



Adder

Vipera berus

Species Action Plan

1. Introduction

The adder is Europe's most widespread snake species but one of only three that occurs naturally in the UK. Whilst widespread and locally common in some areas its distribution is scattered and declining in Worcestershire. It was listed as a priority UK BAP species and subsequently included within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

2. Current Status

2.1 Ecology and habitat requirements

Adders are able to utilise a diverse range of habitats, varying from lowland meadows, hillsides, moorland, bracken, marshland, woodland, scrub and heath. They show a marked preference for sites with a southerly aspect. Adders hibernate through the winter and emerge in late winter / early spring where they can frequently be seen basking near their hibernation sites (hibernacula). Prior to mating the males wrestle for dominance, often referred to as a "combat dance". After mating adders disperse to their summer feeding areas, except for pregnant females who do not feed. These feeding areas can be as much as 1km away from the hibernacula. Their diet consists of small mammals (mainly voles) and lizards. In the autumn they return to the hibernation area where the females give birth to live young before retiring for the winter period.

2.2 Population and distribution

Adders once existed where suitable habitat was present across most of mainland Britain. However there is now overwhelming evidence that the species is in rapid decline in many areas and this is currently the situation within Worcestershire. Adders are now primarily confined to heathland, meadow and woodland in the west and north west of the county. Key sites are the Wyre Forest, Habberley Valley, Kingsford Forest Park, Kinver Edge and the Malvern Hills. Figure 1 shows adder records held for Worcestershire. The map clearly demonstrates that current records (2000 onwards) are confined to these areas mentioned above. There are scattered records from elsewhere in the county: many of these are classed as historical data, although there have been odd occasions in recent years when isolated individuals have been found on these 'historical' sites. Whether this is the result of the migration of adders from elsewhere, or whether the species is simply very under-recorded is unclear. We must never overlook the possibility of more of these 'historical' sites, or indeed new sites, being found to support adders today.

Overall, the Midlands is an area of particular concern as both adder and slow-worm (*Anguis fragilis*) are thought to be in greater decline here than elsewhere in the country. Individual reports reiterate the concern over adder population status in the Midlands. Monitoring in the Wyre Forest (Worcestershire and Shropshire) has detected decreases in the number of sites occupied by adders and in the mean number of sightings per site (Sheldon, 2016).

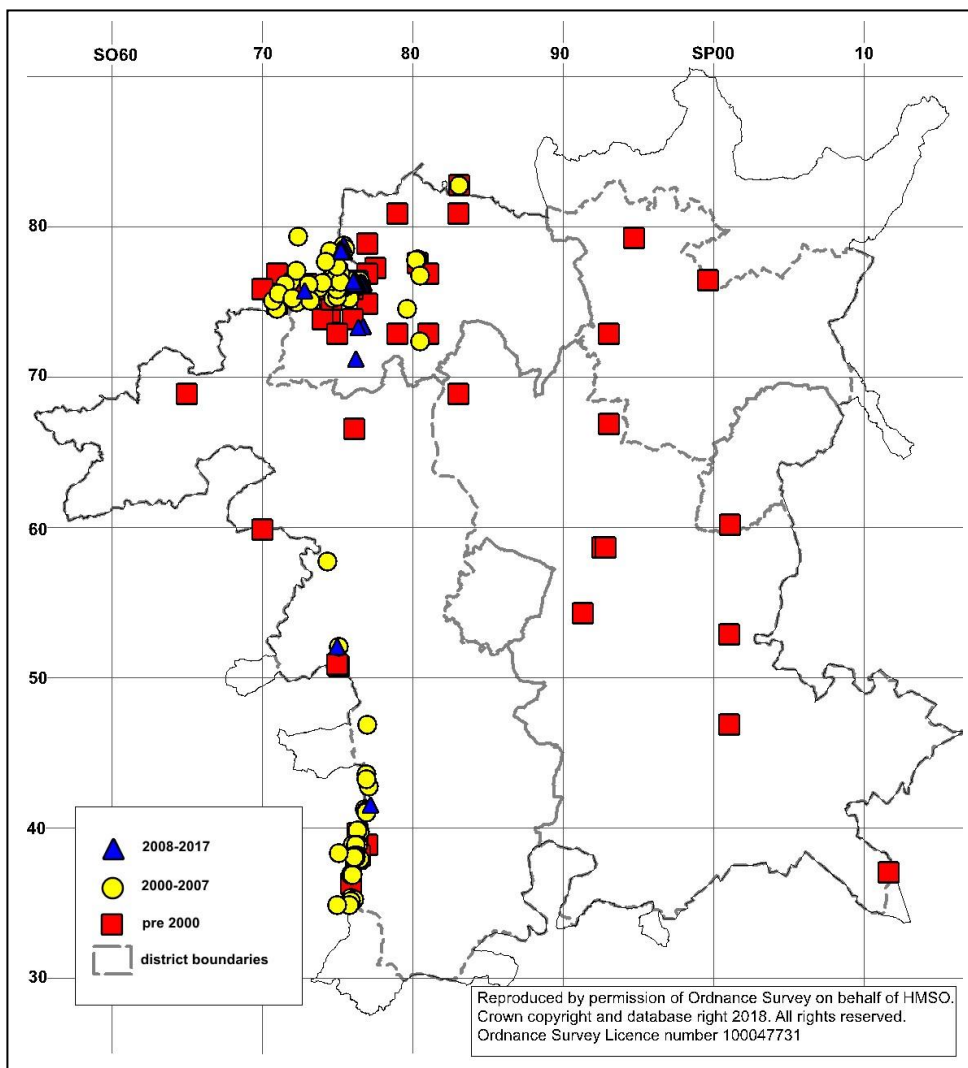


Figure 1. Records of adder in Worcestershire. Data supplied and map prepared by Worcestershire Biological Records Centre.

2.3 Legislation

The adder is protected under schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

2.4 Summary of important sites

The **Wyre Forest** comprises 2,500 hectares (ha) of mixed woodland with small meadows, orchards, wide sunny rides, scrub and heathland within its boundaries. Half of the forest is in Shropshire with much of the south facing land situated within the north of the forest. Forestry Commission and Natural England together manage around 45% of the forest, with the remaining land being owned privately.

Haberley Valley is a 37 ha acid grassland and lowland heathland complex owned and managed by Wyre Forest District Council.

Kingsford Forest Park lies on the edge of a red sandstone ridge with 85 ha of pine forest, broadleaved woodland and pockets of open heathland. Ownership transferred from Worcestershire County Council to National Trust in 2015.

Kinver Edge is owned by National Trust. The site lies on the Worcestershire-Staffordshire boundary on a ridge of Permian sandstone. The acidic soils support lowland heathland, acid grassland and oak-birch woodland.

The **Malvern Hills** are one of the largest areas of semi-natural vegetation in the West Midlands supporting a mosaic of habitat types, including acid grassland, scrub, woodland and some small areas of heathland. The Hills probably support the largest remaining population of adders in the county.

3. Current factors affecting the species

- Sites throughout the county containing potentially suitable habitat have increasingly become fragmented and isolated by development and infrastructure such as roads, making the migration of remaining individuals difficult.
- Disturbance is a key issue for adders, particularly in the period after emergence. Disturbance can arise from grazing livestock and from people, including people deliberately trying to view and photograph them.
- Increased visitor and recreation pressure on key sites impacts on adder populations through disturbance and habitat degradation. For example, the Wyre Forest suffers in some areas because of the use of mountain bikes. There have also been instances of adders being injured or killed by dogs.
- Changes in agricultural practices and increased stocking densities have altered the nature of the tussock rich grassland that adders favour as habitat.
- The utilisation of heavy machinery in land management operations can directly impact on the burrows used by the adder by causing ground compaction, preventing them from emerging in the spring. The vibrations from these machines may also cause undue stress to adders during hibernation.
- Increasing populations of predators, such as buzzard (*Buteo buteo*) and pheasant (*Phasianus colchicus*), has also had an impact on local populations of adders.
- The widespread clearance of trees and scrub where the presence of the adder has not been given appropriate consideration can have a detrimental impact on the species, as they are slow to adapt to sudden landscape-scale habitat changes within their environment.
- Snake Fungal Disease has recently been identified in wild British snakes for the first time in a study led by the Zoological Society of London.
- Biosecurity of wild snake populations can be compromised if captive non-native snakes are abandoned; Kinver Edge in Worcestershire is a known hot-spot for this.

4. Current Action

4.1 Local protection

There are no sites in Worcestershire that are protected specifically for their adder populations, although many of the key sites where adders are found have designations for other reasons:

- 1753 ha of the Wyre Forest is designated a Site of Special Scientific Interest (SSSI) and 549 ha as a National Nature Reserve (NNR).
- Habberley Valley is managed by Wyre Forest District Council as a Local Nature Reserve (LNR).
- Kingsford Forest Park is managed by National Trust as a LNR.
- Kinver Edge SSSI is managed by National Trust and the designation covers 124 ha.
- 732 hectares of the Malvern Hills is designated a SSSI and the main hills and commons constitute around 11% of the Malvern Hills Area of Outstanding Natural Beauty (AONB).

4.2 Site management and programs of action

- The 'Wyre Forest National Nature Reserve and Forest Plan 2016-2026' produced jointly by Forestry Commission and Natural England contains specific management prescriptions for key species including adder. These state that adder hibernacula should be identified and measures taken to prevent disturbance to such areas. Periodic (usually annual) reports are produced by Forestry Commission on site management works undertaken to create or improve adder habitat within the forest.
- Following survey work in 2006 (see section 4.3) the primary hibernacula sites in Habberley Valley were fenced to restrict and deter public access. Scrub and tree management to thin the canopy cover, concentrating particularly on holly (*Ilex aquifolium*), is carried out by volunteer work parties on the south and south westerly slopes of the valley.
- On the Malvern Hills and Commons scrub management is being targeted around adder hibernacula and feeding sites to provide habitat for prey species. Nigel Hand has been instrumental in plotting migration routes from hibernacula to feeding grounds whilst also monitoring individuals on the various sites. Through the results of the survey work the timing and intensity of grazing has been adjusted to make sure the adders are not disturbed at key times.

4.3 Survey, research and monitoring

- Sylvia Sheldon and Chris Bradley have carried out an extensive annual population inventory of adders in the Wyre Forest area since 1982 and they have also recorded in other areas of Worcestershire. A report is produced annually and published by the Wyre Forest Study Group. A telemetry study was carried out in Wyre in 2010 by Nigel Hand.
- Make the Adder Count began in 2005, supported by the Amphibian and Reptile Groups of the UK (ARG UK), as a national surveillance programme collecting standardised counts of adders lying-out after emerging from hibernation. Between 2005 and 2016, 181 surveyors provided information on

260 sites. 129 of these sites contributed three or more years' worth of data and these were used to derive average population trends over time. A significant decline was confirmed across sites with small populations, while the few sites with large populations (<10 % of sites) were weakly increasing. It was concluded that if these trends continue adders will be restricted to a few large population sites within 15–20 years. Public pressure/disturbance was reported as the most frequent negative factor affecting sites, followed by habitat management and habitat fragmentation (Gardner *et al.*, 2019).

- In 2006, Wyre Forest District Council commissioned a survey of Habberley Valley to research the adder population and the suitability of the available habitat. The survey revealed the adder population to be small and fragile with only 9 individuals noted. Further surveys of other WFDC heathland reserves were commissioned in spring 2007. The specification was to look at the suitability of the sites for a) holding current adder populations, and b) potentially hosting a reintroduction scheme. There was no evidence of resident adder populations at any of the survey locations and while the habitat appeared favourable in the case of Vicarage Farm Heath and parts of Burlish Top, there were issues surrounding high levels of public access, heavy management (Burlish Top) and antisocial behaviour (fires). It was recommended that a further survey of available prey species be conducted. This is yet to be commissioned.
- Survey results from the National Amphibian and Reptile Recording Scheme (NARRS) for 2007-2012 showed a very low site occupancy rate for adders. This was sufficient to raise concerns about the conservation status of the species in Great Britain. The low occupancy rate (7%) means that the ability to detect future statistically significant changes in occupancy is reduced and would require huge numbers of surveys to do so (Wilkinson and Arnell, 2013).
- The Adder Status Project (ASP) funded by Natural England and Amphibian and Reptile Conservation (ARC) aimed to draw together empirical data on adder occurrence and, through spatial analysis and geological and land cover correlation, develop predictive models for the distribution and status of adders over two time periods: historic (up to 2005); and present (2006-2011). Early results from the model are in line with other objective analysis (such as NARRS) and also subjective assessments of the decline in adder range and numbers (Gleed-Owen and Langham, 2012).
- In 2012 a habitat survey and assessment of the Wyre Forest was commissioned by Forestry Commission to identify management work that would create additional suitable habitat and support adder populations to expand and re-colonise parts of their former range. Those recommendations were incorporated into the Joint Management Plan published by Forestry Commission and Natural England in 2016.
- Nigel Hand continues to record reptiles on the Malvern Hills and Commons providing a useful study with data stretching back nearly 20 years. An analysis of the data is provided annually to local landowners including the Malvern Hills Trust, including data on observed numbers of adults and juveniles and the location of hibernacula. This information helps inform land

management operations. Additional funding in 2013 enabled a telemetry project that shed light on the movements of adders around the southern hills.

- In 2013 the University of Worcester began an investigation into whether reptile predation by pheasants could be confirmed and quantified using eDNA techniques. Although pheasants were observed during the study to readily consume reptiles, including adders, the eDNA research has so far not been successful in detecting reptile DNA in pheasant droppings.
- Telemetry surveys are planned for 2018 on Kinver Edge and Kingsford Forest Park.

5. Associated plans

Lowland Heathland, Woodland, Wet Grassland, Hedgerows, Scrub, Traditional Orchards, Grassland.

6. Conservation Aim

The area of habitat suitable for adders and habitat quality on sites known to hold adder populations has been maintained and those populations have been retained. The connectivity of suitable habitat across landscapes known or likely to support adder populations has been improved.

7. Conservation Objectives

- Ensure that key sites within landscapes known to support adder populations are managed to improve habitat suitability and connectivity, with a focus on the Wyre Forest and land within the Malvern Hills AONB
- Continue with current monitoring programmes within Wyre Forest and on the Malvern Hills
- Support call for a national research focus on the impact of pheasant predation on adders
- Worcestershire to adopt the Key Reptile Site Register system and assess key sites against qualifying criteria
- Revisit and resurvey sites with pre-2000 historical records
- Give suitable consideration to the role of translocation of adders in securing the future of the species within the county

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