



Mink Fight Back with More Pups: The Importance of Finishing the Job!



In any control program, individuals who survive culling live at low densities and can potentially compensate for the losses through increased reproduction. Using the mink carcasses provided by mink volunteers since 2006, we evaluated to what extent such compensation is making mink control more difficult. We dissected all female mink to establish the number of embryos they contained or counted the placental scars left by embryos produced the previous year. We found that 81% percent of adult females had conceived a litter with on average 5.5 pups per litter. There was much variation in mink fertility between river sections and time, with litters as large as 12 pups! We related this variation to mink density and to the age of females which was obtained through sectioning canines and reading annual growth rings not dissimilar to tree rings. We found that females younger than 3 years old were more fertile than older mink and that females caught in river sections where numbers had already been depleted by trapping were the most fertile.



These findings reinforce the absolute necessity of completing the mink removal task. Mink control means few mink live very long, so 'old' mink are a now very rare. Removing most but not all mink from an area leaves behind prime-age female mink able to choose the most productive territories in your catchment. Those residual prime-age females living at low density have the potential to give birth to offspring who will reinvade yours and your neighbour's catchments and undo the hard work of all.

Fortunately, mink rafts were designed for detecting mink at low density and from the mink carcasses collected, we can map the territories of females. Thus, it is absolutely crucial to ensure that all areas where female mink have previously settled have complete coverage of regularly checked rafts this coming spring. Only in this manner can the fight back of mink be prevented and the task of durably removing mink be completed.

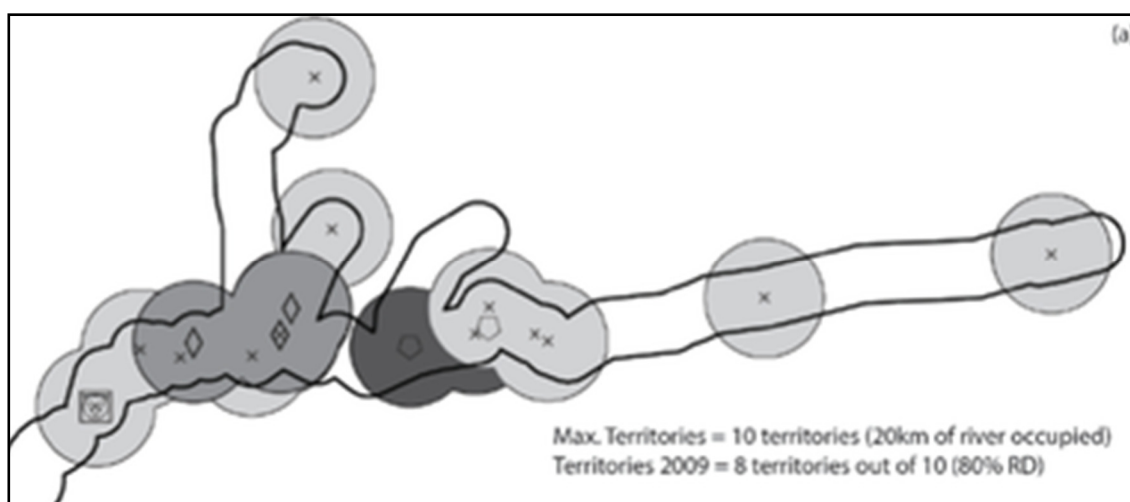


Fig. 1 (above) Illustrative example of maximum number of mink territories on a section of a river; symbols represent capture locations per years, circles are 2 km buffers and the colour code represents territories in different years. In the example dark grey is 2007, grey 2008 and light grey 2009.

Prof Xavier Lambin & Dr Yolanda Melero

West Sutherland Fisheries Trust - Shona Marshall

Things have been quite quiet mink-wise in the far north. Mink prints were recorded on a tracking tunnel at Reiff, near Achiltibuie, in October leading to much activity with traps. However despite the valiant efforts of our volunteers, no capture was made and traps were closed after a few weeks. The tracking tunnels remain operational!

In addition to these mink prints, the continuing reports of mink sightings further south in the Ullapool area highlight the need to remain vigilant. We currently have over 25 volunteers monitoring our raft network, and once again we would like to say a massive thank you to you all. Without your hard work and dedication the project would not be possible and the wildlife of west Sutherland would be at greater risk.

WSFT continues to monitor 21 rafts and tunnels further north in the Scourie area however there has only been the occasional rodent print recorded here.

We were sorry to say 'goodbye' to Kate back in October.

Kate has done a sterling job managing the mink raft and volunteer network since the hand over from RAFTS in September 2013 and she will, I'm sure, be missed by all. Shona has now taken over the role of managing the volunteer and raft network so if you are interested in helping out then please get in touch with Shona! We are always happy to welcome new volunteers anywhere within the Trust area.



Shona Marshall, 01971 502259, wsft@btconnect.com

www.scottishmink.org.uk

Wester Ross Fisheries Trust - Peter Cunningham

Since October 2014, 3 mink have been caught on the Isle of Ewe, three by Gruinard Bay and 1 at Opinan, near Greenstone Point! Thank you to all our volunteers for all your hard work, it is very much appreciated. Please continue to retain mink carcasses in the deep freeze, call the telephone number below and I will come and collect them.



Early in 2015, a mink was seen at the fish farm by the mouth of the River Kerry on the southern edge of the Scottish Mink Initiative (SMI) area. This is the same area in which a dead mink was found in September and traps have been set nearby. It's the only sighting reported so far this year. Please get in touch if you happen to see a mink or come across any tracks or signs.

Later this year, it would be interesting to compare the breeding success of shelduck and terns on small offshore islands around the isles of Skye and Raasay (where there is no co-coordinated mink control) with those in the SMI area of Sutherland and Wester Ross

(where tern and Shelduck chicks fledged in 2014). Interested?

SMI Coordinator, Ann-Marie MacMaster will spend a few days in the Wester Ross area in March. We'll be looking at tracking tunnels and monitoring rafts already in place with a view to refining the locations - although 7 mink have been trapped in the area since October no evidence of mink was recorded during that same period on existing rafts and tunnels. We may set up more mink monitoring rafts and tracking tunnels around the area in places where volunteers can easily check them - we'll keep you posted!

Peter Cunningham, info@wrft.org.uk, 01445 712899

Cromarty Firth Fisheries Trust - Lynn Brydon

Volunteers in the Cromarty Firth and Kyle of Sutherland continue to be as enthusiastic as ever! A number of mink sightings were reported in the Golspie and Brora areas between October and January and a quick response was actioned with the deployment of traps. We have yet to make a capture.



We realise how valuable our volunteers are and strive to maintain good relations whilst encouraging enthusiasm and good work. We were delighted to offer our volunteers the opportunity to participate in several aspects of Cromarty Firth Fisheries Trust work, especially during the winter when mink activity is low.

Volunteers helped with events such as our hatchery open day in November and the clearing of rhododendron from riverbanks in January.



The Easter Ross Biodiversity Forum will take place in Strathpeffer on 19 February and will promote various exciting projects including SMI and the work of Cromarty Firth Fisheries Trust that people can get involved with—please come and join us!

Lynn Brydon, 07428 189161, lynn.brydon@hotmail.co.uk

Ness and Beaulieu Fisheries Trust - Chris Daphne

Firstly Ness and Beaulieu Fisheries Trust would like to thank all volunteers for their help. Please keep up the good work.

We are pleased to say that volunteers have captured 3 mink since August, two of which came from the same trap on the River Enrick within just a few days of each other. This highlights the importance of sustained effort and the effectiveness of utilising traps which have previously caught mink. The third capture was thought to be a juvenile male captured on the Bridgend Burn in December.

In addition we are slowly making in-roads into recruiting more volunteers within the Beaulieu coastal area with the promise of assistance from a local angling syndicate - there is always room for more!

Mink sightings, positive mink signs on rafts and mink captures have given us an insight into the territories of resident mink and the dispersal routes of juvenile mink. This data will allow us to focus our efforts on key areas hopefully resulting in many more captures in the very near future.

It is vital that volunteers remain vigilant at this key time of year and report any possible mink activity, removing females now before they breed will result in less work in the future. If you record some footprints on your raft that you are unable to identify please photograph them and e-mail them to me at the e-mail address below - remember to include something in the photo to indicate scale, preferably a ruler but a coin would also be useful.



Chris Daphne, 01463 783505, chris.nbft@gmail.com

Spey Foundation - Polly Burns

Things have been deathly silent on the mink front with no mink sightings, signs on rafts or captures since August last year! As spring arrives mink become more active with males roaming far and wide in search of females so it is important that raft checks continue and we are made aware of the presence of any mink as soon as possible.

I am keen that those volunteers with rafts which have come out of the cold weather damaged, let me know so that I can get new equipment out to you as soon as possible. The store at the CNPA offices in Grantown-on-Spey is proving a popular place for volunteers to collect equipment - please be sure to complete the sign out sheet when you take equipment so I can keep an eye on stock levels.

I am delighted to report that water voles have been recorded at RSPB Insh Marshes and Ballinluggan for the first time, and this is in part due to the eradication of mink in the area. The RSPB wardens check their mink rafts frequently, and credit is due to them for diligence

and the resulting positive outcome. I was asked to talk about this exciting development on Radio 4's PM programme on 17 January together with RSPB representatives. It's great to see this good news story making the national press and hopefully these types of stories will increase!



Polly Burns, p.burns@speyfisheryboard.com, 01340 810841

www.scottishmink.org.uk

Findhorn, Nairn and Lossie Fisheries Trust - Bob Laughton

All quiet on the mink front! Local bailiffs, Ali Skinner (Nairn) and Sean MacLean (Findhorn and Lossie) continue to maintain contact with volunteers but sightings and captures have been low, in fact zero, in most areas during autumn and winter 2014. This has come as a bit of a surprise. All three of our rivers experienced a large spate on 11 August followed by a further large spate in early October. We thought this may force any remaining mink out of their dens to seek new cover but no reports of mink activity were received from any of the three rivers.



However, no time to get complacent with John Hall providing us with the first mink sighting in 2015 along the coast at Covesea. Mink tracks were also observed in the snow on the lower Nairn in February. In both cases traps have been installed but to date no captures!

We are currently re-installing a number of rafts and traps which were lost during the large spates in 2014 and contacting all our volunteers in readiness for the spring. As always a huge thanks to all our volunteers and gamekeepers for your help and if you feel you can contribute by monitoring a mink raft or checking a trap then please get in touch.

If you see a mink you can also record the information through the MinkApp (www.dotrural.ac.uk/minkapp/) or contact the Trust.

Bob Laughton, director@fnlft.org.uk, 01309 611 220

Deveron, Bogie & Isla, Water of Philorth and Strathbeg - Robin Vasey

Since August 2014 we trapped only 7 mink on the Deveron (6) and Bogie (1) catchments - no mink were trapped on the Isla, Water of Philorth or Strathbeg catchments.

Although we appear to have dramatically reduced mink numbers since our first full year of monitoring and trapping in 2010, we continue to receive reports of mink sightings along the coast presumably by dog walkers, bird watchers or hill walkers. Some of these mink may attempt to migrate upstream so it's vital that we intercept them in the coastal areas.

Having sufficient coverage in remote coastal areas (like the MacDuff area in the photo opposite) can be challenging for various reasons such as a lack of potential volunteers, poor or limited access and locating good trap sites. This can be tricky as they need to be in 'interesting' places where mink are likely to investigate but also out of view to avoid potential interference.

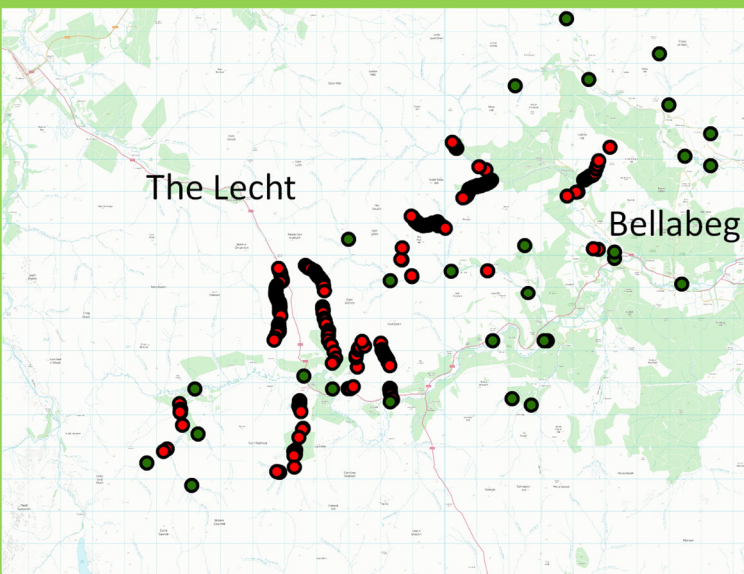
We have had 2 or 3 cases where it was thought that mink may be taking some domestic chickens and ducks however it turned out to be pine marten!



Robin Vasey, 07771 874 579, robinvasey@deveron.org

River Don, Ythan and Ugie Catchments - Matt Oliver

As we reach the end of winter, reports of mink have started coming in. Mink activity has been recorded near the coast, with a mink killed on the road at Balmedie and recent sightings coming in from the lowest reaches of the Ugie. However, with mink detected, but escaping capture in the mid reaches of the Don, Ythan and Ugie in the latter stages of 2014, we could realistically expect a mink to turn up just about anywhere at the moment. So please be vigilant and make sure that your rafts are in good order.



I heard the good news this week that water voles are staging a spectacular return in the River Don headwaters. Surveys in 2014 (red dots) identified colonies of our native aquatic rodent throughout burns leading into the Don down to Bellabeg, from where they were absent in 1996 & 2002 surveys. (green dots) Hopefully, with much reduced mink numbers, they will continue to flourish and will also repopulate the wider catchment (which has not yet been surveyed) downstream.

Keep your eyes peeled!

Matt Oliver, mattoliverecology@gmail.com, 07882 560603

River Dee Fisheries Trust - Jamie Urquhart

As is the case with many of the other fisheries trusts, it has been a relatively quiet period for mink activity across the catchment with the exception of a mink incursion at the furthest reaches of the Dee by Balmoral in November. A volunteer found the prints opposite on a raft but it seemed that the mink had dispersed by the time a trap was set.



Local rangers and gamekeepers joined the hunt but no further signs were recorded. Survival over winter will be low and given that these prints were the first signs this far up the Dee in over six years, it is unlikely that this mink will find a mate should it survive.

The past few weeks have seen MinkApp submissions peak as some volunteers enter data en masse at the end of the season. I would ask that data is entered as regularly as possible, as this enables other volunteers across the project area using the MinkApp to benefit from the automated feedback received upon the submission of data.

Please let me know if you require any additional materials - I urge all of you who haven't had a chance to check your rafts over winter to do so now so that they are prepared for the optimal time of the year for trapping (Feb-April) when mink are looking for mates and are more mobile and less cautious as a result.

A big thanks once again to all volunteers who have helped on the Scottish Mink Initiative on the Dee, Cowie and Carron Catchments.

Stop press! Male mink shot on Lower Dee by one of the Ghillies on the opening day.

Jamie Urquhart, 01339 880411 , Jamie@riverdee.org

Esk Rivers Fisheries Trust - Nigel McMullen

Things have been very quiet on the Bervie, North Esk, South Esk and Lunan Burn catchments since August with only 2 mink captures - one on the South Esk (August) and one on the Dowrie Burn (October), both of which were thought to be female. In addition there has been just one possible mink sighting in the Laurencekirk area where domestic birds have been killed.

We have seen some very big spate waters this winter - the photograph opposite is of the River South Esk in spate in November. These will have undoubtedly damaged some mink rafts.

As ever there are some areas, such as the River North Esk catchment which are not as well covered as we would like so if you think you can help out please get in touch. I would like to get rafts in place as early as possible in readiness for spring and the associated mating season.

Please get in touch by telephone preferably, if you require spares to get your raft operational again and I

will get these delivered to you ASAP. I will be in touch with you all and checking mink rafts in the field during spring so you'll be hearing from me shortly.



Thank you all for your continued interest and support.

Nigel McMullen, 07786 060431 , ngmcml@aol.com

North Tay - Ann-Marie MacMaster

In the Autumn 2014 edition of the SMI newsletter I told you about some wary mink repeatedly swimming past and ignoring a mink raft which had been *in situ* since February 2014. After digging 2 traps into the bank, the first capture was finally made in October and since then there has been a further 2 (2 captures in a bank trap, 1 in a trap on the raft)!

Mink prints were recorded in September on a number of rafts on the Lunan Burn sub-catchment and several trapping sessions were implemented in response with the capture of a male mink in November.

Elsewhere on the north Tay a mink was trapped on the Isla in November however it managed to escape from an old trap! The trap was replaced and within a few weeks a male mink was successfully captured - we have no way of knowing if it was the same mink...

Mink prints were also recorded on the Tummel (last year) however it was not possible to trap and more recently they have been reported on the Isla where trapping is about to begin.

Because the north Tay is on the edge of the SMI work area we will always be subject to mink migration from

the south where there is no coordinated mink control. It is our job to prevent mink from moving further north into Aberdeenshire and Cairngorms and Moray.



At this time of year male mink can turn up just about anywhere so if you haven't already, please dig your rafts out from the shed and get them back in the water. I will be contacting all volunteers on the north Tay in the coming weeks however in the mean time if you require parts to get your raft operational please get in touch.

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

www.scottishmink.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.

Submitting Your Raft Check Data

If you haven't already been on-line to record data from your raft checks why not log in and give it a try?

Follow these simple steps:

1. <http://www.dotrural.ac.uk/smi/index.php?r=user/login>
2. Your username is your e-mail address
3. The password is 'NoMinkGoodNews'
4. Simply choose the raft you checked, the date you checked it and the species recorded on the raft - we even want to know if you didn't record anything.
5. Don't forget to hit 'create'... and that's all there is to it!

Other Invasive Species in Scotland

American Signal Crayfish

Where are they a problem?

The American signal crayfish (*Pacifastacus leniusculus*) are native to North America but were introduced across Britain (mostly the south-east) in the 1970s for aquaculture. However demand for crayfish was low and commercial ventures unprofitable, leading to uncontrolled escape of crayfish into the wild. There are at least 10 known signal crayfish population locations in Scotland, ranging from near Inverness in the north down to the Scottish Borders.



Why are they a problem?

The omnivorous signal crayfish will eat nearly anything they can get their claws on! They can reduce the numbers and diversity of freshwater invertebrates, important food for birds and fish. They consume freshwater plants, which form important habitats for other native organisms and vital spawning surfaces for some fish species. In addition they compete for shelter with salmonids and they can survive on algae, woody detritus, carrion and each other! In some cases fish numbers have declined dramatically upon the arrival of signal crayfish.



What can we do about them?

In the UK it is illegal (without license) to intentionally fish for crayfish, and if caught accidentally it is illegal to transport them or return them to the wild. They should be killed humanely by striking with a lethal blow. Rupert Houghton, supervised by Xavier Lambin (University of Aberdeen), has joined members of the Nairn Angling Association and the Findhorn, Nairn and Lossie Fisheries Trust to conduct research for his PhD which aims to improve methods for controlling signal crayfish. This year the research is being widened to include multiple sites in north east Scotland, for which Rupert may be looking for support locally.



Is there a native crayfish?

The white-clawed crayfish (*Austropotamobius pallipes*) are the only crayfish native to the UK however they are not native to Scotland. Two introduced populations exist and are of significant conservation value. The easiest way to tell the two species apart is by looking at the underside of their claws. These are bright red in the case of the signal crayfish, but pale grey (sometimes with a pink tinge) in white-clawed crayfish. The tops of signal crayfish claws also often have a trace of turquoise and a distinctive white patch on the claw joint. Both species can inhabit a wide range of freshwater habitats but now the native species is typically confined to headwater streams whilst the signal crayfish seems to reach higher densities in slower moving or still water bodies.

If you find an animal you suspect to be a signal crayfish or are keen to find out more please don't hesitate to contact Rupert (rupert.houghton@abdn.ac.uk).



Reintroducing Water Voles: Bypassing Risky Dispersal



The on-going mink control effort by many committed volunteers who are involved in the Scottish Mink Initiative and its predecessors has delivered a large amount of suitable, mink free water vole habitat in Aberdeenshire. However, despite some



spectacular recoveries in the uplands, the natural re-colonisation process of this prime water vole real estate is a very slow process that could take decades if unaided. This is because in many instances, sources of colonists must travel from locations that are very distant from the vacant habitat. Thus the likelihood of even two voles who have left their upland stronghold, surviving the dangerous process of dispersing through unfamiliar ground, finding each other and forming a new colony, although not nil, is very small.

Thus accelerating the recovery of water voles to enable them to make good use of the ground made safe by mink removal is highly desirable. The ambitious and visionary biodiversity mitigation program associated with the Aberdeen Western Peripheral Route (AWPR) has given us the opportunity to substantially shorten the time lag in the recovery of water voles by giving them a helping hand through targeted translocations using water voles taken from upland areas to recolonize the habitat areas cleared of mink.

The goal is not only to create single colonies but rather networks of several water vole colonies. The reason for this is that we know that water voles routinely 'export' their young to other family groups in other colonies to find a mate one to a few kilometres away. Thus, where colonies are isolated, adventurous dispersing young voles leave home but are unlikely to encounter a suitable mate before succumbing to predation. Isolated colonies do not receive newcomers from other colonies and typically decline to extinction. Thus recreating networks of several water vole colonies that can mutually exchange their youngsters is essential. This is what the AWPR mitigation funding will enable us to achieve in Aberdeenshire, gradually over the next 3 years.



We are currently in the process of selecting suitable sites for water vole release in Aberdeenshire. William Morgan, an enthusiastic PhD student (photographed above), Emma Bryce, Field Technician and Prof Xavier Lambin from the University of Aberdeen are performing the mitigation work and will carefully monitor its success. They have already collected water voles from several thriving upland populations in late 2014 with the kind permission of landowners. These voles will spend the winter well fed in comfortable, warm accommodation, where they are protected from the natural causes of mortality. They will be released in small groups with their young in the spring. We hope they will be the founders of restored lowland water vole colonies in areas from where they have been absent for

too long and over time will spread to again become connected through the exchange of dispersers to their upland neighbours. You will no doubt hear about our efforts in the coming months.

In addition to giving a helping hand to recovering water voles, the AWPR mitigation fund is also helping to remove any remaining mink from the lower catchments around the AWPR, with a special focus on the coastal burns flowing directly into the sea and that have not been covered as thoroughly as we would like to date.



Events and Activities

Ness & Beaully Fisheries Trust:

- 30 March 2015 (1000-1600) **Highland Biodiversity Conference**, Inverness. See <http://www.highlandbiodiversity.com/events/30-mar-2015-highland-biodiversity-conference-inverness.asp> for further information. The focus will be conservation volunteering and there will be lots of information about Scottish Mink Initiative!

Findhorn, Nairn & Lossie Fisheries Trust:

- 26 July 2015 **Logie Family Fun Day**, Logie, near Forres. Contact Findhorn, Nairn and Lossie Fisheries Trust for further information.
- 7 & 8 August 2015 (1000 - 1800) **Moy Game Fair**. Several fisheries trusts will share a stand and promote the valuable research and conservation work they carry out - including the Scottish Mink Initiative. Please see <http://www.moyfieldsportsfair.co.uk/> for further information.

Spey Foundation:

- 2 May 2015 **The Glenlivet Local Fair** Spey Foundation will be there promoting the work that they do!
- 16 - 17 May 2015 **Cairngorms Nature Festival** See <http://cairngorms.co.uk/look-after/cairngorms-nature/festival> for further information - Spey Foundation will be there covering various activities
- 23 August 2015 (1000– 1700) **Grantown-on-Spey Highland Games** See <http://www.welcometoscotland.com/things-to-do/events/aviemore-cairngorms/grantown-on-spey-highland-games> for further details - Spey Foundation will be there promoting the work that they do!

North Tayside:

- 19 March 2015 **RAFTS/ASFB Conference**, Battleby, Perth. See <http://www.rafts.org.uk/annual-conference/> for further information. The theme will be 'Challenges for Future Fisheries Management'
- 20 April 2015 (7pm) **Pitlochry and Highland Local SWT Group**, Pitlochry. Ann-Marie MacMaster will give a presentation on the American mink - the negative effects it has on our native wildlife and how we are tackling it. Please contact Richard Horobin for further details: RichardWHorobin@tomcroy.co.uk

River Dee Fisheries Trust:

- 16 - 17 May **Cairngorms Nature Festival**. Come and try fishing with the River Dee Trust, for further information please contact Joanna@riverdee.org
- 12 - 14 June 2015 **Banchory River Festival**. River Dee Trust and Dee Catchment Partnership will share a stand to raise awareness of the work undertaken on the Dee and host try fishing events for adults and under 18s. See <http://www.banchoryriverfestival.co.uk/> for further information.
- 10 July 2015 **Muir of Dinnet NNR Fun Day** River Dee Trust will attend to promote responsible outdoor access on and around the Dee. See <http://www.nnr-scotland.org.uk/news-and-events/events/> for further information.

