

River Otter Beaver Trial First Annual Report

April 2016



Beaver traps being moved into place on the River Otter in March 2016

River Otter Beaver Trial

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The River Otter Beaver Trial is led by Devon Wildlife Trust working in partnership with The University of Exeter, the Derek Gow Consultancy, and Clinton Devon Estates. These organisations make up the Project Management Group. Expert independent advice is also provided by the Royal Zoological Society of Scotland, Roisin Campbell-Palmer, Professor John Gurnell, and Gerhard Schwab, an international beaver expert based in Bavaria.



The trial operates under a licence issued by Natural England (NE). The licence conditions are monitored by the Licence Group convened by NE that includes Devon Wildlife Trust, Environment Agency, Devon County Council and Clinton Devon Estates.

The Steering Group includes many of the same organisations, in addition to a range of other experts and stakeholders including Sir Charlie Burrell, National Farmers Union, CLA, East Devon AONB, Devon LNP, Game and Wildlife Conservation Trust, SW Rivers Association, and the Salmon and Trout Association.

Funding for the ROBT comes from Devon Wildlife Trust (DWT), the Royal Society for Wildlife Trusts (RSWT), Peter de Haan Charitable Trust, the University of Exeter and from the generous donations from the public made to the Devon Beaver Appeal.

DWT is also one of the chosen charities of the Nature Picture Library who have donated a proportion of their profits to the Beaver Appeal, as well as providing images taken by Nick Upton. In 2015 the Mammal Society donated some of the profits from the National Mammal Symposium organised jointly with DWT and the Devon Mammal Group. Funding for the ROBT Project Leaflet was also provided by Brightsea Print Group. Korec also gave DWT a significant discount on a Trimble Geo7X GPS device as well as providing branded clothing.



Key Headlines from River Otter Beaver Trial (ROBT) - Year 1 to end March 2016



- Following the licence being issued by Natural England on 2nd February 2015, a team from the Animal and Plant Health Agency (APHA) captured 5 of the beavers living wild on the River Otter, including all of the adults at risk of carrying the parasitic tapeworm *Echinococcus multilocularis*.
- On 9th March 2015 a team of specialists from the Royal Zoological Society of Scotland (RSZZ) carried out detailed health and genetic screening and concluded they were healthy Eurasian beavers of Bavarian origin, and fit for re-release.
- On 23rd and 24th March 2015, these 5 beavers were released back into the two territories where they had been captured. This process was extensively covered by national and international media, including BBC Springwatch.
- A comprehensive governance structure to oversee the implementation of the 27 licence conditions has now been established, based on a partnership of academics, beaver specialists, landowners and statutory agencies. A Steering Group and 3 specialist forums input different skills and experiences.
- A project team currently consisting of the Beaver Project Lead employed by DWT manages the delivery of the trial, supported by a PhD placement employed by University of Exeter and a wide range of other individuals, organisations and volunteers.
- A Beaver Management Strategy has been published which includes a decision making flow-chart on how to handle different types of conflict that may arise with existing land-uses. This was published in December 2015 and will be formally reviewed on an annual basis.
- A ROBT Monitoring Plan was published by the Science and Evidence Forum on 1st April 2016, outlining 8 Research Objectives, and detailing how they will be investigated over the 5 years of the Trial.

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- As of March 2016, there are thought to be approximately 11 beavers living in three loose family groups between Honiton and Budleigh Salterton, with signs that at least one beaver has explored the upper catchment into Somerset, and the River Tale.
 - The first systematic survey of beaver signs in the catchment has been carried out in the winter 2015/6, mapping all of the current and historical beaver field signs, and forming the basis for research into impacts and future colonisation of the catchment.
 - DNA analysis of the captured beavers suggests they are all very closely related. Confirmation was received from Natural England in December 2015 that up to five unrelated beavers may be released into the catchment to address issues arising from inbreeding. The first two beavers have been identified for release and health tested, and a suitable release site has been identified.
 - The ROBT have now engaged with 31 landowners, and 189 visits were made to different sites along the river during 2015/6 to carry out a wide range of activities and surveys. Reaction from landowners has been mostly positive, with the concerns mostly focused on the extra people that might come with beavers. Access to land has always been provided where necessary.
 - A communications strategy for the ROBT partnership has been produced. A total of 46 talks and presentations were given to around 2,700 people throughout the year and an additional 12 guided walks on the River Otter for around 330 people were also conducted, with a further 9 tours of the enclosed beaver site in west Devon.
 - Media interest continues to be very significant with 97 different articles and broadcasts throughout the year. These have included features in the Observer, Shooting Times, BBC news, British Wildlife and a wide range of other providers.
 - A beaver education pack for schools has been produced and a social media video showing the involvement of the local community in protecting their beavers was produced by London media company Seenit. <https://vimeo.com/133285004>
 - A Memorandum of Understanding has been agreed with the Environment Agency, which includes shared regular inspections of key infrastructure and procedures for recording and addressing beaver impacts.
 - A total of 3 'complaints' have been made about beaver impacts in 2015/6 and these were all resolved quickly and to the satisfaction of all involved. Other beaver impacts have been relatively minor, and none of the Exit Strategy triggers have been reached.
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1. Introduction and Report Structure

Following the discovery of breeding beavers on the River Otter in east Devon, and a subsequent campaign by local residents and beaver enthusiasts, Devon Wildlife Trust (DWT) on behalf of the River Otter Beaver Trial was granted a licence by Natural England (NE) under section 16(4) of the Wildlife and Countryside Act 1981, to release Eurasian beavers, (*Castor fiber*), into the River Otter catchment in east Devon.

This was to follow the capture and health screening of any adult beavers living on the river to ensure they were free of the tapeworm *Echinococcus multilocularis* and confirmation that they were indeed Eurasian beavers. The 5 year licence was granted on 2nd February 2015 following the submission of a detailed licence application which outlined the following goals of the Trial:

- To establish a healthy population of Eurasian beavers into a lowland English river catchment.
- To demonstrate that beavers will have a positive impact on the ecological health of the river system and associated riparian land.
- To demonstrate that the beavers and their impacts will, on balance, be regarded by the local community and stakeholders as tolerable / positive.

Devon Wildlife Trust has been studying the impacts of beavers in detail since 2011 in a fenced enclosure in the Tamar catchment. The preliminary findings of this ongoing piece of work have demonstrated the great value that beavers bring to wetland ecosystems, and the other benefits that result for such extensive water storage in the upper catchments.

The contrasting nature of the enclosure and the River Otter beaver impacts has added a new dimension to the River Otter Beaver Trial. As well as providing a controlled site to study the impacts of beaver dams on water and ecology that isn't currently available in the Otter catchment, it is proving a vital resource for stakeholder engagement and education of the potential impacts of beavers in headwaters.



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The licence application process included the submission of a detailed work plan and Gantt chart which are used to guide the project delivery over the 5 year period. This is an extract of the plan for the current year only – the full work plan is attached as Appendix 1. This work plan is structured around 6 core objectives, and the management and reporting of the project is structured in the same way. For each action the lead people / organisations are identified in the central column.

Activity	Lead people	2015/16			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4
Identify a series of core survey zones based on current beaver distribution and predicted dispersal	PM				
Carry out initial phase survey work of core survey zones (identifying all potential conflicts and issues, and ground-truthing land use data)	PM				
Work with the PAG, SEF and FISH, to scope the detailed areas of research required	PM / PAG / SEF / FISH / AC				
Carry out second phase of surveys - including detailed infrastructure audit	PM / VOL				
Produce Monitoring Framework with research leads identified	PM / PAG / SEF / FISH / AC				
Implement Monitoring Framework (detailed separately - sheet 2)	PM / VOL / AC				
Develop and maintain a detailed database of all costs attributed to the beavers activity with protocols for external organisations to input data	PM / PAG / SEF				
Collate data from partner organisations on all costs attribute to beavers (EA, DCC, Elec, Forestry, Farming, Fisheries)	PM / VOL				
Produce and disseminate interim reports on different aspects of Monitoring Framework (eg Biodiversity, Flood risk)	PM / SEF				
Produce final report - Summary and assessment of total cost to land-use and infrastructure	PM / PAG				
Produce final report - Biodiversity, Impacts on Species and Habitats	PM / SEF				
Produce final report on Ecosystem Services - Water Resources and Water Quality	PM / AC				
Produce final research report on Social Impacts	PM / AC				
Project Management Group	PMG				
Project Advisory Group	PAG				
Project Manager	PM				
DWT Communications Group	COM				
Science and Evidence Forum	SEF				
Community Engagement and Education Forum	CEEF				
Fisheries Research Specialist Group	FISH				
Volunteers	VOL				
DWT Volunteer Co-ordinator	VC				
Academic institutions / consultants	AC				

An extract of the Gantt chart is included in each section of this report and colour coded using a red / amber / green system to show progress against the activity for the financial year 2015/16. For many activities the work is ongoing throughout the 5 years of the trial and the colours reflect this, and are graded as follows:

- Red – Work not started or no longer relevant
- Amber – Ongoing activities
- Green – Project Outcomes completed

2. Reports against key objectives

OBJECTIVE 1: IDENTIFY AND ASSESS IMPACT OF BEAVERS ON HABITATS, WILDLIFE, INFRASTRUCTURE AND LOCAL COMMUNITIES

Principle Outcome: The impacts of the free living beavers on the River Otter, its wildlife, the local economy and local people will be scientifically assessed and recorded to provide a solid evidence base on which the future of the population can be decided.

Activity		2015/16			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4
Identify a series of core survey zones based on current beaver distribution and predicted dispersal	PM				
Carry out initial phase survey work of core survey zones (identifying all potential conflicts and issues, and ground-truthing land use data)	PM				
Work with the PAG, SEF and FISH, to scope the detailed areas of research required	PM / PAG / SEF / FISH / AC				
Carry out second phase of surveys - including detailed infrastructure audit	PM / VOL				
Produce Monitoring Framework with research leads identified	PM / PAG / SEF / FISH / AC				
Implement Monitoring Framework (detailed separately - sheet 2)	PM / VOL / AC				
Develop and maintain a detailed database of all costs attributed to the beavers activity with protocols for external organisations to input data	PM / PAG / SEF				
Collate data from partner organisations on all costs attribute to beavers (EA, DCC, Elec, Forestry, Farming, Fisheries)	PM / VOL				
Produce and disseminate interim reports on different aspects of Monitoring Framework (eg Biodiversity, Flood risk)	PM / SEF				
Produce final report - Summary and assessment of total cost to land-use and infrastructure	PM / PAG				
Produce final report - Biodiversity, Impacts on Species and Habitats	PM / SEF				
Produce final report on Ecosystem Services - Water Resources and Water Quality	PM / AC				
Produce final research report on Social Impacts	PM / AC				

As part of the survey work and trapping carried out by ecologists from the Animal and Plant Health Agency (APHA) in February and March 2015, two key areas of beaver activity were identified; an area just south of Ottery St Mary, and another just north of Otterton. These two zones were initially considered the **core survey zones**, and walk-over surveys have been carried out in these two areas. The University of Exeter have also defined a search area for the purposes of data collection, and have obtained a wide range of Environment Agency data for this area of the lower river.

A methodology has been developed for regular systematic surveys of field signs that will allow beaver activity to be mapped in detail across much of the catchment. As well as providing an annual snapshot of beaver activity against which other parameters can be measured, it will also allow the beaver's use of the river catchment and their establishment of territories to be mapped. The first full catchment systematic survey was undertaken in the winter 2015/6 and this has clearly shown that the animals are ranging widely throughout the catchment, albeit often at very low densities (see maps at end of this section).

In addition, by March 2016, incidental sightings of beavers and their field signs have been collated which have enabled the ROBT to identify what appears to be three breeding pairs living in separate locations in the valley. The current understanding is that all three groups are closely related, and this coupled with the low population density means that the territories may not be clearly distinct from one another. There may also be wide-ranging unpaired individuals within the river system.

For these reasons **a more dynamic approach for targeting survey work will be required than originally outlined in the ROBT Work Plan**. This will focus on the areas of activity around each of the family groups, but in the context of the catchment wide understanding of their use of the available resources within the river system gathered through the systematic survey work.

The assessment of the wider impacts, and to infrastructure being monitored will be targeted in a risk based way, in the areas where family groups are operating, understanding that this is dynamic and may even change seasonally.

Regular **surveys of Environment Agency (EA) Infrastructure** are carried out in alternate months with EA staff, looking for any beaver activity around key EA assets and infrastructure. GIS layers of both EA and DCC infrastructure have been provided to the ROBT, and a report of any signs of activity around each site is then submitted to the EA at a pre-determined date.

In 2015-16, four EA hydrometric monitoring stations were being regularly monitored, and although low level beaver feeding signs were recorded at one site, there were no impacts detected. A further eight stations were identified, but EA do not consider it necessary for ROBT to monitor them routinely at this stage. 14 stretches of watercourse have also been identified by the EA for monitoring for any potential impacts on flooding and to fish, and these are mostly being checked by ROBT bi-monthly. In 2015-16 impacts were only identified just downstream of one of these stretches and this is introduced and discussed in more detail in Appendix 5.

By April 2016 the **ROBT Monitoring Framework** that was submitted as part of the original licence application had been developed into a more detailed Monitoring Plan by the ROBT Science and Evidence Forum. This document was subject to consultation with national stakeholders at the National Mammal Symposium held in October 2015 in Exeter, which included a presentation of the draft objectives

and a discussion session on the content. The Fisheries Advisory Forum was also consulted on the relevant sections of the draft plan. The final plan was signed off by the Science and Evidence Forum on 1st April 2016, and is now available on the DWT website.

The final ROBT Research Objectives agreed by the Science and Evidence Forum are as follows:

1. Economic and land-use impacts: Assess and quantify the associated costs and benefits of beavers in a productive English landscape including impacts on agriculture and forestry and infrastructure.
2. Economic and land-use impacts: Further economic benefits of beaver re-introduction will be determined, such as through eco-tourism, fisheries and education.
3. Biodiversity - Habitats and Species: Determine the impact of beaver activity on vegetation communities, in particular semi-natural habitats. Studies should determine changes in both the nature of and extent of the habitats.
4. Biodiversity - Habitats and Species: Determine the impact of beaver activity on key fauna populations. The monitoring will focus on impacts on fish populations, but will also include amphibians, and invertebrates (aquatic and terrestrial) and birds.
5. Ecosystem Services - Water Resources: Quantify the impact of beaver activity on water resources regulation at a range of scales in the Otter catchment.
6. Ecosystem Services - Water Quality: Quantify the impact of beaver activity on water quality including sediment, and macronutrients (Nitrogen, Phosphorus, Carbon) retention at a range of scales in the Otter catchment.
7. Social Impacts: Provide a qualitative analysis regarding community interaction with this controversial issue. The study would consider the involvement with and perception of the project by the general public and other stakeholders.
8. Beaver health, behaviour and population change: Monitor the health of the beavers before and after release and their behaviour and population demography through time.

Progress with delivery of the Monitoring Plan

Many aspects of the Monitoring Plan are already being implemented. Of particular note is the work now underway as part of the PhD being undertaken by Hugh Graham at the University of Exeter. This PhD is primarily investigating the hydrological aspects of the ROBT, will also look at the geomorphological impacts of the beavers, in the context of an already geomorphologically active river. In addition the PhD will investigate any macro-invertebrate impacts. The water quality and impacts on vegetation structure are also being investigated as part of the PhD. A detailed literature review is currently underway, and is already highlighting the absence of detailed research on the impacts of dams on flow regimes, and the significance of the research being undertaken by the University team in the enclosed beaver site.

A second PhD student, Sarah Crowley, also at the University of Exeter is using the River Otter beavers as a case study examining social attitudes to introduced species, and how different groups of stakeholders perceive species and use very different language to describe them. The outcomes of this research could help where communication barriers are creating conflicts between different stakeholder groups.

Meanwhile at the University of Southampton, a PhD is being conducted by Rob Needham and supervised by Professor Paul Kemp investigating the impacts of beaver dams on migratory fish. The PhD started in 2014, and has been using study sites in Scotland. The University of Southampton approached the project and have visited the River Otter with a view to monitoring any beaver dam impacts should they become available during the period of the PhD. On 2nd and 3rd September 2015 they conducted a detailed electrofishing survey of the stretch of river at the Deer Park Hotel (Honiton) to obtain high quality baseline data on fish populations against which any future change could be monitored.

Building relationships with the key landowners has been vital for many different aspects of the trial. Landowners have approached the ROBT or been approached when regular beaver activity has been detected on or near their land. Following each initial visit an introductory letter is sent outlining the trial objectives. A total of 31 different landowners have now been visited, and will have received information about the trial. In the financial year 2015-16, a total of 189 site visits have been made to different stretches of the river, either to meet landowners or carry out survey work, or for a range of other reasons associated with the project.

The response from landowners approached to date has been largely positive. Some concerns have been expressed about the additional people that are sometimes attracted to the areas where beavers are found, and also about the implications of any future legal protection of the animals and their dams.

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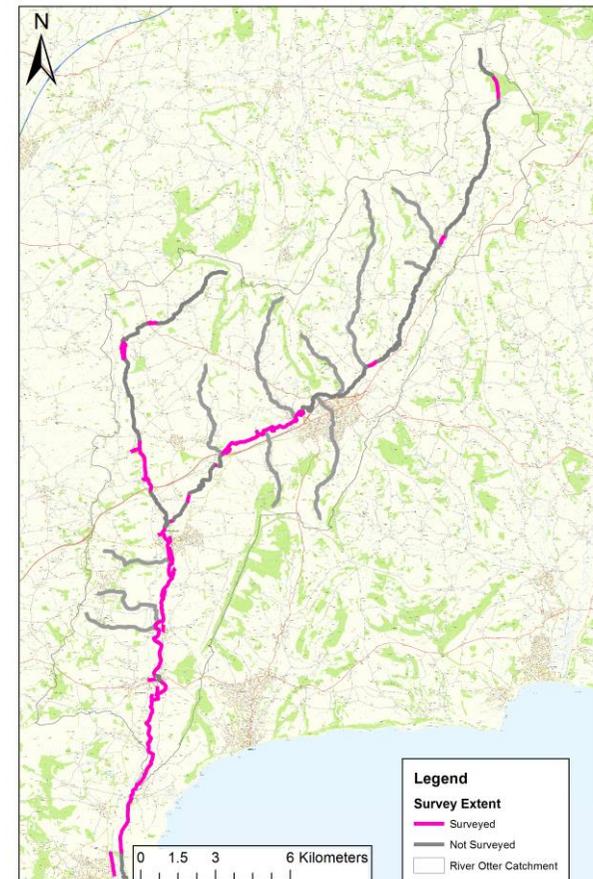
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The **assessment and quantification of any beaver impacts** will depend on the quantity of information collected over the course of the trial. When concern about beaver impacts is expressed, a Site Impact Report is generated which is updated throughout the incident. The ROBT staff time is also recorded, and an MOU between the ROBT and the Environment Agency asks that the EA staff record any time and resources spent in the course of investigating and resolving any issues. The information collected can then be transferred into a database. Awareness raising work has also been undertaken with partner organisations to ensure that data is being collected in the event that impacts are identified.

In winter 2015-16, systematic survey work for field signs was undertaken by Hugh Graham and Mark Elliott. Stretches of river surveyed have been carefully targeted in stretches where beavers have been most active in recent years, so that historic activity could be mapped (see map right).



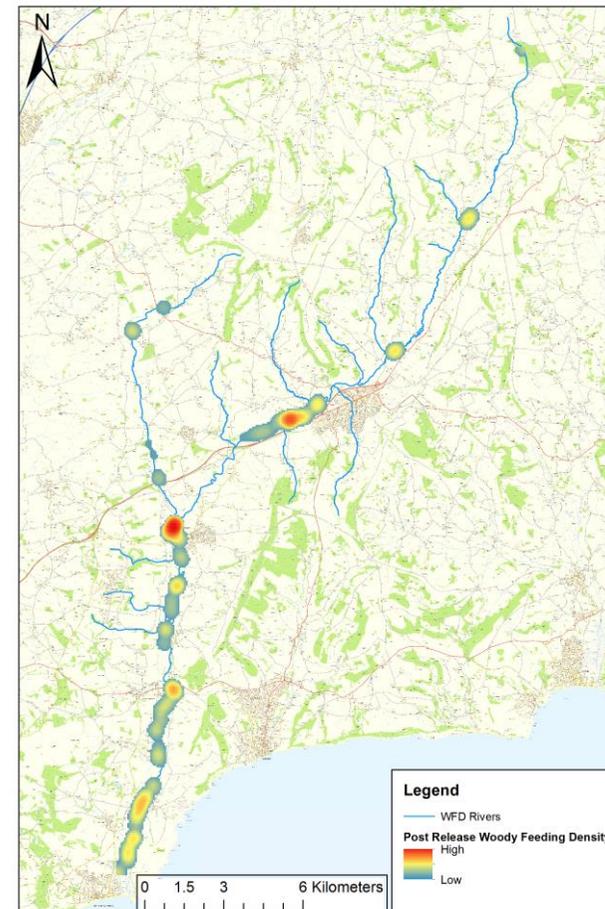
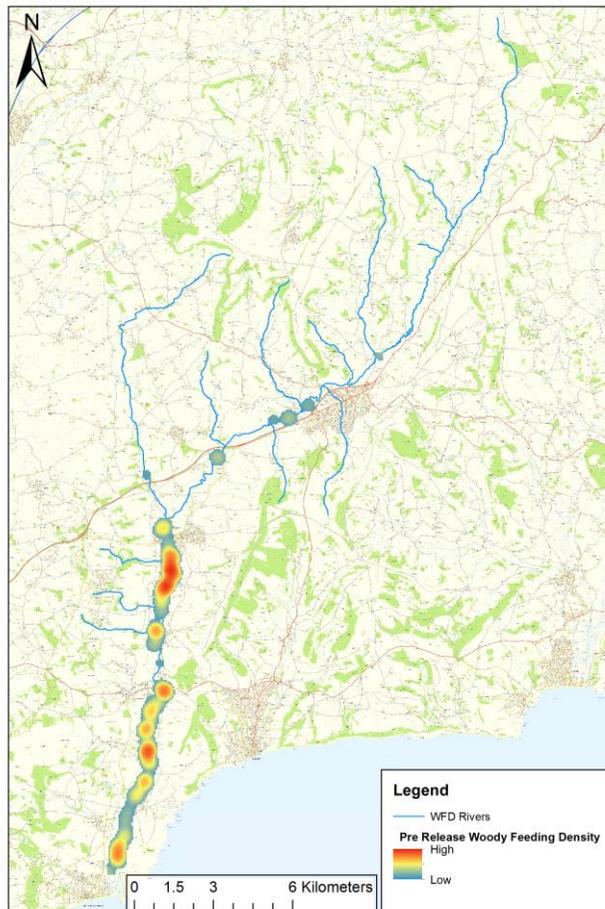
Picture left - The field signs were directly imported into different GIS layers using a Trimble Geo7X, allowing data to be mapped and analysed quickly. All field signs were recorded separately allowing recent (post-release) activity to be separated from older pre-release activity.

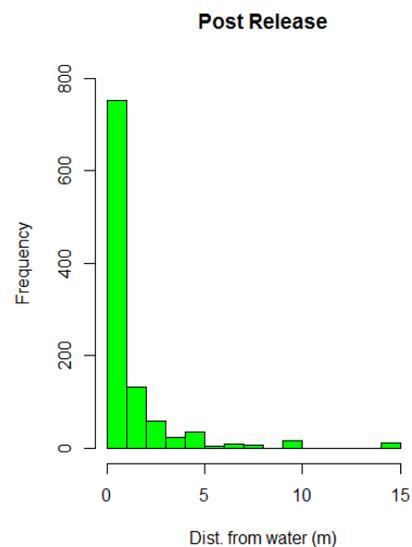
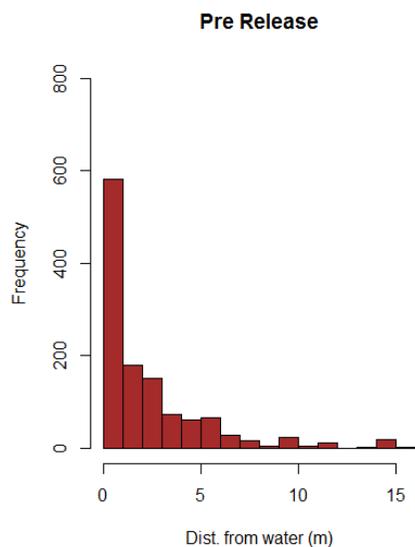
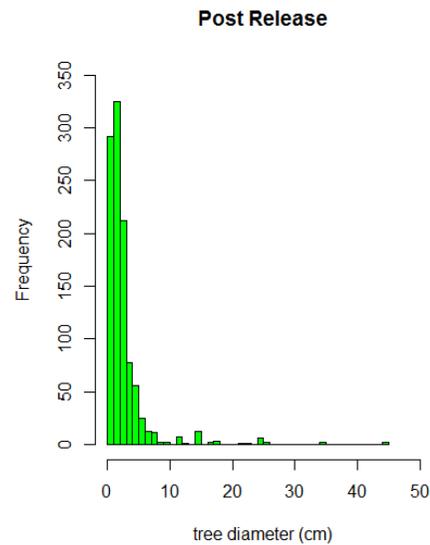
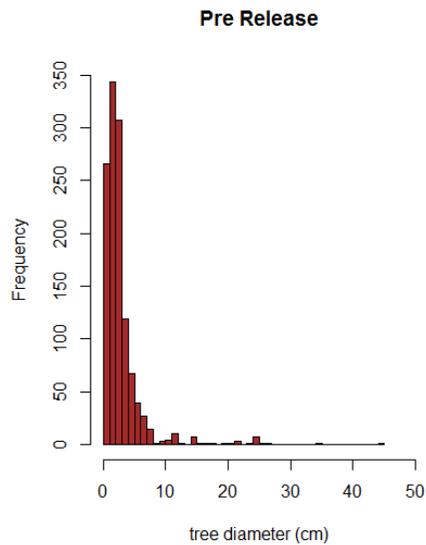


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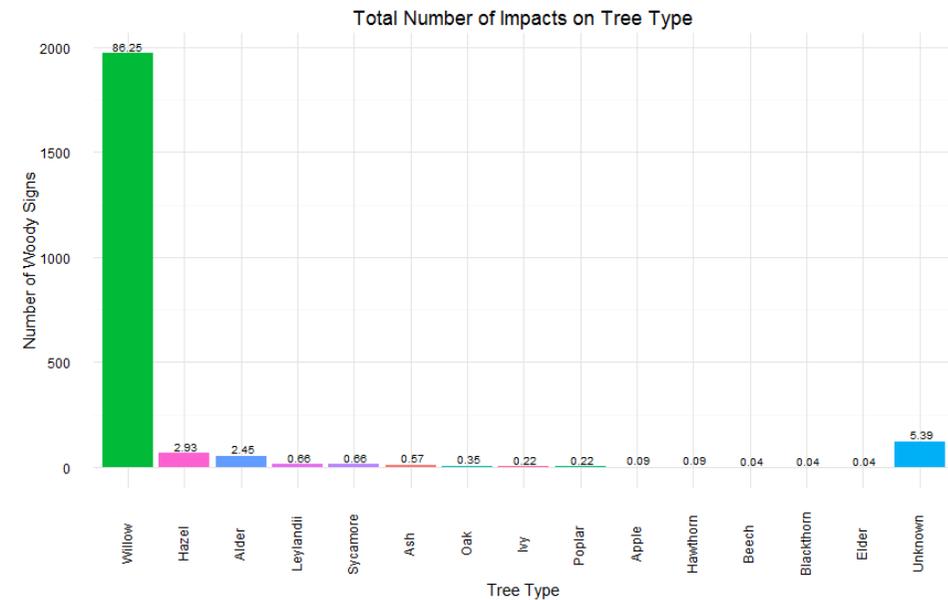
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The initial results of surveys for field signs give an overview for how the river is being used by the beavers. The map on the left shows distribution of behaviour that has occurred in the years prior to the health screening and release in March 2015. The map on the right shows more recent activity, much of it from the 2015/6 winter period, and indicates that, in addition to concentrations of activity in hotspots around dwellings, there is low level activity throughout the catchment. This is consistent with what might be expected where low numbers of beavers are dispersing unconstrained by other occupier beaver territories. (Larger scale versions are shown in appendix 5.)





A series of graphs have been produced of the additional information gathered during the systematic survey work. The data clearly highlight how willow is the primary focus of woody feeding activity making up over 86% of the trees impacted. Interestingly some initial analysis of the distance from the water of woody feeding signs, shows a statistically significant difference between the pre-release and post release field signs, with older signs being further from the water.



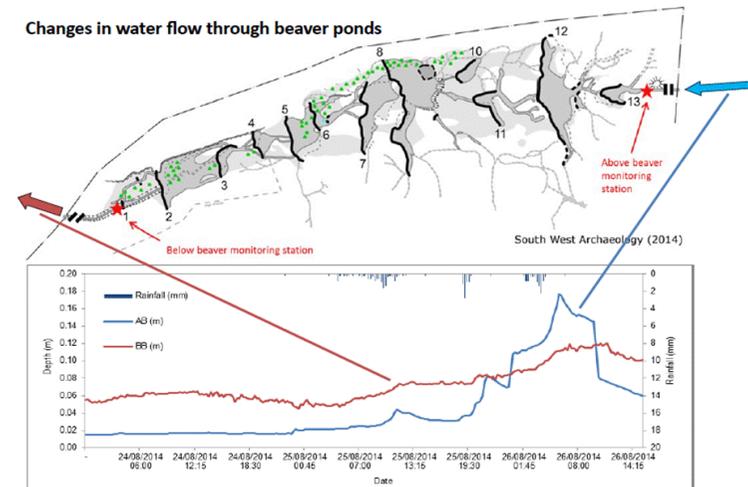
OBJECTIVE 2: IDENTIFY WIDER PUBLIC BENEFITS ASSOCIATED WITH BEAVER ACTIVITY IN THE LANDSCAPE

Principle Outcome: The value of beaver reintroduction and their influence on the provision of key ecosystem services is understood by key decision makers. Furthermore the value of having beavers in the landscape is understood and exploited by a diverse range of sectors.

Activity	2015/16			
	Qtr 1	Qtr 2	Qtr 3	Qtr 4
As part of Monitoring Framework scoping exercise, assess relevant water quality and quantity data currently being collected		PM / PAG		
Identify locations where beaver dams may be created, and with UoE devise method for collection of baseline water quality and quantity data		PM / PMG / SEF		
Work with consultant economists to devise research programme into the economic impacts within local (eco-tourism) businesses.		PM / SEF / PAG		
Identify relevant local economic / tourism data already being collected and work with local businesses to record changes that occur.		PM / SEF / PAG		
Advise local tourism providers on business generation relating to beavers in the River Otter.		PM / CEEF / VOL		
Produce final report on quantitative and qualitative assessment of the socio-economic value of beavers in the area		PM / AC / SEF / PAG		

As part of the PhD being conducted by the University of Exeter and DWT any potential benefits of the beavers in terms of water quality and hydrology will be investigated, building on datasets already collected by the Environment Agency in a number of locations.

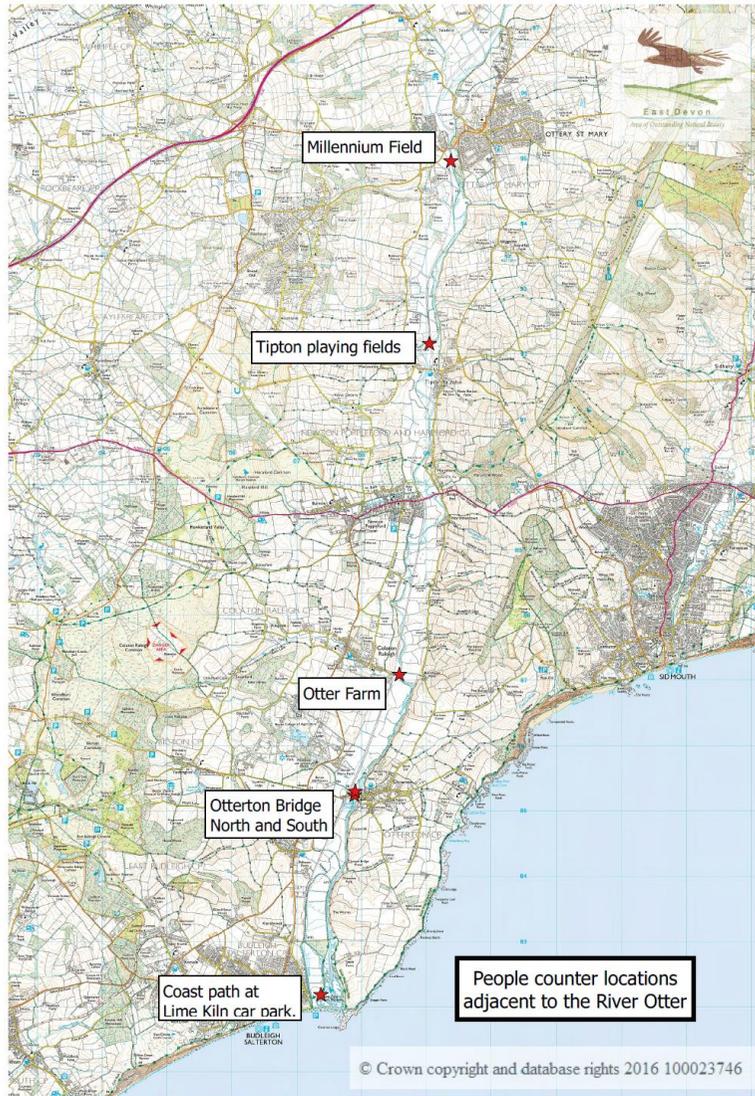
The research work on the River Otter will be supplemented by the findings from the enclosed Devon Beaver Project site where the impacts of a series of 13 dams are being investigated in great detail, with funding from Westland Countryside Stewards. The findings from this work will be published in the academic literature in 2016, and other interpretation materials will be produced which will be of use in the River Otter catchment.



Some of the preliminary raw data from the UoE hydrology equipment show how the flood peak entering the site (blue) is dissipated as it passes through the beaver dams and ponds. It also shows elevated flows leaving the site (red) during dryer periods, as the leaking dams release water.

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A number of **local tourism providers** have been contacted in the first 12 months of the trial, and some of these were invited to attend the ROBT Community and Education Forum in February 2016.

In the summer of 2015, the Otter St Mary Tourist Information Centre received a high volume of enquires about the beavers and where they can be seen, and to support them, an A2 poster was created to help publicise the beavers and the trial.

A beaver event was also organised by the Clinton Devon Estates with the new owners of Otterton Mill in February 2016 – additional events are also planned for the summer. These were very popular, and this will be an ideal site for conducting more detailed assessments of the motives of visitors to this area.

A local eco-tourism operator is assessing the potential of running low-impact tours of the beaver hotspots, but the low density of beavers and their highly mobile, unpredictable behaviour is currently discouraging them from advertising tours.

In 2015, the ED AONB staff installed a series of people counters (left) that can be used to record the usage of different paths in the valley. These are collecting detailed data that will allow usage at different times of the day to be recorded, which should allow some peaks to be attributed to beaver watchers.

OBJECTIVE 3: DEVELOP AN EFFECTIVE MANAGEMENT PROCESS FOR FREE A FREE LIVING BEAVER POPULATION

Principle Outcome: The impacts of beaver reintroduction are successfully managed and cause minimal local disruption. A representative understanding is secured of the nature and frequency of conflict and the costs / benefit analysis.

Activity		2015/16			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4
Produce a Management Strategy for the management of risks associated with a free living beaver population on the River Otter	PM / PAG / PMG				
Provide a trusted source of advice and information on impacts and mitigation, contactable through a "Beaver hotline"	PM / VOL				
Revise Management Strategy annually in light of developments in the River Otter Beaver Trial area and elsewhere	PM / PAG / PMG				
Building on the experience of others, develop a system for mitigating impacts, using contractors and volunteers to implement measures	PM / PMG / VOL				
Develop protocols with partner organisations to record and report impacts of beavers on infrastructure, and implement mitigation measures	PM / PMG / PAG / VOL				
Over time assess the most effective way of incentivising landowners to accept the impact of beavers on their land	PM / PMG				
Develop a series of factsheets on commonly encountered problems as needs arise	PM / COM / CEEF / VOL				
Publish beaver management recommendations to NE based on project experience and international input	PM/PMG				

By the end of December 2015 the **Beaver Management Strategy** was published. This strategy was produced in consultation with various stakeholders, and international experts with experience in addressing conflicts.

It contains a detailed description of the different types of beaver behaviour and how they could come into conflict with the existing land-uses within the valley. At its core is a decision making flowchart (appendix 3) which enables the ROBT to work through an agreed series of steps to resolve issues quickly alongside close consultation with landowners and statutory agencies.

It is designed to be a 'live' document that will be revised each year as different impacts are identified and new mitigation measures trialled.

The **Beaver Hotline** has now been established which consists of an email address beavers@devonwildlifetrust.org or the DWT switchboard on 01392 279244. This email address is monitored regularly, but in consultation with the statutory agencies it was decided that a 24hr number for reporting incidents wasn't appropriate and could lead to confusion. The 24hr numbers for DCC Highways and the EA will continue to be advertised as the primary numbers in case of out-of-hours emergencies, and their call handlers now have emergency numbers for the ROBT where an immediate response is required (eg a watercourse blockage, or an injured or dead beaver is reported) .

In March 2016 a new general ROBT leaflet was produced, publicising the beaver hotline. A dedicated contact card for landowners with the Project lead's details was also produced early in the project and this is now provided to all landowners who have contact with the ROBT.

As outlined in Objective1, **Site Impact Reports** are generated wherever 'complaints' are made about the impacts of the beavers. These reports detail how the decision making flowchart has been implemented, and record the resources used to address the issue. In the year to April 2016, only 3 site impact reports were made, and these were all resolved quickly and to the satisfaction of the complainant:

- The first was for a *Lleylandii* tree in a garden adjacent to the river, that had had its bark stripped in the spring. Advice was provided on tree protection and a follow up visit was made months later when beavers were again active in the vicinity.
- The second was for a small ornamental weeping willow tree that had its bark stripped. This site was visited by ROBT on a number of occasions and the tree and some of the other willow trees in the vicinity have now been protected using wire mesh by ROBT (see picture right).
- A third report was made for a beaver dam in a field ditch as outlined in appendix 5, which was removed to prevent impacts on water levels.

In both cases where trees were being targeted by beavers in particular locations, proactive work to protect other vulnerable trees has been employed. Wherever possible it is considered far more effective to be **proactively working to minimise any negative impacts** rather than reacting to conflicts once they occur. As well as deploying protective fencing, contact with the owners of a nearby riverside orchard was made to raise awareness of the need for vigilance, and potential mitigation measures that could be put into practice should it become necessary.

A large tree was protected with weld mesh in another location to prevent any further gnawing because of its location adjacent to a powerline. Although relatively minor gnawing on a large tree that the landowner hadn't complained about, it was felt prudent to minimise the risk of the tree being ring-barked so close to an overhead cable.



Protecting an ornamental weeping willow from further gnawing

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OBJECTIVE 4: UNDERSTAND THE ECOLOGY, BEHAVIOUR AND POPULATION DYNAMICS OF A BEAVER PROPULATION IN A LOWLAND, PRODUCTIVE, AGRICULTURAL LANDSCAPE

Principle Outcome: The success of the establishment of a beaver population on the River Otter is assessed, and an assessment of welfare according to their ability to adapt to an English landscape. Also a comprehensive understanding of the future dispersal and population dynamics of beavers in lowland UK river systems is developed.

Activity		2015/16			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4
Collate current and recent records of beaver distribution and produce GIS map	PM / VOL				
Devise / develop a method for recording and mapping beaver population changes, and engage with local volunteers, where appropriate, to assist with implementation.	PM / PMG / VOL				
Identify potential future release sites (if required) based on distribution of current population, and suitable habitats	PM / PMG				
Ensure all animals are tagged and their health status determined, and DNA samples taken	PM / PMG				
Carry out DNA analysis of the beaver population, to understand species, genetic diversity and population dynamics	PM / AC				
Based on DNA analysis, decide how best to augment the population with additional individuals, if required	PMG / PAG				
Identify and obtain appropriate beavers and carry out detailed health screening	PMG				
Introduce these animals into the river system in the release locations previously identified - permission required from NE and landowners	PM / PMG				
Monitor health and welfare of beavers, with veterinary intervention where required. Identify local veterinary consultants for involvement in project.	PM / PMG				
End of project - health checks of beavers	PM / PMG				
Production and dissemination of final report into health status of population and any veterinary concerns to public, livestock and wildlife health	PM / PMG				
Produce and disseminate interim reports on the population dynamics of the beavers on the River Otter	PM / VOL				
Produce and disseminate final report on the population dynamics, dispersal of the beavers and likely future carrying capacity of the River Otter	PM / PMG / PAG / VOL				

Following the issuing of the licence to the ROBT in early February, ecologists from the **Animal and Plant Health Agency (APHA)** carried out a detailed survey of the river, employing an intensive and systematic camera trapping regime.

They identified a total of 9 animals living on the river. Although there were some assumptions made, APHA concluded there were two separate family groups living to the south of Ottery St Mary and downstream near Otterton Mill, each with an adult pair, and also younger animals from 2014 breeding, and one possibly from 2013.

APHA then commenced trapping the animals to bring them into captivity. The 5 animals caught were subsequently identified as follows:

- 14th February – 23kg adult female near Ottery St Mary
- 19th February – 19kg adult male near Ottery St Mary
- 22nd February – yearling near Ottery St Mary

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- 25th February – 19kg adult male at Otterton
- 4th March – large adult female at Otterton

Following the capture of all of the adults, Defra were satisfied that the *Echinococcus multilocularis* risk had been eliminated, and so they ceased trapping. All of the trapped animals were transported to a beaver holding facility near Launceston, and held there between the dates captured and their later release.



With the four adults in captivity, Defra employed **expert vets from the Royal Zoological Society of Scotland (RZSS) to carry out the detailed screening for *E. multilocularis* on Monday 9th March 2015.** At the same time, DWT employed the RZSS team to carry out a more detailed health screening and to take samples to be tested for a range of other pathogens and notifiable diseases, including Giardia, Leptospirosis, bovine tuberculosis, and others. DNA samples were also taken, initially to confirm the species as Eurasian and of Bavarian origin, but also to allow the interrelatedness of the population to be assessed. The full results of this health screening and the genetic testing were published by RZSS in a detailed report “*Health and Genetic Screening Report for Wild Beavers on the River Otter, Devon*” by Campbell-Palmer, Girling, Senn and Pizzi. (April 2015.)

It took 2 weeks for all the various test results to come back from the different laboratories, and following confirmation that the beavers were fit for release, the **five beavers were released back into their two territories at dusk on 23rd and 24th March 2015.**

The licence conditions require all of the captured animals to be fitted with PIT tags (subcutaneous microchips), and visible ear tags. Over the following few months, both family groups were monitored by DWT staff and various local interested naturalists using camera traps and direct observations. The records are then plotted onto GIS maps, which show where the particular animals are most active.

As with all nocturnal and mobile mammals, the **monitoring of individual beavers** is not without its challenges, and to assist with this, sightings from volunteers and members of the public have been particularly welcome. The role of the ear tags in identifying the individuals has been useful for keeping track of particular individuals, especially the yellow tagged female that is often very visible, and a map showing the distribution of her sightings in 2015 is included in appendix 5. The map clearly shows that the majority of the activity

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was in the area near the Ottery St Mary natal burrow during the summer of 2015, and this was the area where she was seen with three kits later in the summer. It appears this family moved location in the autumn and prompting the BBC website to report that ‘The Devon Beavers have disappeared’ in an attempt to publicise their local news magazine programme ‘Inside Out.’

Generally the incidental recording suggests that the beavers are very mobile, moving regularly between different burrows for much of the year, and even using different parts of the river seasonally. The Otterton pair also moved to an unknown location for much of the summer of 2015, around the time when they would have had dependant kits, although they have since reappeared in their original territory but it is not clear whether any 2015 juveniles are with them. It is suggested that the low population density and the interrelatedness of the population means that territory boundaries are less rigid and the animals are using large stretches of the river unconstrained by occupied neighbouring territories.

In order to understand the detailed movements of individual beavers, attaching transmitters was investigated. Detailed **radio-tracking and GPS tagging** studies have been undertaken in Norway, and some tag deployment was undertaken at the Scottish Beaver Trial. Tag retention is notoriously difficult in beavers, and various attachment and insertion techniques have been employed but they all have associated welfare implications that need careful consideration. This and the fact that they only provide data for short periods of time, means that unless the technology improves significantly, it is not currently being explored further.

Based on the detailed fieldwork undertaken in the autumn and winter 2015/6, and the beaver sightings and camera trap surveys, at the end of 2015/16 **it is believed there are now three pairs establishing discrete territories**. Two of the pairs are assumed to be the same animals release in March 2015, but the exactly identity of the third pair isn’t clear, and efforts were made in March 2016 to catch and tag them. Despite a period of six trapping nights, it wasn’t possible to capture and tag them, or obtain DNA samples at this point. Earlier in the winter they had been tracked to a particular burrow, but this was washed away in the December 2015 floods making it harder to ascertain where they were living. Assuming this female could be pregnant, it wasn’t felt prudent to continue trapping into April.

Trapping beavers requires the use of large metal traps, here being set in March 2016.



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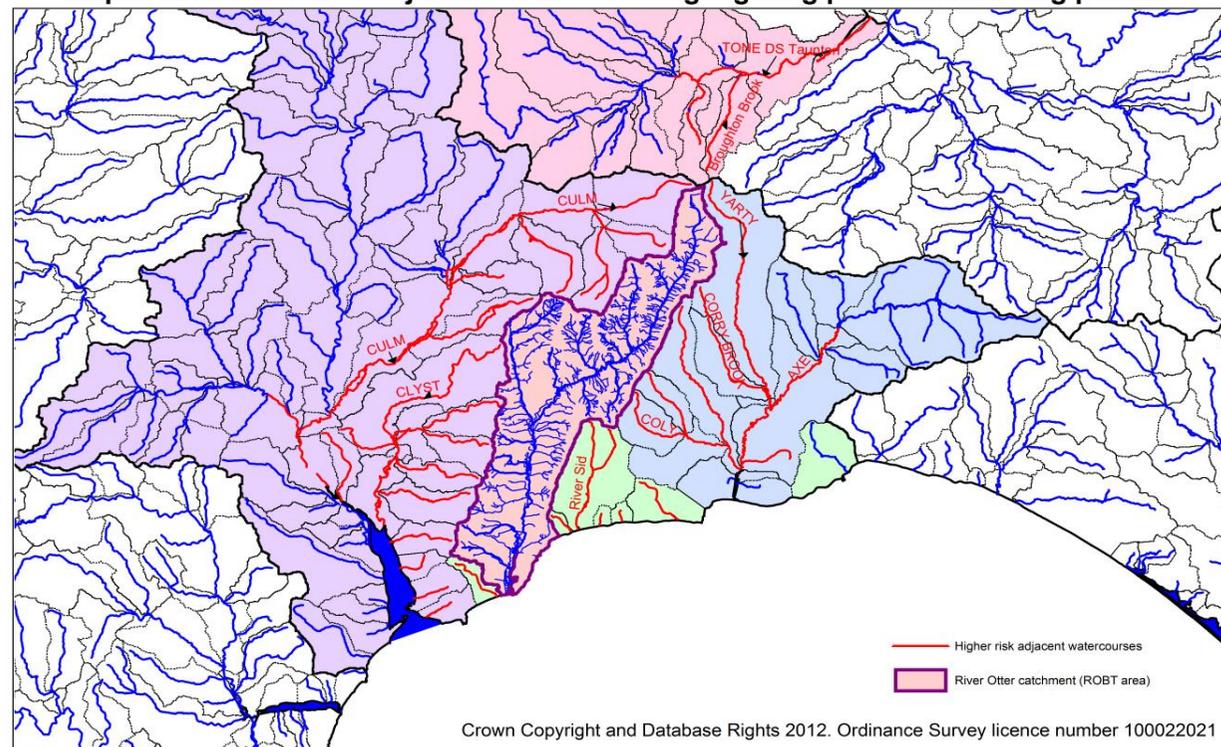
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As would be expected the **mapping of field signs** is proving to be more effective than the direct monitoring of individuals. Signs of activity are systematically surveyed and input directly into GIS layers in the field using a Trimble GPS device. Vegetation height and seasonal beaver behaviour makes the winter the most effective time to conduct surveys for gnawed wood and other signs of activity, and long stretches of the river have been surveyed in 2015/6. These data show focal points of activity in certain areas and, over time, it should reveal patterns of behaviour that explain how the beavers are using the available food resources in the catchment and over the different seasons, and whether distinct territory boundaries form. See Appendix 5.

The very wide distribution of records supports the observations that one or more beavers are moving freely throughout the catchment. A record of beaver activity in Otterhead Lakes in Somerset in the headwaters of the catchment is attributed to a young animal dispersing in search of potential mates and suitable habitat. Minor activity was recorded here in September 2015.

The ROBT boundary includes the entire catchment and in the event that beavers attempt to cross into neighbouring catchments, a condition of the licence is that it should be retrieved. The availability of suitable habitat and low density of beavers currently in the River Otter catchment would not be a factor pushing the beavers to disperse outside the catchment.

Map of River Otter and adjacent catchments highlighting potential crossing points



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The combination of the APHA survey work, the genetic testing by RZSS, the historical records, and recent behavioural observations have enabled one scenario for a family tree to be produced (appendix 2). The conclusion is that there are currently around 11 beavers living on the River Otter (this is assuming the Otterton female hasn't successfully reared kits).

The family tree contains assumptions, but it suggests that the large adult female (D3 / F0815) is one of the founder animals, and now appears in three different places in the family structure, having bred with her male offspring. The DNA analysis certainly illustrates that the population is small and inbreeding has and is taking place. It is highly undesirable for the long term health of the animals for this degree of inbreeding to continue, and could result in health and welfare issues in the future. The ROBT must plan prudently for the event that this group of animals is the founder population for a longer term re-introduction in the catchment at the end of the trial, and it is imperative that diverse genetic stock is introduced.

In December 2015, following the submission of detailed additional information, Natural England confirmed that up to 5 beavers (unrelated to those already in the river) could be released in order to enhance the genetic diversity of the population.

The initial site that was identified in the summer of 2015 was however naturally colonised by a pair of beavers that established a burrow. This means that this site is no longer available, and an alternative site has now been identified, with release of the first pair proposed for the spring 2016.

A young pair of captive bred beavers were subject to general health testing and genetic screening on 26th January 2016, and cleared for release (right). Because their origin is known, their risk of carrying *E.multilocularis* has been eliminated.



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OBJECTIVE 5: INCREASE KNOWLEDGE AND AWARENESS WITH LOCAL COMMUNITIES AND OTHER KEY STAKEHOLDERS OF BEAVERS AND THEIR INTERACTIONS WITH THE LANDSCAPE

Principle Outcome: Beaver ecology and impact is well understood. The community is well informed and able to make representation on the future of the beavers. The community have benefitted from a diverse interpretation programme and have been driven the opportunity to re-connect with and value nature.

Activity		2015/16			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4
Produce ROBT communications and community engagement strategy	COM				
Initial feedback meeting for local community regarding licence, next steps and begin to recruit Volunteer base	COM / PM				
Deliver workshops on beaver field sign identification for stakeholders and volunteers	PM				
Encourage submission of recent and historical records via project website , dedicated email and hotline	PM / VOL				
Produce pack for Volunteers, incorporating background on beaver ecology, the ROBT and health and safety for survey work	PM / VC				
Based on Monitoring Framework and other requirements, recruit a team of volunteers to assist with implementation	PM / COM / CEEF / VOL				
Provide detailed training for volunteers to allow them to take on their particular roles and responsibilities safely and effectively	PM / VOL / VC				
Encourage and motivate volunteers, ensuring quality of data collection and safe working practices. Host annual update event / conference	PM / VC / COM				
Develop and maintain a system of regular updates on Social Media	COM / PM				
Develop and maintain a ROBT website	COM / PM				
Establish and publicise a Beaver Hotline / email system for reporting observations / incidents / areas at risk	COM / PM				
Produce quarterly ROBT newsletter	COM / PM				
Run regular guided walks on River Otter, increasing awareness and understanding of the beaver population	PM / VOL				
Hold open days at Devon captive beaver trial area for key stakeholders from the Otter valley and elsewhere	PM				
Consider exchange visits to Bavaria and Brittany for locals to develop broader understanding of beaver ecology and management solutions	PM / PMG				
Provide talks for key stakeholders in accordance with communications and community engagement strategy	PM				
Visit schools in the catchment to raise awareness of the project	COM				
Identify and engage with local businesses / forums / tourist boards	PM / PAG / CEEF				
Provide talks for local interest, community groups and key stakeholders	VOL/PM				
Work with documentary film makers to document core aspects of the project	COM/PM				
Work with media to disseminate accurate information about beavers and the ROBT	COM/PM				
Devise and implement a qualitative sectorial assessment of changes in perception regarding beavers in the River Otter	COM/SEF/PM				
Carry out a mid term formal public and stakeholder consultation exercise	COM/SEF/PM				
Carry out a final public consultation and stakeholder consultation exercise	COM/SEF/PM				

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Date	Event	Attendees
12/01/2015	Talk to Exmouth DWT Local Group	100
14/01/2015	NE Public consultation farmer meeting	
14/01/2015	NE Public consultation meeting	
14/01/2015	Talk to Merton and Huish Wildlife Group	10
06/02/2015	DWT Public drop-in meeting in Ottery	
28/03/2015	Presentation to The Essential Beaver Conference.	130
11/04/2015	Sidmouth In bloom - discussion on beavers (Sam B)	35
21/04/2015	Presentation to DWT Programme Information Day	100
24/04/2015	Honiton National Trust branch (Sam)	70
29/05/2015	Presentation to University of Exeter - Impact seminar	50
03/06/2015	Presentation to Kenton WI	15
08/06/2015	Exmouth third age	30
11/06/2015	Festival of nature with npl and avon wt.	70
19/06/2015	Providing expertise to Welsh release project - initial meeting	20
22/06/2015	Beaver Summit in Birmingham - input of DWT experience	10
30/06/2015	Talk by Paul Martin to Year 4 at Ottery St Mary Primary School	30
14/07/2015	Talk to Ottery residents at the Institute	40
15/07/2015	Talk to East Devon AONB forum and Ambassadors	40
11/09/2015	Talk to Natural England Office	20
12/09/2015	Talk to DWT Volunteers Forum	30
14/09/2015	Talk to East Devon local DWT group	50
03/10/2015	Talk to DWT AGM and members day	160
29/09/2015	Wolborough Residents Association - Newton Abbot	60
15/10/2015	Talk to SWW Rec and Con committee	20
28/10/2015	Mammal Society Symposium - 2 days - 2nd day on ROBT case study	130
05/11/2015	Meeting with Rory Stewart MP, plus WE and DEFRA reps	6
09/11/2015	Talk to Exmouth DWT Local Group	60
13/11/2015	Talk to Barnstaple DWT Local Group	63
19/11/2015	Talk to DEBI Awards at Met Office	100
24/11/2015	Talk to Otter Valley Association and Otterton Garden Club	110
07/12/2015	Talk to East Devon Catchment partnership	40
08/12/2015	Talk to Zoological Society for London, Regents Park	166
14/12/2015	Talk to South Devon College	80
15/12/2015	Talk to Bovey local group	70
11/12/2015	Talk to Friends of the Commons (CDE)	50
02/12/2015	Carrousel After School Club, Budleigh Salterton (CDE)	11
15/01/2016	Presentation to Fisheries Forum	18
16/01/2016	Presentation to BCWVG	60
04/02/2016	Talk to Bratton Clovelli WI	25
05/02/2016	ROBT Community and Education Forum	53
16/02/2016	Otterton Mill event	175
18/02/2016	Talk to Budleigh Salterton Probud Group	45
25/02/2016	Talk to EA NLS staff at Starcross Labs	40
25/02/2016	Talk to Otterhead Forest Schools staff	8
24/02/2016	2 half day education visits with Drake and Otterton Schools (CDE)	55
07/03/2016	Talk to Oxford Natural History Society	70
08/03/2016	Talk to EA Area based controllers	15
10/03/2016	Talk to Tamar Fisheries Forum	10
16/03/2016	Talk to Exeter Local DWT Group	54
18/03/2016	Talk to Chudleigh and District Amenity Society	50
23/03/2016	Presentation for NE mtg re Class licence	12
29/03/2016	Series of talks at new Seaton Jurassic Visitor Centre	35
	TOTAL =	2701

Communications work, both in the local community and through the national and local media has been a major focus and measure of success during the first year of the trial. The production of a **Communications Strategy for the ROBT partnership** was key to ensuring that the different perspectives and priorities of the partners was adequately represented in the Trial communications work. A plan is now in place, and will be reviewed at least annually to reflect changes in perception toward the beavers and media priorities.

In the period between April 2015 and March 2016, a total of 46 **talks and presentations** were given to a wide range of audiences (see table left). The table also includes a series of 6 events in early 2015 around the time of the trapping and release of the beavers. In total around 2,700 people were directly engaged. As well as talks to many local groups and stakeholder organisations, presentations have also been given to the Zoological Society for London, the Oxford Natural History Society and the Essential Beaver Conference in Scotland.

With such huge interest and support from the local community in the build up to the licence being issued, it was vitally important to maintain their interest and engagement and increase knowledge and awareness. On 14th July a public meeting was held at the Institute in Ottery St Mary. This followed the earlier meetings held in Ottery during the lead-up to the licence application which had attracted over 100 attendees, but with the controversy taken from the issue, the number attending was reduced to 40.

This local support and involvement has been now continued through the establishment of the **ROBT Community and Education Forum**. This Forum includes invited members of the local community, including some landowners, and potential volunteers to meet annually to hear the latest news about the project and to feed in their knowledge and experiences. The Forum is chaired by Cllr Claire Wright, and will now include specialist working groups delivering different aspects of the trial.

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In order to begin the **recruitment and training of volunteers** an Information Pack has been produced and an application form drafted. This was initially disseminated at the Community and Education Forum in February, and during 2016 it is anticipated that many of the 35 people that registered to volunteer will be involved in different aspects of the Trial. Informal training has been undertaken and this will be extended further in 2016/17.

DWT Education Officer, Paul Martin, has been working closely with Kate Ponting at Clinton Devon Estates (CDE) to produce a **Beaver Education Pack** which is now being provided to schools in the area. The pack includes a wide range of different education materials presented on a USB memory stick, to encourage maximum use by schools. (Appendix 4)

The demand for **guided walks along the River Otter** by locals, tourists and stakeholders organisations has been insatiable. The Ottery St Mary Tourist Information Centre has reported “Where can I see the beavers?” as the most common question they are being asked. Being nocturnal animals, beavers are not easy to see, but their behaviour in the summer evenings around Ottery St Mary and Otterton Mill during 2015 allowed many people to watch them.

A series of public guided walks were held during the summer months, in order to give people a chance to see the sites, and even the beavers. Three dates were publicised, but with the numbers restricted to 40 people per walk, they quickly reached capacity, so an additional date was arranged, which also reached capacity with those who expressed an interest in attending one of the other events. Amazingly on one of these walks with 40 people present, the female beaver was a great ambassador for her species and was clearly seen by the group standing on the bank only 20m away.

From the period just prior to the release through to the end of March 2016, 12 guided walks were provided for a total of 331 people.

Date	Guided Walks on River Otter	numbers
17/03/2015	Visit with Natural England N Devon team	15
11/05/2015	Introducing NE board to site + FE and EA	15
05/06/2015	CDE school visit	52
16/06/2015	Guided walk with Cornwall mammal group	15
15/07/2015	East Devon AONB ambassadors guided walk	40
27/07/2015	Guided walk for local residents	40
07/08/2015	Guided walk for NE legal team	9
11/08/2015	Evening guided walk for Devon Mammal Group	10
26/08/2015	Evening guided walk	44
01/09/2015	Evening guided walk	40
22/09/2015	Evening guided walk	40
21/01/2016	Training day on field signs for professional partners	11
	TOTAL =	331

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Satisfying the demand to see the beavers raises a number of issues. With this many people visiting the river, there is likely to be some disturbance of the wildlife including the beavers themselves. Many of the people that attended guided walks returned individually afterwards to try and spot the beavers on their own. Both stretches have public footpaths heavily used by dog walkers, and the presence of dogs in the river is considered to be more disturbing to the beavers than wildlife watchers sitting quietly on the riverbank. Indeed a video has been received that clearly shows a single dog repeatedly harassing the Ottery St Mary female. The owner of this particular dog wasn't traced.

Sea-trout fishermen fishing at dusk reported extra people as a disturbance to them, and the landowners in this stretch have also expressed concern about people straying from the footpath, trampling vegetation and causing a nuisance. The ROBT provides advice on where and how to see the beavers and provides clear information on following the county code. The potential negative impacts of a minority of overzealous beaver enthusiasts needs to be balanced with the local tourist businesses that will have benefitted from the presence of the beavers and the public access to them. This economic impact will be quantified during the Trial term.

DWT also continues to manage the **enclosed Beaver Project** in West Devon, and is able to use this site for **walks and education visits**. The table (right) shows these 9 visits in 2015/16.

The contrast with the behaviour of the beavers in this enclosure with that on the River Otter is particularly interesting, and useful for explaining the cause of dam building in particular.

A decision was made early in the Trial not to create a dedicated website for the Trial but to use the **DWT website** supported by the communications team. The DWT website is currently undergoing a major revision and information on the ROBT will be a prominent feature.

Date	Group Visits / Event at Enclosed Beaver Project	Numbers
29/04/2015	National Trust Team Leaders from SW	15
29/05/2015	Clinton Devon Estate Managers mtg	6
29/05/2015	VIP and 8 kids	9
14/06/2015	Merton and Huish Wildlife Group	8
25/07/2015	Halsdon Local DWT Group visit	24
07/09/2015	Site visit with NE legal team	9
06/10/2015	CIEEM Group from Derek Gow	15
16/10/2015	WRT Trustees	10
19/11/2015	Visit with National Trust staff and volunteers	20
TOTAL =		116

On **social media**, there have been a regular series of Tweets and Facebook posts about the beaver work both at the River Otter and also our fenced enclosure. Of particular note was the interest secured by the posting of a graph showing the response of common frogs

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to beaver ponds in our enclosed site, showing an increase from 10 clumps of spawn in 2011, to 523 clumps in 2015. On Twitter this was seen by up to 19,000 people, with 41 re-tweets and 23 favourites. On Facebook it was seen by 23,416 people, with 377 likes and 287 shares.

In the summer of 2015, the London media company **Seenit produced a short video** about the project which was widely shared on social media and which is regularly used in talks and presentations. Using modern low-cost techniques it allowed us to interview a range of local people including businesses and school children about the beaver, and edit their thoughts into a dynamic and eye-catching film.

<https://vimeo.com/133285004>

During this year **a visit to see beaver management in Bavaria** was organised by Derek Gow consultancy. Staff from CDE and NE were able to attend and visited a series of sites where different techniques for managing conflicts were being used. These included flow devices through dams to reduce extent of collateral flooding.

As outlined under Objective 3, a Beaver Hotline has been established which allows contact to be made with the project easily. This is now being further promoted through the new **ROBT Project Leaflet** that was published in March 2016. This leaflet was sponsored by the Brightsea Print Group.

Three **Beaver e-newsletters** have been produced in 2015-16 and these have been circulated to a database of ROBT beaver supporters which is now established. To join this list, people are asked to fill in a slip on one of the leaflets, add their name to a form at one of the events, or just email beavers@devonwildlifetrust.org

The ROBT also featured in a **new book published** in February 2016 as part of the Bradt Slow Travel Series “East Devon and the Jurassic Coast.”



Children getting up close and personal with a stuffed beaver at a Clinton Devon Estates event in 2016

The public interest in the project has also been reflected in the extensive media coverage.

The day that the licence decision was announced by Natural England in late January attracted the largest media interest with over 40 media stories published and broadcast. The actual release event itself attracted more limited coverage, partly because of the deliberately restricted media presence at the event. Springwatch followed the health screening, the release and also filmed a piece at the enclosed beaver site which were broadcast over three consecutive nights from 2nd June 2015. (With 2.46m viewers for the Tuesday programme).

The other significant media event was the announcement of the birth of the kits at Ottery and the release of associated footage. At least 52 separate media outlets covered the story in different forms (as detailed below) on 24th June and subsequent days in what was an extremely busy period for all partners and staff involved.

The table below details the results of the media work throughout the reporting period, showing 97 different articles and broadcasts

Date	Broadcaster / media outlet / publication	Heading / Focus of article
04/04/2015	Veterinary Record (April 2015)	Beavers released into the wild
01/05/2015	BBC Wildlife Magazine (May 2015)	Beavers are Go! - piece on beaver re-introduction (with photo) - P51
15/05/2015	10 Radio, Somerset	10 Parishes Community show - 1/2 hour pieces on beaver re-introduction
18/05/2015	10 Radio, Somerset	10 Parishes Community show - 1/2 hour pieces on beaver re-introduction (repeat)
19/05/2015	Western Morning news	Springwatch will include Devon beavers
02/06/2015	BBC Springwatch	film about the health screening - 2.46m viewers
03/06/2015	BBC Springwatch	film about release at Ottery - 2.03m viewers
04/06/2015	BBC Springwatch	Film about Boldventure - 2.28m viewers
06/06/2015	BBC website	Article on re-wilding
24/06/2015	BBC Radio 5 live	Interview with Mark Elliott on breakfast show
24/06/2015	Mail online	Made in England, the next beaver generation
24/06/2015	BBC news - breakfast (national)	Showed video
24/06/2015	BBC Spotlight (breakfast)	Showed video
24/06/2015	BBC website	England's first beaver colony has kits
24/06/2015	Guardian on line	Baby beavers born to England's first beaver colony

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24/06/2015	BBC Radio Devon - breakfast	Interview with Mark Elliott on breakfast show
24/06/2015	ITV - Good Morning Britain	Showed video of kits
24/06/2015	ITV Local news - Westcountry Today	Video and interview with Pete and Tom
24/06/2015	ITV National News	Video and interview with Mark and Tom
24/06/2015	BBC Spotlight (lunch)	Short intro to beaver video and impacts
24/06/2015	BBC Spotlight (evening)	Piece about impacts incl. piece by Angling Trust
24/06/2015	BBC Earth webpages	First footage of Devon's wild beaver babies
24/06/2015	ITV News website	England's only wild beavers give birth
24/06/2015	Metro	Article not copied
24/06/2015	Western Morning news	First dip footage of kits and beaver colony grows
24/06/2015	The I newspaper	Going swimmingly – England's wild beavers welcome babies
24/06/2015	Daily Mail newspaper	Made in England, the next beaver generation
24/06/2015	Telegraph website	Beaver kits born in English river for first time in 500 years
24/06/2015	The Times	Beavers have first kits (short piece)
24/06/2015	BBC Newsround	England's wild beaver colony has babies
24/06/2015	BBC R4 Today programme (0605)	headlines
24/06/2015	BBC Radio 2 08:10	Claire Marshall
24/06/2015	BBC Radio 2 (news headlines) 08:04	Moira Stuart
24/06/2015	The Guardian online	
24/06/2015	Channel 5 News	
24/06/2015	The Independent page 6)	
24/06/2015	The Sun (page 19)	
24/06/2015	The Daily Express (page 23)	
24/06/2015	The Daily Express	
24/06/2015	The Daily Telegraph (p12)	
24/06/2015	Technie News	
24/06/2015	Uncover California	
24/06/2015	Wired	
24/06/2015	International Business Times	

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24/06/2015	The Ecologist	
24/06/2015	Gloucestershire Echo	
24/06/2015	Cranbrook Herald	
24/06/2015	Torquay Herald Express	
24/06/2015	Belfast Telegraph	
24/06/2015	Irish Examiner	
24/06/2015	BT.com	
24/06/2015	Plymouth Herald	
24/06/2015	Exeter Express & Echo	
24/06/2015	The Courier	
25/06/2015	Exmouth Journal	Taking a first swim - beaver babies on the river
25/06/2015	Channel 5 News	
26/06/2015	The Guardian (week in wildlife)	
27/06/2015	Take Part.com	
28/06/2015	The Times - Charles Clover piece	Britain's ripe for rewilding but we need to write the rulebook first
01/07/2015	The Otter Magazine	Article "Beavers on the Otter" with a Coypu photo
01/07/2015	Wired magazine	Watch Britain's first beaver kits take a dip
07/08/2015	Exmouth Journal website	Wild beavers growing up fast
27/08/2015	Radio Exe	Interview about water quality
02/09/2015	Shooting Times and Country Mag	Beavers are back, but are they welcome
07/09/2015	Wall Street Journal	British beavers gnaw their way back but are they worth a dam
18/09/2015	ECOS journal 36 (2)	Return of the beaver
18/09/2015	BBC Radio Devon	20 minute interview with Fitz
01/08/2015	The Landsman	Beavers Back in England
01/10/2015	East Devon AONB Annual review	River Otter Beaver Trial
30/10/2015	BBC Inside Science	Piece about rewilding with Peter Smith and CLA - us not involved
01/11/2015	BBC Spotlight	Piece about the missing beavers - with Tom Buckley
02/11/2015	BBC Inside Out	10 minute piece with Tom Buckley
13/11/2015	New Scientist	Should the UK bring back beavers to manage floods?

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03/11/2015	Western Morning news	Devon beavers alive and healthy
02/11/2015	Western Morning news	Concern Devon beavers scared away
19/11/2015	Western Morning news	Devon beaver colony prevent floods boost fish
20/11/2015	Countryfile Magazine website	Beavers boost fish populations
19/12/2015	British Wildlife	Article about the mammal soc. symposium and outcomes
22/12/2015	BBC Radio Devon	Interview with Steve about re-appearance of beavers
22/12/2015	Western Morning news	Missing beavers are back - at new locations on river
22/12/2015	Western Daily Press	England's only beavers - found after 2 months
22/12/2015	ITV news website	Conservationists breathe sign of relief as beaver activity spotted
	Devon Life Magazine	Wetland Engineers
	Otter Valley Association - Winter newsletter	Beavers on the Otter
01/01/2016	newsletter	
09/02/2016	Western Morning news	A natural ally in the fight against floods
10/02/2016	BBC Radio 4 - Farming Today	Interview with Richard Brazier
14/02/2016	Observer	Beavers at Work: Devon beavers reveal their flair for fighting floods
14/02/2016	Guardian website	Beavers at Work: Devon beavers reveal their flair for fighting floods
Feb-16	One Magazine, Issue 74	The beavers are back
Winter 16	Devon Mammal Group newsletter	New kits on the block
03/03/2016	The Times online	Weather Eye: beavers
Feb-16	BBC 1	Holiday of my lifetime with Len Goodman
Mar-16	Book - publisher Bradt	East Devon and the Jurassic Coast
20/02/2016	Daily Telegraph	The Creature Calendar - beaver
22/03/2016	Independent newspaper	Nature Studies by Michael McCarthy
22/03/2016	Independent website	Nature Studies by Michael McCarthy
22/03/2016	I Newspaper	Nature Studies by Michael McCarthy

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Beavers at work ... Devon dwellers reveal their flair for fighting floods

After a 400-year absence, the industrious rodents are back. Dan Glaister went to the river Otter to find how their reintroduction has led to biodiversity and cleaner water

"Look at these teeth marks!" Professor Richard Brazier pauses, mud oozing over his Wellington boots, to admire the work of a pair of beavers who have been introduced into a patch of Devon woodland. "Just look at the size of them!" He runs his fingers along the incisions left in the exposed trunk of a recently toppled tree, before turning to survey the devastation around him.

The devastation is part of a scheme that backers hope will provide a template for a more balanced approach to flood prevention. The government is spending £3.5bn on flood management in the course of this parliament. As flood events such as those seen in Cumbria at the end of last year become more common, so attention has turned to flood

management, with a call for resources to be allocated not to building flood defences to deal with the water when it arrives downstream but preventing it getting there at all.

The beavers resident on the three hectares of woodland near Okehampton in Devon could be part of the solution. In the five years since they moved there, they have toppled trees, gnawed bark, dug channels, constructed dams and made a rather impressive home for themselves.

Richard Brazier says that beavers are a keystone species for the river.

"Prior to working with beavers we'd never really come across animals that would disrupt your work so much," says Brazier, a hydrologist at the University of Exeter, as he surveys the tangle of branches and tree trunks.

But there is hope, too. New shoots are sprouting from the felled willows and a closer inspection reveals that beneath the devastation lies further evidence of new life promoted by the beavers' work. "They are a keystone species who are obviously engineering the environment to their own benefit," says Brazier. "But what's interesting is all the other benefits."



The Devon project targets three key indicators: water storage, flood attenuation and water quality. The beavers are, they believe, helping in all three. The 13 dams they have built along the 150 metres stretch of water have increased water storage capacity, eased out the flow of water and improved the quality of the water that emerges from the dams. "This was a small stream that, before, would only have held a few hundred litres. Now it can hold 60,000," he says.



Brazier profiles a graph showing that the dams have contained a sudden fall, slowly releasing it along a "staircase" of sandbars that occur where water is gently channelled downstream, while also

providing a resource in times of drought. "There are 20 hectares of intensively managed grassland feeding into the dams - bringing manure, slurry, some organic fertiliser," Brazier says, standing at the last of the network of dams. "You

can see the quality of the water here at the bottom. Beaver activity has filtered out the impurities really effectively, like a good reed system might do."

"The level of sediment coming out of the dams is so low that the deposits of



A young beaver, known as Kit, on the New Otter. The animal was born on the river during the trial. The programme has achieved a positive result. Photographs by Nick Martin, Stuart Stock, Richard Brazier

nitrogen and phosphate remaining in the water do not register on the university's equipment.

Mark Elliott, who leads the beaver project for the Devon Wildlife Trust, pulls a large stone from the weir. On the underside, a small community of grubs and larvae waits and squirms. They are caddisflies and mayflies. "What's happened here is transformational," he says. "You have this incredibly complex mosaic of a transitional, dynamic habitat. There's now a complex beaded stream providing a habitat for acedrae, water-mosses, bog pimpinell, herons, kingfishers, water beetles and damselflies. Five years ago when we started out, we didn't know where we were going to get."

The trust runs a beaver programme on the river Otter in Devon, and two programmes have run in Scotland, but it is the scheme near Okehampton that has provided the most controlled environment and the most reliable data.

"We obtained a five-year licence and trial to release beavers from [conservation body] Natural England," says Elliott. "We were interested to see what they would do with the encroaching scrub. It's hard for farmers to manage. What we should see is landowners getting a payment for storing water on their land, to go alongside the stewardship schemes for wildlife. We're trying to understand how beavers and people can co-exist by studying the impact on farming, wildlife, ecology and tourism."

"The biggest concern the landowners have expressed is not about the beavers,

but about the people that come with the beavers - the interest we've had and the tourism boost on the river Otter have been extraordinary."

But Paul Cottingham, an environmental adviser for the National Farmers Union in the south-west, sees the contribution beavers might make to flood management as marginal.

"If the question is about how we manage flooding, rewilding and the reintroduction of beavers is not a priority for us," he says. "This is a very emotive topic; they look very good. But as soon as they become a self-sustaining population they become more protected than you and your child."

"Almost everywhere there are beavers - in Eurasia or North America, say - there have been issues of crops being flooded, impact on roads and infrastructure. This tends not to occur initially, but 10 or 20 years on. The main point for us is not dismissing them, but they're moving into a landscape that is modified and

'The beaver activity has filtered out the impurities, much as a really good reed system might do'
Richard Brazier, hydrologist

managed by humans, and they will need to be managed. The question is, how do we do that?"

Many of the concerns about the reintroduction of beavers could be rooted in the fact that they have been absent for 400 years. An indigenous species, they were hunted to extinction for their fur - used primarily to make hats - their meat and their castoreum, a secretion that was used in medicines.

Perhaps the most common misconception about beavers is that they will eat all the fish in the newly clean rivers, a charge repeated by Labour MP Mary Creagh during a select committee hearing into the government's response to flooding. It was pointed out that beavers are actually herbivores.

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On 14th February 2016, the Observer published a large feature on the research being carried out in Devon on the role beavers might play in reducing flooding.

Coinciding with this national feature, the story was featured on BBC Radio 4 Farming Today and in the Western Morning news. Previously the same work was featured in the New Scientist magazine.

OBJECTIVE 6: PROVIDE DATA AND EVIDENCE TO AUGMENT NATIONAL KNOWLEDGE BASE REGARDING BEAVER REINTRODUCTION

Principle Outcome: Environmental Assessment directly informs future reintroduction feasibility assessments and programmes.

Activity		2015/16			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4
Ensure national stakeholders are provided with opportunities to input into scoping for Monitoring Framework	PM / PMG / PAG / SEF / FISH				
Publish findings in technical journals and other specialist publications	PM / AC / SEF / PMG				
Present research updates and results at local and national conferences	PM / AC / FISH / SEF				
Produce and disseminate nationally a final summary holistic assessment of the findings of the project and its relevance to the UK	PM / PMG				
Publish beaver management recommendations to NE	PM/PMG				

Many of the events and publications outlined in Objective 5 above are also tailored to reach a national audience of stakeholders, policy makers and other specialists. As well as ensuring these national specialists have an opportunity to contribute to different aspects of the monitoring work, ROBT are keen to disseminate experiences to other developing projects elsewhere in Britain.

In November 2015, DWT were invited to meet Rory Stewart MP, Parliamentary Under-Secretary (Department for Environment, Food and Rural Affairs) to outline the Objectives of the ROBT and explain some of the potential benefits that they might bring for reducing flood risks.

In October 2015, the Mammal Society, Devon Wildlife Trust and the Devon Mammal Group organised a two day National Mammal Symposium. Following the first day which will focus on ecosystem services provided by mammals, the second day was a case study about the River Otter Beaver Trial. In the afternoon there was a dedicated session chaired by Alastair Driver from the Environment Agency to glean ideas from national experts for incorporation into the ROBT Monitoring Framework.

The work of the ROBT has been represented at a series of national events and conferences.

- In late March, a presentation was given to The Necessary Beaver conference in Dunkeld in Scotland.
- In June, we attended a Beaver Summit in Birmingham to assist with the development of a national Wildlife Trust policy on beavers
- In June, we provided advice on the feasibility of re-introducing beavers into a site in south Wales.

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Much of the interest in the project has been from national and technical audiences and publications. Many of the media stories identified in Objective 5, will reach national audiences. Many of the articles published have been for specialist audiences, including the following:

- ECOS Journal (below)
- Mammal News
- Shooting times
- New Scientist (right)
- National Geographic for kids
- BBC Wildlife Magazine

ECOS 36(2) 2015

Return of the beaver – lessons from the River Otter

In ECOS 35 (2) 2014,¹ Derek Gow outlined the proposals by Defra officials to trap and remove the wild-living beavers on the River Otter in East Devon. Since then a great deal has happened, culminating in the licensed release of beavers back into the English countryside in March 2015. This article discusses recent progress with the return of beavers to Britain and draws lessons from events linked to the River Otter saga.

MARK ELLIOTT

At dusk on Tuesday 24 March 2015, the second pair of Eurasian beavers (*Castor fiber*) were released from their transport crates back into the lower reaches of the River Otter. This marked the end of a significant campaign by local residents and national experts to protect the breeding population of Eurasian beavers that had established themselves in this lowland English river for the first time in maybe 400 years.

It now appears that beavers had been living quietly on the river for maybe as long as eight years, having presumably escaped from a nearby collection, or been illegally released. In the early years, sporadic signs of activity could be detected by the trained eye, but generally their presence appears to have gone largely unnoticed. The local BBC news programme, *Spotlight*, showed occasional footage of the beavers living on the river otter.² But it wasn't until 2014 when local retired environmental scientist Tom Buckley managed to capture footage of young beaver kits that people really start to take note.⁴ There is some uncertainty about exactly when beavers went extinct in England, but the presence of a breeding population was a significant event and it resulted in pressure being applied to government ministers, not least by the Angling Trust, for the animals to be removed.

The disease risk

Concern had been raised about the risk that the animals posed of importing the Taeniid tapeworm *Echinococcus multilocularis* following a case of the disease being found in the liver of a dead captive imported beaver in 2010.³ This tapeworm is a very pathogenic, parasite found across central Europe, and causes alveolar echinococcosis disease in humans. The definitive host of the disease in Europe is red foxes *Vulpes vulpes* but the intermediate hosts are rodents, such as beavers, which ingest the eggs. Only if the infected rodent's liver is then scavenged by a fox, can the tapeworm complete its lifecycle. It therefore cannot be passed between individuals, and the only potentially infected beavers living wild in the UK must have been wild-caught in a region of the world such as Bavaria where the disease is present, where less than 5% of beavers have been found with liver lesions consistent with the disease.

Following the identification of this case in England, Defra produced a Qualitative Risk Assessment in 2012⁵ and concluded that the likelihood of an imported beaver



Vets from the Royal Zoological Society of Scotland giving a Devon beaver its health screening including checking for parasites.
Photo: C. Nick Iqbal/Retna.com

being infected and resulting in the establishment of *E. multilocularis* in wildlife was considered low but uncertain due to the factors involved. As well as the high impact of the disease in affected humans, there could also be a significant impact on UK's PET travel scheme, if the UK lost its disease-free status.

The report went on to recommend that the only suitable risk mitigation measure would be to source beavers from either captive bred populations in the UK or from countries which are currently free of *E. multilocularis*. As the origin of the River Otter beavers was uncertain, government concluded that the most sensible course of action was to remove the beavers from the wild.

Local support for the beavers

However Defra had underestimated the local strength of feeling in support of the beavers. The residents of Otter St Mary and the surrounding area had taken such a liking to their beavers that Defra's proposals galvanised them into action, and campaign posters could be seen in local shops and on the riverside footpath. At a public meeting hosted by the Devon Wildlife Trust, a packed village hall expressed overwhelming support for their beavers to remain. One person asked about the impact on trees citing the very different Patagonian situation, but the vast majority of people and their local elected representatives appeared keen that the beavers should stay.

THIS WEEK



Eager beavers may help stop floods

Wild beavers are making a splash

Andy Coghlan

SOME 500 years ago they were hunted out of Britain for their fur and meat. Now beavers are making a comeback—at least in small pockets in Scotland and Devon, south-west England—and that may be good news for flood protection and the regeneration of wetlands. But farmers still worry that beaver dams will damage crops and pastures.

New evidence suggests that beaver dams help prevent flooding, cleanse water and boost fish populations and wetland ecosystems. The dams regulate water flow during both heavy rains and droughts. "When it rains, more water gets stored in ponds behind the dams, and when it's drier, water is gently released to keep rivers flowing," says Richard Brazier of the University of Exeter, UK, who has studied

half a dozen beavers in Devon.

Four years ago, when two beavers were reintroduced there, the site was a tiny stream flowing through deserted woodland. Within a couple of years, they had transformed it into a rich wetland habitat. "They've built 13 dams and had a profound effect on how the water flows through the site," says Brazier.

Behind the staircase of dams, the beavers built ponds that collectively stored 650,000 litres during heavy rains in November last year—around a quarter the volume of an Olympic swimming pool. This is the kind of measure that some believe would have eased the impact of the 2014 floods in England. If reintroduced on a wider scale, beavers could be of most use in narrow tributaries and headwaters near the sources of major river systems, where holding back water may have

drainage ditches, causing floods that wreck crops. They also started to gnaw through trees beside a busy road and breached anti-flood embankments.

The UK's National Farmers Union is opposed to reintroducing beavers because of such concerns. It says there should be a robust legal framework in place to manage the animals. "If you wanted to manage beavers strategically, it's perfectly feasible if given the time, effort and resources," Brazier says.

Another issue is the perception that beaver dams will damage natural fish populations by obstructing spawning and migration. Scotland earns £70 million a year by attracting enthusiasts of trout and salmon fishing, says Gayford.

But Paul Kemp of the University of Southampton, UK, has discovered that trout may in fact benefit from the presence of deep ponds built by beavers. His preliminary findings compare brown trout from two similar streams that drain into a loch near Inverness, one with reintroduced beavers and one without. "There were more than double the number of trout on the 'beaver stream', and they were bigger," says Kemp. And dams only impeded their movement when river flow was low.

By cleaning the water, beavers make gravel downstream more aerated, which may make it suitable for salmon spawn, he suggests.

So what does these varied impacts mean for the UK's beavers?

The fate of beavers in Scotland—whether to eliminate or manage them, or reintroduce more—is being considered by Aileen McLeod, Scottish environment minister. The UK's Environment Agency is also keeping an eye on new research. "We are particularly interested to see whether the overall benefits of reintroducing beavers outweigh any potential risks," says Alastair Driver, the agency's head of biodiversity. ■

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PARTNERSHIP DEVELOPMENT AND PROJECT MANAGEMENT

Principle Outcome: Nationally recognised flagship project developed, integrating local community ownership with latest scientific thinking. Project governance is inclusive and all partners have a sense of ownership over the outcomes.

Activity		2015/16			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4
Recruit ROBP Project Manager	PMG				
Establish IT, GIS and other support systems	PM				
Information handover and collation of key information	PM				
Project Manager to meet key landowners, partners and stakeholders	PM				
Establish Project Management Group and terms of reference - group to meet quarterly	PMG				
Establish Project Advisory Group with ToR and MoU - group to meet 6 monthly	PMG/PAG				
Raise funds for continuation of the project and specific areas of work	PMG / PM / VOL / COM				
Regular reports to Natural England as required by Licence conditions	PM / PMG / PAG				
Establish DWT Communications group and define roles and responsibilities - meet monthly	COM				
Establish Science and Evidence Forum - group to meet annually	SEF / PMG				
Establish Community Engagement and Education Forum - group to meet quarterly	PM / COM / CEEF				
Establish Fisheries Research Specialist Group - group to meet as required	PM / SEF / FISH				
Secure MOAs with DCC, EA, NE and other Key Stakeholders	PM				
Produce annual reports including Exit Strategy Trigger analysis	PM				

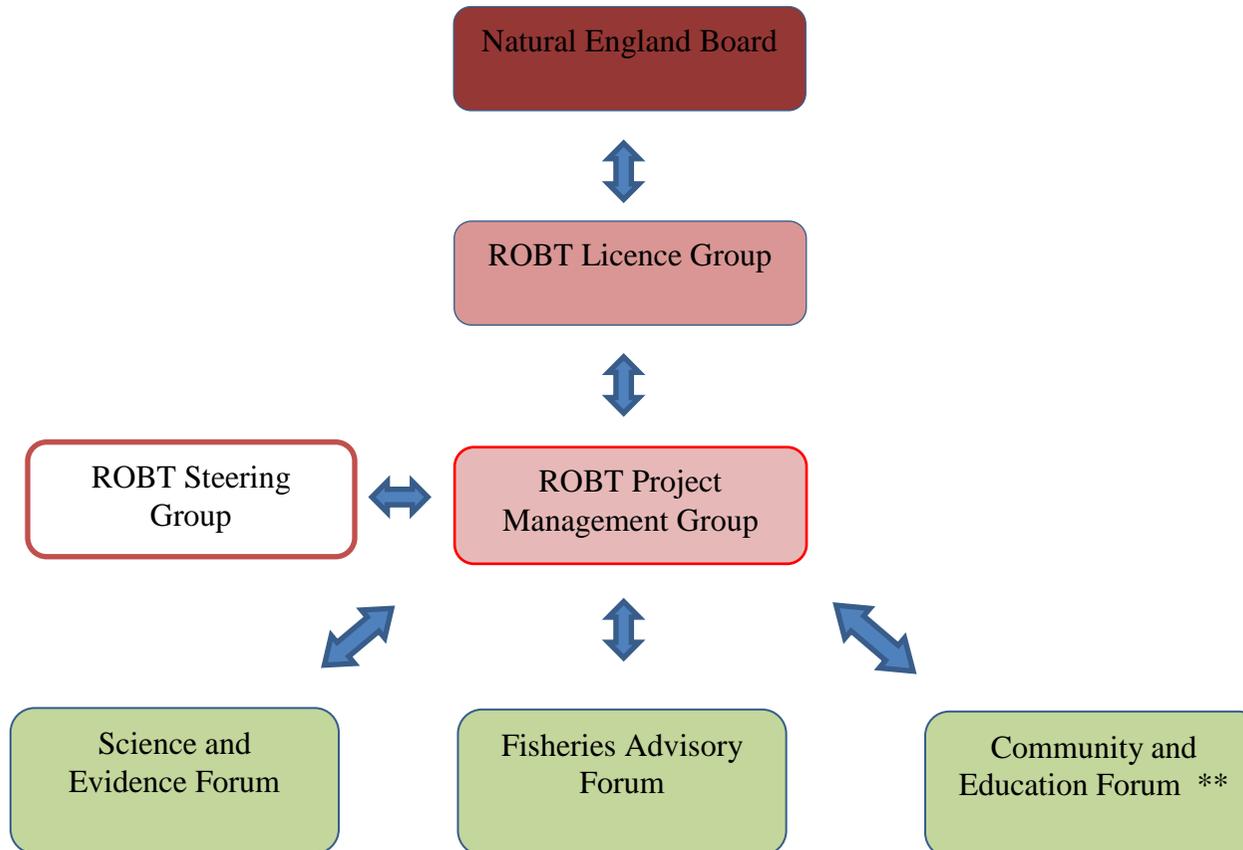
The Devon Beaver Project Lead, Mark Elliott was formally appointed to manage the ROBT 1st April 2015, employed by DWT.

The PhD Placement, Hugh Graham, began work on the ROBT in October 2016, employed by University of Exeter.

An MOU has been developed and finalised with the Environment Agency.

The ROBT Work Plan, used for this report and attached as appendix 1 is becoming slightly outdated, particularly as the beavers have not behaved entirely as predicted at the start of the trial. This Plan will be updated and revised in 2016-17.

The Governance structure of the Trial has been established as follows:



**** Previously the Community and Land Management Forum. This group includes invitees from the Landowning, farming and local business community, and will include different working groups formed to deliver different aspects of the trial.**

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The **ROBT Licence Group** is convened and chaired by Natural England to scrutinise progress with the trial against the terms of the licence. The group meets monthly, and includes the statutory agencies and Clinton Devon Estates.

A **Project Management Group (PMG)** includes the partner organisations that manage and oversee the delivery of the project. This group is chaired by Pete Burgess, Director of Development, Policy and Research at DWT, and has met 3 times in this period.

The **Steering Group's (SG)** purpose is to provide the ROBT Project Management Group with constructive scrutiny and comment, advice and (where appropriate) support, to ensure the Trial is achieving its identified goals and objectives. The Steering Group will provide high level representation from across a wide range of key stakeholder groups. A key role of the Steering Group will be to objectively assess the project against the Exit Strategy triggers, on an annual basis on receipt of the ROBT annual report in March of each year. The SG is chaired by Harry Barton, CEO of DWT, and held an inaugural meeting on 17th June 2015, and a second meeting on 29th September.

The **Science and Evidence Forum** is chaired by Professor Richard Brazier from the University of Exeter, and is responsible for overseeing the production and delivery of the Monitoring Plan. It includes a majority from academic institutions and other national stakeholders such as the EA. This Forum has met 3 times, and has just published the ROBT Monitoring Plan.

The **Fisheries Advisory Forum** is a large specialist group set up to advise the River Otter Beaver Trial on fisheries interests, strategically identify data requirements and coordinate and implement associated programmes. It is chaired by John Wilding from CDE. The inaugural meeting was held on 15th January 2016 and to which 19 representative from national and local fisheries organisations and syndicates attended.

The **Community and Education Forum** is a much larger Forum that will convene annually. It is our intention that this will subdivide into smaller working groups of volunteers and professionals to deliver different aspects of the project. The first meeting was held on 5th February 2016 and over 50 people attended this. The invitees include some **farmers and landowners** from the valley, although smaller and specialist meetings are also proposed to facilitate the engagement of this key stakeholder group. Currently, with so few impacts, the engagement with farmers and other landowners has been on a 1:1 basis as the opportunity and need has arisen. To date 31 different landowners have been visited, and it is anticipated that this stakeholder group is likely to become more active as impacts increase.

An **internal DWT communications group** has been established and meets periodically to coordinate communications and fundraising efforts, using the ROBT Communications Strategy as a guide.

Funding for the ROBT is actively being sought by DWT for the remainder of the Trial. The total required to manage the trial is in excess of £500,000 over the five year period. The following funding sources have been obtained to date:

- In excess of £54,000 was raised through the public Beaver Appeal which is still live.
- A further £50,000 has been contributed by the Royal Society for Wildlife Trusts. (RSWT)
- The University of Exeter have contributed £40,000 towards the employment of a PhD placement to work on the project.
- £150,000 has recently been secured from the Peter De Haan Charitable Trust to assist with project delivery and advocacy for the next three years.
- The Mammal Society / DWT / DMG Symposium raised just over £700 for the Beaver appeal.
- Funding for specific items including the ROBT Project Leaflet and for a beaver costume has also been secured
- The remainder is currently being underwritten by DWT.

3. Exit Strategy

A clear Exit Strategy forms an integral part of the ROBT. The ROBT Project Management Group firmly believes that the project will be successful; however, a credible strategy for termination has been developed as a precautionary approach. The Exit Strategy would be implemented either during the trial in the event of insurmountable problems, or at the end of the trial in the absence of a firm commitment for beaver management in the long-term. The trial will be terminated at conclusion if there is clear majority objection from impacted stakeholders for the retention of the beavers. Any change in the rules governing management or limiting the ability of the project to manage the beavers will invalidate the trial and lead to the recapture of all the individuals at large. This process would reset the project and require a full project reapplication.

Procedures for Determining Exit

The procedures for managing and delivering the Exit Strategy have been formally adopted by all ROBT Project Management Group partners and permanent advisors through Memoranda of Agreement.

The procedures have been circulated to the Advisory Group for comment and amendments where appropriate.

Exit Strategy triggers will be published and circulated to both the PMG and PAG. An annual determination will be made regarding whether specific triggers in the exit strategy have been, or have future potential of being reached. This determination will be informed by the publishing of an annual report that will detail beaver impacts and associated acceptability.

The factors by which the Exit Strategy is assessed will be also reviewed on an annual basis by the PMG with advice and input from statutory and public authorities and the PAG.

In the event of the exit being triggered all ROBT Project Management Group members and advisors will work in unison and without waver to remove all beavers from the catchment. All communications will be dealt with by the nominated lead organisation only.

Natural England and the Environment Agency would both be invited to attend all meetings (in an observational and advisory capacity) and be party to all correspondence relating to exit triggers. Natural England would authorise the implementation of the exit strategy as independent monitors of the trial.

The Exit Strategy as detailed in the Licence application, would be triggered in the event that:

1. Unsustainable and detrimental effects arise as a result of the re-introduction of beavers to the trial area;
2. Any significant change occurs to the required funding or management structure of the project that threatens the project viability;
3. There is unacceptable risk to human health, livestock or other wildlife;
4. There is an unsupportable level of mortality in released animals as a result of persecution, human intervention, or natural mortality attributable to the trial procedures;
5. The trial carries clear majority request for termination from impacted stakeholders;

Assessment against triggers on 31st March 2016

1. Beaver activity is focused in three areas of the River Otter catchment, with low levels of activity elsewhere probably associated with transient behaviour. In the three areas, impacts are mostly restricted to feeding behaviour on riverside willow trees, with dams found on only one site.
2. In excess of 50% funding for the current ROBT team and project budget has been obtained from external sources, with the remainder underwritten by DWT.
3. No risks to human health, livestock or other wildlife has been identified.
4. No mortality has been confirmed in any of the beaver groups, and there is no evidence of persecution or human intervention.
5. A total of 3 complaints have been received from landowners in 2015/6, all of which have been resolved quickly and to the satisfaction of the complainant.

These indicators and conclusions were presented to the ROBT Steering Group on 7th April 2016 who confirmed that there was no reason to trigger the Exit Strategy.