

Roland Taylor examines the issue of pest control, and how best to deal with various 'alien' elements on your Golf Course...

Pesssst!

Have you heard?

Right + far right: Unless carefully managed, badger can create havoc to golf courses, in their quest for food



Above + top: Animal faeces are unsightly and constitute real health hazards

Bottom: Molehills are obvious hazards to both greenstaff and golfers



Unlike farmers, horticulturists and gardeners, greenkeepers have relatively few pests to deal with, certainly in the insect category. However, those that do occur can cause havoc. To ensure the turf remains strong and healthy throughout the year a pest control management system needs to be in place.

Pests fall into two categories - animals (including humans) and insects. In both cases it is important to know as much as possible about them.

Rabbits

Once upon a time the rabbit was used as a mower. Apart from sheep, cattle or a strong man with a scythe (plus a lot of time!) there was no other way of obtaining a short grassed playing surface. A few centuries ago, St Andrews issued the rights for a warren on their course. Apparently the players soon got fed up with losing balls down burrows and trampling about in unpleasant substances so the powers decided it was not such a good idea.

It is estimated that at present rabbit numbers are between 35-40% of the pre-myxomatosis levels and this figure is going up about 2% each year.

As we all know, the rabbit is a prolific breeder. They do reproduce all year round, but the main period is between January and August with up to 24 young being produced in four to six litters. Each youngster is capa-

ble of reproducing at three months old, so two born in January can become 80 by autumn! Young rabbits are vulnerable and 90% will have died during the summer.

An ideal time to reduce the adult is from November to March when the population is at its lowest and before the next main breeding season. There are a number of Acts that need to be taken into consideration when dealing with rabbits.

Under the Wild Mammals (Protection Act) 1996 it is an offence to intentionally inflict unnecessary suffering on any wild mammal as specified in the Act. This legislation may need to be considered where the destruction of occupied warrens and burrow systems is being contemplated

An Order under Section One of the Pests Act 1954 which declares England and Wales "a rabbit clearance area" states that every occupier of land is responsible for destroying wild rabbits on their land. In cases where it is not practical to destroy them, steps must be taken to prevent damage

An occupier of land has the limited right under the Ground Act 1880 to kill rabbits using any legal method including gassing, trapping, ferreting, shooting, snaring and netting

CONTROL METHODS

Gassing

Under the right conditions this will have an 80% success rate.

At least two trained personnel must carry out this operation, so for most readers the answer is to call in a specialist. Some of these companies run training courses in the correct procedures and it may be a good idea to train up some of your staff.

The most commonly used compound is a sodium cyanide (Cymag). When this comes into contact with moisture or soil it produces hydrogen cyanide. It comes in a powder form, which is blown into the burrows or deposited inside the entrance with a spoon.

There are also a number of pellets or tablets now available. These contain metallic phosphides which give off phosphine gas when moistened. Like the powder forms these are introduced to the burrow entrance which is then blocked up.

Fencing or wire netting

In certain situations this could be the answer. The initial outlay is likely to be high, but in the long term it is a cost-effective preventive measure compared with carrying out other control measures on an annual bases.

Moles

Unlike the sociable Mr Mole portrayed in "Wind in the Willows" moles are very solitary, territorial animals, living most of their lives in total darkness underground. Their tunnel systems can cover an area of up to 1.6ha (4 acres) and consists of a deep permanent network and short-lived surface runs. The complex has one or two chambers within it lined with dry material, these are used as sleeping quarters and for raising the young. Molehills are created as a result of tunnel extensions or repairs and are often due to a shortage of the moles staple diet - worms. They consume large quantities, an 80gram mole requires up to 50grams of earthworms a day. During the summer they will also eat insects that fall into their tunnels. Sometimes special chambers are set up where worms are stored alive for a later feast.

Male and females remain solitary in their own domains only coming together in the spring for breeding. Litter numbers are from three to four babies and these are weaned at four-five weeks. They leave their mother's territory at about six weeks by dispersing above ground. This is the time when they are most at danger.

Control

This is best carried out between October and April and there are two main methods, poisoning with strychnine or trapping. There are other methods although some evidence suggests these are questionable. They include smoke cartridges containing pesticides, which are ignited and placed in the tunnels. This can be very hit and miss as it is difficult to make sure a sufficient toxic level is reached. A mole is no fool and can quickly block off a tunnel if it senses danger.

Where chemical repellents are used



it is often a case of pack the bags and move to another district.

A number of electronic devices, which are said to produce vibrations that make the moles life intolerable, are now available. Current evidence would suggest they have a very limited effect and the offending creatures stay put.

One method that could have the desired results is to eradicate the food supply by getting rid of the worms. A hungry mole is going to move on.

Trapping

First find the right tunnels using some form of probe - they are down there somewhere between molehills. The deep ones are what you are looking for, those near the surface are not suitable. Once located a hole is dug into them and the trap carefully lowered in.

Poisoning

Earthworms are the bait, these are mixed with strychnine and carefully introduced to the run. The bait needs to be distributed evenly throughout the tunnel system.

With strychnine a permit must be obtained from the MAFF Regional Service Centre in England and WOAD in Wales.

As with gassing, because of the measures and precautions that have to be taken with poisons it would probably be more economically viable to call in the services of a professional pest control organisation. Staff have to be fully trained before using any of these substances.

Earthworms

A major portion of any greenkeeper's turf management programme is devoted to aeration and in this he has an ally - the humble earthworm. It breaks down organic matter and excavates tunnels through which water, air and nutrients can percolate. When this creature decides to deposit casts it becomes the greenkeepers enemy. Out of the 25 species of earthworms found in the UK, three carry out this heinous crime.

The casts contain a mucous, which if wet, smears and dries rock hard. It

is an ideal site for unwanted seedlings such as poa annua and weeds to establish themselves. In addition, it forms an impenetrable crust through which nothing can permeate. On fine turf they stick out like a sore thumb.

There are some preventive measures which, while not eliminating the problem, can play a part in its control. Removal of organic material such as grass clippings and thatch reduces the food supply, which in turn affects the worm population.

The pH of the soil is another influencing factor. Worms cannot tolerate acidic levels. Applications of sulphate of iron have been a commonly practised method over the years and trials have been conducted to determine the effects of aluminium sulphate and sulphur.

Most chemical controls for worms have disappeared and today the choice is limited. At present fungicides based on carbendazim and a fungicide/insecticide thiophanite-methyl are said to prevent worm cast formation. This is only a short term answer, so repeated applications have to be made.

The quest continues to find an acceptable solution to this problem.

Badgers and foxes

They love insect grubs, and will create a battlefield, tearing up the turf in their quest for these delicacies. The answer is to remove these tantalising meals by controlling the insects that create them.

Geese

These can be a problem for some greenkeepers - they graze fine turf and leave a nasty mess behind. Electric fencing or bird-scaring devices are possible solutions. Lead pellets from a 12 bore were suggested but there could be major problems regarding the species of geese involved and the organisations that protect them.

Cattle and sheep

In years past, some courses were built on sites where the locals had (and in some cases still retain) grazing rights. Over the years, regular players will have come to accept that

they have to retrieve their balls from a cow pat. Likewise, the greenkeepers tolerate this particular pest and restrict their access to greens and other vulnerable areas with some form of fencing. They have very little choice and have to live with it.

INSECT PESTS

Leatherjackets

During the late summer and early autumn the daddy long legs or crane fly is a common sight. Like a terrorist it is plotting trouble. The female lays about 250 eggs and these become larvae within 14 days. They then spend the next nine-months chewing their way through grass leaves and roots. Bearing in mind how many eggs were laid, the numbers of larvae in a particular area will be high and as a result the devastation their feed has on the turf is very significant. Another problem is that birds such as rooks and starling have a sixth sense. They know that there is a tasty morsel lurking beneath the surface and have no respect for the turf in trying to get this meal. They are good indicators that there is a leatherjacket problem.

Finally the larvae change into a pupa and work their way to the surface and hatch into adult crane fly ready to produce more offspring, to repeat the cycle again. Sandy soils are more to their liking and they prefer a diet of fibrous turf.

Treatment should be carried out when the larvae are relatively small and this is best done about November using a chlorpyrifos based insecticide.

Fever Fly

The larvae of the Fever Fly, of which there are two species, also damage turf. They resemble the leatherjacket, but are smaller and the treatment for this pest is the same.

Chafer Grubs

The Garden Chafer Beetle has a one-year lifecycle. Adults emerge at about the beginning of June and the female burrows into the ground and proceeds to lay her eggs. These take just over a month to hatch. The grubs

feed on grass roots until the late autumn then burrow down into the soil to hibernate throughout the winter. In the spring they pupate and emerge a month later ready to procreate.

The damage is similar to that produced by leatherjackets and the presence of birds is also a sign there is 'trouble afoot' underground. Treatment is with an insecticide.

Other Pests

Most greenkeepers will inevitably encounter pests of the human variety, these come in all shapes and sizes. We have all met the so-called expert - (X an unknown quantity and spurt a drip under pressure). Whilst it would be nice to tell them to travel, the treatment has to be diplomacy and tact.

Next time you encounter a pest problem, stop and ponder this for a second: your counterpart in some far distant country could be faced with alligators or snakes all over his course. Is this not a sobering thought!



Above: Rabbits do not always dig their burrows in secluded areas