

Mice in Offices

Executive Summary

Mice are present in numbers in every town or city, and will readily explore new areas. This will include office premises where even the smallest amount of food is enough to sustain a small infestation. The false floors, ceiling and ducting in a modern office provide mice with the means to explore and the space to set up home, unseen.

While in the office environment mice will have many opportunities to contaminate work areas with urine or droppings and pose a risk to the health of the occupants. They may also cause damage by gnawing, especially at the cables that run through their environment, and this can lead to failure of networks and even in some cases a fire risk.

Conventional baiting programmes do not control these risks immediately – the baits usually take 3-4 days minimum to start working. This is one of the reasons behind the development of RADAR – the 24/7 monitoring, capture and humane despatch device developed by Rentokil.

Mice can be found across the whole of the urban environment – infesting houses and premises but also moving freely between locations along so called ‘mouse motorways’ – the underground cable and pipe tunnels we have built beneath our feet.

Given a stable environment with plenty of food mice can remain in within a small area (a ‘home range’) of up to 10 metres¹ each night. However, food supply in an urban environment is very variable, and population growth forces a portion of the population on the periphery to move away in search of new food sources and desirable habitats². Mice have been tracked as moving a kilometre in one night³, and this will be a key feature for urban mice to discover new locations to infest.

Mice are not commonly seen outside buildings, so these underground passageways are the main means by which they enter a new site. Once inside, mice will start to explore the many internal ducts, voids, false floors and ceilings that allow them access to the entire building, from the basement to the top floor. It could even be argued that the increase in cabling required to provide faster and faster internet services has only made this situation worse!

Mice, like other rodents, are very good climbers of almost any surface – even climbing smooth surfaces if they can brace their back against a pipe or similar structure. Any barriers along the way can be circumvented if there is a gap of only 12mm (half an inch) for them to squeeze under – a young mouse can even squeeze under a gap of 6mm, and it is often these younger mice exploring new areas⁴.

Mice are very neophilic, which means they like to investigate new areas and new objects in their environment^{5,6}. This is part of their foraging strategy as they explore a large area of their environment, sampling anything that may be of food value as they go. A mouse only needs around

3g of food a day, but it will often pick this up from many different locations rather than from just one – up to 40 places in 24 hours in one experiment⁷.

If mice find moist foodstuffs (containing as little as 15% water by weight) then they also don't need to drink – these factors mean it does not require much to sustain a small mouse infestation⁸.

While exploring and feeding, mice leave behind some rather unpleasant signs of their presence. Although there is no truth in the rumour that mice are incontinent they do leave behind little 'dabs' of urine everywhere they explore and feed. These spots of urine contain odours that mice use for social communication – in a severe infestations these spots can be added to and, combined with the grease from their fur, can form 'Mouse Pillars' up to 1cm high (these would be more likely seen below ground in this urban scenario)⁹.

Of the 3g of food consumed by a single mouse in one night, around 80 droppings are produced which will also be deposited everywhere that mouse has been. This seemed an astonishing number, but was recently checked and verified in Rentokil's own laboratories¹⁰.

Given somewhere safe to shelter and a relatively small amount of food there is sufficient to maintain an infestation of mice. If conditions are favourable enough, then a few intruding mice can rapidly breed to form a much larger problem. Rodents have a gestation period of only 3 weeks, and mice can produce litters of up to 16 pups. The pups take only 8-12 weeks to mature and reach a stage where they can start breeding⁹. Whilst these optimal breeding rates are unlikely in most office settings, it is clear that vigilance and a proactive detection programme are important to ensure this does not occur.

While exploring, mice tend to gnaw on many of the items they come across – for possible consumption as food, for nesting material, to make a hole to pass through or simply out of investigative curiosity. This can cause many issues, but damage to electrical or signal cabling can lead to fire, loss of vital communications or control over critical machinery. Rodent incisors are strong enough to gnaw through most materials, including the softer metals, and potentially even steel, so it is difficult to protect cables from this damage^{11 12}.

Control of mice can be achieved in different ways, but the most effective is usually baiting with rodenticide. The overwhelming majority of rodenticide baiting is carried out using one of a group of compounds called anticoagulants (AVKs). These compounds block the blood clotting activity of Vitamin K. One of the reasons for their effectiveness is that they have a delayed action – they take at least 3-4 days to start taking effect, during which time the rodent has learnt that the bait is 'safe' and continues eating it. This makes them effective, but does mean that any control using these compounds will not start to work for 3-4 days, and may take up to 35 days to achieve control if the treatment is carried out properly^{9 13}. This means there is a time period when these mice may still pose a risk.

RADAR was developed to provide a 24/7 monitoring device that also had the capability to immediately trap and humanely kill an intruding mouse – thus stopping the problem right at the start. On entering, the mouse is detected by infrared technology and the trap activated. Carbon dioxide is released into the trap and internal data shows that mice become unconscious within 15 seconds and dead within one minute¹⁰.

Whilst baiting with rodenticide may still be preferable in some situations, especially where there is a large and established mouse infestation, RADAR offers many advantages for the majority of situations where protection against the risk of intruding mice is required.

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