

GWCT Mink Raft



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INTRODUCTION

The GWCT Mink Raft was developed both as a means of detecting mink, and as a favourable trap site. In pilot work in 2002, we found that it was a far more sensitive way to detect the presence of mink than speculative trapping, local knowledge or systematic searches for field signs.

The raft was conceived primarily as a research tool and we continue to use it to develop strategies for managing mink in a UK conservation context. But the raft is also a key feature of those improved strategies. The advantages of a raft-based control policy have been quickly recognised by conservation bodies throughout the UK, and it now forms the basis of many conservation projects, both local and large-scale.

In 2005, the GWCT Mink Raft won the first ever Wild Animal Welfare Award offered by the Universities Federation for Animal Welfare, in

recognition that it led to a more focused form of control with greatly reduced animal welfare costs.

This leaflet explains how mink rafts are used, and the range of associated services offered by the Trust.

There is much more to the use of mink rafts than can be covered in this brief leaflet. All the topics covered here (and more) are covered in-depth at our mink raft training workshops, which can be arranged at a venue and date of your choice.

The GWCT Mink Raft is supported by a considerable body of research done by the GWCT. During this research, we have seen no reason to change the original basic design, although new materials make for a more resilient and longer lasting raft. Inevitably though, a number of variant rafts have sprung up in other projects. To what extent our research findings also apply to such variants is unknown.

WHAT IS THE GWCT MINK RAFT?

The GWCT Mink Raft is a simple, cheap, low-tech device that improves on previous mink control practices in almost every respect.

The raft has two modes of action: monitoring and trapping. In use, it spends most of its time in monitoring mode, and reverts to monitoring after each brief spell of trapping. In monitoring mode, the raft records the footprints of any visitors (from water shrews to otters), and can be left to

accumulate such evidence over a period of one to two weeks. The idea is to set traps only on rafts that have recorded evidence of mink within the last check period. The mink will then usually be caught within a few days. After running the trap for a maximum of seven to 10 days, the raft is returned to monitoring mode, to establish whether there is still a mink to be caught. In this way, the mink control effort becomes self-assessing, and it is easy to see whether trapping is effectively controlling mink numbers. ■



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WHY USE RAFTS?

1. Focus

Fundamentally, rafts give your mink control a clear focus and direction. Imagine you are setting mink traps without rafts. How many traps do you need? What is the best kind of site? For how long should you run each trap? If you catch nothing, should you stop trapping for a while, or should you move the trap?

These are difficult questions but with rafts, they are almost irrelevant. Thanks to the research that underpins the mink raft approach, you can start with a near-optimal raft density, use the minimum number of traps and will rarely be in doubt about what to do next.

2. Scaled-down trapping

Whereas conventional trapping requires one trap per site, the use of rafts requires a lower number of traps to be available for use and for a far shorter time. The use of traps is therefore vastly scaled down, and so are all the attendant costs: the need to check traps daily, the capital cost of traps, the ecological and animal welfare cost to non-target species.

3. Reduced manpower/effort

Traps must be inspected daily while set, so using traps speculatively (ie. running them in likely-looking spots) can be very time-consuming. Rafts can be inspected at a much longer time interval while they are simply collecting evidence of mink. Only where a raft collects evidence of recent mink visits is it necessary to set a trap and check it daily. So rafts save on manpower chiefly because they focus where and when to invest your trapping effort. Manpower is also saved by increased trap efficiency (see below).

Of course, the rafts themselves are an additional cost over and above the cost of traps. Against this, you don't need so many traps. A ready-made raft supplied in kit-form costs about £168 (Perdix Wildlife Supplies 2026 prices). For comparison, the cost of cage traps is about £60. A cost comparison of conventional trapping versus the raft system will depend on which type of trap is used, and at what density.



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Nevertheless, because manpower is the greatest expense in mink trapping, there is a net financial saving in most UK situations.

4. Increased trap efficiency

Because traps are set only on rafts shown to be in current use by mink, captures happen quickly (usually within a few days of trap placement), and thus traps are deployed for a much shorter time. Field experience also suggests that rafts are typically much better trap sites than conventional land sets.

5. Reduced non-target captures

Because fewer traps are used, and because they are set for shorter periods, the risk of non-target captures is greatly reduced. Strictly terrestrial non-targets are avoided. Additionally,

locations in frequent use by non-target species can be avoided after a short period of monitoring. Movement of a raft by as little as 50 metres can avoid a water vole colony without affecting the chance of mink captures.

6. Feedback and motivation

There is nothing like a mink footprint to excite fieldworkers and if your mink control is working, the number of rafts with evidence of mink should be falling rapidly. The evidence that this is the case is hugely motivating to fieldworkers, managers and funders alike.

6. Detecting remaining or replacement animals after successful removal by trapping

All culling will have some impact on

RAFT CONSTRUCTION

mink population size, but ecological consequences may perhaps be trivial if some mink are still present after trapping, or if removed animals are quickly replaced through reproduction or immigration. As yet, we don't know what level of mink abundance – if any – is low enough to allow persistence of

different prey species. In the absence of such knowledge, the aim of most control efforts is currently to ensure complete absence of mink on a local or wider scale. The GWCT Mink Raft provides a method of monitoring presence or absence of mink at specific sites that is independent of

the trap itself. In pre-existing trapping strategies, the continued presence of mink at removal sites (or elsewhere) could be monitored only by field signs, direct sightings or further trapping. All of these are less sensitive than the raft method. ■

RAFT CONSTRUCTION

The original version of this leaflet included details of how to build the GWCT mink raft, but rafts are now available commercially (see list of suppliers on 12). Modern materials such as recycled plastic board in place of plywood mean that raft life extends well beyond our DIY original which was always meant to be retired after three years. We therefore feel that there are unlikely to be any long term savings in home construction. When the raft was invented there was little understanding of microplastics as pollutants, so erosion of the expanded polystyrene used in the centre of the raft was not seen as a big problem. Today we take a very different view and would only support home construction if damp proof course or similar is used to seal in the flotation layer. For anyone wishing to construct their own raft, details are available separately.

The tracking cartridge and clay

The tracking cartridge consists of a plastic basket with a solid bottom and vented sides. It is packed to within 10mm of the rim with highly absorbent florists foam (originally Oasis, but now replaced with Fibre Floral brick, a biodegradable alternative). Because the basket has tapered sides, the rectangular block of foam must be cut to fit, and the offcuts are used as outer wedges to secure the foam in place. After the foam is saturated with water, a 10mm-thick layer of tracking substrate is smeared over the top surface with a broad spatula. The tracking substrate is a mixture of fine buff earthenware/stoneware clay and kiln-dried block-paving sand.

Tracking medium: 1kg clay (moist, as supplied) to 0.5kg dry sand.

The point of using kiln-dried sand is to be able to control how much water is in the mix. The ingredients are worked together by hand in a bucket, gradually incorporating enough water (approximately 100ml for the above quantities) to make a stiff but workable paste. By smoothing with a wetted spatula (eg. decorator's trowel), and finally with a rubber blade (grouting squeegee), the surface is left perfectly smooth and level with the rim of the tray. The foam acts as a wick, drawing water from the river to maintain a permanently-moist tracking surface.

The tunnel

The tunnel has four intended functions: to provide a dark cavity which mink might find attractive to investigate; to protect the clay surface from rain and

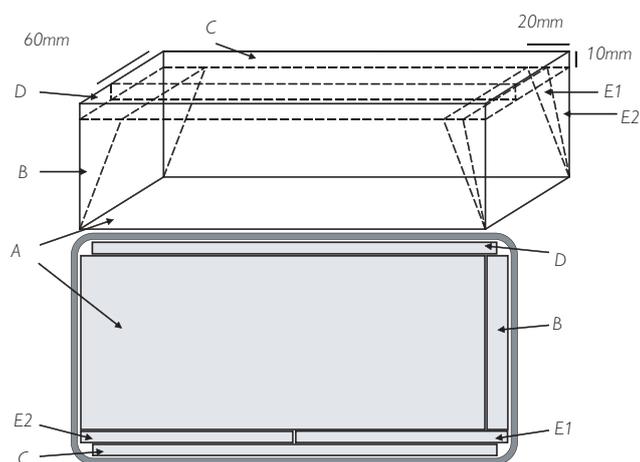
debris; to house a trap when required; and to provide a closed-off area whose entrances can be regulated using physical barriers to exclude non-target species larger than mink.

Anchoring the raft

The raft is tethered to riverside shrubs or trees, or to a post by a rope passing through the eyebolts in the raft corners. You must choose whether to fasten the rope to one ring on the raft or to two. Two provides more security, but one attachment allows the raft to find a position where it catches less current and may make it less vulnerable to swamping in spate conditions. We haven't found any satisfactory solution that allows the tethering point to rise and fall with the water level. If water levels are liable to rise considerably, fasten your rope high and allow enough slack – you will probably have to make adjustments in wet periods. ■

Figure 1. Fitting a foam block in a basket

(see gwct.org.uk/minkraft for step-by-step photo instructions)



TRAPS SUITABLE FOR USE WITH RAFTS

Mink control involves trapping and killing mink. Orders made under the Destructive Imported Animals Act 1932 make it illegal to keep mink without a licence, and stipulate precautions that must be taken to prevent escape. This legislation, therefore, also prohibits you from keeping, transporting or releasing a mink once you have caught it. So besides rafts, you will need traps and equipment for humane dispatch.

Two kinds of trap are allowed by law: live-capture traps (cage traps) and spring traps (killing traps). On balance, we recommend the use of live-capture traps in most circumstances. Live-capture traps seem intuitively humane to most people, though actually their relative humaneness compared with good spring traps is not beyond argument. The humaneness of confinement in a wire cage is one issue, and the competence of the operator to dispatch the mink humanely is another (see page 5). A more clear-cut advantage is that live capture traps usually allow any non-target captures to be released alive and unharmed. Because non-target captures are so drastically reduced through correct use of GWCT Mink Rafts, this is a minor issue in ecological terms, but there are legal complications (unclear aspects of the Wildlife & Countryside Act that have not been resolved through case law), and most operators prefer not to take the risk. With live-capture traps, you will also need a weapon to dispatch the mink (see page 5).

There are two basic types of live-capture trap: single entry and double entry. The double entry type allows the mink to enter from either direction and presents no visible mesh barrier across the tunnel end when the trap is set. Although that may seem advantageous, double entry types have more mechanism to go wrong, tend to be skimpy in length between treadle plate and door, and would require a larger raft than we use. So on balance we prefer the single entry type. Field experience shows that mink have no trouble finding the entrance.



Some operators choose to pack hay or similar material around live-capture traps to provide captive animals with both insulative bedding material and a diversionary activity. Two problems can arise. Firstly, vegetation dragged into the trap may hinder the use of trap combs which are crucial to the humane dispatch of mink with an air pistol. Secondly, an oversized tunnel is necessary. Once bedding material is drawn into the trap, the trap becomes a loose fit in the tunnel. Unless the trap is fastened to the raft, it is then possible for a captive mink to shuffle the trap out of the tunnel and off the raft, resulting in death by drowning and probably a lost trap.

Spring traps are cheaper and easier to transport than live-capture traps. They may be appropriate for an operator running only one or two

rafts, for whom the expense and responsibility of owning a weapon and carrying out humane dispatch seems disproportionate. Spring traps may also have a role in catching 'trap-shy' mink. A list of trap models approved for mink can be found in the relevant Spring Traps Approval Order (gwct.org.uk/tunneltraps). Note that approvals differ slightly between England, Wales, Scotland and Northern Ireland.

Although approvals are supposedly based on an assessment of humaneness, we suggest that most of the spring traps currently approved for mink in the UK are underpowered.

Under wildlife legislation in all devolved administrations, it is expected that the trap operator will take reasonable precautions to avoid capture or injury of protected species, including all birds, otter, and polecat. ■

HOW TO DISPATCH A LIVE-CAUGHT MINK

We recommend you use an air pistol rather than a firearm. It is much easier to carry about discreetly, doesn't make you conspicuous and sinister, is quiet in use, safe for the operator, trap and bystander, and is perfectly adequate for the job provided you follow the procedure described below.

Currently, an air pistol generating up to 6ft lbs muzzle energy may be held and used in the UK without a Firearms Certificate. You must be over 18 to purchase such a weapon. Air weapons may be sold only in person from a shop, not by mail order. To use an air weapon you must be over 14, but the weapon must be transported to the venue where it is used by someone over 18. Persons under 14 must be supervised by someone over 21. There is a trend towards tighter restrictions. The Air Weapons and Licensing (Scotland) Act 2015 means that a licence is required for purchase or possession of all air weapons in Scotland. In all cases you must have authority from the landowner or shooting tenant for the land on which the weapon is used.

With air weapons, more power costs more money. We have researched the cheaper end of the market and can vouch for the ability of a .177 air-pistol producing a muzzle energy of 3.1ft lbs or more to kill even the largest mink (1.7kg) humanely.

The choice of weapons available that meet this specification is ever changing, so making recommendations as to make and model in this leaflet means that we would likely be out of date very quickly.

The use of the smaller calibre .177 rather than .22 may seem counter intuitive, but the smaller diameter of the pellet means higher velocity and therefore better penetration. We originally recommended 'Prometheus' steel-tipped conical pellets (lead pellets are too soft and will not penetrate), but these are no longer available. Our current recommendation is Remington Lead Free, which is made of a hard zinc alloy with a similar plastic jacket. It is also essential to follow the procedure described below.

To use an air-weapon humanely the mink must be held still in the trap. This is easily done using two plywood 'combs' to form the equivalent of a livestock handling crush

An air rifle (legal limit 12ft lbs) can also be used, but is considerably more awkward to manipulate, more conspicuous as you travel between traps and the extra power is unnecessary.

To use an air-weapon humanely the mink must be held still in the trap. This is easily done using two plywood 'combs' to form the equivalent of a livestock handling crush. The combs are made by cutting slots with a saw in 10mm plywood boards, so that the remaining 'tines' fit through the mesh of the cage trap from above, forming a divider within the trap.

Once exposed in a trap a mink may scream loudly and incessantly until it is dispatched. So prepare the air-pistol, pellets and trap combs before removing the tunnel or pulling out the trap. Wear safety glasses and check that the pistol barrel is clear before loading it. If the mink has been caught on a

raft, it is convenient to dispatch it on the raft in the water (the raft can be floated away from public view). Insert the combs alternately, gently push the mink to the end of the trap farthest from the door, until it is confined to a space only one or two meshes long. By easing or increasing pressure, you can allow the animal to squirm around or hold it in position.

Using the comb as a lever, push the mink up towards the roof of the trap, letting it squirm around until its head is immediately below the roof mesh, then clamp it in position by pressing on the comb. With the gun barrel perpendicular to the cranium, push the muzzle of the barrel down firmly and shoot the mink. Avoid the very strong centre line of the skull. Do not fire unless you have achieved the muzzle/cranium contact described. (If the muzzle is not perpendicular to





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the cranium, or if there is insufficient downward pressure, the pellet may glance off or fail to penetrate). Note that the plastic skirt of the pellet may well lodge at the skin surface, while the pellet itself separates and penetrates deep into the brain.

One shot properly placed like this will cause instant and irreversible loss of consciousness, but be prepared for convulsions and kicks as the animal dies. To confirm that the animal is unconscious, lightly touch one of its eyes with a piece of vegetation. If there is no blink reflex the animal is unconscious. Although a single shot may be all it takes, we recommend that you fire a second shot into the junction between the neck and the back of the

skull to destroy the brain stem. This can usually be achieved without emptying the animal out of the trap. Any regular breathing action also indicates that it is not dead. The carcass should be disposed of responsibly by incineration or burial.

To maintain the muzzle energy of an air weapon, the barrel must be kept clean and pellets should ideally be lightly lubricated with a specialist airgun oil (eg. Napier Power). Do not use shotgun oil or any other kind which will leave a residue when dry.

We do not recommend the use of Section 1 firearms to dispatch cage-trapped mink. A .22 rim-fire pistol or rifle should never be used. If you are close enough to dependably hit the

mink in the trap, you are at severe risk of being wounded by ricochet, and furthermore you will damage the trap.

A shotgun can be used with a normal game or clay-shooting cartridge with small shot. Non lead alternatives work equally well. You must recognise that its use at close quarters is risky. Always wear safety glasses as well as hearing protection. Place the trap in front of a safe background, retreat to a distance of about 10 metres (pace it out), and make sure any bystanders are behind you before taking careful aim. Be aware that shot and fragments can ricochet high above the trap. Please also remember that shot can ricochet off a water surface. ■

DEPLOYMENT AND MAINTENANCE

We find it easiest to carry the raft base, tunnel, clay/sand mix, tracking basket, rope and tethering pole as separate items. At the chosen site, the foam is saturated with water (which takes a few minutes). The clay-sand mixture is then smeared on top and smoothed off. Finally the tunnel is screwed down onto the raft and the raft is tethered. You will need to carry a broad spatula and a flat-bladed squeegee (for the clay mix), screwdriver, screws, knife (for the rope) and lump hammer or mallet (for the pole). You should also have personal safety gear (eg. waders, life-jacket, mobile phone).

Rafts are normally deployed at a rate of approximately one per kilometre of watercourse and we favour locations where the raft can be pushed into the emergent vegetation at the water's edge, because we assume mink will hunt carefully through that habitat.

However, where there is no vegetation (for instance on canalised and over-grazed sections of river) the rafts seem to work just as well. One advantage of vegetative cover is to hide rafts from passers-by who may vandalise the raft, trap or release a captive mink. We try to moor rafts where the only access is by wading

Check rafts at one or two week intervals, depending on circumstances. More frequent checks are obviously desirable where you have recently returned a raft from trapping to monitoring mode, in case further mink remain to be trapped

or swimming. We also suggest fitting explanatory signs to the roof of the tunnel, such as those available from Perdex Wildlife Supplies.

Children are often the worst culprits and some sites are simply unworkable during school holidays because of easy access. We usually 'dress' the tunnel with local vegetation to camouflage it, and renew this at intervals to avoid it looking 'tired' and unconvincing, but be careful not to obscure the ends of the tunnel. Incidentally, publicity explaining the rationale of your work, and a raft and explanatory material left at a visitors' centre, are also important steps to reduce interference.

The tracking cartridge can be lifted out without removing the tunnel from the raft. It is important to keep the clay/sand mix in good working condition. At every check, remove debris and smooth over the surface with a wet rubber squeegee (best), spatula or wetted hand. At intervals (eg. every two to four checks) it will be necessary to

resurface, flip over or replace the clay-sand layer, because the clay particles gradually wash away with repeated smoothing, leaving a depressed surface and a hard gritty mix. Strong drying winds or sub-zero temperatures can also require the clay to be resurfaced. We carry the clay/sand medium already mixed in plastic bags when checking rafts. It is a false economy to skimp on the clay. Riverside mud is inadequate.

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At certain times of year (eg. during autumn dispersal) a fast response may be important. In these circumstances, try a one-week check interval and run traps for a maximum of seven days. If you have not caught in this time, the mink has almost certainly moved on or been caught elsewhere. ■



(Left) Rafts in monitoring mode can be switched to trapping (right) when evidence of mink is found.



IDENTIFYING MINK TRACKS

Tracks are captured in perfect detail on rafts and mink tracks are easily recognised (see inset photo). A field guide on animal tracks will help you distinguish other species if you are in doubt.



We have also compiled a photographic guide to mink and other tracks that you may find helpful (gwct.org.uk/minkrafttracks). The tracks most similar to mink are those of polecats, and at present we can offer no reliable rule to distinguish the two species from their tracks. Polecats do visit rafts, but not frequently.

Tracks of other species, for instance water voles and water shrews, may also be of interest. Note that water vole tracks are often impossible to distinguish from those of brown rats. Only where droppings are also present can you be completely sure which of the two species was involved. Water voles often use the rafts as latrines, leaving droppings on the raft base, tunnel and tracking cartridge.

SWITCHING TO TRAPPING MODE

When adding a trap to the raft the tracking cartridge is removed. The cartridge and clay can often be stored somewhere close at hand after wrapping it in a plastic bag to keep it wet. If you leave it in place, it will probably be fouled by the captured animal.

For live-capture traps it is usually simply a matter of sliding the trap into the tunnel. If the tunnel is closely dimensioned to suit your live-capture trap, you may need to remove or loosen it to slide the trap in. When tightened down, it will clamp the trap to the raft, which helps to prevent theft. Small brackets or short lengths of

galvanised steel builders' band can also be used to secure the trap to the raft with screws.

TRAP MONITORING

While it is a slight legal grey area, the GWCT's interpretation of the Animal Welfare Act 2006 is that when a trap is set it must be checked every day so that captives can be dealt with quickly. This will apply especially to any captives held alive in a cage trap.

Over the last few years, we have been hearing of an increasing trend to use trap monitoring devices that send a message to the operator when the trap goes off. We accept that this gives scope to get to a trap more quickly when it is sprung. However, we are concerned that any tendency to unreliability could leave a trapper relying on such alarms liable to prosecution in the event of a breakdown if the message does not get through.

There is also a growing trend to use what are being called 'smart rafts', where the trap is permanently set, and relies on an alarm to say when it has been triggered. This can seem like an attractive idea in that there is no time lag between detection and capture, however, it fails to recognise the

fundamental reason for the raft in the first place, which was about detecting mink presence. If there is no mink out there a raft used in this way can only catch non-target animals.

In our view this is an irresponsible approach, in that it puts non-target animals at much higher risk of being caught. Aside from the welfare implications of being captive, it should be remembered that not all animals caught in a cage trap are unharmed. Some will be injured, and a small number may even die. Also, under the Wildlife and Countryside Act, 1981, some of the non-targets, such as water voles, may not be deliberately trapped, leaving the trap user open to possible prosecution for recklessness. Some manufacturers offer water vole excluders with a view to addressing this, and while we are assured that they work, we know of no proper scientific investigation to prove this, nor to show that they do not deter mink.

The GWCT recommends that all rafts are reverted to monitoring mode as soon as a mink capture is made. This minimises non-target risk, and it was this approach that led to the UFAW Wild Animal Welfare Award mentioned in the introduction.



(L-R) Otter and mink tracks.
(Top inset) Mink tracks.



Morally as well as legally, the operator should assume full responsibility for the mink raft while it is in operation and remains on the water.

RECORD KEEPING

Your ability to assess how your mink trapping impacts on mink numbers and how that translates into conservation benefits, will be enhanced if you keep detailed records of your rafts, especially of tracks found during monitoring mode. It's not the number of mink you remove that matters, but how much of the time the river is free of mink. This is the evidence that will motivate your funders to support the project, and convince the public that this is the right course of action.

RESPONSIBILITIES

For operational and river maintenance purposes, the Environment Agency (EA) needs to know where mink rafts are being used. If you are planning to

use mink rafts, please contact the EA's local offices. There is a small theoretical risk of a raft causing obstruction to a sluice or other drainage control structures, resulting in flooding and extra maintenance work. In practice, we are not aware of any instance where this has occurred, as the raft is a small structure compared with trees and other common flotsam. Nevertheless, the legal situation is that the raft operator could be open to prosecution by the drainage board if these circumstances arose. Similarly, environmental pollution by raft materials is not really an issue, as rafts which break loose in flood conditions are generally easy to retrieve. However, morally as well as legally, the operator should assume full responsibility for the raft while it remains on the water. It is advisable to 'retire' home-made rafts

after three years, rather than risking them breaking up at the next spate.

You should also be conscious of the risk of carrying disease (eg. fungal fish diseases, crayfish plague) from one river to another on any wet equipment. This includes rafts and waders, and we suggest avoiding moving them from one river to another. If this is unavoidable, the best form of disinfection is to thoroughly dry equipment for a minimum of 48 hours. Drying in sunlight is the most effective option. A raft will take a long time to dry unless it is completely dismantled. Iodine-based preparations (eg. Iodophor; from veterinary suppliers or online services) are also recommended for disinfecting equipment. Iodophor contains iodine and phosphoric acid, so read the safety data. ■

FREQUENTLY ASKED QUESTIONS

Please remember that this information guide reflects work in progress. We don't have all the answers, and our advice on how to use rafts may well develop as time goes on. But here are our current answers to some frequently-asked questions.

How many rafts should I use?

We currently recommend one raft per kilometre of river. Our research shows that this allows each mink access to at least one raft, and usually two to three. In open water, our best guess would be to follow the same spacing along the water's edge, including islands. For land intersected by many ditches and channels, we would suggest one raft per square km as a starting point (not including rafts on the main river channel), but more may be necessary depending on the density of ditches.

How long should the raft stay in trapping mode?

It's tempting to leave traps 'just a little longer', in the hope of catching the mink that left its footprints. However, experience tells us that a mink will usually be caught within a few days. If it isn't caught in that time frame, don't jump to the conclusion that you have a 'trap-shy' individual. It is much more likely that it has been caught elsewhere, died through some other means or that it was a 'transient' individual simply passing through. If you keep the trap set you will probably only increase the number of non-targets you catch. Return the rafts to monitoring mode after each capture, or after a maximum of 10 days without a capture.

Is there a way to keep non-target species out of traps?

In trapping mode we have used a physical excluder modified after Short & Reynolds (2001), to ensure that adult otters cannot force their way into the trap. This has a central space of 60mm between two upright dowel bars, leaving smaller spaces to the sides.

In a field experiment using paired rafts, with and without excluders (autumn 2002), visits by mink to rafts were shown to be unaffected by this excluder. Otters do visit mink rafts, leaving spraints on the ends and on

the tunnel roof to prove it. When excluders are not present (we removed them when the raft was in monitoring mode) some otters do enter the tunnel – which is a tight squeeze, to judge by the deep footprints. But after seven years of research, in all seasons, in places with otters present, we did not have any otters pass through tunnels that were protected by this excluder.

Other designs of otter excluder are offered by trap manufacturers, for instance by restricting the trap entrance to a three-inch wide aperture. We now use this kind of trap without the dowel excluders. These too have allowed efficient capture of mink including large males, of which the largest encountered was 1.7kg.

Polecats (a species with Schedule 6 protection under the Wildlife & Countryside Act, 1981) are similar in size to mink, so clearly they can enter tunnels even with excluders fitted, as do other non-target species such as moorhens and water voles. To minimise this risk please follow our advice to return to monitoring mode after 10 days even if no mink has been caught. It is illegal to return either mink or grey squirrels to the wild after capture, so these species must be dispatched.

What is the best trapping strategy?

There is no statutory restriction on when to trap mink. Arguably the most important time to monitor and trap is in the spring. The idea is to prevent on-site production of young mink and to safeguard prey species, which are breeding themselves and are therefore vulnerable. In spring mated female mink will be choosing den sites in which to pup, and until their pups are weaned the family will be relatively sedentary. Female mink we have trapped in spring were carrying up to 10 foetuses. A family of this size develops a huge need for food as the summer progresses and the implications for prey species are obvious. If trapping commences as early as mid-February or early March, you are also likely to catch adult males as they roam around searching for females to mate.

As summer progresses you start to run into a welfare dilemma. If you kill adult females that have

dependent young, those young will die of starvation and cold (mink dens are difficult to locate). If you want to avoid this scenario, you must suspend trapping until the young are free-ranging, have already eaten a lot of prey and have to be trapped one at a time. There is no easy solution to this dilemma. It arises in most other vertebrate pest control issues, eg. mice, rat, rabbit, woodpigeon, fox etc. Clearly the ideal is to trap adult females before their young are born. Rafts help to achieve this quickly, but they will also show if any mink are present during the summer, bringing the dilemma to uncomfortable prominence. You need to decide whether you are prepared to compromise effectiveness in the interests of welfare. If you are using rafts on a fairly wide scale, a ruthless campaign in year one that quickly reduces the population to low levels is arguably more humane than a campaign that is drawn-out because it has a close season.

Having stressed spring-time control because it has the greatest impact on the mink population, we don't actually know when mink have their greatest impact on prey species like water vole, crayfish or amphibians. It may be that autumn or winter predation by mink is critical for some of these species and the advice above may need to be revised in due course.

Usually, the mink you remove will eventually be replaced through immigration. If you are addressing only a small section of river, and/or you are in a region with a high mink density, this may happen very quickly. The peak time for dispersal is August/September and this is the second key period of the year after spring. Only experience in your location will tell you how much immigration typically takes place, but using the raft system you can clear the river again quickly.

Can rafts be used on spate rivers?

The GWCT Mink Raft was developed on southern England chalk-streams, but it has been used successfully on rain-fed rivers in (for example) Cumbria, Aberdeenshire and the Welsh borders. Of course you must be aware of the dangers of rafts being swept away by

sudden spates or flood water, and it may be that in rainy seasons you simply cannot use them. But we have made the system work despite these practical difficulties. It is advisable to rope only to one corner of the raft, allowing it to find quieter water, but also to fix a second 'back-up' rope in case the first one fails.

Knowledge of how your river behaves in spate is vital. Experience will show you where the slack water areas are. Try to position the raft so that it is protected by a large tree or other feature, so when the river floods there will often be slack water directly behind (downstream of) the tree and the raft will float quite safely. This will also protect it from heavy debris (tree trunks etc) floating down stream. The rope should be anchored quite high up allowing maximum rise and fall – too low and the raft may be dragged under water and lost or damaged. When water levels recede it will be necessary to re-float any rafts that have become beached. Experimentation is the key.

What bait should I use?

We use no bait or scent lure on our rafts. In general, we have no problem in catching a mink within a few days, once we have detected it using a raft. Both bait and scent lures introduce complications

which we feel are unnecessary. Bait needs to be replaced regularly to ensure it is fresh, and it may increase the interest from non-target species. Scent lures may have different effects on different mink depending on their sex and age class. Please don't use bait and then ask us why you aren't catching.

Why am I not catching mink despite finding tracks on rafts?

Don't jump to the conclusion that the mink is 'trap-shy'. There are several more likely reasons for this situation. Mink tracks found during late winter-early spring and in autumn, may have been left by 'transient' animals moving through the catchment, either to find mates or to disperse. Setting traps in response to these will waste time if the animal responsible for leaving the track has already moved away from the vicinity. The only option here is to shorten the raft checking interval to give a faster response time.

Alternatively, the mink you have detected may live predominantly in terrestrial habitats, making only rare visits to the river. This applies particularly to male mink, which are more inclined to live on terrestrial resources such as rabbits. The problem may be increased in the presence of otters, which are thought to displace

mink aggressively from the main river channels. Catching such individuals becomes more of a lottery. It may be necessary to set some traps on land nearby, to catch mink known to be present. But think: if the aim is to protect the river channel, then a mink that visits the river only occasionally is not such a big problem. If it's a male, then it is largely irrelevant either to water vole conservation, or to mink population control. Also the tracks you recorded could be one of the occasional visits to a raft by a polecat.

If the tracks were large, it's possible that the animal entered your trap but failed to trigger it. A very large male mink standing in front of the treadle plate will have its nose up against the end mesh, and may not take that final step before turning round and leaving the trap. In these circumstances the use of a spring trap may be justifiable.

If you are using an excluder different from the one described here for otters, it may have the effect of reducing mink captures. Intuitively one would expect any such effect to be on the larger (male) mink.

One thing that isn't a problem is the use of single entry traps as mink have no trouble finding the way in.

There are too many tracks and I can't identify any – what can I do?

Where there is a lot of 'traffic', mink tracks may become overlaid by those of other species, which can make identification difficult. Ironically, water voles have proved to be the main culprits.

Territory-holding voles scent-mark in raft tunnels, then drum their feet over the latrine, which can quickly obliterate any other tracks present on the clay mix. The problem can be overcome by more frequent raft checks. Moving the rafts a short distance (50-100m) along the river may avoid the middle of a water vole colony. Trapping can still proceed if mink tracks are identified, but it should be remembered that water voles will not be excluded from traps and will enter them, rendering them unavailable to mink. Arguably if this is an issue, then water vole populations are healthy suggesting that mink presence is minimal. ■



Territory-holding voles scent-mark in raft tunnels, then drum their feet over the latrine, which can quickly obliterate any other tracks.

SUPPLIERS & TRAINING

TRAINING WORKSHOPS

We offer one day workshops or refresher courses for conservation bodies engaging in mink control. The workshops can be tailored to your requirements from the topics listed below, and are suited to everyone including decision-makers and practitioners, professionals and volunteers. You choose the location and the emphasis you require.

Topics available include:

- The history of mink and mink control in Britain.
- Is mink control necessary? The evidence linking water voles to mink.
- The GWCT Mink Raft. A logical approach that leads to focused, incisive mink control.
- Mink traps – recognising good and bad traps.

- Mink trapping on land.
- Planning and budgeting for mink control. Raft monitoring, including remote trap alarms.
- Humane dispatch and related safety and legal issues.
- Health and safety, risk assessments.
- Water vole reintroductions.
- Hands-on practical outdoor session: How to deploy and maintain the mink raft. Handling the mink in the cage. Humane dispatch. Gun safety.

Our workshops offer you the very best instruction from the experts, based on a long history of involvement in predator management, richly supported by research data and fully up-to-date. To book please contact our advisory department on 01425 651013 or email advisory@gwct.org.uk.

SUPPLIERS

Note: Listing does not imply endorsement by the GWCT of products from any manufacturer or supplier.

Perdix Wildlife Supplies
(supplier of mink rafts, tracking equipment, traps, and ancillary mink control kit)

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