Chapter 2

Predators and how they may affect aviary design

Predators can come in many forms, but any list might include foxes, rats, weasels, stoats, martens, owls, birds of prey, mice, snakes and insects such as termites. Any area of the world is likely to need to be aware of other local species. For example, at Sarahan Pheasantry in Himachal Pradesh, India, leopards can be regular visitors and a threat not just to the pheasants, but also to the keepers. At Pinjore, in North India, the vulture rescue and breeding centre lost a number of valuable breeding birds during an attack by wasps. Termites might not be a major problem to birds inside an aviary, but if they eat the supporting wood, this will make entry easy for other predators.

Before planning any aviary, it is vital to consider what predators might cause problems once pheasants are introduced into the aviary. Prior planning can have significant effects on aviary design and it is far better to eliminate problems at the design stage than to have to attempt remedial action at a later stage, particularly if birds are killed by predators.

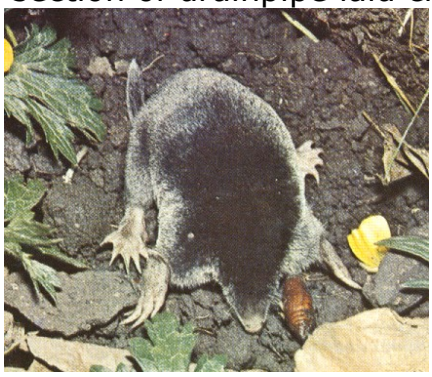
There is a constant need to keep a continuous programme of vermin control in and around aviaries. The public image of rats and mice in aviaries often remains with them – they often don't return as customers. Also, the droppings of these pests can injure or even kill birds if digested. Rodents can excrete salmonella, especially typhi murium - literally mouse typhoid - which gives dysentery to birds. Mice can put hens off their nests when they are sitting and rats can kill birds at night, and often kill chicks. Every aviary will have potential predators and every keeper will experience some of these. It is far better to try and ensure that vermin cannot get into aviaries from the beginning than to have to try and get rid of them once they are established.

The list compiled here will certainly not cover all predators, but it will discuss some of the most obvious British ones and how they might be combated. Hopefully, the principles of some anti-predator practices will help with managing those that are not mentioned here.

Mice usually cause few problems for pheasants, although their droppings can poison birds, especially chicks. However, a mouse running across a hen sitting on eggs might be enough to make her desert the nest; you can guarantee that, if this ever happens, it is always the most valuable species that it happens to, and it always happens in the middle of the night so that the eggs have gone cold by the morning and it is too late to put them in the incubator. Mice are most attracted to food in aviaries so, provided thought and planning is given to keeping food off the aviary floor at night and to establishing a regular cleaning routine, then mice can usually be kept down by a regular trapping / poisoning programme.

Rats are always a problem to pheasants, particularly to young birds. A hen sitting on a nest is very likely to be attacked by rats. Pest Control Officers report that you are seldom more than 5 m away from where a rat has been in the last 24 hours. They get everywhere and it is much better to keep them out than to

try and eradicate them after they are in the aviary. Poisoning is usually the only way to control them, but they are intelligent creatures and they soon learn about poison baits or traps. Obviously, it is best not to use poisons within an aviary because of the potential dangers to the birds. Bait is usually laid in the middle of a section of drainpipe laid close to a wall where rats are seen to run.



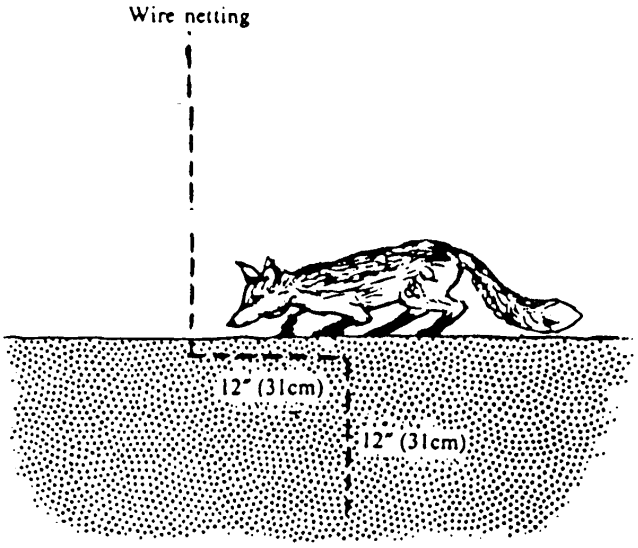
Moles have been known to burrow more than 3 ft. (1 m) under the aviary wire into an aviary complex and through several aviaries. Obviously, where a mole can go, a rat, weasel, stoat or even mink can follow, so a trapping programme was needed to eradicate the problem.

Fox-proofing the perimeter fence

In the UK, there are many foxes in urban areas which pose a great threat to captive birds.

The larger, more affluent zoos and collections often maintain a perimeter fence, mainly to keep non-paying customers out. However, if thought can be given to its construction, a perimeter fence can be the best means of keeping the larger predators out.

However, if this expensive option is not possible, thought should be given to protecting aviaries themselves.



Concrete or brick foundations eliminate most burrowing predators – but a badger will need thicker buried wire than a fox to deter it.

Heavy paving slabs laid on top of the external wire can also act as an additional deterrent for badgers if they are present in the area.

Electric fences

Electric wires / fences are difficult to use in zoos without shocking the public, but are good for off-limits aviaries.

If possible, place one wire just above ground level and one at about 60 cm high, close to the aviary so that mice can't crawl behind it.

Know your enemy

This photo is of a fox on an aviary roof in London. This vixen lived on allotments just outside the perimeter fence and was attracted to the warm roof of the peacock-pheasant roosts in winter. She had learned that she could not get into the aviaries and had given up trying. For each of the six years that she lived there, none of her young ever tried to get in either. Therefore, it was decided that it was better to allow her to live there than to suffer another, less "co-operative" fox moving in. This worked in these particular circumstances, but it not an advised practice.

Anti-predator construction 1

Jurong Bird Park Singapore. Metal frames holding mesh are welded very tight to the tubular metal framework. There is no room for even the smallest mouse.

Anti-predator construction 2

The same aviary complex. Note, the tubular frame has no gap between it and the concrete base. As it rains heavily in Singapore, this aviary has been raised up about 60 cm to allow rapid drainage.

Anti-predator construction 3

This shows the base of the aviary raised up above ground level. There is also a deep drainage channel outside to take rainwater away quickly to a storm drain.

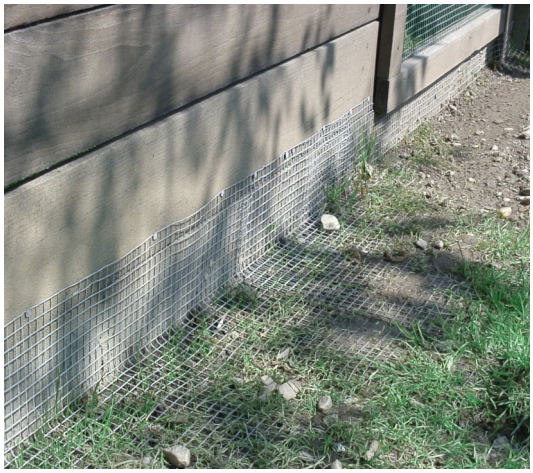
Anti-predator construction 4

Jurong Bird Park Singapore. Note drain, filled with wire, to prevent rats, mice and snakes entering.

Anti-predator construction in an area prone to flooding

At this aviary complex in Holland they experience a great deal of rain. As well as needing to keep predators out, the owner has also included drainage holes in case of aviary flooding. He has placed them a little up the side wall to discourage mice from entering. The housing for the pheasants on the right of the photo is raised above the aviary level so that the birds can be kept dry during flooding.

Emergency measures



Sometimes it is necessary to add safety features to an aviary after it has been constructed. This netting at ground level has been attached using galvanised nails at the top and tent pegs on the grass. It will usually be sufficient to keep out foxes, but might be combined with other measures to remove the predator.

Mice in food

As mentioned previously, mice can enter aviaries through extremely small holes. Any hole their skull can enter, the rest of their body can follow. Once inside, they can find an easy source of food and no natural predators, so it is unsurprising that they often establish homes within aviaries and the cavity walls of night shelters. Heated aviaries are particularly attractive. Once inside they are extremely difficult to eradicate, since poison set for mice can be consumed by the aviary inhabitants. Some pheasant species, such as cheer will also catch and consume mice, so poisoning mice can result in poisoned birds. Mice are everywhere, so every effort should be made to discourage them from entering the aviary initially. Use small mesh, fill in every potential entry point and keeping the birds' food off the ground, particularly at night

Mice – humane traps

If poisoning mice could prove dangerous for the aviary inmates, humane traps might be considered. There are a number of traps designed to catch mice and keep them alive until they can be transferred. The design shown here has been known to catch eight or ten mice in one night. Being made of galvanised metal, it can be used in all weathers, and the one shown here has lasted for more than 20 years. Apparently, mice need to be relocated more than quarter of a mile away on release in order that they will not find their way back to the aviary. Small pieces of peanut can be used to bait the trap, but make sure that these are positioned right inside the entrance hole as pheasants usually love peanuts and might try to reach inside to get the nuts.

Mouse bait holder

This design is easy to make and holds poison in a central compartment. The lid to this compartment pivots on one screw for easy access. The central chamber has a small hole at each end, just large enough for an inquisitive mouse to climb through. Pheasants cannot gain access to the poison chamber. The bait holder should be placed under shelter (to keep the poison dry and active) and should be located alongside a wall, since mice prefer to scurry close to walls and other objects. Mice usually return to their holes and die there. The bait holder can be removed once no more poison is being taken.

Potential problems with poison

This satyr tragopan has just killed a mouse in its aviary. Probably the mouse had already consumed sufficient poison to make it sufficiently ill for the tragopan to catch it. Fortunately, tragopans tend to be very vegetarian so no harm came to this bird, but other pheasant species, such as the eared-pheasants and cheer, are very capable of catching, killing and eating mice. Obviously, if a poisoned mouse is consumed, it could pose great danger to the bird, so many breeders use live traps to catch mice in the aviaries of these "carnivorous" pheasants.

Rats

As mentioned previously, rats are everywhere and are particularly adept at gnawing through the corners of aviary string netting. Once inside, they can cause major problems, particularly to sitting hens and young chicks. The aim should always be to construct aviaries that keep rats out, and this should be possible with good foundations and strong galvanised weldmesh. They are great diggers, but any signs of this should be fairly obvious, and the problem dealt with before the rats gain access to the aviaries. Rats are intelligent, cautious animals and they do not take poison as readily as mice, so it is often several days before they get used to poison. Once they begin to take it, more should be fed each night until no more is being eaten. A small amount of either peanut butter or icing sugar will attract rats to the poison.

However, if rats get a foothold within an aviary complex, they can be extremely difficult to eradicate, so it may be necessary to call in pest control experts. In one zoo, the aviary walls were constructed of large stones held in place with mortar. The gaps between the stones provided excellent homes for rats and the problem was only resolved when the whole complex was demolished and rebuilt. It is better to ensure that the problem cannot arise than to try and deal with it at a later stage.

Squirrels

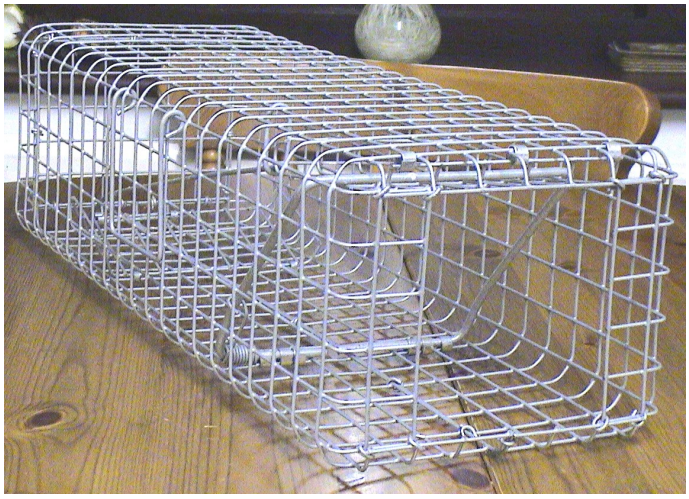
Squirrels can be attracted to aviaries by the food provided for the birds. They are unlikely to harm the birds, but their entry holes allow access to other predators, particularly rats, stoats, weasels and mink. They are not known to gnaw their way through wire netting, but their holes are frequently seen in the corners of string netting roofs.

Stoats and weasels

Since both of these predators can catch and kill an animal as large as a rabbit, a pheasant is easy picking if they can get inside the aviary complex. Weldmesh wire netting and good foundations will keep them out. However, the smaller weasel, in particular, might well be attracted to mouse runs so regular inspection for small holes should be made.

Mink

In the UK, large numbers of American mink have been released from fur farms and they have now spread to every county in the country. They are usually found quite close to water, but they have been found more than a mile from the nearest stream. Once inside an aviary, they usually kill every bird. In a number of Asian countries, a relative of the mink, the marten, is often the most difficult predator to deal with. In recent years, a number of the best pheasant collections have suffered from mink attacks. Usually their access has been through string or nylon netting roofs, often through holes made originally by rats or squirrels.

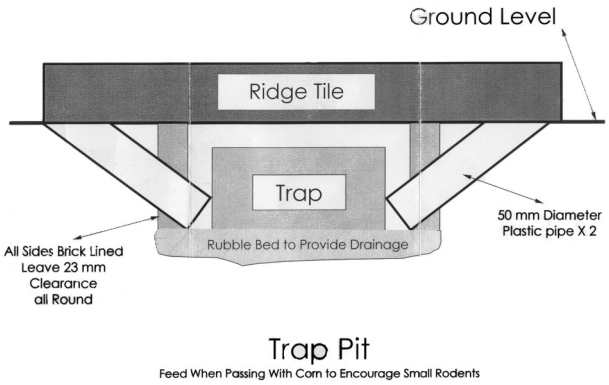


Mink traps

Mink are inquisitive creatures that will explore holes, seeking food. One particular trap that has proved effective has been designed by Long Medow Publishing , Lower Wincome Lane, Donhead St. Mary, Shaftesbury. Dorset. SP7 9DB. When using the trap no bait is necessary as an inviting hole and the mink's natural curiosity seems sufficient. Of course, daily inspection has to take place and any mink caught can then be removed quickly.

Mink traps

This pit trap, designed by Long Meadow Publishing, can be used to house the mink trap, or against rats and other vermin.



Living next door

Prey and predator species. Even if they are in view of each other, the presence of a potential predator in a nearby enclosure is likely to cause sufficient fear in adult birds that they are unlikely to breed. These cheer pheasants could recognise a sparrow hawk immediately, even though they

were incubator hatched. They seemed to have an innate reaction to the hawk, and sent out immediate alarm calls to their young.

In this zoo, predator and prey species were actually kept in the same aviary. Although the owls are quite a small variety of burrowing owl, they were fed daily on dead chicks. Of course, their reaction to any chicks that the pheasants might hatch is quite predictable.