

River Otter Beaver Trial Second Annual Report

April 2017



The pink tagged female was commonly seen feeding her 5 kits near Otterton in the summer of 2016 (picture Mike Symes, DWT)

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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 comprise the Project Management Group. Expert independent advice is also provided by the Royal Zoological Society of Scotland, Roisin Campbell-Palmer, Professor Alastair Driver, 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 led 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, Country Land and Business Association, East Devon AONB, Devon Local Nature Partnership, Game and Wildlife Conservation Trust, South West 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, Garfield Weston Foundation, Natural Environment Research Council, University of Exeter and from the generous donations from the public made to the Devon Beaver Appeal and through a dedicated crowdfunding website.



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Key Headlines from River Otter Beaver Trial (ROBT) - Year 2 (ending March 2017)

- The annual systematic survey of beaver evidence was carried out between December 2016 and March 2017 and covered 47km of the River Otter and its tributaries. Heat maps of beaver feeding signs appear to show six discrete areas of activity; three on the main River Otter, and three others on tributaries.
- Based on a range of evidence, it is concluded there could be as many as 20 beavers living in six different groups; the largest family near Otterton is assumed to have seven beavers, while one of the territories may just support a single individual.
- The Otterton beaver pair attracted many visitors and tourists in late summer 2016 after they gave birth to a remarkable five kits, which could be reliably seen near a public footpath throughout July and August (see picture right)
- An additional young pair of beavers was introduced into the catchment in May 2016 to enhance the genetic diversity of the population. They quickly settled into the release site and have begun coppicing willow and raising water levels.
- In winter 2016 / 17, five of the previously untagged beavers were trapped, health checked and fitted with Passive Integrated Transponder (PIT) and ear tags, bringing the total number of beavers tagged to 12.
- Dams are being built on the three smaller tributaries which beaver have occupied, and University of Exeter researchers have installed hydrological monitoring equipment on all of these sites. Baseline fisheries surveys have also been conducted with the University of Southampton. One of the dams has inundated low lying agricultural land, and a flow device (beaver deceiver) has been installed to lower water levels.
- A total of 49 presentations were given about the Trial and the related independent scientific evidence to approximately 2,700 people, including to the Copernicus conference in Vienna, the River Restoration Centre conference in Blackpool and many others.



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- The scientific evidence on ecosystem services provided by beavers was presented by Professor Richard Brazier to the Environmental Audit Committee in Parliament as part of a discussion on rewilding.
- This research on hydrological and water quality impacts was published in the peer-reviewed academic journal 'The Science of the Total Environment' and was then the focus of a new 20 page document 'Beavers – Nature's Water Engineers' published in January.
- 479 people were engaged in 11 events on the river Otter and there were also 16 visits to the Enclosed Beaver Project in West Devon. An addition, 11 school visits by the DWT provided beaver themed education activities to nearly 700 students, and 135 teachers and parents.
- Two complaints were made about beavers damaging trees; one of which required quick action to prevent a large willow tree from being felled. A low toxicity beaver-repellent sandy paint mix was painted onto the incised trunk and this appears to have deterred further gnawing.
- Following focus groups and interviews conducted by researchers at the University of Exeter, a public perception questionnaire was carried out to test the frequency of the views expressed. 2,759 people filled in the questionnaire and the results are currently being analysed for publication in a peer-reviewed academic journal.
- Throughout the year at least 128 items about the project appeared in the media, including in national newspapers, Radio and TV.
- In March 2017, the Eurasian Beaver was announced as the winner of the BBC Countryfile Magazine's Wildlife Success of the Year 2017, recognising the work of both the Scottish and River Otter Beaver Trials.
- Additional funding for the ROBT has been obtained from a crowdfunding campaign and other sources, but the Trial still requires funding to carry out key elements of the project delivery work.
- The ROBT Licence Group chaired by Natural England ensures that the licence conditions are being adhered to, and the Steering Group annually assesses the project against the Exit Strategy Triggers that have been agreed.

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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 partners 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; and
- To demonstrate that the beavers and their impacts will, on balance, be regarded by the local community and stakeholders as tolerable / positive.

In a complementary project, since 2011 Devon Wildlife Trust has been studying the impacts of beavers 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 from 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.

The full Project Delivery Plan for the remainder of the Trial has recently been revised. For each of the 6 core objectives, an extract of the plan is included and colour coded to show progress for the financial year 2016/17. For many activities the work is ongoing throughout the trial and the colours reflect this, and are graded as follows:

- **Red – Work not started**
- **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 | 2016/17 | | | |
|---------------------------------------------------------------------------------------------------------------------------------------|---------|-------|-------|-------|
| | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Implement Monitoring Framework | | | | |
| Develop and maintain a system to record details of all costs attributed to the beavers activity, including from partner organisations | | | | |
| Produce and disseminate interim reports on different aspects of Monitoring Framework (eg Biodiversity, Flood risk) | | | Green | |
| Produce final report - Summary and assessment of total cost to land-use and infrastructure | | | | |
| Produce final report - Biodiversity, Impacts on Species and Habitats | | | | |
| Produce final report on Ecosystem Services - Water Resources and Water Quality | | | | |
| Produce final research report on Social Impacts | | | | |

Progress with delivery of the Monitoring Plan

The **implementation of the Monitoring Plan** is overseen by the Science and Evidence Forum, which meets quarterly to review and steer progress against the eight different areas of activity.

It is clear that winter is the most effective time to conduct beaver survey work. In the summer, long stretches of the River Otter are difficult to access and survey, due to head-high bankside vegetation comprising nettles, brambles and Himalayan balsam. As well as access and visibility being impeded, the beaver activity is focused on feeding on this soft riverside vegetation, leaving fewer visible feeding signs than during the winter period when diet changes to woody vegetation. From October / November as the vegetation starts to die back, the beavers begin feeding more on woody riverside trees and use this woody material to re-inforce and insulate dwellings, and to build dams. Autumn and winter is recognised as the busiest time of year for those carrying out survey and managing beaver impacts in Europe and North America.

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The project team have refined techniques for targeted monitoring of beaver activity in the catchment, and conduct a **systematic winter survey of field signs**, covering large parts of the catchment. The field signs are mapped using a highly accurate Trimble GPS system and 'heat maps' of activity are generated, based on the focus of winter feeding behaviour. In order to allow winter feeding to get underway and to properly gauge the focus of activity, survey work began in December, and ran through to early March. Because the technique involves a single targeted walkover survey, if surveys start any earlier than December, significant areas of activity might be missed.

This survey work is labour intensive, and usually requires two people. In the winter of 2015 / 16 it took approximately 18 days to survey 41 km of river. This included mapping historical signs from previous years and familiarising ourselves with new technical hardware. In 2015 / 16, each individual cut stem was measured but having collected a very detailed dataset, the priority in 2016 / 17 was to increase the coverage of the catchment and refine the technique to increase efficiency of the data input process. **In 2016 / 17 it took approximately 12 days to survey 47 kms of river.**

The data collected were discussed in detail and a system developed to categorise each tree affected into three different levels of impact. This technique allows heat maps of impact to be generated so that beaver territories can be identified and demarcated, and data on tree species and distance from the water to be collected. The heat maps are designed to illustrate the intensity of beaver activity, but the data are also used to help explain the human societal impacts of the beavers, so survey design was developed with these purposes in mind.

The three categories were defined as follows:

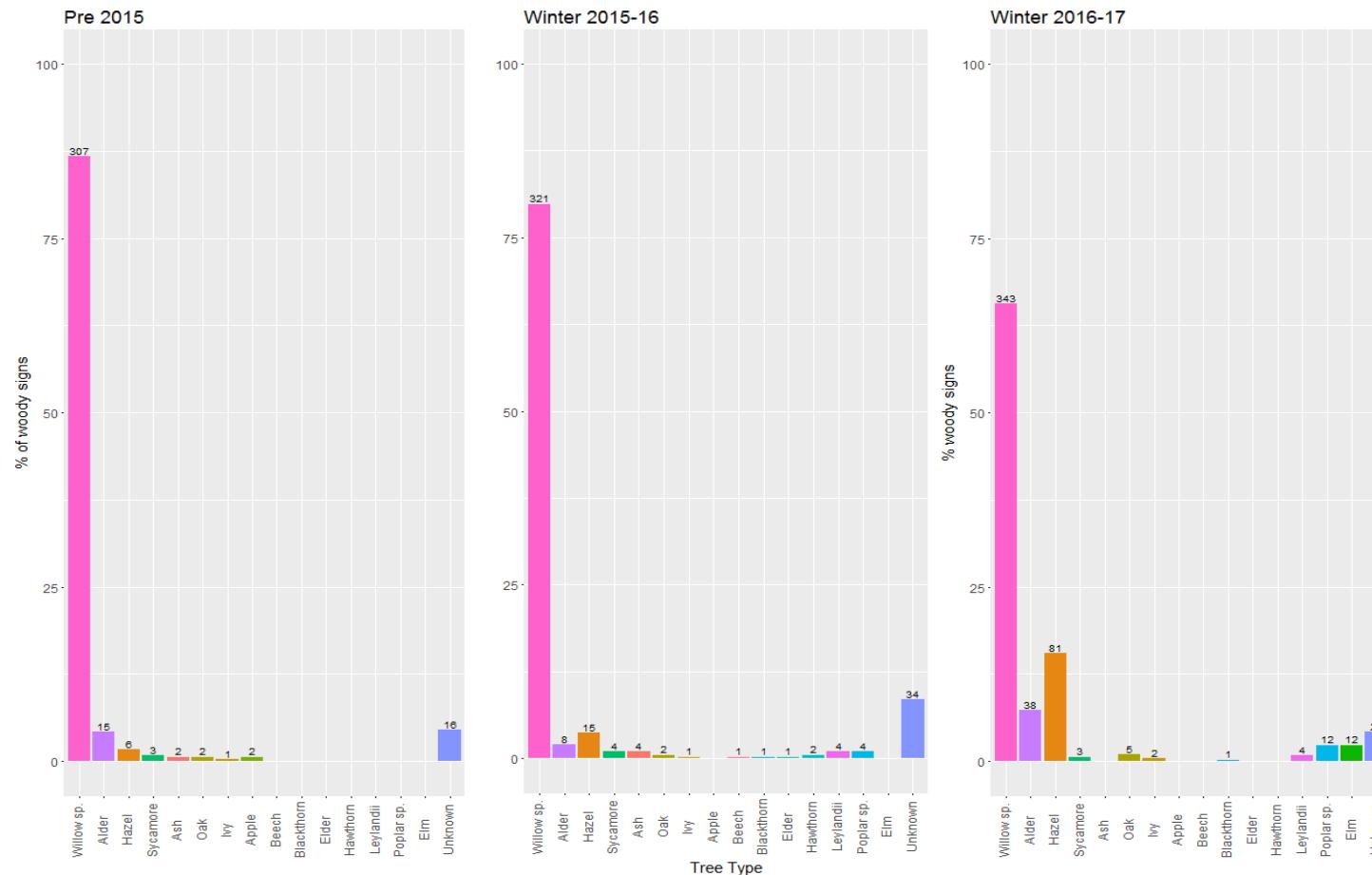
- **Trees with low levels of impact** – these form the majority of trees impacted and are trees with fewer than 20 cut stems or branches, all less than 7cm in diameter, or with the area of bark stripping up to the areas of 20 hands.
- **Trees with medium levels of impact** – these are trees where there are more than 20 cuts, or any one cut is greater than 7cm in diameter, or with the area of bark stripping more than the areas of 20 hands.
- **Trees with major levels of impact** - those with a diameter of greater than 20 cm, where the tree is either felled or significantly incised.

The maps showing the results of this winter survey work are not in the public domain at the request of some affected landowners but they appear to reveal the presence of six distinct territories where particular beavers are resident. These are identified as T1 – T6.

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Analysis of the data collected has allowed a more detailed breakdown of the **species of tree being impacted**. The graph below shows how over 60% of the trees impacted in the most recent survey, are willow species. This is significantly reduced from the previous two seasons assessed. We have observed a noticeable increase in both alder and hazel feeding signs in 2016/17. Hazel is particularly associated with the building of beaver dams. Whether they are deliberately selecting it as a suitable building material, or whether it is just more common within the hedgerows found along drainage ditches where dams are constructed, isn't yet clear.

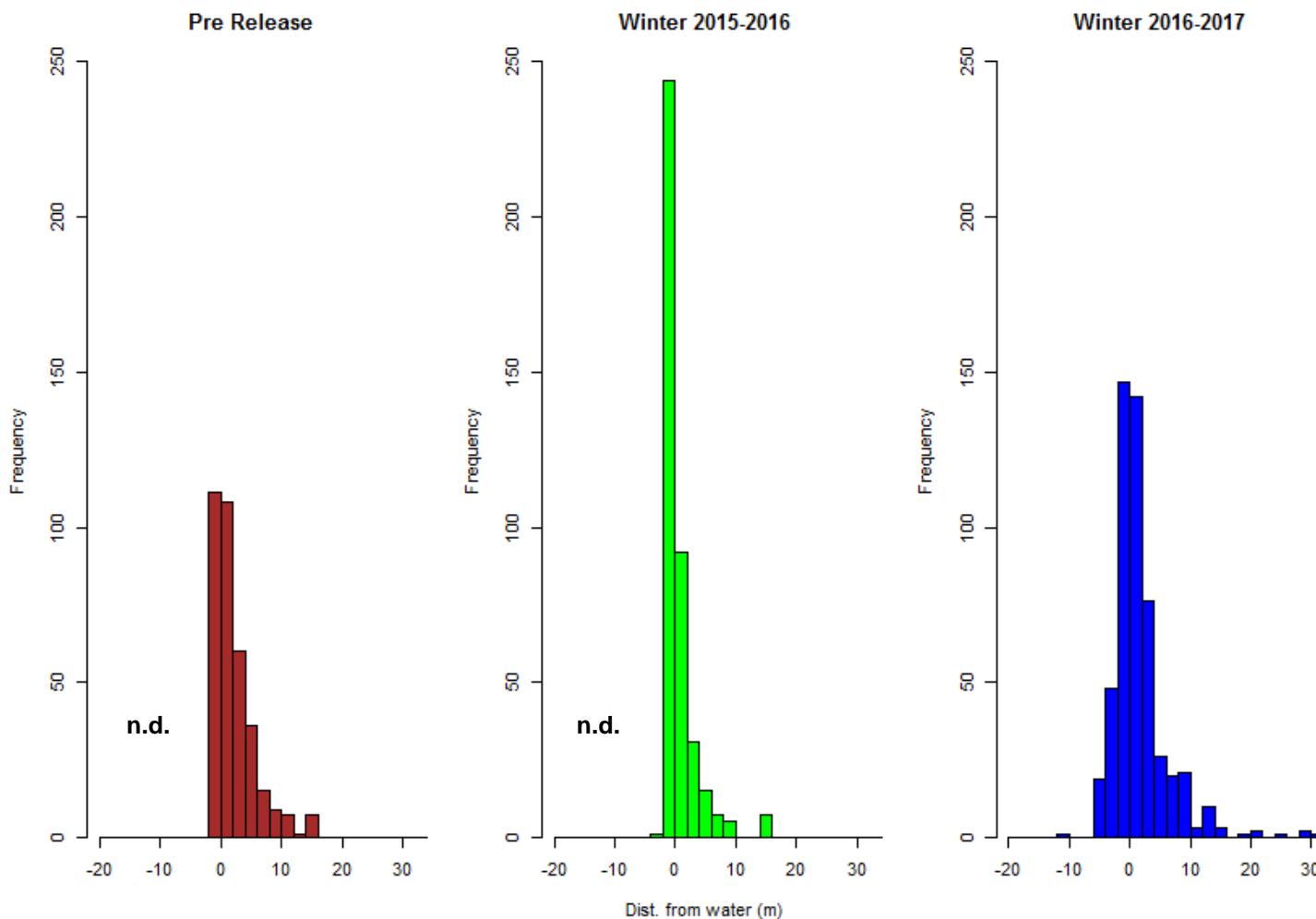


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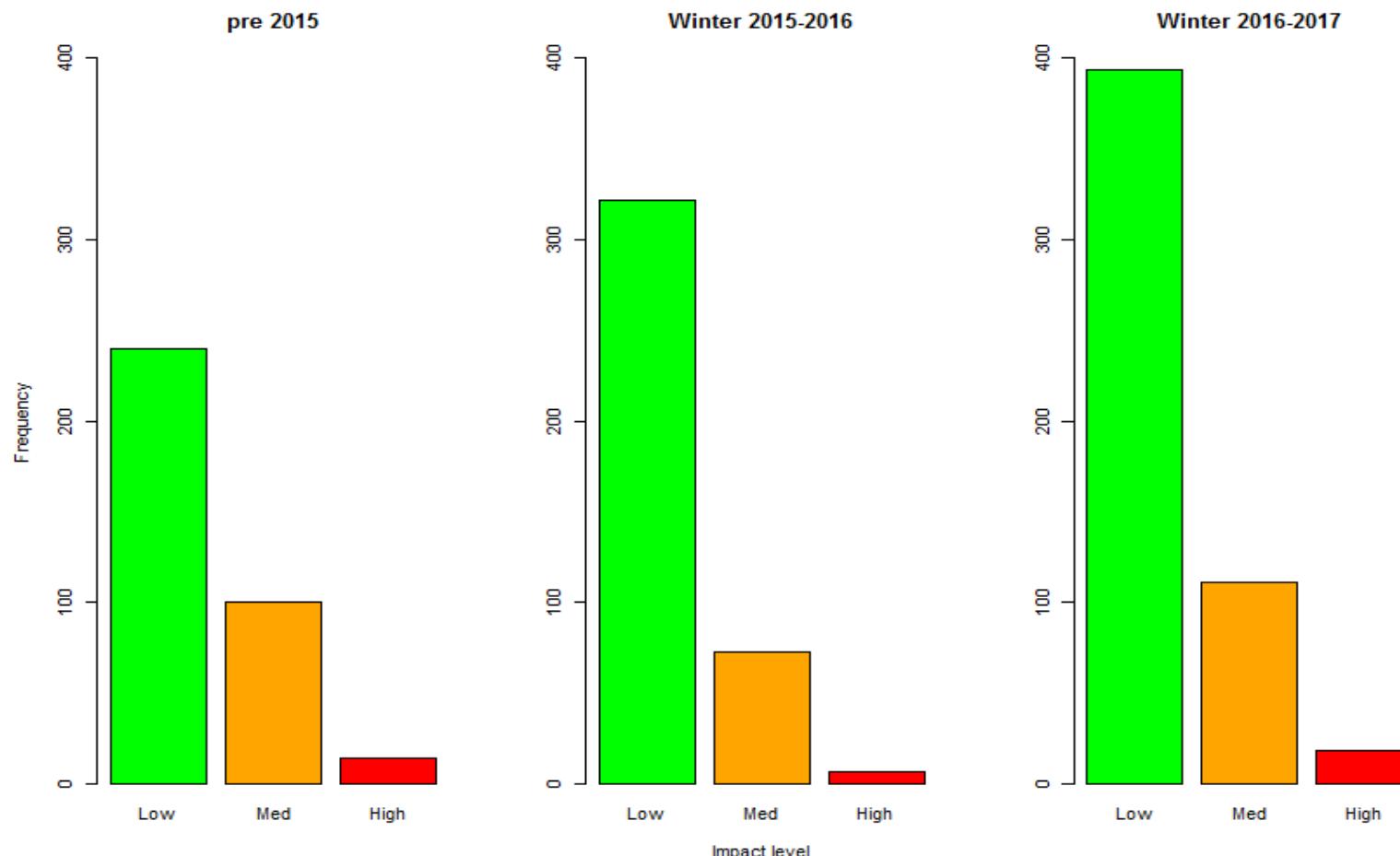
The analysis of **distance from the water's edge** is now collected to allow a more detailed breakdown of the overhanging branches that were fed upon from within the river. This represents a significant proportion of the observed feeding signs. During winter 2015/16 if the branch was overhanging the water, the distance from the bank wasn't assessed, so no detailed data are available for this.



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The reclassifying of the previous surveys using the new technique has also allowed the following graphs on the **level of impacts** to be produced. The data on the diameter of individual cuts were previously collected, and provided a very useful dataset. However in order to cover more of the catchment this year, the individual trees are now classed as being low, medium or high impact. – as per the classification described above.



Throughout the 2015/16 season, the principle **vulnerable infrastructure identified by the Environment Agency** was surveyed by the project team every two months. In 2016/17, less frequent surveys were conducted, and in a more risk based and targeted fashion. These sites were selected for a variety of different reasons such as their flood defence or hydrometric monitoring significance, or because they were considered important watercourses for breeding brown and sea trout. The dams at Otterhead were also included.

To date, none of the hydrometric monitoring stations have been impacted, although low level activity has been detected in the vicinity of specific sites. Because of their design, beaver impacts on these sites are considered unlikely.

The three different stretches or watercourse where beaver dams were constructed in 2016 were all assessed by the project team in close liaison with the Environment Agency. Two of the watercourses had been identified by the EA as being of significance to fish populations in the original assessment of vulnerable watercourses, and it is hoped to monitor any impacts on fish if the dams remain in place for any length of time.

Although there have been occasional feeding signs near the upper Otterhead lake dam, there is unlikely to be any risk to infrastructure unless the beavers become resident and establish territories. Low level activity continues in the Otterton Mill area, where the mill leat and western embankment have been identified by the EA as critical, but impacts are not contributing to increased risk of bank failure.

Regular surveys of these areas will continue although it is recommended that these should be concentrated between October and March when beaver behaviour is more problematic and coincides with increased risk of flooding and during fish migration.

Working with Landowners remains a fundamentally important aspect of the Trial. As new beaver activity is identified, landowners are contacted and made aware of the Trial and the implications of the beavers. In 2016 / 17, 10 new landowners were contacted, and a total of 121 separate visits were made by the DWT Beaver Project Lead to different sites along the river. These visits were made for a wide variety of reasons including systematic survey work, beaver monitoring, impact assessments and conflict resolution, EA infrastructure surveys, initial site visits and events.

The Project Plan includes the **production of interim reports on biodiversity and flooding** in this year. In February 2017 a new report was produced “Beavers – Nature’s Water Engineers” which focused on the very significant findings on hydrology, water quality and ecology from the Enclosed Beaver Project, but also explains about the ongoing work on the River Otter (see section 6 below for more details).

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Recording and reporting **complaints about beavers' activities** was a condition attached to Natural England's licence for the ROBT. Where a complaint is made by a landowner citing the impacts of the beavers, details of concerns are recorded so that they can be quantified as part of a socio-economic assessment of the beaver impacts.

Two complaints were made about the beaver's impacts on riverside trees. The first was a complaint regarding significant impacts on two large riverside willow trees belonging to the complainant's neighbour. On speaking to the landowner the main concern was the time that it would take to tidy up after the beavers if the trees were felled. Due to the location of the trees and the large trunk diameter, it was decided to trial the use of low toxicity beaver repellent sandy paint rather than weld mesh fencing materials. This paint was applied on 19th January 2017 and has, to date, discouraged any further gnawing activity. It remains to be seen whether the beavers will return, or whether either of the trees are now more vulnerable to high winds. The offer of practical support to the landowner has also been made should either of the trees come down during the period of the trial.



A second landowner complained about beavers feeding on some much smaller riverside willow trees close to where the main Ottery St Mary family group are living. The main tree impacted was around 10cm in diameter and part of a bank of naturally occurring willow scrub. The potential benefits of the coppicing behaviour of the beavers on these trees was explained, and no further action was deemed necessary. (See picture right)



Another call was received by a landowner who had made a complaint in a previous year about the beavers' impacts on their garden *Leylandii*, to report that the beavers had returned and had an even more significant impact by "making a totem pole" out of the stem (see picture left). However this owner was now more accepting of the beavers, so advice was given and it was agreed that no further action was required.

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Similarly another landowner reported that a beaver had felled a small pollarded willow on a site where there had been more substantial impacts in 2015/16 (see picture right). Fencing and advice had previously been provided, but this tree hadn't been protected.

In April a complaint was also made about beavers blocking a culvert in an area where beavers have been active for some time. On visiting with the farmer, the debris was removed, but found to be flood debris rather than that arising from beavers, highlighting that negative impacts can wrongly be attributed to beaver activity.



In January an item of hydrological monitoring equipment was also passed to ROBT staff by South West Water. The cable had been damaged, and beavers had initially been thought to be the culprits. Beaver surveys carried out in the area at the same time revealed very little evidence of beavers and there is no clear motive for the beavers to chew a rubber cable like this. However the ROBT is very keen to investigate any reports of damage like this, in case any of them are clearly related to beavers.



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Another significant incident was the reported beaver activity in the River Tone catchment which lies adjacent to the River Otter.



The licence granted by Natural England requires the Trial to follow up any reports of beavers in adjacent catchments. In October 2016 a landowner published photographs of three felled trees that had been falsely attributed to beaver activity, together with a series of posters that advertised a bounty of £1,000 for the beavers "dead or alive!" (see photo left)

Immediately after the ROBT were alerted to the activity the project employed Devon Biodiversity Records Centre surveyors to carry out surveys of all local watercourses.

Numerous attempts were made to secure access, and after a number of days had elapsed the site was eventually visited.

It soon became very clear that there had been no beaver activity at the site. Two large sycamore trees impacted were located a very long distance from the nearest water course – beavers very rarely

travel such distances overland to access trees. Most importantly however the cuts had not been made by beavers and the wood chips were not the characteristic beaver chips that are always present when beavers have been gnawing trees. (see picture above right)

The video of the beaver swimming in a lake that was put on Youtube was apparently filmed elsewhere. <https://www.youtube.com/watch?v=9TCv1TtMRTM>

The only waterbody within the site was a *fenced off* ornamental pond, where the third small tree had been felled, again with no sign of beaver activity and a 'burrow' constructed (see picture right).



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As a result of this event, articles appeared in the Daily Telegraph (below), Daily Mail and the 'I' newspaper and DWT staff were interviewed with the landowner on Radio 5 live. The BBC local news programme, Spotlight ran a news item about the alleged beaver damage and DWT was given a short opportunity to explain why the activity was not consistent with beaver impacts. The ensuing public and social media debate reacted to the headline and not the irrefutable factual content that this was not the activity of beavers.

The Daily Telegraph Saturday 8 October 2016

News

Kill a pesky beaver and collect £1,000, urges baronet

By Sam Dean

AFTER centuries in which they were extinct in Britain, the recent reintroduction of beavers was celebrated as a "change in our relationship with the natural world".

But an eccentric baronet is threatening to scupper the plans after calling for the animals that are ruining trees on a 12-acre site to be killed.

Sir Benjamin Slade, the owner of Woodlands Castle, a 17th-century house in Somerset, has put up posters

on his property saying: "Beaver sightings! At Woodlands Castle. Wanted dead or alive, £1,000 reward! For crimes against trees. Beavers have been cutting down our trees!"

Sir Benjamin, who is worth an estimated £20 million, has courted controversy in the past for posing with a rifle following an alleged sighting of a big cat. The move backfired when armed police arrived during a wedding to inspect his collection of firearms.

The 70-year-old made his fortune as a shipping magnate. He has no children



Sir Benjamin Slade, owner of Woodlands Castle in Somerset, says the animals are destroying the trees on the 12-acre site

and once said he would bequeath the estate to anyone who most closely matches his DNA, provided they were not *Guardian* readers, communists or drug users. He has frozen his sperm

and still hopes to father a child. Sir Benjamin told *The Daily Telegraph*: "The beavers have started devouring the trees. One or two is all right but we can't go on like this. We have got preservation orders on some of these trees. "The trouble is that if you chase them they disappear under the water and you can't get them. The amount of damage they do is just out of order."

Beavers were reintroduced to Scotland in 2009 after being hunted to extinction in the UK in the 16th century. In 2015, Natural England granted a

licence to Devon Wildlife Trust to release them into the wild there as part of a five-year £750,000 reintroduction plan. Stephanie Hilborne, chief executive of the Wildlife Trusts, said the decision "symbolises a change in our relationship with the natural world".

A colony has been established on the River Otter in Devon and it is thought beavers might have migrated to the river Tone, near to Sir Benjamin's land.

Steve Hussey, of the Devon Wildlife Trust, said: "We would like to make contact with the landowner to see if we

can come to another solution that does not involve killing beavers.

"You can take very easy straightforward protective measures to stop beavers felling trees."

Ecologist Derek Gow, who runs a beaver sanctuary, said that beavers are not a protected animal in Britain so it is not illegal to shoot them.

However, he added: "Beavers are part of the natural ecology and the only reason they have not been here is because we have slaughtered them all in the past."

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 | 2016/17 | | | |
|--------------------------------------------------------------------------------------------------------------------------------------|---------|-------|-------|-------|
| | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Whenever beaver dams begin to be constructed, install equipment for recording hydrology and water quality data wherever possible | | | | |
| Work with consultant economists to devise research programme into the economic impacts within local (eco-tourism) businesses. | | | | |
| Identify relevant local economic / tourism data already being collected and work with local businesses to record changes that occur. | | | | |
| Advise local tourism providers on business generation relating to beavers in the River Otter. | | | | |
| Produce final report on quantitative and qualitative assessment of the socio-economic value of beavers in the area | | | | |

The presence of beaver dams in three territories is providing useful opportunities for the University of Exeter to **monitor the potential impacts of these dams** on the watercourses. When a dam is reported and contact established with the landowner, the University have quickly installed hydrological monitoring equipment to record water depths above and below the structure, and also rainfall recording equipment where possible. The presence of dams with territories T4, T5 and T6 has resulted in the instrumentation of these watercourses.



Limited progress has been made with the **tourism economic research**. Footpath counters have been installed and continue to collect data in various locations along the valley which will provide valuable evidence on the change in visitor usage

Support and information is also being provided to local business and Tourist Information Centres to assist with the large number of visitors that are visiting the area specifically to watch the beavers.

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 | 2016/17 | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------|---------|-------|-------|-------|
| | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Provide a trusted source of advice and information on impacts and mitigation, contactable through a "Beaver hotline" | | | | |
| Consider exchange visits to Bavaria and Brittany for locals to develop broader understanding of beaver ecology and management solutions | | | | |
| Revise Management Strategy annually in light of developments in the River Otter Beaver Trial area and elsewhere | | | Red | |
| Building on the experience of others, develop a system for mitigating impacts, using contractors and volunteers to implement measures | | | | |
| Develop protocols with partner organisations to record and report impacts of beavers on infrastructure, and implement mitigation measures | | | | |
| Over time assess the most effective way of incentivising landowners to accept the impact of beavers on their land | | | | |
| Develop a series of factsheets on commonly encountered problems as needs arise | Red | Red | Red | Red |
| Input experience into NE beaver management licensing protocols | | | | |

In May 2016, a group from Natural England, Clinton Devon Estates and the University of Exeter went on a **fact-finding tour of Bavaria** with Derek Gow and Gerhard Schwab. This tour included visits to a wide variety of different sites to observe how beaver related conflicts are being resolved. It also included discussions about beaver management and associated funding.

In Devon, the **Management Strategy** is proving a useful tool for guiding and informing our response to different conflicts. The majority of impacts do not result in the landowner or any statutory body raising concerns and so no action is required. In 2016/17 three sites are being monitored where damming is occurring, and only at one location has intervention been requested and deemed necessary. A **flow device (beaver deceiver) has been constructed** within a floodplain ditch within territory T5. This device was required because the landowner expressed concerns about the impact of the surface water on their ability to graze the land during the autumn and spring. The device was installed in January 2017 and continues to be adapted to manage the water levels whilst minimising the risk of the beavers deserting their burrow and damming elsewhere.

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The most significant **trees requiring protection** were on an area of riverside farmland near Honiton. In January 2017, two large willow trees were being gnawed and had been deeply incised by the beavers, and a neighbour had made a complaint about the potential impact on their views should the trees come down. The landowner also expressed concern about the time that would be needed to clear up the trees if they fell. The location and size of the trees made fencing them difficult so it was decided to trial the use of a beaver repellent paint mix – a mix of coarse builders sand and low-toxicity exterior wood paint.



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In the autumn a site near Upottery was revisited where a beaver had been damaging a specimen tree the previous year. This weeping willow had been strategically planted in a landscaped garden and the beavers had stripped bark, and incised the trunk. The trunk was protected by the ROBT team and the landowner was planning to re-pollard the tree the following winter to give it the best chance possible. They hadn't been able to do this, but when revisited in 2016, the tree was found to be thriving, and wasn't showing any signs of dieback following the damage caused by the beavers. This highlights that tree protection measures are worthwhile even when impacts already appear significant.



October 2015



October 2015



October 2016

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OBJECTIVE 4: UNDERSTAND THE ECOLOGY, BEHAVIOUR AND POPULATION DYNAMICS OF A BEAVER POPULATION 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 | 2015/17 | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------|-------|-------|
| | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Collate records of beaver sightings and produce annual GIS maps | | | | |
| Engage with local beaver enthusiasts and volunteers to monitor key populations | | | | |
| Identify potential future release sites based on distribution of current population, and suitable habitats | | | | |
| Trap and fit ear and PIT tags, and health screen all beavers living on the river wherever it is reasonable practical to do so | | | | |
| Carry out DNA analysis of the beaver population, to understand species, genetic diversity and population dynamics | | | | |
| Based on DNA analysis, decide how best to augment the population with additional individuals, if required | | | | |
| Introduce first pair of health screened animals into location agreed with NE, and in accordance with agreed protocols | | | | |
| Introduce second pair of health screened animals into location agreed with NE, and in accordance with agreed protocols | | | | |
| Introduce final individual beaver if necessary to supplement a lone individual, or to replace a animal that dies. | | | | |
| Monitor health and welfare of beavers, with veterinary intervention where required. Identify local veterinary consultants for involvement in project. | | | | |
| End of project - health checks of beavers | | | | |
| Production and dissemination of final report into health status of population and any veterinary concerns to public, livestock and wildlife health | | | | |
| Produce and disseminate interim reports on the population dynamics of the beavers on the River Otter | | | | |
| Produce and disseminate final report on the population dynamics, dispersal of the beavers and likely future carrying capacity of the River Otter | | | | |

Throughout the summer of 2016, many local beaver enthusiasts and other members of the public were rewarded with clear sightings of the beavers, and submitted records. Many of the local beaver enthusiasts submit records to the ROBT using a standard spreadsheet that ensures the necessary information is collected to allow distribution maps of the different individuals to be generated.

Based on the systematic surveys of field signs carried out in winter 2015 / 16, and on sightings from that time, the two established family groups were known to be located in the vicinity of Otterton and Ottery St Mary at the start of 2016. Combined with the additional young pair of beavers known to be in the Honiton area, the population was estimated at approximately 11 animals in the last annual report in March 2016.

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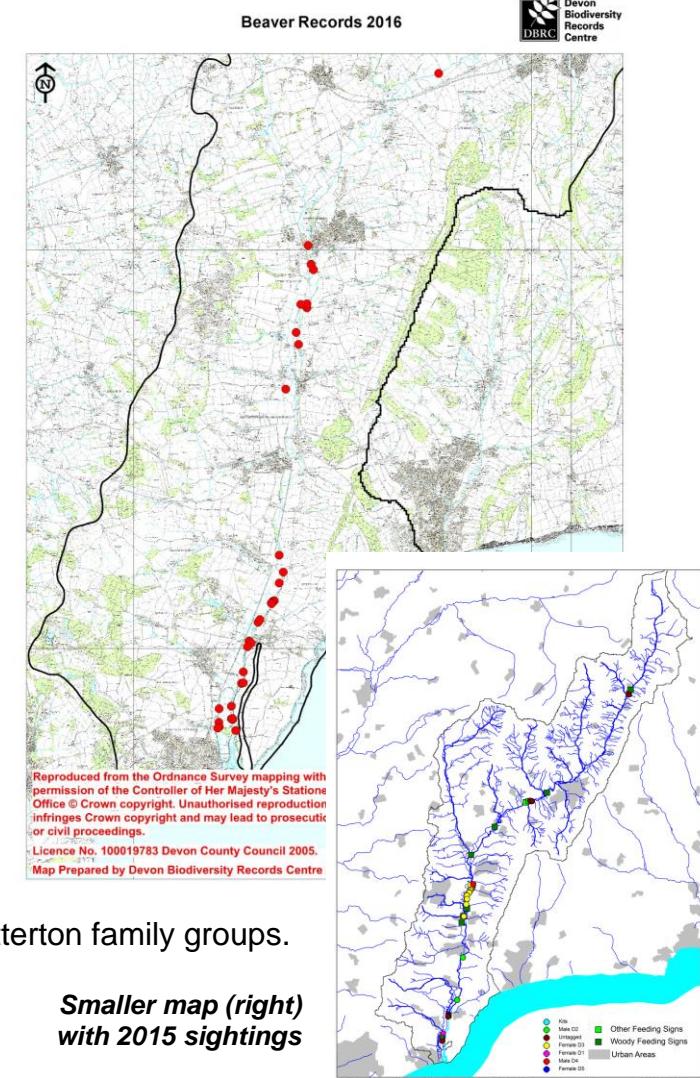
The **beaver sightings** by the public and beaver enthusiasts in 2016 show these two foci of activity clearly. These results are likely to overemphasise where they coincide with public footpaths and so are subject to greater survey effort.

In 2016, the profile and behaviour of the two main family groups was reversed from that seen in 2015 when the Otterton family were difficult to track down during the summer, with the Ottery St Mary group being constantly seen and were known to have given birth.

In 2016, the family group living just north of Otterton gave birth to five kits and from July were very visible during the long summer evenings, giving many people some very rewarding wildlife experiences. The pink tagged adult female beaver (F9848) was commonly seen and photographed suckling the kits outside the lodge (see front cover). Meanwhile the Ottery St Mary female was much more secretive and although there were some sightings in the stretch south of the town, there was no indication that she had successfully given birth to kits until storm Angus in November allowed one of the local beaver watchers to capture footage of two kits.

Beaver activity continued in the Honiton area, although the animals are using an extensive stretch of river and the exact location of the main dwelling isn't clear. The lack of public access in this area means there are fewer people watching them and providing records.

Much later in 2016, two additional sites were identified where beavers were living away from the main river, and are assumed to be living separately from the core family groups. Camera traps were deployed in order to establish the identity and number of individuals at these sites. Careful analysis has led us to conclude the animals to be dispersing two and three year olds from the Ottery St Mary and maybe Otterton family groups.



Smaller map (right)
with 2015 sightings

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Additional beavers released in May 2016

DNA analysis of the original beavers captured by APHA in February 2015 had confirmed that all the beavers were closely related. It was agreed by the Management Group and Licencing Group that additional animals should be released into the river to improve the genetic diversity. In December 2015 Natural England granted DWT, on behalf of the Trial partners, a licence to introduce an additional five beavers into the River Otter catchment.

An ideal release site (T4) was identified and the landowners approached. Discussions were also held with a number of the neighbouring landowners to ascertain their views on beavers in the area, with a majority of positive responses received.

Two suitable young individual beavers were identified. The female was born within the DWT enclosed site in West Devon in 2013, and the male was a similar aged captive bred animal, also born in a site in Devon. As shown in the last annual report, these two animals had been health screened and tagged, a procedure overseen by Roisin Campbell-Palmer from RZSS. The beavers were confirmed to be healthy and fit for release. As well as being fitted with subcutaneous PIT tags, the female (F5874) was given a single grey ear tag and the male (M4283) given a single red ear tag.

Although they had been briefly held together in an indoor pen at the Derek Gow consultancy, they had shown signs of aggression towards each other at that time, but this was put down to the artificial circumstances. As a result a decision was made to build two separate structures into which the animals could be



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released, allowing plenty of scope for one of the beavers to escape if there was any aggression. Considering the primary reason for release being to increase the genetic diversity of the overall population, this was an acceptable scenario, whilst acknowledging that establishing newly released animals as a pair is considered the optimum scenario for welfare reasons.



In the evening of 23rd May 2016, the pair of beavers was brought to the release site, and put into their respective lodges. These large structures had been built to incorporate high quality video cameras, and it was hoped that the beavers might eventually adopt one of them as a long term lodge, enabling their behaviour inside the lodge to be filmed. After a short while, as dusk approached, the beavers emerged from the lodges.

Following the release the beavers paired-up and established themselves on the site. The lodges that had been constructed were only used for a short period after the release. The beavers have however built a large lodge on a well-wooded nearby island on the release pond. They have also been filmed ‘wrestling’ and building numerous dams around the pond to raise and stabilise the water levels around this lodge, and have been feeding on the extensive willow scrub in the area.

The beavers have also occupied the nearby river and have built a significant dam providing potential opportunities for a wide range of research to be conducted on the impacts on the watercourse, ecology, fish populations, and sedimentation. Both the Universities of Exeter and Southampton have been conducting research on this stretch of watercourse.

Film cameras installed by Wildlife Windows have captured footage of the two animals together, as well as interesting footage of a beaver and an otter in very close proximity without any obvious signs of interaction.



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Trapping and tagging

The Natural England Licencing Group has requested that we attempt to trap and tag other beavers living on the river that had not been included in the original trapping operation in February 2015. This includes kits born on the river in 2015 and 2016. In spring 2016, a trapping operation was conducted in the Honiton area to establish the identity of the two animals living on that stretch of the river upstream of the other family groups. Although only for a short period, an occupied burrow was identified and the beavers were encouraged to take bait from traps however these animals were not successfully trapped on this occasion. This burrow is no longer occupied following flood conditions and as a result trapping of these beavers is not currently feasible.

From December 2016 to March 2017, five beaver traps were baited in three areas by Roisin Campbell-Palmer working closely with the field staff from Clinton Devon Estates. The three areas were in territories T2, T5 and T6. The kits born in the main Otterton family group (T2) were targeted in particular, as were the animals in the recently discovered sites off the main river. On this occasion trapping was successful and a total of seven captures were made. As well as the pink tagged female being caught twice and released quickly following a health check, two of the Otterton kits were captured and tagged (both female - F0829 and F0519). Three other animals were also caught and tagged in the other two territories T5 and T6.

Royal Zoological Society for Scotland (RZSS) have developed a small number of DNA markers that allow the parent / offspring / sibling relationships to be assessed. To date, it has only been possible to assess these very close relationships from DNA collected during trapping for health checks. In order to assess more distant relationships, and associated genetic health and diversity, a more diverse range of genetic markers will need to be developed.

Camera trap pictures of encouraging beavers into beaver traps



Based on the field surveys, anecdotal records and observations, and trapping and tagging operations carried out, **the beaver population on the River Otter is now estimated to be approximately 20 animals**. This is still consistent with the original APHA estimate of nine beavers living on the river in February 2015, including five younger animals, assuming there has been no mortality since 2015. It accounts for the Otterton pair giving birth to five kits in 2016 and none in 2015, and the Ottery St Mary pair having three kits in 2015 and two in 2016. It also includes the new pair released in May 2016. If all these assumptions are correct, the approximate locations of all of the animals in the population are currently known. Based on this, it is possible that up to five pairs of beavers could give birth to kits in the catchment in 2017.

Beaver Dam Capacity Modelling

Beaver damming is the most important aspect of their behaviour in terms of impact and associated conflicts. These impacts may be beneficial in some locations whilst causing local conflict in others. Given the importance of damming from both a restoration/conservation and management perspective, being able to understand where beavers might build dams is critical.

The Beaver Restoration and Assessment Tool (BRAT) was developed by Macfarlane, et al. (2015) in the United States and uses a number of widely available datasets to predict the numbers of dams that can be supported along a river's reach. This has proven to be extremely valuable for managers; by predicting where conflict is likely, it is possible to pre-empt beaver activity and respond more rapidly to impacts in undesirable locations. The tool has also been used in restoration projects to promote damming in suitable locations for beavers and also in terms of gaining the maximum benefit from their activity.

Pink tagged Otterton female (F9848) – mother of five kits in 2016 (Photo Dave White)



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The BRAT tool has been adapted to work on comparable datasets available within the UK and is now being used to predict beaver dam capacity on the River Otter. This modelling process is still in its infancy and further alterations and improvements will be made to the model over the next year. The key inputs to the model include – vegetation quality, low flow stream power, high flow stream power and gradient. The model then uses a ‘fuzzy inference’ system which relies on an empirically based set of rules. ‘Fuzzy inference’ is an ideal way to model this type of scenario as there is considerable variability in beaver behaviour and it does not need to satisfy the assumptions of more traditional statistical approaches.

Macfarlane, W.W., Wheaton, J.M., Bouwes, N., Jensen, M.L., Gilbert, J.T., Hough-Snee, N., Shivik, J.A. (2015) Modelling the capacity of rivers capes to support beaver dams. Geomorphology.



In June 2016 a **dead beaver was recovered from a beach in Brixham**, Torbay. The beaver was recovered by a local vet but due to its heavily decomposed state it was checked for PIT tags and then cremated.

Concern was raised that this beaver could have originated from the River Otter. Whilst it is not possible to rule this out, the distance from the river and the prevailing local currents make it highly unlikely.

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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 | 2016/17 | | | |
|------------------------------------------------------------------------------------------------------------------------------------------|---------|-------|-------|-------|
| | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Deliver workshops on beaver field signs and ecology for stakeholders and volunteers | | | | |
| Encourage submission of recent and historical records via project website, dedicated email and hotline | | | | |
| Recruit a team of volunteers to assist with various aspects of the project | | | | |
| Provide detailed training for volunteers to allow them to take on their particular roles and responsibilities safely and effectively | | | | |
| Encourage and motivate volunteers, ensuring quality of data collection and safe working practices. Host annual update event / conference | | | | |
| Develop and maintain a system of regular updates on Social Media, and through press releases | | | | |
| Develop and maintain a ROBT pages on the DWT website | | | | |
| Continue to publicise the contact details for the project / Beaver Hotline for reporting observations / incidents / areas at risk | | | | |
| Produce quarterly electronic ROBT newsletter, and annual paper update | | | | |
| Run regular guided walks on River Otter, increasing awareness and understanding of the beaver population | | | | |
| Provide talks for key stakeholders and others in accordance with communications and community engagement strategy | | | | |
| Visit schools in the catchment to raise awareness of the project | | | | |
| Identify and engage with local businesses / forums / tourist boards | | | | |
| Work with film makers and other media to disseminate accurate information about beavers and the ROBT | | | | |
| Devise and implement a qualitative sectorial assessment of changes in perception regarding beavers in the River Otter | | | | |
| Carry out an initial beaver perceptions survey among local and national stakeholders | | | | |
| Repeat beaver perceptions survey among local and national stakeholders | | | | |

The public and media interest in the project continues to be considerable. There are regular requests for talks by community and other stakeholder groups, and media interest remains very high. The project struggles to keep up with this demand, but is keen to capitalise on the opportunities presented to provide information about the ROBT, beaver ecology and management issues.

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This year, the publication of the research into the hydrological benefits of the beaver dams at the enclosed site has proved to be of particular interest to many audiences. The key national audiences and specialist stakeholders are highlighted under Objective 6 below.

In May, a joint **workshop was held with the Devon Archaeological Society** providing training on identification of field signs and survey techniques. In 2015/16 a large number of volunteers were recruited to assist with the project, but it hasn't yet been possible to benefit from the many skills offered. In 2017, it is hoped to spend more time investing in and developing this significant resource.

At the start of the year, the **DWT website was relaunched with dedicated pages** for both the River Otter Beaver Trial and the Enclosed Beaver Project.

<http://www.devonwildlifetrust.org/river-otter-beavers>

<http://www.devonwildlifetrust.org/enclosed-beaver-project>

Analysis of the website statistics reveals 9,142 views of the ROBT page and 4,211 views of the Enclosed Beaver Project page. The average time spent on each page was 3min 16sec and 1min 59 sec respectively.

The pages about the Enclosed Beaver Project include the short film that was made using the **aerial footage taken by the Springwatch drone** in early 2015. This has been one of our most popular films with 48,000 views of our Facebook post, and 530 likes.

A separate '**crowdfunding**' website was created for fundraising work for the beaver appeal generating new interest in the Trial and significant income for the project.

<http://supportdevonsbeavers.org/>

The **social media** (Facebook and Twitter) interest continues. Posts related to the beaver work are hosted on the DWT accounts, and are then reposted by a wide range of followers. A quarterly electronic newsletter for the project is also produced and distributed to those people that have registered to receive DWT's beaver updates.

An **annual paper newsletter** is also produced and in June, the '2016 Update' was printed summarising the findings from the winter survey, and updating local stakeholders on progress with the project (see picture right).

River Otter Beaver Trial: 2016 update

The River Otter beavers: one year on...

Welcome to the first annual summary of the work of the River Otter Beaver Trial (ROBT). We plan to produce summaries until the Trial's conclusion in 2020. To make sure you receive them and our regular quarterly electronic newsletter sign-up at our website www.devonwildlifetrust.org

The story so far...

After the first confirmation of a breeding population of wild beavers on the River Otter in 2013, five were captured by government officials in January 2015. These beavers underwent extensive health-checks by a team of specialists vets from Scotland. The checks showed the beavers to be entirely healthy.

On 23-24 March 2015, Devon Wildlife Trust (DWT) released the beavers back into the two stretches of the river where they had been captured. The release took place on the North and South West Rivers, which are a wide range of conditions and a five-year programme of research and monitoring. As a result the **River Otter Beaver Trial (ROBT)** was established by a partnership of organisations, led by Devon Wildlife Trust, with the experience to carry out this work.

The history of beavers on the Otter

No one is sure where the beavers originated, but there is evidence that at least one was living around Fenny Bridges as far back as 2007. A male beaver was found dead in April 2012 in the same area, and he is assumed to be half of the original pair.

DNA analysis of the five beavers captured in 2015 suggests they are all very closely related, and inbreeding is a significant problem for the future health of the population. DWT was recently granted permission to import a further number of additional animals to enhance the genetic diversity. This process began with the release of two adult beavers on the River Otter in May 2016.

Beaver walks and talks

Interest in the Devon Beavers has been overwhelming, and as well as 46 talks provided by a panel of experts, over 100 guided walks were very quickly booked up in 2015.

To find out about events programmed for 2016, join DWT or keep an eye on news at www.devonwildlifetrust.org

www.devonwildlifetrust.org

Protecting Wildlife for the Future

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A total of 49 presentations have been given this year to a range of audiences about the beavers in Devon. It is estimated that 2,680 people have attended these talks.

The talks explain the ecology of the species, impacts on hydrology and water quality, and the management of conflicts which arise drawing on the experiences of the Enclosed Beaver Project as well as the River Otter Beaver Trial. Long Q & A sessions and discussions are usually encouraged, and these also help to debunk some of the more common myths about beavers.



The presentations aim to address some of the issues outlined in the Communications Strategy such as what beavers eat, how their populations grow and are controlled, how they interact with the otters and fish, disease issues and a wide range of other topics.

| Date | Event | Staff | Attendees |
|----------|----------------------------------------------------------------------------|---------------------|-------------|
| 04-04-16 | Series of talks at new Seaton Jurassic Visitor Centre | ME | 50 |
| 12-04-16 | Talk to RSPCA West Hatch staff, Taunton | ME | 20 |
| 12-04-16 | Talk to SWT Taunton Local Group | ME | 40 |
| 17-04-16 | Winter Lecture at Lewes Linklaker Pavilion, Sussex | ME | 25 |
| 21-04-16 | Presentation to European Geosciences Union General Assembly 2016, Vienna | RB (UoE) | 150 |
| 26-04-16 | Presentations to River Restoration Centre conference, Blackpool | ME, DG, RCP, AP | 300 |
| 27-04-16 | Presentation to RRC workshop, Blackpool | ME | 25 |
| 04-05-16 | South west regional flooding and coastal resilience conference, Roadford | RB (UoE) | 120 |
| 05-05-16 | Rewilding Dorset conference, Charlton Down Hall, Dorset | RB (UoE) | 200 |
| 26-05-16 | Welsh Wildlife Trust - Beaver reintroduction, Llandrindod Wells, Wales | RB (UoE) | 100 |
| 03-06-16 | Presentation to British Hydrological Society conference, Loughborough | AP | 40 |
| 16-06-16 | Presentation to CLA by CDE Nature Conservation manager | CDE (SB) | 10 |
| 24-06-16 | Forest of Dean staff, Coleford, Forest of dean | RB (UoE) | 25 |
| 04-08-16 | Honiton Agricultural show - stand | PM / vols inc Tom B | |
| 07-09-16 | Presentation to Royal Forestry Society, Upcott Grange | DG | 44 |
| 09-09-16 | Presentation to Topsham Birders and Naturalists Society | ME | 60 |
| 13-09-16 | Rivers Trust Conference, Exeter | Dave Smith via BR | 100 |
| 19-09-16 | Presentation to CWT Bude Group, Parkhurst Centre, Bude | ME | 44 |
| 20-09-16 | Presentation to Dartmouth Probus Group | SHu | 35 |
| 05-10-16 | Presentation to ROBT Steering Group, Bitton Estate | ME, PB, HB | 15 |
| 14-10-16 | 3x 1.5 hr Beaver workshops in Withcombe Raleigh primary school | CDE (KP) | 14 |
| 16-10-16 | Presentation to Devon Tortoisie Group, East Budleigh Village Hall | ME | 30 |
| 18-10-16 | Evidence session at Environmental Audit Committee, Whitehall | RB (UoE) | 20 |
| 02-11-16 | Presentation to Pennon Business Club lunch, SWW Offices | ME | 50 |
| 03-11-16 | Presentation to Blackdown Hills AONB Man Group, Churchinford | ME | 25 |
| 12-11-16 | DWT AGM, Seaton Jurassic | PB | 250 |
| 12-11-16 | John Muir Trust AGM, Bristol | RB (UoE) | 150 |
| 29-11-16 | Presentation to Lyme Regis Society / Dorset WT, Woodmead Halls, Lyme Regis | ME | 50 |
| 02-12-16 | Presentation to Cornwall Catchment Partnership, Woodland Valley, Cornwall | AP | 12 |
| 07-12-16 | Presentation to East Exe Probus, Exmouth Rugby Club | ME | 45 |
| 09-12-16 | Talk to EU COST action group on Connecteur project, Isreal | RB (UoE) | 30 |
| 12-12-16 | Talk to National Trust Holnicote and south west region staff | RB (UoE) | 10 |
| 15-12-16 | Beaver quiz and talk for East Devon Countryside Volunteers | KP (CDE) | 47 |
| 09-01-17 | Talk to TWT Freshwater Committee | | 12 |
| 10-01-17 | Talk to Wessex Water staff and Catchment Panel, Bath | RB (UoE) / DG | 50 |
| 12-01-17 | Presentation to EA / DCC meeting about flow devices, Manley House | ME | 5 |
| 12-01-17 | Presentation to Plymtree After 8 group, Plymtree Village Hall | ME | 30 |
| 13-01-17 | Presentation to Highways Agency, Exeter | AP/RB | 30 |
| 16-01-17 | Presentation to Tipton Ladies Group | ME | 35 |
| 28-01-17 | Presentation to Cornwall Mammals Group, Woodland Valley, Cornwall | HG | 20 |
| 10-02-17 | Lecture to Edinburgh University | AP | 25 |
| 22-02-17 | Presentation to 2017 State of Beaver Conference, Oregon, USA | AP/HG | 50 |
| 10-02-17 | Visit to Ham Fen, Kent - to discuss monitoring work | ME | 5 |
| 28-02-17 | Parish Paths Partnership, Sidmouth Sailing Club | ME | 60 |
| 07-02-17 | Kingkerswell Natural History Society | ME | 50 |
| 08-03-17 | Natural Flood Management Training for NE and partners, Bridgewater | EPF | 48 |
| 21-03-17 | Talk to Forestry Commission staff, Cookworthy Forest Centre | ME | 15 |
| 24-03-17 | Talk to Ilminster group of Somerset Wildlife Trust | HG | 96 |
| 29-03-17 | Talk to Culm Advisors Group, Cookworthy Forest Centre | ME | 15 |
| | | TOTAL | 2682 |

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In addition to the indoor presentations, the partners carried out a range of **public events on the river** (see table right).

They included a large event organised by Clinton Devon Estate staff at Otterton Mill in August which was successful in attracting local people and tourists to hear about the beavers and the Trial.

479 people were engaged in 11 events on the river.

School education work

CDE's Countryside Learning Officer, Kate Ponting is involved with school groups in the valley and provides beaver sessions where required.

DWT Education Officer also includes beaver sessions within his offer to schools, and his school visits are listed separately here (right). 11 school visits

provided beaver lessons to nearly 700 students, and 135 teachers and parents.

| Date | Event | Organiser | Attendees |
|----------|------------------------------------------------------------------------|------------------|------------|
| 05-05-16 | Game and Wildlife Conservation Trust visit | PB / SB (CDE) | 8 |
| 23-05-16 | Releasing additional beavers at new site | PB / ME / HB etc | 15 |
| 02-07-16 | Guided walk for Stover Wildlife Watch group from Otterton Mill | KP (CDE) | 45 |
| 30-08-16 | CDE Stand, self-led trail and activities for children at Otterton Mill | CDE (KP) / DWT | 200 |
| 07-09-16 | East Devon Walking Group outing from Otterton | PB | 40 |
| 12-09-16 | Full day school river visit/walk from Otterton Mill | KP (CDE) | 24 |
| 15-09-16 | Public Guided walk / Sid Valley Association | ME / KP | 50 |
| 21-09-16 | 1/2 day school river visit/walk for Drakes and Otterton 6 children | KP (CDE) | 15 |
| 03-11-16 | Impromptu talk to Bicton College students | ME | 20 |
| 15-12-16 | Guided walk for East Devon countryside vols | KP (CDE) | 47 |
| 17-03-17 | Visit for Environment Agency FCRM staff | ME / RB | 15 |
| | | | 479 |

| Date | Location | Activity | Students | Teachers | Others |
|------------|--------------------------------|--------------------------------------|------------|-----------|-----------|
| | | BEAVER TALKS | | | |
| 8th June | Route 39 Academy/ 7 to 9 | Beaver talk/judging | 10 | 4 | 25 |
| 27th June | Oreston /Year 2 | Beavers | 60 | 4 | |
| 1st Nov | St Peter's Budleigh | Beavers for creative writing project | 30 | 1 | |
| 28th Nov | Willowbrook | Beaver update assembly | 330 | 18 | |
| | | BEAVERS INCLUDED IN | | | |
| 25th April | St Martin's Cranbrook / Year 5 | Wonders of wildlife chat | 60 | 4 | |
| 26th May | Route 39 Academy/ 7 to 9 | Local wildlife projects | 100 | 3 | |
| 12th May | Oreston /Year 2 | Nocturnal Animals | 56 | 3 | |
| 30th June | Cranbrook Campus | Speech day presentation | 48 | 8 | 65 |
| | | TOTALS | 694 | 45 | 90 |

Research into Public Perceptions of beaver reintroduction

In May 2016 Roger Auster conducted a series of **focus groups and questionnaires** with key stakeholders in the valley. Roger worked in close collaboration with Sarah Crowley who is conducting research into the public attitudes towards beaver re-introduction as part of her PhD with the University of Exeter. A qualitative interview analysis was conducted to enable an exploration of subjective perceptions of beavers. The study was taken from an impartial standpoint and all respondents remain anonymous and are only known to the University of Exeter researcher.

Participants were purposively sampled to include four landowners, three fishermen, three residents and two representatives of local business and their responses were given an equal weighting. Open questions were asked for respondents to lead the discussion but ensuring key topics were covered. Transcripts were coded to withdraw emerging themes. After 12 respondents discussion themes became saturated and no new themes emerged.

Based on the qualitative responses to this, the **University of Exeter then designed a questionnaire to examine the frequency of these feelings in society**. This questionnaire ran through the month of February 2017 and was primarily, but not exclusively, web-based. It was advertised through a variety of media outlets and a total of 2,759 responses were collected, including 831 from south west England.

The results are currently being analysed and should be published in a peer reviewed journal in 2017.

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Media Coverage

Appendix 7 contains a list of 128 items of media coverage that the ROBT and the Devon Beavers have received throughout the year. Some highlights include the following:

- ‘Into the Wild’ with Gordon Buchannan and Sara Cox (BBC2) – 13th April 2016
- Countryside Matters Magazine – by Sam Bridgewater – April 2016
- Simon Barnes article - Sunday Times Magazine – August 2016
- The Guardian travel - Saturday 25th June 2016
- BBC Spotlight x2
- BBC News 24 and BBC Breakfast – 28th March 2017
- Countryfile Magazine 13th March 2017
- The Times – 25th March 2017 (see picture right)
- Feature about Government Nature plan and River Otter Beavers (Channel 4 news) – 2nd March 2017

The coverage included a large piece on the BBC Earth website “Beavers are back in the UK and will reshape the land
<http://www.bbc.com/earth/story/20161005-beavers-are-back-in-the-uk-and-they-will-reshape-the-land>



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In the Daily Mail (22nd September 2016)



BEAVER BABY BOOM

Captivating pictures show they're back in our rivers – and DAM good at breeding

by Stephen
Moss

which, among other things, Agent Gandy had been instrumental in getting passed. The bill was first introduced in 1946, and by 1950 had little hope of becoming law.

It was during this period that Gandy, living in the West, got to know the "Dust Bowl" area well. He learned that the people there were in great poverty, and he decided to do something about it. He approached Congress, and in 1950, with the help of Senator George Smathers, he introduced a bill to provide relief to the people of the Great Plains. This bill was highly successful.

After the bill was passed, Gandy traveled throughout the country, speaking at rallies and events. He became known as the "Dust Bowl Doctor." He traveled to the Great Plains, where he met many people who were struggling to survive. He helped them find work, and provided medical care when they were sick. He also helped them to understand the importance of conservation. He spoke at schools and universities, and at community events. He became a beloved figure in the Great Plains, and his work there earned him the title of "The Dust Bowl Doctor."

Gandy's work in the Great Plains was not limited to the United States. He traveled to Mexico, where he helped to establish clinics and hospitals. He also worked in Central America, helping to establish clinics and hospitals there. He traveled to South America, where he helped to establish clinics and hospitals in Brazil, Argentina, and Chile. He also traveled to Africa, where he helped to establish clinics and hospitals in South Africa, Kenya, and Nigeria.

Gandy's work in the Great Plains and around the world has been recognized with numerous awards and honors. He has received the Presidential Medal of Freedom, the Congressional Gold Medal, and the Nobel Peace Prize. He has also been honored by the United Nations, the World Health Organization, and the World Bank. He has been honored by many countries, including the United States, Canada, Australia, New Zealand, and the United Kingdom. He has also been honored by the United Nations, the World Health Organization, and the World Bank. He has also been honored by the United Nations, the World Health Organization, and the World Bank.

Captivating pictures show they're back in our rivers – and DAM good at breeding



Welcome sight! The mother beaver sadness one of her five kits on the bank of the River Otter. Top, mom and two of her young glow on greenery at the water's edge.

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Sunday Times Magazine (August 2016)

Nature's engineers are back, and constructing masterpieces in the Devon countryside. All hail the mighty beaver

Simon Barnes

If you have a taste for wildlife, you learn how to wait. You can think great thoughts, or work out your expenses, or decide what you really should have said to that bloke, or curse each passing second, or seek a meditative trance, but it's all one to the wildlife.

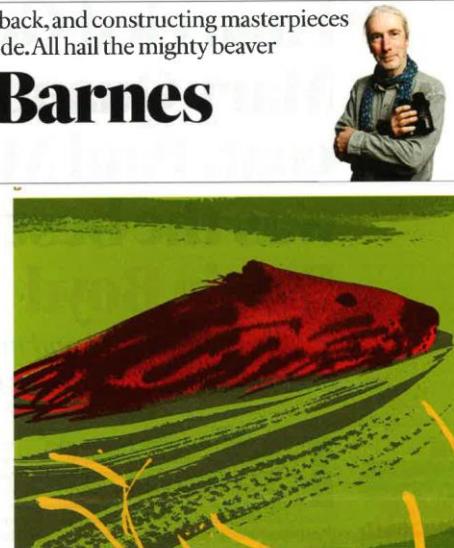
A kingfisher. Another. Mayflies. Banded demoiselles — lovely insects. An hour. Mew of buzzard, a chifchaff saying its name. Water hurrying over pebbles. Another hour. Raven gronking overhead. The light beginning to fade. And then, all at once, in the least dramatic way possible, a sight that was lost to England for 300 years.

Beaver. A female, big and burly, with calm eyes in her huge head, cruising along the confoundingly named River Otter in Devon. She travelled effortlessly, as if propelled by an outboard motor, a bow wave cutting the busy water. Then she clambered onto a convenient beach, rocked back onto her haunches and gave herself up to a long, complicated and delicious groom. The teats were prominent; you know what that means.

Beavers were once part of the British landscape, but we got rid of them. Their thick coats made them natural resources for the fur trade, and the Catholic church classified them as fish, so you could eat them on days of abstinence. We more or less forgot about them, so we changed our ideas of what a natural English landscape looks like.

The more wildlife we lose, and the faster we lose it, the more people get keen on reintroduction. In the past couple of decades, we have started to act on the dream of restoring at least part of our country to its past glory. It's a process that often leads to emotional, even rather mad confrontations, but we're making a tentative start with beavers. Beaver trials continue in Scotland.

Then, as if by magic, beavers appeared spontaneously in the River Otter. It's unlikely that they swam from Canada; someone sneakily and illegally released them. Official policy would be to extirpate them, but investigations showed that they'd been around for a few years, unobserved and doing no



harm to anyone. There was local tolerance and growing pride. The beavers were caught, tested for disease and parasites, and released again.

And what's this? Fizzing along the river, nose up, moving like a bath-toy, one of the beaver kits scurried along the river and joined its mother on the beach. A second followed, improbably buoyant and fury. This is success: beavers are back and breeding away.

Beavers change the world. Not here in the river — there is no need. But at another site nearby, a small captive population has created a masterpiece in three hectares. With their traditional navvying skills, they built a system of dams and sluices that transformed the place. An abandoned field with a trickle of water is now a terraced system of

SIMON SAYS

Check a buddleia bush for butterflies; identify them at butterfly-conservation.org

Watch the Paralympic stars at the last day of the London Anniversary Games today

Read The Fly Trap by Fredrik Sjöberg: a gentle study of hoverflies and obsession

@simonbarneswif

The Sunday Times Magazine • 9

Landlove Magazine (May 2016)



Europe's largest native rodent is on the brink of a great return as trials in England and Scotland prove just what we're missing out on

www.landlove.com Landlove 107

Feature Natalie Cotts Photo Courtesy of Devon Beaver Project © David Summer www.davidsummerimages.co.uk

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

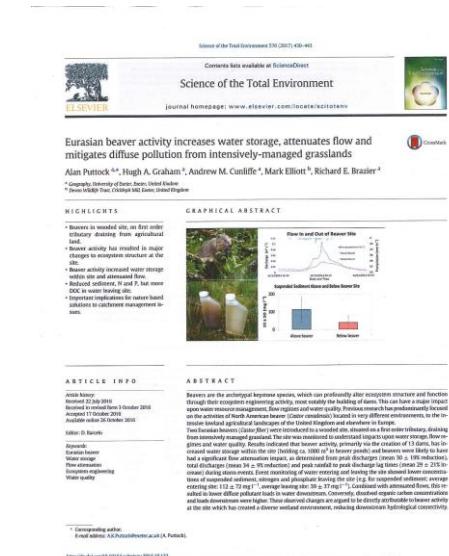
Principle Outcome: Environmental Assessment directly informs future reintroduction feasibility assessments and programmes.

| Activity | 2015/16 | | | |
|-----------------------------------------------------------------------------------------------------------------------------------|---------|-------|-------|-------|
| | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Publish findings in technical journals and other specialist publications | | | | |
| Hold open days at Devon captive beaver trial area for key stakeholders from the Otter valley and elsewhere | | | | |
| Present research updates and results at local and national conferences | | | | |
| Produce and disseminate nationally a final summary holistic assessment of the findings of the project and its relevance to the UK | | | | |
| Publish beaver management recommendations to NE | | | | |

In early 2017, the **University of Exeter** published a paper in the peer reviewed academic **Journal, The Science of the Total Environment** that summarised the findings of the hydrological research in the Enclosed Beaver Project

The paper was entitled “Eurasian beaver activity increases water storage, attenuates flow and mitigates diffuse pollution from intensively-managed grasslands,” and as a result of funding from the Natural Environment Research Council, was published Open Access. The paper can be viewed here:

www.sciencedirect.com/science/article/pii/S0048969716323099



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Devon Wildlife Trust has subsequently published a detailed 20 page report "**Beavers – Nature’s Water Engineers**" that summarised the research findings from the Enclosed Beaver Project and also initial evidence from the ROBT. 3,000 copies of the report were produced and these have been distributed to stakeholders locally and nationally. The report also includes recommendations for those considering beaver projects elsewhere.

The report can be downloaded from the DWT website here:

[http://www.devonwildlifetrust.org/sites/default/files/files/Beaver%20Project%20update%20\(LowRes\)%20.pdf](http://www.devonwildlifetrust.org/sites/default/files/files/Beaver%20Project%20update%20(LowRes)%20.pdf)

As a result of this work and press releases surrounding it, the findings are being widely disseminated.

On 18th October 2016, Professor Richard Brazier presented some of these findings to the **Environmental Audit Committee** in parliament as part of a hearing on Rewilding. This evidence can be viewed here:

<http://www.parliamentlive.tv/Event/Index/dd71f56f-f0fb-4ac1-9f11-c9ab1cd23321>

As part of an MA in Wildlife Documentary Film-making at Salford University, Matt Haworth produced a **stunning film about beavers and the Enclosed beaver Project**. This film generated significant additional interest and debate.

<https://vimeo.com/194631708>

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Other significant presentations and site visits that have been conducted by ROBT partners to help disseminate findings to inform future reintroductions include:



The Enclosed Beaver Project site is frequently used as part of these information gathering tours by specialist stakeholders which often take in the River Otter and Enclosed Beaver Project on the same day. The table (right) shows the groups that visited this site in 2016/17.

- Presentations to 2017 State of Beaver Conference, Oregon, USA;
- Talks and visits with Forestry Commission staff involved with the Forest of Dean enclosed beaver proposal;
- Talks and visits with those involved with the Cornish Beaver Project proposed for Ladock
- Talk to Welsh Wildlife Trust and others involved with the licence application in Wales
- Visit from National Flood and Coastal Risk Managers from the Environment Agency
- Four presentations to River Restoration Centre (RRC) national conference in Blackpool
- Talks on Natural Flood Management using beavers to National Trust, Forestry Commission, Natural England and Environment Agency

| Date | Reason for Visit / Event | Partners | Attendees |
|----------|---------------------------------------------------------------|---------------|------------|
| 08-04-16 | Chris Hassell and Sylvia Meller site visit | ME | 2 |
| 28-04-16 | Tony Juniper, Sue Sparks visit | ME, HB | 2 |
| 04-05-16 | Game and Wildlife Conservation Trust | PB | 8 |
| 08-06-16 | Visit by Brenda Pollack, Friends of Earth/Rewilding Britain | AP (UoE) | 1 |
| 28-06-16 | Defra Wildlife team | RB (UoE) | 10 |
| 02-08-16 | EA staff visit | RB (UoE) | 10 |
| 07-09-16 | Visit from Royal Forestry Society | ME / DG | 44 |
| 18-09-16 | visit from Bovey Tracey DWT local group | ME | 25 |
| 25-09-16 | Visit from Dorset WT photography group | ME | 5 |
| 19-10-16 | Visit from Dorset EA FGB team | ME | 12 |
| 09-11-16 | Forestry Commission (Rebecca Wilson and Pete), 2 NIA students | ME | 5 |
| 25-01-17 | Natural England (Dorset and Wiltshire) | ME | 5 |
| 08-03-17 | Tour with Royal Agricultural University, Cirencester | ME | 10 |
| 14-03-17 | Natural England visit to Boldventure | PB | 14 |
| 17-03-17 | Environment Agency National FCRM staff | ME / RB (UoE) | 15 |
| 21-03-17 | Forestry Commission SW Managers | ME | 15 |
| | | TOTAL | 183 |

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 |
| Project Management Group to meet regularly to oversee implementation of project | | | | |
| ROBT Steering Group to meet 6 monthly | | | | |
| Raise funds for continuation of the project and specific areas of work | | | | |
| Regular reports to Natural England as required by Licence conditions | | | | |
| DWT internal Communications group to meet quarterly | | | | |
| Science and Evidence Forum meeting quarterly and overseeing implementation of Monitoring Plan | | | | |
| Community Engagement and Education Forum to meet annually as a forum for volunteers | | | | |
| Fisheries Advisory Forum to meet as required, to guide fisheries research | | | | |
| Secure MOAs with DCC, EA, NE and other Key Stakeholders as required | | | | |
| Produce annual reports including Exit Strategy Trigger analysis | | | | |

The **Management Group** continues to manage the Trial effectively through formal meetings and regular informal contact between partner organisations.

The **Steering Group** meets 6 monthly (in April and October), to receive updates on different aspects of the Trial. The April meeting includes an assessment against the Exit Strategy triggers.

The **Natural England Licence group** currently meets approximately every 6 weeks, and reports on progress are provided by the Trial partners. From April 2017, this group will just meet quarterly

In March 2017, the ROBT Work Plan has been revised to take account of work carried out to date, and minor changes to the work now proposed reflecting the increased knowledge and experience of the project team, and a greatly improved understanding of the beaver population dynamics and behaviour in the catchment.

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Fundraising work is ongoing. In 2016 / 17 Garfield Weston confirmed their funding for the Trial, and another significant donor provided the funding for the installation of a network of cameras at the new release site. The Natural Environment Research Council also funded public engagement work to communicate findings of research work, via the University of Exeter.

A 'crowdfunding' campaign was launched to raise money directly from donors offering a range of incentives, such as beaver chips, guided walks. This included a dedicated website:

<http://supportdevonsbeavers.org/>

In January the Eurasian Beaver was nominated to be the **Wildlife Success of the Year by the BBC Countryfile Magazine**. Following a period of public voting, the beaver was announced as the winner. This reflected the success of the Scottish Beaver Trial as well as the work being carried out in Devon.



3. Exit Strategy

The following procedures were outlined in the ROBT Licence Application:

A clearly defined Exit Strategy forms a critical element of the ROBT. The ROBT Project Management Group firmly believes that the project will be successful; however, an effective strategy for termination has been developed as a precautionary approach. The Exit Strategy would be implemented during the trial in the event that insurmountable problems are experienced listed below. The trial will be terminated at conclusion if there is clear majority objection from impacted stakeholders for the retention of the beavers.

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 agreed by the Project Steering Group.
- Exit Strategy triggers have been published and circulated to both the MG and SG. 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 SG with advice and input from statutory and public authorities and the SG.
- 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.
- 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;

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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 2017

1. There have been a small number of cases of detrimental impacts resulting from the beavers' activities, that are managed in accordance with the Management Strategy. All impacts are considered to be at a low level.
2. Significant additional funding has been obtained in 2016/7, putting the project on a more secure footing for the next two years of the Trial.
3. No human or animal health issues have been identified.
4. There has been no evidence of beaver mortality to date, or any obvious threats.
5. There has been no request for the trial to be terminated by any of the impacted stakeholders.

Recommendation to ROBT Steering Group:

Based on these indicators and conclusions it is recommended that there is no reason to trigger the Exit Strategy.