Scottish Mink Initiative

Working with Communities to Protect Native Wildlife

Newsletter No. 10 March 2014

Computer Modelling Predicts End of Mink in Western Isles in Sight

SNH have published a report jointly authored by researchers from University of Aberdeen that scrutinises the achievements of a sister mink control project, the Hebridean Mink Project (HMP).

HMP began in 2001 with the aim of protecting internationally important populations of waders from the fur farm escapees. Since then 1,600 mink have been culled in Lewis and Harris using an intricate network of 7,500 cage traps. These traps were operated by professional mink trappers 2 weeks per year in a fixed systematic rotation, irrespective of evidence of the presence of mink.

Trapping success has been declining at a annual rate of 60% per year, suggesting a heavily depleted mink population. Lambin *et al* rigorously analysed the data to predict the number of surviving mink and most crucially, the prospects for completing the eradication effort on the Isles of Lewis and Harris.

Sophisticated computer-models were developed and provide important information on the expected population characteristics, using actual trapping data. Fundamentally, the computer model adds rigorous support to the impression held by project staff, that the mink population in Lewis and Harris is now extremely small. However, no matter how desirable it is, it is impossible to predict whether the last few mink will give birth again before entering traps. The model thus gives probabilities of the task being completed at given times. For example, one scenario suggested that mink extinction could happen as early as 2014, with the most pessimistic estimate being 2021. In 80% of the model's simulations, mink were extinct by 2017. All invasive removal efforts face similar uncertainty and it is paramount to maintain surveillance until there is no doubt the job is complete.

One key lesson long heeded by SMI, it that achieving a comprehensive spatial coverage greatly shortens the time required for achieving the goal of mink eradication. Mink are so mobile that any uncontrolled refuges will provide an unending supply of dispersing mink that will recolonise the entire region. Thus, keep your rafts operated so no mink goes undetected. We need to finish the job!

Feedback Now Available for Minkapp Users

We have been working with dot.rural at University of Aberdeen, to develop a digital platform to efficiently gather mink-related data that volunteers collect. Furthermore, using high-tech software, all volunteers can now receive instant, up-to-date feedback about Scottish Mink Initiative (SMI).

If you use the MinkApp to log your raft check data you will be able to access a form to select what type of personalised feedback you would like to receive.

Please log your data on the Minkapp, try the feedback and let us know what you think – we want to know what you find interesting and what you would like more information on!

How does it work?

How raft data is logged – MinkApp

The MinkApp system is a web-based tool that allows volunteers to log the data they collect on signs of American mink and other species (http://dotrural.ac.uk/smi/). The MinkApp tool checks this data is complete and informs the relevant organisation for that area and enters the data into the database.

Volunteer feedback

This technology platform helps to keep the SMI a world leading project by allowing volunteers to submit mink related data and receive instant personalised feedback on the progress of the Initiative. Large amounts of data are collected by volunteers, and a computing technique known as Natural Language Generation allows feedback to be quickly and effectively generated. Upon a record submission, a volunteer can choose what he or she would like to know more about: captures; sightings; own recording history; or mink ecology. Additionally, the volunteer can select a geographical scale so that more can be found out about mink on the local river, catchment or nationally.

West Sutherland Fisheries Trust - Kate Batchelor

Firstly, a big thank you to all our many volunteers who remain enthusiastic and continue to check rafts and tunnels in all weathers despite not finding any signs of mink! Without your efforts the project would not be possible and it is imperative the work continues to help eradicate mink.

Although things have been fairly quiet on the mink front in west Sutherland there were a couple of potential sightings near Achiltibuie and Clashnessie between late summer and December. Volunteers were alerted although no captures were made and there have been no further sightings. Four new volunteers have been recruited and seven new tunnels and three rafts have been deployed in Loch Roe and Coigach covering the Garvie and Runie catchments amongst others - see photo opposite of Kate hard at work, digging in some new tracking tunnels. Assynt supports good populations of water voles and several water vole sightings have been reported in Coigach recently. As such, Coigach remains a priority area to the south of our remit to try to prevent any northward migration from Wester Ross.

West Sutherland Fisheries Trust continues to monitor 21 rafts between Knockan and Rhiconich however we (thankfully!) have only found signs of pine marten and rodents so far as well as the occasional otter. Over the winter a few rafts have taken quite a battering and we have enjoyed the chance to catch up with volunteers when we have come to replace equipment. We are always on the lookout for new volunteers so if you are interested please don't hesitate to get in touch!

Kate Batchelor, West Sutherland Fisheries Trust, 01971 502259, wsft@btconnect.com

www.scottishmink.org.uk

Wester Ross Fisheries Trust - Peter Cunningham

In September 2013 Wester Ross Fisheries Trust took on the coordination and support of the volunteer and raft network around Loch Broom and Gruinard Bay. In order to extend the mink control area to Loch Gairloch and Loch Ewe areas, an impressive 21 new volunteers have been recruited! New volunteers have taken charge of mink tracking tunnels and/or traps. Our aim is to have as many of these as possible in operation by the end of February.

In 2013 mink were trapped on the Isle of Ewe and around Gruinard Bay. Mink have recently been seen near Aultbea and by Loch Broom and traps are currently in operation in both areas. We are particularly concerned about the possibility of mink swimming out to other offshore islands including the Summer Isles where operation of mink traps is almost impossible without a dedicated team of professional trappers.

Will Common terns, like the one in the photo opposite, breed successfully around Wester Ross in 2014? They usually arrive in early May and set up nesting colonies on offshore islands. Terns are particularly vulnerable to predation by mink. In previous years Common terns have bred successfully on islands in Loch Gairloch, Loch Ewe and Gruinard Bay however, few chicks fledged in 2013, possibly due to a combination of predation by mink and a lack of sand eels.

If you know where terns have bred in the past , I would like to hear from you. We plan to continue to monitor and trap mink around these areas and to find out if the birds have more success in 2014.

Peter Cunningham, Wester Ross Fisheries Trust, info@wrft.org.uk, 01445 712899

Photo credit: Kate digging in new tunnels © Kate Batchelor
Common tern © Barry Blake

Cromarty Firth Fisheries Trust - Lynn Brydon

I am happy to begin by telling you that a sighting of a water vole on the Ussie Burn, Maryburgh was reported last August - water voles have not been recorded here to date! If you see a water vole or water vole signs please let me know - records of this kind are invaluable and seek to demonstrate the positive effects of mink removal.

In October 2013 a female mink was caught and dispatched on the River Conon below Achilty Dam. The Conon and Blackwater junction are popular areas for mink and captures are made here annually. A dead mink was reported in October on the road close to the Dornoch Firth Bridge. I always try to notify volunteers in the areas where mink have been reported - dead or alive! I am pleased to welcome some new volunteers who are going to be monitoring to this area.

Mink footprints were recorded in January on the Killen Burn at Avoch and a trap was deployed without success. In July last year at Avoch Bay (close to Killen Burn) three Arctic tern rafts were moored; two rafts of terns were killed over 2 nights (see photos opposite), just days before they were due to fledge. Mink are known to be in the area and we therefore cannot rule them out as the possible culprit. An RSPB Officer is now monitoring two tracking tunnels on the shore line opposite the tern rafts. The tern rafts have also undergone alterations in a bid to try and prevent would-be predators from taking access and killing the breeding adults and chicks.

Lynn Brydon, Cromarty Firth Fisheries Trust, 07428 189161, lynn.brydon@hotmail.co.uk

Ness and Beauly Fisheries Trust - Nick Barker

Volunteer effort has been impressive since September 2013 however mink sightings, mink signs on rafts and captures have been on the low side to say the least.

On 9 September 2014 one of our diligent volunteers caught a mink on a small tributary of the Moniak Burn following a spate of bait theft from the trap! However, despite tremendous efforts thereafter, no more mink were caught.

Later in the month, Ness and Beauly Fisheries Trust (NBFT) received a phone call from a keeper on Glenmoriston Estate who had seen an adult mink feeding on the remains of pheasants that had been killed on the road between Invermoriston and Dundreggan. A well positioned trap underneath a road bridge nearby resulted in a capture 24 hours later!

It was not until late November that another report of a mink sighting came through, this time from the upper River Oich, where a local resident had witnessed a mink come from the Caledonian Canal and casually stroll through their garden. Despite trapping since then, the mink remains at large...

More recently, a raft check close to the junction of the River Moriston and Loyne revealed lots of mink prints (see photo below). Mink have been captured from this location in the past and the NBFT intends to start trapping in earnest week commencing 03/02/14.

NBFT are pleased to welcome two new volunteers for the 2014 season. A zoology student from Aberdeen and mink trapping enthusiast from Wales can commit a fair amount of time to the NBFT and we are very grateful. It is our intention to introduce them to the NBFT's broad range of activities in the summer months.

Nick Barker, Ness & Beauly Fisheries Trust, 01463 783505 , nickbarkernbft@btconnect.com

Photo credit: Dead tern chicks © Brian Etheridge
Mink prints in clay © Ann-Marie MacMaster

Spey Foundation - Polly Burns

It's a new year, and a time for both reflection on the past and looking to the future. Since I took over coordinating the mink work on the Spey catchment last September, I am yet to record a capture of a mink! On one hand this is a good however there have been a couple of mink sightings and footprints recorded in clay so we know they are still around...

Mink are beginning to enter into their most active time of year, so extra vigilance won't go amiss. I am happy to report that I have recruited several new volunteers, including three in January. I have started to take the Scottish Mink Initiative into schools, and Milne's Primary in Fochabers was the first to take part. The P2s, 3s and 5s all had lessons on invasive non native species and more specifically mink, and the following week I returned to give them two mink rafts to monitor, one for the P5s, and one for the P2/3s to share. This caused much excitement and the pupils were incredibly enthusiastic!

As Fochabers is quite an urban location, I mentioned the presence of litter and its negative impacts on the environment and before I knew it we had a full bag of litter collected! It is really encouraging to have both pupils and teachers taking such a positive approach to learning about their local environment and how to look after it. Very promising steps towards a mink free future!

Polly Burns, Ness & Spey Foundation, p.burns@speyfisheryboard.com, 01340 810841

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Findhorn, Nairn and Lossie Fisheries Trust - Bob Laughton

Although sightings of mink during spring and summer 2013 were limited, during the latter months of 2013, eight mink were captured and dispatched within the lower Findhorn and the Lossie catchments!

Several captures were notable: a sighting near Dallas was reported and a few days later on 21 November, Dougie Ross reported its capture. My wife, Lesley, saw a 'small, black animal' running along the road as she drove home one evening. After viewing some photos she was convinced it was a mink so Sean Maclean and Davie, the gardener at Dalvey Estate, baited some traps in anticipation. A couple of weeks later their efforts were rewarded: a female mink, captured on the 12 December.

We received several sightings and excellent photos of mink at Burghead (see photo to the left) during the winter. Three traps were baited and set in January in Burghead harbour and along the coast (see photo of Sean below). It wasn't long before a ninth mink, also female, was captured in one of the coastal traps.

Several sightings of mink have come from the Spynie area and two new volunteers have been recruited to assist around Spynie Loch. There will undoubtedly be more mink along the coast so we plan to concentrate future efforts between Burghead and Lossiemouth. Trapping also continues along the Nairn and the surrounding area however to date no confirmed reports of mink activity.

Bob Laughton, Findhorn, Nairn & Lossie Fisheries Trust, director@fnlft.org.uk, 01309 611 220

Photo credits: mink raft & bag of litter @ Polly Burns
Mink eating eel © Scott Aigas
Sean MacLean installing traps © Bob Laughton

Deveron, Bogie and Isla - Robin Vasey

Since the Deveron, Bogie and Isla Fisheries Trust took over the mink raft and volunteer network on the Water of Philorth and Loch of Strathbeg catchments in September last year, we have been in touch with all volunteers.

Unfortunately 2 volunteers have given up volunteering on the Dour Burn (a small coastal burn), where mink are known to be present. However, we are happy to welcome a shooting syndicate at Cairnbulg on the Water of Philorth, who will monitor and trap.

Within the Deveron, Bogie & Isla catchments, 2 mink were trapped in December near Marnoch otherwise there is no other mink activity to report. Many of our traps were removed over winter but will be back in action by the end of February.

This spring we hope to monitor the upper catchment for water vole activity - the photo opposite is of a tributary of the Blackwater where we hope to enlist the help of gamekeepers. Many mink have been removed from this area and healthy water vole populations have been found here in the past so we hope we will record them once again!

Robin Vasey, Deveron, Bogie & Isla Fisheries Trust, 07771 874 579, robinvasey@deveron.org

River Don Fisheries Trust - Matt Oliver

Things have been pleasingly quiet mink-wise since I've taken on the coordination of mink control across the Don, Ythan and Cruden last October.

The last mink capture was on the Bents Burn, Don, back in early October, and there have only been two reported sightings: one on the Don at Port Elphinstone and the other in the wider Ythan area near Slains. So mink activity appears massively depleted in comparison to the recent past, which is a great testament to the efforts of the Initiative's volunteers and staff.

It is particularly pleasing to have had as many sightings of water voles as mink over this period. Water voles are active in both the Ythan and Don catchments. In the latter case reliable signs of water vole activity were reported around Corby Loch, which is the first such sighting in this area of the lower Don catchment for many years. A large number of mink have now been removed from the area and hopefully we will begin to see signs of recovery in other riparian wildlife that will have suffered from mink predation in the past.

This is a crucial time for mink surveillance as the population has been driven low, and we can now focus on completely excluding mink from large areas. It's a good time to check rafts regularly as all mink on the go now are adults that will be looking to breed. Please be vigilant and get in touch if I can assist in any way.

Matt Oliver, Findhorn, River Don Fisheries Trust, mattoliverecology@gmail.com, 07882 560603

Photo credit: Blackwater tributary © Robin Vasey
water vole © unknown

River Dee Fisheries Trust - Jamie Urquhart

The delivery of the Scottish Mink Initiative within the Dee, Cowie and Carron catchments is now undertaken by the River Dee Fisheries Trust (RDeeFT). Should you require any assistance with raft or trap materials, carcass collection or dispatching I will be your first point of contact (unless dispatchers are already coordinated in your area and you have arrangements agreed). I would like to establish a network of dispatchers to cover the area and I aim to create this over the coming months with your help.

Things have been quiet recently with no mink captures for several months. Within the last few weeks, mink signs and sightings have been recorded around Torphins, Maryculter and Stonehaven so volunteers in these areas should remain vigilant. The months of February through to April are the key times for monitoring and control of mink and it's essential that rafts/traps are operational at this time of year. Mink will be actively roaming around looking for mates and are more trappable as a result.

Any rafts removed over winter can now be returned to the water following a quick check to ensure they are fit for purpose. Try moving the raft location slightly and if you're able to check the raft more regularly (e.g. perhaps once a week) this will pay dividends when it comes to recording mink activity during these late winter/early spring months. If you're a trapper give the traps a once over and lubricate the springs with vegetable oil or even better, fish oil, if they are stiff.

Submitting mink sightings or raft check data (including absence of mink signs) on the MinkApp is critical as we require an up to date picture of mink activity in order to inform other volunteers across the catchment.

Please do not hesitate to get in touch with me should you have any queries or require any materials.

Jamie Urquhart, River Dee Fisheries Trust, 01339 880411 , Jamie@riverdee.org

www.scottishmink.org.uk

Esk Rivers Fisheries Trust - Nigel McMullen

Things have been relatively quiet in the Esk Catchment over the winter months. The last captures were made on the Lunan Water - in fact 2 mink were caught on the same raft within days of each other.

This winter we have all seen an unimaginable amount of rain which has resulted in some very high rivers (see photo of the Bervie Water opposite). Thankfully most rafts were removed from the water over the winter months otherwise a lot of equipment may have been lost!

We are happy to see a reduction in mink captures since September on the Esk catchments and we hope this reflects a reduction of mink numbers in the area however we must not become complacent!

I have been making contact with volunteers over the winter months, ensuring everyone has my contact details. I also plan to visit all volunteers in the coming weeks so if you require any replacement equipment since I last spoke to you, please let me know.

In the spring months I plan to increase raft coverage on the North Esk catchment. It has been difficult to recruit volunteers in this area in the past so if you are in the North Esk catchment and would like to monitor a raft and do some trapping please do get in touch.

Nigel McMullen, Esk Rivers Fisheries Trust, 07786 060431 , ngmcml@aol.com

Photo credits: raft in sheltered location © Jamie Urquhart
Flooded Bervie Water © Marshall Halliday

North Tay - Ann-Marie MacMaster

The north Tay, like many other catchments has been very quite mink-wise - with only 3 captures made between October and December and none so far this year.

Similarly there has been just one sighting since September 2013, on the main stem of the north Tay. Male mink will be roaming now in search of females so this is a good time to spot mink - please get in touch if you have a sighting to report!

We have seen excessive amounts of water this winter although thankfully not to the same degree as parts of England. The River Isla near Coupar Angus was indistinguishable during one of the many floods this winter, with surrounding fields completely submerged as far as the eye could see - see photo opposite - note that water should only be flowing beneath the Couttie Bridge! During unpredictable weather you should stay away from water courses and only set traps if the weather forecast is stable.

In the last 2 weeks of February I plan to get in touch with volunteers in the north Tay catchment and get out of the office (!) to deliver equipment and check rafts in the field.

It would be great to welcome more volunteers on the north Tay, particularly between the outflow of Loch Tay and its confluence with the Tummel.

In the meantime, I look forward to having a blether over a cup of tea with you all in the coming weeks!

Ann-Marie MacMaster, 07825 186043, ann-marie@rafts.org.uk

Fisheries Trust Updates Now on SMI Website

Please check out our website for more frequent updates from the fisheries trusts - simply go to www.scottishmink.org.uk and then hover over the '**News**' tab and a drop down list will appear - simply click on the fisheries trust update you would like to view.

We would love to hear what you think of the updates and indeed the website and newsletter - if you would like to leave feedback simply click on the '**Send us your feedback** 'button on the home page and complete the short form.

Events

North Tay

- **RAFTS Annual Conference 2014 - 'Scottish Fisheries Management - Planning for Change' -** 20 March 2014, Battleby Institute, near Perth. Please see http://www.rafts.org.uk/annual-conference/ for further information and booking form.
- **The 7th Tayside Recorder's Day** - 5 April 2014, 10.15 - 16.30 - The Meffan Museum, Forfar. This FREE event is organised by Angus Ranger Service with Perth Museum & Art Gallery, Angus Museums, Dundee McManus Galleries, and the Tayside Biodiversity Partnership. Booking essential. A sandwich lunch will be provided, together with refreshments during the day. Please see http://www.taysidebiodiversity.co.uk/ for further info and booking form.

Cromarty Firth Fisheries Trust

- **Cromarty Firth Fisheries Trust Hatchery Open Day -** 26 April 2014, 10am- 12 pm, Contin. Please contact Lynn Brydon on 07428 189161 for further details.

Photo credit: Flooded River Isla © DC Thomson

Fish for Tea Tonight?

In the Autumn 2013 edition of the SMI newsletter we reported that an Honours research project was to take place looking at the quantity of salmonids in the American mink diet; the results are in!

Jennifer Paterson studied the importance of salmonids (specifically salmon and trout) in the diet of the mink population in Northeast Scotland and asked whether mink preyed more on salmonids in those areas where they are more abundant.

The stomach contents of 470 culled mink, captured over a 7 year period, were analysed. Only 230 had content in the stomach and of those, 25 contained salmonids.

Jennifer then used fisheries trust's electrofishing data for the rivers Dee, Deveron, Don and Spey to gain an estimate of juvenile salmonid abundance. Salmonid occurrence in mink diet did not seem to vary with their abundance.

It is important to note that we attempted to relate the presence of salmonids in mink guts to a rather crude measure of fish abundance, typically collected at one or two 100 m^2 stretches of river in proximity to the mink capture location. It is quite a leap to use those local measures as a measure of salmon availability to mink, therefore our conclusions on how mink tend to eat salmonids varies with their abundance must remain tentative. To quantify the impact of mink predation on salmonids is a more ambitious endeavour which was not attempted within this study.

No Increase in Litter Size as Mink Density Decreases

Ella Robinson also recently completely her Honours research project looking at whether litter size changes as mink density decreases.

One of the adaptations leading to the success of the American mink is it's reproductive ability, indeed American mink can have up to 12 kits in 1 litter from multiple paternities. Therefore, it seemed plausible that female mink could increase litter size to compensate for the decreasing population density brought on by culling and potentially negate the effects of eradication.

In order to investigate this, litter size was calculated by counting the number of placental scars on the uteri from female carcasses then testing the effect of changes on litter size.

The results indicated no compensation in American mink, which means that litter size did not increase with decreasing density. There was also evidence to suggest smaller litter sizes at lower densities, which may be due to a lower chance of finding mates. With less paternities, less foetuses are produced, thus the litter size would be smaller.

It is really good news that the work of those associated with SMI has been successful in reducing population numbers and will not be overshadowed by a potential increase in litter size.

New Mammals Trust UK Funded PHD

The Scottish Mink Initiative involves the work of hundreds of volunteers who safeguard native species from the negative impact of the American mink. Its adaptive management approach integrates community engagement, partnership working and science to great success! It now faces the challenge of continuing to expand south and westward despite a declining funding baseline. A key finding from the first 7 years of the project is that the mink population was disproportionately driven by a limited number of geographic "hotspots" responsible for most of the productivity and reinvasion. The aim of this latest PHD study is to discover: 1. our current inability to identify such hotspots in new areas without expensive blanket deployment of mink monitoring rafts data on the pre-control mink populations; and 2. the need to establish, using a formal adaptive management approach, whether concentrating control effort on the most productive subsets of the landscape can cost-effectively prevent mink recovery in the SMI area and depress their numbers in expansion areas.

This project is being part-financed by the Scottish Government and European Community Cairngorms, Highland, Moray, Rural Aberdeenshire and Rural Tayside Local Action Groups LEADER 2007 – 2013 Programme