

River Otter Beaver Trial Fifth and Final Annual Report

Spring 2020



*An additional beaver being released into the River Otter in April 2019
to enhance the genetic diversity of the population*

River Otter Beaver Trial (ROBT) Fifth and Final Annual Report – Spring 2020

The River Otter Beaver Trial (ROBT) 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, Dr 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, CLA, East Devon AONB, Devon LNP, Game and Wildlife Conservation Trust 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, Wellcome Trust, Natural Environment Research Council, the Tale Valley Trust, University of Exeter and from the generous donations from the public made to the Devon Beaver Appeal and through a dedicated crowdfunding website. The Environment Agency and Wessex Water have funded additional research work associated with the Trial, and Defra have contributed towards the production of the Beaver Management Strategy Framework (post 2020).



Key Headlines from River Otter Beaver Trial (ROBT) Year 5 (ending March 2020)

- This was the final year of the River Otter Beaver Trial – with the original 5-year licence expiring in February 2020.
- Following submission of the end-of-Trial outputs to Natural England and Defra, an extension to the licence was issued to provide time for a ministerial decision to be made on the future of the beavers on the River Otter, and elsewhere in England. For this period an additional licence was issued until 31st August 2020, and a financial contribution was made by Defra towards the costs incurred by DWT for this extension.
- In order to maintain consistency and complete the series of five-year reports, this Annual Report covers the period between 1st April 2019 and 31st March 2020. It should be read in conjunction with the Final Science and Evidence Report. Short monthly reports are provided to Defra and Natural England for the extension period until 31st August 2020, and the regular licence group meetings chaired by Natural England to monitor the Trial against licence conditions will continue.
- 2019 was the final year available to complete research identified in the Monitoring Plan. Detailed surveys were conducted on fish, water voles and breeding birds on the River Tale, and statistical analysis was carried out for presentation in the Science and Evidence Report.
- A final systematic survey of beaver activity was carried out between January and March 2020 concluded there were approximately 15 beaver territories / family groups throughout the River Otter catchment at the end of the Trial.

In January 2020 the final report by the Science and Evidence Forum was published and provided to Natural England and Defra. This was presented to the Steering Group who formally wrote to the Secretary of State with their summary and recommendations.

<https://www.exeter.ac.uk/crew/research/beavertrial/>



In June 2019, the Beaver Management Strategy Framework for the River Otter (post 2020) was published by the ROBT Steering Group, based on the work of a dedicated Working Group over 18 months, and part funded by Defra.

<https://bit.ly/2GxYktE>



- The final reports have been disseminated and very well received. A large event planned at the University of Exeter in mid-March to introduce the key findings was postponed due to the COVID-19 pandemic. There has been extensive media work marking the end of the Trial and the publication of the final reports – highlights include interviews on the R4 Today Programme, BBC1 6 o'clock news, BBC2 Winterwatch, BBC2 Politics Live and at least 50 pieces in national and local newspapers and on radio stations.
- During the year ROBT staff have delivered 25 more presentations to over 1700 people bringing the total for the entire Trial to 242 presentations, with an estimated total audience of over 15,000 people.
- Alongside this 14 more site visits, guided walks and riverside events were conducted on the River Otter and 15 more at the Enclosed Beaver Site in West Devon. The total number of such field events over the five-year Trial now stands at 164, with over 3000 people estimated to have attended and been given direct experience of beaver-engineered landscapes (and sometimes even beavers themselves).
- Towards the end of the year, these events have been focused on providing information about the Trial outputs to decision makers and professional partners such as Natural England and Defra, Environment Agency and Forestry England. Visits have also been made with other beaver projects undergoing licencing processes to disseminate experience of best practice in fencing, beaver management, and the science underpinning beaver reintroduction projects.
- Three additional beavers were released into the catchment to enhance the genetic diversity, bringing the total to five for the ROBT period – the maximum permitted by the licence. Unfortunately, one of these animals died shortly after release, and one of them spent a period out of the catchment before being retrieved and relocated with a new mate.
- Work to support landowners and monitor the beavers has continued throughout the year, and is continuing in the extension period. There has been an increased use of volunteers in order to enhance their capacity to help provide support after the Trial concludes.

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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 initiative, 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 headwater streams of river catchments. The contrasting nature of the enclosure and the beaver impacts in the river Otter have revealed important and complementary evidence to the River Otter Beaver Trial. As well as providing an additional, scientifically controlled, site to study the impacts of beaver dams on water and ecology, it is proving a vital resource for stakeholder engagement and education of the potential impacts of beavers in headwaters.

The full Project Delivery Plan (Gantt chart) is available on request. For each of the 6 core objectives, an extract of the plan is included in this report and colour coded to show progress for the financial year 2019/20. Some lines are blank because there was no work programmed for this year in the original Work Plan. The progress is graded as follows:

- **Red – Work not carried out**
- **Amber – denotes ongoing work (now not relevant now due to end of the formal Trial period)**
- **Green – Project Outcomes completed**

Reports against ROBT Project 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	2019/20			
	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)				
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				

During this final year of the project, the primary focus was on completing the research work associated with the Trial as outlined in the Monitoring Plan including the collecting of the end-of-trial data, and publication of the final Science and Evidence Report. In January 2019, the Science and Evidence Forum commenced an intensive routine schedule of meetings to compile the final reports and identify any gaps to be filled in the last survey season available.

Early in the process it was decided that the final outputs would comprise a widely accessible summary document, with linked research reports and published academic papers to add greater depth. This was due to the extensive public interest in the findings of the ROBT, and the need to communicate these findings to a wide audience including politicians and decision makers, as well as the technical staff at Defra and Natural England. It was decided that the series of reports that had been outlined in the licence application and in the Monitoring Plan would be combined into a single document, with chapters covering these key areas of research.

Survey work conducted in 2019

A baseline **survey of breeding birds** had been carried out on the Clyst William Cross CWS release site in May 2017, following the release of an addition beaver pair in the area. It was felt that the habitat changes that had occurred in the site in this short time may have already resulted in changes to bird populations, and that a repeat survey would be valuable in 2019. This was carried out by Devon Biodiversity Records Centre (DBRC) who carried out the initial baseline survey.

Similarly, **Water Vole populations** were surveyed in 2017, but the additional water and pond edge habitats now present could have improved water vole populations. Mervyn Newman, who conducted the original survey, was commissioned to repeat the survey in May 2019.

The changes that have occurred in the habitats structure and the way it is being managed by the beavers, in particular the issue of scrub encroachment due to lack of management had been identified as reasons why the **County Wildlife Site** was classed as RED (failing condition) in the most recent survey carried out in 2014. A repeat **Condition Assessment** by DRBC was therefore requested for 2019 to assess whether the change in management had had a measurable effect on the site condition.

In June 2019 a sub-group of the Fisheries Forum met to discuss additional surveys that could be carried out in 2019 to increase the range of fisheries information that was collected in the last survey season available. Unfortunately, the APEM salmonid habitat survey that had been conducted of the River Otter (published in 2012) hadn't covered the River Tale where the only significant 'in-stream' beaver damming had occurred. It was therefore decided to conduct a **detailed survey of instream habitats for fish** for the lower 8kms of the River Tale, so that the extent of habitats could be quantified, to include the habitats created by beaver dams. This was partly to enable to impacts of the beaver dams to be quantified in the context of the entire reach.

The baseline **electro-fishing surveys** that had been carried out in the River Tale where the beavers are now having the greatest impact was also repeated in 2019 by the team from Southampton University in four reaches of the Upper Tale.



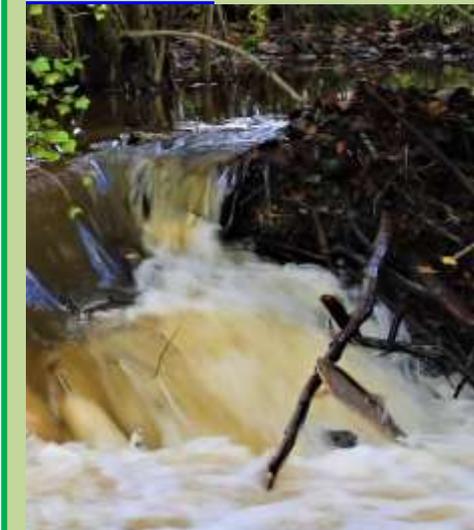
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Beaver dams have been found to be dynamic and temporary features, particularly in the higher energy streams in the catchment, and in order to accurately describe this, and the status of dams in the catchment at the end of the Trial, a **snapshot survey of the beaver dams** was carried out by the field officer over two days in October 2019.

During the Autumn 2019 when PhD researcher Kye Davies was going through an induction period and being introduced to research sites, a team of from the University of Exeter were able to film and photograph sea trout jumping the main beaver dam on the River Tale during high flows. As some fishermen remain concerned about the effect of beaver dams on migratory fish, this evidence of successful fish migration during these conditions was important, and the film was shared widely on social media.

<https://www.youtube.com/watch?v=X8OYL0iCOfQ>



The final **Science and Evidence Report** was completed and published in January 2020. As well as being published on the University of Exeter website, 2000 hard copies were also produced to be disseminated to all those with an interest in the findings of the Trial.

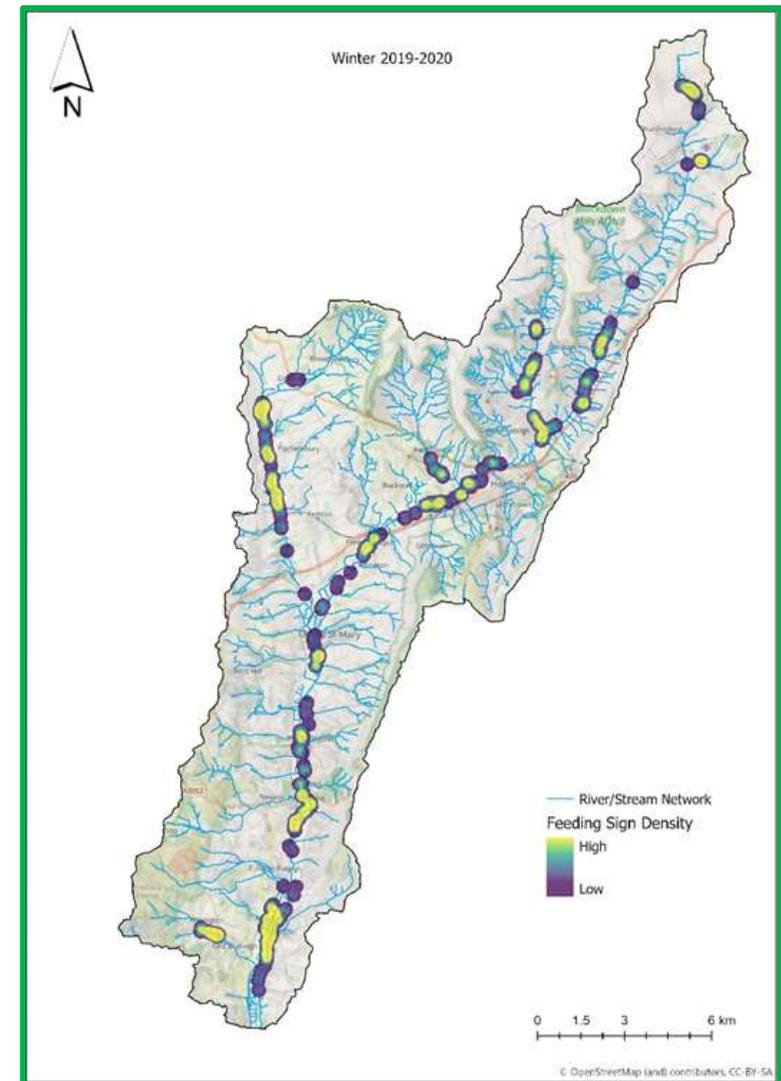
The appendices including all the supporting documents and reports were published on the same webpages:

<https://www.exeter.ac.uk/creww/research/beavertrial>

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The publication of the final report in January 2020 coincides with the **annual systematic survey of beaver field signs**. The final dataset available for inclusion in the Science and Evidence Report was therefore from the previous year. This had identified six other areas of activity in addition to those around the seven known breeding pairs, suggesting up to 13 territories could exist or be in the early stages of establishment.

The ROBT Field Officer was able to complete a further systematic survey of feeding signs during the spring 2020 season, and a heat map was produced by the University of Exeter. As the population increases, it gets harder to differentiate territories, but with an understanding of the location of individual animals (from previous trapping and the use of camera traps), the data suggest there could be up to 15 territories throughout the catchment. Of particular interest is the presence of beaver signs in the Love and Wolf sub-catchments, as well as extensive activity throughout the River Tale.



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	2019/20			
	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				

During the final year of the Trial much work was done to accurately quantify the socio-economic impacts of the beavers as part of the PhD being conducted by Roger Auster at the University of Exeter. As well as compiling the cost-benefit analysis in the final report and adding financial detail to many other areas, the outputs included a series of summary reports of different aspects that were included in the appendices.

The detailed assessment of costs and benefits provided by the beavers to the community of East Budleigh (a community at risk of flooding with beavers living upstream) was included in case study 2 of the main report:

[https://www.exeter.ac.uk/media/universityofexeter/research/microsites/crew/riverottertrial/ROBT_CS_2 Beaver wetland in farmland upstream of a flood-prone village.pdf](https://www.exeter.ac.uk/media/universityofexeter/research/microsites/crew/riverottertrial/ROBT_CS_2_Beaver_wetland_in_farmland_upstream_of_a_flood-prone_village.pdf)

<https://www.exeter.ac.uk/media/universityofexeter/research/microsites/crew/riverottertrial/appendix3/Flooding, Beavers and a Community in the River Otter Catchment - UoE November 2019.pdf>

This work highlighted very clearly how beneficial beaver engineered watercourses can be to reducing the height of peak flows due to the effect of their dams in slowing the flow, but that this can exert a cost in terms of the agricultural land impacted. However, it should be noted that the financial benefits outweigh the costs.

Part of a beaver-created wetland upstream of East Budleigh village – a village that floods due to culvert capacity, where the presence of beaver dams has been shown to reduce the peak flows



Part of the background work that was carried out within the community included a workshop that was set up by the ROBT, to which local representatives of the parish council and flood group were invited, and which sought to examine this example in detail and quantify the benefits to properties affected by flooding. This workshop was held on 20th June 2019, and was well attended by the Statutory Agencies with a responsibility for managing flooding in the area. Information about beavers and the Trial was presented, and then the research team from the University of Exeter presented data that explained the flood risks to the area, and the effects of the beaver dams on these risks. There followed a detailed discussion between the community and the academic hydrologists, as well as those involved with managing flood risks. Local people came away with a greater understanding of the science and complexity of the issues, and a feeling of being more involved in the discussion about their community and the flood risks that it faces and how natural processes can form part of the solution.

As in previous years, tourism operator Wildlife Travel, brought a group of customers to the River Otter as part of their programme of events. Once again, the visitors were able to get good views of the beavers and their habitats and hear about the Trial, and money was spent in local businesses. This collaboration between the DWT and Wildlife Travel is an important example which demonstrates the potential that wildlife tourism has for benefitting local businesses on the back of the presence of the beavers.

<https://wildlife-travel.co.uk/europe/devon-summer>

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	2019/20			
	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				
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				
Input experience into NE beaver management licensing protocols				

Environment Agency infrastructure checks

As part of a Memorandum of Understanding (MOU) with the Environment Agency, ROBT staff routinely check 27 key infrastructure locations through the Otter catchment for any signs of beaver activity or impact. This process has been refined over the course of the Trial so that it is conducted efficiently, and surveys prioritised to identify issues when the risk is greatest, and likelihood of activity is highest.



During this year new beaver activity was identified in the vicinity of SWW infrastructure near Ottery St Mary. In accordance with the MOU, the Environment Agency and SWW were contacted, but both consider the issues of low risk so no active management is required, although the site will continue to be routinely monitored.

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On two sites where beavers have been particularly active, creating and modifying wetland habitats, with the landowners supportively observing, it has been necessary to modify infrastructure to enable the landowners to continue to use the sites, whilst at the same time allowing the beavers to engineer the watercourses.

On one site a boardwalk was installed to enable to landowner and visitors to access the lower part of the site. Due to a beaver dam in the stream, water has flooded out of the channel into the wetland habitat, but this obstructs the former access route. This boardwalk was also large enough to allow the landowner to transport lightweight grass cutting machinery to all areas.



On a second site, in August 2019 the Field Officer worked with a contractor and the tenant farmer to install a new cattle crossing point across the Budleigh Brook. The new crossing point was needed as a beaver dam had made the existing crossing point unusable. The tenant farmer was having to move cattle around country lanes which was taking considerably longer than crossing at the old ford. The new crossing has been in place for 8 months and has now returned stock management to normal.





Issues associated with riverside maize

Within a number of territories, riverside maize has attracted the interests of feeding beavers. It appears to be of sufficient calorific value that it frequently results in a shift of behaviour by the beavers in order to forage on it during the late summer. In particular beavers appear to build dams in smaller adjacent streams in order to raise water levels to access the crops, and have also built bank lodges nearby.

In the autumn of 2019, beavers moved into a section of their territory on the River Tale where there are two maize crops close to the river. The beavers feeding on the maize is of little economic impact to the farmers and is not currently a concern. There is concern however of the increased likelihood of beavers building dams and lodges in sections of the stream where the maize is grown. Beaver dams can impact on agricultural land drains and beaver lodges can extend into a maize field and could potentially collapse when heavy farm machinery is used to harvest the maize crop in mid to late October.

To avoid risks to expensive machinery, ROBT staff used bamboo canes with flags attached to mark the location of beaver lodges. Contractors or farmers harvesting maize could then avoid these areas. The economic value of the lost maize has been calculated as part of the PhD being undertaken by Roger Auster at University of Exeter and is insignificant.

The planting of maize adjacent to watercourses is widely recognised to be a high-risk issue for water quality, as it is harvested late in the year, often leaving bare soil vulnerable to erosion into the watercourse in winter rains. One way to ameliorate these impacts is to leave a significant buffer strip alongside the watercourse which would also benefit the beavers and reduce conflicts, and this option is promoted wherever the opportunity arises.

Electric fencing was also used for 2-3 weeks to stop beavers accessing maize fields close to the stream. This also helped discourage them from dam and lodge building in the area.

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The second key output from the ROBT was published in the summer of 2019. **The Beaver Management Strategy Framework (BMSF)** was drafted up by a Working Group comprising experts in beaver management from a cross section of organisations from around the country, reporting to the ROBT Steering Group. The process involved 6.5 day-long sessions where many aspects of beaver management were discussed and a consensus built. The BMSF was designed to cover the period 2020 – 2030 for the River Otter catchment in the event that the beavers are permitted to remain at the conclusion of the Trial. However, the inclusion of national stakeholders including statutory Agencies has ensured that it can be more widely adapted and adopted if beavers are reintroduced elsewhere. The BMSF was published on the DWT website, and is also available as a hard copy. <https://bit.ly/2GxYktE>



The capacity of **volunteers** to support beaver officers is vital to the success and sustainability of a beaver management regime. Over the course of the Trial, volunteers have been recruited and trained to provide this support, with a view to supporting a sustainable delivery model post 2020. During 2019, volunteers were involved in tree protection and dam removal on a regular basis, and the Field Officer has worked particularly closely with a team of three volunteers who are at hand to remove the embryonic stages of beaver dams at certain locations. In areas where public access is good, other volunteers are now feeding back beaver activity to the field Officer who can then coordinate a response from other volunteers. Unfortunately, the use of volunteers has currently been curtailed following the government lockdown in response to the Coronavirus pandemic.

The active volunteers are a subset of the **Community and Education Forum** that met on occasions at the outset of the Trial. In July over 30 volunteers attended an evening event held at the Forest schools centre at Otterhead Lakes. Volunteers involved in the project received updates from Exeter University researchers and from the ROBT Field Officer. The event finished with a BBQ and an evening of beaver watching. The beavers thankfully attended the latter.



Beaver Hotline and ‘complaints’

The Natural England licence requires DWT to ensure impacted landowners can easily make contact and seek advice and support through a ‘beaver hotline’ which is regularly monitored. The email address beavers@devonwildlifetrust.org that is diverted to four inboxes has been the most effective way of providing out-of-hours coverage, with the DWT switchboard phone number also available during office hours. Regular emails are received to this address, the majority of which are simple beaver enquiries from the general public, sometimes reporting sightings, or asking where they can see the animals.

Some landowners and other interested parties have contacted us to report beaver impacts on trees and new dams in 2019/20. In almost all cases, a rapid response to concerns, with appropriate mitigation measures taken (e.g. protecting trees) is sufficient to satisfy all involved. Beaver impacts are also very seasonal, and so proactive work to ‘head-off’ issues before they arise is also a useful technique in reducing conflict. Maize dams and new tree ‘damage’ in late summer where beavers have been particularly active can be predicted and volunteers / staff effort concentrated.

However, the NE licence also requires DWT to collate and report any complaints that are received about the beavers. This is hard to clearly define, although there have been a small number of formal complaints received over the five years of the Trial. In the last year, two landowners have expressed annoyance at the presence of the beavers and their activities after efforts have been made to manage the situation, and so are categorised as ‘complaints.’

- The first of these is a location where the beavers have been active for a number of years, and DWT has been monitoring the impacts of beavers on a boundary fence-line. Despite attempts to discuss the details and potential mitigation measures with the owners in previous years, the landowner became aware of the waterlogging in the corner of his field in 2019 and made it clear he wanted to beaver dam removed. This dam was repeatedly removed in the winter 2019, draining a significant wetland habitat and refuge for aquatic wildlife, resulting in the beavers eventually moving upstream to a former location. Interestingly in January 2020 a member of the public known to ROBT staff, spent an hour or so returning all of the woody dam material removed by staff and volunteers back into the stream. This was the first time that a member of the public had acted in protest of beaver management. It took the ROBT Field Officer some time to remove the material again. Woody material removed from the stream by volunteers and staff is now spread over a wider area in the hope that this discourages similar actions.

- The second site is where a landowner has experienced ongoing beaver activity for a number of years due to their location near a large beaver territory. Beavers had been spending time in front of the landowner's property, grooming and marking their territory with scent mounds and feeding on two coniferous shrubs close to the watercourse. On one evening after high rainfall the stream level was very high. The landowner had let four pet dogs out and they had chased a beaver from its favoured spot. The landowner was very concerned that if her dogs followed the beaver into the stream they could drown. To stop the beavers from using this area the Field Officer installed a cat scarer. The cat scarer produces high frequency sounds that are unpleasant for a range of species including beavers. Although the beavers appeared oblivious to this sound to start with, after 4 weeks the beavers have reduced their use of this area, much to the relief of the property owner.

Factsheets

Specific factsheets have not been produced during the Trial. Although there are a number of themes that have arisen, it has been more effective to provide personal responses in all cases and signpost to other literature that has already been published. Regarding beaver management issues, during the Trial it has been necessary to provide detailed support and site-specific advice, with reference to the Eurasian Beaver Handbook (Pelagic publishing).

Based on this experience, factsheets on the following subjects could be produced in future:

- Beaver feeding on riverside trees (including orchards) and various methods of tree protection.
- The difference between the problems caused by non-native North American beavers introduced into Patagonia, with Eurasian beavers being restored to their natural ranges in Europe.

In May 2019 two beaver kits were spending a considerable amount of time in a large 'garden' pond. If beavers colonised the pond on a more permanent basis, ROBT staff were concerned that they might start dam building in a stretch of the river where raised water levels could impact on properties. ROBT staff installed an electric fence around the pond to prevent beaver access. The fencing was in place for 2 weeks and was an effective deterrent .



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	2019/20			
	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				

In April 2019, two individual beavers were captured from conflict sites on the River Tay in Scotland and introduced into the River Otter to enhance the genetic diversity of the beaver population. They were captured separately and transported by Dr Roisin Campbell-Palmer, and were health screened as part of the process. Off-line ponds make the ideal release locations, but there are so few of them in the catchment that it was decided to release these young animals into the main River Otter in carefully selected locations with supportive landowners, but not within occupied beaver territories. Although a higher risk strategy, it was felt that enhancing the genetic diversity of the population during the Trial period was vitally important for the long-term health of the population. These two individuals were released successfully into the river at dusk on separate occasions and in separate locations and both left the release crates without incident.

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One of these animals was subsequently found dead in the Estuary, with no signs of injury. A few months later the other was reported to have taken up residence in a pond just north of Otterhead lakes in the adjacent catchment (The River Culm). As this is outside the River Otter catchment, and therefore contrary to the ROBT licence, Natural England required that we re-capture it.

Following a period of careful camera trapping and baiting work, this trapping operation was successfully completed, to the disappointment of the owner where it had been living. During the relocation process the beaver was scanned for a pit tag. The pit tag number confirmed that this beaver was the male beaver from the earlier release. It appears the beaver found its way to the top of the River Otter and crossed into the neighbouring catchment via 3-4 intensive agricultural fields and a road. Support with clearing some of the impacted trees was provided by Devon Wildlife Trust staff.

At this point a new release pond within the River Otter catchment had been identified, and this male animal was moved into the pond with a temporary electric fence around it, and a female beaver trapped in Scotland and transported to join the male beaver in the pond. Once they were confirmed to have settled, the electric fence was removed. It is hoped these animals will breed in 2020 helping to increase the genetic diversity of the River Otter beaver population.



The ongoing **trapping and health screening work** that was undertaken during the Trial period came to an end in early 2019, with a total of 13 animals trapped during the season. The samples taken from these animals allowed the health status of the population at the end of the Trial to be compared with that of the animals trapped and re-released at the start, forming an important part of the Science and Evidence Report.

https://www.exeter.ac.uk/media/universityofexeter/research/microsites/creww/riverottertrial/appendix5/Final_trapping_and_health_screening_report_for_the_ROBT_-_RCP_2009.pdf

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

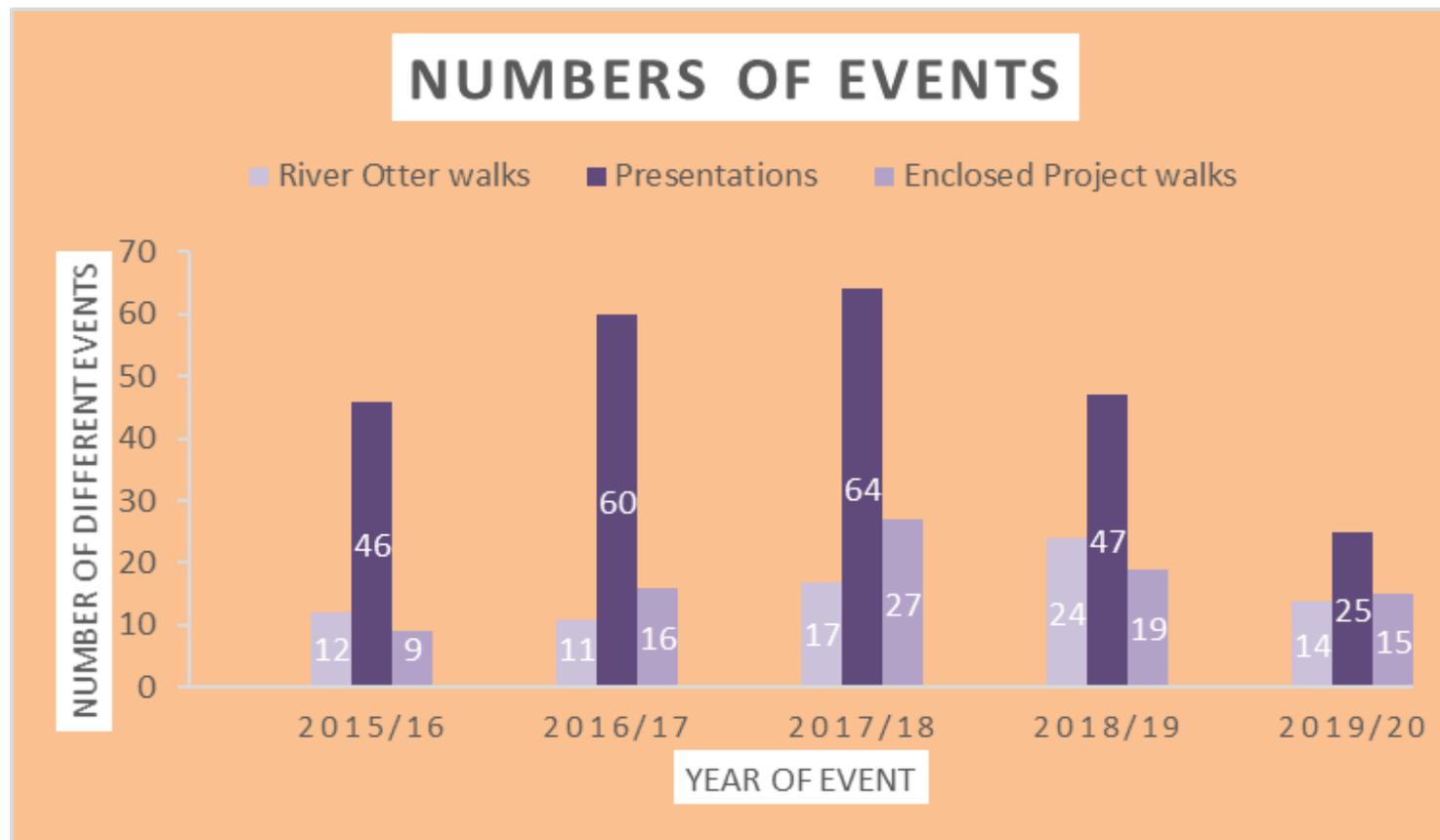
Principle Outcome: Beaver ecology and impact is well understood. The community is well informed and able to make representation on the future of the beavers. The community have benefitted from a diverse interpretation programme and have been driven the opportunity to re-connect with and value nature.

Activity	2019/20			
	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				

River Otter Beaver Trial (ROBT) Fifth and Final Annual Report – Spring 2020

During the year, ROBT staff have delivered 25 more presentations to around 1700 people bringing the total for the entire Trial to 242 events, with an estimated total audience of over 15,000 people.

Alongside this 14 more site visits, guided walks and riverside events were conducted on the River Otter and 15 more at the Enclosed Beaver Site in West Devon. The total number of such field events over the five-year Trial now stands at 164, with over 3000 people estimated to have attended and been given direct experience of beaver sites.



River Otter Beaver Trial (ROBT) Fifth and Final Annual Report – Spring 2020

In August 2019 the ROBT, (Clinton Devon Estates and DWT) hosted a **Beaver day at Otterton Mill**. Over 200 members of the public visited the event during the day. There were a range of activities available including children's events, guided walks and a wealth of education material available for all to access.

In June the University of Exeter and DWT hosted a **large evening lecture with Ben Goldfarb** (author of the book 'Eager – Beavers and why they matter'). 450 people attended, and a similar event was planned for the end of the Trial but was cancelled due to the COVID19 pandemic.

Every year ROBT staff deliver a **lecture to Bicton College students**. This year 30 students learned about the beavers, managing their impacts and potential future scenarios with beavers living across the UK.

In September farmers in the area that work together to deliver environmental benefits through the **Blackdown Hills Facilitation Fund Group** were invited to a beaver training workshop. The group visited Otterhead Lakes to see beaver activity and learn about beaver behaviour and beaver management. Since the training event three of the farmers have contacted the Field Officer to report signs of beavers on their land and one is very keen to encourage beavers onto their patch. In November the **Exe-Teign Facilitation Fund** also held an event focused on the beavers on the River Otter. Following a presentation at Clinton Devon Estates they were given a tour of River Otter sites to see the effects of beaver dams on the watercourse and farming systems.

Date	Event	Attendees	
13/04/2019	Presentation to Knepp Estate Safari team	12	
30/04/2019	River Restoration Centre conference (video)	340	
30/04/2019	DWT Programme Information Day	50	
20/05/2019	Exmouth Ladies Probus	45	
04/06/2019	Evening event with Ben Goldfarb	450	
19/06/2019	Budleigh Ladies Probus	40	
20/06/2019	East Budleigh Flood Meeting	14	
05/07/2019	Scottish Natural Heritage Lunchtime seminar	40	
06/07/2019	Scotlands Ally Conference	120	
15/07/2019	Talk to Dorset Wildlife Trust	12	
28/07/2019	Heath week festival	100	
16/08/2019	Beaver talk at Birdfair (day 1)	150	
12/09/2019	Talk to Knepp Farmers	25	
04/09/2019	Blackdown Hills Facilitation Fund training	15	
23/09/2019	National Trust visit	15	
29/09/2019	DWT Volunteers forum	50	
27/11/2019	Exe Teign Facilitation Fund training	15	
21/01/2020	DWT Staff meeting (all staff)	80	
21/01/2019	Bicton College lecture	30	
28/01/2020	DWT NIA and WW - presentation	15	
06/02/2020	Defra family of organisations visit - presentation	15	
11/02/2020	NT purbeck group - presentation	20	
12/02/2020	Defra family of organisations visit 2 - presentation	10	
13/02/2020	ROBT Steering Group - Science and Evidence prese	18	
17/02/2020	Tony Juniper visit - presentation of Science and Evi	2	
		TOTAL =	25

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	2019/20			
	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				

This area of work had the greatest focus during this final year, with the publication and dissemination of the results of the Trial being directly fed into the decision-making process and being used to influence policy formulation.

In addition to the presentations listed above, some groups were also invited to see key sites on the River Otter and / or the Enclosed Beaver Site in West Devon. These included teams from the Defra family of organisations that are responsible for formulating the Natural England led policy on beavers at the end of the Trial and producing decision papers for the Minister at Defra responsible for making the final decision on the future of the River Otter beavers and the status of the species in England.

Visits for both Tony Juniper, Chair of Natural England, and members of Natural England Senior Leadership Team, along with specialist Officers and members of the licensing staff attended a number of dedicated visits. The Environment Agency Operations Director and other key national and policy specialists also attended site visits and presentations.

River Otter Beaver Trial (ROBT) Fifth and Final Annual Report – Spring 2020

Date	Guided walks / visits on River Otter	numbers	total
14/04/2019	Guided walk and beaver watching for Knepp Estate safari team	12	
11/07/2019	River Restoration Centre - field visit part 1	5	
11/07/2019	River Restoration Centre - field visit part 2	33	
11/07/2019	EA Operations Director	7	
01/08/2019	Honiton Show	250	
29/08/2019	Otterton Mill Beaver Day	200	
23/09/2019	National Trust visit	15	
22/11/2019	Exe Teign Facilitation Fund event	15	
13/01/2020	NE Senior Leadership team	10	
28/01/2020	NIA visit to River Otter sites	8	
06/02/2020	Defra family of organisations visit 1	15	
11/02/2020	NT Purbeck team visit	20	
12/02/2020	Defra family of organisations visit 2	10	
17/02/2020	Tony Juniper visit and press work	2	
	TOTAL =	602	14

DWT provided presentations on the River Otter Beaver Trial at Birdfair 2019 in Rutland and also to the Necessary Beaver Conference in Scotland.

Whilst in Scotland, a **meeting with Scottish Natural Heritage** was held to discuss beaver policy and protection, and share approaches to management. It has been useful for the beaver protection and management policies to be understood so that lessons could be learned when deciding on the approach to be recommended in England. The debate has become unhelpfully polarised in Scotland, that it is useful to learn where different approaches might be used to avoid the same thing happening in England.

A lunchtime seminar was also provided to SNH staff which is available to view here:

<https://www.nature.scot/seminar-presentation-beavers-devon-what-happens-next-mark-elliott>

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In July the **River Restoration Centre** AGM was held in Devon, and site visits to beaver sites in the River Otter valley were included in the itinerary for the day, with general members of the RRC on the morning, and the full board taken to key sites in the afternoon. Members were able to observe where beaver dams have restored the natural geomorphological function to a section of the River Tale, raising bed levels, helping to reconnect the channel to it's floodplain, and increasing in-channel habitats.

Staff and stakeholders from a number of beaver initiatives elsewhere have also received presentations and site visits to Devon. Staff from the **Knepp Estate in West Sussex** visited in April, and then in September a presentation was provided to the landowners and farmers neighbouring the Knepp Estate about the ROBT and the Beaver Management Strategy Framework in particular.

The **National Trusts' Riverlands Project in Exmoor and Valewood Project in Surrey** have also had significant support and guidance, and DWT are on the Management board for the **Poole Farm Project in Plymouth**.

All of these sites are now licenced by Natural England to introduce beavers.

Staff, volunteers and stakeholders from the **two proposed projects in Dorset** have also visited Devon and been provided with presentations and field visits. This is likely to continue in the coming months to assist with their project plans, feasibility work and licence applications.



In 2019, the ROBT was finalist for the UK River Prize, the awards ceremony of which was held at the Annual RRC Conference Dinner. The four finalists were asked to make short video about their project which were shown at the conference dinner. The ROBT one is here:

https://www.youtube.com/watch?v=DrN2IWY1pE0&list=PL3eoaBdiC8XTahh9_xyzcluO2t3lyl7Lm&index=5&t=0s

The winners were the New Forest Wetlands.

Academic publications

The **Science and Evidence Report** and supporting academic papers and reports have been published on the University of Exeter website, <https://www.exeter.ac.uk/creww/research/beavertrial/>. In addition, other research papers based around work carried out on the ROBT have been published in the academic peer reviewed literature.

In June 2019, the **Mammal Review** journal published 'Reintroducing beavers *Castor fiber* to Britain: a disease risk analysis' <https://doi.org/10.1111/mam.12163>

In August 2019, the **Royal Geographical Society's journal 'Area'** published the paper 'Unravelling perceptions of Eurasian beaver reintroduction in Great Britain,' which included the findings of the public perception research work associated with the ROBT. <https://doi.org/10.1111/area.12576>

In August 2019, the **Veterinary Record journal** published 'Evidence of *Leptospira* species and their significance during reintroduction of Eurasian beavers (*Castor fiber*) to Great Britain' <http://dx.doi.org/10.1136/vr.105429>

In May 2020, the **European Journal of Wildlife Research** published the paper 'Modelling Eurasian beaver foraging habitat and dam suitability, for predicting the location and number of dams throughout catchments in Great Britain.' <https://doi.org/10.1007/s10344-020-01379-w>

Other articles, publications and media coverage

Once again, the project continues to generate extensive media interest and coverage. A database is maintained of all of the items that are seen or heard published or broadcast, and this now has 377 entries for the 5 years period from 1st April 2015 until 31st March 2020. That includes 66 items in the last year. The highlights include the following:

A film was made about the ROBT outputs for broadcast on BBC2 Winterwatch in January 2020 - <https://www.bbc.co.uk/iplayer/episode/m000dtqb/winterwatch-series-8-episode-4>



River Otter Beaver Trial (ROBT) Fifth and Final Annual Report – Spring 2020

A film shown on **BBC2 Politics** live in June 2019 - <https://www.bbc.co.uk/programmes/p07f3yff>

The original 2015 Springwatch film was also rebroadcast on **BBC 2 in Wild UK (Rivers)** and the programme **Hugh's Wild West** which featured the ROBT was also repeated.

Interviews were also broadcast on BBC R4 Today, BBC 6 o'clock News, BBC 1 Spotlight, ITV local news, Radio 5 Live, LBC radio, Talk Radio, RTE Radio 1 and there were numerous articles in the print media (national and local) – see a selection below.

A feature was included in the **RICS Journal (Land)** in October / November 2019 <https://www.rics.org/uk/news-insight/publications/land-journal/land-journal-oct-nov-2019/>

Social Media coverage

The social media work of DWT and the University of Exeter and other partners continues to be an important tool to broadcast information and key messages about beavers. During the past year, numerous tweets, and posts on facebook and Instagram have generated significant interest.

Particular highlights include a tweet about the benefits of beaver dams in reducing flooding <https://twitter.com/DevonWildlife/status/1195358938902007809> which was retweeted nearly 1000 times and watched by 70,000 people.

Another sequence of tweets showing sea trout jumping a beaver dam were also widely seen and retweeted generating interest and discussion about the issue <https://twitter.com/ExeterGeography/status/1200048293788737536>

River Otter Beaver Trial (ROBT) Fifth and Final Annual Report – Spring 2020

Extract from media database for 2019/20

01/04/2019	Ottery Gazette	Books for beavers at Roberts hardware	
29/04/2019	The I Newspaper	How beavers could be used to beat flooding and drought	
10/05/2019	Devon Live	Outrage after bullet-ridden corpse of pregnant beaver found on riverbank	https://www.devonlive.com/news/devon-news/outrage-after-bullet-ridden-corpse-2852756
01/04/2019	Saimo Trtta (Wild Trout Trust)	The River Otter Beaver Trial	
26/06/2019	BBC 2 Politics Live	Piece on the ROBT and flooding in particular	https://www.bbc.co.uk/player/episode/m00068v7/politics-live-26062019
26/06/2019	BBC website	Clip of article on Politics Live	https://www.bbc.co.uk/programmes/p073yff
26/06/2019	Instagram	Short film by BBC - 500,000 views	https://www.instagram.com/tv/BxYDriJne8o/?utm_source=ig_web_copy_link
25/10/2019	I news online	Where to spot wildlife in winter	https://inews.co.uk/news-lifestyle/travel/where-to-spot-wildlife-winter-uk-2019-beavers-devon-stoats-scotland-820097
30/10/2019	Daily Telegraph	Tide turns for beavers with hopes for a return to the wild	
20/11/2019	Talk Radio	Interview with Matthew Wright	
20/11/2019	The guardian	Beavers to be released as part of plan to ease flooding	https://www.theguardian.com/environment/2019/nov/20/beavers-to-be-released-in-plan-to-ease-flooding-and-aid-biodiversity
01/12/2019	Otter News (IOSF Journal)	Beavers can help otter populations	https://www.otter.org/images/adminPDFs/218.pdf
01/01/2020	AOL online / Yahoo	Experts hail success for England's only wild beavers	https://www.aol.co.uk/news/2020/01/01/experts-hail-success-for-england-s-only-wild-beavers/?guce_referrer=aHR0cHM6Ly9ib250ZW50bGlua3MudM
02/01/2020	BBC 1 National News	Story about the end of the Trial and 2020 decision	
02/01/2020	BBC1 Spotlight	Story about the end of the Trial and 2020 decision	
02/01/2020	ITV local news	Story about the end of the Trial and 2020 decision	
02/01/2020	Radio Exe	Story about the end of the Trial and 2020 decision	
02/01/2020	Radio 5 Live	Story about the end of the Trial and 2020 decision	
02/01/2020	LBC Radio - Nick Farrari	Story about the end of the Trial and 2020 decision	
02/01/2020	Mail online	Re-introducing beaver populations to Britain can boost wildlife	https://www.dailymail.co.uk/news/article-7843937/Re-introducing-beaver-populations-Britains-rivers-boost-number-voles.html
02/01/2020	Daily Mirror	Comeback of the beaver helps the environment	
02/01/2020	BBC R4 Today	Interview with Martha Carney at 6.50am + soundbite at 8.10am	
02/01/2020	Daily Telegraph	Beavers doing their bit to tackle climate emergency	
02/01/2020	Daily Telegraph	Editorial - beavering away	
01/02/2020	Telegraph online	Reintroduction of beavers could protect land against floods and climate change	https://www.telegraph.co.uk/news/2020/01/01/reintroduction-beavers-could-protect-land-against-floods-climate/
02/01/2020	Independent	England's first wild beaver colony helping communities and climate	https://www.independent.co.uk/environment/wild-beaver-colony-river-otter-devon-environment-defra-a9267331.html
02/01/2020	The guardian	Beavers slow the flow of water and aid other wildlife	
02/01/2020	Western morning News	Beavers can benefit our landscapes	
02/01/2020	The Metro	Eager for more beavers! Experts hail trial in the wild	
02/01/2020	I newspaper	Dam good to have you back	
02/01/2020	AOL online / Yahoo	Experts hail success for England's only wild beavers	https://www.aol.co.uk/news/2020/01/01/experts-hail-success-for-england-s-only-wild-beavers/?guce_referrer=aHR0cHM6Ly9ib250ZW50bGlua3MudM
02/01/2020	ITV.com	Experts hail success for England's only wild beavers	https://www.itv.com/news/2020-01-02/experts-hail-success-for-englands-only-wild-beavers/
02/01/2020	Daily Mail	River dwellers benefit from busy beavers	
02/01/2020	The Independent daily	Experts hail success for England's only wild beavers	
02/01/2020	The Sun	Beavers Dam fine	
02/01/2020	Yahoo UK!	Reintroduction of beavers could protect land against floods and climate change	
04/01/2020	BBC Online	AWOL beaver collected from Somerset House	https://www.bbc.co.uk/news/av/uk-england-somerset-50982337/awol-beaver-collected-from-somerset-house
05/01/2020	Daily Telegraph	Breakout beaver discovered after knocking down tree	
06/01/2020	The ecologist online	Beavers brought back to Britain get busy	https://theecologist.org/2020/jan/06/beavers-brought-back-britain-get-busy?fbclid=IwAR2bT1pA4NtEg_gvtIshz5Fxi0yXG5UJomX2yYwM5hN9bEC2wC
05/01/2020	Sunday express	Mr Beaver's adventures in the wild	
08/01/2020	BBC Radio Somerset	Interview about AWOL beaver	
10/01/2020	Daily Telegraph	Helpful beavers welcomed back	
14/01/2020	Mark Avery blog	Natures Climate rebels	https://markavery.info/2020/01/14/guest-blog-natures-climate-rebels-by-eva-bishop-of-the-beaver-trust/
16/01/2020	Ecoshustler	Can beavers help somerset avoid another flood	https://ecoshustler.com/nature/can-beavers-help-somerset-avoid-another-flooding-catastrophe/
31/01/2020	BBC 2	Winterwatch	https://www.bbc.co.uk/programmes/p081yw5l
01/02/2020	The Guardian	Dam fine: estate owners queue up to reintroduce beavers	https://www.theguardian.com/environment/2020/feb/01/beavers-uk-estate-owners-reintroduction-conservation-flooding?CMP=share_btn_tw
02/02/2020	Sunday Telegraph	Will romance blossom for the beavers of love pond?	
03/02/2020	RTE Radio 1	Mooney Goes Wild	https://www.rte.ie/radio/radioplayer/html5/#/radio1/21705579
10/02/2020	BBC2	Wild UK Programme on Rivers	https://www.bbc.co.uk/player/episode/b08tb9t1/wild-uk-series-1-1-rivers
17/02/2020	Independent	Beavers cut flood risk, clean rivers and boost wildlife	https://www.independent.co.uk/environment/beavers-flood-risk-river-otter-devon-fish-wildlife-uk-study-a9339031.html
17/02/2020	BBC R4 Today Prog	Short piece quoting Guardinga article and DWT	
17/02/2020	The Guardian	Beavers cut pollution, easy floods and boosts wildlife study shows	https://www.theguardian.com/environment/2020/feb/17/beavers-cut-flooding-and-pollution-and-boost-wildlife-populations
17/02/2020	Daily Telegraph	Beavers boost fish numbers, and have little impact on farming	https://www.telegraph.co.uk/news/2020/02/16/beavers-boost-fish-numbers-have-little-impact-farming-first/
17/02/2020	Daily Telegraph	Beavers should be free to roam, study says	
17/02/2020	The Times	Beavers help stop flooding of homes study finds	
17/02/2020	The I	Beavers reduce flooding risk	
17/02/2020	ITV local news	Short piece on 6pm news	
17/02/2020	Talk Radio	Matthew Wright programme	
17/02/2020	BBC 1 - Spotlight	Article with Adrian Campbell	
17/02/2020	BBC 5 Live	Interview with Alan Puttock	
18/02/2020	LBC Radio	Nick Farrari show	
19/02/2020	Western Morning News	Floodwater is tamed as natures engineers get building	
21/02/2020	ENDS report	Benefits of letting beavers loose	https://www.endsreport.com/article/1674710/benefits-letting-beavers-loose-englands-rivers
20/02/2020	Intelligent living website	Beavers reduce pollution cut floods and boost wildlife	https://www.intelligentliving.co/beavers-reduce-pollution-cut-floods-and-boost-wildlife/
27/02/2020	ZME Science website	Beavers to the rescue	https://www.zmescience.com/science/beavers-to-the-rescue-an-unexpected-ally-against-flooding-and-pollution/
01/05/2020	Devon Life Magazine	Trials and tributaries	
22/02/2020	RTUK news		https://www.facebook.com/RTUKnews/videos/211532409995959
02/04/2020	Positive news blog	How return of the beaver is changing Britain for the better	https://www.positive.news/environment/how-the-return-of-the-beaver-is-changing-britain-for-the-better/
09/04/2020	Rational thinking blog	Restoring beavers to the wild requires political leadership	https://relationalthinkingblog.com/2020/04/09/restoring-beavers-to-the-wild-requires-political-leadership/
15/05/2020	Western Morning News	West has proved case to bring back beavers	
25/05/2020	LBC Radio - Nick Farrari	Reasons to be cheerful piece about beavers	

Daily Telegraph – January 2020

Britain's beavers doing their bit to tackle climate emergency

By Patrick Sawyer

THE reintroduction of beavers in Britain's streams and rivers could help protect vital wetlands from flooding and the impact of climate change, trials have shown.

Dams built by the creatures, which died out 600 years ago through cutting and hunting by people before being re-introduced to key areas over the past decade, are found to significantly slow the flow of water downstream and reduce peak flows after heavy rain.

This has the effect of protecting nearby land from flooding as well as retaining water in streams during droughts. The Daily Telegraph reported last year that such trials could eventually see beavers released into the wild for the first time.

Research carried out during the five-year trial on the River Otter, in Devon, has also found that the beaver dams prevent sediment and inorganic nutrients being washed from farms, creating plant life to flourish and boosting other types of wildlife.

Prof Richard Brazner, from the University of Exeter, said: "It's an amazing story, it's far more change than we ex-

300

The number of years ago that beavers became extinct in Britain after being hunted for their pelts

pected." The project, run by Devon Wildlife Trust, to reintroduce the mammal into a controlled section of the River Otter, has seen them build 11 dams, creating new ponds with reeds to link them. Two additional beavers were introduced into a pond adjacent to the River Tavy, the Otter's main tributary, in 2016.

The beavers began supplying willow around the pond and nearby grassland, creating more varied and open habitats. Dams also started to appear on the River Tavy itself, creating larger areas of new freshwater habitat.

Researchers have now reported that while the dams are frequently washed out after heavy rain, the beavers have managed to restore natural riverbanks, creating more meanders that slow the flow of water.

The larger dams had increased water levels enough to create new channels running across the floodplain, re-creating the Tavy a beaver's paradise as ex-



A beaver growing on the River Otter in Devon as one of its kits gnaws a willow sapling she's cut. Below, a beaver gnawed by beavers introduced to the River Otter

The dams the beavers create will hold water in dry periods, lessening flooding

downstream. The Government is due to make a decision on the future of the River Otter project in March, when the Devco expires, possibly giving the go-ahead to other, more extensive controlled releases in England.

The River Otter project is one of a number of trials of enclosed sites across the country, with schemes also being piloted in Cornwall and Kent.

This spring the National Trust is planning to release three pairs of beavers into enclosures at Ballicorne on the edge of Exmoor in Somerset and Valewood on the edge of the South Downs in West Sussex, where it hopes

their dams will help reduce flooding. Ben Hambley, project manager for the National Trust at Ballicorne, said: "Their presence in our river catchments is a sustainable way to help make our landscape more resilient to climate change and the stresses of weather it will bring."

"The dams the beavers create will hold water in dry periods, help to lower flash-flooding downstream and reduce erosion and improve water quality by holding silt."

In some cases the reintroduction of beavers has led to problems for farmers, with animals targeting reduced



trees near the river. Claire Robinson, the National Farmers' Union senior countryside adviser, said the results from trials would need to be examined before wider moves to reintroduce beavers were taken.

She said: "We do have concerns about the potential damage to farmland and the landscape."

But backers say the benefits outweigh the disadvantages. Prof Brazner said: "Overall, the social and economic benefits of having beavers in the landscape far outweigh the costs."

Editorial Comment Page 30

Tom Maltby

BBC Wildlife Magazine – Spring 2019



OUR WILD WORLD

Beaver damming

- 1 WHY DO BEAVERS BUILD DAMS?**
Beavers are semi-aquatic animals and feel safest in deep water, which allows them to move freely through their territory and escape predators. Beavers also like the entrance to their lodge or burrow to be submerged, so if they live in an area with fluctuating water levels, they'll build a dam to create a deep pond. Dams are not usually found in large rivers and streams, as the water depth is sufficient.
- 2 HOW ARE WATER LEVELS MAINTAINED?**
The depth of the pond is determined by the height of the dam, known as the 'crest level'. The sound of water trickling over the lowest point of the crest level alerts the beavers to where the barrier needs to be patched and raised. Patching raises the water level slightly, pushing the water over the next lowest spot, which is then also patched – and on it goes. Over time, beaver dams grow in length and height and can develop into enormous structures in some cases. Both males and females build, assisted by their kits, who instinctively know what to do.
- 3 CAN BEAVERS DAM FAST-FLOWING WATER?**
When they do dam a fast-flowing stream, beavers build out from the banks with sticks placed parallel to the flow, rather than perpendicular to it. The channel is slowly confined into a smaller and smaller space until the beavers can eventually block the gap. Dams are built with whatever can be found locally – willow branches and hazel coppiced out of hedgerows are particularly popular on Devon's River Otter. Beavers also fell and chop up small trees using their teeth, and even use debris such as bricks, bumps of concrete and fence posts. Mark Elliott

BASC Magazine – Shooting and Conservation – March 2020



It's all about the water levels

Young Skans Landwife **ELAN THURMER** reports on two beaver re-introduction projects in the South West that are having positive impacts on local ecosystems.

The time of the beaver has returned to the UK in a significant way. Beavers were reintroduced to the UK in 1949, and since then they have been steadily increasing in number. The Devon Wildlife Trust and the River Otter Trust are now supporting a project to reintroduce beavers to the River Otter in Devon. This project is being led by Elan Thurmer, a local landwife who has been instrumental in the project's success.

Elan Thurmer, a local landwife who has been instrumental in the project's success, reports on two beaver re-introduction projects in the South West that are having positive impacts on local ecosystems.

The first project is in the River Otter in Devon, where beavers have been reintroduced to the river. The second project is in the River Tavy in Devon, where beavers have also been reintroduced to the river.

Beavers are semi-aquatic animals and feel safest in deep water, which allows them to move freely through their territory and escape predators. Beavers also like the entrance to their lodge or burrow to be submerged, so if they live in an area with fluctuating water levels, they'll build a dam to create a deep pond. Dams are not usually found in large rivers and streams, as the water depth is sufficient.

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“...the introduction of beavers could provide a natural flood defence”

River Otter Beaver Trial (ROBT) Fifth and Final Annual Report – Spring 2020

Salmo Trutta – The journal of the Wild Trout Trust (2019)



Devon Life – May 2020



Trials and tributaries

TOSY JACOBSON reports on the end of the five-year River Otter Beaver Trial, and reveals what will happen next

For years, a river flowing through the heart of Devon has been the subject of a unique experiment. The River Otter, a tributary of the Tavy, has been the focus of a five-year trial to reintroduce beavers to the county. The trial, which began in 2015, was the first of its kind in Devon and the first in the UK to be run by a wildlife trust. The trial was a success, with beavers thriving and creating a new habitat for other wildlife. The trial was a success, with beavers thriving and creating a new habitat for other wildlife. The trial was a success, with beavers thriving and creating a new habitat for other wildlife.



River Otter Beaver Trial (ROBT) Fifth and Final Annual Report – Spring 2020

Wild Devon – DWTs membership magazine (Spring 2020)



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	2019/20			
	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 **Project Management and Governance** for the ROBT has continued in the same format throughout the Trial, with the NE licence group scrutinising compliance with the licence conditions, the Management Group overseeing the day-to-day delivery of the Trial, and the Steering Group meeting on a 6 monthly basis to advise of specific aspects of the project and formally assess the Exit strategy triggers annually.

The **Natural England Licence Group** met on 8th May, 18th September 2019 and 9th January 2020 and were kept abreast of developments and compliance against licence conditions.

The **Science and Evidence Forum** has continued to drive the Scientific Monitoring and research which culminated in 2019 / 20 with the production of the Science and Evidence Report, which was the most significant piece of work undertaken as part of the Trial this year. The group met frequently throughout the year to drive forward the production of this document.

A sub-group of the **Fisheries Forum** met on 5th June 2019 to discuss whether there were any additional areas of research that could be carried out in the final survey season of the ROBT. A number of suggestions for surveys were made and, with the exception of a survey of the Budleigh Brook, these were all carried out, adding significantly to the fisheries section of the Science and Evidence Report.

The **Community and Education Forum** have not formally met since early in the Trial, but a subset of the Forum now make up a pool of volunteers that assist with monitoring and beaver management. An evening meeting and barbeque was held at Otterhead Lakes on 12th July 2019 where this group was given an update on the Trial and thanked for their support and assistance with food and drink, and some beaver watching.

Steering Group - Final meetings and recommendations

The Steering Group met on **25th April 2019**, and were presented with the 2019 annual report, which was discussed. An assessment against the Exit Strategy Criteria was made and it was decided, no trigger points were met. This was the final opportunity for the Steering Group to recommend that the Exit Strategy be triggered during the Trial period.

At this meeting SG members were presented with the draft **Beaver Management Strategy Framework and covering letter for the Minster**. There was detailed discussion and feedback, and with a further teleconference on 10th May, this was finally accepted by Steering Group. This document and introductory covering letter is available to view here. <https://bit.ly/2GxYktE>

The Steering Group met again on **10th October 2019** and were presented with a range of scenarios for the post Trial period.

The Steering Group then met again on **13th February 2020** and were presented with the **Science and Evidence Report findings** by the Chair of the Science and Evidence Forum, Professor Richard Brazier. The Group was then asked to formally assess the findings of the Trial; the objective being to communicate collectively to the Minister our assessment against the Trial's Goals, and Criteria for Success and Failure.

Licence Application Goals - The following goals were identified by the ROBT Management Group during the licence application, as recommended by IUCN guidelines for species reintroductions:

- 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.

Licence Criteria for success - The following success and failure criteria were detailed by Natural England in the Licence to Release:

1. Survival of introduced animals is similar to successful re-introduction programmes elsewhere in Europe at similar period of population establishment.
2. A stable or increasing core population is achieved within the limits of the study site.
3. The impacts on landowning and riparian interests have been fully assessed, and the cost of mitigation quantified.
4. The beaver population demonstrates a positive contribution to ecosystem function.
5. Beaver re-introduction is integrated with other habitat management/restoration operations.
6. The impact on the economy of the area as a result of the presence of beavers is neutral or positive.
7. Local support sustained/increased.

NB . With regard to Criteria 3: it was felt that this has been met for the River Otter catchment Trial. However it was recognised that there will be more information and evidence to be gathered that will be relevant to different landscapes / geographies elsewhere in the Country.

Regarding Criteria 5, The Trial has integrated effectively with a wide range of conservation and land management initiatives. For example, the Upstream Thinking team active on the River Otter have been working closely with the ROBT. We have also worked with Facilitation Fund partnerships providing training etc. The opportunity to integrate with other operations such as the ELMS Trials or the LORP weren't possible due to mismatch of timings. It was highlighted that the new ELMS needs to accommodate wetlands created by beavers, and their inherent unpredictable nature. The current agri-environment programmes would not be able to reflect this dynamism and for example, the capacity to make retrospective payments and conflicts with Ineligible Features.

Licence Criteria for failure:

1. Mortality levels preclude establishment of genetically distinct breeding populations.
2. Significant and unsustainable damage is incurred by the ecosystem within the study site.
3. Landowners within the catchment or surrounding area provide evidence of significant economic loss as a result of beaver activities.
4. Significant reduction in community and stakeholder support.

The Steering Group concluded that:

- *the Trial has met its three goals – reflecting IUCN species reintroduction guidelines*
- *the Trial has been a success, having met all the success criteria*
- *none of the criteria for failure have been met*

The Steering Group believes that the government now has comprehensive information from which to base a decision regarding the future of beavers on the River Otter and neighbouring catchments. The group believes that, should the decision be for the beavers to be allowed to remain, it would be essential that the management imperatives and recommendations in the associated Beaver Management Strategy Framework are implemented in full.

The group recognises that there will be opportunities to complement our evidence base with new data secured from ongoing studies both in the River Otter and other release programmes nationwide. For example, as noted in the report, the River Otter, presented limited opportunity to evidence impacts around migratory salmonids.

The Steering Group considered the future of beavers on the River Otter. A clear majority decision was reached to recommend that beavers be allowed to remain and naturally colonise the River Otter catchment. One organisation, the NFU, was unable to support the recommendation. There were no fisheries specific representatives at the meeting where this was discussed, however their views have been received and incorporated into this letter. Defra representatives abstained from voting for obvious reasons.

The Steering Group also considered natural colonisation of neighbouring catchments. The group recognises that natural spread is inevitable. A clear majority of the Steering Group felt that beavers should be allowed to colonise neighbouring catchments, but once again stressed that having comprehensive local management strategies in place was essential.

The Steering Group agreed that the Trial has demonstrated how beavers and people can co-exist in a managed and productive landscape; and that the Trial has successfully managed potential conflicts through comprehensive engagement, education, and advice programmes. This has enabled the mitigation hierarchy presented in the BMSF to be tested and trialled.

The presence of beavers has reinvigorated natural processes, which have reduced the impact downstream of diffuse pollution and flood risk. In the course of the five-year Trial there have been a few cases of negative impacts to productive farmland, but these have been

very limited in number and scale. Direct intervention by project staff has resolved all of these to the satisfaction of landowners concerned. These interventions are detailed in the Final Report.

If it is decided by Defra that beavers can remain on the River Otter, the Steering Group believe that the approach set out in the BMSF would give the species the best chance of being widely accepted by ensuring the right balance is struck between the needs of landowning communities and the provision of the wide range of natural capital improvements from which society can benefit.

For the BMSF approach to work, we would stress the importance of the following: -

- ***A clear decision is made as close as possible to the end of the Trial as to whether the beavers can remain.***

The long period of uncertainty in Scotland led to problems for landowners and for the beavers. It will be important to avoid this being repeated in Devon, and to build on the trust and goodwill that has been developed to date on the river Otter.

- ***A clear and timely decision is made regarding the legal status of beavers, in advance of the end of the Trial in March 2020.***

The future management regime proposed for the River Otter will be influenced by the legal status of beavers in England and associated licencing provisions. It is vital that the Local Management Group, who we are proposing will have responsibility for delivering the BMSF, are able to prepare properly for a post-trial environment in the clear knowledge of their legal status. Whatever legal protection is afforded to the beavers this should be supported by a flexible licencing system that takes account of their unique role as a keystone species.

- ***Adequate resources are provided to implement this Beaver Management Strategy Framework for the River Otter and potentially at the national scale in England.***

It is essential that the requests for advice and support from landowners and other river users are rapidly and pragmatically handled if the goodwill built up through the Trial is to be maintained. This support should also include the ability to reward landowners who make space for water on their land and as a result maximise the natural capital benefits for wider society. The Steering Group believes that government has a very important role to play in funding this.