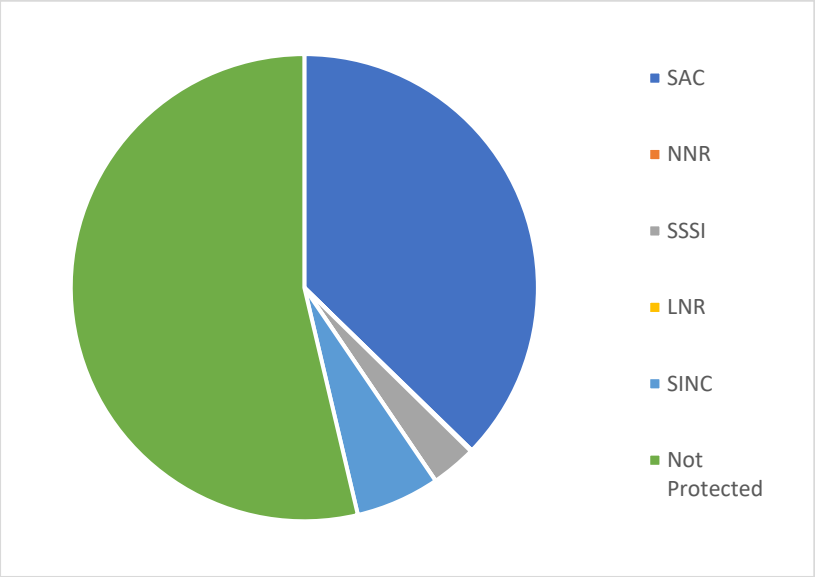
Population trends: Thirty-one roosts and 11 hibernacula within the study area have been monitored as a part of the NBMP, but many have only a few years of data. The following index uses the peak counts from 14 roost sites with 15 or more years of reporting, where there was a return in 1999, the base year used by the NBMP. Note that this is not statistically significant, as it is based on a limited number of sites, but it does follow a similar pattern of general increase as the national trends produced by the NBMP.[11]



Three of the maternity roosts within the Wye Valley and Forest of Dean Bat Sites SAC have NBMP records; the most recent records for all three are above the lower limits for favourable conditions. Monitoring is more complicated within the Usk Bat Sites SAC due to access to cave sites, and monitoring needs have to be balanced against the risk of disturbance.

Protection: 46% of records come from protected sites, with high numbers of records from the Bat Sites SACs. It is important to acknowledge the large number of records from outside of protected sites, which show use of the wider countryside for commuting and foraging, as the SACs often only protect the roost or hibernacula structure.

Lesser Horseshoe Bat records from protected sites



Western Barbastelle Bat *Barbastella barbastellus* (Schreber, 1774)

Protection: Conservation of Habitats and Species Regulations (2017) Schedule 2. Wildlife & Countryside Act (1981 as amended) Schedule 5

Conservation status: Vulnerable (UK & Wales),[5] UKBAP Priority Species, Wales Section 7 Priority Species

Data availability: Poor (32 records)

Hugh Clark/www.bats.org.uk

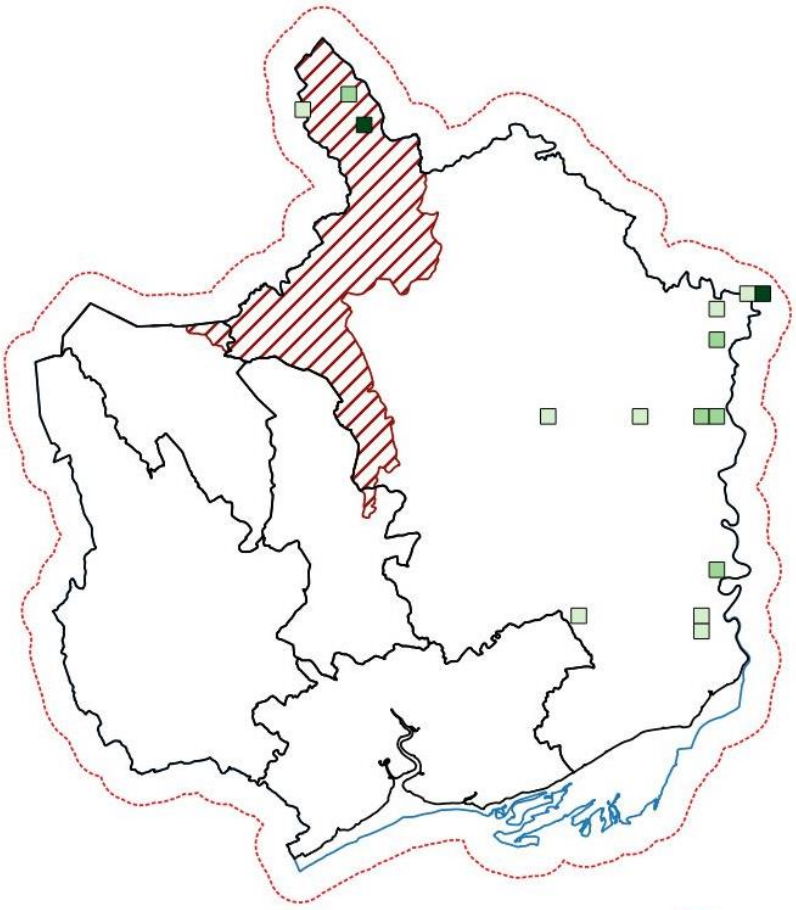
Context: The Western Barbastelle Bat is a rare species, and little is known about its ecology and distribution. Its range is thinly spread across the south of England and Wales, and it is thought that it prefers wooded landscapes with water.[20] The Welsh population is estimated at just 500 individuals,[21] but this is based on very limited data.

Outlook: There is not enough data about the species to determine a population trend.[5] However, if the population is low and thinly distributed, this makes the species especially vulnerable. Changes in land use are likely to negatively affect Western Barbastelle Bats.[21]

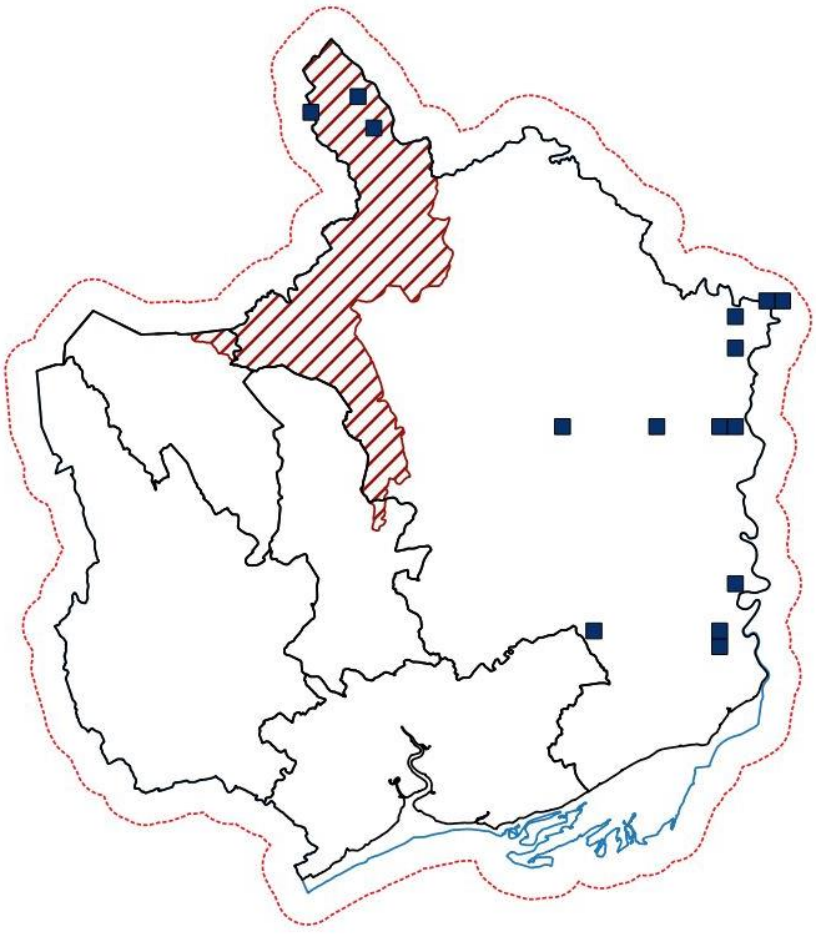
Greater Gwent range: Scattered records for Barbastelle Bats are found along the Wye Valley, with a few records in central Monmouthshire. There are three records for Barbastelle Bats within the Usk Bat Sites SAC (not mapped as they do not occur within an entire grid square) dating from the 1970s, but all other records are from 2010 onwards. Given the high levels of recording effort in and around the Usk Bat SAC over a long time-period, it seems likely that the population there has died out, or that the original records were erroneous.

Western Barbastelle Bats seem less likely to be recorded casually than other bat species. Half of the SEWBReC records for Barbastelle are from trapping (under licence), sometimes with radio tracking. As with many species, such targeted recording efforts are likely to yield a greater understanding of the local populations but trapping and tracking are expensive and require considerable expertise, as well as licensing approval.

Distribution of Barbastelle records across Greater Gwent (max 5/km^2)



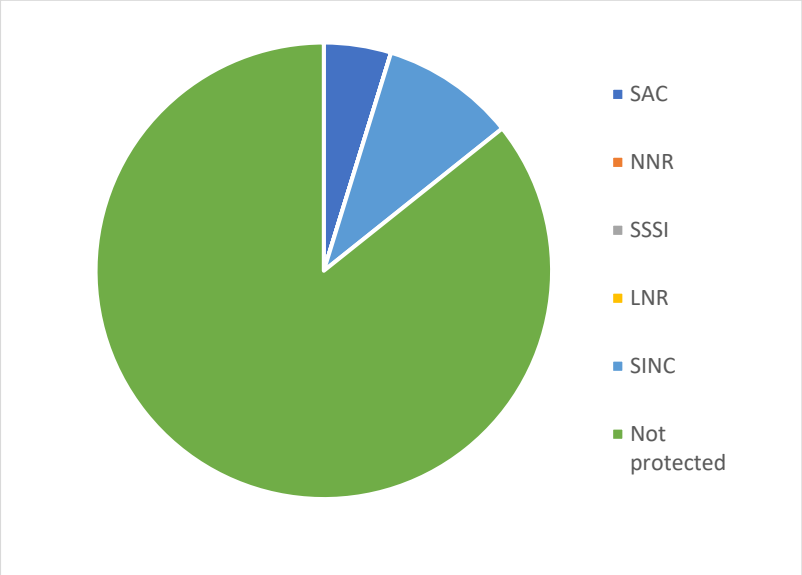
Records of Barbastelle by decade



Population trends: There is not enough data to determine local or national population trends for Barbastelle bats.

Protection: Just 14% of Greater Gwent records come from protected sites, with records from the Wye Valley Woodlands SAC and Colonels Wood SINC. There are, however, a high number of records from within the Wye Valley AONB. Barbastelle bats can range considerable distances from their roosts (which often change location over time), and the current recommendation is for positive landscape management within 7km of a roost site,[22] so it is likely that many of the protected woodlands within the Wye Valley are used for roosting or foraging.

Barbastelle Bat records from protected sites



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