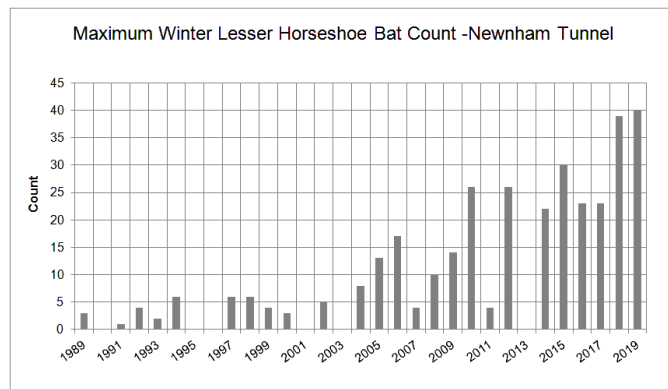


A review of 30 years of monitoring a bat hibernation site near Tenbury Wells, Worcestershire.

Mike Averill

It is well known that populations of most species of bat are declining and so anything that can be done to help their situation is welcome. With that in mind this article is about a bat hibernation site that has been made safe and which has seen a gradual increase in numbers of Lesser Horseshoe Bat *Rhinolophus hipposideros* over the last 30 years.



01. Lesser Horseshoe bat. Winter Hibernation Counts at Newnham Bridge tunnel.

Lesser Horseshoe Bats have undergone a decline throughout much of Western Europe, however in the British Isles the numbers have increased in the last two decades according to The Bat Conservation Trust’s Hibernation Survey. This shows that numbers in the UK have increased significantly particularly since 2000 after an estimated 90% drop in their UK populations during the 20th century (Bat Conservation Trust 2017).

Lesser Horseshoe bats are one of the smallest British mammal species, weighing about 7 gms, a third of a Greater Horseshoe Bat, *Rhinolophus ferrumequinum* and about the size of a small plum when hanging with their wings folded. They have grey-brown fur and, like the Greater Horseshoe Bat, have a noseleaf. Rare and endangered it is a priority species in the UK Biodiversity Action Plan and classified as of least concern on the IUCN Red List.

The Worldwide distribution is south and central Western Europe through to the Middle East and in small areas of north Africa. In the British Isles it is found in the south west of England, Wales and Western Ireland.

There are several important maternity roosts for the Lesser Horseshoe in Worcestershire and some of these involve large numbers of individuals but there are also many roosts which are smaller and distributed around rural farm buildings and houses in the county. The hibernation site locations by contrast are very hard to locate and are not so well known. When the ice houses, caves and tunnels in the county were surveyed in the late 1980’s one site, the old canal tunnel at Newnham Bridge, immediately appeared to be suitable even though there were not many bats in it. Fortunately the original owner was happy for the site to be monitored and so began what is now a 30 year survey.

What makes the old tunnel very suitable for a hibernation site is that it is just under 90metres long and is blocked at one end and is undisturbed in the winter. The Leominster to Stourport Canal was built in the late 18th Century but did not operate for long and never actually got as far as Stourport. Eventually in 1858, the canal line was bought out by the Shrewsbury and Hereford Railway Company and they adopted the same route in many places but not near the Newnham Bridge tunnel, so it managed to escape any alteration after it was built in 1795.

Over the years the approach canal bed has built up with silt from the surrounding fields by about 2 metres so the only bit of the tunnel visible from the outside is the top of the arch (02). Inside, the height above the bed is 3.0 metres and so there is plenty of open space for a species like Lesser Horseshoes, who like to fly around a lot in their roosting sites. The tunnel is brick lined (03) and some of the bricks are dropping out after over 200 years giving further options for bats to hang in the crevices. Standing water varies quite considerably inside and while in some years it can be next to nothing in others it can be a metre deep. Usually it is drippy and so the atmosphere is always humid. Viewing the location of the tunnel it can be seen that there is little depth to the overlay of soil on top and it could be questioned why a cutting wasn’t used instead. The answer to this may be that the local landowner stipulated that no disruption to paths and access tracks should be made in building the canal.



02. Newnham Tunnel entrance before fitting the grill 2008. Mike Averill.



03. Inside Newnham Tunnel looking back to the entrance. Mike Averill.

Only three bats were originally found in 1989 and for many years there didn't seem to be any great change in the numbers and it was thought that might be due to the nature of the entrance, possibly that it was too enclosed, and that the temperature range was too limited. By 2005 the numbers were starting to climb and so the owner was approached to see if a secure grill could be fitted. Eventually in the autumn of 2008 the new grill was fitted (04) and this has greatly increased the air flow in to the tunnel as well as securing the entrance.



04. Newnham Tunnel after fitting Bat Grill 2008. Mike Averill.

Thermometers have been installed inside from the start of monitoring and incredibly the maximum temperature in the middle of the 90 metres long tunnel is never more than 11°C and never less than 9°C, so the range is minimal. Since the grill has been in place the temperature range close to the entrance has increased somewhat giving some more variation in temperatures if the bats need to move. What is evident in the 11 years since the entrance grill has been installed is the steady increase in the numbers of hibernating bats. Last February (2019) the number was a record 40 and it is not easy to tell why the numbers have increased without remembering there is also a steady increase at other hibernation sites in England and Wales. Other factors that must have a bearing is the number of maternity roost sites locally and the nature of land use nearby and any changes there.

Although the inside is brick lined, the walls have a number of small recesses which were probably needed during construction. In addition there are several places where bricks have dropped out of the ceiling and these are a popular place for clusters of bats to hang up. Perhaps surprisingly the site is not popular with other species of bat and in fact there has only been occasional Natterers bat found in all the 30 years. Maybe other bats don't like the possible high frequency snoring of Lesser Horseshoes.

Reference

1 Bat Conservation Trust . 2017. The state of the UK's bats https://cdn.bats.org.uk/pdf/State_of_UKs_Bats_2017.pdf?mtime=20181101151557



05. Lesser Horseshoe bat. Mike Averill.

Species Information

Lesser horseshoe bat *Rhinolophus hipposideros*. (05).

Number of young: One, called a pup, born mid June to early July.
Eats: Small insects including midges, moths, craneflies, lacewings.

Habitat: Summer roosts in old, generally uninhabited buildings; winter roosts in caves, cellars and mines; forages in deciduous woodland and in riparian vegetation.

Length: 3.5-4.5cm

Wingspan: 20-25cm

Weight: 5-9g

Average lifespan: up to 30 years

Conservation status: Native. A priority species in the UK Biodiversity Action Plan, IUCN Red list: GB: LC; England: [LC]; Scotland: n/a; Wales: [LC]; Global: LC.

Article 17 overall assessment 2013: Annex II and IV; UK: Favourable; England: Favourable; Scotland: n/a; Wales: Favourable.

Images

01. Lesser Horseshoe bat. Winter Hibernation Counts at Newnham Bridge tunnel.

02. Newnham Tunnel entrance before fitting the grill 2008. Mike Averill.

03. Inside Newnham Tunnel looking back to the entrance. Mike Averill.

04. Newnham Tunnel after fitting Bat Grill 2008. Mike Averill.

05. Lesser Horseshoe bat. Mike Averill.