

What is autumn swarming?

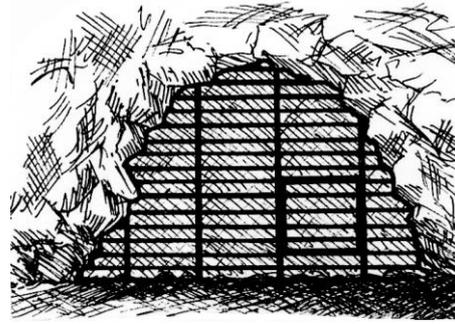
Bob Cornes explains



There are two quite different pieces of bat behaviour which are both referred to by the same name: swarming. This is unfortunate because the two types of swarming have different characteristics and functions. *Dawn swarming* is behaviour shown by many species of bat when returning to a maternity roost at dawn. It involves bats circling outside the roost entrance for some minutes before entering. In the case of larger roosts, this can result in a spectacular sight involving a dense concentration of circling bats in the growing light, visible both to us and to the bats themselves. The function of dawn swarming is not known for certain, but it seems likely that it is important, at least in part, because it can coordinate the return to the roost, confirming which roost is to be used on that day. For species which switch roosts frequently, this may be of particular value.

Autumn swarming, on the other hand, occurs at a different time of day and time of year, and does not involve the roosts which the bats are using at the time. It is a phenomenon which has received attention from European bat workers for some years, but has only recently been looked at in Britain, principally by John Altringham and his co-workers in the Yorkshire Dales.

The name is not particularly appropriate because, although it occurs any time from August to late October, it does not involve conspicuous swarms of bats at any one time. Altringham's work has shown that it involves the species which hibernate underground (*Myotis* bats, long-eared bats and *Barbastelles*). Individual bats may travel considerable distances to take part in autumn swarming at certain underground hibernation sites. They circle around the entrance, as well as flying into the cave.



Netting or trapping always produces an excess of males over females, but it appears that both sexes take part in autumn swarming. Ringing of bats has shown that females typically make a single visit (although this may last for some time), but males return to the site to swarm again and again. Swarming takes place during the night rather than at dawn or dusk and tends to reach a peak in the middle of the night.

Three possible functions for autumn swarming have been suggested, which are not mutually exclusive. It may allow bats to investigate the suitability of hibernation sites; give juveniles information about the location of hibernation sites; and bring males and females together from a large area to give mating opportunities which will increase genetic mixing between colonies.



The third possibility seems particularly likely because it explains the different reported habits of males and females. A female, once mated with a male from a different colony, has no reason to return to the site again. A male, on the other hand, can maximise his number of offspring by returning and mating with as many females as possible. Altringham has also shown that not all hibernation sites are autumn swarming sites, and many more bats may take part in autumn swarming at a specific cave than will hibernate there. It therefore seems that there must be more involved than simply investigating hibernation possibilities.

Bedfordshire, with no natural caves, and with hibernation taking place in a scattering of mostly very small underground sites, does not seem as promising as the Yorkshire Dales for autumn swarming. However, if autumn swarming is important, bats in Bedfordshire must do it in some way, and last year we started to

investigate for the first time the possibility of autumn swarming in the county. We began in the obvious place by visiting the county's largest hibernation site, Old Warden Tunnel, at the beginning of October. The visit was fairly brief, lasting only a couple of hours, but it was enough to show persistent flying activity by *Barbastelles* and *Myotis* bats. A return visit a few days later was less productive, although mist netting caught two male *Barbastelles*. Clearly, autumn swarming was taking place. This year, we had to abandon the planned visit to the tunnel because of atrocious weather conditions, but Martin O'Connor, Chris Lunn, Angie Conwell and Viv Heys visited the Luton Hoo hibernaculum and reported lots of flying bat activity of several species. We returned with mist nets in early October and netted four male *Natterer's* Bats in breeding condition. We used fur clipping as a temporary way of marking the bats so that

we knew we were not recapturing the same animal. The evening also gave us an opportunity to test the Batbox Griffin the Bat Group has just bought using the National Lottery funding for the Luton Project. This revealed plentiful *Natterer's* activity as well as a Brown Long-Eared Bat, and prolonged social calls from an as yet unidentified species.

We now know that autumn swarming takes place in Bedfordshire, and one of the sites involved is a purpose-built hibernaculum which was constructed as recently as 2006. We need to investigate further at both of the sites we have visited as well as finding out whether autumn swarming takes place at some of the other hibernation sites, such as Silsoe ice house. Volunteers to help out will be welcome, but don't expect spectacular views and do expect for lots of waiting around in the cold
